Focusing for the Future

Trane Technologies   2019 Annual and ESG Report

TRANE TECHNOLOGIES

Focusing for the Future

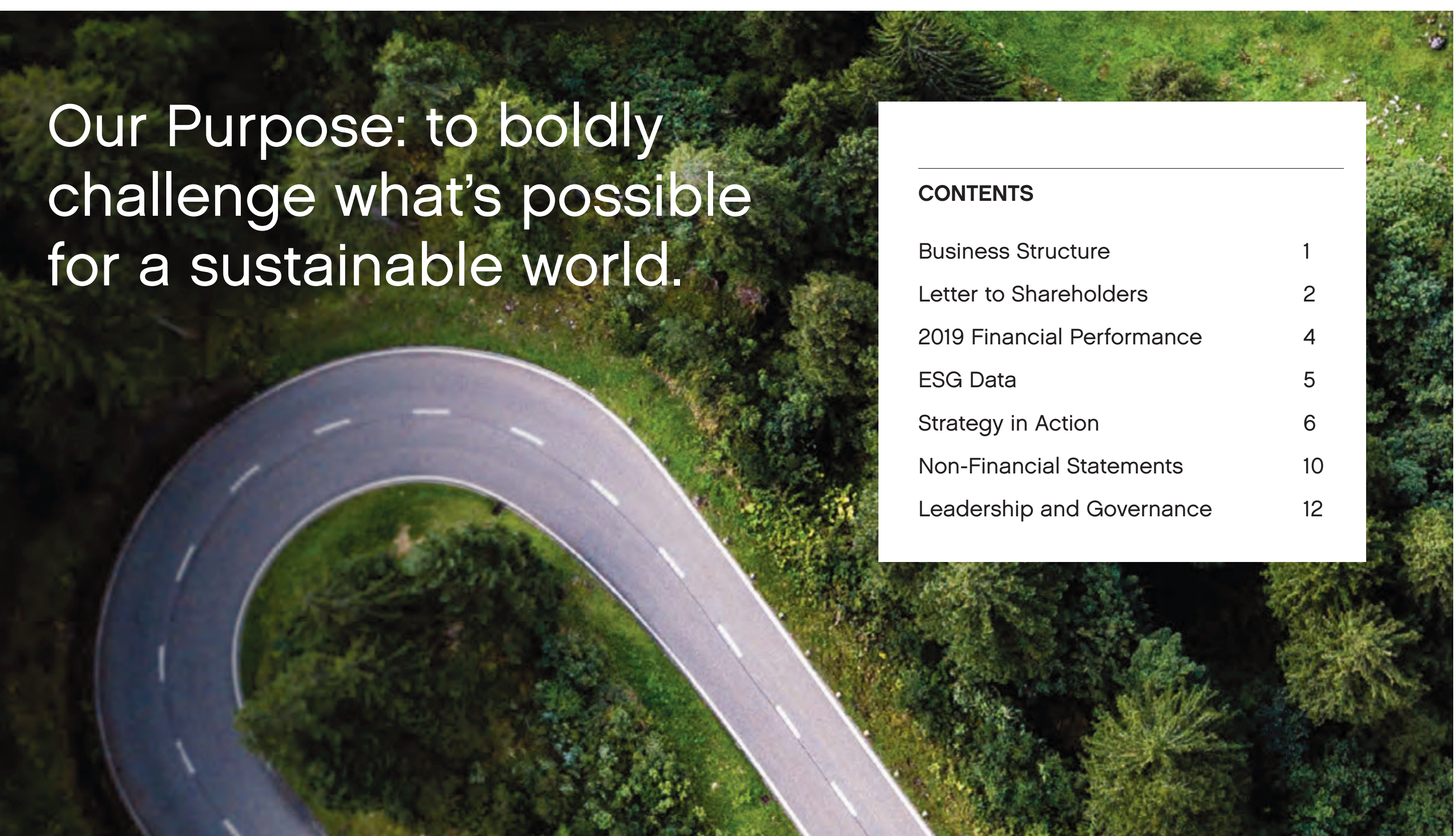
At Trane Technologies, we look ahead, pushing what's possible for our customers, our business and the world. We innovate to create opportunities, overcome climate challenges and as the past decade has shown—boldly make the connection between sustainability and business results.

This report shares the results of our Climate and Industrial segments known in 2019 as "Ingersoll-Rand plc." On February 29, 2020, Ingersoll Rand and Gardner Denver completed a transaction whereby Ingersoll Rand separated its Industrial segment and combined with Gardner Denver, creating a global industrial leader in mission critical flow creation and industrial technologies, which was renamed Ingersoll Rand Inc. The remaining HVAC and transport refrigeration businesses of our company were renamed Trane Technologies plc.

As a pure-play global climate innovation company, Trane Technologies is uniquely positioned to focus on the future, solving big sustainability challenges while bringing heating, cooling and refrigerated foods and perishables to people around the world.

While we take on a new company brand, our foundation remains unchanged. Sustainability continues to fuel our passion for exceeding customer expectations. Our unique combination of principled leadership, ethical business practices and a high-engagement culture are forging a sustainable world for all of our stakeholders.

Yes, we're focusing for the future.



Our Purpose: to boldly challenge what's possible for a sustainable world.

CONTENTS

Business Structure	1
Letter to Shareholders	2
2019 Financial Performance	4
ESG Data	5
Strategy in Action	6
Non-Financial Statements	10
Leadership and Governance	12

Trane Technologies completed a Reverse Morris Trust Transaction on February 29, 2020. The Industrial segment of the former Ingersoll-Rand plc separated and combined with Gardner Denver and was renamed Ingersoll Rand Inc. The Climate business now operates as Trane Technologies plc and began trading on the New York Stock Exchange under the new ticker symbol "TT."

Trane Technologies plc (NYSE: TT)

Global climate
innovator

Efficient and sustainable climate solutions
for buildings, homes and transportation

Chairman and CEO
Michael W. Lamach

Franchise brands and businesses
with market-leading positions

Ingersoll Rand Inc. (NYSE: IR)

Global leader in mission-critical flow
creation and industrial technologies

Combined 300+ year history of operational
excellence, innovation and quality

Chairman
Peter Stavros

CEO
Vicente Reynal

Industry-leading portfolio
of iconic brands

Strategy for Creating Long-Term Value

GROWTH EXCELLENCE

We use customer insights and analytics to make strategic choices about the businesses and markets where we invest, and on the development of innovative, energy-efficient and reliable products and services for our customers.

OPERATIONAL EXCELLENCE

We pursue continuous process improvement that drives growth, creates value, fosters employee engagement, and enhances reliability, quality and the customer experience.

WINNING CULTURE

We engage our people and develop a workforce with diverse backgrounds and skills to foster an environment of innovation and integrity that leads to better solutions for our customers and for society.

Dear Shareholder,

As I write this letter, the world is managing the widespread effects of COVID-19. The situation continues to evolve at a rapid pace, and we are working hard to safeguard the health of our people, while meeting the critical needs of hospitals, data centers, grocery stores, military bases, food and pharmaceutical distribution and other essential customer operations that are under great strain.

Each day, our team challenges what's possible—innovating in support of a sustainable world. Our strategy is at the intersection of sustainability megatrends and our advanced HVAC and transport technologies. Today, 15% of the world's carbon emissions come from heating and cooling buildings, and nearly another 10% comes from global food loss—and these numbers are growing. We are directly addressing emissions at the source, by developing new and better ways to heat and cool homes and buildings, and to transport food and medicine. These solutions are enabling precise temperature control in critical environments and ensuring that vital products are transported safely.

2030 SUSTAINABILITY COMMITMENTS

Our bold 2030 Sustainability Commitments are central to our business strategy, create a positive impact in society and enable premier financial performance.

The Gigaton Challenge: Reducing customers' carbon emissions by one gigaton by the year 2030.

Leading by Example: Committing to carbon-neutral operations and zero waste to landfills by 2030, and pledging to give back more water than used in water-stressed areas.

Opportunity for All: Creating opportunity for all in our workplace, with goals to achieve gender parity in leadership and workforce diversity that reflects the communities we serve; and opportunity in our communities, through investments in education and workforce development, housing and cooling comfort, healthy food and wellness.

Premier Performance

In 2019, our sustainability-focused strategy led to innovative solutions for customers, above-market results for shareholders and better environmental outcomes for the world. Our proven business operating system enabled us to navigate global uncertainties, deliver strong earnings per share growth and generate powerful cash flow.

We exceeded the financial goals we set at the beginning of 2019 through strong execution of our business model in sustainability-focused, growing end markets. Adjusted continuing earnings per share* grew 14%, organic revenue* grew 6% to a record $16.6 billion, and adjusted operating income margins* expanded by 70 basis points, delivering exceptional free cash flow* of $1.8 billion, or 118% of adjusted net earnings*. We executed our dynamic capital allocation strategy, including maintaining a high level of business reinvestment, deploying $1.5 billion to value-accretive M&A, and funding $510 million in dividends and $750 million in share repurchases as the shares continued to trade below our calculated intrinsic value.

We achieved our 2020 Climate Commitment ahead of schedule, reducing carbon emissions from our products by more than 50%, and emissions from our own operations by more than 35%.

* These are non-GAAP financial measures. Reconciliation of non-GAAP financial measures can be found preceding the 2020 Notice and Proxy Statement.

Strategic Innovation

Since announcing our 2020 Sustainability Commitments in 2014, we have invested more than $500 million in research and development focused on innovative climate change solutions. In 2019, we introduced nearly 90 new products and enhanced our portfolio through strategic acquisitions.

Our EcoWise™ portfolio expanded with new high-efficiency chillers, designed to reduce building emissions with low global warming potential refrigerants. Through our acquisition of Arctic Chiller, we added new air- and water-cooled chillers that reduce energy and operational costs. Our new connected building services enhance energy efficiency and performance through a building's life cycle.

Our transport refrigeration portfolio offers a broad range of zero- and low-emission solutions including a new all-electric unit equipped with ThermoLite solar panels. Paired with our telematics, we provide transport customers with real-time visibility to temperature-sensitive cargo and equipment while on the road.

Winning Culture

Our experienced leadership team, talented people and high-performance culture enable us to push the boundaries of what's possible. In 2019, we maintained world-class employee engagement in the midst of a rapidly changing environment.

We also continued to enhance our focus on diversity and inclusion. Our Black Employee Network, now in its seventh year, was central to the launch of the Black Leader Forum. As the first company in our industry to join Paradigm for Parity,® we are proud that through seven years of our signature Women's Leadership Program, we have retained 83% of its graduates and promoted nearly one-third.

Focusing for the Future

Now, we're focusing for the future. With the separation of our Industrial segment, our portfolio is fully focused on climate innovation. As a world leader in climate solutions, we are creating a more focused organizational model, more focused investments and aligning around one central purpose: to boldly challenge what's possible for a sustainable world.

Our new 2030 Sustainability Commitments include a pledge to reduce our customers' carbon emissions by one gigaton (2% of the world's annual emissions) and to bring our own operations to carbon neutral. These commitments extend to our communities, where we are investing in education and workforce development, housing and comfort, and food and wellness. Our actions are predicated on a strong belief that one company can change an industry, and one industry can change the world.

With our focused strategy, we will rise to meet the immediate challenges ahead and create long-term value for our people, customers, shareholders and communities.

Thank you for joining us in our quest for a better future. Please stay safe.

Michael W. Lamach Chairman and CEO

2019 Financial Performance

14%
Adjusted Continuing EPS Growth*

6%
Organic Revenue Growth*

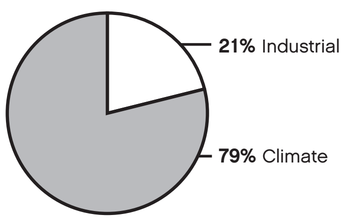
70 bps
Adjusted Operating Income Margin Expansion*

107%
5-Year Average Free Cash Flow Conversion*

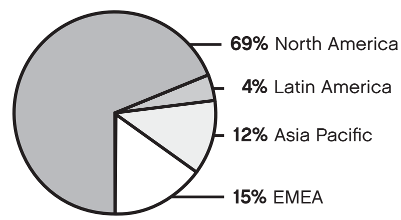
DYNAMIC CAPITAL DEPLOYMENT

$510 M	$750 M	$1.5 B	$254 M
DIVIDENDS	SHARE REPURCHASES	ACQUISITIONS	CAPEX

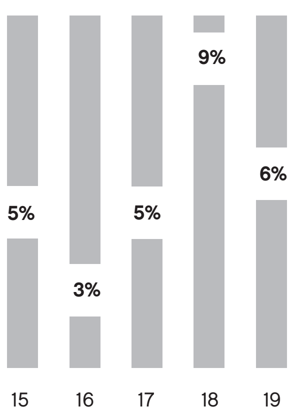
2019 REVENUE
BY SEGMENT



2019 REVENUE
BY GEOGRAPHY

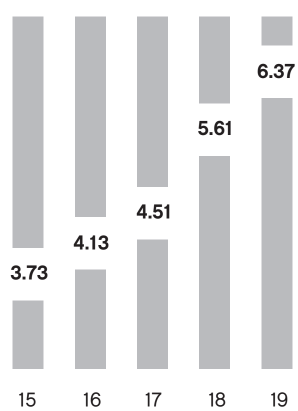


ORGANIC REVENUE GROWTH*



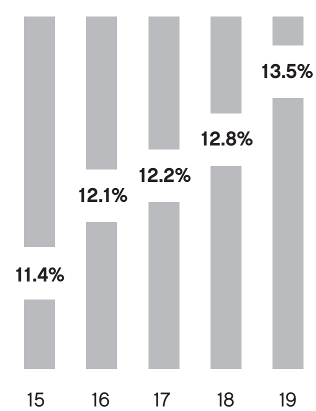
ADJUSTED CONTINUING EARNINGS PER SHARE*

CAGR: 14.3%



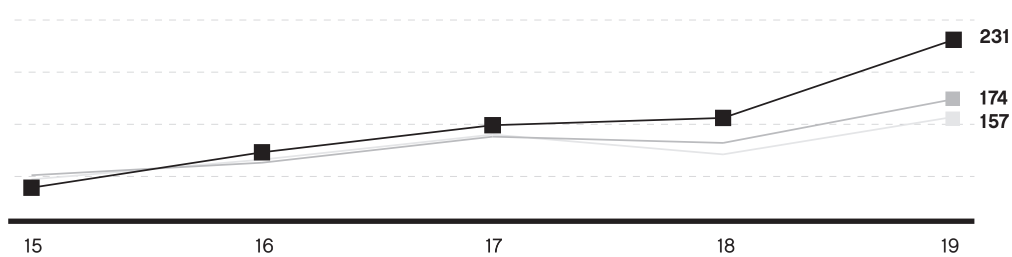
ADJUSTED OPERATING INCOME MARGIN EXPANSION*

2.1 PTS OF MARGIN EXPANSION



SHAREHOLDER RETURNS

Trane Technologies
(formerly Ingersoll Rand)
S&P 500
S&P Industrials



*These are non-GAAP financial measures. Reconciliation of non-GAAP financial measures can be found preceding the 2020 Notice and Proxy Statement.

Environmental, Social and Governance

These highlights reflect the environmental, social and governance (ESG) practices that have helped us successfully embed sustainability throughout our business. Sustainability is foundational to our strategy, the products and services we develop and the way we operate as a company. We are exceptionally proud of the global recognition of our ESG performance over the past decade and the long-term value we are creating for our stakeholders.

ENVIRONMENTAL

50% reduction in emissions intensity associated with our operations since the 2013 baseline

Invested more than **$500 million** in product-related research to fund the long-term reduction of greenhouse gas emissions over the past six years

Avoided more than **20 million** metric tons of CO_2e from our products since the 2013 baseline

27% total energy efficiency increase since 2013 baseline

SOCIAL

WOMEN IN THE WORKFORCE

24.3% of employees globally

23.1% of leadership positions

$311 million global spend with women-owned businesses, a 23% increase over prior year

31,682 hours volunteered by our employees, equivalent to $805,673

96.1% of top, diverse talent and leadership retained

97% of employees have development plans in place

GOVERNANCE

Board Diversity: 4 of 12 directors or **33%** are women

Board-level oversight of sustainability with reviews quarterly

SUSTAINABILITY GOVERNANCE

Our Center for Energy Efficiency and Sustainability (CEES) provides guidance and best practices for the integration of sustainability into our business.

Our Sustainability Strategy Council includes company executives who define and lead our sustainability efforts.

Our external Advisory Council on Sustainability offers expertise on sustainability, infrastructure development, energy policy and technology to help us understand critical issues and apply that learning to our strategy.

FOR THE SECOND YEAR WE HAVE REPORTED TO THE SUSTAINABILITY ACCOUNTING STANDARDS BOARD (SASB) AND TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TFCD) REPORTING FRAMEWORKS.

We are using the SASB standards for the Electrical & Electronic Equipment and Industrial Machinery & Goods industries. We support the TFCD's recommendations to improve disclosure of climate-related risks and opportunities. Read about our climate governance, strategy, risk management, metrics and targets in our 2019 ESG Report.

HIGHLY REGARDED ESG PERFORMANCE

Member of Dow Jones Sustainability Indices (In Collaboration with RobecoSAM)	FTSE4Good	Fortune World's Most Admired Companies 2020	Forbes 2020 The Best Employers for Diversity
9th Consecutive Year	5th Consecutive Year	7th Consecutive Year	2nd Consecutive Year

Strategy in Action

CUSTOMER-DRIVEN SOLUTIONS

~40bps
of revenue per year in incremental customer-driven investments (for the past 5 years)

OPERATIONS AND SUPPLY CHAIN

31%
reduction in non-hazardous waste to landfill since 2013, achieving our 2020 target of 30%

PEOPLE AND CITIZENSHIP

$8.4M
in philanthropic giving

Developing Innovative, Customer-Driven Solutions

As the world becomes warmer and more urbanized, the need to combat climate change is ever more critical. Today 15% of the world's carbon emissions come from heating and cooling buildings and nearly another 10% comes from global food loss. We are continually innovating with products, services and the use of data and analytics to bend the curve on global warming. By 2030, we will reduce our customers' carbon emissions by one gigaton by changing the way the world heats and cools buildings and moves refrigerated food, medicines and other perishables. A gigaton is equivalent to 2% of world's annual emissions.

ICONIC COOL

SL Green Realty partnered with Trane Technologies to keep an iconic building at 11 Madison Avenue, a 30-story office tower in the heart of New York City, cool in the summer, while saving energy and reducing greenhouse gas emissions. The secret? Ice.

We were engaged to install energy-efficient centrifugal chillers and thermal energy storage. During peak cooling season, the thermal batteries produce thousands of pounds of ice overnight, while energy costs are low. The ice cools the building during the day, decreasing the carbon footprint, energy consumption and operating costs.

As a result, SL Green has lowered tenant energy costs by 10%, reduced energy and operating costs by more than $730,000 annually and decreased carbon emissions by 1.4 million pounds.

2019
Energy Manager Top Product for Trane Intelligent Services

World Environment Center Annual Gold Medal for International Corporate Achievement in Sustainable Development

THE FOREFRONT OF GREENER AND CLEANER TRANSPORTATION

Imagine a new era, where refrigerated goods can be moved with no noise and no emissions. That new era is today.

Our Thermo King E-200 unit is designed for electric and engine-powered trucks and vans to provide capacity and performance independent of the vehicle's operation. The unit includes a controller that allows the refrigeration unit to adapt the capacity based on the actual need and available power. When fitted with a Thermo King battery, the controller manages different power sources simultaneously to maintain capacity during deliveries or breaks. With TracKing™ telematics, the system can be monitored and analyzed through a computer or mobile device—without taking the vehicle off of the road.

Ensuring Sustainable Operations and Supply Chain Management

How we do things is just as important as what we do. Leading with "how" enables us to achieve our sustainability goals and maximize the benefits. We begin by focusing on systems-level thinking. Next, we work toward solutions that are beyond quarterly priorities. And always, we collaborate with others within our ecosystem to further sustainability objectives.

ACHIEVING CARBON NEUTRALITY IN GALWAY

We design our manufacturing facilities with sustainability as a prerequisite. Less energy consumption is our goal because when we reduce energy, we reduce carbon.

Demonstrating our philosophy that sustainability starts at home, the Thermo King team in Galway, Ireland, developed a plan for carbon-neutral production to manufacture our new A-Series refrigerated trailer product. Using "Design for Manufacture" best practices, our team reduced the energy use from the assembly process by 54%. We also developed a renewable energy plan that included solar power to fuel all electrical needs, renewable fuel such as biodiesel for verification testing, and carbon offsets that together will enable the project to get to carbon neutrality within 12 months of launch.

61%
reduction in emissions intensity from refrigerants in our operations since 2013*

39%
reduction in water use at sites located in water-stressed areas since 2013

*Normalized to revenue

CREATING "AN ENERGY REVOLUTION" IN MONTERREY, MEXICO

We had a bold objective: increase energy efficiency and reduce the greenhouse gas footprint of our Monterrey manufacturing facilities.

We formed an internal energy committee, leveraged a systematic approach and delivered what the team calls "An Energy Revolution." In addition to an internal audit and search for energy reduction opportunities, our team participated in 60 hours of quality standards training and implemented energy-savings measures.

As a result, we reduced our operational greenhouse gas footprint by 35% and saved $400k in annual energy costs. Our highly engaged team submitted more than 500 suggestions to reduce energy, and contributed to the site achieving ISO 50001:2011 and Superior Energy Performance Certifications.

Empowering the Possible Through People and Citizenship

Purpose drives performance. We have established a high-engagement culture in which our associates understand and value the connections that link sustainability with customer needs and our financial results. We practice corporate citizenship through volunteerism; sharing our collective commitment to being progressive, diverse and inclusive; and living our values of integrity, respect, teamwork, innovation and courage.

ADVANCING DIVERSITY AND INCLUSION

Fostering a progressive, diverse and inclusive workplace is foundational to our mission and purpose.

Our signature Women's Leadership Program is an experiential leadership development program launched seven years ago to provide our women leaders with the necessary skills to advance their careers. Participants work on solving business problems and are connected with mentors for shared benefit. Nearly 200 women have graduated from the program since its inception and 83% of participants have been retained.

Additionally, our Women on the Rise program is focused on empowering, connecting and supporting emerging leaders. Our Women's Employee Network is now global, with local chapters in Asia, Europe, Latin America and the United States, and a virtual chapter for remote employees.

83%
of Women's Leadership Program participants remain with the company

36%
of our people globally participated in community or sustainability initiatives

SUSTAINABLE IMPRESSIONS FOR THE FUTURE

For millions of people, access to electricity remains only a dream. We're working to change that by partnering with the non-profit Solar Buddy which makes specially designed solar lights for children to use as they study and walk to and from school. Solar Buddy lighting also means families do not need to rely on fossil fuel or other potentially dangerous sources such as kerosene or candles.

More than 1,000 of our people assembled thousands of solar lights for students in Tanzania, Dominican Republic, India and Africa. Our team was thrilled to introduce these students to an "alternative energy source" which for them, will soon be considered natural and ordinary.

INTRODUCTION

The information below, as well as the policies and related content elsewhere in this report, is intended to help you understand the performance and impact of the entity known as Ingersoll-Rand plc in 2019 now renamed Trane Technologies plc in March 2020 through the environmental, social, human rights and business practices we work to uphold.

The European Union (Disclosure of Non-Financial and Diversity Information by certain large undertakings and groups) Regulations 2017 (S.I. 360/2017) (as amended) (the "2017 Regulations") require us to disclose certain non-financial information in the Directors' Report (the "Irish Directors' Report") accompanying our Irish statutory financial statements. For the purposes of the 2017 Regulations, the sections entitled Description of Business Model, Environmental Matters, Employee Matters, Social Matters, Human Rights, and Anti-Corruption and Anti-Bribery set out below are incorporated by reference into the Irish Directors' Report.

Our integrated 2019 Annual Report and 2019 ESG Report provide additional information that may be relevant to investors in assessing sustainability commitments and achievements but, except as expressly provided above, the integrated 2019 Annual Report and 2019 ESG Report are not incorporated by reference into the Irish Directors' Report. Copies of this 2019 Annual Report and our 2019 ESG Report can be accessed at www.TraneTechnologies.com.

DESCRIPTION OF BUSINESS MODEL

We are a world leader in creating comfortable, sustainable and efficient environments. In 2019, our two business segments, Climate and Industrial, featured strong brands and highly differentiated products within their respective markets. In 2019, we generated revenue and cash primarily through the design, manufacture, sale and service of a diverse portfolio of industrial and commercial products that include well-recognized, premium brand names such as Ingersoll Rand, Trane, Thermo King, American Standard,® ARO,® and Club Car.

To achieve our mission, we continue to focus on growth by increasing our recurring revenue stream from parts, service, controls, used equipment and rentals; and to continuously improve the efficiencies and capabilities of the products and services of our businesses. We also continue to focus on operational excellence strategies as a central theme to improving our earnings and cash flow.

ENVIRONMENTAL MATTERS

Approach Our commitment to sustainability extends to the environmental impacts of our people, operations, and products and services. From the efficiency of our buildings to our progress in managing energy, water and waste, we continue to find ways to reduce our impact on the environment and embed sustainability throughout our businesses. We proactively engage with key external and internal stakeholders to identify the most material sustainability-related matters and metrics for operations strategy as well as public disclosure. We also think about the stakeholder groups most impacted by these material topics through the lens of a value chain assessment that we perform. These commitments are embedded in an Environment, Health and Safety ("EHS") Policy which defines our stakeholders, our roles and responsibilities and our goals and targets with respect to EHS matters and our Business Partner Code of Conduct which requires our business partners to adhere to our standards.

Due diligence processes We have a vital role to play in mitigating global climate change by reducing the environmental impact of our operations, products and services. This responsibility begins by setting specific and measurable climate commitments and working to achieve these goals. In addition, we work to systematically ensure that our suppliers share our values and adhere to our standards of business ethics, health and safety, environmental and social responsibility as specified in our Business Partner Code of Conduct. Suppliers must have an effective environmental policy and conduct their operations in a way that protects the environment. They must also obtain and keep current all required environmental permits and meet all applicable environmental rules, regulations and laws in the countries where they do business.

Policy outcomes / Key Performance Indicators Our global Climate Commitment is the foundation of our efforts to increase energy efficiency and reduce the greenhouse gas emissions related to our operations and products. In 2010, we launched the Center for Energy Efficiency and Sustainability (CEES) to help our customers and our company leverage best practices in sustainability. Within the company, the CEES is a strategic business catalyst that helps us understand the benefits that sustainability can have in growing our company and reducing our own operational footprint, while helping increase the pace of sustainable innovation.

Our energy consumption from fuels and electricity totaled 3,720 billion kilojoules in 2019. Greenhouse gases emitted indirectly through the use of electricity, and directly, through the burning of fuels or emissions of refrigerants, totaled 541,935 metric tons of CO_2e.

- Absolute energy consumption in 2019 – 3,526,339,872,235 Btu (equivalent to 1,033,468 MWh; 3,720 billion kilojoules)
- Absolute Scope 1 and 2 emissions in 2019 – 541,935 metric tons CO_2e in 2019

EMPLOYEE MATTERS

Approach As a global organization that employs approximately 50,000 people, we are committed to building a progressive, diverse and inclusive environment in which people of all backgrounds are treated with equality and respect. We also aim to provide a safe, secure workplace that supports employee well-being and productivity. Investing in our associates and creating a culture where they feel engaged and included is key to unleashing the power of their innovation and creativity, and to delivering the enduring results that create a sustainable world. We formalize these aspirations in our Environment, Health and Safety Policy which addresses employee health and safety among other matters.

We provide annual anti-harassment training to all salaried employees worldwide and we set policies in key employee areas, including our Global Human Rights Policy, our U.S. Equal Employment Opportunity Policy, and our Policy Prohibiting Harassment or Discrimination, which are made available to our employees worldwide.

Due diligence processes To reinforce our commitment to cultivate a diverse and inclusive workplace, we were the first company in our industry to enter the Paradigm for Parity Coalition, a pledge to bring gender parity to our corporate leadership structure by 2030. We also provide anti-harassment training to all salaried employees and make clear policies available to employees worldwide. In addition, creating and sustaining a safety-focused, zero-incident culture is a priority for us. We communicate our safety expectations through quarterly CEO town hall meetings as well as monthly environmental, health and safety meetings at both the facility and service-organization levels.

Policy outcomes / Key Performance Indicators Consistently high annual employee engagement scores demonstrate that we are creating an environment where our people are learning, thriving and expanding their capabilities. We offer a range of learning experiences for managers and employees to expand our culture of inclusion. For example, our Women's Leadership Program helps accelerate career advancement for high-potential women. Our Bridging Connections sessions create an opportunity for employees to speak openly about topics such as race, gender, ethnicity and sexual orientation, and address issues related to unconscious bias. In addition, our growing number of employee resource groups serve as a foundation to discuss these topics at a deeper level and to engage in the learning and training critical to building a stronger company.

- 24.3% of total workforce are women
- 23.1% of leadership positions are held by women
- 93% participation rate in annual employee engagement survey
- World-class employee engagement score

SOCIAL MATTERS

Approach Through a variety of social sustainability initiatives, we seek to engage directly with the communities in which our associates live and work, which helps to create shared value and engage our worldwide team in the mission and purpose of the company. Our commitment to social sustainability is also expressed through our supplier diversity program.

Our most prominent community initiatives include our Glocal (global + local) program. Launched in 2014 by our CEES, Glocal encourages our employees to partner with local nonprofits and community organizations to advance our social sustainability efforts and nurture authentic engagement. We have identified and are taking action regarding specific social and environmental imperatives that create shared value, result in sustained customer and employee loyalty, and improve the communities where we have business operations. These actions include increasing female representation in the fields of science, technology, engineering and math, addressing nutrition and food waste reduction and supporting housing and shelter needs, among others. Our supplier diversity program embraces suppliers whose ownership is primarily minorities, women, veterans, LGBTQ individuals or people with disabilities.

Due diligence processes We track employee and community engagement data including the number of volunteers who participate in community or sustainability initiatives during the year and the number of hours volunteered. We use a 7-step strategic sourcing process that includes a Supplier Diversity Matrix, which enables us to avoid using price as the primary driver for supplier selection.

Policy outcomes / Key Performance Indicators Implementing Glocal and our supplier diversity program has contributed to significant increases in global contributions as measured by the number of associates who have volunteered to participate in community or sustainability initiatives, the total number of hours volunteered and the dollar value of philanthropic giving.

Spending on goods and services purchased from diverse-owned businesses also is up significantly in 2019.

- $532 million in purchased goods and services from diverse-owned businesses
- $8.4 million in philanthropic giving
- 36% of employees globally participated in community or sustainability initiatives

HUMAN RIGHTS

Approach We believe in fundamental standards that support our commitment to our employees, our business partners, our customers and our communities. We have adopted a number of policies which underline our commitment to human rights. Our Global Human Rights Policy aligns with basic working conditions and human rights concepts advanced by international organizations such as the International Labor Organization and the United Nations. Our Modern Slavery and Human Trafficking Statement outlines our commitment to taking steps to ensure that human trafficking and forced labor is not taking place in our supply chain or business. Our Business Partner Code of Conduct (BPCoC) prohibits human trafficking, including forced or child labor.

Due diligence processes We engage in reasonable due diligence and screening of customers and distributors to ensure compliance with laws that regulate international trade. We screen 100% of new suppliers on human rights and labor practices. In 2019, we formalized our process for onsite assessments of our supplier ESG practices, including human rights. We also established a Global Procurement Sustainability Council to work with suppliers on improving conditions and addressing non-compliances.

Policy outcomes Our Global Human Rights Policy is communicated to employees through our Code of Conduct training. As part of our annual compliance training, we have implemented a full training course dedicated to anti-human trafficking. Salaried employees in roles such as Legal, Human Resources and Global Integrated Supply Chain are assigned courses based on function and associated risks.

ANTI-CORRUPTION AND ANTI-BRIBERY

Approach We are proud of our strong business ethics and sustainable business practices, and our values centered in integrity, respect, teamwork, innovation and courage. Our values, ethics and commitment to sustainability are core to how we operate and serve customers.

Our Business Partner Code of Conduct applies to all entities doing business with us and communicates our expectations that our business partners will practice the highest legal, moral and ethical standards when conducting our affairs. This Code holds our business partners to the same high standards to which we hold ourselves.

Due diligence processes Business partners and service providers are risk-rated and vetted with higher risk third parties undergoing enhanced compliance due diligence. We leverage the services of a third-party vendor to conduct compliance screenings from thousands of global public records databases.

Policy outcomes Salaried employees receive role-based, online compliance training every year. Employees receive specific training on anti-corruption on a cycle determined by the risk rating of their role. Previous roles assigned to anti-corruption training were Business Strategy; Customer Service; Finance; General Management; Global Integrated Supply Chain; Human Resources; Legal; Marketing; and Sales. In 2019, employees in services roles received anti-corruption training.

BOARD OF DIRECTORS

Kirk E. Arnold
Former Chief Executive Officer, Data Intensity

Ann C. Berzin
Former Chairman and Chief Executive Officer, Financial Guaranty Insurance Company

John Bruton
Former EU Commission Head of Delegation to the United States and Former Prime Minister of Ireland

Jared L. Cohon, Ph.D.
President Emeritus of Carnegie Mellon University

Gary D. Forsee
Retired Chairman and Chief Executive Officer, Sprint Nextel Corporation and Former President of the University of Missouri System

Linda P. Hudson
Former Chairman and CEO of The Cardea Group and Former President and CEO of BAE Systems, Inc.

Michael W. Lamach
Chairman and Chief Executive Officer of Trane Technologies

Myles P. Lee
Former Chief Executive Officer and Executive Director of CRH plc

Karen B. Peetz
Former President, BNY Mellon

John P. Surma
Retired Chairman and Chief Executive Officer, United States Steel Corporation

Richard J. Swift
Retired Chairman, President and Chief Executive Officer, Foster Wheeler Ltd. and Former Chairman of Financial Accounting Standards Advisory Council

Tony L. White
Retired Chairman, President and Chief Executive Officer, Applied Biosystems Inc.

ENTERPRISE LEADERSHIP TEAM

Michael W. Lamach
Chairman and Chief Executive Officer

Marcia J. Avedon, Ph.D.
Executive Vice President and Chief Human Resources, Marketing and Communications Officer

Jason E. Bingham
President, Residential HVAC and Supply

Paul A. Camuti
Executive Vice President and Chief Technology and Strategy Officer

Karin De Bondt
President, Thermo King, Americas

Allen W. Ge
President, Asia Pacific HVAC and Thermo King

M. Stephen Hagood
Senior Vice President and Chief Information Officer

Francesco Incalza
President, Thermo King Europe, Middle East and Africa (EMEA)

Christopher J. Kuehn
Senior Vice President and Chief Financial Officer

Jose La Loggia
President, Commercial HVAC Europe, Middle East and Africa (EMEA)

Randal Newton
Vice President, Engineering

Raymond D. Pittard
Transformation Office Leader

David S. Regnery
President and Chief Operating Officer

Donald E. Simmons
President, Commercial HVAC Americas

Keith A. Sultana
Senior Vice President, Supply Chain and Operational Services

Evan M. Turtz
Senior Vice President and General Counsel

OTHER SENIOR LEADERS

Richard E. Daudelin
Vice President, Treasury

Heather R. Howlett
Vice President and Chief Accounting Officer

Lawrence R. Kurland
Vice President, Tax

Zachary A. Nagle
Vice President, Investor Relations

***Non-GAAP measures definitions**

Organic bookings is defined as reported orders closed/completed in the current period adjusted for the impact of currency and acquisitions.

Organic revenue is defined as GAAP net revenues adjusted for the impact of currency and acquisitions. Currency impacts on net revenues and bookings are measured by applying the prior year's foreign currency exchange rates to the current period's net revenues and bookings reported in local currency. This measure allows for a direct comparison of operating results excluding the year-over-year impact of foreign currency translation.

Adjusted operating income in 2019 is defined as GAAP operating income plus restructuring costs, PFS acquisition-related transaction costs, PFS inventory step-up and backlog amortization and Industrial Segment separation-related costs. Adjusted operating income in 2018 is defined as GAAP operating income plus restructuring costs.

Adjusted operating income margin is defined as the ratio of adjusted operating income divided by net revenues

Adjusted earnings from continuing operations attributable to Ingersoll Rand plc (Adjusted net earnings) in 2019 is defined as GAAP earnings from continuing operations attributable to Ingersoll Rand plc plus restructuring costs, PFS acquisition-related transaction costs, PFS inventory step-up and backlog amortization, Industrial Segment separation-related costs and Industrial Segment separation activities resulting in foreign exchange losses, net of tax impacts. In 2018 Adjusted earnings from continuing operations attributable to Ingersoll-Rand plc is defined as earnings from continuing operations attributable to Ingersoll-Rand plc plus restructuring costs, net of tax impacts, plus tax reform non-cash measurement period adjustments less a discrete non-cash tax adjustment in the U.S.

Adjusted continuing EPS in 2019 is defined as GAAP continuing EPS plus restructuring costs, PFS acquisition-related transaction costs, PFS inventory step-up and backlog amortization, Industrial Segment separation-related costs and Industrial Segment separation activities resulting in foreign exchange losses, net of tax impacts. In 2018 Adjusted continuing EPS is defined as GAAP continuing EPS plus restructuring costs, net of tax impacts, plus tax reform non-cash measurement period adjustments less a discrete non-cash tax adjustment in the U.S.

Free cash flow in 2019 is defined as net cash provided by continuing operating activities, less capital expenditures, plus cash payments for PFS acquisition-related transaction costs, Industrial Segment separation-related costs and restructuring. Free cash flow in 2018 is defined as net cash provided by continuing operating activities, less capital expenditures plus cash payments for restructuring. In 2018, the Company updated its definition of free cash flow to exclude the impacts of discontinued operations.

Please refer to the reconciliation tables included in our historical press releases and other information available on our website for additional information relating to historical non-GAAP measures.

RECONCILIATION OF GAAP TO NON-GAAP

ADJUSTED OPERATING INCOME

($ IN MILLIONS)
UNAUDITED

	FOR THE YEAR ENDED DECEMBER 31, 2019		FOR THE YEAR ENDED DECEMBER 31, 2018	
	AS REPORTED	MARGIN	AS REPORTED	MARGIN
Total Company				
Net revenues	$ 16,598.9		$ 15,668.2	
Operating Income	$ 2,017.6	12.2%	$ 1,917.4	12.2%
Restructuring/Other	216.0	1.3%	93.4	0.6%
Adjusted Operating Income	$ 2,233.6	13.5%	$ 2,010.8	12.8%

FREE CASH FLOW

($ IN MILLIONS)
UNAUDITED

	YEAR ENDED DECEMBER 31, 2019	YEAR ENDED DECEMBER 31, 2018
Cash flow provided by continuing operating activities	$ 1,956.3	$ 1,474.5
Capital expenditures	(254.1)	(365.6)
Cash payments for PFS acquisition-related transaction costs	12.6	—
Cash payments for Industrial Segment separation-related costs	39.2	—
Cash payments for restructuring	84.7	39.8
Free cash flow	$ 1,838.7	$ 1,148.7
Adjusted earnings from continuing operations attributable to Ingersoll-Rand plc	$ 1,557.7	$ 1,403.1
Free cash flow as a percent of adjusted net earnings	118%	82%

RECONCILIATION OF GAAP TO NON-GAAP

($ IN MILLIONS, EXCEPT PER SHARE AMOUNTS)	FOR THE YEAR ENDED DECEMBER 31, 2019			FOR THE YEAR ENDED DECEMBER 31, 2018		
	AS REPORTED	ADJUSTMENTS	AS ADJUSTED	AS REPORTED	ADJUSTMENTS	AS ADJUSTED
Net revenues	$ 16,598.9	$ —	$ 16,598.9	$ 15,668.2	$ —	$ 15,668.2
Operating income	2,017.6	216.0[a]	2,233.6	1,917.4	93.4[a]	2,010.8
Operating margin	12.2%		13.5%	12.2%		12.8%
Earnings from continuing operations before income taxes	1,741.6	217.9[a]	1,959.5	1,660.3	110.0[a,b]	1,770.3
Provision for income taxes	(353.7)	(30.5)[c]	(384.2)	(281.3)	(66.0)[c,d,e]	(347.3)
Tax rate	20.3%		19.6%	16.9%		19.6%
Earnings from continuing operations attributable to Ingersoll-Rand plc	$ 1,370.3	$ 187.4[f]	$ 1,557.7	$ 1,359.1	$ 44.0[f]	$ 1,403.1
Diluted earnings per common share continuing operations	$ 5.61	$ 0.76	$ 6.37	$ 5.43	$ 0.18	$ 5.61
Weighted-average number of common shares outstanding diluted	244.4	—	244.4	250.1	—	250.1
Detail of Adjustments:						
(a) Restructuring / other						
* Restructuring costs (COGS & SG&A)		$ 90.1			$ 93.4	
* PFS acquisition-related transaction costs (SG&A)		12.9			—	
* PFS inventory step-up and backlog amortization (COGS &SG&A)		18.4			—	
* Industrial Segment separation-related costs (SG&A)		94.6			—	
* Industrial Segment separation activities resulting in foreign exchange losses		1.9			—	

($ IN MILLIONS, EXCEPT PER SHARE AMOUNTS)	FOR THE YEAR ENDED DECEMBER 31, 2019			FOR THE YEAR ENDED DECEMBER 31, 2018		
	AS REPORTED	ADJUSTMENTS	AS ADJUSTED	AS REPORTED	ADJUSTMENTS	AS ADJUSTED
(b) Debt redemption premium and related charges		—			16.6	
(c) Tax impact of adjustments (a,b)		(30.5)			(22.0)	
(d) Tax reform non-cash measurement period adjustments		—			(9.0)	
(e) U.S. discrete non-cash tax adjustment		—			(35.0)	
(f) Impact of adjustments on earnings from continuing operations attributable to Ingersoll-Rand plc		$ 187.4			$ 44.0	
Total impact of adjustments on cost of goods sold		80.1			72.3	
Total impact of adjustments on selling & administrative expenses		135.9			21.1	
Total impact of adjustments on operating income		$ 216.0			$ 93.4	

The Company reports its financial results in accordance with generally accepted accounting principles in the United States (GAAP).

This supplemental schedule provides non-GAAP financial information and a quantitative reconciliation of the difference between the non-GAAP financial measures and the financial measures calculated and reported in accordance with GAAP.

The non-GAAP financial measures should be considered supplemental to, not a substitute for or superior to, financial measures calculated in accordance with GAAP. They have limitations in that they do not reflect all of the costs associated with the operations of our businesses as determined in accordance with GAAP. In addition, these measures may not be comparable to non-GAAP financial measures reported by other companies.

As a result, one should not consider these measures in isolation or as a substitute for our results reported under GAAP. We compensate for these limitations by analyzing results on a GAAP basis as well as a non-GAAP basis, prominently disclosing GAAP results and providing reconciliations from GAAP results to non-GAAP results.

This page intentionally left blank.

2020 Notice and Proxy Statement

TRANE TECHNOLOGIES™

Important Notice

Measures to minimize any risk of Coronavirus (COVID-19) transmission at the Annual General Meeting to be held on Thursday, June 4, 2020 at 8:00 a.m. local time

The well-being of attendees, employees and service providers at the upcoming Annual General Meeting is a primary concern for the directors of Trane Technologies plc and in this context we are closely monitoring developments in relation to the Coronavirus (COVID-19).

Trane Technologies will take into account the latest available guidance from the Government of Ireland, the Department of Health (of Ireland) and other local health guidance, particularly in relation to indoor public gatherings, and this may lead to the Annual General Meeting proceeding on Thursday, June 4, 2020 under very constrained circumstances. For example, due to travel restrictions, the Directors may participate by telephone instead of attending in person, there may be significantly reduced attendance by company personnel and the meeting will be conducted as efficiently as possible.

In light of any COVID-19 measures that may be in place in Ireland and the United States, we strongly encourage all shareholders not to attend the Annual General Meeting in person and instead to submit proxy forms to ensure they can vote and be represented at the Annual General Meeting without attending in person. This can be done in advance of the Annual General Meeting by availing of one of the following options by 11:59 p.m. Eastern Time on June 3, 2020:

1. using the Internet and voting at www.proxyvote.com;
2. calling 1-800-690-6903 and following the telephone prompts; or
3. completing, signing and returning a proxy card by mail. If you received a Notice and did not receive a proxy card, you may request one at sendmaterial@proxyvote.com.

In the event that it is not possible to convene and hold the Annual General Meeting either in compliance with applicable public health guidelines or requirements, applicable law or where it is otherwise considered that proceeding with the Annual General Meeting as planned poses an unacceptable risk to health and safety, the Annual General Meeting may be adjourned or postponed to a different time and/or venue, in which case notification of such adjournment or postponement will be given in accordance with the Company's constitution, or other measures may be taken in the interests of minimising the risks to attendees, employees and service providers who would otherwise attend or participate in the Annual General Meeting.

Trane Technologies plc will continue to monitor the impact of the Coronavirus (COVID-19) and any relevant updates regarding the Annual General Meeting will be available at www.tranetechnologies.com. Shareholders are also encouraged to keep up-to-date with, and follow, the guidance from the Government of Ireland and the Department of Health (of Ireland) and other local health departments as circumstances may change at short notice.

Trane Technologies plc
Registered in Ireland No. 469272

U.S. Mailing Address:
800-E Beaty Street
Davidson, NC 28036
(704) 655-4000

Registered Office:
170/175 Lakeview Dr.
Airside Business Park
Swords, Co. Dublin
Ireland

Notice of 2020 Annual General Meeting of Shareholders

DATE AND TIME

Thursday, June 4, 2020, at 8:00 a.m., local time

LOCATION

Trane Technologies plc
800-C Beaty Street
Davidson, NC 28036

Shareholders in Ireland may participate in the Annual General Meeting remotely on June 4, 2020 at 1:00 p.m. (Dublin time) telephonically at the Arthur Cox Building, Ten Earlsfort Terrace, Dublin 2, D02 T380, Ireland. See "Information Concerning Voting and Solicitation" of the proxy statement for further information on participating in the Annual General Meeting.

PROPOSALS TO BE VOTED

1. To elect 12 directors for a period of 1 year.
2. To give advisory approval of the compensation of the Company's Named Executive Officers.
3. To approve the appointment of PricewaterhouseCoopers LLP as independent auditors of the Company and authorize the Audit Committee of the Board of Directors to set the auditors' remuneration.
4. To renew the existing authority of the directors of the Company to issue shares.
5. To renew the existing authority of the directors of the Company to issue shares for cash without first offering shares to existing shareholders. (Special Resolution)
6. To determine the price range at which the Company can re-allot shares that it holds as treasury shares. (Special Resolution)
7. To conduct such other business properly brought before the meeting.

RECORD DATE

Only shareholders of record as of the close of business on April 8, 2020, are entitled to receive notice of and to vote at the Annual General Meeting.

By Order of the Board of Directors,

Evan M. Turtz

EVAN M. TURTZ
Senior Vice President and General Counsel

HOW TO VOTE

Whether or not you plan to attend the meeting, please provide your proxy by either using the Internet or telephone as further explained in the accompanying proxy statement or filling in, signing, dating, and promptly mailing a proxy card.

BY TELEPHONE

In the U.S. or Canada, you can vote your shares by submitting your proxy toll-free by calling 1-800-690-6903.

BY INTERNET

You can vote your shares online at www.proxyvote.com.

BY MAIL

You can vote by mail by marking, dating, and signing your proxy card or voting instruction form and returning it in the postage-paid envelope.

ATTENDING THE MEETING

If you are a shareholder who is entitled to attend and vote, then you are entitled to appoint a proxy or proxies to attend and vote on your behalf. A proxy is not required to be a shareholder in the Company. If you wish to appoint as proxy any person other than the individuals specified on the proxy card, please contact the Company Secretary at our registered office.

Important Notice regarding the availability of proxy materials for the Annual General Meeting of Shareholders to be held on June 4, 2020.

The Annual Report and Proxy Statement are available at www.proxyvote.com.

The Notice of Internet Availability of Proxy Materials or this Notice of 2020 Annual General Meeting of Shareholders, the Proxy Statement and the Annual Report are first being mailed to shareholders on or about April 24, 2020.

Table of Contents

PROXY STATEMENT HIGHLIGHTS	**4**
OVERVIEW OF PROPOSALS TO BE VOTED	**5**
PROPOSALS REQUIRING YOUR VOTE	**11**
ITEM 1. Election of Directors	11
ITEM 2. Advisory Approval of the Compensation of Our Named Executive Officers	16
ITEM 3. Approval of Appointment of Independent Auditors	16
Audit Committee Report	17
Fees of the Independent Auditors	18
ITEM 4. Renewal of the Directors' existing authority to issue shares	19
ITEM 5. Renewal of the Directors' existing authority to issue shares for cash without first offering shares to existing shareholders	20
ITEM 6. Determine the price at which the Company can re-allot shares held as treasury shares	21
CORPORATE GOVERNANCE	**22**
Corporate Governance Guidelines	22
Role of the Board of Directors	22
Board Responsibilities	22
Board Leadership Structure	22
Board Risk Oversight	23
Director Compensation and Share Ownership	24
Board Committees	24
Board Diversity	24
Board Advisors	24
Executive Sessions	25
Board and Board Committee Performance Evaluation	25
Director Orientation and Education	25
Director Nomination Process	25
Director Retirement	25
Director Independence	26
Communications with Directors	26
Management Succession Planning	26
Code of Conduct	26
Anti-Hedging Policy and Other Restrictions	27
Investor Outreach	27
Sustainability	27
Committees of the Board and Attendance	28
Compensation Committee Interlocks and Insider Participation	30

COMPENSATION OF DIRECTORS	**31**
COMPENSATION DISCUSSION AND ANALYSIS	**34**
COMPENSATION COMMITTEE REPORT	**51**
SUMMARY OF REALIZED COMPENSATION	**52**
EXECUTIVE COMPENSATION	**53**
Summary Compensation Table	53
2019 Grants of Plan-Based Awards	55
Outstanding Equity Awards at December 31, 2019	57
2019 Option Exercises and Stock Vested	58
2019 Pension Benefits	58
2019 Nonqualified Deferred Compensation	60
Post-Employment Benefits	61
2019 Post-Employment Benefits Table	65
CEO Pay Ratio	67
Equity Compensation Plan Information	68
INFORMATION CONCERNING VOTING AND SOLICITATION	**69**
Why Did I Receive this Proxy Statement?	69
Why are There Two Sets of Financial Statements Covering the Same Fiscal Period?	69
How Do I Attend the Annual General Meeting?	69
Who May Vote?	70
How Do I Vote?	70
How May Employees Vote Under Our Employee Plans?	71
May I Revoke My Proxy?	71
How Will My Proxy Get Voted?	71
What Constitutes a Quorum?	72
What Vote is Required to Approve Each Proposal?	72
Who Pays the Expenses of this Proxy Statement?	72
How Will Voting on Any Other Matter be Conducted?	72
SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT	**73**
CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS	**74**
DELINQUENT SECTION 16(a) REPORTS	**74**
SHAREHOLDER PROPOSALS AND NOMINATIONS	**75**
HOUSEHOLDING	**76**

Proxy Statement Highlights

This summary highlights information contained elsewhere in this Proxy Statement. For more complete information about these topics, please review Trane Technologies plc's Annual Report on Form 10-K and the entire Proxy Statement.

Meeting Information

Date and Time:	June 4, 2020 at 8:00 a.m., local time
Place:	Trane Technologies plc 800-C Beaty Street Davidson, NC 28036
Ireland:	Shareholders in Ireland may participate in the Annual General Meeting remotely on June 4, 2020 at 1:00 p.m. (Dublin time) telephonically at the Arthur Cox Building, Ten Earlsfort Terrace, Dublin 2, D02 T380, Ireland.
Record Date:	April 8, 2020
Voting:	Shareholders as of the record date are entitled to vote. Each ordinary share is entitled to one vote for each director nominee and each of the other proposals.
Attendance:	All shareholders may attend the meeting.

Corporate Governance Highlights

- Substantial majority of independent directors (11 of 12) current directors
- Annual election of directors
- Majority vote for directors
- Independent Lead Director
- Board oversight of risk management
- Succession planning at all levels, including for Board and CEO
- Annual Board and committee self-assessments
- Executive sessions of non-management directors
- Continuing director education
- Executive and director stock ownership guidelines
- Board oversight of sustainability program

2021 Annual Meeting

Deadline for shareholder proposals for inclusion in the proxy statement:	December 24, 2020
Deadline for business proposals and nominations for director:	March 8, 2021

Overview of Proposals to Be Voted

ITEM 1.

Election of Directors

The Board of Directors recommends a vote FOR the directors nominated for election

See page 11 for further information

DIRECTOR NOMINEES

NAME/ OCCUPATION	AGE	DIRECTOR SINCE	INDEPENDENT	OTHER CURRENT PUBLIC BOARDS	TRANE TECHNOLOGIES COMMITTEES					
					A	C	CG	F	T	E
Kirk E. Arnold Former Chief Executive Officer, Data Intensity	60	2018	YES	- Ingersoll Rand Inc. - Thomson Reuters		M	M		M	
Ann C. Berzin Former Chairman and CEO of Financial Guaranty Insurance Company	68	2001	YES	- Exelon Corporation - Baltimore Gas & Electric Company	M			C		M
John Bruton Former Prime Minister of the Republic of Ireland and Former European Union Commission Head of Delegation to the United States	72	2010	YES		M			M	M	
Jared L. Cohon President Emeritus of Carnegie Mellon University, University Professor of Civil and Environmental Engineering and of Engineering and Public Policy, and Former Director of the Scott Institute for Energy Innovation	72	2008	YES	- Unisys		M	M		C	
Gary D. Forsee Former President of University of Missouri System and Former Chairman of the Board and Chief Executive Officer of Sprint Nextel Corporation	70	2007	YES	- Evergy, Inc.* - Ingersoll Rand Inc.		M	C		M	M
Linda P. Hudson Founder and Former Chairman and CEO of The Cardea Group and Former President and CEO of BAE Systems, Inc.	69	2015	YES	- Bank of America		M	M		M	
Michael W. Lamach Chairman and CEO of Trane Technologies plc	56	2010	NO	- PPG Industries, Inc.						C
Myles P. Lee Former Director and CEO of CRH plc	66	2015	YES	- Babcock International Group plc - UDG Healthcare plc	M			M		
Karen B. Peetz Former President of BNY Mellon	64	2018	YES		M			M		
John P. Surma Retired Chairman and CEO of United States Steel Corporation	65	2013	YES	- Marathon Petroleum Corporation - MPLX LP (a publicly traded subsidiary of Marathon Petroleum Corporation) - Concho Resources Inc.* - Public Service Enterprise Group	C			M		M
Richard J. Swift Lead Director Former Chairman of Financial Accounting Standards Advisory Council and Former Chairman, President and CEO of Foster Wheeler Ltd.	75	1995	YES	- CVS Health Corporation* - Public Service Enterprise Group*	M			M	M	M
Tony L. White Former Chairman, President and CEO of Applied Biosystems Inc.	73	1997	YES	- CVS Health Corporation - Ingersoll Rand Inc.		C	M		M	M

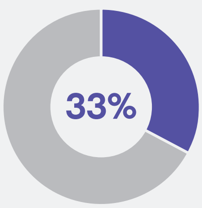
A: Audit Committee
C: Compensation Committee
CG: Corporate Governance & Nominating Committee
F: Finance Committee
T: Technology and Innovation Committee
E: Executive Committee
C: Chair
M: Member

* Mr. Forsee is not standing for re-election as a director at Evergy, Inc. at its annual meeting to be held May 2020. Mr. Swift is not standing for re-election as director at Public Service Enterprise Group at its annual meeting to be held in April 2020 and at CVS Health Corporation at its annual meeting to be held in May 2020. Mr. Surma is not standing for re-election as a director of Concho Resources Inc. at its annual meeting to be held in April 2020.

Board Diversity

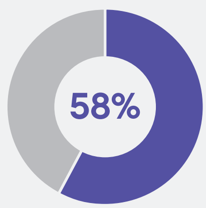
The Company's policy on Board diversity relates to the selection of nominees for the Board of Directors. In selecting a nominee for the Board, the Corporate Governance and Nominating Committee considers the skills, expertise and background that would complement the existing Board and ensure that its members are of sufficiently diverse and independent backgrounds, recognizing that the Company's businesses and operations are diverse and global in nature. The Board of Directors currently has four female directors, one Hispanic director and two non-U.S. directors out of a total of 12 directors. In addition, the tenure and experience of our directors is varied, which brings varying perspectives to our Board functionality.

GENDER DIVERSITY



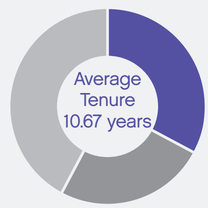
■ Female Directors

TOTAL DIVERSITY



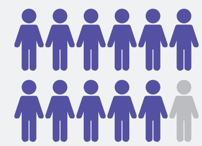
■ 4 Female Directors,
1 Hispanic Director
2 Non-U.S. Directors

TENURE



■ 0-5 years
■ 6-9 years
■ 10+ years

BOARD SIZE AND INDEPENDENCE



11 out of **12** Directors are independent

		ARNOLD	BERZIN	BRUTON	COHON	FORSEE	HUDSON	LAMACH	LEE	PEETZ	SURMA	SWIFT	WHITE
SKILLS	Financial Expert		✓			✓	✓	✓	✓	✓	✓	✓	✓
	Finance/Capital Allocation		✓	✓				✓	✓	✓	✓		
	Global Experience		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Technology/Engineering	✓			✓	✓	✓	✓				✓	
	Marketing/Digital	✓											✓
	Services	✓				✓		✓					
	Human Resources/Compensation					✓	✓			✓			✓
	IT/Cybersecurity/Data Management	✓					✓						
	Risk Management/Mitigation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EXPERIENCE	Chair/CEO/Business Head	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
	Industrial/Manufacturing						✓	✓	✓		✓	✓	✓
	Academia/Education	✓			✓	✓							
	Government/Public Policy			✓	✓						✓		
	Financial Services		✓							✓			

ITEM 2.

Advisory Approval of the Compensation of Our Named Executive Officers

The Board of Directors recommends a vote FOR this item

We are asking for your advisory approval of the compensation of our named executive officers ("NEOs"). While our Board of Directors intends to carefully consider the shareholder vote resulting from the proposal, the final vote will not be binding on us and is advisory in nature. Before considering this proposal, please read our Compensation Discussion and Analysis, which explains our executive compensation programs and the Compensation Committee's compensation decisions.

See pages 16 and 34 for further information

Executive Compensation

Consideration of 2019 Advisory Vote on Executive Compensation

The Compensation Committee regularly reviews the philosophy, objectives and elements of our executive compensation programs in relation to our short and long-term business objectives. In undertaking this review, the Compensation Committee considers the views of shareholders as reflected in their annual advisory vote on our executive compensation proposal. Shareholders voted 92% in favor of the company's Advisory Approval of the Compensation of our NEOs at our 2019 annual general meeting. Based on the Compensation Committee's review and the support our executive compensation programs received from shareholders, the Compensation Committee determined it would be appropriate to maintain the core elements of our executive compensation programs.

Executive Compensation Principles

Our executive compensation programs are based on the following principles:

(i) business strategy alignment
(ii) pay for performance
(iii) mix of short and long-term incentives
(iv) internal parity
(v) shareholder alignment
(vi) market competitiveness

Consistent with these principles, the Compensation Committee has adopted executive compensation programs with a strong link between pay and achievement of short and long-term Company goals.

Executive Compensation Elements

The primary elements of the executive compensation programs are:

Total Direct Compensation

Element [1]	Objective of Element
Base Salary	Fixed cash compensation.
Annual Incentive Matrix ("AIM")	Variable cash incentive compensation. Any award earned is based on performance measured against pre-defined annual Revenue, Operating Income, Cash Flow and Operating Income Margin percent objectives, as well as individual performance measured against pre-defined objectives.

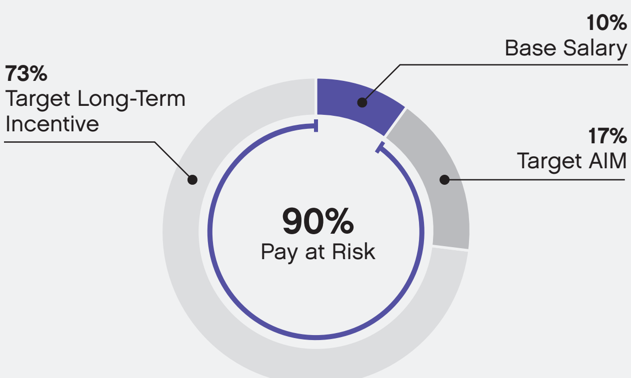
Long-Term Incentives ("LTI")	Variable long-term incentive compensation. Performance is aligned with the Company's stock price and is awarded in the form of stock options, restricted stock units ("RSUs") and performance share units ("PSUs"). PSUs for performance periods beginning prior to 2018 are only payable if the Company's earnings per share ("EPS") growth and total shareholder return ("TSR") relative to companies in the S&P 500 Industrials Index exceed threshold performance. PSUs granted after January 1, 2018 are only payable if the Company's cash flow return on invested capital ("CROIC") and TSR relative to companies in the S&P 500 Industrials Index exceed threshold performance.

1 See Section V of the Compensation Discussion and Analysis entitled "Compensation Program Descriptions and Compensation Decisions," for additional discussion of these elements of compensation.

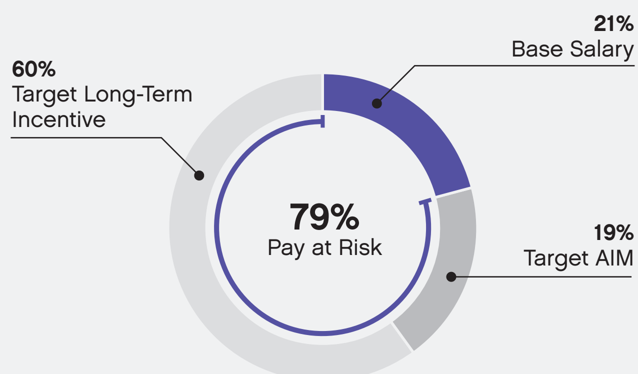
Executive Compensation Mix

As illustrated in the charts below, the Compensation Committee places significant emphasis on variable compensation (AIM and LTI) so that a substantial percentage of each NEO's target total direct compensation is contingent on the successful achievement of the Company's short-term and long-term performance goals.

CHAIRMAN AND CEO
2019 COMPENSATION MIX
(TARGET TOTAL DIRECT COMPENSATION)



OTHER NEOS
2019 AVERAGE COMPENSATION MIX
(TARGET TOTAL DIRECT COMPENSATION)



2019 Executive Compensation

The summary below shows the 2019 compensation for our CEO and other NEOs, as required to be reported in the Summary Compensation Table pursuant to U.S. Securities and Exchange Commission ("SEC") rules. Please see the notes accompanying the Summary Compensation Table for further information.

NAME AND PRINCIPAL POSITION	SALARY ($)	BONUS ($)	STOCK AWARDS ($)	OPTION AWARDS ($)	NON-EQUITY INCENTIVE PLAN COMPENSATION ($)	CHANGE IN PENSION VALUE AND NONQUALIFIED DEFERRED COMPENSATION EARNINGS ($)	ALL OTHER COMPENSATION ($)	TOTAL ($)
M. W. Lamach Chairman and Chief Executive Officer	1,390,000	—	7,957,970	2,540,028	2,775,000	8,960,127	594,003	24,217,128
S. K. Carter[1] Senior Vice President and Chief Financial Officer	761,250	—	2,132,808	680,732	948,963	760,722	186,901	5,471,376
D. S. Regnery President and Chief Operating Officer	761,250	—	1,887,911	642,630	856,177	2,693,861	159,876	7,001,705
M. J. Avedon Executive Vice President, Chief Human Resources, Marketing and Communications Officer	671,250	—	1,337,076	426,735	712,034	1,785,641	125,019	5,057,755
P. A. Camuti Executive Vice President and Chief Technology and Strategy Officer	557,500	—	955,008	304,818	521,625	609,446	103,530	3,051,927

1 Ms. Carter retired on April 1, 2020.

PROXY STATEMENT

ITEM 3.

Approval of Appointment of Independent Auditors

The Board of Directors recommends a vote FOR this item

We are asking you to approve the appointment of PricewaterhouseCoopers LLP ("PwC") as our independent auditors for 2020 and to authorize the Audit Committee to set the auditor's remuneration.

See page 16 for further information

ITEM 4.

To renew the Directors' existing authority to issue shares.

The Board of Directors recommends a vote FOR this item

We are asking you to renew our Directors' authority to issue shares under Irish law. This authority is fundamental to our business and granting the Board this authority is a routine matter for public companies incorporated in Ireland.

See page 19 for further information

ITEM 5.

To renew the Directors' existing authority to issue shares for cash without first offering shares to existing shareholders. (Special Resolution)

The Board of Directors recommends a vote FOR this item

We are asking you to renew the Directors' authority to issue shares for cash without first offering shares to existing shareholders. This authority is fundamental to our business and granting the Board this authority is a routine matter for public companies incorporated in Ireland. As required under Irish law, this proposal requires the affirmative vote of at least 75% of the votes cast.

See page 20 for further information

ITEM 6.

To determine the price range at which the Company can re-allot shares that it holds as treasury shares. (Special Resolution)

The Board of Directors recommends a vote FOR this item

We are asking you to determine the price at which the Company can reissue shares held as treasury shares. From time to time the Company may acquire ordinary shares and hold them as treasury shares. The Company may re-allot such treasury shares, and under Irish law, our shareholders must authorize the price range at which we may re-allot any shares held in treasury. As required under Irish law, this proposal requires the affirmative vote of at least 75% of the votes cast.

See page 21 for further information

Proposals Requiring Your Vote

In this Proxy Statement, "Trane Technologies," the "Company," "we," "us" and "our" refer to Trane Technologies plc, an Irish public limited company. This Proxy Statement and the enclosed proxy card, or the Notice of Internet Availability of Proxy Materials, are first being mailed to shareholders of record on April 8, 2020 (the "Record Date") on or about April 24, 2020.

Item 1.

Election of Directors

☑ **The Board of Directors recommends a vote FOR the directors nominated for election listed below.**

The Company uses a majority of votes cast standard for the election of directors. A majority of the votes cast means that the number of votes cast "for" a director nominee must exceed the number of votes cast "against" that director nominee. Each director of the Company is being nominated for election for a one-year term beginning at the end of the 2020 Annual General Meeting of Shareholders to be held on June 4, 2020 (the "Annual General Meeting") and expiring at the end of the 2021 Annual General Meeting of Shareholders. Under our Articles of Association, if a director is not re-elected in a director election, the director shall retire at the close or adjournment of the Annual General Meeting.

KIRK E. ARNOLD
Independent Director

Age 60
Director since 2018
Committees
Compensation, Corporate Governance and Nominating, Technology and Innovation

Principal Occupation
- Executive in Residence of General Catalyst, a Venture capital firm backing entrepreneurs, from September 2018 - Present
- Chief Executive Officer of Data Intensity from 2013 to 2017.

Current Public Directorships
- Ingersoll Rand Inc.
- Thomson Reuters

Other Directorships Held in the Past Five Years
- EnerNoc, Inc.

Other Activities
- Director of The Predictive Index
- Director of Baypath University
- Director of UP Education Network

Nominee Highlights
Ms. Arnold's vast experience in technology and service leadership brings critical insight to the Company's operations, digital analytics, and technologies. Ms. Arnold has served in executive positions throughout the technology industry including as COO at Avid, a technology provider to the media industry, and CEO and President of Keane, Inc., then a publicly traded billion-dollar global services provider. Ms. Arnold has also held senior leadership roles at Computer Sciences Corporation, Fidelity Investments and IBM. Ms. Arnold's active participation in the technology and business community provides the Company ongoing insight into digital marketing and technology related issues.

ANN C. BERZIN
Independent Director

Age 68
Director since 2001
Committees
Audit, Finance (Chair), Executive

Principal Occupation
- Chairman and Chief Executive Officer of Financial Guaranty Insurance Company (insurer of municipal bonds and structured finance obligations), a subsidiary of General Electric Capital Corporation, from 1992 to 2001.

Current Public Directorships
- Exelon Corporation
- Baltimore Gas & Electric Company

Other Directorships Held in the Past Five Years
- None

Nominee Highlights
Ms. Berzin's extensive experience in finance at a global diversified industrial firm and her expertise in complex investment and financial products and services bring critical insight to the Company's financial affairs, including its borrowings, capitalization, and liquidity. In addition, Ms. Berzin's relationships across the global financial community strengthen the Company's access to capital markets. Her board memberships provide deep understanding of trends in the energy sector, which presents ongoing opportunities and challenges for the Company.

PROXY STATEMENT

Principal Occupation
- European Union Commission Head of Delegation to the United States from 2004 to 2009.
- Prime Minister of the Republic of Ireland from 1994 to 1997.

Current Public Directorships
- None

Other Directorships Held in the Past Five Years
- Montpelier Re Holding Ltd.
- Institute for International and European Affairs

JOHN BRUTON
Independent Director

Age 72
Director since 2010
Committees
Audit, Finance, Technology and Innovation

Nominee Highlights
Mr. Bruton's long and successful career of public service on behalf of Ireland and Europe provides extraordinary insight into critical regional and global economic, social and political issues, all of which directly influence the successful execution of the Company's strategic plan. In particular, Mr. Bruton's leadership role in transforming Ireland into one of the world's leading economies during his tenure, as well as in preparing the governing document for managing the Euro, lend substantial authority to the Company's economic and financial oversight.

Principal Occupation
- President Emeritus at Carnegie Mellon University, President of Carnegie Mellon University from 1997-2013 and also appointed University Professor of Civil and Environmental Engineering / Engineering and Public Policy.

Current Public Directorships
- Unisys

Other Directorships Held in the Past Five Years
- Lexmark, Inc.

Other Activities
- BNY Mellon Foundation, Trustee
- Carnegie Corporation, Trustee
- Center for Responsible Shale Gas Development, Director and Chair
- Health Effects Institute, Director
- Heinz Endowments, Trustee
- Hillman Family Foundations, Trustee

JARED L. COHON
Independent Director

Age 72
Director since 2008
Committees
Compensation, Corporate Governance and Nominating, Technology and Innovation (Chair)

Nominee Highlights
Dr. Cohon's extensive career in academics, including 16 years as president of an institution known throughout the world for its leadership in the fields of computer science and engineering, offers the Company tremendous insight into the latest developments in areas critical to commercial innovation and manufacturing process improvement. A member of the National Academy of Engineering, Dr. Cohon is a recognized authority on environmental and water resources systems analysis and management. As such, Dr. Cohon also brings unique perspectives on sustainable business practices, both within our own operations and on behalf of our customers and communities. In 2008 and 2009, at the request of Congress, Dr. Cohon chaired the National Research Council Committee that produced the report, "Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use." In 2014, Dr. Cohon was appointed co-chair of the Congressionally-mandated Commission to review and evaluate the National Energy Laboratories. He currently serves as Chair of the National Academies' Board on Energy and Environmental Systems. Finally, Dr. Cohon's more than nine years of service as a member of Trane Inc.'s (formerly American Standard) board of directors provides critical insight into that part of the Company's business.

GARY D. FORSEE
Independent Director

Age 70
Director since 2007
Committees
Compensation, Corporate Governance and Nominating (Chair), Executive, Technology and Innovation

Principal Occupation

- President, University of Missouri System from 2008 to 2011.
- Chairman of the Board (from 2006 to 2007) and Chief Executive Officer (from 2005 to 2007) of Sprint Nextel Corporation (a telecommunications company).

Current Public Directorships

- Evergy, Inc.*
- Ingersoll Rand Inc.

Other Directorships Held in the Past Five Years

- DST Systems Inc.

* Mr. Forsee is not standing for re-election as a director at Evergy, Inc. at its annual meeting to be held May 2020.

Nominee Highlights

In addition to his broad operational and financial expertise, Mr. Forsee's experience as chairman and chief executive officer one of the largest U.S. firms in the global telecommunications industry offers a deep understanding of the challenges and opportunities within markets experiencing significant technology-driven change. His recent role as president of a major university system provides insight into the Company's talent development initiatives, which remain a critical enabler of the Company's long-term success. Mr. Forsee's experience serving on the board of an energy services utility also benefits the Company as it seeks to achieve more energy-efficient operations and customer solutions.

LINDA P. HUDSON
Independent Director

Age 69
Director since 2015
Committees
Compensation, Corporate Governance and Nominating, Technology and Innovation

Principal Occupation

- Founder and Former Chairman and Chief Executive Officer of The Cardea Group, a business management consulting firm she founded in 2014.
- Former President and Chief Executive Officer of BAE Systems, Inc.

Current Directorships

- Bank of America

Other Directorships Held in the Past Five Years

- The Southern Company

Other Activities

- Director, University of Florida Foundation, Inc. and the University of Florida Engineering Leadership Institute

Nominee Highlights

Ms. Hudson's prior role as President and CEO of BAE Systems and her extensive experience in the defense and engineering sectors provides the Company with strong operational insight and understanding of matters crucial to the Company's business. Prior to becoming CEO of BAE Systems, Ms. Hudson was president of BAE Systems' Land & Armaments operating group, the world's largest military vehicle and equipment business. In addition, Ms. Hudson has broad experience in strategic planning and risk management in complex business environments.

MICHAEL W. LAMACH
Chairman and CEO

Age 56
Director since 2010
Committees
Executive (Chair)

Principal Occupation

- Chairman of the Company since June 2010
- Chief Executive Officer (since February 2010) of the Company.

Current Directorships

- PPG Industries, Inc.

Other Directorships Held in the Past Five Years

- Iron Mountain Incorporated

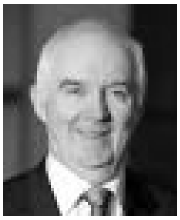
Other Activities

- Chair of the Board of the National Association of Manufacturers

Nominee Highlights

Mr. Lamach's extensive career of successfully leading global businesses, including fifteen years with the Company, brings significant experience and expertise to the Company's management and governance. His 35 years of business leadership encompass global industrial systems, controls, security and HVAC systems businesses, representing a broad and diverse range of products and services, markets, channels, applied technologies and operational profiles. In his current role of Chairman and Chief Executive Officer, he led the successful spin-off of the Company's commercial and residential security business and has been instrumental in driving growth and operational excellence initiatives across the Company's global operations.

PROXY STATEMENT



MYLES P. LEE
Independent Director

Age 66
Director since 2015
Committees
Audit, Finance

Principal Occupation

- Director (from 2003 to 2013) and Chief Executive Officer (from 2009 to 2013) of CRH plc

Current Public Directorships

- Babcock International Group plc
- UDG Healthcare plc

Other Directorships Held in the Past Five Years

- None

Other Activities

- Director, St. Vincent's Healthcare Group

Nominee Highlights

Mr. Lee's experience as the former head of the largest public or private company in Ireland provides strategic and practical judgment to critical elements of the Company's growth and productivity strategies, expertise in Irish governance matters and significant insight into the building and construction sector. In addition, Mr. Lee's previous service as Finance Director and General Manager of Finance of CRH plc and in a professional accountancy practice provides valuable financial expertise to the Company.

KAREN B. PEETZ
Independent Director

Age 64
Director since 2018
Committees
Audit, Finance

Principal Occupation

- Former President of BNY Mellon (from 2013-2016)

Current Public Directorships

- None

Other Directorships Held in the Past Five Years

- Wells Fargo & Company
- SunCoke Energy

Other Activities

- The Guardian Life Insurance Company of America, Director
- John Hopkins University, Trustee
- Director Global Lyme Alliance
- Former Director and Chair, Penn State University

Nominee Highlights

Ms. Peetz adds deep financial and operational leadership experience in complex, global markets to the Board. In particular, Ms. Peetz's experience serving as president of one of the world's largest custodian banks and asset servicing companies brings critical insight to the Company's financial affairs, including its borrowings, capitalization, and liquidity as well as financial management and risk management.
Ms. Peetz also has extensive experience leading with respect to governance and corporate responsibility matters that complement the Company's commitment to these issues.

JOHN P. SURMA
Independent Director

Age 65
Director since 2013
Committees
Audit (Chair), Finance, Executive

Principal Occupation

- Chairman (from 2006-2013) and Chief Executive Officer (from 2004-2013) of United States Steel Corporation (a steel manufacturing company).

Current Public Directorships

- Marathon Petroleum Corporation
- MPLX LP (a publicly traded subsidiary of Marathon Petroleum Corporation)
- Concho Resources Inc.*
- Public Service Enterprise Group

Other Directorships Held in the Past Five Years

- None

* Mr. Surma will not stand for re-election as a director of Concho Resources Inc. at their annual meeting in April 2020.

Other Activities

- Former Director and Chair, Federal Reserve Bank of Cleveland
- Director, UPMC
- Former Director and Former Chair, National Safety Council
- Director Emeritus and Former Chair, Allegheny County Parks Foundation

Nominee Highlights

Mr. Surma's experience as the former chairman and chief executive officer of a large industrial company provides significant and direct expertise across all aspects of the Company's operational and financial affairs. In particular, Mr. Surma's financial experience, having previously served as the chief financial officer of United States Steel Corporation and as a partner of the audit firm PricewaterhouseCoopers LLP, provides the Board with valuable insight into financial reporting and accounting oversight of a public company.
Mr. Surma's board memberships and other activities provide the Board an understanding of developments in the energy sector as the Company seeks to develop more energy-efficient operations and insight into national and international business and trade policy that could impact the Company.

RICHARD J. SWIFT
Lead Director
Independent Director

Age 75
Director since 1995
Committees
Audit, Finance, Executive, Technology and Innovation

Principal Occupation

- Chairman of Financial Accounting Standards Advisory Council from 2002 through 2006.
- Chairman, President and Chief Executive Officer of Foster Wheeler Ltd. (provider of design, engineering, construction, manufacturing, management and environmental services) from 1994 to 2001.

Current Directorships

- CVS Health Corporation*
- Public Service Enterprise Group*

Other Directorships Held in the Past Five Years

- Kaman Corporation
- Hubbell Incorporated

* Mr. Swift is not standing for re-election as director at Public Service Enterprise Group at its annual meeting to be held in April 2020 and at CVS Health Corporation at its annual meeting to be held in May 2020.

Other Activities

- Trustee, University Research Association

Nominee Highlights

Mr. Swift's experience as chairman and chief executive officer of a global engineering firm, the fact that he was a licensed professional engineer for 35 years prior to his retirement, and his five-year leadership of the advisory organization to the Financial Accounting Standards Board (FASB) imparts substantial expertise to all of the Company's operational and financial matters. His leadership of an organization that was instrumental in some of the world's most significant engineering projects provides unique insight into the complex systems involved in the efficient and effective development of buildings and industrial operations, which represent key global market segments for the Company's products and services. Mr. Swift's board memberships have included firms engaged in the manufacture and distribution of industrial, electrical and electronic products, which directly correspond to key elements of the Company's growth and operational strategies.

TONY L. WHITE
Independent Director

Age 73
Director since 1997
Committees
Compensation (Chair), Corporate Governance and Nominating, Executive, Technology and Innovation

Principal Occupation

- Chairman, President and Chief Executive Officer of Applied Biosystems Inc. (a developer, manufacturer and marketer of life science systems and genomic information products) from 1995 until his retirement in 2008.

Current Directorships

- CVS Health Corporation
- Ingersoll Rand Inc.

Other Directorships Held in the Past Five Years

- C.R. Baird, Inc.

Nominee Highlights

Mr. White's extensive management experience, including 13 years as chairman and chief executive officer of an advanced-technology life sciences firm, provides substantial expertise and guidance across all aspects of the Company's operational and financial affairs. In particular, Mr. White's leadership of an organization whose success was directly connected to innovation and applied technologies aligns with the Company's focus on innovation as a key source of growth. The Company benefits from Mr. White's experience and board memberships focusing on developments related to biotechnology and healthcare delivery systems which offer instructive process methodologies to accelerate our innovation efforts.

Item 2.

Advisory Approval of the Compensation of Our Named Executive Officers

☑ **The Board of Directors recommends a vote FOR advisory approval of the compensation of our Named Executive Officers as disclosed in the Compensation Discussion and Analysis, the compensation tables, and the related disclosure contained in this proxy statement.**

The Company is presenting the following proposal, commonly known as a "Say-on-Pay" proposal, which gives you as a shareholder the opportunity to endorse or not endorse our compensation program for Named Executive Officers by voting for or against the following resolution:

"RESOLVED, that the shareholders approve the compensation of the Company's Named Executive Officers, as disclosed in the Compensation Discussion and Analysis, the compensation tables, and the related disclosure contained in the Company's proxy statement."

While our Board of Directors intends to carefully consider the shareholder vote resulting from the proposal, the final vote will not be binding on us and is advisory in nature.

In considering your vote, please be advised that our compensation program for Named Executive Officers is guided by our design principles, as described in the Compensation Discussion and Analysis section of this Proxy Statement:

(i) business strategy alignment
(ii) pay for performance
(iii) mix of short and long-term incentives
(iv) internal parity
(v) shareholder alignment
(vi) market competitiveness

By following these design principles, we believe that our compensation program for Named Executive Officers is strongly aligned with the long-term interests of our shareholders.

Item 3.

Approval of Appointment of Independent Auditors

☑ **The Board of Directors recommends a vote FOR the proposal to approve the appointment of PwC as independent auditors of the Company and to authorize the Audit Committee of the Board of Directors to set the auditors' remuneration.**

The Audit Committee is directly responsible for the appointment, compensation, retention and oversight of the independent external audit firm retained to audit the Company's financial statements and internal controls over financial reporting. In executing its responsibilities, the Audit Committee engages in an annual evaluation of the qualifications, performance and independence of PricewaterhouseCoopers LLP ("PwC"). In assessing independence, the Committee reviews the fees paid, including those related to non-audit services. The Audit Committee has sole authority to approve all engagement fees to be paid to PwC. The Audit Committee regularly meets with the lead audit partner without members of management present, and in executive session with only the Audit Committee members present, which provides the opportunity for continuous assessment of the firm's effectiveness and independence and for consideration of rotating audit firms.

In addition, as part of its normal cadence, the Audit Committee considers whether there should be a regular rotation of the independent registered public accounting firm. The Audit Committee ensures that the mandated rotation of PwC's lead engagement partner occurs routinely and the Audit Committee and its Chairman are directly involved in the selection of PwC's lead engagement partner.

The Audit Committee has recommended that shareholders approve the appointment of PwC as our independent auditors for the fiscal year ending December 31, 2020, and authorize the Audit Committee of our Board of Directors to set the independent auditors' remuneration.

PwC has been acting continuously as our independent auditors for over one hundred years and, both by virtue of its long familiarity with the Company's affairs and its professional competencies and resources, is considered best qualified to perform this important function. The Audit Committee and the Board believe that the continued retention of PwC to serve as our independent external auditors is in the best interests of the Company and its investors.

Representatives of PwC will be present at the Annual General Meeting and will be available to respond to appropriate questions. They will have an opportunity to make a statement if they so desire.

Audit Committee Report

While management has the primary responsibility for the financial statements and the financial reporting process, including the system of internal controls, the Audit Committee reviews the Company's audited financial statements and financial reporting process on behalf of the Board of Directors. The independent auditors are responsible for performing an independent audit of the Company's consolidated financial statements in accordance with the standards of the Public Company Accounting Oversight Board (United States) (the "PCAOB") and to issue a report thereon. The Audit Committee monitors those processes. In this context, the Audit Committee has met and held discussions with management and the independent auditors regarding the fair and complete presentation of the Company's results. The Audit Committee has discussed significant accounting policies applied by the Company in its financial statements, as well as alternative treatments. Management has represented to the Audit Committee that the Company's consolidated financial statements were prepared in accordance with United States generally accepted accounting principles, and the Audit Committee has reviewed and discussed the consolidated financial statements with management and the independent auditors. The Audit Committee also discussed with the independent auditors the matters required to be discussed by Auditing Standard No. 16, "Communications with Audit Committees" issued by the PCAOB.

In addition, the Audit Committee has received and reviewed the written disclosures and the letter from PwC required by the PCAOB regarding PwC's communications with the Audit Committee concerning independence and discussed with PwC the auditors' independence from the Company and its management in connection with the matters stated therein. The Audit Committee also considered whether the independent auditors' provision of non-audit services to the Company is compatible with the auditors' independence. The Audit Committee has concluded that the independent auditors are independent from the Company and its management.

The Audit Committee discussed with the Company's internal and independent auditors the overall scope and plans for their respective audits. The Audit Committee meets separately with the internal and independent auditors, with and without management present, to discuss the results of their examinations, the evaluations of the Company's internal controls and the overall quality of the Company's financial reporting.

In reliance on the reviews and discussions referred to above, the Audit Committee recommended to the Board of Directors, and the Board has approved, that the audited financial statements be included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019 ("2019 Form 10-K"), for filing with the Securities and Exchange Commission (the "SEC"). The Audit Committee has selected PwC, subject to shareholder approval, as the Company's independent auditors for the fiscal year ending December 31, 2020.

AUDIT COMMITTEE

John P. Surma (Chair)
Ann C. Berzin
John Bruton
Myles P. Lee
Karen B. Peetz
Richard J. Swift

Fees of the Independent Auditors

The following table shows the fees paid or accrued by the Company for audit and other services provided by PwC for the fiscal years ended December 31, 2019 and 2018:

	2019 ($)	2018 ($)
Audit Fees[a]	12,776,000	12,450,000
Audit-Related Fees[b]	7,556,000	263,000
Tax Fees[c]	7,814,000	2,616,000
All Other Fees[d]	38,000	9,000
Total	28,184,000	15,338,000

(a) Audit Fees for the fiscal years ended December 31, 2019 and 2018, respectively, were for professional services rendered for the audits of the Company's annual consolidated financial statements and its internal controls over financial reporting, including quarterly reviews, statutory audits, issuance of consents, review of documents filed with the SEC and comfort letter preparation.

(b) Audit-Related Fees consist of assurance services that are related to performing the audit and review of certain financial statements including employee benefit plan audits and in the year ended December 31, 2019, carve out audits related to the Company's Reverse Morris Trust Transaction with Gardner Denver Holdings, Inc. (the "RMT Transaction"). Audit Related Fees for the fiscal year ended December 31, 2018 include employee benefit plan audits.

(c) Tax Fees for the fiscal year ended December 31, 2019 include consulting and compliance services in the U.S. and non-U.S. locations and tax consulting services relating to the RMT Transaction. Tax Fees for the fiscal year ended 2018 include consulting and compliance services in the U.S. and non-U.S. locations.

(d) All Other Fees for the fiscal year ended December 31, 2019 and 2018 include license fees for technical accounting software.

The Audit Committee has adopted policies and procedures which require that the Audit Committee pre-approve all non-audit services that may be provided to the Company by its independent auditors. The policy: (i) provides for pre-approval of an annual budget for each type of service; (ii) requires Audit Committee approval of specific projects if not included in the approved budget; and (iii) requires Audit Committee approval if the forecast of expenditures exceeds the approved budget on any type of service. The Audit Committee pre-approved all of the services described under "Audit-Related Fees," "Tax Fees" and "All Other Fees." The Audit Committee has determined that the provision of all such non-audit services is compatible with maintaining the independence of PwC.

Item 4.

Renewal of the Directors' existing authority to issue shares

☑ **The Board of Directors recommends that you vote FOR renewing the Directors' authority to issue shares.**

Under Irish law, directors of an Irish public limited company must have authority from its shareholders to issue any shares, including shares which are part of the company's authorized but unissued share capital. Our shareholders provided the Directors with this authorization at our 2019 annual general meeting on June 6, 2019 for a period of 18 months. Because this share authorization period will expire in December 2020, we are presenting this proposal to renew the Directors' authority to issue our authorized shares on the terms set forth below.

We are seeking approval to authorize our Board of Directors to issue up to 33% of our issued ordinary share capital as of April 8, 2020 (the latest practicable date before this proxy statement), for a period expiring 18 months from the passing of this resolution, unless renewed, varied or revoked.

Granting the Board of Directors this authority is a routine matter for public companies incorporated in Ireland and is consistent with Irish market practice. This authority is fundamental to our business and enables us to issue shares, including in connection with our equity compensation plans (where required) and, if applicable, funding acquisitions and raising capital. We are not asking you to approve an increase in our authorized share capital or to approve a specific issuance of shares. Instead, approval of this proposal will only grant the Board of Directors the authority to issue shares that are already authorized under our articles of association upon the terms below. In addition, we note that, because we are a NYSE-listed company, our shareholders continue to benefit from the protections afforded to them under the rules and regulations of the NYSE and the SEC, including those rules that limit our ability to issue shares in specified circumstances. Furthermore, we note that this authorization is required as a matter of Irish law and is not otherwise required for other non-Irish companies listed on the NYSE with whom we compete. Renewal of the Directors' existing authority to issue shares is fully consistent with NYSE rules and listing standards and with U.S. capital markets practice and governance standards.

As required under Irish law, the resolution in respect of this proposal is an ordinary resolution that requires the affirmative vote of a simple majority of the votes cast.

The text of this resolution is as follows:

"That the Directors be and are hereby generally and unconditionally authorized with effect from the passing of this resolution to exercise all powers of the Company to allot relevant securities (within the meaning of Section 1021 of the Companies Act 2014) up to an aggregate nominal amount of $87,021,475 (87,021,475 shares) (being equivalent to approximately 33% of the aggregate nominal value of the issued ordinary share capital of the Company as of April 8, 2020 (the latest practicable date before this proxy statement)), and the authority conferred by this resolution shall expire 18 months from the passing of this resolution, unless previously renewed, varied or revoked; provided that the Company may make an offer or agreement before the expiry of this authority, which would or might require any such securities to be allotted after this authority has expired, and in that case, the Directors may allot relevant securities in pursuance of any such offer or agreement as if the authority conferred hereby had not expired."

Item 5.

Renewal of the Directors' existing authority to issue shares for cash without first offering shares to existing shareholders.

☑ **The Board of Directors recommends that you vote FOR renewing the Directors' authority to issue shares for cash without first offering shares to existing shareholders.**

Under Irish law, unless otherwise authorized, when an Irish public limited company issues shares for cash, it is required first to offer those shares on the same or more favorable terms to existing shareholders of the company on a pro-rata basis (commonly referred to as the statutory pre-emption right). Our shareholders provided the Directors with this authorization at our 2019 annual general meeting on June 6, 2019 for a period of 18 months. Because this share authorization period will expire in December 2020, we are presenting this proposal to renew the Directors' authority to opt-out of the pre-emption right on the terms set forth below.

We are seeking approval to authorize our Board of Directors to opt out of the statutory pre-emption rights provision in the event of (1) the issuance of shares for cash in connection with any rights issue and (2) any other issuance of shares for cash, if the issuance is limited to up to 5% of our issued ordinary share capital as of April 8, 2020 (the latest practicable date before this proxy statement), for a period expiring 18 months from the passing of this resolution, unless renewed, varied or revoked.

Granting the Board of Directors this authority is a routine matter for public companies incorporated in Ireland and is consistent with Irish market practice. Similar to the authorization sought for Item 4, this authority is fundamental to our business and enables us to issue shares under our equity compensation plans (where required) and if applicable, will facilitate our ability to fund acquisitions and otherwise raise capital. We are not asking you to approve an increase in our authorized share capital. Instead, approval of this proposal will only grant the Board of Directors the authority to issue shares in the manner already permitted under our articles of association upon the terms below. Without this authorization, in each case where we issue shares for cash, we would first have to offer those shares on the same or more favorable terms to all of our existing shareholders. This requirement could undermine the operation of our compensation plans and cause delays in the completion of acquisitions and capital raising for our business. Furthermore, we note that this authorization is required as a matter of Irish law and is not otherwise required for other non-Irish companies listed on the NYSE with whom we compete. Renewal of the Directors' existing authorization to opt out of the statutory pre-emption rights as described above is fully consistent with NYSE rules and listing standards and with U.S. capital markets practice and governance standards.

As required under Irish law, the resolution in respect of this proposal is a special resolution that requires the affirmative vote of at least 75% of the votes cast.

The text of the resolution in respect of this proposal is as follows:

"As a special resolution, that, subject to the passing of the resolution in respect of Item 4 as set out above and with effect from the passing of this resolution, the Directors be and are hereby empowered pursuant to Section 1023 of the Companies Act 2014 to allot equity securities (as defined in Section 1023 of that Act) for cash, pursuant to the authority conferred by Item 5 as if subsection (1) of Section 1022 did not apply to any such allotment, provided that this power shall be limited to:

(a) the allotment of equity securities in connection with a rights issue in favor of the holders of ordinary shares (including rights to subscribe for, or convert into, ordinary shares) where the equity securities respectively attributable to the interests of such holders are proportional (as nearly as may be) to the respective numbers of ordinary shares held by them (but subject to such exclusions or other arrangements as the Directors may deem necessary or expedient to deal with fractional entitlements that would otherwise arise, or with legal or practical problems under the laws of, or the requirements of any recognized regulatory body or any stock exchange in, any territory, or otherwise); and

(b) the allotment (otherwise than pursuant to sub-paragraph (a) above) of equity securities up to an aggregate nominal value of $13,185,072 (13,185,072 shares) (being equivalent to approximately 5% of the aggregate nominal value of the issued ordinary share capital of the Company as of April 8, 2020 (the latest practicable date before this proxy statement)) and the authority conferred by this resolution shall expire 18 months from the passing of this resolution, unless previously renewed, varied or revoked; provided that the Company may make an offer or agreement before the expiry of this authority, which would or might require any such securities to be allotted after this authority has expired, and in that case, the Directors may allot equity securities in pursuance of any such offer or agreement as if the authority conferred hereby had not expired."

Item 6.

Determine the price at which the Company can re-allot shares held as treasury shares.

☑ **The Board of Directors recommends that shareholders vote FOR the proposal to determine the price at which the Company can re-allot shares held as treasury shares.**

Our open-market share repurchases (redemptions) and other share buyback activities may result in ordinary shares being acquired and held by the Company as treasury shares. We may reissue treasury shares that we acquire through our various share buyback activities including in connection with our executive compensation program and our director programs.

Under Irish law, our shareholders must authorize the price range at which we may re-allot any shares held in treasury. In this proposal, that price range is expressed as a minimum and maximum percentage of the closing market price of our ordinary shares on the NYSE the day preceding the day on which the relevant share is re-allotted. Under Irish law, this authorization expires 18 months after its passing unless renewed.

The authority being sought from shareholders provides that the minimum and maximum prices at which an ordinary share held in treasury may be re-allotted are 95% and 120%, respectively, of the closing market price of the ordinary shares on the NYSE the day preceding the day on which the relevant share is re-issued, except as described below with respect to obligations under employee share schemes, which may be at a minimum price of nominal value. Any re-allotment of treasury shares will be at price levels that the Board considers in the best interests of our shareholders.

As required under Irish law, the resolution in respect of this proposal is a special resolution that requires the affirmative vote of at least 75% of the votes cast.

The text of the resolution in respect of this proposal is as follows:

"As a special resolution, that the re-allotment price range at which any treasury shares held by the Company may be re-allotted shall be as follows:

(a) the maximum price at which such treasury share may be re-allotted shall be an amount equal to 120% of the "market price"; and

(b) the minimum price at which a treasury share may be re-allotted shall be the nominal value of the share where such a share is required to satisfy an obligation under an employee share scheme or any option schemes operated by the Company or, in all other cases, an amount equal to 95% of the "market price"; and

(c) for the purposes of this resolution, the "market price" shall mean the closing market price of the ordinary shares on the NYSE the day preceding the day on which the relevant share is re-allotted.

FURTHER, that this authority to re-allot treasury shares shall expire at 18 months from the date of the passing of this resolution unless previously varied or renewed in accordance with the provisions of Sections 109 and 1078 of the Companies Act 2014."

Corporate Governance

Corporate Governance Guidelines

Our Corporate Governance Guidelines, together with the charters of the various Board committees, provide a framework for the corporate governance of the Company. The following is a summary of our Corporate Governance Guidelines and practices. A copy of our Corporate Governance Guidelines, as well as the charters of each of our Board committees, are available on our website at www.tranetechnologies.com under the heading "Company – Corporate Governance."

Role of the Board of Directors

The Company's business is managed under the direction of the Board of Directors. The role of the Board of Directors is to oversee the management and governance of the Company and monitor senior management's performance.

Board Responsibilities

The Board of Directors' core responsibilities include:

- appointing, monitoring, evaluating and compensating senior management;
- assuring that management succession planning is adequate;
- reviewing the Company's financial controls and reporting systems;
- overseeing the Company's management of enterprise risk;
- reviewing the Company's ethical standards and legal compliance programs and procedures; and
- evaluating the performance of the Board of Directors, Board committees and individual directors.

Board Leadership Structure

The positions of Chairman of the Board and CEO at the Company are held by the same person, except in unusual circumstances, such as during a CEO transition. This policy has worked well for the Company. It is the Board of Directors' view that the Company's corporate governance principles, the quality, stature and substantive business knowledge of the members of the Board, as well as the Board's culture of open communication with the CEO and senior management are conducive to Board effectiveness with a combined Chairman and CEO position.

In addition, the Board of Directors has a strong, independent Lead Director and it believes this role adequately addresses the need for independent leadership and an organizational structure for the independent directors. The Board of Directors appoints a Lead Director for a three-year minimum term from among the Board's independent directors. The Lead Director coordinates the activities of all of the Board's independent directors. The Lead Director is the principal confidant to the CEO and ensures that the Board of Directors has an open, trustful relationship with the Company's senior management team. In addition to the duties of all directors, as set forth in the Company's Governance Guidelines, the specific responsibilities of the Lead Director are as follows:

- Chair the meetings of the independent directors when the Chairman is not present;
- Ensure the full participation and engagement of all Board members in deliberations;
- Lead the Board of Directors in all deliberations involving the CEO's employment, including hiring, contract negotiations, performance evaluations, and dismissal;
- Counsel the Chairman on issues of interest/concern to directors and encourage all directors to engage the Chairman with their interests and concerns;

- Work with the Chairman to develop an appropriate schedule of Board meetings and approve such schedule, to ensure that the directors have sufficient time for discussion of all agenda items, while not interfering with the flow of Company operations;
- Work with the Chairman to develop the Board and Committee agendas and approve the final agendas;
- Keep abreast of key Company activities and advise the Chairman as to the quality, quantity and timeliness of the flow of information from Company management that is necessary for the directors to effectively and responsibly perform their duties; although Company management is responsible for the preparation of materials for the Board of Directors, the Lead Director will approve information provided to the Board and may specifically request the inclusion of certain material;
- Engage consultants who report directly to the Board of Directors and assist in recommending consultants that work directly for Board Committees;
- Work in conjunction with the Corporate Governance and Nominating Committee in compliance with Governance Committee processes to interview all Board candidates and make recommendations to the Board of Directors;
- Assist the Board of Directors and Company officers in assuring compliance with and implementation of the Company's Governance Guidelines; work in conjunction with the Corporate Governance Committee to recommend revisions to the Governance Guidelines;
- Call, coordinate and develop the agenda for and chair executive sessions of the Board's independent directors; act as principal liaison between the independent directors and the CEO;
- Work in conjunction with the Corporate Governance and Nominating Committee to identify for appointment the members of the various Board Committees, as well as selection of the Committee chairs;
- Be available for consultation and direct communication with major shareholders;
- Make a commitment to serve in the role of Lead Director for a minimum of three years; and
- Help set the tone for the highest standards of ethics and integrity.

Mr. Swift has been the Company's Lead Director since January 2010 and was re-elected as Lead Director in February 2019.

Board Risk Oversight

The Board of Directors has oversight responsibility of the processes established to report and monitor systems for material risks applicable to the Company. The Board of Directors focuses on the Company's general risk management strategy and the most significant risks facing the Company and ensures that appropriate risk mitigation strategies are implemented by management. The full Board is responsible for considering strategic risks and succession planning and, at each Board meeting, receives reports from each Committee as to risk oversight within their areas of responsibility. The Board of Directors has delegated to its various committees the oversight of risk management practices for categories of risk relevant to their functions as follows:

- The Audit Committee oversees risks associated with the Company's systems of disclosure controls and internal controls over financial reporting, as well as the Company's compliance with legal and regulatory requirements. In addition, the Audit Committee has oversight of the Company's cybersecurity programs and risks, including board level oversight for management's actions with respect to: (1) the practices, procedures, and controls to identify, assess, and manage its key cybersecurity programs and risks; (2) the protection, confidentiality, integrity, and availability of the Company's digital information, intellectual property, and compliance-protected data through the associated networks as it relates to connected networks, suppliers, employees, and channel partners; and (3) the protection and privacy of data related to our customers.
- The Compensation Committee considers risks related to the attraction and retention of talent and risks related to the design of compensation programs and arrangements.
- The Corporate Governance and Nominating Committee oversees risks associated with board succession, conflicts of interest, corporate governance and sustainability.
- The Finance Committee oversees risks associated with foreign exchange, insurance, credit and debt.

The Company has appointed the Chief Financial Officer ("CFO") as its Chief Risk Officer and, in that role, the Chief Risk Officer periodically reports on risk management policies and practices to the relevant Board Committee or to the full Board so that any decisions can be made as to any required changes in the Company's risk management and mitigation strategies or in the Board's oversight of these. As part of its oversight of the Company's executive compensation program, the Compensation Committee considers the impact of the Company's executive compensation program and the incentives created by the compensation awards that it administers on the Company's risk profile. In addition, the Company reviews all of its compensation policies and procedures, including the incentives that they create and factors that may reduce the likelihood of excessive risk taking, to determine whether they present a significant risk to the Company. Based on this review, the Company has concluded that its compensation policies and procedures are not reasonably likely to have a material adverse effect on the Company.

Director Compensation and Share Ownership

It is the policy of the Board of Directors that directors' fees be the sole compensation received from the Company by any non-employee director. The Company has a share ownership requirement of five times the annual cash retainer paid to the directors. A director cannot sell any shares of Company stock until he or she attains such level of ownership and any sale thereafter cannot reduce the total number of holdings below the required ownership level. A director is required to retain this minimum level of Company share ownership until his or her resignation or retirement from the Board.

Board Committees

The Board of Directors has the following committees: Audit Committee, Compensation Committee, Corporate Governance and Nominating Committee, Finance Committee, Technology and Innovation Committee and Executive Committee. The Board of Directors consists of a substantial majority of independent, non-employee directors. Only non-employee directors serve on the Audit, Compensation, Corporate Governance and Nominating, Finance and Technology and Innovation Committees. The Board of Directors has determined that each member of each of these committees is "independent" as defined in the NYSE listing standards and the Company's Guidelines for Determining Independence of Directors. Chairpersons and members of these five committees are rotated periodically, as appropriate. The Chairman, who is also the CEO, serves on the Company's Executive Committee and is Chairperson of such Committee. The remainder of the Executive Committee is comprised of the Lead Director and the non-employee director Chairpersons of the Audit, Compensation, Corporate Governance and Nominating and Finance Committees. Committee memberships and chairs are rotated periodically.

Board Diversity

The Company's policy on Board diversity relates to the selection of nominees for the Board of Directors. In selecting a nominee for the Board, the Corporate Governance and Nominating Committee considers the skills, expertise and background that would complement the existing Board and ensure that its members are of sufficiently diverse and independent backgrounds, recognizing that the Company's businesses and operations are diverse and global in nature. The Board of Directors currently has four female directors, one Hispanic director and two non-U.S. directors out of a total of 12 directors. In addition, the tenure of our directors is varied, which brings varying perspectives to our Board functionality.

Board Advisors

The Board of Directors and its committees may, under their respective charters, retain their own advisors to carry out their responsibilities.

Executive Sessions

The Company's independent directors meet privately in regularly scheduled executive sessions, without management present, to consider such matters as the independent directors deem appropriate. These executive sessions are required to be held no less than twice each year.

Board and Board Committee Performance Evaluation

The Corporate Governance and Nominating Committee assists the Board in evaluating its performance and the performance of the Board committees. Each committee also conducts an annual self-evaluation. The effectiveness of individual directors is considered each year when the directors stand for re-nomination.

Director Orientation and Education

The Company has developed an orientation program for new directors and provides continuing education for all directors. In addition, the directors are given full access to management and corporate staff as a means of providing additional information.

Director Nomination Process

The Corporate Governance and Nominating Committee reviews the composition of the full Board to identify the qualifications and areas of expertise needed to further enhance the composition of the Board, makes recommendations to the Board concerning the appropriate size and needs of the Board and, on its own or with the assistance of management, a search firm or others, identifies candidates with those qualifications. In considering candidates, the Corporate Governance and Nominating Committee will take into account all factors it considers appropriate, including breadth of experience, understanding of business and financial issues, ability to exercise sound judgment, diversity, leadership, and achievements and experience in matters affecting business and industry. The Corporate Governance and Nominating Committee considers the entirety of each candidate's credentials and believes that at a minimum each nominee should satisfy the following criteria: highest character and integrity, experience and understanding of strategy and policy-setting, sufficient time to devote to Board matters, and no conflict of interest that would interfere with performance as a director. Shareholders may recommend candidates for consideration for Board membership by sending the recommendation to the Corporate Governance and Nominating Committee, in care of the Secretary of the Company. Candidates recommended by shareholders are evaluated in the same manner as director candidates identified by any other means.

Director Retirement

It is the policy of the Board of Directors that each non-employee director must retire at the annual general meeting immediately following his or her 75th birthday. An exception to the director retirement policy was made for Mr. Swift who was asked to remain a member of the Board of Directors until the 2021 annual meeting in order to provide continuity after the Company's RMT Transaction. Directors who change the occupation they held when initially elected must offer to resign from the Board of Directors. At that time, the Corporate Governance and Nominating Committee reviews the continued appropriateness of Board membership under the new circumstances and makes a recommendation to the Board of Directors. Employee directors, including the CEO, must retire from the Board of Directors at the time of a change in their status as an officer of the Company, unless the policy is waived by the Board.

Director Independence

The Board of Directors has determined that all of our current directors and director nominees, except Mr. Lamach, who is an employee of the Company, are independent under the standards set forth in Exhibit I to our Corporate Governance Guidelines, which are consistent with the NYSE listing standards. In determining the independence of directors, the Board evaluated transactions between the Company and entities with which directors were affiliated that occurred in the ordinary course of business and that were provided on the same terms and conditions available to other customers. A copy of Exhibit I to our Corporate Governance Guidelines is available on our website, www.tranetechnologies.com, under the heading "Company—Corporate Governance."

Communications with Directors

Shareholders and other interested parties wishing to communicate with the Board of Directors, the non-employee directors or any individual director (including our Lead Director and Compensation Committee Chair) may do so either by sending a communication to the Board and/or a particular Board member, in care of the Secretary of the Company, or by e-mail at board@tranetechnologies.com. Depending upon the nature of the communication and to whom it is directed, the Secretary will: (a) forward the communication to the appropriate director or directors; (b) forward the communication to the relevant department within the Company; or (c) attempt to handle the matter directly (for example, a communication dealing with a share ownership matter).

Management Succession Planning

Our Board of Directors believes that ensuring leadership continuity and strong management capabilities exist to effectively carry out the Company's strategy and are critical responsibilities of the board. The board collaborates with the CEO and the Executive Vice President, Human Resources on the succession planning process, including establishing selection criteria that reflect our business strategies, identifying and developing internal candidates. The Board also ensures there are successors available for key positions in the normal course of business and for emergency situations.

The full Board formally reviews, at least annually, the plans for development, retention and replacement of key executives, and most importantly the CEO. In addition, management succession for key leadership positions is discussed regularly by the directors in Board meetings and in executive sessions of the Board of Directors. Directors become familiar with potential successors for key leadership positions through various means including regular talent reviews, presentations to the Board, and informal meetings.

Code of Conduct

The Company has adopted a worldwide Code of Conduct, applicable to all employees, directors and officers, including our CEO, our CFO and our Chief Accounting Officer. The Code of Conduct meets the requirements of a "code of ethics" as defined by Item 406 of Regulation S-K, as well as the requirements of a "code of business conduct and ethics" under the NYSE listing standards. The Code of Conduct covers topics including, but not limited to, conflicts of interest, confidentiality of information, and compliance with laws and regulations. A copy of the Code of Conduct is available on our website located at www.tranetechnologies.com under the heading "Company—Corporate Governance." Amendments to, or waivers of the provisions of, the Code of Conduct, if any, made with respect to any of our directors and executive officers will be posted on our website.

Anti-Hedging Policy and Other Restrictions

The Company prohibits its directors and executive officers from (i) purchasing any financial instruments designed to hedge or offset any decrease in the market value of Company securities, (ii) engaging in any form of short-term speculative trading in Company securities and (iii) holding Company securities in a margin account or pledging Company securities as collateral for a loan.

Investor Outreach

We believe it is important to understand our shareholders and their concerns and questions about our Company. During 2019, we met with a significant number of our major shareholders and with prospective shareholders to answer questions about our Company and to learn about issues that are important to them.

Sustainability

Sustainability is more than something we do at Trane Technologies – it is everything we do. Through the leadership of our chairman and CEO and senior leaders, we have embedded sustainability into every aspect of how we operate and help our customers succeed. Our approach and initiatives are guided by an external Advisory Council on Sustainability and regularly reviewed by our Enterprise Leadership Team and Board of Directors. Day-to-day, our Center for Efficiency and Sustainability (CEES) team surveys the market landscape, continually bringing new ideas and requirements forward. This team is also responsible for tracking and disclosing our progress.

For more information regarding our Company's commitment to leadership in environmental, social and governance matters and our achievements in these areas, please also see our 2019 Annual Report to Shareholders included in these proxy materials and our 2019 ESG Report available on our website located at www.tranetechnologies.com under the heading "Sustainability." For more information regarding our achievements in environmental, social and governance matters, please see "Other Recent Achievements" in the Executive Summary to our Compensation Discussion and Analysis.

Committees of the Board and Attendance

AUDIT COMMITTEE

Meetings in 2019: 9

Members
John P. Surma (Chair)
Ann C. Berzin
John Bruton
Myles P. Lee
Karen B. Peetz
Richard J. Swift

Key Functions
- Review annual audited and quarterly financial statements, as well as the Company's disclosures under "Management's Discussion and Analysis of Financial Conditions and Results of Operations," with management and the independent auditors.
- Obtain and review periodic reports, at least annually, from management assessing the effectiveness of the Company's internal controls and procedures for financial reporting.
- Review the Company's processes to assure compliance with all applicable laws, regulations and corporate policy.
- Recommend the public accounting firm to be proposed for appointment by the shareholders as our independent auditors and review the performance of the independent auditors.
- Review the scope of the audit and the findings and approve the fees of the independent auditors.
- Approve in advance, subject to and in accordance with applicable laws and regulations, permitted audit and non-audit services to be performed by the independent auditors.
- Satisfy itself as to the independence of the independent auditors and ensure receipt of their annual independence statement.
- Discuss with management and the independent auditors the Company's policies with respect to risk assessment and risk management, including the review and approval of a risk-based audit plan.
- Oversee the Company's cybersecurity programs and risks.

The Board of Directors has determined that each member of the Audit Committee is "independent" for purposes of the applicable rules and regulations of the SEC, as defined in the NYSE listing standards and the Company's Corporate Governance Guidelines, and has determined that all members other than one meet the qualifications of an "audit committee financial expert," as that term is defined by rules of the SEC. In addition, each member of the Audit Committee qualifies as an independent director, meets the financial literacy and independence requirements of the Securities & Exchange Commission (the "SEC") and the NYSE applicable to audit committee members and possesses the requisite competence in accounting or auditing in satisfaction of the requirements for audit committees prescribed by the Companies Act 2014.

A copy of the charter of the Audit Committee is available on our website, www.tranetechnologies.com, under the heading "Company—Corporate Governance – Board Committees and Charters."

COMPENSATION COMMITTEE

Meetings in 2019: 5

Members
Tony L. White (Chair)
Kirk E. Arnold
Jared L. Cohon
Gary D. Forsee
Linda P. Hudson

Key Functions
- Establish our executive compensation strategies, policies and programs.
- Review and approve the goals and objectives relevant to the compensation of the Chief Executive Officer, evaluate the Chief Executive Officer's performance against those goals and objectives and set the Chief Executive Officer's compensation level based on this evaluation. The Compensation Committee Chair presents all compensation decisions pertaining to the Chief Executive Officer to the full Board of Directors.
- Approve compensation of all other elected officers.
- Review and approve executive compensation and benefit programs.
- Administer the Company's equity compensation plans.
- Review and recommend significant changes in principal employee benefit programs.
- Approve and oversee Compensation Committee consultants.

For a discussion concerning the processes and procedures for determining NEO and director compensation and the role of executive officers and compensation consultants in determining or recommending the amount or form of compensation, see "Compensation Discussion and Analysis" and "Compensation of Directors," respectively. The Board of Directors has determined that each member of the Compensation Committee is "independent" as defined in the NYSE listing standards and the Company's Corporate Governance Guidelines. In addition, the Board of Directors has determined that each member of the Compensation Committee qualifies as a "Non-Employee Director" within the meaning of Rule 16b-3 of the Securities Exchange Act of 1934 and an "outside director" within the meaning of Section 162(m) of the Code.

A copy of the charter of the Compensation Committee is available on our website, www.tranetechnologies.com, under the heading "Company—Corporate Governance – Board Committees and Charters."

CORPORATE GOVERNANCE AND NOMINATING COMMITTEE

Meetings in 2019: 5

Members
Gary D. Forsee (Chair)
Kirk E. Arnold
Jared L. Cohon
Linda P. Hudson
Tony L. White

Key Functions
- Identify individuals qualified to become directors and recommend the candidates for all directorships.
- Recommend individuals for election as officers.
- Review the Company's Corporate Governance Guidelines and make recommendations for changes.
- Consider questions of independence of directors and possible conflicts of interest of directors as well as executive officers.
- Take a leadership role in shaping the corporate governance of the Company.
- Oversee the Company's sustainability efforts.

The Board of Directors has determined that each member of the Corporate Governance and Nominating Committee is "independent" as defined in the NYSE listing standards and the Company's Corporate Governance Guidelines.

A copy of the charter of the Corporate Governance and Nominating Committee is available on our website, www.tranetechnologies.com, under the heading "Company—Corporate Governance – Board Committees and Charters."

FINANCE COMMITTEE

Meetings in 2019: 5

Members
Ann C. Berzin (Chair)
John Bruton
Myles P. Lee
Karen B. Peetz
John P. Surma
Richard J. Swift

Key Functions
- Consider and recommend for approval by the Board of Directors (a) issuances of equity and/or debt securities; or (b) authorizations for other financing transactions, including bank credit facilities.
- Consider and recommend for approval by the Board of Directors the repurchase of the Company's shares.
- Review cash management policies.
- Review periodic reports of the investment performance of the Company's employee benefit plans.
- Consider and recommend for approval by the Board of Directors the Company's external dividend policy.
- Consider and approve the Company's financial risk management activities, including the areas of foreign exchange, commodities, and interest rate exposures, insurance programs and customer financing risks.

The Board of Directors has determined that each member of the Finance Committee is "independent" as defined in the NYSE listing standards and the Company's Corporate Governance Guidelines.

A copy of the charter of the Finance Committee is available on our website, www.tranetechnologies.com, under the heading "Company—Corporate Governance – Board Committees and Charters."

EXECUTIVE COMMITTEE

Meetings in 2019: 1

Members
Michael W. Lamach (Chair)
Ann C. Berzin
Gary D. Forsee
John P. Surma
Richard J. Swift
Tony L. White

Key Functions
- Aid the Board in handling matters which, in the opinion of the Chairman of the Board or Lead Director, should not be postponed until the next scheduled meeting of the Board (except as limited by the charter of the Executive Committee).

The Board of Directors has determined that each member of the Executive Committee (other than Michael W. Lamach) is "independent" as defined in the NYSE listing standards and the Company's Corporate Governance Guidelines.

A copy of the charter of the Executive Committee is available on our website, www.tranetechnologies.com, under the heading "Company—Corporate Governance – Board Committees and Charters."

TECHNOLOGY AND INNOVATION COMMITTEE

Meetings in 2019: 2

Members
Jared L. Cohon (Chair)
Kirk E. Arnold
John Bruton
Gary D. Forsee
Linda P. Hudson
Richard J. Swift
Tony L. White

Key Functions

- Review the Company's technology and innovation strategy and approach, including its impact on the Company's performance, growth and competitive position.
- Review with management technologies that can have a material impact on the Company, including product and process development technologies, manufacturing technologies and practices, and the utilization of quality assurance programs.
- Assist the Board in its oversight of the Company's investments in technology and innovation, including through acquisitions and other business development activities.
- Review technology trends that could significantly affect the Company and the industries in which it operates.
- Assist the Board in its oversight of the Company's technology and innovation initiatives.
- Oversee the direction and effectiveness of the Company's research and development operations

The Board of Directors has determined that each member of the Technology and Innovation Committee is "independent" as defined in the NYSE listing standards and the Company's Corporate Governance Guidelines.

A copy of the charter of the Technology and Innovation Committee is available on our website, www.tranetechnologies.com, under the heading "Company—Corporate Governance – Board Committees and Charters."

There were 5 meetings of the Board of Directors in 2019. All directors attended at least 75% or more of the total number of meetings of the Board of Directors and the committees on which he or she served during the year. The Company's non-employee directors held 5 independent director meetings without management present during the fiscal year 2019. It is the Board's general practice to hold independent director meetings in connection with regularly scheduled Board meetings.

The Company expects all Board members to attend the annual general meeting, but from time to time other commitments prevent all directors from attending the meeting. All of the members of our Board standing for re-election at the 2019 Annual General Meeting attended that meeting, which was held on June 6, 2019.

Compensation Committee Interlocks and Insider Participation

Our Compensation Committee is composed solely of independent directors. During fiscal 2019, no member of our Compensation Committee was an employee or officer or former officer of the Company or had any relationships requiring disclosure under Item 404 of Regulation S-K. None of our executive officers has served on the board of directors or compensation committee of any other entity that has or has had one or more executive officers who served as a member of our Board or our Compensation Committee during fiscal 2019.

Compensation of Directors

Director Compensation

Our director compensation program is designed to compensate non-employee directors fairly for work required for a company of our size and scope and to align their interests with the long-term interests of our shareholders. The program reflects our desire to attract, retain and use the expertise of highly qualified people serving on the Company's Board of Directors. Employee directors do not receive any additional compensation for serving as a director. Our 2019 director compensation program for non-employee directors consisted of the following elements:

COMPENSATION ELEMENT	COMPENSATION VALUE ($)
Annual Retainer ($142,500 paid in cash and $162,500 paid in restricted stock units)*	305,000
Audit Committee Chair Cash Retainer	30,000
Compensation Committee Chair Cash Retainer	20,000
Corporate Governance and Nominating Committee Chair and Finance Committee Chair Cash Retainer	15,000
Executive Committee Chair Retainer	No retainer paid to the Chair
Technology and Innovation Committee Chair Retainer	7,500
Audit Committee Member Cash Retainer (other than Chair)	7,500
Lead Director Cash Retainer	50,000
Additional Meetings or Unscheduled Planning Session Fees	2,500 (per meeting or session)

* The number of restricted stock units granted is determined by dividing the grant date value of the award, $162,500, by the closing price of the Company's common stock on the date of grant. A director who retires, resigns or otherwise separates from the Company for any reason receives a pro-rata cash retainer payment for the quarter in which such event occurs based on the number of days elapsed since the end of the immediately preceding quarter and immediately vests in any unvested restricted stock units.

The Corporate Governance and Nominating Committee periodically reviews the compensation level of our non-employee directors in consultation with the Committee's independent compensation consultant, Korn Ferry, and makes recommendations to the Board of Directors.

Under our 2018 Incentive Stock Plan, the aggregate amount of stock-based and cash-based awards which may be granted to any non-employee director in respect of any calendar year, solely with respect to his or her service as a member of the Board of Directors, is limited to $1,000,000.

Share Ownership Requirement

To align the interests of directors with shareholders, the Board of Directors has adopted a share ownership requirement of five times the annual cash retainer paid to the directors. A director cannot sell any shares of Company stock until he or she attains such level of ownership and any sale thereafter cannot reduce the total number of holdings below the required ownership level. A director is required to retain this minimum level of Company share ownership until his or her resignation or retirement from the Board.

2019 Director Compensation

The compensation paid or credited to our non-employee directors for the year ended December 31, 2019, is summarized in the table below.

NAME	FEES EARNED OR PAID IN CASH ($)[(a)]	EQUITY / STOCK AWARDS ($)[(b)]	ALL OTHER COMPENSATION ($)	TOTAL ($)
K. E. Arnold	142,500	162,560	—	305,060
A. C. Berzin	165,000	162,560	—	327,560
J. Bruton	150,000	162,560	—	312,560
J. L. Cohon	150,000	162,560	—	312,560
G. D. Forsee	157,500	162,560	—	320,060
L. P. Hudson	142,500	162,560	—	305,060
M. P. Lee	150,000	162,560	—	312,560
K. B. Peetz	150,000	162,560	—	312,560
J. P. Surma	172,500	162,560	—	335,060
R. J. Swift	200,000	162,560	—	362,560
T. L. White	162,500	162,560	—	325,060

(a) The amounts in this column represent the following: annual cash retainer, the Committee Chair retainers, the Audit Committee member retainer, the Lead Director retainer, and the Board, Committee and other meeting or session fees.

NAME	CASH RETAINER ($)	COMMITTEE CHAIR RETAINER ($)	AUDIT COMMITTEE MEMBER RETAINER ($)	LEAD DIRECTOR RETAINER FEES ($)	BOARD, COMMITTEE AND OTHER MEETING OR SESSION FEES ($)	TOTAL FEES EARNED OR PAID IN CASH ($)
K. E. Arnold	142,500	—	—	—	—	142,500
A. C. Berzin	142,500	15,000	7,500	—	—	165,000
J. Bruton	142,500	—	7,500	—	—	150,000
J. L. Cohon	142,500	—	7,500	—	—	150,000
G. D. Forsee	142,500	15,000	—	—	—	157,500
L. P. Hudson	142,500	—	—	—	—	142,500
M. P. Lee	142,500	—	7,500	—	—	150,000
K. B. Peetz	142,500	—	7,500	—	—	150,000
J. P. Surma	142,500	30,000	—	—	—	172,500
R. J. Swift	142,500	—	7,500	50,000	—	200,000
T. L. White	142,500	20,000	—	—	—	162,500

(b) Represents RSUs awarded in 2019 as part of each director's annual retainer. The amounts in this column reflect the aggregate grant date fair value of RSU awards granted for the year under Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 718 and do not reflect amounts paid to or realized by the directors. For a discussion of the assumptions made in determining the ASC 718 values see Note 13, "Share-Based Compensation," to the Company's consolidated financial statements contained in its 2019 Form 10-K.

Compensation of Directors

For each non-employee director, the following table reflects all unvested RSU awards at December 31, 2019:

NAME	NUMBER OF UNVESTED RSUs
K. E. Arnold	1,301
A. C. Berzin	1,301
J. Bruton	1,301
J.L. Cohon	1,301
G. D. Forsee	1,301
L. P. Hudson	1,301
M. P. Lee	1,301
K. B. Peetz	1,301
J. P. Surma	1,301
R. J. Swift	1,301
T. L. White	1,301

Compensation Discussion and Analysis

PROXY STATEMENT

The Compensation Discussion and Analysis ("CD&A") set forth below provides an overview of our executive compensation philosophy and the underlying programs, including the objectives of such programs, as well as a discussion of how awards are determined for our Named Executive Officers ("NEOs"). These NEOs include our Chairman and Chief Executive Officer ("CEO"), our Chief Financial Officer ("CFO"), and our three most highly compensated executive officers from the 2019 fiscal year other than the CEO and CFO. The NEOs are:

NAMED EXECUTIVE OFFICERS	TITLE
Mr. Michael W. Lamach	Chairman and Chief Executive Officer
Ms. Susan K. Carter*	Senior Vice President and Chief Financial Officer
Mr. David S. Regnery	President and Chief Operating Officer
Ms. Marcia J. Avedon, Ph.D.	Executive Vice President, Chief Human Resources, Marketing and Communications Officer
Mr. Paul A. Camuti	Executive Vice President and Chief Technology and Strategy Officer

* Ms. Carter retired on April 1, 2020

This discussion and analysis is divided into the following sections:

I. Executive Summary

II. Compensation Philosophy and Design Principles

III. Factors Considered in the Determination of Target Total Direct Compensation

IV. Role of the Committee, Independent Advisor and Committee Actions

V. Compensation Program Descriptions and Compensation Decisions

VI. Other Compensation and Tax Matters

I. Executive Summary

On February 29, 2020, the Company and Gardner Denver Holdings, Inc. ("GDI") completed a transaction which separated the Company's Industrial segment and combined it with GDI, creating a global leader in mission-critical flow creation and industrial technologies called "Ingersoll Rand Inc." The remaining HVAC and transport refrigeration assets of the Company became Trane Technologies plc, trading on the New York Stock Exchange under the ticker "TT". Through its strategic brands, Trane and Thermo King, and a portfolio of climate-focused innovations, Trane Technologies is a global leader in climate control technologies that creates efficient and sustainable solutions for buildings, homes and transportation.

All of the information contained in the CD&A, including financial results, relates to the combined company as it existed at the end of 2019. Our family of brands in 2019, prior to the transaction, included Club Car, Ingersoll Rand, Thermo King and Trane.

2019 Financial Results

The following table documents the enterprise financial results realized in 2019 relative to our executive incentive compensation performance targets established for the period. The results include financial data for the combined company (both Industrial and Climate):

METRIC	PERFORMANCE[1]
Revenue	Adjusted Annual Revenue of $16.641 billion, which is 100% of target and an increase of 5.5% over 2018
Operating Income	Adjusted Operating Income of $2.200 billion, which is 99% of target and an increase of 9.1% over 2018
Operating Income Margin	Adjusted Operating Income Margin of 13.22%, which is 0.18 percentage points less than target and an increase of 0.44 percentage points over 2018
Cash Flow	Adjusted Cash Flow of $1.827 billion, which is 111% of target and an increase of 55.9% from 2018
3-Year Earnings Per Share (EPS) Growth	3-year adjusted EPS growth (2017 - 2019) of 14.96%, which ranks at the 68th percentile of the companies in the S&P 500 Industrials Index
3-Year Total Shareholder Return (TSR)	3-year TSR (2017-2019) of 79.64%, which ranks at the 83rd percentile of the companies in the S&P 500 Industrials Index

(1) We report our financial results in our annual report on Form 10-K and our quarterly reports on Form 10-Q in accordance with generally accepted accounting principles ("GAAP"). Our financial results described above for Revenue, Operating Income, Operating Income Margin, Cash Flow and 3-Year EPS Growth have been adjusted to exclude the impact of certain non-routine and other items as permitted by our incentive plans and approved by the Committee and are non-GAAP financial measures. These metrics and the related performance targets and results are relevant only to our executive compensation program and should not be used or applied in other contexts. For a description of how the metrics above are calculated from our GAAP financial statements, please see "Annual Incentive Matrix ("AIM") - Determination of Payout" with respect to AIM payments and "Long Term Incentive Program ('LTI') – 2017 - 2019 Performance Share Units Payout" with respect to Performance Share Program ("PSP") awards.

- Based on our 2019 results for Revenue, Operating Income, Operating Income Margin and Cash Flow, achievement under the Annual Incentive Matrix ("AIM") financial score was 112.40% of target for the Enterprise. At the Segment level, 2019 AIM financial score payout levels were 111.34% of target for the Climate Segment and 41.59% of target for the Industrial Segment.
- Based on our average EPS growth rate of 14.96% and a total shareholder return ("TSR") of 79.64% during the 2017 to 2019 performance period, Performance Share Units ("PSUs") under our PSP achievement was 186% of target.

Other Recent Achievements

The company:

- Acquired Precision Flow Systems, a lead provider of fluid management systems. This business is part of the Industrial Segment that merged with GDI.
- We met our first generation of 2020 commitments that were set in 2013 and did it two years before the date we committed, which was 2020. In early 2019, we launched bold 2030 commitments to meet the challenge of climate change, provide world-class systems and service performance for buildings, homes, transportation and industrial customers, and improve the quality of life for the people and communities where we operate and serve.
- Our CEO was listed among the best CEOs for 2019 in the Harvard Business Review.
- Renewed our membership in the CEO Action for Diversity and Inclusion, focusing on our commitment to advance diversity and inclusion in the workplace.
- Renewed our commitment to the Paradigm for Parity coalition, to bring gender parity to corporate leadership by 2030.
- Earned recognition for company performance in addressing climate change, engaging employees, stewarding the environment and advancing human rights and citizenship. Examples included:
  - Named in the Thomson Reuters Global Diversity and Inclusion Index for leading the way in embedding diversity and inclusion into company strategy;
  - Received a gold medal award from the World Environmental Center for our work in integrating sustainability into the core of our business;
  - Named on America's Most JUST Companies report, which recognizes American companies who are committed to fair pay, treating customers with respect, producing quality products and minimizing environmental impact;
  - Ranked among the top 100 "Best Corporate Citizens for 2019" by Corporate Responsibility Magazine;
  - Listed on numerous Forbes Indices over the years including being named as one of the world's best employers, Americas' best employers for women and best large employer;
  - For the seventh consecutive year, recognized by Fortune Magazine as one of the most-admired companies;

  - Named to the Corporate Knights Global 100 Most Sustainable Corporation Index which represents top 2 percent of companies' sustainability performance for the second consecutive year;
  - For the third consecutive year, awarded a perfect score in workplace equality on the Human Rights Campaign Foundation's equality index;
  - For the fifth consecutive year, named to the FTSE4Good equity index, which measures companies with strong environmental stewardship, human rights and corporate governance; and
  - For the ninth consecutive year, listed on the Dow Jones Sustainability World and North America Indices—the longest consecutively listed industrial in both indices.
- Maintained strong employee engagement as we sought meaningful ways to enhance the working lives of our employees which translates into improved commitment to the company's core values and mission. Our overall employee engagement score positions us well into the top quartile of all companies globally.

For more information regarding our Company's commitment to leadership in environmental, social and governance matters and our achievements in these areas, please also see our 2019 Annual Report to Shareholders included in these proxy materials and our 2019 ESG Report available on our website located at www.tranetechnologies.com under the heading "Sustainability."

Executive Compensation Program Overview

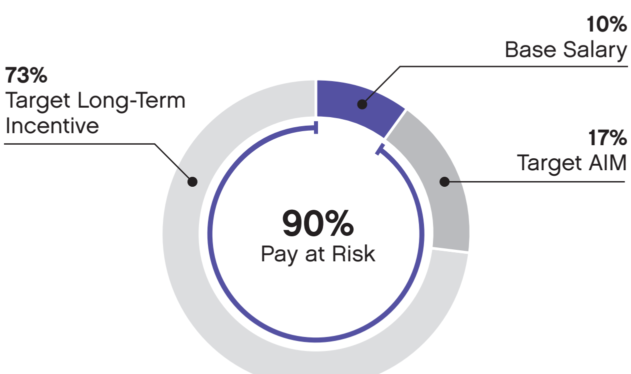
The Compensation Committee (the "Committee") has adopted executive compensation programs with a strong link between pay and performance and the achievement of short-term and long-term Company goals. The primary elements of the executive compensation programs are:

TOTAL DIRECT COMPENSATION	
ELEMENT[(1)]	**DESCRIPTION OF ELEMENT**
Base Salary	Fixed cash compensation.
Annual Incentive Matrix ("AIM")	Variable cash incentive compensation. Any award earned is based on performance measured against pre-defined annual Revenue, Operating Income, Cash Flow and Operating Income Margin Percent objectives as set by the Committee, as well as individual performance measured against pre-defined objectives.
Long-Term Incentives ("LTI")	Variable long-term incentive compensation. Performance is aligned with the Company's stock price and is awarded in the form of stock options, restricted stock units ("RSUs") and PSUs. PSUs for performance periods beginning prior to 2018 are only payable if the Company's EPS growth and TSR relative to companies in the S&P 500 Industrials Index exceed threshold performance. PSUs granted after January 1, 2018 are only payable if the Company's Cash Flow Return on Invested Capital ("CROIC") and TSR relative to companies in the S&P 500 Industrials Index exceed threshold performance.

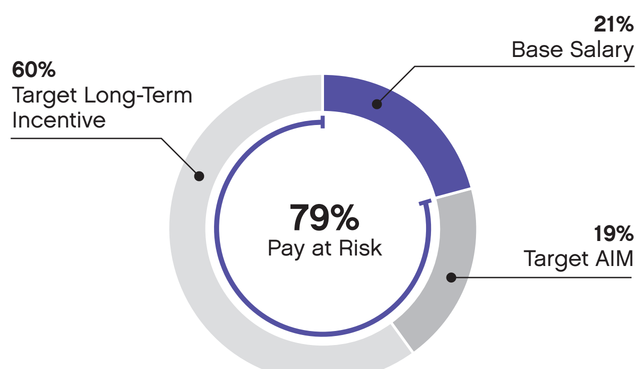
(1) See Section V, "Compensation Program Descriptions and Compensation Decisions", for additional discussion of these elements of compensation.

As illustrated in the charts below, the Committee places significant emphasis on variable compensation (AIM and LTI) so that a substantial percentage of each NEO's target total direct compensation is contingent on the successful achievement of the Company's short-term and long-term performance goals.

CHAIRMAN AND CEO
2019 COMPENSATION MIX
(TARGET TOTAL DIRECT COMPENSATION)



OTHER NEOS
2019 AVERAGE COMPENSATION MIX
(TARGET TOTAL DIRECT COMPENSATION)



Good Compensation Governance Practices

WHAT WE DO	WHAT WE DON'T DO
✔ Diversified metrics for our AIM and PSP programs to align with business strategies and shareholder interests	✖ No tax gross-ups for any change-in-control agreement entered into after May 2009 (only 3 of 15 officers have a tax gross-up provision in an agreement entered into with such officer prior to May 2009)
✔ Incentive awards tied to the achievement of rigorous pre-determined and measurable performance objectives	✖ No dividends on unvested restricted stock and no dividend equivalents on unvested restricted stock units or performance units until the underlying awards vest
✔ Significant emphasis on variable compensation in designing our compensation mix	✖ No liberal share recycling practices for options
✔ Regular competitive benchmarking and compensation reviews	✖ No "Single-trigger" vesting for any cash payments upon a change in control
✔ Commitment to fair and competitive pay for our employees and the avoidance of discrimination against any protected class or individual	✖ No "Single-trigger" vesting for any time-based equity awards upon a change in control
✔ Annual advisory vote on executive compensation	✖ No hedging or pledging of Company stock by directors and executive officers
✔ Independent compensation consultant to advise the Committee	✖ No re-pricing of equity awards
✔ Claw-back / recoupment policy	
✔ Robust stock ownership requirements for our executives	
✔ Reasonable limits on full-value awards	
✔ Annual review of risk in executive compensation plans	
✔ Limit of $1M dollars on non-employee directors annual compensation	

Consideration of 2019 Advisory Vote on Executive Compensation

The Committee regularly reviews the philosophy, objectives and elements of our executive compensation programs in relation to our short and long-term business objectives and has determined that there is no undue risk in the compensation programs. In undertaking this review, the Committee considers the views of shareholders as reflected in their annual advisory vote on our executive compensation proposal. Shareholders voted 92% in favor of the company's Advisory Approval of the Compensation of our NEOs proposal at our 2019 annual general meeting. Based on the Committee's review and the support our executive compensation programs received from shareholders, the Committee determined it would be appropriate to maintain the core elements of our executive compensation programs.

II. Compensation Philosophy and Design Principles

Our executive compensation programs are designed to attract, retain and focus the talent and energy of executive officers (including our NEOs) who are capable of meeting the Company's current and future goals, most notably the creation of sustainable shareholder value. As we operate in an ever-changing environment, our Committee makes decisions with consideration of economic, technological, regulatory, investor and competitive factors as well as our executive compensation principles.

The design principles that govern our executive compensation programs are:

Business strategy alignment	Our executive compensation programs provide flexibility to align with changing Company or business strategies. The programs allow for individuals within the Company's businesses to focus on specific financial measures to meet the short and long-term plans of the particular business for which they are accountable. It is not only possible but also desirable for certain leaders to earn substantial awards in years when their business outperforms against their annual operating plan. Conversely, if a business fails to meet its performance goals, that business' leader may earn a lesser award than his or her peers in that year. To provide a balanced incentive, all executives have a significant portion of their compensation tied to Company performance.
Pay for performance	A strong pay for performance culture is paramount to our Company's success. As a result, each executive's target total direct compensation ("TDC") is tied to Company, business and individual performance against set goals. Company and business performance is measured against pre-established financial, operational and strategic objectives as set by the Committee. Individual performance is measured against pre-established individual goals as well as demonstrated leadership competencies and behaviors consistent with our Company values. In addition, a portion of the long-term incentive is earned based upon earnings and shareholder value performance relative to peer companies.
Mix of short and long-term incentives	A proper mix between short and long-term incentives is important to encourage decision making that mitigates risk and balances the need to meet our Annual Operating Plan ("AOP") objectives while also taking into account the long-term interests of the Company and its shareholders. The mix of pay, including short and long-term incentives, is determined by considering the Company's pay for performance compensation philosophy and strategic objectives as well as competitive market practice.
Internal parity	Each executive's target TDC opportunity is proportionate with the responsibility, scope and complexity of his or her role within the Company. Thus, comparable jobs are assigned similar target compensation opportunities.
Shareholder alignment	Our executive compensation programs align the interests of our executives with those of shareholders by incorporating key financial targets such as revenue growth, EPS, CROIC and cash flow. These financial targets should correlate with both share price appreciation over time and the generation of cash flow for the Company. In addition, our long-term incentives are tied to total shareholder returns, increases in value as share price increases, and the effective use of assets to generate cash flow. Other program requirements, including share ownership guidelines for executives and vesting schedules on equity awards, further align executives' and shareholders' interests.
Market competitiveness	Compensation opportunities must serve to attract and retain high performing executives in a competitive environment for talent. Therefore, target TDC levels are set referencing applicable market compensation benchmarks with consideration of retention and recruiting demands in the industries and markets where we compete for business and executive talent. Each executive's target TDC may be above or below the market benchmark reference based on his or her experience, proficiency, performance and potential in performing the duties of his or her position in addition to the competitive market for that individual.

III. Factors Considered in the Determination of Target Total Direct Compensation

Our Committee reviews and evaluates our executive compensation levels and practices against those companies of comparable revenue, industry and/or business fit with which we compete for executive talent. These reviews are conducted throughout the year using a variety of methods such as:

- The direct analysis of the proxy statements of other diversified industrial companies (refer to peer group below);
- A review of compensation survey data of other global, diversified industrial companies of similar size published by independent consulting firms;
- A review of customized compensation survey data provided by independent consulting firms; and
- Feedback received from external constituencies.

The Committee does not rely on a single source of information when making executive compensation decisions. Many of the companies included in these compensation surveys are also included in the S&P 500 Industrials Index referred to in our 2019 Form 10-K under the caption "Performance Graph."

The Committee, with the assistance of its independent advisor, develops a peer group that it uses to evaluate executive compensation programs and levels. The 2019 peer group, shown below, is comprised of the following seventeen global diversified industrial companies. This peer group is unchanged from 2018.

3M	Fortive Corporation	PPG Industries
Cummins, Inc.	Honeywell International	Rockwell Automation
Danaher Corp	Illinois Tool Works	Stanley Black & Decker
Dover	Johnson Controls Inc.	TE Connectivity
Eaton plc	Paccar Inc.	Textron
Emerson Electric	Parker Hannifin Corp	

In assessing the relationship of CEO compensation to compensation of other executive officers (including our NEOs), the Committee considers overall organization structure and scope of responsibility and also reviews the NEOs' compensation levels relative to the CEO and to one another. This ensures that the target TDC levels are set in consideration of internal pay equity as well as market references and each executive's experience, proficiency, performance and potential in performing the duties of his or her role. In addition, the long tenure of our CEO (10 years) coupled with the strong performance of the company over this period, are taken into consideration by the Committee when evaluating CEO compensation.

IV. Role of the Committee, Independent Advisor and Committee Actions

Our Committee, which is composed solely of independent directors, oversees our compensation plans and policies, administers our equity-based programs and reviews and approves all forms of compensation relating to our executive officers, including the NEOs.

The Committee exclusively decides the compensation elements and the amounts to be awarded to our CEO. Our CEO does not make any recommendations regarding his own compensation and is not informed of these awards until the decisions have been finalized. Our CEO makes compensation recommendations related to our other NEOs and executive officers. The Committee considers these recommendations when approving the compensation elements and amounts to be awarded to our other NEOs.

Our Committee is responsible for reviewing and approving amendments to our executive compensation and benefit plans. In addition, our Committee is responsible for reviewing our principal broad-based employee benefit plans and making recommendations to our Board of Directors for significant amendments to, or termination of, such plans. The Committee's duties are described in the Committee's Charter, which is available on our website at www.tranetechnologies.com.

Our Committee has the authority to retain an independent advisor for the purpose of reviewing and providing guidance related to our executive compensation and benefit programs. The Committee is directly responsible for the compensation and oversight of the independent advisor. For 2019, the Committee continued to engage Korn Ferry to serve as its independent compensation advisor. Korn Ferry provides the following services to the Committee among others:

- Review and analysis of executive compensation benchmarking data for the CEO and other top executives as needed;
- Review and analysis of the public company peer group used to benchmark the Company's executive pay levels;
- Preparation of ad hoc analyses for the Committee to support decision-making around the executive compensation program; and
- Review and analysis of and advisement on management proposals regarding key elements of the executive compensation program.

Korn Ferry also provided the Corporate Governance and Nominating Committee with advice on director compensation matters including benchmarking data and market trends. The Committee determined that Korn Ferry is independent and does not have a conflict of interest. In making this determination, the Committee considered the factors adopted by the NYSE with respect to independence and conflicts of interest.

V. Compensation Program Descriptions and Compensation Decisions

The following table provides a summary of the elements, objectives, risk mitigation factors and other key features of our TDC program. Each of these elements is described in detail below:

ELEMENT	OBJECTIVE OF ELEMENT INCLUDING RISK MITIGATION FACTORS	KEY FEATURES RELATIVE TO NEOS
Base Salary	To provide a sufficient and stable source of cash compensation. To avoid encouraging excessive risk-taking by ensuring that an appropriate level of cash compensation is not variable.	Adjustments are determined by the Committee based on an evaluation of the NEO's proficiency in fulfilling his or her responsibilities, as well as performance against key objectives and behaviors. Base salary represents 10% of the CEO's target total direct compensation and 21%, on average, for the other NEOs.
Annual Incentive Matrix ("AIM") Program	To serve as an annual cash award tied to the achievement of pre-established performance objectives. Structured to take into consideration the unique needs of the various businesses. Amount of compensation earned cannot exceed a maximum payout of 200% of individual target levels and is also subject to a claw-back in the event of a financial restatement in accordance with our clawback policy.	Each NEO has an AIM target expressed as a percentage of base salary. Targets are set based on the compensation levels of similar jobs in comparable companies, as well as on the NEO's experience and proficiency level in performing the duties of the role. Actual AIM payouts are dependent on business and enterprise financial and individual performance. The financial metrics used to determine the awards for 2019 were Revenue, Operating Income, and Cash Flow, modified (up or down) based on Operating Income Margin performance. AIM represents 17% of the CEO's target total direct compensation and 19%, on average, for the other NEOs.

ELEMENT	OBJECTIVE OF ELEMENT INCLUDING RISK MITIGATION FACTORS	KEY FEATURES RELATIVE TO NEOS
Performance Share Program ("PSP")	To serve as a long-term incentive to outperform, on a relative basis, companies in the S&P 500 Industrials Index. To promote long-term strategic focus and discourage an overemphasis on attaining short-term goals. Structured to align with shareholder interests. Amount earned cannot exceed a maximum payout of 200% of individual target levels and is also subject to a claw-back in the event of a financial restatement in accordance with our clawback policy.	Performance share units ("PSUs") granted under the PSP are earned over a 3-year performance period. The number of PSUs earned is based on relative TSR and relative EPS growth compared to companies within the S&P 500 Industrials Index (with equal weight given to each metric) for awards granted through 2017. Beginning in 2018, the number of PSUs earned is based on relative TSR and relative CROIC compared to companies within the S&P 500 Industrials Index (with equal weight given to each metric). Actual value of the PSUs earned depends on our share price at the time of payment. PSUs represent 36.5% of the CEO's target total direct compensation and 30%, on average, for the other NEOs.
Stock Options / Restricted Stock Units ("RSUs")	Aligns the interests of the NEOs and shareholders. Awards provide a balance between performance and retention. Awards are subject to a claw-back in the event of a financial restatement in accordance with our clawback policy.	Stock options and RSUs are granted annually, with stock options having an exercise price equal to the fair market value of ordinary shares on the date of grant. Both stock options and RSUs typically vest ratably over three years, at a rate of one-third per year. Stock options expire on the day immediately preceding the 10th anniversary of the grant date (unless employment terminates sooner). A balanced mix of stock options and RSUs represent 36.5% of the CEO's target total direct compensation and 30%, on average, for the other NEOs.

Base Salary

The table below reflects the base salary adjustments for the NEOs between 2018 and 2019. When determining base salary adjustments, each NEO is evaluated based on their position to the market for their job and on the results achieved and the behaviors demonstrated.

(DOLLAR AMOUNTS ANNUALIZED)	12/31/2018 ($)	12/31/2019 ($)
M. W. Lamach	1,350,000	1,410,000
S. K. Carter	740,000	775,000
D. Regnery	740,000	775,000
M. J. Avedon	650,000	685,000
P. A. Camuti	540,000	570,000

Annual Incentive Matrix ("AIM")

The AIM program is an annual cash incentive program designed to reward NEOs for Revenue growth, increases in Operating Income, the delivery of strong Cash Flow and individual contributions to the Company. We believe that our AIM design provides participants with clarity as to how they can earn a cash incentive based on strong performance relative to each metric. The Committee establishes a target award for each NEO that is expressed as a percentage of base salary. Individual AIM payouts are calculated as the product of a financial performance score and an individual performance score, both of which are based on achievement relative to pre-established performance objectives adopted by the Committee. Individual AIM awards are calculated by multiplying individual AIM targets by an AIM Payout Percentage calculated as illustrated below:

Financial Score: Core Financial Metrics		**Multiplier**		**Adjusted Financial Score** *(0% to 200%)*		**Individual Performance Score** *(0% to 150%)*		**AIM Payout Percentage** *(0% to 200%)*
1/3 Revenue 1/3 Operating Income 1/3 Cash Flow	x	Operating Margin Percent	=	Financial Score x Multiplier	x	Performance against Individual Objectives	=	Adjusted Financial Score x Individual Performance Score

Financial Performance

AIM incentive opportunity is tied to pre-established goals for three equally-weighted performance metrics ("Core Financial Metrics"): Revenue, Operating Income and Cash Flow. These metrics align with the Company's objectives to profitably grow the businesses, and improve margins through operational efficiency. Threshold performance for each metric must be achieved in order for any incentive to be payable for that metric. The financial AIM payout is the sum of the calculated payout percentage for each metric, adjusted by an Operating Income Margin percentage multiplier ("Multiplier"), which can range from 85% to 115%.

The Committee retains the authority to adjust the Company's reported financial results for the impact of changes in accounting principles, extraordinary items and unusual or non-recurring gains or losses, including significant differences from the assumptions contained in the financial plan upon which the incentive targets were established, based on its own review and on recommendations by the CEO. Adjustments to reported financial results are intended to better reflect an executive's actual performance results, align award payments with decisions which support the plan and strategies, avoid unintended inflation or deflation of awards due to unusual or non-recurring items in the applicable period, and emphasize the Company's preference for long-term and sustainable growth.

2019 AIM financial executive compensation performance goals for the NEOs are summarized in the following table:

	PRE-ESTABLISHED FINANCIAL TARGETS ($ IN MILLIONS)*					
	REVENUE	OPERATING INCOME	CASH FLOW	PAYOUT AS % OF TARGET **	OPERATING INCOME MARGIN	OPERATING INCOME MARGIN MULTIPLIER **
Enterprise						
Threshold	$ 15,784.0	$ 2,003.4	$ 1,315.1	30%	12.69%	85%
Target	$ 16,614.7	$ 2,226.0	$ 1,643.9	100%	13.40%	100%
Maximum	$ 17,445.4	$ 2,448.6	$ 1,972.7	200%	14.04%	115%
Climate Segment						
Threshold	$ 12,271.7	$ 1,749.4	$ 1,691.4	30%	14.26%	85%
Target	$ 12,917.6	$ 1,943.8	$ 2,114.3	100%	15.05%	100%
Maximum	$ 13,563.5	$ 2,138.2	$ 2,537.2	200%	15.76%	115%
Industrial Segment						
Threshold	$ 3,512.2	$ 478.0	$ 497.5	30%	13.61%	85%
Target	$ 3,697.1	$ 531.1	$ 621.9	100%	14.37%	100%
Maximum	$ 3,882.0	$ 584.2	$ 746.3	200%	15.05%	115%

* Reflects the financial goals for the Enterprise and segments to which incentive opportunity for our 2019 NEOs was tied.

** Results are interpolated between performance levels.

For 2019 AIM purposes, Mr. Lamach, Ms. Carter, Ms. Avedon and Mr. Camuti were measured on the basis of the Enterprise financial metrics. Mr. Regnery was measured on a combination of Enterprise and Segment metrics (50% Enterprise, 35% Climate and 15% Industrial)

The table below summarizes 2019 performance relative to performance targets and corresponding 2019 AIM payout levels.

($ IN MILLIONS)	FINANCIAL TARGETS	ADJUSTED FINANCIAL PERFORMANCE	PAYOUT AS A % OF TARGET	AGGREGATE PAYOUT AS % OF TARGET	OPERATING INCOME MARGIN MULTIPLIER	AIM FINANCIAL SCORE FOR 2019
Enterprise						
Revenue	$ 16,614.7	$ 16,640.5	103%			
Operating Income	$ 2,226.0	$ 2,199.8	92%			
Cash Flow	$ 1,643.9	$ 1,826.9	156%	116.84%	96.20%	112.40%
Operating Income Margin	13.40%	13.22%	N/A			
Climate Segment						
Revenue	$ 12,917.6	$ 13,088.3	126%			
Operating Income	$ 1,943.8	$ 1,961.7	109%			
Cash Flow	$ 2,114.3	$ 2,123.7	102%	112.62%	98.86%	111.34%
Operating Income Margin	15.05%	14.99%	N/A			
Industrial Segment						
Revenue	$ 3,697.1	$ 3,539.9	40%			
Operating Income	$ 531.1	$ 490.2	46%			
Cash Flow	$ 621.9	$ 537.4	52%	46.34%	89.74%	41.59%
Operating Income Margin	14.37%	13.85%	N/A			

Individual Performance

Individual objectives are established annually and include strategic initiatives as well as financial and non-financial metrics. Each NEO is evaluated based upon actual results against established measures and our leadership competencies. At the end of the fiscal year, the CEO evaluates each NEO's overall performance against individual objectives and submits a recommendation to the Committee. The Committee evaluates the CEO's performance against individual objectives. Based on its evaluation of the CEO, and the CEO's recommendation for other NEOs, the Committee determines the individual performance score for each NEO, which can range from 0% to 150%.

In determining the individual factor for each NEO's AIM award, the Committee considered pre-established individual performance objectives, including the following:

- Execution of identified key growth initiatives and the development of strategic organizational growth capabilities;
- Successful achievement of milestones to further implement operational excellence, the business operating system and sustainability initiatives;
- Successful integration of strategic acquisitions;
- Accomplishments to further implement the information technology strategy and system launches;
- Improvements in employee engagement, talent development, retention and diversity; and
- Preparing the Industrial Segment to spinoff and merge with Gardner Denver Holdings.

PROXY STATEMENT

Determination of Payout

The actual AIM payout is determined by multiplying the NEO's target award by the financial performance score and multiplying that result by the individual performance score. AIM payouts cannot exceed 200% of the target award. If the overall AIM payout score is less than 30%, no award is payable. In that event, the CEO, with approval from the Committee, may establish a discretionary pool (equal to no more than 30% of the target payout levels) for top performers and/or other deserving employees in an amount determined to be appropriate based on their performance against objectives. Performance targets are established and results are measured against financial metrics that have been adjusted from our GAAP results as described below.

2019 AIM Revenue, Operating Income and Cash Flow performance goals were set based on 2019 financial plans. One-time expenses associated with the Precision Flow System acquisition and the RMT transaction were excluded from the year-end 2019 AIM financials, as these items are unusual or infrequent in nature. Additionally, the Committee approved adjustments to 2019 performance results for AIM purposes at the enterprise and segment levels including to (a) provide upward and downward adjustments related to previously unplanned transactions, restructuring and product launches, (b) offset the impact of accounting practices put in place after the plan targets were set, and (c) provide other miscellaneous upward and downward adjustments. All of the above financial adjustments were also reviewed with the Audit Committee prior to approval by the Committee.

The Committee approved the following AIM awards for NEOs based on achieving both the 2019 financial and individual objectives:

NAME	AIM TARGET $	AIM FINANCIAL SCORE FOR 2019	INDIVIDUAL PERFORMANCE SCORE	AIM AWARD FOR 2019
M. W. Lamach	2,244,033	112.40	110.00	2,775,000
S. K. Carter	767,521	112.40	110.00	948,963
D. S. Regnery	767,521	101.41	110.00	856,177
M. J. Avedon	575,893	112.40	110.00	712,034
P. A. Camuti	421,890	112.40	110.00	521,625

Long-Term Incentive Program ("LTI")

Our long-term incentive program is comprised of stock options, RSUs and PSUs. This mix of equity-based awards aligns the executives' interests with the interests of our shareholders from the perspectives of stock price appreciation and relative performance. This approach enables us to develop and implement long-term strategies that we believe are in the best interest of shareholders.

Stock Options/Restricted Stock Units

We grant our NEOs an equal mix of stock options and RSUs. Our Committee believes that this mix provides an effective balance between performance and retention for our NEOs and conserves share usage under our incentive stock plan. Stock options are considered "at risk" since there is no value unless the stock price appreciates during the term of the option period. RSUs, on the other hand, provide stronger retentive value because they have value even if our stock price does not grow during the restricted period. Our Committee annually reviews our equity mix and grant policies to ensure they are aligned with our pay for performance philosophy, our executive compensation objectives and the interests of our shareholders.

Stock option and RSU targets are expressed in dollars. The dollar target is converted to a number of shares based on the fair market value of the Company's shares on the date that the award is granted.

Both stock options and RSUs generally vest ratably, one third per year, over a three year period following the grant. Dividend equivalents are accrued on outstanding RSU awards at the same time and at the same rate as dividends are paid to shareholders. Dividend equivalents on RSUs are only payable if the underlying RSU award has vested. At the time of vesting, one ordinary share is issued for each RSU and any accrued dividend equivalents are paid in cash.

Performance Share Program ("PSP")

Our PSP is an equity-based incentive compensation program that provides our NEOs and other key executives with an opportunity to earn PSUs based on the Company's performance relative to the companies in the S&P 500 Industrials Index. PSUs granted through 2017 are earned over a 3-year performance period based equally on our relative EPS growth (from continuing operations) and relative TSR as compared to the companies within the S&P 500 Industrials Index. Beginning with awards granted in 2018, the relative EPS performance metric was replaced with relative CROIC. The actual number of PSUs earned for grants made in 2019 (which can range from 0% to 200% of target) is based on the following thresholds:

COMPANY PERFORMANCE RELATIVE TO THE COMPANIES WITHIN THE S&P 500 INDUSTRIALS INDEX	2019 – 2021 MEASUREMENT PERIOD % OF TARGET PSUS EARNED *
< 25th Percentile	0%
25th Percentile	25%
50th Percentile	100%
· 75th Percentile	200%

* Results are interpolated between percentiles achieved.

The NEOs' PSP target awards, expressed as a dollar amount, are set in consideration of competitive long-term incentive market values for executives in our peer group with similar roles and responsibilities and our mix of long-term incentives. The dollar target is converted to share equivalent PSUs based on the fair market value of the Company's shares on the date that the award is granted. The number of PSUs earned is based on relative TSR and relative CROIC compared to companies within the S&P 500 Industrials Index (with equal weight given to each metric).

- TSR is measured as the total stock price appreciation and dividends earned during the three years of the performance cycle. To prevent an anomalous short-term change in stock price from having an inappropriate and outsized impact on payout levels, a 30-day average stock price at the beginning and ending periods is used. TSR provides a tool for measuring performance among peers.
- CROIC is measured by dividing Free Cash Flow by a combination of gross fixed assets (Plant, Property & Equipment) plus Working Capital (Accounts and Notes Receivable plus Inventory less Accounts and Notes Payable). CROIC is calculated in accordance with GAAP, subject to adjustments for unusual or infrequent items; the impact of any change in accounting principles; goodwill and other intangible asset impairments; and gains or charges associated with discontinued operations or through the acquisition or divestiture of a business. As a result, expense for outstanding PSP awards is recorded using the fixed accounting method.

Our Committee retains the authority and discretion to make downward adjustments to the calculated PSP award payouts or not to grant any award payout regardless of actual performance.

Dividend equivalents are accrued on outstanding PSU awards at the same time and at the same rate as dividends paid to shareholders. Dividend equivalents are only paid upon vesting on the number of PSUs actually earned and vested. Dividend equivalents are payable in cash at the time the associated PSUs are distributed unless the NEO elected to defer the PSUs into our executive deferred compensation plan, in which case the dividend equivalents are also deferred.

2019 Equity Awards

In 2019, the Committee approved the PSU, stock option and RSU awards based on its evaluation of market competitiveness and each NEO's sustained individual performance and demonstrated potential to impact future business results. The values in the table below reflect equity-based awards approved by the Committee. These values differ from the corresponding values reported in the Summary Compensation Table and the Grants of Plan-Based Awards Table due to different methodologies used in assigning the economic value of equity-based awards required for accounting and proxy statement reporting purposes. The Committee makes equity award decisions based on grant date expected value while the accounting and proxy statement values are determined in accordance with GAAP requirements. The difference between the two methodologies is most significant for the PSU awards which are earned, in part, based on TSR performance relative to the S&P 500 Industrials Index over a three-year performance period which requires valuations to take into account the expected payout distribution from 0-200% of target for accounting and proxy statement purposes.

NAME	STOCK OPTION AWARD ($)*	RSU AWARD ($)*	TARGET VALUE 2019-2021 PSU AWARD ($)*
M. W. Lamach	2,500,000	2,500,000	5,000,000
S. K. Carter	670,000	670,000	1,340,000
D. S. Regnery	632,500	632,500	1,150,000
M. J. Avedon	420,000	420,000	840,000
P. A. Camuti	300,000	300,000	600,000

* In March 2020, we adjusted the numbers of our outstanding stock option, RSU and PSU awards to preserve the intrinsic value of the awards in connection with the RMT Transaction. The awards reported are on an unadjusted basis.

2017 – 2019 Performance Share Units Payout

As discussed above, PSUs for the three-year 2017 - 2019 performance period were earned based on the Company's EPS growth (from continuing operations) and TSR performance relative to all of the companies in the S&P 500 Industrials Index.

- EPS growth is measured as the average of the annual EPS growth in each of the three years of the performance cycle. The rate of EPS growth was 14.96% for the 2017 to 2019 period, which ranked at the 68th percentile of the companies in the S&P 500 Industrials Index.
- TSR is measured as the total stock price appreciation plus dividends earned during the three years of the performance cycle. To account for stock price volatility, a 30-day average stock price at the beginning and ending periods is used. TSR was 79.64% for the 2017 to 2019 period, which ranked at the 83rd percentile of the companies in the S&P 500 Industrials Index.

PSUs for the 2017 to 2019 performance cycle achieved 186% of target levels as summarized in the table below.

PERFORMANCE METRIC	COMPANY PERFORMANCE	PERCENTILE RANK	METRIC PAYOUT	WEIGHTING	PAYOUT LEVEL
Relative EPS Growth	14.96	68th	172%	50%	86%
Relative TSR	79.64	83rd	200%	50%	100%
				Total Award Payout Percentage:	186%

2020 Compensation Decisions

The Committee annually reviews the total direct compensation for each NEO and, using its judgment based on its compensation philosophy and design principles, may revise such compensation. For 2020, based on the new Company structure and additional responsibilities for the NEOs, the Committee has set the base salary and target AIM award for each NEO as follows:

NAME	BASE SALARY ($)	TARGET AIM AWARD
M. W. Lamach	1,410,000	170%
S. K. Carter[1]	n/a	n/a
D. S. Regnery	850,000	100%
M. J. Avedon	710,000	85%
P. A. Camuti	590,000	85%

1 Ms. Carter retired on April 1, 2020.

The Committee typically makes compensation decisions at December and February meetings. The Committee made 2020 compensation decisions in December 2019 and February 2020 in the normal course. In late March 2020 in response to the worsening global Coronavirus crisis, the Company made the decision to delay merit increases for all salaried employees who were slated to receive merit increases on April 1, 2020. As a result, the merit increase for Ms. Avedon and Mr. Camuti included in their respective base salaries above will be delayed until October 1, 2020. None of the other NEOs were scheduled to receive an April 1, 2020 merit increase. As the situation related to COVID-19 continues to evolve, the Company will continue to evaluate the situation and adapt accordingly.

The Committee established the following target long-term incentives including PSU awards for the 2020 - 2022 performance period and granted the following stock option and RSU awards for each NEO in 2020:

NAME	TARGET 2020 LONG-TERM INCENTIVE VALUE ($)(1)	SHARES UNDERLYING STOCK OPTION AWARDS (#)(2)	RSU SHARES (#)(3)	TARGET 2020-22 PSU SHARES (#)(3)(4)
M. W. Lamach	10,000,000	149,791	23,747	47,493
S. K. Carter	n/a	n/a	n/a	n/a
D. S. Regnery	2,600,000	38,946	6,175	12,349
M. J. Avedon	1,680,000	25,165	3,990	7,979
P. A. Camuti	1,500,000	22,469	3,562	7,124

(1) The target long-term incentive value is delivered 25% in stock options, 25% in RSUs and 50% in PSUs.

(2) The number of stock options was determined based on the Black-Scholes ratio on March 9, 2020 and the fair market value of our ordinary shares on the date of grant.

(3) The number of RSUs and target PSUs were determined using the fair market value of our ordinary shares on the date of grant.

(4) Ms. Carter retired on April 1, 2020.

VI. Other Compensation and Tax Matters

Retirement Programs and Other Benefits

We maintain qualified and nonqualified defined benefit pension plans for our employees, including the NEOs, to provide for fixed benefits upon retirement based on the individual's age and number of years of service. These plans include the Pension Plan, the Supplemental Pension Plans and our supplemental executive retirement plans (the Elected Officer Supplemental Pension ("EOSP") or the Key Management Supplemental Pension ("KMP") programs). Refer to the Pension Benefits table and accompanying narrative for additional details on these programs.

We offer a qualified defined contribution (401(k)) plan called the Trane Technologies Employee Savings Plan (the "ESP") to our salaried and non-union hourly U.S. workforce, including the NEOs. The ESP is a plan that provides a dollar-for-dollar Company match on the first six percent of the employee's eligible compensation that the employee contributes to the ESP. The ESP has a number of investment options and is an important component of our retirement program.

We also have a nonqualified defined contribution plan. The Trane Technologies Supplemental Employee Savings Plan (the "Supplemental ESP") is an unfunded plan that makes up employer contributions that cannot be made to the ESP due to the Internal Revenue Code limitation on the amount of compensation taken into account under the ESP or due to a deferral election under another non-qualified plan. Supplemental ESP balances are deemed to be invested in the funds selected by the NEOs, which are the same funds available in the ESP, except for a self-directed brokerage account, which is not available in the Supplemental ESP.

In June 2012, our Board of Directors approved significant changes to our broad-based, qualified retirement programs with the intent to move employees from a combined defined benefit/defined contribution approach to a fully defined contribution plan approach over time. Employees active prior to July 1, 2012 were given a choice between continuing to participate in the defined benefit plan until December 31, 2022, or moving to an enhanced version of the ESP effective January 1, 2013. Employees hired or rehired on or after July 1, 2012 were automatically covered under the enhanced version of the ESP. Under the enhanced version of the ESP, employees will receive a basic employer contribution equal to two percent of eligible compensation in addition to the Company's matching contribution while ceasing to accrue benefits under the defined benefit plan (employees of our Club Car and Precision Flow Systems business are generally not eligible for the basic employer contribution). Effective as of December 31, 2022, accruals in the tax-qualified defined benefit plan will cease for all employees. The Committee approved corresponding changes to the applicable nonqualified defined benefit and contribution pension plans. Additional details on the changes can be found in the narrative accompanying the Pension Benefits table.

Our Trane Technologies Executive Deferred Compensation Plan (the "EDCP Plan I") and the Trane Technologies Executive Deferred Compensation Plan II (the "EDCP Plan II" and, together with the EDCP Plan I, the "EDCP Plan") allow eligible employees to defer receipt of a part of their annual salary, AIM award and/or PSP award in exchange for investments in ordinary shares or mutual fund investment equivalents. Refer to the Nonqualified Deferred Compensation table for additional details on the EDCP Plan.

We provide an enhanced, long-term disability plan to certain executives. The plan supplements the broad-based group plan and provides an additional monthly maximum benefit if the executive elects to purchase supplemental coverage under the group plan. It has an underlying individual policy that is portable when the executive terminates.

In light of the enactment of Section 409A of the Code as part of American Jobs Creation Act of 2004, "mirror plans" for several of our nonqualified plans, including the Trane Technologies Supplemental Pension Plan (the "Supplemental Pension Plan I") and the EDCP I, were created. The mirror plans are the Trane Technologies Supplemental Pension Plan II ("Supplemental Pension Plan II" and, together with the Supplemental Pension Plan I, the "Supplemental Pension Plans") and the EDCP II. The purpose of these mirror plans is not to provide additional benefits to participants, but merely to preserve the tax treatment of the plans that were in place prior to December 31, 2004. In the case of the Supplemental Pension Plans, the mirror plan benefits are calculated by subtracting the original benefit value to avoid double-counting the benefit. For the EDCP Plans, balances accrued through December 31, 2004 are maintained separately from balances accrued after that date.

We provide our NEOs with other benefits that we believe are consistent with prevailing market practice and those of our peer companies. These other benefits and their incremental cost to the Company are reported in "All Other Compensation" shown in the Summary Compensation Table.

Severance Arrangements

In connection with external recruiting of certain officers, we generally enter into employment arrangements that provide for severance payments upon certain termination events, other than in the event of a change in control (which is covered by separate agreements with the officers). Mr. Lamach, Ms. Carter and Ms. Avedon have such arrangements in their employment agreements. In 2019 we amended our Severance Plan, originally adopted in 2012, which amended outstanding award agreements and adopted new equity award agreements to provide certain employees, including our NEOs, with certain benefits in the event of a termination of employment without cause or for good reason under a Major Restructuring (as defined in the Post-Employment Section below). Although we do not have a formal severance policy for our executives (other than in the event of a Major Restructuring), we do have guidelines that in most cases would provide for severance in the event of termination without cause. The severance payable under employment agreements for Mr. Lamach, Ms. Carter and Ms. Avedon and the benefits available in connection with a Major Restructuring and under the severance guidelines are further described in the Post-Employment Benefits section of the proxy statement.

Change-in-Control Provisions

We have entered into change-in-control agreements with our NEOs. Payments are subject to a "double trigger", meaning that payments would be received only if an officer is terminated without cause or resigns for "good reason" within two years following a change in control. We provide change-in-control agreements to our NEOs to focus them on the best interests of shareholders and assure continuity of management in circumstances that reduce or eliminate job security and might otherwise lead to accelerated departures. Under the 2018 Stock Plan, time-based awards will only vest and become exercisable or payable, as applicable, on a change in control if they are not assumed, substituted or otherwise replaced in connection with the change in control. If the awards are assumed or continued after the change in control, the Committee may provide that such awards will be subject to automatic vesting acceleration upon a participant's involuntary termination within a designated period following the change in control. Further, under the 2018 Stock Plan, PSUs will automatically vest upon a change in control of our Company, based on (a) the target level, pro-rated to reflect the period the participant was in service during the performance period or (b) the actual performance level attained, in each case, as determined by the Committee. Our 2013 Incentive Stock Plan provides for the accelerated vesting of outstanding time-based awards in the event of a change in control of the Company only for awards issued through June 7, 2018. Outstanding PSUs would be prorated based on the target for the actual days worked during the applicable performance period. Refer to the Post-Employment Benefits section of this proxy statement for a more detailed description of the change-in-control provisions.

Tax and Accounting Considerations

Although we consider the tax and accounting consequences of our compensation programs, the forms of compensation we utilize are determined primarily by their effectiveness in creating maximum alignment with our key strategic objectives and the interests of our shareholders.

Timing of Awards

The Committee generally grants our regular annual equity awards after the annual earnings release. The grant date is never selected or changed to increase the value of equity awards for executives. In 2020 the grants were delayed until after the close of the RMT transaction to allow for awards to be granted as stock of Trane Technologies.

Claw-Back/Recoupment Policy

To further align the interests of our employees and our shareholders, we have a claw-back/recoupment policy to ensure that any fraud or intentional misconduct leading to a restatement of our financial statements would be properly addressed. The policy provides that if it is found that an employee committed fraud or engaged in intentional misconduct that resulted, directly or indirectly, in a need to restate our financial statements, then our Committee has the discretion to direct the Company to recover all or a portion of any cash or equity incentive compensation paid or value realized, and/or to cancel any stock-based awards or AIM award granted to an employee on or after February 2, 2010, the effective date of the policy. Our Committee may also request that the Company seek to recover any gains realized on or after the effective date of the policy for equity or cash awards made prior to that date (including AIM, stock options, PSUs and RSUs). Application of the claw-back/recoupment policy is subject to a determination by our Committee that: (i) the cash incentive or equity compensation to be recouped was calculated on, or its realized value affected by, the financial results that were subsequently restated; (ii) the cash incentive or equity award would have been less valuable than what was actually awarded or paid based on the application of the correct financial results; and (iii) the employee to whom the policy applied engaged in fraud or intentional misconduct. This policy will be revised if required under the Dodd-Frank Act if and when final regulations implementing the claw-back policy requirements of that law have been adopted.

Share-Ownership Guidelines

We impose share ownership requirements on each of our officers. These share ownership requirements are designed to emphasize share ownership by our officers and to further align their interests with our shareholders. Each officer must achieve and maintain ownership of ordinary shares or ordinary share equivalents at or above a prescribed level. The requirements are as follows:

POSITION	NUMBER OF ACTIVE PARTICIPANTS AS OF THE RECORD DATE	INDIVIDUAL OWNERSHIP REQUIREMENT (SHARES AND EQUIVALENTS)
Chief Executive Officer	1	120,000
Chief Operating Officer and Executive Vice Presidents	3	50,000
Senior Vice Presidents	4	30,000
Corporate Vice Presidents	9	15,000

Based on the closing price on the record date of $87.87, this equates to an ownership requirement of over 7 times base salary for the CEO and 6 times for the EVPs. Sue Carter, our former CFO, who was the only Senior Vice President and NEO, retired on April 1, 2020. These ownership requirements have been met by all the NEOs who continue to be employed by the Company as of the record date. Our CEO owns shares valued at over 23 times base salary, and our EVPs own shares valued at over 11 times their individual base salary, on average.

Our share-ownership program requires the accumulation of ordinary shares (or ordinary share equivalents) over a five-year period following the date the person becomes subject to share-ownership requirements at the rate of 20% of the required level each year. Executives who are promoted, and who have their ownership requirement increased, have three years to achieve the new level from the date of promotion. Given the significant increase in the ownership requirement for an individual who is promoted to CEO, EVP or SVP, those individuals have five years from the date of the promotion to achieve the new level. Ownership credit is given for actual ordinary shares owned, deferred compensation that is invested in ordinary shares within our EDCP Plan, ordinary share equivalents accumulated in our qualified and nonqualified employee savings plans as well as unvested RSUs. Stock options, SARs and unvested PSUs do not count toward meeting the share-ownership target. If executives fall behind their scheduled accumulation level during their applicable accumulation period, or if they fail to maintain their required level of ownership after their applicable accumulation period, their right to exercise stock options will be limited to “buy and hold” transactions and any shares received upon the vesting of RSU and PSU awards must be held until the required ownership level is achieved. As of the Record Date, all of our executives subject to the share-ownership guidelines were in compliance with these requirements.

Compensation Committee Report

We have reviewed and discussed with management the Compensation Discussion and Analysis contained in this Proxy Statement. Based on our review and discussion, we recommended to the Board of Directors that the Compensation Discussion and Analysis be included in this Proxy Statement as well as the Company's Annual Report on Form 10-K for the year ended December 31, 2019.

COMPENSATION COMMITTEE

Tony L. White (Chair)
Kirk E. Arnold
Jared L. Cohon
Gary D. Forsee
Linda P. Hudson

Summary of Realized Compensation

The table below is a summary of the compensation actually realized by our CEO for 2019, 2018 and 2017. This information is intended as a supplement to and not as a substitute for the information shown on the Summary Compensation Table. The information required to be shown on the Summary Compensation Table includes elements of compensation that may or may not actually be realized by the NEOs at a future date. We believe this table enhances our shareholders' understanding of our CEO's compensation.

YEAR	SALARY ($)	PERFORMANCE-BASED CASH COMPENSATION ($)[(1)]	EQUITY COMPENSATION ($)[(2)]	OTHER COMPENSATION ($)[(3)]	TOTAL REALIZED COMPENSATION ($)
2019	1,390,000	2,900,000	72,979,084	454,041	77,723,125
2018	1,350,000	2,670,000	25,139,159	440,258	29,599,417
2017	1,337,500	2,500,000	22,582,904	426,458	26,846,862

(1) Represents the AIM award paid in the applicable year and earned in the immediately previous year.

(2) Represents amount realized upon the exercise of stock options and the vesting of RSUs and PSUs, before payment of applicable withholding taxes and brokerage commissions, and includes the value of dividend equivalents paid on such awards. For 2019, this includes the following amounts from stock options exercised, RSUs vesting and PSUs earned:

	VALUE REALIZED	TOTAL SHAREHOLDER RETURN ("TSR") OVER THE PERIOD OUTSTANDING *
Stock Options Exercised:		
February 22, 2013 Grant	8,068,476	TSR for 2013-2019 was 228%
February 25, 2014 Grant	9,563,367	TSR for 2014-2019 was 131%
February 3, 2015 Grant	9,976,720	TSR for 2015-2019 was 123%
February 10, 2016 Grant	20,598,889	TSR for 2016-2019 was 153%
Total:	48,207,452	
Restricted Stock Unit Vesting:		
February 10, 2016 Grant	1,600,400	TSR for 2016-2019 was 153%
February 7, 2017 Grant	1,019,483	TSR for 2017-2019 was 85%
February 6, 2018 Grant	912,248	TSR for 2018-2019 was 54%
Total:	3,532,131	
Performance Stock Units Earned:		
2016-2018 Performance Period	20,151,501	TSR for 2016-2018 was 74%

* TSR calculated using closing stock price at the beginning and end of each period.

(3) Represents the amounts imputed as income under applicable IRS rules and regulations.

Executive Compensation

The following table provides summary information concerning compensation paid by the Company or accrued on behalf of our NEOs for services rendered during the years ended December 31, 2019, 2018 and 2017.

Summary Compensation Table

NAME AND PRINCIPAL POSITION	YEAR	SALARY ($)[(a)]	BONUS ($)	STOCK AWARDS ($)[(b)]	OPTION AWARDS ($)[(c)]	NON-EQUITY INCENTIVE PLAN COMPENSATION ($)[(d)]	CHANGE IN PENSION VALUE AND NONQUALIFIED DEFERRED COMPENSATION EARNINGS ($)[(e)]	ALL OTHER COMPENSATION ($)[(f)]	TOTAL ($)
M. W. Lamach Chairman and Chief Executive Officer	2019	1,390,000	—	7,957,970	2,540,028	2,775,000	8,960,127	594,003	24,217,128
	2018	1,350,000	—	8,181,039	2,592,247	2,900,000	—	562,199	15,585,485
	2017	1,337,500	—	8,099,505	2,432,076	2,670,000	3,696,297	562,498	18,797,876
S. K. Carter Senior Vice President and Chief Financial Officer	2019	761,250	—	2,132,808	680,732	948,963	760,722	186,901	5,471,376
	2018	735,000	—	2,248,810	712,536	939,504	261,347	179,074	5,076,271
	2017	713,750	—	2,018,720	606,157	847,728	463,244	160,707	4,810,306
D. S. Regnery President and Chief Operating Officer	2019	761,250	—	1,887,911	642,630	856,177	2,693,861	159,876	7,001,705
	2018	730,000	—	1,678,263	531,745	971,398	—	106,602	4,018,008
	2017	573,571	—	2,712,014	235,724	506,493	1,457,972	118,477	5,604,251
M. J. Avedon Executive Vice President, Chief Human Resources, Marketing and Communications Officer	2019	671,250	—	1,337,076	426,735	712,034	1,785,641	125,019	5,057,755
	2018	643,750	—	1,409,821	446,663	736,527	216,578	102,458	3,555,797
	2017	618,750	—	1,283,512	385,392	656,768	750,984	114,669	3,810,075
P. A. Camuti Executive Vice President and Chief Technology and Strategy Officer	2019	557,500	—	955,008	304,818	521,625	609,446	103,530	3,051,927

(a) Pursuant to the EDCP Plan, a portion of a participant's annual salary may be deferred into a number of investment options. In 2019, no NEOs elected to defer salary into the EDCP Plan.

(b) The amounts in this column reflect the aggregate grant date fair value of PSU awards and any RSU awards granted for the year under Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 718 and do not reflect amounts paid to or realized by the NEOs. For a discussion of the assumptions made in determining the ASC 718 values see Note 14, "Share-Based Compensation," to the Company's consolidated financial statements contained in its 2019 Form 10-K. The ASC grant date fair value of the PSU award is spread over the number of months of service required for the grant to become non-forfeitable, disregarding any adjustments for potential forfeitures. In determining the aggregate grant date fair value of the PSU awards, the awards are valued assuming target level performance achievement. The table below includes the maximum grant date value of the 2019-2021 PSU awards for the persons listed. If the maximum level performance achievement is assumed, the aggregate grant date fair value of the PSU awards would be as follows:

NAME	MAXIMUM GRANT DATE VALUE OF PSU AWARDS ($)
M. W. Lamach	10,915,861
S. K. Carter	2,925,550
D. S. Regnery	2,510,710
M. J. Avedon	1,834,052
P. A. Camuti	1,309,974

(c) The amounts in this column reflect the aggregate grant date fair value of stock option grants for financial reporting purposes for the year under ASC 718 and do not reflect amounts paid to or realized by the NEOs. For a discussion of the assumptions made in determining the ASC 718 values see Note 14, "Share-Based Compensation," to the Company's consolidated financial statements contained in its 2019 Form 10-K. Please see "2019 Grants of Plan-Based Awards" and "Outstanding Equity Awards at December 31, 2019" for additional detail.

(d) This column reflects the amounts earned as annual awards under the AIM program. Unless deferred into the EDCP Plan, AIM program payments are made in cash. In 2019 Mr. Regnery elected to defer 60% of his AIM award into the EDCP Plan. Amounts shown in this column are not reduced to reflect deferrals of AIM awards into the EDCP Plan.

(e) Amounts reported in this column reflect the aggregate increase in the actuarial present value of the benefits under the qualified Trane Technologies Pension Plan Number One (the "Pension Plan"), Supplemental Pension Plans, the KMP and EOSP, as applicable. The change in pension benefits value is attributable to the additional year of service and age, the annual AIM award and any annual salary increase.

Other external factors, outside the influence of the plan design, also impact the values shown in this column. Examples of these factors include changes to mortality tables as well as interest and discount rates. For all the NEOs, the amounts in this column for 2019 were impacted by decreasing lump sum interest rates (down from 3% to 2.25%) and discount rates (down from 4.05% to 2.96%) which cause the value of the lump sum distribution under the EOSP and the KMP to increase.

There was no above market interest earned by the NEOs in any year.

(f) The following table summarizes the components of this column for fiscal year 2019:

NAME	COMPANY CONTRIBUTIONS ($)[1]	COMPANY COST FOR LIFE INSURANCE ($)	COMPANY COST FOR LONG TERM DISABILITY ($)	RETIREE MEDICAL PLAN ($)[2]	TAX ASSISTANCE ($)[3]	OTHER BENEFITS ($)[4]	TOTAL ($)
M. W. Lamach	257,400	6,708	1,285	—	120,079	208,531	594,003
S. K. Carter	136,060	5,465	2,262	—	—	43,114	186,901
D. S. Regnery	103,959	3,560	1,456	900	—	50,001	159,876
M. J. Avedon	84,467	3,096	1,824	—	—	35,632	125,019
P. A. Camuti	65,844	2,528	1,911	—	—	33,247	103,530

(1) Represents Company contributions under the Company's ESP and Supplemental ESP plans.

(2) For Mr. Regnery, represents the estimated year-over-year increase in the value of the retiree medical plan, calculated based on the methods used for financial statement reporting purposes. Mr. Regnery is the only NEO eligible for the subsidized retiree medical plan upon retirement.

(3) The amount for Mr. Lamach represents tax equalization payments related to Irish taxes owed on $335,000, which is the portion of his income that is allocated to his role as a director of the Company. Without these payments, Mr. Lamach would be subject to double taxation on this amount since he is already paying U.S. taxes on this income.

(4) For Mr. Lamach, this amount includes the incremental cost to the Company of personal use of the Company aircraft (whether leased or owned) by the CEO. For security and safety reasons and to maximize his availability for Company business, the Board of Directors requires the CEO to travel on Company-provided aircraft for business and personal purposes, unless commercial travel is deemed a minimal security risk by the Company. The incremental cost to the Company of personal use of the aircraft is calculated: (i) by taking the hourly average variable operating costs to the Company (including fuel, maintenance, on board catering and landing fees) multiplied by the amount of time flown for personal use in the case of leased aircraft; and (ii) by multiplying the flight time by a variable fuel charge and the average fuel price per gallon and adding any ground costs such as landing and parking fees as well as crew charges for travel expenses in the case of the Company owned aircraft. Both methodologies exclude fixed costs that do not change based on usage, such as pilots' and other employees' salaries, management fees and training, hangar and insurance expenses. We impose an annual limit of $150,000 on the CEO's non-business use of Company-provided aircraft. For 2019, the amount for Mr. Lamach includes $150,000 for personal use of Company-provided aircraft. Under the Company's aircraft use policy, the Compensation Committee has determined that business use includes travel that is related to the Company's business or benefits the Company, such as travel to meetings of other boards on which the CEO sits. For 2019, the amount for Mr. Lamach includes $25,621 for such business-related travel.

These amounts also include: (i) the following incremental cost of the Company-leased cars, calculated based on the lease, insurance, fuel and maintenance costs to the Company: Mr. Lamach, $21,810; Ms. Carter $26,190; Mr. Regnery, $35,137; Ms. Avedon, $21,662; and Mr. Camuti, $20,417; (ii) the following costs for financial counseling services, which may include tax preparation and estate planning services: Mr. Lamach, $10,065; Ms. Carter $9,000; Mr. Regnery, $9,000; Ms. Avedon, $9,558; and Mr. Camuti $2,603; (iii) the following costs for medical services provided through an on-site physician under the Executive Health Program: Mr. Lamach, $1,035; Ms. Carter, $4,574; Mr. Regnery, $5,864; Ms. Avedon $3,607 and Mr. Camuti, $4,207; and (iv) the following amount for product rebates that are available to all U.S. employees: Ms. Carter, $3,350, Ms. Avedon, $805 and Mr. Camuti, $6,020.

2019 Grants of Plan-Based Awards

The following table shows all plan-based awards granted to the NEOs during fiscal 2019. This table is supplemental to the Summary Compensation Table and is intended to complement the disclosure of equity awards and grants made under non-equity incentive plans in the Summary Compensation Table. In March 2020, we adjusted the numbers of our outstanding stock option, RSU and PSU awards to preserve the intrinsic value of the awards in connection with the RMT Transaction. The awards reported in the table below are on an unadjusted basis.

NAME	GRANT DATE	ESTIMATED FUTURE PAYOUTS UNDER NON-EQUITY PLAN AWARDS			ESTIMATED FUTURE PAYOUTS UNDER EQUITY INCENTIVE PLAN AWARDS			ALL OTHER STOCK AWARDS: NUMBER OF SHARES OF STOCK OR UNITS (#)[c]	ALL OTHER OPTION AWARDS: NUMBER OF SECURITIES UNDERLYING OPTIONS (#)[c]	EXERCISE OR BASE PRICE OF OPTION AWARDS ($/SH)[d]	GRANT DATE FAIR VALUE OF STOCK AND OPTION AWARDS ($)[e]
		THRESHOLD ($)[a]	TARGET ($)[a]	MAXIMUM ($)[a]	THRESHOLD (#)[b]	TARGET (#)[b]	MAXIMUM (#)[b]				
M. W. Lamach											
AIM	2/5/2019	673,210	2,244,033	4,488,066	—	—	—	—	—	—	—
PSUs (2019-2021)	2/5/2019	—	—	—	12,341	49,364	98,728	—	—	—	5,457,931
Options	2/5/2019	—	—	—	—	—	—	—	148,193	101.2900	2,540,028
RSUs	2/5/2019	—	—	—	—	—	—	24,682	—	—	2,500,040
S. K. Carter											
AIM	2/5/2019	230,256	767,521	1,535,042	—	—	—	—	—	—	—
PSUs (2019-2021)	2/5/2019	—	—	—	3,308	13,230	26,460	—	—	—	1,462,775
Options	2/5/2019	—	—	—	—	—	—	—	39,716	101.2900	680,732
RSUs	2/5/2019	—	—	—	—	—	—	6,615	—	—	670,033
D. S. Regnery											
AIM	2/5/2019	230,256	767,521	1,535,042	—	—	—	—	—	—	—
PSUs (2019-2021)	2/5/2019	—	—	—	2,839	11,354	22,708	—	—	—	1,255,355
Options	2/5/2019	—	—	—	—	—	—	—	37,493	101.2900	642,630
RSUs	2/5/2019	—	—	—	—	—	—	6,245	—	—	632,556
M. J. Avedon											
AIM	2/5/2019	172,768	575,893	1,151,786	—	—	—	—	—	—	—
PSUs (2019-2021)	2/5/2019	—	—	—	2,074	8,294	16,588	—	—	—	917,026
Options	2/5/2019	—	—	—	—	—	—	—	24,897	101.2900	426,735
RSUs	2/5/2019	—	—	—	—	—	—	4,147	—	—	420,050
P. A. Camuti											
AIM	2/5/2019	126,567	421,890	843,780	—	—	—	—	—	—	—
PSUs (2019-2021)	2/5/2019	—	—	—	1,481	5,924	11,848	—	—	—	654,987
Options	2/5/2019	—	—	—	—	—	—	—	17,784	101.2900	304,818
RSUs	2/5/2019	—	—	—	—	—	—	2,962	—	—	300,021

(a) The target award levels established for the AIM program are established annually in February and are expressed as a percentage of the NEO's base salary. Refer to Compensation Discussion and Analysis under the heading "Annual Incentive Matrix Program" for a description of the Compensation Committee's process for establishing AIM program target award levels. The amounts reflected in the "Estimated Future Payouts Under Non-Equity Incentive Plan Awards" columns represent the threshold, target and maximum amounts for awards under the AIM program that were paid in February 2020, based on performance in 2019. Thus, the amounts shown in the "threshold," "target" and "maximum" columns reflect the range of potential payouts when the target award levels were established in February 2019 for all NEOs. The AIM program pays $0 for performance below threshold. The actual amounts paid pursuant to those awards are reflected in the "Non-Equity Incentive Plan Compensation" column of the Summary Compensation Table.

(b) The amounts reflected in the "Estimated Future Payouts Under Equity Incentive Plan Awards" columns represent the threshold, target and maximum amounts for PSU awards. The PSP pays $0 for performance below threshold. For a description of the Compensation Committee's process for establishing PSP target award levels and the terms of PSU awards, please refer to Compensation Discussion and Analysis under the heading "Long-Term Incentive Program" and the "Post-Employment Benefits" section below.

(c) The amounts in these columns reflect the stock option and RSU awards. For a description of the Compensation Committee's process for determining stock option and RSU awards and the terms of such awards, see Compensation Discussion and Analysis under the heading "Long-Term Incentive Program" and the "Post-Employment Benefits" section below.

(d) Stock options were granted under the Company's Incentive Stock Plan of 2018 (the "2018 Plan"), which requires options to be granted at an exercise price equal to or greater than the fair market value of the Company's ordinary shares on the date of grant. The fair market value is defined in the 2018 Plan as the closing price of the Company's ordinary shares listed on the NYSE on the grant date. The closing price on the NYSE of the Company's ordinary shares was $101.29 on the February 2019 grant date.

(e) Amounts in this column include the grant date fair value of the equity awards calculated in accordance with ASC 718. The Company cautions that the actual amount ultimately realized by each NEO from the stock option awards will likely vary based on a number of factors, including stock price fluctuations, differences from the valuation assumptions used and timing of exercise or applicable vesting. For a description of the assumptions made in valuing the equity awards see Note 14, "Share-Based Compensation" to the Company's consolidated financial statements contained in its 2019 Form 10-K. For PSUs, the grant date fair value has been determined based on achievement of target level performance, which is the performance threshold the Company believes is the most likely to be achieved under the grants.

Outstanding Equity Awards at December 31, 2019

		OPTION AWARDS[a]				STOCK AWARDS[a]			
NAME	GRANT DATE	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS (#) EXERCISABLE[b]	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS (#) UNEXERCISABLE[b]	OPTION EXERCISE PRICE ($)	OPTION EXPIRATION DATE[c]	NUMBER OF SHARES OR UNITS OF STOCK THAT HAVE NOT VESTED (#)[d]	MARKET VALUE OF SHARES OR UNITS OF STOCK THAT HAVE NOT VESTED ($)[e]	EQUITY INCENTIVE PLAN AWARDS: NUMBER OF UNEARNED SHARES, UNITS OR OTHER RIGHTS THAT HAVE NOT VESTED (#)[f]	EQUITY INCENTIVE PLAN AWARDS: MARKET OR PAYOUT VALUE OF UNEARNED SHARES, UNITS OR OTHER RIGHTS THAT HAVE NOT VESTED ($)[e]
M. W. Lamach	2/7/2017	120,638	60,320	80.2050	2/6/2027	10,131	1,346,613	60,782	8,079,143
	2/6/2018	55,461	110,922	90.0700	2/5/2028	18,042	2,398,143	54,125	7,194,295
	2/5/2019	—	148,193	101.2900	2/4/2029	24,682	3,280,731	49,364	6,561,463
S. K. Carter	2/25/2014	15,140	—	59.8250	2/24/2024	—	—	—	—
	2/3/2015	33,414	—	67.0550	2/2/2025	—	—	—	—
	2/7/2017	30,067	15,034	80.2050	2/6/2027	2,525	335,623	15,149	2,013,605
	2/6/2018	15,244	30,490	90.0700	2/5/2028	4,960	659,283	14,878	1,977,584
	2/5/2019	—	39,716	101.2900	2/4/2029	6,615	879,266	13,230	1,758,532
D. S. Regnery	2/22/2013	11,045	—	41.9062	2/21/2023	—	—	—	—
	2/25/2014	11,422	—	59.8250	2/24/2024	—	—	—	—
	2/3/2015	13,710	—	67.0550	2/2/2025	—	—	—	—
	2/10/2016	22,960	—	50.0025	2/9/2026	—	—	—	—
	2/7/2017	11,692	5,847	80.2050	2/6/2027	982	130,527	3,741	497,254
	10/3/2017	—	—	—	—	11,138	1,480,463	11,138	1,480,463
	2/6/2018	11,376	22,754	90.0700	2/5/2028	3,702	492,070	11,103	1,475,811
	2/5/2019	—	37,493	101.2900	2/4/2029	6,245	830,085	11,354	1,509,174
M. J. Avedon	2/3/2015	20,563	—	67.0550	2/2/2025	—	—	—	—
	2/7/2017	19,116	9,559	80.2050	2/6/2027	1,606	213,470	9,632	1,280,285
	2/6/2018	9,556	19,113	90.0700	2/5/2028	3,110	413,381	9,327	1,239,745
	2/5/2019	—	24,897	101.2900	2/4/2029	4,147	551,219	8,294	1,102,438
P. A. Camuti	2/10/2016	12,330	—	50.0025	2/9/2026	—	—	—	—
	2/7/2017	12,311	6,156	80.2050	2/6/2027	1,034	137,439	6,203	824,503
	2/6/2018	6,143	12,288	90.0700	2/5/2028	1,999	265,707	5,996	796,988
	2/5/2019	—	17,784	101.2900	2/4/2029	2,962	393,709	5,924	787,418

(a) In March 2020, we adjusted the numbers of our outstanding stock option, RSU and PSU awards to preserve the intrinsic value of the awards in connection with the RMT Transaction. The awards reported are on an unadjusted basis.

(b) These columns represent stock option awards. These awards generally become exercisable in three equal annual installments beginning on the first anniversary after the date of grant, subject to continued employment or retirement.

(c) All of the options granted to the NEOs expire on the tenth anniversary (less one day) of the grant date.

(d) This column represents unvested RSUs. Except as noted in the following sentence, RSUs generally become vested in three equal annual installments beginning on the first anniversary after the date of grant, subject to continued employment or retirement. Mr. Regnery's RSU grant dated October 3, 2017 will vest on the 3rd anniversary of the grant date.

(e) The market value was computed based on $132.92, the closing market price of the Company's ordinary shares on the NYSE at December 31, 2019.

(f) This column represents the target number of unvested and unearned PSUs. PSUs vest upon the completion of a three-year performance period. The actual number of shares an NEO will receive, if any, is subject to achievement of the performance goals as certified by the Compensation Committee, and continued employment.

2019 Option Exercises and Stock Vested

The following table provides information regarding the amounts received by each NEO upon exercise of stock options, the vesting of RSUs or the vesting of PSUs during the fiscal year ended December 31, 2019:

NAME	OPTION AWARDS		STOCK AWARDS	
	NUMBER OF SHARES ACQUIRED ON EXERCISE (#)	VALUE REALIZED ON EXERCISE ($)[(a)]	NUMBER OF SHARES ACQUIRED ON VESTING (#)	VALUE REALIZED ON VESTING ($)
M. W. Lamach[(b)]	713,986	48,207,452	224,976	23,683,633
S. K. Carter[(b)]	70,037	3,743,795	48,338	5,084,406
D. S. Regnery[(b)]	18,602	1,763,269	16,332	1,710,310
M. J. Avedon[(b)]	27,655	1,717,527	29,159	3,066,395
P. A. Camuti[(b)]	10,710	697,560	17,742	1,865,234

(a) This column reflects the aggregate dollar amount realized by the NEO upon the exercise of the stock options by determining the difference between the market price of the Company's ordinary shares at exercise and the exercise price of the stock options.

(b) Reflects the value of the RSUs that vested on February 6, 2019, February 7, 2019, and February 10, 2019 and PSUs that vested on February 28, 2019, based on the average of the high and low stock price of the Company's ordinary shares on the vesting date.

2019 Pension Benefits

The NEOs participate in one or more, but not in all, of the following defined benefit plans:

- the Pension Plan;
- the Supplemental Pension Plans; and
- the EOSP or the KMP.

The Pension Plan is a funded, tax qualified, non-contributory (for all but a small subset of participants) defined benefit plan that covers the majority of the Company's salaried and non-union hourly U.S. employees who were hired or re-hired prior to June 30, 2012. The Pension Plan provides for normal retirement at age 65. The formula to determine the lump sum benefit under the Pension Plan is: 5% of final average pay (the five consecutive years with the highest compensation out of the last ten years of eligible compensation) multiplied by years of credited service (as defined in the Pension Plan). A choice for distribution between an annuity and a lump sum option is available. The Pension Plan was closed to new participants after June 30, 2012 and no further benefits will accrue to any Pension Plan participant for service performed after December 31, 2022. In addition, any employee who was a Pension Plan participant on June 30, 2012 was provided the option to waive participation in the Pension Plan effective January 1, 2013, and, in lieu of participation in the Pension Plan, receive an annual non-elective employer contribution equal to 2% of eligible compensation in the ESP.

The Supplemental Pension Plans are unfunded, nonqualified, non-contributory defined benefit restoration plans. The Supplemental Pension Plans restore what is lost in the Pension Plan due to limitations under the Internal Revenue Code (the "Code") on the annual compensation and benefits recognized when calculating benefits under the qualified Pension Plan. The Supplemental Pension Plans cover all employees of the Company who participate in the Pension Plan and who are impacted by the Code compensation and benefits limits. A participant must meet the vesting requirements of the qualified Pension Plan to vest in benefits under the Supplemental Pension Plans. Benefits under the Supplemental Pension Plans are available only as a lump sum distribution after termination and paid in accordance with Section 409A of the Code. As a result of the 2012 changes to the Pension Plan, the Supplemental Pension Plans were closed to employees hired on or after June 30, 2012, and no further benefits will accrue to any Supplemental Plan participant for service performed after December 31, 2022.

The EOSP, which was closed to new participants effective April 2011, is an unfunded, nonqualified, non-contributory defined benefit plan designed to replace a percentage of an officer's final average pay based on his or her age and years of service at the time of retirement. Final average pay is defined as the sum of the officer's current annual base salary plus the average of his or her three highest AIM awards during the most recent six years. No other elements of compensation (other than base salary and AIM awards) are included in final average pay. The EOSP provides a benefit pursuant to a formula in which 1.9% of an officer's final average pay is multiplied by the officer's years of service (up to a maximum of 35 years) and then reduced by the value of other retirement benefits the officer will receive from the Company under certain qualified and nonqualified retirement plans as well as Social Security. If additional years of service were granted to an officer as part of his or her employment agreement, those additional years of service are reflected in the Pension Benefits table below. Vesting occurs, while the officer is employed by the Company, at the earlier of the attainment of age 55 and the completion of 5 years of service or age 62. Unreduced benefits under the EOSP are available at age 62 and benefits are only available as a lump sum after termination and paid in accordance with Section 409A of the Code. Mr. Lamach and Ms. Avedon participate in the EOSP.

The KMP is an unfunded, nonqualified, non-contributory defined benefit plan available to certain key management employees on a highly selective basis. The KMP is designed to replace a percentage of a key employee's final average pay based on his or her age and years of service at the time of retirement. Final average pay is defined as the sum of the key employee's current annual base salary plus the average of the employee's three highest AIM awards during the most recent six years. No other elements of compensation (other than base salary and AIM awards) are included in final average pay. The KMP provides a benefit pursuant to a formula in which 1.7% of a key employee's final average pay is multiplied by years of service (up to a maximum of 30 years) and then reduced by the value of other retirement benefits the key employee will receive that are provided by the Company under certain qualified and nonqualified retirement plans as well as Social Security. Vesting occurs at the earlier of the attainment of age 55 and the completion of 5 years of service or age 65. For employees who begin participating on or after June 2015, there is a minimum 5 year service requirement from date of participation to date of retirement. Benefits are only available as a lump sum after termination and paid in accordance with Section 409A of the Code. Ms. Carter and Messrs. Regnery and Camuti participate in the KMP.

The table below represents the estimated present value of defined benefits for the plans in which each NEO participates.

NAME	PLAN NAME	NUMBER OF YEARS CREDITED SERVICE (#)[(a)]	PRESENT VALUE OF ACCUMULATED BENEFIT ($)[(b)]	PAYMENTS DURING LAST FISCAL YEAR ($)
M. W. Lamach[(c)]	Pension Plan	15.92	244,976	
	Supplemental Pension Plan	15.92	3,854,213	
	EOSP	33.00	35,162,137	
S. K. Carter	KMP	6.33	2,251,131	
D. S. Regnery[(d)]	Pension Plan	34.42	541,155	
	Supplemental Pension Plan I	19.42	425,311	
	Supplemental Pension Plan II	34.42	1,451,324	
	KMP	30	7,016,037	
M. J. Avedon[(e)]	Pension Plan	12.92	214,717	
	Supplemental Pension Plan	12.92	915,525	
	EOSP	13	6,174,661	
P. A. Camuti	Pension Plan	8.42	137,028	
	Supplemental Pension Plan II	8.42	344,962	
	KMP	8.42	1,483,478	

(a) Under the EOSP or the KMP, for officers covered prior to May 19, 2009, a full year of service is credited for any year in which they work at least one day. In the Pension Plan, the Supplemental Pension Plans as well as the EOSP and the KMP for officers covered on or after May 19, 2009, the number of years of credited service is based on elapsed time (i.e., credit is given for each month in which a participant works at least one day). The years of credited service used for calculating benefits under all plans are the years of credited service through December 31, 2019. The years of crediting service used for calculating benefits under the Supplemental Pension Plan I are the years of crediting service through December 31, 2004 and the benefits earned under this plan serve as offsets to the benefits earned under the Supplemental Pension Plan II.

(b) The amounts in this column reflect the estimated present value of each NEO's accumulated benefit under the plans indicated. The calculations reflect the value of the benefits assuming that each NEO was fully vested under each plan. The benefits were computed as of December 31, 2019, consistent with the assumptions described in Note 10, "Pensions and Postretirement Benefits Other than Pensions," to the consolidated financial statements in the 2019 Form 10-K.

(c) Mr. Lamach's credited years of service exceed his actual years of service by 17 years pursuant to the provisions of his employment arrangement. Crediting additional years of service to a nonqualified pension program such as the EOSP was not uncommon in 2004 when Mr. Lamach joined the Company and was used to compensate him for benefits he was forfeiting at his prior employer. Mr. Lamach's benefit under the EOSP is reduced by the pension benefit he received from his former employer in July 2013, updated with interest. The increase in present value of benefits due to those additional years of credited service is $20,021,442.

(d) Under the provisions of the KMP, Mr. Regnery's service is capped at 30 years.

(e) Ms. Avedon, pursuant to the provisions of her employment arrangement, receives double credit for the first five years of employment (3.8% versus 1.9%) in determining her benefit. The increase in present value of benefits due to this provision is $2,068,553.

2019 Nonqualified Deferred Compensation

The Company's EDCP Plan is an unfunded, nonqualified plan that permits certain employees, including the NEOs, to defer receipt of up to 50% of their annual salary and up to 100% of their AIM awards, PSP awards and RSUs received upon commencement of employment. Elections to defer must be made prior to the beginning of the performance period. The Company has established a nonqualified grantor trust with a bank as the trustee to hold certain assets as a funding vehicle for the Company's obligations under the EDCP Plan. These assets are considered general assets of the Company and are available to its creditors in the event of the Company's insolvency. Amounts held in the trust are invested by the trustee using various investment vehicles.

Participants are offered certain investment options (the same investment options available in the Employee Savings Plan), and can choose how they wish to allocate their cash deferrals among those investment options. Participants are 100% vested in all amounts deferred, and bear the risk of any earnings and losses on such deferred amounts.

Generally, deferred amounts may be distributed following termination of employment or at the time of a scheduled in-service distribution date chosen by the participant. If a participant has completed five or more years of service at the time of termination, or is terminated due to long-term disability, death or retirement, the distribution is paid in accordance with the participant's election. If a participant terminates without meeting these requirements, the account balance for all plan years will be paid in a lump sum in the year following the year of termination. A participant can elect to receive distributions at termination over a period of 5, 10, or 15 annual installments, or in a single lump sum. A participant can elect to receive scheduled in-service distributions in future years that are at least two years after the end of the plan year for which they are deferring. In-service distributions can be received in two to five annual installments, or if no election is made, in a lump sum. For those participants who have investments in ordinary shares, the distribution of these assets will be in the form of ordinary shares, not cash.

The following table provides information regarding contributions, distributions, earnings and balances for each NEO under our nonqualified deferred compensation plans.

NAME	PLAN NAME	EXECUTIVE CONTRIBUTIONS IN LAST FISCAL YEAR ($)[a]	REGISTRANT CONTRIBUTIONS IN LAST FISCAL YEAR ($)[b]	AGGREGATE EARNINGS IN LAST FISCAL YEAR ($)[c]	AGGREGATE WITHDRAWALS/ DISTRIBUTIONS ($)	AGGREGATE BALANCE AT LAST FISCAL YEAR END ($)[d]
M. W. Lamach	EDCP Plan II	—	—	2,814,919	—	8,649,330
	Supplemental ESP	—	240,600	1,250,241	—	4,768,560
S. K. Carter	Supplemental ESP	—	113,660	102,124	—	681,492
D. S. Regnery	EDCP Plan I	—	—	36,670	(64,684)	153,202
	EDCP Plan II	582,839	—	575,690	—	5,157,396
	Supplemental ESP		87,159	155,081	—	1,149,439
M. J. Avedon	EDPC Plan II	—	—	1,950,120	(1,088,840)	5,697,452
	Supplemental ESP	—	67,667	131,573	—	877,021
P. A. Camuti	EDCP Plan II	—	—	1,991,261	(1,045,562)	5,835,575
	Supplemental ESP	—	49,044	67,290	—	436,453

(a) The annual deferrals (salary, AIM & PSP) are all reflected in the Salary column, the Non-Equity Incentive Plan column and the Stock Awards column, respectively of the Summary Compensation Table.

(b) All of the amounts reflected in this column are included in the All Other Compensation column of the Summary Compensation Table.

(c) Amounts in this column include gains and losses on investments, as well as dividends on ordinary shares or ordinary share equivalents. None of the earnings or losses reported in this column are included in the Summary Compensation Table.

(d) The following table reflects the amounts reported in this column as compensation to the NEOs in the Company's Summary Compensation Table in proxy statements for prior years. Each of Messrs. Lamach, Regnery, Ms. Carter, Ms. Avedon and Mr. Camuti first became NEOs and therefore had their compensation reported in the Company's proxy statements beginning with fiscal years 2005 (Lamach), 2017 (Regnery), 2014 (Carter), 2010 (Avedon) and 2020 (Camuti).

NAME	EDCP PLAN ($)	SUPPLEMENTAL ESP ($)
M. W. Lamach	1,529,086	1,795,725
S. K. Carter	—	429,043
D. S. Regnery	886,735	104,584
M. J. Avedon	376,016	418,473
P. A. Camuti	—	—

Post-Employment Benefits

The following discussion describes the compensation to which each NEO would be entitled in the event of termination of such executive's employment.

PROXY STATEMENT

Employment Arrangements and Severance Not in Connection with a Change in Control

Mr. Lamach, Ms. Carter and Ms. Avedon are entitled to severance in the event of their involuntary termination without cause pursuant to the terms of their employment agreements. Under the terms of his employment agreement, Mr. Lamach is eligible for 24 months of base annual salary plus a prorated AIM award earned for the year of termination as determined and paid at the conclusion of the full performance year in accordance with the terms of the AIM program. Under the terms of her employment agreement, Ms. Carter is eligible for 12 months of base salary plus a prorated AIM award (not to exceed target) earned for the year of termination as determined and paid at the conclusion of the full performance year in accordance with the terms of the AIM program. Ms. Avedon is eligible for 12 months of base salary and an AIM award equal to her target.

Although the Company does not have a formal severance policy for officers, NEOs who do not have employment agreements providing for severance and who are terminated by the Company other than for cause will generally be considered for severance benefits up to 12 months' base salary. Depending on the circumstances and timing of the termination, they may also be eligible for a pro-rated portion of their AIM award earned for the year of termination as determined and paid at the conclusion of the full performance year in accordance with the terms of the AIM program.

In addition, the Company's equity award agreements provide for the following treatment upon the occurrence of one of the specified events in the table below:

	STOCKS OPTIONS	RSUs	PSUs
Retirement	Continue to vest on the same basis as active employees and remain exercisable for a period of up to five years following retirement.	Continue to vest on the same basis as active employees.	Vest pro-rata based on the time worked during the performance period and the achievement of performance goals through the end of the performance period.
Group Termination	Immediately vest in the portion of the awards that would have vested within twelve months of termination and remain exercisable for a period of up to three years following termination of employment.	Immediately vest in the portion of the awards that would have vested within twelve months of termination.	
Job Elimination	Unvested awards are forfeited and vested awards remain exercisable for a period of up to one year following termination.	Unvested awards are forfeited.	
Death or Disability	Immediately vest in unvested awards and vested awards remain exercisable for a period of up to three years following death or disability.	Immediately vest in unvested awards.	Vest pro-rata based on the time worked during the performance period and the achievement of performance goals from the beginning of the performance period through the end of the calendar quarter in which employment terminated.

In the event of a change in control or termination due to a Major Restructuring, severance would be determined pursuant to the terms of the change-in-control agreements or the Major Restructuring Severance Plan described below in lieu of severance under the terms of the employment agreements or the severance guidelines described above.

Change in Control

The Company has entered into a change-in-control agreement with each NEO. The change-in-control agreement provides for certain payments if the employment is terminated by the Company without "cause" (as defined in the change-in-control agreements) or by the NEO for "good reason" (as defined in the change-in-control agreements), in each case, within two years following a change in control of the Company. For officers who first became eligible for a change-in-control agreement on or after May 19, 2009, including Ms. Carter and Messrs. Regnery and Camuti, the Company eliminated a severance payment based on outstanding PSP awards and eliminated a payment to cover the impact to the executive of certain incremental taxes incurred in connection with the payments made following a change in control.

Following a change in control, each NEO is entitled to continue receiving his or her current base salary and is entitled to an annual bonus in an amount not less than the highest annual bonus paid during the prior three full fiscal years.

If an NEO's employment is terminated "without cause" or by the NEO for "good reason" within two years following a change in control, the NEO is entitled to the following:

- any base salary and annual bonus for a completed fiscal year that had not been paid;
- an amount equal to the NEO's annual bonus for the last completed fiscal year pro-rated for the number of full months employed in the current fiscal year;
- an amount equal to the NEO's base salary pro-rated for any unused vacation days;
- a lump sum severance payment from the Company equal to the three times (for the CEO) or two and one-half times (for other NEOs) the sum of:
  - the NEO's annual salary in effect on the termination date, or, if higher, the annual salary in effect immediately prior to the reduction of the NEO's annual salary after the change in control; and
  - the NEO's target AIM award for the year of termination or, if higher, the average of the AIM award amounts beginning three years immediately preceding the change in control and ending on the termination date; and
  - for Mr. Lamach and Ms. Avedon, a lump sum payment equal to three times for Mr. Lamach and two and one-half times for Ms. Avedon of: (a) the cash value of the target amount of the most recent PSU award; or (b) if higher, the average amounts of the last three PSU awards granted and paid to the NEO immediately preceding termination. This payment is in lieu of any rights the individual might have with respect to unvested PSU awards.

A "change in control" is defined as the occurrence of any of the following events: (i) any person unrelated to the Company becomes the beneficial owner of 30% or more of the combined voting power of the Company's voting stock; (ii) the directors serving at the time the change-in-control agreements were executed (or the directors subsequently elected by the shareholders of the Company whose election or nomination was duly approved by at least two-thirds of the then serving directors) fail to constitute a majority of the Board of Directors; (iii) the consummation of a merger or consolidation of the Company with any other corporation in which the Company's voting securities outstanding immediately prior to such merger or consolidation represent 50% or less of the combined voting securities of the Company immediately after such merger or consolidation; (iv) any sale or transfer of all or substantially all of the Company's assets, other than a sale or transfer with a corporation where the Company owns at least 80% of the combined voting power of such corporation or its parent after such transfer; or (v) any other event that the continuing directors determine to be a change in control; provided however, with respect to (i), (iii) and (v) above, there shall be no change in control if shareholders of the Company own more than 50% of the combined voting power of the voting securities of the Company or the surviving entity or any parent immediately following such transaction in substantially the same proportion to each other as prior to such transaction.

In addition to the foregoing, the NEOs would also be eligible to participate in the Company's welfare employee benefit programs for the severance period (three years for the CEO and two and one-half years for the other NEOs). For purposes of determining eligibility for applicable post-retirement welfare benefits, the NEO would be credited with any combination of additional years of service and age, not exceeding 10 years, to the extent necessary to qualify for such benefits. Mr. Regnery is the only active NEO eligible for subsidized retiree medical benefits (only until age 65) due to his age and service as of January 1, 2003, when eligibility for the retiree medical benefit was frozen. The Company would also provide each NEO up to $100,000 of outplacement services.

In the event of a change in control, participants in the EOSP and KMP would be immediately vested. A termination within two years following a change in control also triggers the payment of an enhanced benefit, whereby three years would be added to both age and service with the Company under the EOSP or KMP. In addition, the "final average pay" under the EOSP or KMP would be calculated as 33.33% of his or her severance benefit under the change-in-control agreement in the case of Mr. Lamach and 40% of the severance benefit under the applicable change-in-control agreement in the case of the other NEOs. These percentages reflect an annualized value of severance payments that would be provided in accordance with their respective agreements.

Under the Company's 2018 Stock Plan, time-based awards will only vest and become exercisable or payable, as applicable, on a change in control (as defined in the 2018 Stock Plan) if they are not assumed, substituted or otherwise replaced in connection with the change in control. If the awards are assumed or continued after the change in control, the Committee may provide that such awards will be subject to automatic vesting acceleration upon a participant's involuntary termination within a designated period following the change in control. Further, under the 2018 Stock Plan, PSUs will automatically vest upon a change in control of our Company, based on (a) the target level, pro-rated to reflect the period the participant was in service during the performance period or (b) the actual performance level attained, in each case, as determined by the Committee.

Major Restructuring

The Company has adopted a Severance Plan that provides a cash severance payment in the event a participant's employment is terminated due to an involuntary loss of job without Cause (as defined in the Severance Plan) or a Good Reason (as defined in the Severance Plan), provided that the termination is substantially related to or a result of a Major Restructuring. The cash severance payment would be equal to two and one-half times (for the CEO) or two times (for other NEOs) (a) current base salary, and (b) current target AIM award. As of December 31, 2019, the value of cash severance for NEOs was: Mr. Lamach, $9,165,000; Ms. Carter, $3,100,000; Mr. Regnery, $3,100,000; Ms. Avedon, $2,534,500; and Mr. Camuti, $1,995,000.

Participants would also receive a pro-rated portion of their target AIM award, based on actual Company and individual performance during the fiscal year in which termination of employment occurred. Participants in the EOSP or KMP who are not vested in such plans would also receive a cash payment equal to the amount of the benefit to which they would have been entitled if they were vested.

In addition, the Company's equity awards provide that employees who terminate employment due to an involuntary loss of job without Cause (as defined in the applicable award agreement) or for Good Reason (as defined in the applicable award agreement) within one year of completion of a Major Restructuring will, provided that the termination is substantially related to the Major Restructuring, (i) immediately vest in all unvested stock options and may exercise all vested stock options at any time within the following three-year period (five years if retirement eligible) or the remaining term of the stock option, if shorter, (ii) immediately vest in all RSUs, except that retirement eligible participants with at least five years of service would continue their existing vesting schedule, and (iii) receive a prorated payout of outstanding PSUs based on actual performance at the end of performance period. As of December 31, 2019, the value of unvested equity awards was: Mr. Lamach, $34,701,855; Ms. Carter, $9,145,891; Mr. Regnery, $8,371,450; Ms. Avedon, $5,761,832; and Mr. Camuti, $3,828,054.

A "Major Restructuring" is defined as a reorganization, recapitalization, extraordinary stock dividend, merger, sale, spin-off or other similar transaction or series of transactions, which individually or in the aggregate, has the effect of resulting in the elimination of all, or the majority of, any one or more of the Company's two business segments (i.e., Climate and Industrial), so long as such transaction or transactions do not constitute a Change in Control (as defined in the applicable plan).

2019 Post-Employment Benefits Table

The following table describes the compensation to which each of the NEOs would be entitled in the event of termination of such executive's employment on December 31, 2019, including termination following a change in control. The potential payments were determined under the terms of our plans and arrangements in effect on December 31, 2019. The table does not include the pension benefits or nonqualified deferred compensation amounts that would be paid to an NEO, which are set forth in the Pension Benefits table and the Nonqualified Deferred Compensation table above, except to the extent that the NEO is entitled to an additional benefit as a result of the termination.

NAME	VOLUNTARY RESIGNATION/ RETIREMENT ($)	INVOLUNTARY WITHOUT CAUSE ($)	INVOLUNTARY WITH CAUSE ($)	CHANGE IN CONTROL ($)	DISABILITY ($)	DEATH ($)
M. W. Lamach						
Severance[(a)]		2,820,000		12,300,000		
Earned but Unpaid AIM Award(s)[(b)]		2,775,000		2,775,000		
PSP Award Payout[(c)]	15,056,247	15,056,247		40,006,266	15,056,247	15,056,247
Value of Unvested Equity Awards[(d)]	19,645,608	19,645,608		19,645,608	19,645,608	19,645,608
Enhanced Retirement Benefits[(e)]				8,967,763		
Outplacement[(f)]		11,400		100,000		
Health Benefits[(g)]				26,343		
Tax Assistance[(h)]						
Total	34,701,855	40,308,255		83,820,980	34,701,855	34,701,855
S. K. Carter						
Severance[(a)]		775,000		4,108,412		
Earned but Unpaid AIM Award(s)[(b)]		767,521		948,963		
PSP Award Payout[(c)]	3,916,488	3,916,488		3,918,216	3,916,488	3,916,488
Value of Unvested Equity Awards[(d)]	5,229,403	5,229,403		5,229,403	5,229,403	5,229,403
Enhanced Retirement Benefits[(e)]				2,270,542		
Outplacement[(f)]		11,400		100,000		
Health Benefits[(g)]				22,077		
Tax Assistance[(h)]						
Total	9,145,891	10,699,812		16,597,613	9,145,891	9,145,891
D. S. Regnery						
Severance[(a)]		775,000		3,875,000		
Earned but Unpaid AIM Award(s)[(b)]		767,521		856,177		
PSP Award Payout[(c)]	2,969,167	2,969,167		2,971,294	2,969,167	2,969,167
Value of Unvested Equity Awards[(d)]	3,921,820	3,921,820		5,402,283	5,402,283	5,402,283
Enhanced Retirement Benefits[(e)]				3,398,640		
Outplacement[(f)]		11,400		100,000		
Health Benefits[(g)]				93,077		
Tax Assistance[(h)]						
Total	6,890,987	8,444,908		16,696,471	8,371,450	8,371,450

NAME	VOLUNTARY RESIGNATION/ RETIREMENT ($)	INVOLUNTARY WITHOUT CAUSE ($)	INVOLUNTARY WITH CAUSE ($)	CHANGE IN CONTROL ($)	DISABILITY ($)	DEATH ($)
M. J. Avedon						
Severance[(a)]		685,000		3,373,711		
Earned but Unpaid AIM Award(s)[(b)]		575,893		712,034		
PSP Award Payout[(c)]	2,473,375	2,473,375		4,176,813	2,473,375	2,473,375
Value of Unvested Equity Awards[(d)]	3,288,457	3,288,457		3,288,457	3,288,457	3,288,457
Enhanced Retirement Benefits[(e)]				2,694,868		
Outplacement[(f)]		11,400		100,000		
Health Benefits[(g)]				22,077		
Tax Assistance[(h)]						
Total	5,761,832	7,034,125		14,367,960	5,761,832	5,761,832
P. A. Camuti						
Severance[(a)]		570,000		2,612,277		
Earned but Unpaid AIM Award(s)[(b)]		421,890		521,625		
PSP Award Payout[(c)]	1,617,636	1,617,636		1,618,434	1,617,636	1,617,636
Value of Unvested Equity Awards[(d)]	2,210,418	2,210,418		2,210,418	2,210,418	2,210,418
Enhanced Retirement Benefits[(e)]				1,338,744		
Outplacement[(f)]		11,400		100,000		
Health Benefits[(g)]				22,077		
Tax Assistance[(h)]						
Total	3,828,054	4,831,344		8,423,575	3,828,054	3,828,054

(a) For the "Involuntary without Cause" column, for those NEOs who do not have a formal separation agreement, the current severance guidelines permit payment of up to one year's base salary provided that such termination was not eligible for severance benefits under the Major Restructuring Severance Plan. For the amounts shown under the "Change in Control" columns, refer to the description of how severance is calculated in the section above, entitled Post-Employment Benefits.

(b) For the "Involuntary without Cause" column, these amounts represent the AIM awards earned by Mr. Lamach, Ms. Carter and Ms. Avedon in 2019 and paid pursuant to the terms of their employment agreements and (ii) prorated AIM awards (up to target) that may be paid to the other NEOs depending on the circumstances and timing of the termination. For the amounts under "Change in Control," these amounts represent the actual award earned for the 2019 performance period, which may be more or less than the target award.

(c) For the "Involuntary without Cause" column, these amounts represent the cash value of the prorated PSU award payout to the NEOs as a result of their retirement eligibility at December 31, 2019. For the "Change in Control" column for Mr. Lamach and Ms. Avedon, these amounts represent the cash value of the PSU award payout, based on the appropriate multiple. For the "Change in Control" column for Mr. Regnery, Ms. Carter and Mr. Camuti, these values represent what would be provided under the terms of the 2013 Plan, which provides a pro-rated payment for all outstanding awards at target, and the 2018 Plan, which provides for either a pro-rated payment for all outstanding awards at target or a payment based on actual performance, as determined by the Committee. For the "Retirement," "Disability" and "Death" columns, amounts represent the cash value of the prorated portion of their PSUs that vest upon such events assuming performance at target. Amounts for each column are based on the closing stock price of the ordinary shares on December 31, 2019 ($132.92).

(d) The amounts shown for "Retirement," "Involuntary without Cause," "Change in Control," "Death" and "Disability" represent (i) the value of the unvested RSUs, which is calculated based on the number of unvested RSUs multiplied by the closing stock price of the ordinary shares on December 31, 2019 ($132.92), and (ii) the intrinsic value of the unvested stock options, which is calculated based on the difference between the closing stock price of the ordinary shares on December 31, 2019 ($132.92) and the relevant exercise price. However, only in the event of termination following a "Change in Control" or termination due to "Death" or "Disability" is there accelerated vesting of unvested awards. For "Retirement," "Disability" and "Death", the awards do not accelerate but continue to vest on the same basis as active employees. Because all the NEOs were retirement eligible, they would continue to vest in stock options and RSUs after termination of employment for any reason other than cause.

(e) In the event of a change in control of the Company and termination of the NEOs, the present value of the pension benefits under the EOSP, KMP and Supplemental Pension Plan would be paid out as lump sums. While there is no additional benefit to the NEOs as a result of either voluntary retirement/resignation and/or involuntary resignation without cause, there are differences (based on the methodology mandated by the SEC) between the numbers that are shown in the Pension Benefits Table and those that would actually be payable to the NEO under these termination scenarios.

(f) For the "Involuntary without Cause" column, each NEO is eligible for outplacement services for a twelve month period, not to exceed $11,400. For the "Change in Control" column, the amount represents the maximum expenses the Company would reimburse the NEO for professional outplacement services.

(g) Represents the Company cost of health and welfare coverage. The cost for "Change in Control" represents continued active coverage for the severance period. For Mr. Regnery, the value shown includes the cost for retiree coverage.

(h) Pursuant to the change-in-control agreements for Mr. Lamach and Ms. Avedon, if any payment or distribution by the Company to these NEOs creates certain incremental taxes, they would be entitled to receive from the Company a payment in an amount sufficient to place them in the same after-tax financial position as if such taxes had not been imposed. For 2019, as a result of a cut-back provision in the change-in-control agreements, these two NEOs were not eligible for this payment, and therefore no value is shown in the table above.

CEO Pay Ratio

The ratio of our CEO's total compensation to our median employee's total compensation (the "CEO Pay Ratio") is a reasonable estimate calculated in a manner consistent with Item 402(u) of Regulation S-K. Due to the flexibility afforded by Item 402(u) in calculating the CEO Pay Ratio, the ratio may not be comparable to CEO pay ratios presented by other companies.

We identified our median employee using our global employee population as of October 31, 2019. We have employees in over 60 countries including 19,483 non-U.S. employees. As part of our methodology, and in compliance with the pay ratio rule under Item 402(u), we employed the de minimis exemption for non-U.S. employees and excluded all employees in 33 countries totaling 938 employees (approximately 2.0% of our total workforce of 46,763). Employees in the following countries were excluded:

COUNTRY	NUMBER OF EMPLOYEES	COUNTRY	NUMBER OF EMPLOYEES	COUNTRY	NUMBER OF EMPLOYEES
South Africa	101	Saudi Arabia	29	Guam	11
Poland	95	Austria	24	Finland	8
Sweden	68	Greece	24	Slovakia	7
Russian Federation	59	Portugal	22	Denmark	4
Israel	51	Costa Rica	22	Croatia	3
Turkey	50	Kuwait	19	Luxembourg	2
Panama	44	Australia	19	Ukraine	1
Hungary	37	Hong Kong	17	Norway	1
Romania	35	Peru	17		
Slovenia	34	Lebanon	15		
Egypt	34	Dominican Republic	14		
Qatar	30	Macao	12		
Switzerland	29				

Our in-scope employees consisted of our full-time, part-time, seasonal and temporary employees and excluded independent contractors and leased workers. To determine our median employee, we used annual base salary as our consistently applied compensation measure for 2019 (the "2019 CACM"). For commission-based employees, actual earnings were considered their base salary. In identifying our median employee, we further annualized pay for those full-time and part-time employees (but not seasonal and temporary employees) who commenced work during 2019. We believe that annual base salary provides a reasonable estimate of annual compensation of our employees. We switched to annual base salary as 2019 CACM from annual total direct compensation (which includes annual base pay rate, overtime, incentive/bonus, commissions and long-term incentives) which was used in 2018 (the "2018 CACM"). Our change in methodology was due to system complexities and the global scope of our analysis which made the 2018 CACM more time consuming and expensive for the Company.

After identifying the median employee, we calculated the median employee's total annual compensation in accordance with the requirements of the Summary Compensation Table. Based on such calculation, our median employee's total compensation was $54,757, while our CEO's compensation was $24,217,128. Accordingly, our CEO Pay Ratio was 442:1.

Equity Compensation Plan Information

The following table provides information as of December 31, 2019, with respect to the Company's ordinary shares that may be issued under equity compensation plans:

PLAN CATEGORY	NUMBER OF SECURITIES TO BE ISSUED UPON EXERCISE OF OUTSTANDING OPTIONS, WARRANTS AND RIGHTS	WEIGHTED AVERAGE EXERCISE PRICE OF OUTSTANDING OPTIONS, WARRANTS AND RIGHTS	NUMBER OF SECURITIES REMAINING AVAILABLE FOR FUTURE ISSUANCE UNDER EQUITY COMPENSATION PLANS (EXCLUDING SECURITIES REFLECTED IN FIRST COLUMN)
Equity compensation plans approved by security holders(1)	7,008,516	$78.91	19,069,322
Equity compensation plans not approved by security holders(2)	762,864	—	—
Total	7,771,380	$78.91	19,069,322

(1) Consists of the 2007 Plan, the 2013 Plan and the 2018 Plan.

(2) Consists of the EDCP Plans, the Trane Technologies Directors Deferred Compensation Plan (the "DDCP I"), the Trane Technologies Directors Deferred Compensation and Stock Award Plan II (the "DDCP II" and, together with the DDCP I, the "DDCP Plans"), and the Trane Deferred Compensation Plan (the "TDCP"). Plan participants acquire Company shares under these plans as a result of the deferral of salary, AIM awards and PSUs.

Information Concerning Voting and Solicitation

Why Did I Receive This Proxy Statement?

We sent you this Proxy Statement or a Notice of Internet Availability of Proxy Materials ("Notice") because our Board of Directors is soliciting your proxy to vote at the Annual General Meeting. This Proxy Statement summarizes the information you need to know to vote on an informed basis.

Why Are There Two Sets of Financial Statements Covering the Same Fiscal Period?

U.S. securities laws require us to send you our 2019 Form 10-K, which includes our financial statements prepared in accordance with GAAP. These financial statements are included in the mailing of this Proxy Statement. Irish law also requires us to provide you with our Irish Financial Statements for our 2019 fiscal year, including the reports of our Directors and auditors thereon, which accounts have been prepared in accordance with Irish law. The Irish Financial Statements are available on the Company's website at www.tranetechnologies.com under the heading "Investors – Irish Statutory Accounts" and will be laid before the Annual General Meeting.

How Do I Attend the Annual General Meeting?

In light of any COVID-19 measures that may be in place in Ireland and the United States on the date of the Annual General Meeting, we strongly encourage all shareholders not to attend the Annual General Meeting in person and instead to submit proxy forms to ensure they can vote and be represented at the Annual General Meeting without attending in person. Shareholders are encouraged to keep up-to-date with, and follow, the guidance from the Government of Ireland and the Department of Health (of Ireland) and other local health departments as circumstances may change at short notice.

Taking into account the latest guidance from the Government of Ireland, particularly in relation to indoor public gatherings, it is possible the Annual General Meeting Annual General Meeting may be adjourned to a different time and/or venue, in each case notification of such adjournment will be given in accordance with Company's constitution. Any announcements of changes or updates to the arrangements for the Annual General Meeting will be made available at www.tranetechnologies.com.

In the event that the Annual General Meeting can proceed as normal, **in order to be admitted, you must present a form of personal identification and evidence of share ownership.**

If you are a shareholder of record, evidence of share ownership will be either (1) an admission ticket, which is attached to the proxy card and must be separated from the proxy card and kept for presentation at the meeting if you vote your proxy by mail, or (2) a Notice.

Shareholders in Ireland may participate in the Annual General Meeting remotely on June 4, 2020 at 1:00 p.m. (Dublin time) telephonically at the Arthur Cox Building, Ten Earlsfort Terrace, Dublin 2, D02 T380, Ireland, in order to be admitted, you must present a form of personal identification and evidence of share ownership.

If you own your shares through a bank, broker or other holder of record ("street name holders"), evidence of share ownership will be either (1) your most recent bank or brokerage account statement, or (2) a Notice. If you would rather have an admission ticket, you can obtain one in advance by mailing a written request, **along with proof of your ownership of the Company's ordinary shares,** to:

Secretary
Trane Technologies plc
170/175 Lakeview Dr.
Airside Business Park
Swords, Co. Dublin
Ireland

No cameras, recording equipment, electronic devices, large bags, briefcases or packages will be permitted at the Annual General Meeting.

Who May Vote?

You are entitled to vote if you beneficially owned the Company's ordinary shares at the close of business on April 8, 2020, the Record Date. At that time, there were 239,205,933 of the Company's ordinary shares outstanding and entitled to vote. Each ordinary share that you own entitles you to one vote on all matters to be voted on a poll at the Annual General Meeting.

How Do I Vote?

Shareholders of record can cast their votes by proxy by:

- using the Internet and voting at www.proxyvote.com;
- calling 1-800-690-6903 and following the telephone prompts; or
- completing, signing and returning a proxy card by mail. If you received a Notice and did not receive a proxy card, you may request one at sendmaterial@proxyvote.com.

The Notice is not a proxy card and it cannot be used to vote your shares.

If you are a shareholder of record and you choose to submit your proxy by telephone by calling the toll-free number on your proxy card, your use of that telephone system and in particular the entry of your pin number/other unique identifier, will be deemed to constitute your appointment, in writing and under hand, and for all purposes of the Companies Act 2014, of the persons named on the proxy card as your proxy to vote your shares on your behalf in accordance with your telephone instructions.

Subject to guidance from the Government of Ireland at the time of the Annual General Meeting, shareholders of record may also vote their shares directly by attending the Annual General Meeting and casting their vote in person or appointing a proxy (who does not have to be a shareholder) to attend the Annual General Meeting and casting votes on their behalf in accordance with their instructions.

Street name holders must vote their shares in the manner prescribed by their bank, brokerage firm or nominee. Street name holders who wish to vote in person at the Annual General Meeting must obtain a legal proxy from their bank, brokerage firm or nominee. Street name holders will need to bring the legal proxy with them to the Annual General Meeting and hand it in with a signed ballot that is available upon request at the meeting. Street name holders will not be able to vote their shares at the Annual General Meeting without a legal proxy and a signed ballot.

Taking the Company's Covid-19 guidance about attending in person into consideration, even if you plan to attend the Annual General Meeting, we recommend that you vote by proxy as described above so that your vote will be counted if you later decide not to attend the meeting.

In order to be timely processed, your vote must be received by 11:59 p.m. Eastern Time on June 3, 2020 (or, if you are a street name holder, such earlier time as your bank, brokerage firm or nominee may require).

How May Employees Vote under Our Employee Plans?

If you participate in the ESP, the Trane Technologies Company Employee Savings Plan for Bargained Employees, the Trane Technologies Retirement Savings Plan for Participating Affiliates in Puerto Rico, or the Trane 401(k) and Thrift Plan, then you may be receiving these materials because of shares held for you in those plans. In that case, you may use the enclosed proxy card to instruct the plan trustees of those plans how to vote your shares, or give those instructions by telephone or over the Internet. They will vote these shares in accordance with your instructions and the terms of the plan.

To allow plan administrators to properly process your vote, your voting instructions must be received by 11:59 p.m. Eastern Time on May 29, 2019.

If you do not provide voting instructions for shares held for you in any of these plans, the plan trustees will vote these shares in the same ratio as the shares for which voting instructions are provided.

May I Revoke My Proxy?

You may revoke your proxy at any time before it is voted at the Annual General Meeting in any of the following ways:

- by notifying the Company's Secretary in writing: c/o Trane Technologies plc, 170/175 Lakeview Dr., Airside Business Park, Swords, Co. Dublin, Ireland;
- by submitting another properly signed proxy card with a later date or another Internet or telephone proxy at a later date but prior to the close of voting described above; or
- by voting in person at the Annual General Meeting.

Merely attending the Annual General Meeting does not revoke your proxy. To revoke a proxy, you must take one of the actions described above.

How Will My Proxy Get Voted?

If your proxy is properly submitted, your proxy holder (one of the individuals named on the proxy card) will vote your shares as you have directed. If you are a street name holder, the rules of the NYSE permit your bank, brokerage firm or nominee to vote your shares on Items 3, 4, 5 and 6 (routine matters) if it does not receive instructions from you. However, your bank, brokerage firm or nominee may not vote your shares on Items 1 and 2 (non-routine matters) if it does not receive instructions from you ("broker non-votes"). Broker non-votes will not be counted as votes for or against the non-routine matters, but rather will be regarded as votes withheld and will not be counted in the calculation of votes for or against the resolution.

If you are a shareholder of record and you do not specify on the proxy card you send to the Company (or when giving your proxy over the Internet or telephone) how you want to vote your shares, then the Company-designated proxy holders will vote your shares in the manner recommended by our Board of Directors on all matters presented in this Proxy Statement and as the proxy holders may determine in their discretion regarding any other matters properly presented for a vote at the meeting.

What Constitutes a Quorum?

The presence (in person or by proxy) of shareholders entitled to exercise a majority of the voting power of the Company on the Record Date is necessary to constitute a quorum for the conduct of business. Abstentions and broker non-votes are treated as "shares present" for the purposes of determining whether a quorum exists.

What Vote is Required to Approve Each Proposal?

A majority of the votes cast at the Annual General Meeting is required to approve each of Items 1, 2, 3 and 4. A majority of the votes cast means that the number of votes cast "for" an Item must exceed the number of votes cast "against" that Item. Items 5 and 6 are considered special resolutions under Irish law and require 75% of the votes cast for approval.

Although abstentions and broker non-votes are counted as "shares present" at the Annual General Meeting for the purpose of determining whether a quorum exists, they are not counted as votes cast either "for" or "against" the resolution and, accordingly, will not affect the outcome of the vote.

Who Pays the Expenses of This Proxy Statement?

We have hired Alliance Advisors, LLC to assist in the distribution of proxy materials and the solicitation of proxies for a fee estimated at $15,000 plus out-of-pocket expenses. Proxies will be solicited on behalf of our Board of Directors by mail, in person, by telephone and through the Internet. We will bear the cost of soliciting proxies. We will also reimburse brokers and other custodians, nominees and fiduciaries for their reasonable out-of-pocket expenses for forwarding proxy materials to the persons for whom they hold shares.

How Will Voting on Any Other Matter be Conducted?

Although we do not know of any matters to be presented or acted upon at the Annual General Meeting other than the items described in this Proxy Statement, if any other matter is proposed and properly presented at the Annual General Meeting, the proxy holders will vote on such matters in accordance with their best judgment.

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth as of the Record Date, the beneficial ownership of our ordinary shares by (i) each director of the Company, (ii) each executive officer of the Company named in the Summary Compensation Table below, and (iii) all directors and executive officers of the Company as a group:

NAME	ORDINARY SHARES[1]	NOTIONAL SHARES [2]	OPTIONS EXERCISABLE WITHIN 60 DAYS[3]
K. E. Arnold	2,239	—	—
A. C. Berzin	29,599	45,524	—
J. Bruton	9,970	—	—
J. L. Cohon	24,422	—	—
G. D. Forsee	28,819	—	—
L. P. Hudson	5,358	—	—
M. P. Lee	5,044	—	—
K. B. Peetz	2,469	—	—
J. P. Surma	9,616	—	—
R. J. Swift	4,788	84,857	—
T. L. White	28,276	64,287	—
M. W. Lamach	202,543	84,015	785,413
S. K. Carter	120,895	—	229,736
D. S. Regnery	40,079	1,204	229,165
M. J. Avedon	53,892	55,342	144,203
P. A. Camuti	19,014	56,684	108,421
All directors and executive officers as a group (20 persons)[4]	630,733	403,923	1,628,426

(1) Represents (i) ordinary shares held directly; (ii) ordinary shares held indirectly through a trust; (iii) unvested shares, including any RSUs or PSUs, and ordinary shares and ordinary share equivalents notionally held under the TDCP that may vest or are distributable within 60 days of the Record Date; and (iv) ordinary shares held by the trustee under the ESP for the benefit of executive officers. No director or executive officer of the Company beneficially owns 1% or more of the Company's ordinary shares.

(2) Represents ordinary shares and ordinary share equivalents notionally held under the DDCP Plans, and the EDCP Plans that are not distributable within 60 days of the Record Date.

(3) Represents ordinary shares as to which directors and executive officers had stock options exercisable within 60 days of the Record Date, under the Company's Incentive Stock Plans.

(4) The Company's ordinary shares beneficially owned by all directors and executive officers as a group (including shares issuable under exercisable options) aggregated approximately 0.92% of the total outstanding ordinary shares. Ordinary shares and ordinary share equivalents notionally held under the DDCP Plans, the EDCP Plans and the TDCP and ordinary share equivalents resulting from dividends on deferred stock awards are not counted as outstanding shares in calculating these percentages because they are not beneficially owned; the directors and executive officers have no voting or investment power with respect to these shares or share equivalents.

The following table sets forth each shareholder which is known by us to be the beneficial owner of more than 5% of the outstanding ordinary shares of the Company based solely on the information filed by such shareholder on Schedule 13D or filed by such shareholder in 2019 for the year ended December 31, 2019 on Schedule 13G under the Securities Exchange Act of 1934:

NAME AND ADDRESS OF BENEFICIAL OWNER	AMOUNT AND NATURE OF BENEFICIAL OWNERSHIP	PERCENT OF CLASS[(1)]
BlackRock, Inc.[(2)] 55 East 52nd Street New York, New York 10022	16,979,000	7.1%
Vanguard Group[(3)] 100 Vanguard Blvd. Malvern, PA 19355	17,974,014	7.51%

(1) The ownership percentages set forth in this column are based on the Company's outstanding ordinary shares on the Record Date and assumes that each of the beneficial owners continued to own the number of shares reflected in the table above on such date.

(2) Information regarding BlackRock, Inc. and its stockholdings was obtained from a Schedule 13G filed with the SEC on February 5, 2020. The filing indicated that, as of December 31, 2019, BlackRock, Inc. had sole voting power as to 14,291,412 of such shares and sole dispositive power as to 16,979,000 of such shares.

(3) Information regarding Vanguard Group and its stockholdings was obtained from a Schedule 13G filed with the SEC on February 12, 2020. The filing indicated that, as of December 31, 2019, Vanguard Group Inc. had sole voting power as to 367,483 of such shares and sole dispositive power as to 17,563,581 of such shares.

Certain Relationships and Related Person Transactions

The Company does not generally engage in transactions in which its executive officers, directors or nominees for directors, any of their immediate family members or any of its 5% shareholders have a material interest. Pursuant to the Company's written related person transaction policy, any such transaction must be reported to management, which will prepare a summary of the transaction and refer it to the Corporate Governance and Nominating Committee for consideration and approval by the disinterested directors. The Corporate Governance and Nominating Committee reviews the material terms of the related person transaction, including the dollar values involved, the relationships and interests of the parties to the transaction and the impact, if any, to a director's independence. The Corporate Governance and Nominating Committee only approves those transactions that are in the best interest of the Company. In addition, the Company's Code of Conduct, which sets forth standards applicable to all employees, officers and directors of the Company, generally proscribes transactions that could result in a conflict of interest for the Company. Any waiver of the Code of Conduct for any executive officer or director requires the approval of the Company's Board of Directors. Any such waiver will, to the extent required by law or the NYSE, be disclosed on the Company's website at www.tranetechnologies.com or on a current report on Form 8-K. No such waivers were requested or granted in 2019.

We have not made payments to directors other than the fees to which they are entitled as directors (described under the heading "Compensation of Directors") and the reimbursement of expenses related to their services as directors. We have made no loans to any director or officer nor have we purchased any shares of the Company from any director or officer.

Delinquent Section 16(a) Reports

Section 16(a) of the Securities Exchange Act of 1934, as amended, requires our directors and officers, and persons who beneficially own more than ten percent of the Company's ordinary shares, to file reports of ownership and reports of changes in ownership with the SEC and the NYSE. To the Company's knowledge, based solely on its review of such forms received by the Company and written representations that no other reports were required, all Section 16(a) filing requirements were complied with for the year 2019.

Shareholder Proposals and Nominations

Any proposal by a shareholder intended to be presented at the 2021 Annual General Meeting of shareholders of the Company must be received by the Company at its registered office at 170/175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin, Ireland, Attn: Secretary, no later than December 24, 2020, for inclusion in the proxy materials relating to that meeting. Any such proposal must meet the requirements set forth in the rules and regulations of the SEC, including Rule 14a-8, in order for such proposals to be eligible for inclusion in our 2021 proxy statement.

The Company's Articles of Association set forth procedures to be followed by shareholders who wish to nominate candidates for election to the Board of Directors in connection with Annual General Meetings of shareholders or pursuant to written shareholder consents or who wish to bring other business before a shareholders' general meeting. All such nominations must be accompanied by certain background and other information specified in the Articles of Association. In connection with the 2021 Annual General Meeting, written notice of a shareholder's intention to make such nominations or bring business before the Annual General Meeting must be given to the Secretary of the Company not later than March 8, 2021. If the date of the 2021 Annual General Meeting occurs more than 30 days before, or 60 days after, the anniversary of the 2020 Annual General Meeting, then the written notice must be provided to the Secretary of the Company not later than the seventh day after the date on which notice of such Annual General Meeting is given.

In addition, the Company's Articles of Association separately provide shareholders representing 3% or more of the voting power of the Company's shares with the right, subject to certain terms and conditions, to nominate candidates for election to the Board of Directors and have such candidate included in our proxy materials for the applicable Annual General Meeting ("proxy access"). All such nominations must be accompanied by certain background and other information specified in the Articles of Association. In connection with the 2021 Annual General Meeting, written notice of proxy access nominations must be given to the Secretary of the Company not earlier than November 24, 2020 and not later than later than December 24, 2020. If the date of the 2021 Annual General Meeting occurs more than 30 days before, or 60 days after, the anniversary of the 2020 Annual General Meeting, then the written notice must be provided to the Secretary of the Company not earlier than 120 days prior to the 2020 Annual General Meeting and not later than the close of business on the later of (x) the 90th day prior to the 2021 Annual General Meeting or (y) the 10th day following the day on which public announcement of the date of the 2021 Annual General Meeting is first made.

The Corporate Governance and Nominating Committee will consider all shareholder recommendations for candidates for Board membership, which should be sent to the Committee, care of the Secretary of the Company, at the address set forth above. In addition to considering candidates recommended by shareholders, the Committee considers potential candidates recommended by current directors, Company officers, employees and others. As stated in the Company's Corporate Governance Guidelines, all candidates for Board membership are selected based upon their judgment, character, achievements and experience in matters affecting business and industry. Candidates recommended by shareholders are evaluated in the same manner as director candidates identified by any other means.

In order for you to bring other business before a shareholder general meeting, timely notice must be received by the Secretary of the Company within the time limits described above. The notice must include a description of the proposed item, the reasons you believe support your position concerning the item, and other specified matters. These requirements are separate from and in addition to the requirements you must meet to have a proposal included in our Proxy Statement. The foregoing time limits also apply in determining whether notice is timely for purposes of rules adopted by the SEC relating to the exercise of discretionary voting authority.

If a shareholder wishes to communicate with the Board of Directors for any other reason, all such communications should be sent in writing, care of the Secretary of the Company, or by email at board@tranetechnologies.com.

Householding

SEC rules permit a single set of annual reports and proxy statements to be sent to any household at which two or more shareholders reside if they appear to be members of the same family. Each shareholder continues to receive a separate proxy card. This procedure is referred to as householding. While the Company does not household in mailings to its shareholders of record, a number of brokerage firms with account holders who are Company shareholders have instituted householding. In these cases, a single proxy statement and annual report will be delivered to multiple shareholders sharing an address unless contrary instructions have been received from the affected shareholders. Once a shareholder has received notice from his or her broker that the broker will be householding communications to the shareholder's address, householding will continue until the shareholder is notified otherwise or until the shareholder revokes his or her consent. If at any time a shareholder no longer wishes to participate in householding and would prefer to receive a separate proxy statement and annual report, he or she should notify his or her broker. Any shareholder can receive a copy of the Company's proxy statement and annual report by contacting the Company at its registered office at 170/175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin, Ireland, Attention: Secretary or by accessing it on the Company's website at *www.tranetechnologies.com*.

Shareholders who hold their shares through a broker or other nominee who currently receive multiple copies of the proxy statement and annual report at their address and would like to request householding of their communications should contact their broker.

Dated: April 24, 2020

2019 Financials

TRANE TECHNOLOGIES™

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2019

or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to

Commission File No. 001-34400

INGERSOLL-RAND PUBLIC LIMITED COMPANY

(Exact name of registrant as specified in its charter)

Ireland	**98-0626632**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

170/175 Lakeview Dr.
Airside Business Park
Swords Co. Dublin
Ireland

(Address of principal executive offices)

Registrant's telephone number, including area code: +(353) (0) 18707400

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol	Name of each exchange on which registered
Ordinary Shares, Par Value $1.00 per Share	IR	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

Large accelerated filer	☒	Accelerated filer	☐	Emerging growth company	☐
Non-accelerated filer	☐	Smaller reporting company	☐		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of ordinary shares held by nonaffiliates on June 28, 2019 was approximately $30.5 billion based on the closing price of such stock on the New York Stock Exchange.

The number of ordinary shares outstanding as of February 1, 2020 was 238,401,033.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement to be filed within 120 days of the close of the registrant's fiscal year in connection with the registrant's Annual General Meeting of Shareholders to be held June 4, 2020 are incorporated by reference into Part II and Part III of this Form 10-K.

INGERSOLL-RAND PLC

Form 10-K
For the Fiscal Year Ended December 31, 2019

TABLE OF CONTENTS

			Page
Part I	Item 1.	Business	5
	Item 1A.	Risk Factors	11
	Item 1B.	Unresolved Staff Comments	20
	Item 2.	Properties	21
	Item 3.	Legal Proceedings	22
	Item 4.	Mine Safety Disclosures	22
Part II	Item 5.	Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	23
	Item 6.	Selected Financial Data	24
	Item 7.	Management's Discussion and Analysis of Financial Condition and Results of Operations	25
	Item 7A.	Quantitative and Qualitative Disclosure About Market Risk	39
	Item 8.	Financial Statements and Supplementary Data	39
	Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	40
	Item 9A.	Controls and Procedures	41
	Item 9B.	Other Information	41
Part III	Item 10.	Directors, Executive Officers and Corporate Governance	42
	Item 11.	Executive Compensation	42
	Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	42
	Item 13.	Certain Relationships and Related Transactions, and Director Independence	42
	Item 14.	Principal Accountant Fees and Services	42
Part IV	Item 15.	Exhibits and Financial Statement Schedules	43
	Item 16.	Form 10-K Summary	51
	Signatures		52

Cautionary Statement For Forward Looking Statements

Certain statements in this report, other than purely historical information, are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. These forward-looking statements generally are identified by the words "believe," "project," "expect," "anticipate," "estimate," "forecast," "outlook," "intend," "strategy," "plan," "may," "could," "should," "will," "would," "will be," "will continue," "will likely result," or the negative thereof or variations thereon or similar terminology generally intended to identify forward-looking statements.

Forward-looking statements may relate to such matters as projections of revenue, margins, expenses, tax provisions, earnings, cash flows, benefit obligations, share or debt repurchases or other financial items; any statements of the plans, strategies and objectives of management for future operations, including those relating to any statements concerning expected development, performance or market share relating to our products and services; any statements regarding future economic conditions or our performance; any statements regarding pending investigations, claims or disputes; any statements of expectation or belief; and any statements of assumptions underlying any of the foregoing. These statements are based on currently available information and our current assumptions, expectations and projections about future events. While we believe that our assumptions, expectations and projections are reasonable in view of the currently available information, you are cautioned not to place undue reliance on our forward-looking statements. You are advised to review any further disclosures we make on related subjects in materials we file with or furnish to the Securities and Exchange Commission. Forward-looking statements speak only as of the date they are made and are not guarantees of future performance. They are subject to future events, risks and uncertainties - many of which are beyond our control - as well as potentially inaccurate assumptions, that could cause actual results to differ materially from our expectations and projections. We do not undertake to update any forward-looking statements.

Factors that might affect our forward-looking statements include, among other things:

- overall economic, political and business conditions in the markets in which we operate;
- the demand for our products and services;
- competitive factors in the industries in which we compete;
- changes in tax laws and requirements (including tax rate changes, new tax laws, new and/or revised tax law interpretations and any legislation that may limit or eliminate potential tax benefits resulting from our incorporation in a non-U.S. jurisdiction, such as Ireland);
- trade protection measures such as import or export restrictions and requirements, the imposition of tariffs and quotas or revocation or material modification of trade agreements;
- the outcome of any litigation, governmental investigations, claims or proceedings;
- the outcome of any income tax audits or settlements;
- interest rate fluctuations and other changes in borrowing costs;
- other capital market conditions, including availability of funding sources;
- currency exchange rate fluctuations, exchange controls and currency devaluations;
- availability of and fluctuations in the prices of key commodities;
- impairment of our goodwill, indefinite-lived intangible assets and/or our long-lived assets;
- climate change, changes in weather patterns, natural disasters, seasonal fluctuations, health epidemics or pandemics or other contagious outbreaks;
- the impact of potential information technology, data security breaches or other cybersecurity issues; and
- the strategic acquisition or divestiture of businesses (including the proposed separation of our Industrial segment pursuant to a Reverse Morris Trust transaction), product lines and joint ventures;

Some of the significant risks and uncertainties that could cause actual results to differ materially from our expectations and projections are described more fully in Part I, Item 1A "Risk Factors." You should read that information in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of this report and our Consolidated Financial Statements and related notes in Part II, Item 8 "Financial Statements and Supplementary Data" of this report. We note such information for investors as permitted by the Private Securities Litigation Reform Act of 1995.

Part I

Item 1. Business

OVERVIEW

Ingersoll-Rand plc (Plc or Parent Company), a public limited company incorporated in Ireland in 2009, and its consolidated subsidiaries (collectively, we, our, the Company) is a diversified, global company that provides products, services and solutions to enhance the quality, energy efficiency and comfort of air in homes and buildings, transport and protect food and perishables and increase industrial productivity and efficiency. Our business segments consist of Climate and Industrial, both with strong brands and highly differentiated products within their respective markets. We generate revenue and cash primarily through the design, manufacture, sale and service of a diverse portfolio of industrial and commercial products that include well-recognized, premium brand names such as American Standard®, ARO®, Club Car®, Ingersoll-Rand®, Thermo King® and Trane®.

To achieve our mission of being a world leader in creating comfortable, sustainable and efficient environments, we continue to focus on growth by increasing our recurring revenue stream from parts, services, controls, used equipment and rentals; and to continuously improve the efficiencies and capabilities of the products and services of our businesses. We also continue to focus on operational excellence strategies as a central theme to improving our earnings and cash flow.

BUSINESS SEGMENTS

Our business segments provide products, services and solutions used to increase the efficiency and productivity of both industrial and commercial operations and homes, as well as improve the health and comfort of people around the world.

Our business segments are as follows:

CLIMATE

Our Climate segment delivers energy-efficient products and innovative energy services. It includes Trane® and American Standard® Heating & Air Conditioning which provide heating, ventilation and air conditioning (HVAC) systems, and commercial and residential building services, parts, support and controls; energy services and building automation through Trane Building Advantage™ and Nexia™; and Thermo King® transport temperature control solutions. This segment had 2019 net revenues of $13,075.9 million.

INDUSTRIAL

Our Industrial segment delivers products and services that enhance energy efficiency, productivity and operations. It includes compressed air and gas systems and services, power tools, material handling systems, fluid management systems, as well as Club Car ® golf, utility and consumer low-speed vehicles. This segment had 2019 net revenues of $3,523.0 million.

PRODUCTS AND SERVICES

Our principal products and services by business segment include the following:

CLIMATE	
Aftermarket and OEM parts and supplies	Indoor air quality
Air conditioners	Industrial refrigeration
Air exchangers	Installation contracting
Air handlers	Large commercial unitary
Airside and terminal devices	Light commercial unitary
Auxiliary power units	Motor replacements
Building management systems	Multi-pipe HVAC systems
Bus and rail HVAC systems	Package heating and cooling systems
Chillers	Performance contracting
Coils and condensers	Rail refrigeration systems
Container refrigeration systems and gensets	Refrigerant reclamation
Control systems	Repair and maintenance services
Cryogenic refrigeration systems	Rental services
Diesel-powered refrigeration systems	Self-powered truck refrigeration systems
Ductless systems	Service agreements
Energy management services	Temporary heating and cooling systems
Facility management services	Thermostats/controls
Furnaces	Trailer refrigeration systems
Geothermal systems	Transport heater products
Heat pumps	Unitary systems (light and large)
Home automation	Variable Refrigerant Flow
Humidifiers	Vehicle-powered truck refrigeration systems
Hybrid and non-diesel transport refrigeration solutions	Water source heat pumps
Ice energy storage solutions	

INDUSTRIAL	
Air compressors (centrifugal, reciprocating and rotary)	Hydrogen compression, dispensing and refueling systems
Air-operated pumps (diaphragm and piston)	Installation contracting
Air treatment and air separation systems	Liquid and gas sampling systems
Aftermarket and OEM parts and supplies	Maintenance and repair services
Airends	Metering and process pumps, skids and systems
Blowers	Mixers
Controllers and control systems dryers	Odorant injection systems
Digital Systems Monitoring	Power tools (pneumatic, cordless and electric)
Engine starting systems	Precision fastening tools, software and systems
Ergonomic material handling systems	Rental services
Filters, regulators and lubricators	Rough terrain (AWD) vehicles
Fluid power components	Service agreements
Gas boosters and high-pressure valves	Utility and consumer low-speed vehicles
Gas compressors	Mobile golf information systems
Golf vehicles	Water-powered dosing pumps
Hoists (pneumatic, hydraulic, electric and manual)	Winches (pneumatic, hydraulic and electric)

These products are sold primarily under our name and under other names including American Standard®, ARO®, Club Car®, Ingersoll-Rand®, Thermo King® and Trane®.

SEPARATION OF INDUSTRIAL SEGMENT BUSINESSES

In April 2019, Ingersoll-Rand plc and Gardner Denver Holdings, Inc. (GDI) announced that they entered into definitive agreements pursuant to which we will separate our Industrial segment businesses (IR Industrial) by way of spin-off to our shareholders and then combine with GDI to create a new company focused on flow creation and industrial technologies. This business is expected to be renamed Ingersoll-Rand, Inc. Our remaining HVAC and transport refrigeration businesses, reported under the Climate segment, will focus on climate control solutions for buildings, homes and transportation and be renamed Trane Technologies plc. The transaction is expected to close by early 2020, subject to approval by GDI's shareholders, regulatory approvals and customary closing conditions.

ACQUISITIONS AND EQUITY INVESTMENTS

During 2019, we acquired several businesses that complement existing products and services. In May 2019, we acquired 100% of the outstanding stock of Precision Flow Systems (PFS). PFS, reported in the Industrial segment, is a manufacturer of precision flow control equipment including precision dosing pumps and controls that serve the global water, oil and gas, agriculture, industrial and specialty market segments. Acquisitions within the Climate segment consisted of an independent dealer to support the ongoing strategy to expand our distribution network as well as other businesses that strengthen our product portfolio.

During 2018, we acquired several businesses and entered into a joint venture. In May 2018, we completed our investment of a 50% ownership interest in a joint venture with Mitsubishi Electric Corporation (Mitsubishi). The joint venture, reported within the Climate segment, focuses on marketing, selling and supporting variable refrigerant flow (VRF) and ductless heating and air conditioning systems through Trane, American Standard and Mitsubishi channels in the U.S. and select Latin American countries. In January 2018, we acquired 100% of the outstanding stock of ICS Group Holdings Limited (ICS Cool Energy). The acquired business, reported within the Climate segment, specializes in the temporary rental of energy efficient chillers for commercial and industrial buildings across Europe. It also sells, permanently installs and services high performance temperature control systems for all types of industrial processes.

During 2017, we acquired several businesses, including channel acquisitions, that complement existing products and services. Acquisitions within the Climate segment primarily consisted of independent dealers which support the ongoing strategy to expand our distribution network. Acquisitions within the Industrial segment primarily consisted of a telematics business which builds upon our growing portfolio of connected assets.

COMPETITIVE CONDITIONS

Our products and services are sold in highly competitive markets throughout the world. Due to the diversity of these products and services and the variety of markets served, we encounter a wide variety of competitors that vary by product line and services. They include well-established regional or specialized competitors, as well as larger U.S. and non-U.S. corporations or divisions of larger companies.

The principal methods of competition in these markets relate to price, quality, delivery, service and support, technology and innovation. We believe that we are one of the leading manufacturers in the world of HVAC systems and services, air compression systems, transport temperature control products, power tools, and golf, utility and consumer low-speed vehicles.

DISTRIBUTION

Our products are distributed by a number of methods, which we believe are appropriate to the type of product. U.S. sales are made through branch sales offices, distributors and dealers across the country. Non-U.S. sales are made through numerous subsidiary sales and service companies with a supporting chain of distributors throughout the world.

OPERATIONS BY GEOGRAPHIC AREA

Approximately 34% of our net revenues in 2019 were derived outside the U.S. and we sold products in more than 100 countries. Therefore, the attendant risks of manufacturing or selling in a particular country, such as currency devaluation, nationalization and establishment of common markets, may have an adverse impact on our non-U.S. operations.

CUSTOMERS

We have no customer that accounted for more than 10% of our consolidated net revenues in 2019, 2018 or 2017. No material part of our business is dependent upon a single customer or a small group of customers; therefore, the loss of any one customer would not have a material adverse effect on our results of operations or cash flows.

RAW MATERIALS

We manufacture many of the components included in our products, which requires us to employ a wide variety of commodities. Principal commodities, such as steel, copper and aluminum, are purchased from a large number of independent sources around the world, primarily within the region where the products are manufactured. We believe that available sources of supply will generally be sufficient for the foreseeable future. There have been no commodity shortages which have had a material adverse effect on our businesses.

WORKING CAPITAL

We manufacture products that must be readily available to meet our customers' rapid delivery requirements. Therefore, we maintain an adequate level of working capital to support our business needs and our customers' requirements. Such working capital requirements are not, however, in the opinion of management, materially different from those experienced by our major competitors. We believe our sales and payment terms are competitive in and appropriate for the markets in which we compete.

SEASONALITY

Demand for certain of our products and services is influenced by weather conditions. For instance, sales in our commercial and residential HVAC businesses historically tend to be seasonally higher in the second and third quarters of the year because this represents spring and summer in the U.S. and other northern hemisphere markets, which are the peak seasons for sales of air conditioning systems and services. Therefore, results of any quarterly period may not be indicative of expected results for a full year and unusual weather patterns or events could negatively or positively affect certain segments of our business and impact overall results of operations.

RESEARCH AND DEVELOPMENT

We engage in research and development activities in an effort to introduce new products, enhance existing product effectiveness, improve ease of use and reliability as well as expand the various applications for which our products may be appropriate. In addition, we continually evaluate developing technologies in areas that we believe will enhance our business for possible investment or acquisition. We anticipate that we will continue to make significant expenditures for research and development activities as we look to maintain and improve our competitive position.

PATENTS AND LICENSES

Our intellectual property rights are important to our business and include numerous patents, trademarks, copyrights, trade secrets, proprietary technology, technical data, business processes, and other confidential information. Although in aggregate we consider our intellectual property rights to be valuable to our operations, we do not believe that our business is materially dependent on a single intellectual property right or any group of them. In our opinion, engineering, production skills and experience are more responsible for our market position than our patents and/or licenses.

BACKLOG

Our approximate backlog of orders, believed to be firm, at December 31, was as follows:

IN MILLIONS	2019	2018
Climate	$ 2,513.3	$ 2,914.4
Industrial	622.5	514.8
Total	$ 3,135.8	$ 3,429.2

These backlog figures are based on orders received. While the major portion of our products are built in advance of order and either shipped or assembled from stock, orders for specialized machinery or specific customer application are submitted with extensive lead times and are often subject to revision and deferral, and to a lesser extent cancellation or termination. We expect to ship a majority of the December 31, 2019 backlog during 2020.

ENVIRONMENTAL MATTERS

We continue to be dedicated to environmental and sustainability programs to minimize the use of natural resources, and reduce the utilization and generation of hazardous materials from our manufacturing processes and to remediate identified environmental concerns. As to the latter, we are currently engaged in site investigations and remediation activities to address environmental cleanup from past operations at current and former manufacturing facilities.

We are sometimes a party to environmental lawsuits and claims and have received notices of potential violations of environmental laws and regulations from the Environmental Protection Agency and similar state authorities. We have also been identified as a potentially responsible party (PRP) for cleanup costs associated with off-site waste disposal at federal Superfund and state remediation sites. For all such sites, there are other PRPs and, in most instances, our involvement is minimal.

In estimating our liability, we have assumed that we will not bear the entire cost of remediation of any site to the exclusion of other PRPs who may be jointly and severally liable. The ability of other PRPs to participate has been taken into account, based on our understanding of the parties' financial condition and probable contributions on a per site basis. Additional lawsuits and claims involving environmental matters are likely to arise from time to time in the future.

For a further discussion of our potential environmental liabilities, see Note 22 to the Consolidated Financial Statements.

ASBESTOS-RELATED MATTERS

Certain of our wholly-owned subsidiaries and former companies are named as defendants in asbestos-related lawsuits in state and federal courts. In many of the lawsuits, a large number of other companies have also been named as defendants. The vast majority of those claims allege injury caused by exposure to asbestos contained in certain historical products, primarily pumps, boilers and railroad brake shoes. None of our existing or previously-owned businesses were a producer or manufacturer of asbestos.

See also the discussion under Part I, Item 3, "Legal Proceedings," and Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Contingent Liabilities," as well as further detail in Note 22 to the Consolidated Financial Statements.

EMPLOYEES

As of December 31, 2019, we employed approximately 50,000 people throughout the world.

AVAILABLE INFORMATION

We file annual, quarterly, and current reports, proxy statements, and other documents with the Securities and Exchange Commission under the Securities Exchange Act of 1934.

This Annual Report on Form 10-K, as well as our quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to all of the foregoing reports, are made available free of charge on our Internet website (http://www.ingersollrand.com) as soon as reasonably practicable after such reports are electronically filed with or furnished to the Securities and Exchange Commission. The Board of Directors of the Company has also adopted and posted in the Investor Relations section of the Company's website our Corporate Governance Guidelines and charters for each of the Board's standing committees. The contents of the Company's website are not incorporated by reference in this report.

EXECUTIVE OFFICERS OF THE REGISTRANT

The following is a list of executive officers of the Company as of February 18, 2020.

NAME AND AGE	DATE OF SERVICE AS AN EXECUTIVE OFFICER	PRINCIPAL OCCUPATION AND OTHER INFORMATION FOR PAST FIVE YEARS
Michael W. Lamach (56)	2/16/2004	Chairman of the Board (since June 2010) and Chief Executive Officer (since February 2010)
Susan K. Carter (61)	10/2/2013	Senior Vice President and Chief Financial Officer (since October 2013) The Company announced on December 10, 2019 that Ms. Carter will retire as Chief Financial Officer of the Company effective upon the close of the Reverse Morris Trust transaction.
David S. Regnery (57)	8/5/2017	President and Chief Operating Officer (since January 1, 2020); Executive Vice President (September 2017 to December 2019); Vice President, President of Commercial HVAC, North America and EMEA (2013 to 2017)
Marcia J. Avedon (58)	2/7/2007	Executive Vice President, Chief Human Resources, Marketing and Communications Officer (since January 1, 2020); Senior Vice President, Human Resources, Communications and Corporate Affairs (June 2013 to December 2019); Senior Vice President, Human Resources and Communications (2007 - 2013)
Paul A. Camuti (58)	8/1/2011	Executive Vice President and Chief Technology and Strategy Officer (since January 1, 2020); Senior Vice President, Innovation and Chief Technology Officer (August 2011 to December 2019)
Evan M. Turtz (51)	4/3/2019	Senior Vice President and General Counsel (since April 2019); Secretary (Since October 2013); Vice President (Since 2008); Deputy General Counsel-Industrial (Since 2016); General Counsel-Compression Technologies and Services (Since July 2016); Deputy General Counsel-Labor and Employment (2008-2016)
Keith A. Sultana (50)	10/12/2015	Senior Vice President, Global Operations and Integrated Supply Chain (since October 2015); Vice President, Global Procurement (January 2015 to October 2015); Vice President, Global Integrated Supply Chain (GISC) for Climate Solutions (May 2010 to December 2014)
Christopher J. Kuehn (47)	6/1/2015	Vice President and Chief Accounting Officer (since June 2015); Vice President, Corporate Controller and Chief Accounting Officer, Whirlpool Corporation (a global manufacturer and marketer of major home appliances), (2012-2015) The Company announced on December 10, 2019 that Mr. Kuehn will succeed Ms. Carter as Chief Financial Officer of the Company effective upon the close of the Reverse Morris Trust transaction.

No family relationship exists between any of the above-listed executive officers of the Company. All officers are elected to hold office for one year or until their successors are elected and qualified.

Item 1A. Risk Factors

Our business, financial condition, results of operations, and cash flows are subject to a number of risks that could cause the actual results and conditions to differ materially from those projected in forward-looking statements contained in this Annual Report on Form 10-K. The risks set forth below are those we consider most significant. We face other risks, however, that we do not currently perceive to be material which could cause actual results and conditions to differ materially from our expectations. You should evaluate all risks before you invest in our securities. If any of the risks actually occur, our business, financial condition, results of operations or cash flows could be adversely impacted. In that case, the trading price of our ordinary shares could decline, and you may lose all or part of your investment.

Our global operations subject us to economic risks.

Our global operations are dependent upon products manufactured, purchased and sold in the U.S. and internationally. These activities are subject to risks that are inherent in operating globally, including:

- changes in local laws and regulations or imposition of currency restrictions and other restraints;
- limitation of ownership rights, including expropriation of assets by a local government, and limitation on the ability to repatriate earnings;
- sovereign debt crises and currency instability in developed and developing countries;
- trade protection measures such as import or export restrictions and requirements, the imposition of burdensome tariffs and quotas or revocation or material modification of trade agreements;
- difficulty in staffing and managing global operations;
- difficulty of enforcing agreements, collecting receivables and protecting assets through non-U.S. legal systems;
- national and international conflict, including war, civil disturbances and terrorist acts; and
- recessions, economic downturns, slowing economic growth and social and political instability.

These risks could increase our cost of doing business internationally, increase our counterparty risk, disrupt our operations, disrupt the ability of suppliers and customers to fulfill their obligations, limit our ability to sell products in certain markets and have a material adverse impact on our results of operations, financial condition, and cash flows.

We face significant competition in the markets that we serve and our growth is dependent, in part, on the development, commercialization and acceptance of new products and services.

The markets that we serve are highly competitive. We compete worldwide with a number of other manufacturers and distributors that produce and sell similar products. There has been consolidation and new entrants (including non-traditional competitors) within our industries and there may be future consolidation and new entrants which could result in increased competition and significantly alter the dynamics of the competitive landscape in which we operate. Due to our global footprint we are competing worldwide with large companies and with smaller, local operators who may have customer, regulatory or economic advantages in the geographies in which they are located. In addition, some of our competitors may employ pricing and other strategies that are not traditional. While we understand our markets and competitive landscape, there is always the risk of disruptive technologies coming from companies that are not traditionally manufacturers or service providers of our products.

In addition, we must develop and commercialize new products and services in a rapidly changing technological and business environment in order to remain competitive in our current and future markets and in order to continue to grow our business. The development and commercialization of new products and services require a significant investment of resources and an anticipation of the impact of new technologies and the ability to compete with others who may have superior resources in specific technology domains. We cannot provide any assurance that any new product or service will be successfully commercialized in a timely manner, if ever, or, if commercialized, will result in returns greater than our investment. Investment in a product or service could divert our attention and resources from other projects that become more commercially viable in the market. We also cannot provide any assurance that any new product or service will be accepted by our current and future markets. Failure to develop new products and services that are accepted by these markets could have a material adverse impact on our competitive position, results of operations, financial condition, and cash flows.

The capital and credit markets are important to our business.

Instability in U.S. and global capital and credit markets, including market disruptions, limited liquidity and interest rate volatility, or reductions in the credit ratings assigned to us by independent rating agencies could reduce our access to capital markets or increase the cost of funding our short and long term credit requirements. In particular, if we are unable to access capital and credit markets on terms that are acceptable to us, we may not be able to make certain investments or fully execute our business plans and strategies.

Our suppliers and customers are also dependent upon the capital and credit markets. Limitations on the ability of customers, suppliers or financial counterparties to access credit at interest rates and on terms that are acceptable to them could lead to insolvencies of key suppliers and customers, limit or prevent customers from obtaining credit to finance purchases of our products and services and cause delays in the delivery of key products from suppliers.

In addition, changes in regulatory standards or industry practices, such as the transition away from LIBOR as a benchmark for short-term interest rates, could create incremental uncertainty in obtaining financing or increase the cost of borrowing for us, our suppliers or our customers.

Currency exchange rate fluctuations and other related risks may adversely affect our results.

We are exposed to a variety of market risks, including the effects of changes in currency exchange rates. See Part II Item 7A, "Quantitative and Qualitative Disclosure About Market Risk."

We have operations throughout the world that manufacture and sell products in various international markets. As a result, we are exposed to movements in exchange rates of various currencies against the U.S. dollar as well as against other currencies throughout the world.

Many of our non-U.S. operations have a functional currency other than the U.S. dollar, and their results are translated into U.S. dollars for reporting purposes. Therefore, our reported results will be higher or lower depending on the weakening or strengthening of the U.S. dollar against the respective foreign currency.

We use derivative instruments to hedge those material exposures that cannot be naturally offset. The instruments utilized are viewed as risk management tools, involve little complexity and are not used for trading or speculative purposes. To minimize the risk of counter party non-performance, derivative instrument agreements are made only through major financial institutions with significant experience in such derivative instruments.

We also face risks arising from the imposition of exchange controls and currency devaluations. Exchange controls may limit our ability to convert foreign currencies into U.S. dollars or to remit dividends and other payments by our foreign subsidiaries or businesses located in or conducted within a country imposing controls. Currency devaluations result in a diminished value of funds denominated in the currency of the country instituting the devaluation.

Material adverse legal judgments, fines, penalties or settlements could adversely affect our results of operations or financial condition.

We are currently and may in the future become involved in legal proceedings and disputes incidental to the operation of our business or the business operations of previously-owned entities. Our business may be adversely affected by the outcome of these proceedings and other contingencies (including, without limitation, contract claims or other commercial disputes, product liability, product defects and asbestos-related matters) that cannot be predicted with certainty. Moreover, any insurance or indemnification rights that we may have may be insufficient or unavailable to protect us against the total aggregate amount of losses sustained as a result of such proceedings and contingencies. As required by generally accepted accounting principles in the United States, we establish reserves based on our assessment of contingencies. Subsequent developments in legal proceedings and other events could affect our assessment and estimates of the loss contingency recorded as a reserve and we may be required to make additional material payments, which could have a material adverse impact on our liquidity, results of operations, financial condition, and cash flows.

Our reputation, ability to do business and results of operations could be impaired by improper conduct by any of our employees, agents or business partners.

We are subject to regulation under a wide variety of U.S. federal and state and non-U.S. laws, regulations and policies, including laws related to anti-corruption, anti-bribery, export and import compliance, anti-trust and money laundering, due to our global operations. We cannot provide assurance our internal controls will always protect us from the improper conduct of our employees, agents and business partners. Any violations of law or improper conduct could damage our reputation and, depending on the circumstances, subject us to, among other things, civil and criminal penalties, material fines, equitable remedies (including profit disgorgement and injunctions on future conduct), securities litigation and a general loss of investor confidence, any one of which could have a material adverse impact on our business prospects, financial condition, results of operations, cash flows, and the market value of our stock.

We may be subject to risks relating to our information technology systems.

We rely extensively on information technology systems, some of which are supported by third party vendors including cloud services, to manage and operate our business. We invest in new information technology systems designed to improve our operations. If these systems cease to function properly, if these systems experience security breaches or disruptions or if these systems do not provide the anticipated benefits, our ability to manage our operations could be impaired, which could have a material adverse impact on our results of operations, financial condition, and cash flows.

Security breaches or disruptions of our technology systems, infrastructure or products could negatively impact our business and financial results.

Our information technology systems, networks and infrastructure and technology embedded in certain of our control products may be subject to cyber attacks and unauthorized security intrusions. It is possible for such vulnerabilities to remain undetected for an extended period. Like other large companies, certain of our information technology systems have been subject to computer viruses, malicious code, unauthorized access, phishing attempts, denial-of-service attacks and other cyber attacks and we expect to be subject to similar attacks in the future. The methods used to obtain unauthorized access, disable or degrade service, or sabotage information technology systems are constantly changing and evolving. Despite having instituted security policies and business continuity plans, and implementing and regularly reviewing and updating processes and procedures to protect against unauthorized access, the ever-evolving threats mean we must continually evaluate and adapt our systems and processes, and there is no guarantee that they will be adequate to safeguard against all data security breaches or misuses of data. Hardware, software or applications we develop or obtain from third parties may contain defects in design or deployment or other problems that could unexpectedly result in security breaches or disruptions. Our systems, networks and certain of our control products may also be vulnerable to system damage, malicious attacks from hackers, employee errors or misconduct, viruses, power and utility outages, and other catastrophic events. Any of these incidents could cause significant harm to our business by negatively impacting our business operations, compromising the security of our proprietary information or the personally identifiable information of our customers, employees and business partners, exposing us to litigation or other legal actions against us or the imposition of penalties, fines, fees or liabilities. Such events could have a material adverse impact on our results of operations, financial condition and cash flows and could damage our reputation which could adversely affect our business. Our insurance coverage may not be adequate to cover all the costs related to a cybersecurity attack or disruptions resulting from such attacks. Customers are increasingly requiring cybersecurity protections and mandating cybersecurity standards in our products, and we may incur additional costs to comply with such demands. In addition, data privacy and protection laws are evolving and present increasing compliance challenges, which increase our costs, affect our competitiveness and can expose us to substantial fines or other penalties.

Commodity shortages and price increases could adversely affect our financial results.

We rely on suppliers to secure commodities, particularly steel and non-ferrous metals, required for the manufacture of our products. A disruption in deliveries from our suppliers or decreased availability of commodities could have an adverse effect on our ability to meet our commitments to customers or increase our operating costs. We believe that available sources of supply will generally be sufficient for our needs for the foreseeable future. Nonetheless, the unavailability of some commodities could have a material adverse impact on our results of operations and cash flows.

Volatility in the prices of these commodities or the impact of inflationary increases could increase the costs of our products and services. We may not be able to pass on these costs to our customers and this could have a material adverse impact on our results of operations and cash flows. Conversely, in the event there is deflation, we may experience pressure from our customers to reduce prices. There can be no assurance that we would be able to reduce our costs (through negotiations with suppliers or other measures) to offset any such price concessions which could adversely impact results of operations and cash flows. While we may use financial derivatives or supplier price locks to hedge against this volatility, by using these instruments we may potentially forego the benefits that might result from favorable fluctuations in prices and could experience lower margins in periods of declining commodity prices. In addition, while hedging activity may minimize near-term volatility of the commodity prices, it would not protect us from long-term commodity price increases.

Some of our purchases are from sole or limited source suppliers for reasons of cost effectiveness, uniqueness of design, or product quality. If these suppliers encounter financial or operating difficulties, we might not be able to quickly establish or qualify replacement sources of supply.

We may be required to recognize impairment charges for our goodwill and other indefinite-lived intangible assets.

At December 31, 2019, the net carrying value of our goodwill and other indefinite-lived intangible assets totaled $6.8 billion and $2.8 billion, respectively. In accordance with generally accepted accounting principles, we assess these assets annually during the fourth quarter for impairment or when there is a significant change in events or circumstances that indicate that the fair value of an asset is more likely than not less than the carrying amount of the asset. Significant negative industry or economic trends, disruptions to our business, unexpected significant changes or planned changes in use of the assets, divestitures and sustained market capitalization declines may result in recognition of impairments to goodwill or other indefinite-lived assets. Any charges relating to such impairments could have a material adverse impact on our results of operations in the periods recognized.

Global climate change and related regulations could negatively affect our business.

Refrigerants are essential to many of our products and there is concern regarding the global warming potential of such materials. As such, national, regional and international regulations and policies are being implemented to curtail their use. As regulations reduce the use of the current class of widely used refrigerants, our next generation solutions are being adopted globally, with sales in more than 30 countries to date. Our climate commitment requires us to offer a full line of next generation, lower global warming potential products by 2030 without compromising safety or energy efficiency. Additionally, we committed to increase energy efficiency and reduce the greenhouse gas footprint of our operations by 35 percent by 2020, which we achieved in 2018, two years early. While we are committed to pursuing these sustainable solutions, there can be no assurance that our commitments will be successful, that our products will be accepted by the market, that proposed regulation or deregulation will not have a negative competitive impact or that economic returns will match the investment that we are making in new product development.

Concerns regarding global climate change have resulted in the Kigali amendment to the Montreal Protocol, pursuant to which countries have agreed to a scheduled phase down of certain high global warming potential refrigerants. Countries may pass regulations that are even more restrictive than this international accord. Some countries, including the U.S., have not yet ratified the amendment and there could be lower customer demand for next generation products in these countries. There continues to be a lack of consistent climate legislation, which creates economic and regulatory uncertainty. In addition, the U.S. withdrawal from the Paris Accord could affect our competitiveness in certain markets. Such regulatory uncertainty extends to future incentives for energy efficient buildings and vehicles and costs of compliance, which may impact the demand for our products, obsolescence of our products and our results of operations.

Natural disasters, epidemics or other unexpected events may disrupt our operations, adversely affect our results of operations and financial condition, and may not be fully covered by insurance.

The occurrence of one or more unexpected events including hurricanes, fires, earthquakes, floods and other forms of severe weather, health epidemics or pandemics or other contagious outbreaks or other unexpected events in the U.S. or in other countries in which we operate or are located could adversely affect our operations and financial performance. Natural disasters, power outages, health epidemics or pandemics or other contagious outbreaks or other unexpected events could result in physical damage to and complete or partial closure of one or more of our plants, temporary or long-term disruption of our operations by causing business interruptions or by impacting the availability and cost of materials needed for manufacturing. Existing insurance arrangements may not provide full protection for the costs that may arise from such events, particularly if such events are catastrophic in nature or occur in combination. The occurrence of any of these events could increase our insurance and other operating costs or harm our sales in affected areas.

Some of the markets in which we operate are cyclical and seasonal and demand for our products and services could be adversely affected by downturns in these industries.

Demand for most of our products and services depends on the level of new capital investment and planned maintenance expenditures by our customers. The level of capital expenditures by our customers fluctuates based on planned expansions, new builds, repairs, commodity prices, general economic conditions, availability of credit, inflation, interest rates, market forecasts, tax and regulatory developments, trade policies, fiscal spending and sociopolitcal factors among others.

Our commercial and residential HVAC businesses provide products and services to a wide range of markets, including significant sales to the commercial and residential construction markets. Weakness in either or both of these construction markets may negatively impact the demand for our products and services.

Demand for our commercial and residential HVAC business is also influenced by weather conditions. For instance, sales in our commercial and residential HVAC businesses historically tend to be seasonally higher in the second and third quarters of the year because, in the U.S. and other northern hemisphere markets, spring and summer are the peak seasons for sales of air conditioning systems and services. The results of any quarterly period may not be indicative of expected results for a full year and unusual weather patterns or events could negatively or positively affect our business and impact overall results of operations.

The business of many of our industrial customers, particularly oil and gas companies are to varying degrees cyclical and have experienced periodic downturns. During such economic downturns, customers in these industries historically have tended to delay major capital projects, maintenance projects and upgrades.

Decrease in the demand for our products and services could have a material adverse impact on our results of operations and cash flow.

Our business strategy includes acquiring companies, product lines, plants and assets, entering into joint ventures and making investments that complement our existing businesses. We also occasionally divest businesses that we own. We may not identify acquisition or joint venture candidates at the same rate as the past. Acquisitions, dispositions, joint ventures and investments that we identify could be unsuccessful or consume significant resources, which could adversely affect our operating results.

We continue to analyze and evaluate the acquisition and divestiture of strategic businesses and product lines, technologies and capabilities, plants and assets, joint ventures and investments with the potential to strengthen our industry position, to enhance our existing set of product and services offerings, to increase productivity and efficiencies, to grow revenues, earnings and cash flow, to help us stay competitive or to reduce costs. There can be no assurance that we will identify or successfully complete transactions with suitable candidates in the future, that we will consummate these transactions at rates similar to the past or that completed transactions will be successful. Strategic transactions may involve significant cash expenditures, debt incurrence, operating losses and expenses that could have a material adverse effect on our business, financial condition, results of operations and cash flows. Such transactions involve numerous other risks, including:

- diversion of management time and attention from daily operations;
- difficulties integrating acquired businesses, technologies and personnel into our business;
- difficulties in obtaining and verifying the financial statements and other business information of acquired businesses;
- inability to obtain required regulatory approvals and/or required financing on favorable terms;
- potential loss of key employees, key contractual relationships or key customers of either acquired businesses or our business;

- assumption of the liabilities and exposure to unforeseen or undisclosed liabilities of acquired businesses and exposure to regulatory sanctions;
- inheriting internal control deficiencies;
- dilution of interests of holders of our common shares through the issuance of equity securities or equity-linked securities; and
- in the case of joint ventures and other investments, interests that diverge from those of our partners without the ability to direct the management and operations of the joint venture or investment in the manner we believe most appropriate to achieve the expected value.

It may be difficult for us to complete transactions quickly without high costs and to integrate acquired operations efficiently into our business operations. Any acquisitions, divestitures, joint ventures or investments may ultimately harm our business, financial condition, results of operations and cash flows. There are additional risks related to our Reverse Morris Trust transaction, see page 15 under "Risks Related to the Transactions" for more information.

Our operations are subject to regulatory risks.

Our U.S. and non-U.S. operations are subject to a number of laws and regulations, including among others, laws related to the environment and health and safety. We have made, and will be required to continue to make, significant expenditures to comply with these laws and regulations. Any violations of applicable laws and regulations could lead to significant penalties, fines or other sanctions. Changes in current laws and regulations could require us to increase our compliance expenditures, cause us to significantly alter or discontinue offering existing products and services or cause us to develop new products and services. Altering current products and services or developing new products and services to comply with changes in the applicable laws and regulations could require significant research and development investments, increase the cost of providing the products and services and adversely affect the demand for our products and services. The U.S. federal government and various states and municipalities have enacted or may enact legislation intended to deny government contracts to U.S. companies that reincorporate outside of the U.S. or have reincorporated outside of the U.S or may take other actions negatively impacting such companies. If we are unable to effectively respond to changes to applicable laws and regulations, interpretations of applicable laws and regulations, or comply with existing and future laws and regulations, our competitive position, results of operations, financial condition and cash flows could be materially adversely impacted.

Intellectual property infringement claims of others and the inability to protect our intellectual property rights could harm our competitive position.

The Company's intellectual property rights are important to its business and include numerous patents, trademarks, copyrights, trade secrets, proprietary technology, technical data, business processes, and other confidential information. Although in aggregate we consider our intellectual property rights to be valuable to our operations, we do not believe that our business is materially dependent on a single intellectual property right or any group of them. In our opinion, engineering, production skills and experience are more responsible for our market position than our patents and/or licenses.

Nonetheless, this intellectual property may be subject to challenge, infringement, invalidation or circumvention by third parties. Despite extensive security measures, our intellectual property may be subject to misappropriation through unauthorized access of our information technology systems, employee theft, or theft by private parties or foreign actors, including those affiliated with or controlled by state actors. Our business and competitive position could be harmed by such events. Our ability to protect our intellectual property rights by legal recourse or otherwise may be limited, particularly in countries where laws or enforcement practices are inadequate or undeveloped. Our inability to enforce our IP rights under any of these circumstances could have an impact on our competitive position and business.

RISKS RELATING TO OUR OPERATIONS AND CORPORATE STRUCTURE

Our corporate structure has resulted from prior corporate reorganizations and related transactions. These various transactions exposed us and our shareholders to the risks described below. In addition, we cannot be assured that all of the anticipated benefits of our operations and corporate structure will be realized.

Changes in tax or other laws, regulations or treaties, including the enactment of the U.S. Tax Cuts and Jobs Act, changes in our status under U.S. or non-U.S. laws or adverse determinations by taxing or other governmental authorities could increase our tax burden or otherwise affect our financial condition or operating results, as well as subject our shareholders to additional taxes.

The realization of any tax benefit related to our operations and corporate structure could be impacted by changes in tax or other laws, treaties or regulations or the interpretation or enforcement thereof by the U.S. or non-U.S. tax or other governmental authorities. Enacted comprehensive tax reform legislation in December 2017 known as the Tax Cuts and Jobs Act (the Act) made broad and complex changes to the U.S. tax code. As part of the migration from a worldwide system of taxation to a modified territorial system for corporations, the Act imposed a transition tax on certain unrepatriated earnings of non-U.S. subsidiaries. We recorded certain charges and benefits in connection with the Act and have taken a charge in connection with the mandatory deemed repatriation of earnings of certain of our Non-U.S. subsidiaries, and we have recorded other charges and benefits, set forth in greater detail in Note 18 to the Consolidated Financial Statements. Any additional impacts from the Act will be determined as the U.S. Department of Treasury and/or the IRS continue to release proposed and final guidance on certain relevant provisions of the Act which should provide better clarity regarding the interpretation, interaction and application of these rules; the new law's substantial limitations on, and/or elimination of, certain tax deductions and the introduction of new taxing provisions, among other items, may increase our overall tax burden or otherwise negatively impact the Company. Moreover, our overall tax burden may also be adversely impacted by any tax law changes implemented by other countries.

Notwithstanding this change in U.S. tax law, we continue to monitor for other tax changes, U.S. and non-U.S. related. From time to time, proposals have been made and/or legislation has been introduced to change the tax laws, regulations or interpretations thereof of various jurisdictions or limit tax treaty benefits that if enacted or implemented could materially increase our tax burden and/or effective tax rate and could have a material adverse impact on our financial condition and results of operations. Moreover, the Organisation for Economic Co-operation and Development has released proposals to create an agreed set of international rules for fighting base erosion and profit shifting, such that tax laws in countries in which we do business could change on a prospective or retroactive basis, and any such changes could adversely impact us. Finally, the European Commission has been very active in investigating whether various tax regimes or private tax rulings provided by a country to particular taxpayers may constitute State Aid. We cannot predict the outcome of any of these potential changes or investigations in any of the jurisdictions, but if any of the above occurs and impacts us, this could materially increase our tax burden and/or effective tax rate and could have a material adverse impact on our financial condition and results of operations.

While we monitor proposals and other developments that would materially impact our tax burden and/or effective tax rate and investigate our options, we could still be subject to increased taxation on a going forward basis no matter what action we undertake if certain legislative proposals or regulatory changes are enacted, certain tax treaties are amended and/or our interpretation of applicable tax or other laws is challenged and determined to be incorrect. In particular, any changes and/or differing interpretations of applicable tax law that have the effect of disregarding the shareholders' decision to reorganize in Ireland, limiting our ability to take advantage of tax treaties between jurisdictions, modifying or eliminating the deductibility of various currently deductible payments, or increasing the tax burden of operating or being resident in a particular country, could subject us to increased taxation.

In addition, tax authorities periodically review income tax returns filed by us and can raise issues regarding our filing positions, timing and amount of income or deductions, and the allocation of income among the jurisdictions in which we operate. These examinations on their own, or any subsequent litigation related to the examinations, may result in additional taxes or penalties against us. If the ultimate result of these audits differ from our original or adjusted estimates, they could have a material impact on our tax provision.

Irish law differs from the laws in effect in the United States and may afford less protection to holders of our securities.

The United States currently does not have a treaty with Ireland providing for the reciprocal recognition and enforcement of judgments in civil and commercial matters. As such, there is some uncertainty as to whether the courts of Ireland would recognize or enforce judgments of U.S. courts obtained against us or our directors or officers based on U.S. federal or state civil liability laws, including the civil liability provisions of the U.S. federal or state securities laws, or hear actions against us or those persons based on those laws.

As an Irish company, we are governed by the Irish Companies Act, which differs in some material respects from laws generally applicable to U.S. corporations and shareholders, including, among others, differences relating to interested director and officer transactions, indemnification of directors and shareholder lawsuits. Likewise, the duties of directors and officers of an Irish company generally are owed to the company only. Shareholders of Irish companies generally do not have a personal right of action against directors or officers of the company and may exercise such rights of action on behalf of the company only in limited circumstances. Accordingly, holders of our securities may have more difficulty protecting their interests than would holders of securities of a corporation incorporated in a jurisdiction of the United States. In addition, Irish law does not allow for any form of legal proceedings directly equivalent to the class action available in the United States.

Irish law allows shareholders to authorize share capital which then can be issued by a board of directors without shareholder approval. Also, subject to specified exceptions, Irish law grants statutory pre-emptive rights to existing shareholders to subscribe for new issuances of shares for cash, but allows shareholders to authorize the waiver of the statutory pre-emptive rights with respect to any particular allotment of shares. Under Irish law, we must have authority from our shareholders to issue any shares, including shares that are part of the Company's authorized but unissued share capital. In addition, unless otherwise authorized by its shareholders, when an Irish company issues shares for cash to new shareholders, it is required first to offer those shares on the same or more favorable terms to existing shareholders on a pro-rata basis. If we are unable to obtain these authorizations from our shareholders, or are otherwise limited by the terms of our authorizations, our ability to issue shares or otherwise raise capital could be adversely affected.

Dividends received by our shareholders may be subject to Irish dividend withholding tax.

In certain circumstances, we are required to deduct Irish dividend withholding tax (currently at the rate of 25%) from dividends paid to our shareholders. In the majority of cases, shareholders resident in the United States will not be subject to Irish withholding tax, and shareholders resident in a number of other countries will not be subject to Irish withholding tax provided that they complete certain Irish dividend withholding tax forms. However, some shareholders may be subject to withholding tax, which could have an adverse impact on the price of our shares.

Dividends received by our shareholders could be subject to Irish income tax.

Dividends paid in respect of our shares will generally not be subject to Irish income tax where the beneficial owner of these dividends is exempt from dividend withholding tax, unless the beneficial owner of the dividend has some connection with Ireland other than his or her shareholding in Ingersoll-Rand plc.

Our shareholders who receive their dividends subject to Irish dividend withholding tax will generally have no further liability to Irish income tax on the dividends unless the beneficial owner of the dividend has some connection with Ireland other than his or her shareholding in Ingersoll-Rand plc.

RISKS RELATED TO THE TRANSACTIONS

In April 2019, we announced that we entered into a Reverse Morris Trust transaction with Gardner Denver Holdings, Inc. (GDI) pursuant to which we would cause specific assets and liabilities of our Industrial segment to be transferred to a newly formed wholly-owned subsidiary, Ingersoll-Rand U.S. HoldCo. Inc. (Ingersoll Rand Industrial), and then distribute the shares of common stock of Ingersoll Rand Industrial to our shareholders (the Distribution). Charm Merger Sub Inc., which is a newly formed wholly-owned subsidiary of GDI (Merger Sub), would be merged with and into Ingersoll Rand Industrial, with Ingersoll Rand Industrial surviving such merger as a wholly-owned subsidiary of GDI. We refer to these transactions as the "Transactions." The Transactions will result in GDI acquiring our Industrial business and our shareholders receiving shares of GDI as a result of the merger. Following the merger, the combined company is expected to be renamed and operate under the name Ingersoll Rand Inc. and its common stock is expected to be listed on the New York Stock Exchange under our existing ticker symbol "IR". Our remaining Climate business will be renamed Trane Technologies plc and will trade under the ticker symbol "TT."

The proposed Reverse Morris Trust transaction with GDI is subject to various risks and uncertainties, and there is no assurance that the transaction will be completed on the terms or timeline contemplated, if at all.

The consummation of the merger is subject to numerous conditions, including (i) consummation of certain transactions (such as the separation of the Ingersoll Rand Industrial Business from our other business) and financings, (ii) the receipt of GDI stockholder approval for the transaction, and (iii) the receipt of certain regulatory approvals. The completion of the pending Reverse Morris Trust transaction is also subject to our receipt of an opinion (i) from U.S. tax counsel regarding the qualification of each of the distribution of shares of a company comprised of our Industrial segment businesses to our shareholders, certain internal transactions undertaken in anticipation of such distribution and the subsequent merger of this company with GDI as a tax-free transaction for U.S. federal income tax purposes and (ii) from Irish tax counsel that there will be no adverse Irish tax consequences, other than in respect of certain tax matters relevant only to certain of our Irish shareholders, as a result of the transaction. The completion of the transaction is also subject to the receipt by GDI of an opinion from its U.S. tax counsel regarding the qualification of the merger as a tax-free transaction for U.S. federal income tax purposes.

There can be no assurance that the merger and related transactions will be consummated on the terms or timeline currently contemplated, or at all.

Governmental agencies may not approve the merger or the related transactions necessary to complete the merger or may impose conditions to the approval of such transactions or require changes to the terms of such transactions. Any such conditions or changes could have the effect of delaying completion of the merger or otherwise reducing the anticipated benefits of the merger and such condition or change might cause the Company and/or GDI to restructure or terminate the merger or the related transactions.

We are subject to business uncertainties while the Reverse Morris Trust transaction with GDI is pending and the transaction may have an adverse effect on us even if not completed.

Uncertainty about the effect of the pending Reverse Morris Trust transaction with GDI on our employees, customers, partners, and suppliers may have adverse effects on our business, financial condition and results of operations. Our employees may be distracted due to uncertainty about their future roles with each of the separate companies pending the completion of the transaction, and we may face challenges in attracting, retaining and motivating key employees. Some of our suppliers or customers may delay or defer decisions or may end their relationships with us or our Industrial segment businesses, which could negatively affect revenues, earnings and cash flows of ours and our Industrial segment businesses. Execution of the proposed transaction will require significant time and attention from management, which may distract management from the operation of our businesses and the execution of other initiatives that may have been beneficial to us. Any delays in completion of the proposed Reverse Morris Trust transaction may increase the amount of time, effort, and expense that we devote to the transaction. We will be required to pay certain costs and expenses relating to the transaction, such as legal, accounting and other professional fees, whether or not it is completed. We may experience negative reactions from the financial markets if we fail to complete the transaction. Any of these factors could have a material adverse effect on our financial condition, results of operations, cash flows and the market price of our shares.

We may be unable to achieve some or all of the benefits that we expect to achieve from the transaction.

Although we believe that the pending Reverse Morris Trust transaction will provide financial, operational, managerial and other benefits to us and our shareholders, the transaction may not provide the results on the scope or on the scale we anticipate, and the assumed benefits of the transaction may not be fully realized. Accordingly, the transaction might not provide us and our shareholders benefits or value in excess of the benefits and value that might have been created or realized had we retained the Industrial segment businesses or undertaken another strategic alternative involving such businesses. Following the separation, distribution and subsequent merger, our remaining company Trane Technologies will be less diversified with a focus on climate control solutions for buildings, homes and transportation and may be more vulnerable to changing market conditions, which could materially adversely affect our business, results of operations and financial condition. These changes may not meet some shareholders' investment strategies, which could cause investors to sell their holdings in our shares and result in a decrease in the market price of our shares.

If the Distribution together with certain related transactions do not qualify as tax-free under Sections 355 and 368(a) of the Code, including as a result of subsequent acquisitions of stock of the Company or GDI, then the Company and our shareholders may be required to pay substantial U.S. federal income taxes, and GDI may be obligated to indemnify the Company for such taxes imposed on the Company.

The Distribution together with certain related transactions and the merger are conditioned upon our receipt of an opinion of counsel, to the effect that the Distribution together with certain related transactions will qualify as tax-free to our Company, Ingersoll Rand Industrial, other of our subsidiaries and our shareholders, as applicable, for U.S. federal income tax purposes. The opinion of our counsel will be based on, among other things, certain representations and assumptions as to factual matters made by GDI, Ingersoll Rand Industrial and the Company. The failure of any factual representation or assumption to be true, correct and complete in all material respects could adversely affect the validity of the opinion of counsel. An opinion of counsel represents counsel's best legal judgment, is not binding on the Internal Revenue Service (IRS) or the courts, and the IRS or the courts may not agree with the opinion. In addition, the opinion will be based on current law, and cannot be relied upon if current law changes with retroactive effect.

The Distribution will be taxable to the Company pursuant to Section 355(e) of the Code if there is a 50% or greater change in ownership of either the Company or Ingersoll Rand Industrial, directly or indirectly, as part of a plan or series of related transactions that include the Distribution. A Section 355(e) change of ownership would not make the Distribution taxable to our shareholders, but instead may result in corporate-level taxable gain to certain of our subsidiaries. Because our shareholders will collectively be treated as owning more than 50% of the GDI common stock following the merger, the merger alone should not cause the Distribution to be taxable to our subsidiaries under Section 355(e). However, Section 355(e) might apply if other acquisitions of stock of the Company before or after the merger, or of GDI before or after the merger, are considered to be part of a plan or series of related transactions that include the Distribution together with certain related transactions. If Section 355(e) applied, certain of our subsidiaries might recognize a very substantial amount of taxable gain, although if this applied as a result of certain actions taken by Ingersoll Rand Industrial, GDI or certain specified GDI stockholders, GDI would be required to bear the cost of any resultant tax liability under Section 355(e) pursuant to the terms of the Tax Matters Agreement.

If the merger does not qualify as a tax-free reorganization under Section 368(a) of the Code, our shareholders may be required to pay substantial U.S. federal income taxes.

The obligations of Ingersoll Rand Industrial and GDI to consummate the merger are conditioned, respectively, on our receipt of an opinion from our counsel and GDI's receipt of an opinion from their counsel in each case to the effect that the merger will qualify as a reorganization within the meaning of Section 368(a) of the Code. These opinions will be based upon, among other things, certain representations and assumptions as to factual matters made by GDI, the Company, Ingersoll Rand Industrial and Merger Sub. The failure of any factual representation or assumption to be true, correct and complete in all material respects could adversely affect the validity of the opinions. An opinion of counsel represents counsel's best legal judgment, is not binding on the IRS or the courts, and the IRS or the courts may not agree with the opinion. In addition, the opinions will be based on current law, and cannot be relied upon if current law changes with retroactive effect. If the merger were taxable, U.S. holders, of Ingersoll Rand Industrial would be considered to have made a taxable sale of their Ingersoll Rand Industrial common stock to GDI, and such U.S. holders of Ingersoll Rand Industrial would generally recognize taxable gain or loss on their receipt of GDI common stock in the merger.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

As of December 31, 2019, we owned or leased a total of approximately 33 million square feet of space worldwide. Manufacturing and assembly operations are conducted in 59 plants across the world. We also maintain various warehouses, offices and repair centers throughout the world. The majority of our plant facilities are owned by us with the remainder under long-term lease arrangements. We believe that our plants have been well maintained, are generally in good condition and are suitable for the conduct of our business.

The locations by segment of our principal plant facilities at December 31, 2019 were as follows:

	CLIMATE	
AMERICAS	EUROPE AND MIDDLE EAST	ASIA PACIFIC AND INDIA
Arecibo, Puerto Rico	Barcelona, Spain	Bangkok, Thailand
Brampton, Ontario	Bari, Italy	Taicang, China
Charlotte, North Carolina	Charmes, France	Zhongshan, China
Clarksville, Tennessee	Essen, Germany	
Columbia, South Carolina	Galway, Ireland	
Curitiba, Brazil	Golbey, France	
Fairlawn, New Jersey	King Abdullah Economic City, Saudi Arabia	
Fort Smith, Arkansas	Kolin, Czech Republic	
Fremont, Ohio		
Grand Rapids, Michigan		
Hastings, Nebraska		
La Crosse, Wisconsin		
Lexington, Kentucky		
Lynn Haven, Florida		
Monterrey, Mexico		
Newberry, South Carolina		
Pueblo, Colorado		
Rushville, Indiana		
St. Paul, Minnesota		
Trenton, New Jersey		
Tyler, Texas		
Vidalia, Georgia		
Waco, Texas		

	INDUSTRIAL	
AMERICAS	EUROPE AND MIDDLE EAST	ASIA PACIFIC AND INDIA
Augusta, Georgia	Bordeaux, France	Changzhou, China
Burbank, California	Fogliano Redipuglia, Italy	Chennai, India
Campbellsville, Kentucky	Logatec, Slovenia	Guilin, China
Dorval, Canada	Pont St. Pierre, France	Naroda, India
Ivyland, Pennsylvania	Sin le Noble, France	Sahibabad, India
Kent, Washington	Sunderland, UK	Shanghai, China
Mocksville, North Carolina	Vignate, Italy	Wujiang, China
Sarasota, Florida	Wasquehal, France	
Southern Pines, North Carolina		
West Chester, Pennsylvania		

Item 3. Legal Proceedings

In the normal course of business, we are involved in a variety of lawsuits, claims and legal proceedings, including commercial and contract disputes, employment matters, product liability and product defect claims, asbestos-related claims, environmental liabilities, intellectual property disputes, and tax-related matters. In our opinion, pending legal matters are not expected to have a material adverse impact on our results of operations, financial condition, liquidity or cash flows.

ASBESTOS-RELATED MATTERS

Certain of our wholly-owned subsidiaries and former companies are named as defendants in asbestos-related lawsuits in state and federal courts. In virtually all of the suits, a large number of other companies have also been named as defendants. The vast majority of those claims allege injury caused by exposure to asbestos contained in certain historical products, primarily pumps, boilers and railroad brake shoes. None of our existing or previously-owned businesses were a producer or manufacturer of asbestos.

See also the discussion under Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Contingent Liabilities," and also Note 22 to the Consolidated Financial Statements.

Item 4. Mine Safety Disclosures

Not applicable.

Part II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Information regarding the principal market for our ordinary shares and related shareholder matters is as follows:

Our ordinary shares are traded on the New York Stock Exchange under the symbol IR. As of February 1, 2020, the approximate number of record holders of ordinary shares was 2,753.

ISSUER PURCHASES OF EQUITY SECURITIES

The following table provides information with respect to purchases by us of our ordinary shares during the quarter ended December 31, 2019:

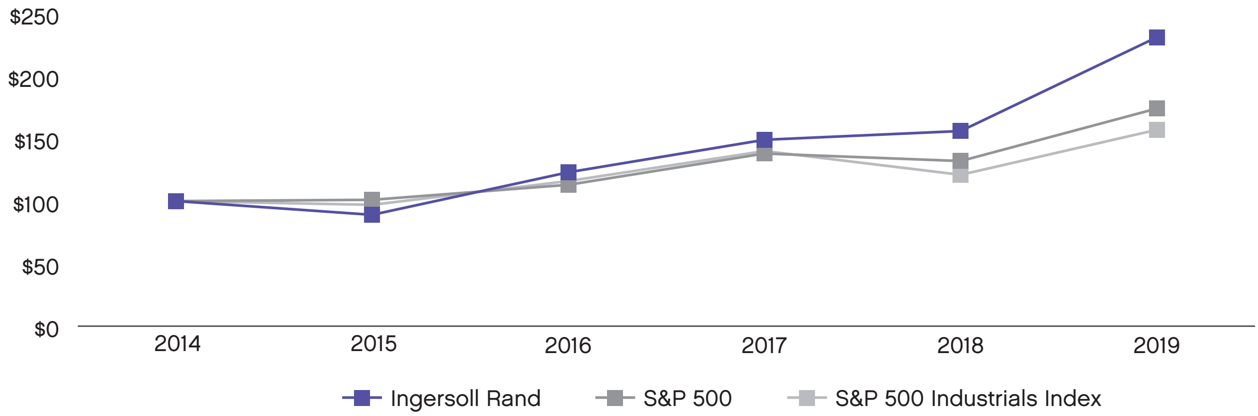
PERIOD	TOTAL NUMBER OF SHARES PURCHASED (000'S)[(A)(B)]	AVERAGE PRICE PAID PER SHARE[(A)(B)]	TOTAL NUMBER OF SHARES PURCHASED AS PART OF PROGRAM (000'S)[(A)]	APPROXIMATE DOLLAR VALUE OF SHARES STILL AVAILABLE TO BE PURCHASED UNDER THE PROGRAM ($000'S)[(A)]
October 1 - October 31	0.4	$ 117.02	—	$ 999,961
November 1 - November 30	1,016.6	129.43	1,016.6	$ 868,382
December 1 - December 31	897.9	132.10	896.4	$ 749,959
Total	1,914.9	$ 130.68	1,913.0	

[(a)] Share repurchases are made from time to time in accordance with management's capital allocation strategy, subject to market conditions and regulatory requirements. In October 2018, our Board of Directors authorized the repurchase of up to $1.5 billion of our ordinary shares under a share repurchase program (2018 Authorization) upon completion of the prior authorized share repurchase program. During the fourth quarter of 2019, we repurchased and canceled approximately $250 million of our ordinary shares leaving approximately $750 million remaining under the 2018 Authorization.

[(b)] We may also reacquire shares outside of the repurchase program from time to time in connection with the surrender of shares to cover taxes on vesting of share based awards. We reacquired 394 shares in October, 9 shares in November and 1,411 shares in December in transactions outside the repurchase programs.

PERFORMANCE GRAPH

The following graph compares the cumulative total shareholder return on our ordinary shares with the cumulative total return on (i) the Standard & Poor's 500 Stock Index and (ii) the Standard & Poor's 500 Industrial Index for the five years ended December 31, 2019. The graph assumes an investment of $100 in our ordinary shares, the Standard & Poor's 500 Stock Index and the Standard & Poor's 500 Industrial Index on December 31, 2014 and assumes the reinvestment of dividends.



COMPANY/INDEX	2014	2015	2016	2017	2018	2019
Ingersoll Rand	100	89	123	149	156	231
S&P 500	100	101	113	138	132	174
S&P 500 Industrials Index	100	97	116	140	121	157

Item 6. Selected Financial Data

In millions, except per share amounts:

AT AND FOR THE YEARS ENDED DECEMBER 31,	2019(1)	2018	2017	2016	2015
Net revenues	$ 16,598.9	$ 15,668.2	$ 14,197.6	$ 13,508.9	$ 13,300.7
Net earnings (loss) attributable to Ingersoll-Rand plc ordinary shareholders:					
Continuing operations	1,370.3	1,359.1	1,328.0	1,443.3	688.9
Discontinued operations	40.6	(21.5)	(25.4)	32.9	(24.3)
Total assets	20,492.3	17,914.9	18,173.3	17,397.4	16,717.6
Total debt	5,573.4	4,091.3	4,064.0	4,070.2	4,217.8
Total Ingersoll-Rand plc shareholders' equity	7,267.6	7,022.7	7,140.3	6,643.8	5,816.7
Earnings (loss) per share attributable to Ingersoll-Rand plc ordinary shareholders:					
Basic:					
Continuing operations	$ 5.67	$ 5.50	$ 5.21	$ 5.57	$ 2.60
Discontinued operations	0.17	(0.09)	(0.10)	0.13	(0.09)
Diluted:					
Continuing operations	$ 5.61	$ 5.43	$ 5.14	$ 5.52	$ 2.57
Discontinued operations	0.16	(0.08)	(0.09)	0.13	(0.09)
Dividends declared per ordinary share	$ 2.12	$ 1.96	$ 1.70	$ 1.36	$ 1.16

(1) During 2019, the Company acquired PFS and adopted ASU 2016-02, "Leases" (ASC 842). Refer to Note 19, "Acquisitions and Divestitures" and Note 3, "Summary of Significant Accounting Policies" for additional information related to the acquisition of PFS and adoption of ASC 842, respectively.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following Management's Discussion and Analysis of Financial Condition and Results of Operations contains forward-looking statements that involve risks and uncertainties. Our actual results may differ materially from the results discussed in the forward-looking statements. Factors that might cause a difference include, but are not limited to, those discussed under Item 1A. Risk Factors in this Annual Report on Form 10-K. The following section is qualified in its entirety by the more detailed information, including our financial statements and the notes thereto, which appears elsewhere in this Annual Report.

This section discusses 2019 and 2018 items and year-to-year comparisons between 2019 and 2018. Discussions of 2017 items and year-to-year comparisons between 2018 and 2017 have been excluded in this Form 10-K and can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2018.

OVERVIEW

ORGANIZATION

We are a diversified, global company that provides products, services and solutions to enhance the quality, energy efficiency and comfort of air in homes and buildings, transport and protect food and perishables and increase industrial productivity and efficiency. Our business segments consist of Climate and Industrial, both with strong brands and highly differentiated products within their respective markets. We generate revenue and cash primarily through the design, manufacture, sale and service of a diverse portfolio of industrial and commercial products that include well-recognized, premium brand names such as American Standard®, ARO®, Club Car®, Ingersoll-Rand®, Thermo King® and Trane®.

To achieve our mission of being a world leader in creating comfortable, sustainable and efficient environments, we continue to focus on growth by increasing our recurring revenue stream from parts, service, controls, used equipment and rentals; and to continuously improve the efficiencies and capabilities of the products and services of our businesses. We also continue to focus on operational excellence strategies as a central theme to improving our earnings and cash flows.

TRENDS AND ECONOMIC EVENTS

We are a global corporation with worldwide operations. As a global business, our operations are affected by worldwide, regional and industry-specific economic factors, as well as political factors, wherever we operate or do business. Our geographic and industry diversity, and the breadth of our product and services portfolios, have helped mitigate the impact of any one industry or the economy of any single country on our consolidated operating results.

Given the broad range of products manufactured and geographic markets served, management uses a variety of factors to forecast the outlook for the Company. We monitor key competitors and customers in order to gauge relative performance and the outlook for the future. We regularly perform detailed evaluations of the different market segments we are serving to proactively detect trends and to adapt our strategies accordingly. In addition, we believe our order rates are indicative of future revenue and thus a key measure of anticipated performance. In those industry segments where we are a capital equipment provider, revenues depend on the capital expenditure budgets and spending patterns of our customers, who may delay or accelerate purchases in reaction to changes in their businesses and in the economy.

Current economic conditions have moderated during the year and are mixed between the businesses in which we participate. Heating, Ventilation, and Air Conditioning (HVAC) equipment, replacement, services, controls and aftermarket continue to experience healthy demand. In addition, Residential and Commercial markets have seen continued momentum in the United States, positively impacting the results of our HVAC businesses. While geopolitical uncertainty exists in markets such as Europe, Asia and Latin America, we expect growth in our HVAC markets in 2020. Transport markets moderated in the second half of 2019 and we expect softer Transport markets in 2020. Global Industrial markets have moderated during the year and are now mixed with continued economic uncertainty driving weak short-cycle Industrial investment spending. We expect growth at the enterprise level to continue in 2020, benefiting from operational excellence initiatives, new product launches and continued sales excellence programs.

We believe we have a solid foundation of global brands that are highly differentiated in all of our major product lines. Our growing geographic and industry diversity coupled with our large installed product base provides growth opportunities within our service, parts and replacement revenue streams. In addition, we are investing substantial resources to innovate and develop new products and services which we expect will drive our future growth.

SIGNIFICANT EVENTS

SEPARATION OF INDUSTRIAL SEGMENT BUSINESSES

In April 2019, Ingersoll-Rand plc and Gardner Denver Holdings, Inc. (GDI) announced that they entered into definitive agreements pursuant to which we will separate our Industrial segment businesses (IR Industrial) by way of spin-off to our shareholders and then combine with GDI to create a new company focused on flow creation and industrial technologies. This business is expected to be renamed Ingersoll-Rand Inc. Our remaining HVAC and transport refrigeration businesses, reported under the Climate segment, will focus on climate control solutions for buildings, homes and transportation and be renamed Trane Technologies plc. The transaction is expected to close by early 2020, subject to approval by GDI's shareholders, regulatory approvals and customary closing conditions.

ACQUISITIONS AND EQUITY INVESTMENTS

During 2019, we acquired several businesses that complement existing products and services. In May 2019, we acquired 100% of the outstanding stock of Precision Flow Systems (PFS). PFS, reported in the Industrial segment, is a manufacturer of precision flow control equipment including precision dosing pumps and controls that serve the global water, oil and gas, agriculture, industrial and specialty market segments. Acquisitions within the Climate segment consisted of an independent dealer to support the ongoing strategy to expand our distribution network in North America as well as other businesses that strengthen our product portfolio.

During 2018, we acquired several businesses and entered into a joint venture. In May 2018, we completed our investment of a 50% ownership interest in a joint venture with Mitsubishi Electric Corporation (Mitsubishi). The joint venture, reported within the Climate segment, focuses on marketing, selling and supporting variable refrigerant flow (VRF) and ductless heating and air conditioning systems through Trane, American Standard and Mitsubishi channels in the U.S. and select Latin American countries. In January 2018, we acquired 100% of the outstanding stock of ICS Group Holdings Limited (ICS Cool Energy). The acquired business, reported within the Climate segment, specializes in the temporary rental of energy efficient chillers for commercial and industrial buildings across Europe. It also sells, permanently installs and services high performance temperature control systems for all types of industrial processes.

SHARE REPURCHASE PROGRAM AND DIVIDENDS

Share repurchases are made from time to time in accordance with management's capital allocation strategy, subject to market conditions and regulatory requirements. In February 2017, our Board of Directors authorized the repurchase of up to $1.5 billion of our ordinary shares under a share repurchase program (the 2017 Authorization) upon completion of the prior authorized share repurchase program. Repurchases under the 2017 Authorization began in May 2017 and ended in December 2018, completing the program. In October 2018, our Board of Directors authorized the repurchase of up to $1.5 billion of our ordinary shares under a share repurchase program (2018 Authorization) upon completion of the 2017 Authorization. No material amounts were repurchased under this program in 2018. During the year ended December 31, 2019, we repurchased and canceled approximately $750 million of our ordinary shares leaving approximately $750 million remaining under the 2018 Authorization.

In June 2018, we announced an increase in our quarterly share dividend from $0.45 to $0.53 per ordinary share. This reflected an 18% increase that began with our September 2018 payment and an 83% increase since the beginning of 2016. Looking forward, we expect to maintain our current quarterly share dividend through 2020 and then continue our long-standing capital deployment priorities to raise the dividend with earnings growth for 2021 and beyond.

ISSUANCE OF SENIOR NOTES

In March 2019, we issued $1.5 billion principal amount of senior notes in three tranches through Ingersoll-Rand Luxembourg Finance S.A., an indirect, wholly-owned subsidiary. The tranches consist of $400 million aggregate principal amount of 3.500% senior notes due 2026, $750 million aggregate principal amount of 3.800% senior notes due 2029 and $350 million aggregate principal amount of 4.500% senior notes due 2049. The net proceeds were used to finance the acquisition of PFS and for general corporate purposes.

In February 2018, we issued $1.15 billion principal amount of senior notes in three tranches through an indirect, wholly-owned subsidiary. The tranches consist of $300 million aggregate principal amount of 2.900% senior notes due 2021, $550 million aggregate principal amount of 3.750% senior notes due 2028 and $300 million aggregate principal amount of 4.300% senior notes due 2048. In March 2018, we used the proceeds to fund the redemption of $750 million aggregate principal amount of 6.875% senior notes due 2018 and $350 million aggregate principal amount of 2.875% senior notes due 2019, with the remainder used for general corporate purposes.

RESULTS OF OPERATIONS

Our Climate segment delivers energy-efficient products and innovative energy services. It includes Trane® and American Standard® Heating & Air Conditioning which provide heating, ventilation and air conditioning (HVAC) systems, and commercial and residential building services, parts, support and controls; energy services and building automation through Trane Building Advantage™ and Nexia™ ; and Thermo King® transport temperature control solutions.

Our Industrial segment delivers products and services that enhance energy efficiency, productivity and operations. It includes compressed air and gas systems and services, power tools, material handling systems, fluid management systems, as well as Club Car ® golf, utility and consumer low-speed vehicles.

YEAR ENDED DECEMBER 31, 2019 COMPARED TO THE YEAR ENDED DECEMBER 31, 2018 - CONSOLIDATED RESULTS

DOLLAR AMOUNTS IN MILLIONS	2019	2018	PERIOD CHANGE	2019 % OF REVENUES	2018 % OF REVENUES
Net revenues	$ 16,598.9	$ 15,668.2	$ 930.7		
Cost of goods sold	(11,451.5)	(10,847.6)	(603.9)	69.0%	69.2%
Selling and administrative expenses	(3,129.8)	(2,903.2)	(226.6)	18.8%	18.6%
Operating income	2,017.6	1,917.4	100.2	12.2%	12.2%
Interest expense	(243.0)	(220.7)	(22.3)		
Other income/(expense), net	(33.0)	(36.4)	3.4		
Earnings before income taxes	1,741.6	1,660.3	81.3		
Provision for income taxes	(353.7)	(281.3)	(72.4)		
Earnings from continuing operations	1,387.9	1,379.0	8.9		
Discontinued operations, net of tax	40.6	(21.5)	62.1		
Net earnings	$ 1,428.5	$ 1,357.5	$ 71.0		

NET REVENUES

Net revenues for the year ended December 31, 2019 increased by 5.9%, or $930.7 million, compared with the same period of 2018. The components of the period change are as follows:

Volume	4.0%
Acquisitions	1.5%
Pricing	1.7%
Currency translation	(1.3)%
Total	5.9%

The increase was primarily driven by higher volumes in our Climate segment. Improved pricing, along with incremental revenues from acquisitions, further contributed to the year-over-year increase. However, each segment was impacted by unfavorable foreign currency exchange rate movements. Refer to the "Results by Segment" below for a discussion of *Net Revenues* by segment.

COST OF GOODS SOLD

Cost of goods sold for the year ended December 31, 2019 increased by 5.6%, or $603.9 million, compared with the same period of 2018. The increase was primarily driven by volume growth, with equipment sales growing faster than service and parts sales, which are lower cost. In addition, incremental cost of goods sold related to revenues from acquisitions, material inflation, higher tariffs and acquisition related inventory step-up further contributed to the year-over-year increase. These increases were partially offset by favorable foreign currency exchange rate movements. Cost of goods sold as a percentage of net revenues was relatively flat year-over-year, decreasing 20 basis points from 69.2% of net revenues in 2018 to 69.0% of net revenues in 2019.

SELLING AND ADMINISTRATIVE EXPENSES

Selling and administrative expenses for the year ended December 31, 2019 increased by 7.8%, or $226.6 million, compared with the same period of 2018. The increase in selling and administrative expenses was primarily driven by higher compensation and benefit charges related to variable compensation, Industrial Segment separation-related costs and PFS acquisition-related costs. In addition, amortization of intangibles related to the PFS acquisition further contributed to the year-over-year increase. Selling and administrative expenses as a percentage of net revenues increased 20 basis points from 18.6% to 18.8% in 2019 primarily due to the Industrial Segment separation-related costs and PFS acquisition-related costs, which increased *Selling and administrative expenses* as a percentage of net revenues by 60 basis points in 2019.

OPERATING INCOME/MARGIN

Operating margin remained flat at 12.2% for the year ended December 31, 2019 compared with the same period of 2018. Factors impacting operating margin included material and other inflation, an unfavorable shift in product mix primarily related to faster growth in equipment sales compared to higher margin service and parts sales, Industrial Segment separation-related costs and PFS acquisition-related costs, increased spending on business investments and unfavorable foreign currency exchange rate movements. These unfavorable impacts were offset by improved pricing and productivity gains. Refer to the "Results by Segment" below for a discussion of operating margin by segment.

INTEREST EXPENSE

Interest expense for the year ended December 31, 2019 increased by $22.3 million compared with the same period of 2018. The increase primarily relates to new debt issuances during the first quarter of 2019 and 2018. During the first quarter of 2018, we incurred $15.4 million of premium expense and $1.2 million of unamortized costs in *Interest expense* as a result of the redemption of $1.1 billion of senior notes.

OTHER INCOME/(EXPENSE), NET

The components of *Other income/(expense), net*, for the years ended December 31 are as follows:

IN MILLIONS	2019	2018	PERIOD CHANGE
Interest income	$ 3.1	$ 6.4	$ (3.3)
Foreign currency exchange gain (loss)	(12.3)	(17.6)	5.3
Other components of net periodic benefit cost	(39.3)	(21.9)	(17.4)
Other activity, net	15.5	(3.3)	18.8
Other income/(expense), net	$ (33.0)	$ (36.4)	$ 3.4

Other income /(expense), net includes the results from activities other than normal business operations such as interest income and foreign currency gains and losses on transactions that are denominated in a currency other than an entity's functional currency. In addition, we include the components of net periodic benefit cost for pension and post retirement obligations other than the service cost component. Other activity, net primarily includes items associated with our Trane business for the settlement of asbestos-related claims, insurance settlements on asbestos-related matters and the revaluation of its liability and corresponding insurance asset for potential future claims and recoveries.

PROVISION FOR INCOME TAXES

The 2019 effective tax rate was 20.3% which is slightly lower than the U.S. Statutory rate of 21% primarily due to a reduction in deferred tax asset valuation allowances for certain non-U.S. net deferred tax assets and excess tax benefits from employee share-based payments. These amounts were partially offset by U.S. state and local taxes, an increase in a deferred tax asset valuation allowance for certain state net deferred tax assets and certain non-deductible expenses. In addition, the reduction was also driven by earnings in non-U.S. jurisdictions, which in aggregate, have a lower effective tax rate. Revenues from non-U.S. jurisdictions accounted for approximately 34% of our total 2019 revenues, such that a material portion of our pretax income was earned and taxed outside the U.S. at rates ranging from 0% to 38%. When comparing the results of multiple reporting periods, among other factors, the mix of earnings between U.S. and foreign jurisdictions can cause variability in our overall effective tax rate.

The 2018 effective tax rate was 16.9% which is lower than the U.S. Statutory rate of 21% primarily due to the measurement period adjustment related to the change in permanent reinvestment assertion on unremitted earnings of certain foreign subsidiaries, the deduction for Foreign Derived Intangible Income, the recognition of excess tax benefits from employee share based payments and a reduction in a valuation allowance for certain state net deferred tax assets. This decrease was partially offset by the measurement period adjustment related to a valuation allowance on excess foreign tax credits, U.S. state and local income taxes and certain non-deductible employee expenses. In addition, the reduction was also driven by earnings in non-U.S. jurisdictions, which in aggregate, have a lower effective tax rate. Revenues from non-U.S. jurisdictions accounted for approximately 36% of our total 2018 revenues, such that a material portion of our pretax income was earned and taxed outside the U.S. at rates ranging from 0% to 38%. When comparing the results of multiple reporting periods, among other factors, the mix of earnings between U.S. and foreign jurisdictions can cause variability in our overall effective tax rate.

DISCONTINUED OPERATIONS

The components of *Discontinued operations, net of tax* for the years ended December 31 are as follows:

IN MILLIONS	2019	2018	PERIOD CHANGE
Pre-tax earnings (loss) from discontinued operations	$ 54.8	$ (85.5)	$ 140.3
Tax benefit (expense)	(14.2)	64.0	(78.2)
Discontinued operations, net of tax	$ 40.6	$ (21.5)	$ 62.1

Discontinued operations are retained obligations from previously sold businesses, including amounts related to the 2013 spin-off of our commercial and residential security business, that primarily include ongoing expenses for postretirement benefits, product liability and legal costs. In addition, we include costs associated with Ingersoll-Rand Company for the settlement and defense of asbestos-related claims, insurance settlements on asbestos-related matters and the revaluation of our liability for potential future claims and recoveries. During 2019, we reached settlements with several insurance carriers associated with pending asbestos insurance coverage litigation.

YEAR ENDED DECEMBER 31, 2019 COMPARED TO THE YEAR ENDED DECEMBER 31, 2018 - RESULTS BY SEGMENT

Segment operating income on an as reported basis is the measure of profit and loss that our chief operating decision maker uses to evaluate the financial performance of the business and as the basis for performance reviews, compensation and resource allocation. For these reasons, we believe that Segment operating income represents the most relevant measure of segment profit and loss. We define Segment operating margin as Segment operating income as a percentage of *Net revenues*.

DOLLAR AMOUNTS IN MILLIONS	2019	2018	PERIOD CHANGE	% CHANGE
Climate				
Net Revenues	$ 13,075.9	$ 12,343.8	$ 732.1	5.9%
Segment operating income	1,908.5	1,766.2	142.3	8.1%
Segment operating income as a percentage of net revenues	14.6%	14.3%		
Industrial				
Net Revenues	3,523.0	3,324.4	198.6	6.0%
Segment operating income	455.0	405.3	49.7	12.3%
Segment operating income as a percentage of net revenues	12.9%	12.2%		
Total net revenues	$ 16,598.9	$ 15,668.2	$ 930.7	5.9%
Reconciliation to Operating Income				
Segment operating income from reportable segments	2,363.5	2,171.5	192.0	8.8%
Unallocated corporate expenses	(345.9)	(254.1)	(91.8)	36.1%
Total operating income	$ 2,017.6	$ 1,917.4	$ 100.2	5.2%

CLIMATE

Net revenues for the year ended December 31, 2019 increased by 5.9% or $732.1 million, compared with the same period of 2018. The components of the period change are as follows:

Volume	5.2%
Pricing	1.9%
Currency translation	(1.2)%
Total	5.9%

Segment operating margin increased 30 basis points to 14.6% for the year ended December 31, 2019, compared with 14.3% for the same period of 2018. The increase was primarily driven by higher volume, improved pricing and productivity gains, partially offset by increased spend on investments and restructuring, material and other inflation and a shift in product mix, primarily related to faster growth in equipment sales compared to higher margin service and parts sales.

INDUSTRIAL

Net revenues for the year ended December 31, 2019 increased by 6.0% or $198.6 million, compared with the same period of 2018. The components of the period change are as follows:

Volume	(0.6)%
Acquisitions	7.4%
Pricing	1.2%
Currency translation	(2.0)%
Total	6.0%

Segment operating margin increased 70 basis points to 12.9% for the year ended December 31, 2019 compared with 12.2% for the same period of 2018. The increase was primarily driven by productivity benefits, decreased spending on restructuring and pricing improvements, partially offset by lower volumes, unfavorable foreign currency movements, material and other inflation and a shift in product mix, primarily related to faster growth in equipment sales compared to higher margin service and parts sales.

UNALLOCATED CORPORATE EXPENSE

Unallocated corporate expense for the year ended December 31, 2019 increased by 36.1% or $91.8 million, compared with the same period of 2018. The primary drivers of the increase were due to Industrial Segment separation-related costs of $94.6 million and PFS acquisition-related transaction costs of $12.9 million. These costs were partially offset by lower functional costs.

LIQUIDITY AND CAPITAL RESOURCES

We assess our liquidity in terms of our ability to generate cash to fund our operating, investing and financing activities. In doing so, we review and analyze our current cash on hand, the number of days our sales are outstanding, inventory turns, capital expenditure commitments and income tax payments. Our cash requirements primarily consist of the following:

- Funding of working capital
- Funding of capital expenditures
- Dividend payments
- Debt service requirements

Our primary sources of liquidity include cash balances on hand, cash flows from operations, proceeds from debt offerings, commercial paper, and borrowing availability under our existing credit facilities. We earn a significant amount of our operating income in jurisdictions where it is deemed to be permanently reinvested. Our most prominent jurisdiction of operation is the U.S. We expect existing cash and cash equivalents available to the U.S. operations, the cash generated by our U.S. operations, our committed credit lines as well as our expected ability to access the capital and debt markets will be sufficient to fund our U.S. operating and capital needs for at least the next twelve months and thereafter for the foreseeable future. In addition, we expect existing non-U.S. cash and cash equivalents and the cash generated by our non-U.S. operations will be sufficient to fund our non-U.S. operating and capital needs for at least the next twelve months and thereafter for the foreseeable future.

As of December 31, 2019, we had $1,303.6 million of cash and cash equivalents on hand, of which $931.3 million was held by non-U.S. subsidiaries. Cash and cash equivalents held by our non-U.S. subsidiaries are generally available for use in our U.S. operations via intercompany loans, equity infusions or via distributions from direct or indirectly owned non-U.S. subsidiaries for which we do not assert permanent reinvestment. As a result of the Tax Cuts and Jobs Act in 2017, additional repatriation opportunities to access cash and cash equivalents held by non-U.S. subsidiaries have been created. In general, repatriation of cash to the U.S. can be completed with no significant incremental U.S. tax. However, to the extent that we repatriate funds from non-U.S. subsidiaries for which we assert permanent reinvestment to fund our U.S. operations, we would be required to accrue and pay applicable non-U.S. taxes. As of December 31, 2019, we currently have no plans to repatriate funds from subsidiaries for which we assert permanent reinvestment.

Share repurchases are made from time to time in accordance with management's capital allocation strategy, subject to market conditions and regulatory requirements. In February 2017, our Board of Directors authorized the repurchase of up to $1.5 billion of our ordinary shares under a share repurchase program (the 2017 Authorization) upon completion of the prior authorized share repurchase program. Repurchases under the 2017 Authorization began in May 2017 and ended in December 2018, completing the program. In October 2018, our Board of Directors authorized the repurchase of up to $1.5 billion of our ordinary shares under a share repurchase program (2018 Authorization) upon completion of the 2017 Authorization. No material amounts were repurchased under this program in 2018. During the year ended December 31, 2019, we repurchased and canceled approximately $750 million of our ordinary shares leaving approximately $750 million remaining under the 2018 Authorization.

In June 2018, we announced an increase in our quarterly share dividend from $0.45 to $0.53 per ordinary share. This reflected an 18% increase that began with our September 2018 payment and an 83% increase since the beginning of 2016. Looking forward, we expect to maintain our current quarterly share dividend through 2020 and then continue our long-standing capital deployment priorities to raise the dividend with earnings growth for 2021 and beyond.

We continue to be active with acquisitions and joint venture activity. Since the beginning of 2018, we entered into a joint venture and acquired several businesses, including channel acquisitions, that complement existing products and services further growing our product portfolio. In May 2019, we acquired all the outstanding capital stock of PFS and utilized net proceeds from our $1.5 billion senior note debt issuance to finance the transaction. In addition, we have incurred approximately $95 million in costs related to the separation of IR Industrial as previously described. We anticipate to incur costs at the high end of the $150 million to $200 million range related to the separation activities. Lastly, we incur ongoing costs associated with restructuring initiatives intended to result in improved operating performance, profitability and working capital levels. Actions associated with these initiatives may include workforce reductions, improving manufacturing productivity, realignment of management structures and rationalizing certain assets. Post separation through 2021, we expect to reduce stranded costs by $100 million and expect to incur $100 million to $150 million in cost to realize the stranded cost savings. We expect that our available cash flow, committed credit lines and access to the capital markets will be sufficient to fund share repurchases, dividends, ongoing restructuring actions, acquisitions, separation-related activities and joint venture activity.

LIQUIDITY

The following table contains several key measures of our financial condition and liquidity at the periods ended December 31:

IN MILLIONS	2019	2018
Cash and cash equivalents	$ 1,303.6	$ 903.4
Short-term borrowings and current maturities of long-term debt (1)	650.5	350.6
Long-term debt (2)	4,922.9	3,740.7
Total debt	5,573.4	4,091.3
Total Ingersoll-Rand plc shareholders' equity	7,267.6	7,022.7
Total equity	7,312.4	7,064.8
Debt-to-total capital ratio	43.3%	36.7%

(1) During the first quarter of 2018, we redeemed our 6.875% Senior notes due 2018 and our 2.875% Senior notes due 2019. During the second quarter of 2019, we reclassified our 2.625% Senior notes due May 2020 from noncurrent to current.

(2) We issued $1.15 billion principal amount of senior notes during February 2018 and $1.5 billion principal amount of senior notes during March 2019.

DEBT AND CREDIT FACILITIES

Our short-term obligations primarily consists of current maturities of long-term debt including $299.8 million of 2.625% Senior notes due in May 2020. In addition, we have outstanding $343.0 million of fixed rate debentures that contain a put feature that the holders may exercise on each anniversary of the issuance date. If exercised, we are obligated to repay in whole or in part, at the holder's option, the outstanding principal amount (plus accrued and unpaid interest) of the debentures held by the holder. We also maintain a commercial paper program which is used for general corporate purposes. Under the program, the maximum aggregate amount of unsecured commercial paper notes available to be issued, on a private placement basis, is $2.0 billion as of December 31, 2019. We had no commercial paper outstanding at December 31, 2019 and December 31, 2018. See Note 8 to the Consolidated Financial Statements for additional information regarding the terms of our short-term obligations.

Our long-term obligations primarily consist of long-term debt with final maturity dates ranging between 2021 and 2049. In addition, we maintain two 5-year, $1.0 billion revolving credit facilities. Each senior unsecured credit facility, one of which matures in March 2021 and the other in April 2023, provides support for our commercial paper program and can be used for working capital and other general corporate purposes. Total commitments of $2.0 billion were unused at December 31, 2019 and December 31, 2018. See Note 8 and Note 23 to the Consolidated Financial Statements for additional information regarding the terms of our long-term obligations and their related guarantees.

PENSION PLANS

Our investment objective in managing defined benefit plan assets is to ensure that all present and future benefit obligations are met as they come due. We seek to achieve this goal while trying to mitigate volatility in plan funded status, contribution and expense by better matching the characteristics of the plan assets to that of the plan liabilities. Our approach to asset allocation is to increase fixed income assets as the plan's funded status improves. We monitor plan funded status and asset allocation regularly in addition to investment manager performance. In addition, we monitor the impact of market conditions on our defined benefit plans on a regular basis. None of our defined benefit pension plans have experienced a significant impact on their liquidity due to market volatility. See Note 12 to the Consolidated Financial Statements for additional information regarding pensions.

CASH FLOWS

The following table reflects the major categories of cash flows for the years ended December 31, respectively. For additional details, please see the Consolidated Statements of Cash Flows in the Consolidated Financial Statements.

IN MILLIONS	2019	2018
Net cash provided by (used in) continuing operating activities	$ 1,956.3	$ 1,474.5
Net cash provided by (used in) investing activities	(1,780.0)	(629.4)
Net cash provided by (used in) financing activities	270.5	(1,378.8)

Operating Activities

Net cash provided by continuing operating activities for the year ended December 31, 2019 was $1,956.3 million, of which net income provided $2,015.9 million after adjusting for non-cash transactions. *Changes in other assets and liabilities* used $59.6 million. Net cash provided by continuing operating activities for the year ended December 31, 2018 was $1,474.5 million, of which net income provided $1,794.3 million after adjusting for non-cash transactions. *Changes in other assets and liabilities* used $319.8 million. The year-over-year increase in net cash provided by continuing operating activities was primarily driven by higher net earnings as well as a focus on working capital whereby lower inventory levels and improvements in accounts receivable efforts more than offset reductions in outstanding accounts payable balances.

Investing Activities

Cash flows from investing activities represents inflows and outflows regarding the purchase and sale of assets. Primary activities associated with these items include capital expenditures, proceeds from the sale of property, plant and equipment, acquisitions, investments in joint ventures and divestitures. During the year ended December 31, 2019, net cash used in investing activities from continuing operations was $1,780.0 million. The primary driver of the usage was attributable to acquisitions in the period, including PFS, in which the total outflow, net of cash acquired, was approximately $1.5 billion. Other outflows included capital expenditures of $254.1 million. During the year ended December 31, 2018, net cash used in investing activities from continuing operations was $629.4 million. The primary driver of the usage is attributable to the acquisition of several businesses and the investment of a 50% ownership interest in a joint venture with Mitsubishi. The total outflow, net of cash acquired, was $285.2 million. Other outflows included capital expenditures of $365.6 million.

Financing Activities

Cash flows from financing activities represent inflows and outflows that account for external activities affecting equity and debt. Primary activities associated with these actions include paying dividends to shareholders, repurchasing our own shares, issuing our stock and debt transactions. During the year ended December 31, 2019, net cash provided by financing activities from continuing operations was $270.5 million. The primary driver of the inflow related to the issuance of $1.5 billion of senior notes during the period to finance the acquisition of PFS and other general corporate expenses. This amount was partially offset by the repurchase of 6.4 million ordinary shares totaling $750.1 million and $510.1 million of dividends paid to ordinary shareholders. During the year ended December 31, 2018, net cash used in financing activities from continuing operations was $1,378.8 million. Primary drivers of the cash outflow related to the repurchase of 9.7 million ordinary shares totaling $900.2 million and $479.5 million of dividends paid to ordinary shareholders. In addition, we issued $1.15 billion of senior notes which was predominately offset by the redemption of $1.1 billion of senior notes.

Discontinued Operations

Cash flows from discontinued operations primarily represent ongoing costs associated with postretirement benefits, product liability and legal costs from previously sold businesses. Net cash used in discontinued operating activities during the year ended December 31, 2019 was $36.8 million and primarily related to ongoing costs, partially offset by settlements reached with several insurance carriers associated with pending asbestos insurance coverage litigation. Net cash used in discontinued operating activities for the year ended December 31, 2018 was $66.7 million and primarily related to ongoing costs.

CAPITAL RESOURCES

Based on historical performance and current expectations, we believe our cash and cash equivalents balance, the cash generated from our operations, our committed credit lines and our expected ability to access capital markets will satisfy our working capital needs, capital expenditures, dividends, share repurchases, upcoming debt maturities, and other liquidity requirements associated with our operations for the foreseeable future.

Capital expenditures were $254.1 million, $365.6 million and $221.3 million for the years ended December 31, 2019, 2018 and 2017, respectively. Our investments continue to improve manufacturing productivity, reduce costs, provide environmental enhancements, upgrade information technology infrastructure and security and advanced technologies for existing facilities. The capital expenditure program for 2020 is estimated to be approximately one to two percent of revenues, including amounts approved in prior periods. Many of these projects are subject to review and cancellation at our option without incurring substantial charges.

For financial market risk impacting the Company, see Item 7A. "Quantitative and Qualitative Disclosure About Market Risk."

CAPITALIZATION

In addition to cash on hand and operating cash flow, we maintain significant credit availability under our Commercial Paper Program. Our ability to borrow at a cost-effective rate under the Commercial Paper Program is contingent upon maintaining an investment-grade credit rating. As of December 31, 2019, our credit ratings were as follows, remaining unchanged from 2018:

	SHORT-TERM	LONG-TERM
Moody's	P-2	Baa2
Standard and Poor's	A-2	BBB

The credit ratings set forth above are not a recommendation to buy, sell or hold securities and may be subject to revision or withdrawal by the assigning rating organization. Each rating should be evaluated independently of any other rating.

Our public debt does not contain financial covenants and our revolving credit lines have a debt-to-total capital covenant of 65%. As of December 31, 2019, our debt-to-total capital ratio was significantly beneath this limit.

CONTRACTUAL OBLIGATIONS

The following table summarizes our contractual cash obligations by required payment period:

IN MILLIONS	LESS THAN 1 YEAR	1 - 3 YEARS	3 - 5 YEARS	MORE THAN 5 YEARS	TOTAL
Long-term debt	$ 650.5[(a)]	$ 440.2	$ 1,215.0	$ 3,307.2	$ 5,612.9
Interest payments on long-term debt	240.3	446.7	384.3	1,802.9	2,874.2
Purchase obligations	1,020.0	—	—	—	1,020.0
Operating leases	192.3	258.4	115.3	68.1	634.1
Total contractual cash obligations	$ 2,103.1	$ 1,145.3	$ 1,714.6	$ 5,178.2	$ 10,141.2

(a) Includes $343.0 million of debt redeemable at the option of the holder. The scheduled maturities of these bonds range between 2027 and 2028.

Future expected obligations under our pension and postretirement benefit plans, income taxes, environmental, asbestos-related, and product liability matters have not been included in the contractual cash obligations table above.

PENSIONS

At December 31, 2019, we had a net unfunded liability of $714.4 million, which consists of noncurrent pension assets of $50.4 million and current and non-current pension benefit liabilities of $764.8 million. It is our objective to contribute to the pension plans to ensure adequate funds are available in the plans to make benefit payments to plan participants and beneficiaries when required. We currently project that we will contribute approximately $90 million to our enterprise plans worldwide in 2020. The timing and amounts of future contributions are dependent upon the funding status of the plan, which is expected to vary as a result of changes in interest rates, returns on underlying assets, and other factors. Therefore, pension contributions have been excluded from the preceding table. See Note 12 to the Consolidated Financial Statements for additional information regarding pensions.

POSTRETIREMENT BENEFITS OTHER THAN PENSIONS

At December 31, 2019, we had postretirement benefit obligations of $428.8 million. We fund postretirement benefit costs principally on a pay-as-you-go basis as medical costs are incurred by covered retiree populations. Benefit payments, which are net of expected plan participant contributions and Medicare Part D subsidy, are expected to be approximately $42 million in 2020. Because benefit payments are not required to be funded in advance, and the timing and amounts of future payments are dependent on the cost of benefits for retirees covered by the plan, they have been excluded from the preceding table. See Note 12 to the Consolidated Financial Statements for additional information regarding postretirement benefits other than pensions.

INCOME TAXES

At December 31, 2019, we have total unrecognized tax benefits for uncertain tax positions of $78.2 million and $16.9 million of related accrued interest and penalties, net of tax. The liability has been excluded from the preceding table as we are unable to reasonably estimate the amount and period in which these liabilities might be paid. See Note 18 to the Consolidated Financial Statements for additional information regarding income taxes, including unrecognized tax benefits.

CONTINGENT LIABILITIES

We are involved in various litigation, claims and administrative proceedings, including those related to environmental, asbestos-related, and product liability matters. We believe that these liabilities are subject to the uncertainties inherent in estimating future costs for contingent liabilities, and will likely be resolved over an extended period of time. Because the timing and amounts of potential future cash flows are uncertain, they have been excluded from the preceding table. See Note 22 to the Consolidated Financial Statements for additional information regarding contingent liabilities.

CRITICAL ACCOUNTING POLICIES

Management's Discussion and Analysis of Financial Condition and Results of Operations are based upon our Consolidated Financial Statements, which have been prepared in accordance with accounting principles generally accepted in the United States (GAAP). The preparation of financial statements in conformity with those accounting principles requires management to use judgment in making estimates and assumptions based on the relevant information available at the end of each period. These estimates and assumptions have a significant effect on reported amounts of assets and liabilities, revenue and expenses as well as the disclosure of contingent assets and liabilities because they result primarily from the need to make estimates and assumptions on matters that are inherently uncertain. Actual results may differ from these estimates. If updated information or actual amounts are different from previous estimates, the revisions are included in our results for the period in which they become known.

The following is a summary of certain accounting estimates and assumptions made by management that we consider critical.

- Goodwill and indefinite-lived intangible assets – We have significant goodwill and indefinite-lived intangible assets on our balance sheet related to acquisitions. These assets are tested and reviewed annually during the fourth quarter for impairment or when there is a significant change in events or circumstances that indicate that the fair value of an asset is more likely than not less than the carrying amount of the asset.

  The determination of estimated fair value requires us to make assumptions about estimated cash flows, including profit margins, long-term forecasts, discount rates and terminal growth rates. We developed these assumptions based on the market and geographic risks unique to each reporting unit. For our annual impairment testing performed during the fourth quarter of 2019, we calculated the fair value for each of the reporting units and indefinite-lived intangibles. Based on the results of these calculations and further outlined below, we determined that the fair value of the reporting units and indefinite-lived intangible assets exceeded their respective carrying values. The estimates of fair value are based on the best information available as of the date of the assessment, which primarily incorporates management assumptions about expected future cash flows.

Goodwill – Impairment of goodwill is assessed at the reporting unit level and begins with a qualitative assessment to determine if it is more likely than not that the fair value of each reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the goodwill impairment test under ASC 350, "Intangibles-Goodwill and Other" (ASC 350). For those reporting units that bypass or fail the qualitative assessment, the test compares the carrying amount of the reporting unit to its estimated fair value. If the estimated fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired. To the extent that the carrying value of the reporting unit exceeds its estimated fair value, an impairment loss would be recognized for the amount by which the reporting unit's carrying amount exceeds its fair value, not to exceed the carrying amount of goodwill in that reporting unit.

As quoted market prices are not available for our reporting units, the calculation of their estimated fair value is determined using three valuation techniques: a discounted cash flow model (an income approach), a market-adjusted multiple of earnings and revenues (a market approach), and a similar transactions method (also a market approach). The discounted cash flow approach relies on our estimates of future cash flows and explicitly addresses factors such as timing, growth and margins, with due consideration given to forecasting risk. The earnings and revenue multiple approach reflects the market's expectations for future growth and risk, with adjustments to account for differences between the guideline publicly traded companies and the subject reporting units. The similar transactions method considers prices paid in transactions that have recently occurred in our industry or in related industries. These valuation techniques are weighted 50%, 40% and 10%, respectively.

Under the income approach, we assumed a forecasted cash flow period of five years with discount rates ranging from 10.0% to 13.0% and terminal growth rates ranging from 2.0% to 3.5%. Under the guideline public company method, we used an adjusted multiple ranging from 5.5 to 13.0 of projected earnings before interest, taxes, depreciation and amortization (EBITDA) based on the market information of comparable companies. Additionally, we compared the estimated aggregate fair value of our reporting units to our overall market capitalization. For all reporting units except one in Latin America, the excess of the estimated fair value over carrying value (expressed as a percentage of carrying value) was a minimum of 32%. The one reporting unit with a percentage of carrying value less than 32% exceeded its carrying value by 5.4%. The reporting unit, reported within the Climate segment, has approximately $190 million of goodwill at the testing date. A significant increase in the discount rate, decrease in the long-term growth rate, or substantial reductions in our end markets and volume assumptions could have a negative impact on the estimated fair value of these reporting units.

Other Indefinite-lived intangible assets – Impairment of other intangible assets with indefinite useful lives is first assessed using a qualitative assessment to determine whether it is more likely than not that an indefinite-lived intangible asset is impaired. This assessment is used as a basis for determining whether it is necessary to calculate the fair value of an indefinite-lived intangible asset. For those indefinite-lived assets where it is required, a fair value is determined on a relief from royalty methodology (income approach) which is based on the implied royalty paid, at an appropriate discount rate, to license the use of an asset rather than owning the asset. The present value of the after-tax cost savings (i.e. royalty relief) indicates the estimated fair value of the asset. Any excess of the carrying value over the estimated fair value would be recognized as an impairment loss equal to that excess.

In testing our other indefinite-lived intangible assets for impairment, we assumed forecasted revenues for a period of five years with discount rates ranging from 10.0% to 14.5%, terminal growth rates of 3.0%, and royalty rates ranging from 0.5% to 4.5%. A significant increase in the discount rate, decrease in the long-term growth rate, decrease in the royalty rate or substantial reductions in our end markets and volume assumptions could have a negative impact on the estimated fair values of any of our tradenames.

- Long-lived assets and finite-lived intangibles – Long-lived assets and finite-lived intangibles are reviewed for impairment whenever events or changes in business circumstances indicate that the carrying amount of an asset may not be fully recoverable. Assets are grouped with other assets and liabilities at the lowest level for which identifiable cash flows can be generated. Impairment in the carrying value of an asset would be recognized whenever anticipated future undiscounted cash flows from an asset are less than its carrying value. The impairment is measured as the amount by which the carrying value exceeds the fair value of the asset as determined by an estimate of discounted cash flows. Changes in business conditions could potentially require future adjustments to these valuations.
- Business combinations – In accordance with ASC 805, "Business Combinations" (ASC 805), acquisitions are recorded using the acquisition method of accounting. We include the operating results of acquired entities from their respective dates of acquisition.We recognize and measure the identifiable assets acquired, liabilities assumed, and any non-controlling interest as of the acquisition date fair value. The valuation of intangible assets was determined using an income approach methodology. Our key assumptions used in valuing the intangible assets include projected future revenues, customer attrition rates, royalty rates, tax rates and discount rates. The excess, if any, of total consideration transferred in a business combination over the fair value of identifiable assets acquired, liabilities assumed, and any non-controlling interest is recognized as goodwill. Costs incurred as a result of a business combination other than costs related to the issuance of debt or equity securities are recorded in the period the costs are incurred.
- Asbestos matters – Certain of our wholly-owned subsidiaries and former companies are named as defendants in asbestos-related lawsuits in state and federal courts. We record a liability for our actual and anticipated future claims as well as an asset for anticipated insurance settlements. We engage an outside expert to perform a detailed analysis and project an estimated range of the total liability for pending and unasserted future asbestos-related claims. In accordance with ASC 450, "Contingencies" (ASC 450), we record the liability at the low end of the range as we believe that no amount within the range is a better estimate than any other amount. Our key assumptions underlying the estimated asbestos-related liabilities include the number of people occupationally exposed and likely to develop asbestos-related diseases such as mesothelioma and lung cancer, the number of people likely to file an asbestos-related personal injury claim against us, the average settlement and resolution of each claim and the percentage of claims resolved with no payment. Asbestos-related defense costs are excluded from the asbestos claims liability and are recorded separately as services are incurred. None of our existing or previously-owned businesses were a producer or manufacturer of asbestos. We record certain income and expenses associated with our asbestos liabilities and corresponding insurance recoveries within *Discontinued operations, net of tax*, as they relate to previously divested businesses, except for amounts associated with Trane's asbestos liabilities and corresponding insurance recoveries which are recorded within continuing operations. See Note 22 to the Consolidated Financial Statements for further information regarding asbestos-related matters.
- Revenue recognition – Revenue is recognized when control of a good or service promised in a contract (i.e., performance obligation) is transferred to a customer. Control is obtained when a customer has the ability to direct the use of and obtain substantially all of the remaining benefits from that good or service. A majority of our revenues are recognized at a point-in-time as control is transferred at a distinct point in time per the terms of a contract. However, a portion of our revenues are recognized over time as the customer simultaneously receives control as we perform work under a contract. For these arrangements, the cost-to-cost input method is used as it best depicts the transfer of control to the customer that occurs as we incurs costs. We adopted ASU No. 2014-09, "Revenue from Contracts with Customers" (ASC 606), on January 1, 2018 using the modified retrospective approach. Refer to Note 3, "Summary of Significant Accounting Policies" and Note 13, "Revenue" for additional information related to the adoption of ASC 606.

  The transaction price allocated to performance obligations reflects our expectations about the consideration we will be entitled to receive from a customer. To determine the transaction price, variable and noncash consideration are assessed as well as whether a significant financing component exists. We include variable consideration in the estimated transaction price when it is probable that significant reversal of revenue recognized would not occur when the uncertainty associated with variable consideration is subsequently resolved. We consider historical data in determining our best estimates of variable consideration, and the related accruals are recorded using the expected value method.

  We enter into sales arrangements that contain multiple goods and services, such as equipment, installation and extended warranties. For these arrangements, each good or service is evaluated to determine whether it represents a distinct performance obligation and whether the sales price for each obligation is representative of standalone selling price. If available, we utilize observable prices for goods or services sold separately to similar customers in similar circumstances to evaluate relative standalone selling price. List prices are used if they are determined to be representative of standalone selling prices. Where necessary, we ensure that the total transaction price is then allocated to the distinct performance obligations based on the determination of their relative standalone selling price at the inception of the arrangement.

We recognize revenue for delivered goods or services when the delivered good or service is distinct, control of the good or service has transferred to the customer, and only customary refund or return rights related to the goods or services exist. For extended warranties and long-term service agreements, revenue for these distinct performance obligations are recognized over time on a straight-line basis over the respective contract term.

- Income taxes – Deferred tax assets and liabilities are determined based on temporary differences between financial reporting and tax bases of assets and liabilities, applying enacted tax rates expected to be in effect for the year in which the differences are expected to reverse. We recognize future tax benefits, such as net operating losses and tax credits, to the extent that realizing these benefits is considered in our judgment to be more likely than not. We regularly review the recoverability of our deferred tax assets considering our historic profitability, projected future taxable income, timing of the reversals of existing temporary differences and the feasibility of our tax planning strategies. Where appropriate, we record a valuation allowance with respect to a future tax benefit.

  The provision for income taxes involves a significant amount of management judgment regarding interpretation of relevant facts and laws in the jurisdictions in which we operate. Future changes in applicable laws, projected levels of taxable income, and tax planning could change the effective tax rate and tax balances recorded by us. In addition, tax authorities periodically review income tax returns filed by us and can raise issues regarding our filing positions, timing and amount of income or deductions, and the allocation of income among the jurisdictions in which we operate. A significant period of time may elapse between the filing of an income tax return and the ultimate resolution of an issue raised by a revenue authority with respect to that return. We believe that we have adequately provided for any reasonably foreseeable resolution of these matters. We will adjust our estimate if significant events so dictate. To the extent that the ultimate results differ from our original or adjusted estimates, the effect will be recorded in the provision for income taxes in the period that the matter is finally resolved.

- Employee benefit plans – We provide a range of benefits to eligible employees and retirees, including pensions, postretirement and postemployment benefits. Determining the cost associated with such benefits is dependent on various actuarial assumptions including discount rates, expected return on plan assets, compensation increases, mortality, turnover rates and healthcare cost trend rates. Actuarial valuations are performed to determine expense in accordance with GAAP. Actual results may differ from the actuarial assumptions and are generally accumulated and amortized into earnings over future periods. We review our actuarial assumptions at each measurement date and make modifications to the assumptions based on current rates and trends, if appropriate. The discount rate, the rate of compensation increase and the expected long-term rates of return on plan assets are determined as of each measurement date.

  The rate of compensation increase is dependent on expected future compensation levels. The expected long-term rate of return on plan assets reflects the average rate of returns expected on the funds invested or to be invested to provide for the benefits included in the projected benefit obligation. The expected long-term rate of return on plan assets is based on what is achievable given the plan's investment policy, the types of assets held and the target asset allocation. The expected long-term rate of return is determined as of each measurement date. We believe that the assumptions utilized in recording our obligations under our plans are reasonable based on input from our actuaries, outside investment advisors and information as to assumptions used by plan sponsors.

  Changes in any of the assumptions can have an impact on the net periodic pension cost or postretirement benefit cost. Estimated sensitivities to the expected 2020 net periodic pension cost of a 0.25% rate decline in the two basic assumptions are as follows: the decline in the discount rate would increase expense by approximately $8.8 million and the decline in the estimated return on assets would increase expense by approximately $7.7 million. A 0.25% rate decrease in the discount rate for postretirement benefits would increase expected 2020 net periodic postretirement benefit cost by $0.7 million and a 1.0% increase in the healthcare cost trend rate would increase the service and interest cost by approximately $0.5 million.

RECENT ACCOUNTING PRONOUNCEMENTS

See Note 3 to the Consolidated Financial Statements for a discussion of recent accounting pronouncements.

Item 7A. Quantitative and Qualitative Disclosure About Market Risk

We are exposed to fluctuations in currency exchange rates, interest rates and commodity prices which could impact our results of operations and financial condition.

FOREIGN CURRENCY EXPOSURES

We have operations throughout the world that manufacture and sell products in various international markets. As a result, we are exposed to movements in exchange rates of various currencies against the U.S. dollar as well as against other currencies throughout the world.

Many of our non-U.S. operations have a functional currency other than the U.S. dollar, and their results are translated into U.S. dollars for reporting purposes. Therefore, our reported results will be higher or lower depending on the weakening or strengthening of the U.S. dollar against the respective foreign currency. Our largest concentration of revenues from non-U.S. operations as of December 31, 2019 are in Euros and Chinese Yuan. A hypothetical 10% unfavorable change in the average exchange rate used to translate *Net revenues* for the year ended December 31, 2019 from either Euros or Chinese Yuan-based operations into U.S. dollars would not have a material impact on our financial statements.

We use derivative instruments to hedge those material exposures that cannot be naturally offset. The instruments utilized are viewed as risk management tools, primarily involve little complexity and are not used for trading or speculative purposes. To minimize the risk of counter party non-performance, derivative instrument agreements are made only through major financial institutions with significant experience in such derivative instruments.

We evaluate our exposure to changes in currency exchange rates on our foreign currency derivatives using a sensitivity analysis. The sensitivity analysis is a measurement of the potential loss in fair value based on a percentage change in exchange rates. Based on the firmly committed currency derivative instruments in place at December 31, 2019, a hypothetical change in fair value of those derivative instruments assuming a 10% adverse change in exchange rates would result in an unrealized loss of approximately $23.2 million, as compared with $17.6 million at December 31, 2018. These amounts, when realized, would be offset by changes in the fair value of the underlying transactions.

COMMODITY PRICE EXPOSURES

We are exposed to volatility in the prices of commodities used in some of our products and we use fixed price contracts to manage this exposure. We do not have committed commodity derivative instruments in place at December 31, 2019.

INTEREST RATE EXPOSURE

Our debt portfolio mainly consists of fixed-rate instruments, and therefore any fluctuation in market interest rates is not expected to have a material effect on our results of operations.

Item 8. Financial Statements and Supplementary Data

(a) The following Consolidated Financial Statements and Financial Statement Schedules and the report thereon of PricewaterhouseCoopers LLP dated February 18, 2020, are presented in this Annual Report on Form 10-K beginning on page F-1.

Consolidated Financial Statements:
- Report of independent registered public accounting firm
- Consolidated Statements of Comprehensive Income for the years ended December 31, 2019, 2018 and 2017
- Consolidated Balance Sheets at December 31, 2019 and 2018
- For the years ended December 31, 2019, 2018 and 2017:
  - Consolidated Statements of Equity
  - Consolidated Statements of Cash Flows
- Notes to Consolidated Financial Statements

Financial Statement Schedule:
- Schedule II – Valuation and Qualifying Accounts for the years ended December 31, 2019, 2018 and 2017

(b) The unaudited selected quarterly financial data for the two years ended December 31, is as follows:

IN MILLIONS, EXCEPT PER SHARE AMOUNTS	2019 FIRST QUARTER	2019 SECOND QUARTER	2019 THIRD QUARTER	2019 FOURTH QUARTER
Net revenues	$ 3,575.9	$ 4,527.8	$ 4,344.3	$ 4,150.9
Cost of goods sold	(2,517.3)	(3,094.1)	(2,935.8)	(2,904.3)
Operating income	318.5	650.5	623.2	425.4
Earnings from continuing operations	205.8	465.9	439.0	277.2
Net earnings	203.7	460.3	463.4	301.1
Net earnings attributable to Ingersoll-Rand plc	199.9	456.1	458.8	296.1
Earnings per share attributable to Ingersoll-Rand plc ordinary shareholders:				
Basic:				
Continuing operations	$ 0.83	$ 1.91	$ 1.80	$ 1.13
Discontinued operations	$ (0.01)	$ (0.03)	$ 0.10	$ 0.10
Diluted:				
Continuing operations	$ 0.82	$ 1.88	$ 1.78	$ 1.12
Discontinued operations	$ —	$ (0.02)	$ 0.10	$ 0.10

	2018 FIRST QUARTER	2018 SECOND QUARTER	2018 THIRD QUARTER	2018 FOURTH QUARTER
Net revenues	$ 3,384.5	$ 4,357.7	$ 4,030.9	$ 3,895.1
Cost of goods sold	(2,420.2)	(2,964.1)	(2,718.3)	(2,745.0)
Operating income	243.4	640.3	587.0	446.7
Earnings from continuing operations	133.5	458.5	531.1	256.0
Net earnings	124.1	452.6	519.4	261.4
Net earnings attributable to Ingersoll-Rand plc	120.4	448.1	515.1	254.0
Earnings per share attributable to Ingersoll-Rand plc ordinary shareholders:				
Basic:				
Continuing operations	$ 0.52	$ 1.83	$ 2.14	$ 1.02
Discontinued operations	$ (0.04)	$ (0.02)	$ (0.05)	$ 0.02
Diluted:				
Continuing operations	$ 0.51	$ 1.82	$ 2.11	$ 1.00
Discontinued operations	$ (0.03)	$ (0.03)	$ (0.05)	$ 0.03

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

(a) Evaluation of Disclosure Controls and Procedures

The Company's management, including its Chief Executive Officer and Chief Financial Officer, have conducted an evaluation of the effectiveness of the Company's disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)), as of the end of the period covered by this Annual Report on Form 10-K. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded as of December 31, 2019, that the Company's disclosure controls and procedures were effective in ensuring that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act has been recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms, and that such information has been accumulated and communicated to the Company's management including its Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

(b) Management's Report on Internal Control Over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined under Exchange Act Rules 13a-15(f) and 15d-15(f). Internal control over financial reporting is a process designed by, or under the supervision of, the Chief Executive Officer and Chief Financial Officer and effected by the Company's Board of Directors to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies and procedures may deteriorate.

Management has assessed the effectiveness of internal control over financial reporting as of December 31, 2019. In making its assessment, management has utilized the criteria set forth by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission in Internal Control - Integrated Framework (2013). Management concluded that based on its assessment, the Company's internal control over financial reporting was effective as of December 31, 2019.

In May 2019, the Company acquired Precision Flow Systems (PFS), which has total assets, excluding intangible assets and goodwill arising from the acquisition, and total revenue of approximately 2% and 1%, respectively, of the amounts reported as total assets and net revenue in the consolidated financial statements as of and for the year ended December 31, 2019. Management's assessment of the effectiveness of our internal control over financial reporting as of December 31, 2019 excluded the PFS acquisition, as the Company is in the process of aligning and integrating various processes, systems and internal controls related to the business and operations of this subsidiary, excluding intangible assets and goodwill, which are included within the scope of Management's assessment. Guidance issued by the SEC staff permits management to omit from the scope of its assessment a recently acquired business in the year of acquisition.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2019 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears herein.

(c) Changes in Internal Control Over Financial Reporting

There were no changes in internal control over financial reporting (as defined by Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

Part III

Item 10. Directors, Executive Officers and Corporate Governance

The information regarding our executive officers is included in Part I under the caption "Executive Officers of Registrant."

The other information required by this item is incorporated herein by reference to the information contained under the headings "Item 1. Election of Directors", "Delinquent Section 16(a) Reports" and "Corporate Governance" in our definitive proxy statement for the 2020 annual general meeting of shareholders (2020 Proxy Statement).

Item 11. Executive Compensation

The other information required by this item is incorporated herein by reference to the information contained under the headings "Compensation Discussion and Analysis," "Compensation of Directors," "Executive Compensation," "Compensation Committee Report" and "Compensation Committee Interlocks and Insider Participation" in our 2020 Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The other information required by this item is incorporated herein by reference to the information contained under the headings "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" in our 2020 Proxy Statement.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The other information required by this item is incorporated herein by reference to the information contained under the headings "Corporate Governance" and "Certain Relationships and Related Person Transactions" in our 2020 Proxy Statement.

Item 14. Principal Accountant Fees and Services

The information required by this item is incorporated herein by reference to the information contained under the caption "Fees of the Independent Auditors" in our 2020 Proxy Statement.

Part IV

Item 15. Exhibits and Financial Statement Schedules

(a) 1. and 2.	Financial statements and financial statement schedule See Item 8.
3.	Exhibits The exhibits listed on the accompanying index to exhibits are filed as part of this Annual Report on Form 10-K.

INGERSOLL-RAND PLC
INDEX TO EXHIBITS
(Item 15(a))

DESCRIPTION

Pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC"), Ingersoll-Rand plc (the "Company") has filed certain agreements as exhibits to this Annual Report on Form 10-K. These agreements may contain representations and warranties by the parties. These representations and warranties have been made solely for the benefit of the other party or parties to such agreements and (i) may have been qualified by disclosures made to such other party or parties, (ii) were made only as of the date of such agreements or such other date(s) as may be specified in such agreements and are subject to more recent developments, which may not be fully reflected in our public disclosure, (iii) may reflect the allocation of risk among the parties to such agreements and (iv) may apply materiality standards different from what may be viewed as material to investors. Accordingly, these representations and warranties may not describe our actual state of affairs at the date hereof and should not be relied upon.

On July 1, 2009, Ingersoll-Rand Company Limited, a Bermuda company, completed a reorganization to change the jurisdiction of incorporation of the parent company from Bermuda to Ireland. As a result, Ingersoll-Rand plc replaced Ingersoll-Rand Company Limited as the ultimate parent company effective July 1, 2009. All references related to the Company prior to July 1, 2009 relate to Ingersoll-Rand Company Limited.

(a) Exhibits

EXHIBIT NO.	DESCRIPTION	METHOD OF FILING
2.1	Separation and Distribution Agreement between Ingersoll-Rand plc and Allegion plc, dated November 29, 2013.	Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on December 2, 2013.
2.2	Agreement and Plan of Merger, dated as of April 30, 2019, by and among the Company, Gardner Denver Holdings, Inc., Ingersoll-Rand U.S. HoldCo, Inc. and Charm Merger Sub Inc.	Incorporated by reference to Exhibit 2.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on May 6, 2019.
2.3	Separation and Distribution Agreement, dated as of April 30, 2019, by and between Ingersoll-Rand plc and Ingersoll-Rand U.S. HoldCo, Inc.	Incorporated by reference to Exhibit 2.2 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on May 6, 2019).
3.1	Constitution of the Company, as amended and restated on June 2, 2016	Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on June 7, 2016.
	The Company and its subsidiaries are parties to several long-term debt instruments under which, in each case, the total amount of securities authorized does not exceed 10% of the total assets of the Company and its subsidiaries on a consolidated basis.	Pursuant to paragraph 4 (iii)(A) of Item 601 (b) of Regulation S-K, the Company agrees to furnish a copy of such instruments to the Securities and Exchange Commission upon request.
4.1	Indenture, dated as of June 20, 2013, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Company Limited and Ingersoll-Rand International Holding Limited, as guarantors and The Bank of New York Mellon, as Trustee.	Incorporated by reference to Exhibit 4.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on June 26, 2013.
4.2	First Supplemental Indenture, dated as of June 20, 2013, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Company Limited and Ingersoll-Rand International Holding Limited, as guarantors and The Bank of New York Mellon, as Trustee, relating to the 2.875% Senior Notes due 2019.	Incorporated by reference to Exhibit 4.2 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on June 26, 2013.

EXHIBIT NO.	DESCRIPTION	METHOD OF FILING
4.3	Second Supplemental Indenture, dated as of June 20, 2013, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Company Limited and Ingersoll-Rand International Holding Limited, as guarantors and The Bank of New York Mellon, as Trustee, relating to the 4.250% Senior Notes due 2023.	Incorporated by reference to Exhibit 4.3 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on June 26, 2013.
4.4	Third Supplemental Indenture, dated as of June 20, 2013, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Company Limited and Ingersoll-Rand International Holding Limited, as guarantors and The Bank of New York Mellon, as Trustee, relating to the 5.750% Senior Notes due 2043.	Incorporated by reference to Exhibit 4.4 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on June 26, 2013.
4.5	Fourth Supplemental Indenture, dated as of November 20, 2013, among Ingersoll-Rand Global Holding Company Limited, a Bermuda company, Ingersoll-Rand Company Limited, a Bermuda company, Ingersoll-Rand International Holding Limited, a Bermuda company, Ingersoll-Rand plc, an Irish public limited company, Ingersoll-Rand Company, a New Jersey corporation, and The Bank of New York Mellon, as Trustee, to the Indenture dated as of June 20, 2013.	Incorporated by reference to Exhibit 4.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on November 26, 2013.
4.6	Fifth Supplemental Indenture, dated as of October 28, 2014, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand Company, as co-obligor, Ingersoll-Rand plc, Ingersoll-Rand Company Limited, Ingersoll-Rand International Holding Limited, Ingersoll-Rand Luxembourg Finance S.A., as guarantors, and The Bank of New York Mellon, as Trustee, to an Indenture, dated as of June 20, 2013.	Incorporated by reference to Exhibit 4.5 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on October 29, 2014.
4.7	Sixth Supplemental Indenture, dated as of December 18, 2015, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand Company, as co-obligor, Ingersoll-Rand plc, Ingersoll-Rand International Holding Limited, Ingersoll-Rand Luxembourg Finance S.A., and Ingersoll-Rand Lux International Holding Company S.à.r.l. as guarantors, and The Bank of New York Mellon, as Trustee, to an Indenture, dated as of June 20, 2013.	Incorporated by reference to Exhibit 4.21 to the Company's Form 10-K for the fiscal year ended 2015 (File No. 001-34400) filed with the SEC on February 12, 2016.
4.8	Seventh Supplemental Indenture, dated as of April 5, 2016, by and among Ingersoll-Rand Global Holding company Limited, as issuer, Ingersoll-Rand Company, as co-obligor, Ingersoll-Rand plc, Ingersoll-Rand International Holding Limited, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., and Ingersoll-Rand Irish Holdings Unlimited Company, as guarantors, and The Bank of New York Mellon, as Trustee, to an indenture, dated as of June 20, 2013.	Incorporated by reference to Exhibit 4.19 to the Company's Form 10-K for the fiscal year ended 2016 (File No. 001-34400) filed with the SEC on February 13, 2017.
4.9	Indenture, dated as of October 28, 2014, by and among Ingersoll-Rand Luxembourg Finance S.A., as issuer, and Ingersoll-Rand plc, Ingersoll-Rand Company Limited, Ingersoll-Rand International Holding Limited, Ingersoll-Rand Company and Ingersoll-Rand Global Holding Company Limited, as guarantors, and The Bank of New York Mellon, as Trustee.	Incorporated by reference to Exhibit 4.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on October 29, 2014.

EXHIBIT NO.	DESCRIPTION	METHOD OF FILING
4.10	First Supplemental Indenture, dated as of October 28, 2014, by and among Ingersoll-Rand Luxembourg Finance S.A., as issuer, and Ingersoll-Rand plc, Ingersoll-Rand Company Limited, Ingersoll-Rand International Holding Limited, Ingersoll-Rand Company and Ingersoll-Rand Global Holding Company Limited, as guarantors, and The Bank of New York Mellon, as Trustee, relating to the 2.625% Senior Notes due 2020.	Incorporated by reference to Exhibit 4.2 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on October 29, 2014.
4.11	Second Supplemental Indenture, dated as of October 28, 2014, by and among Ingersoll-Rand Luxembourg Finance S.A., as issuer, and Ingersoll-Rand plc, Ingersoll-Rand Company Limited, Ingersoll-Rand International Holding Limited, Ingersoll-Rand Company and Ingersoll-Rand Global Holding Company Limited, as guarantors, and The Bank of New York Mellon, as Trustee, relating to the 3.550% Senior Notes due 2024.	Incorporated by reference to Exhibit 4.3 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on October 29, 2014.
4.12	Third Supplemental Indenture, dated as of October 28, 2014, by and among Ingersoll-Rand Luxembourg Finance S.A., as issuer, and Ingersoll-Rand plc, Ingersoll-Rand Company Limited, Ingersoll-Rand International Holding Limited, Ingersoll-Rand Company and Ingersoll-Rand Global Holding Company Limited, as guarantors, and The Bank of New York Mellon, as Trustee, relating to the 4.650% Senior Notes due 2044.	Incorporated by reference to Exhibit 4.3 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on October 29, 2014.
4.13	Fourth Supplemental Indenture, dated as of December 18, 2015, by and among Ingersoll-Rand Luxembourg Finance S.A., as issuer, and Ingersoll-Rand plc, Ingersoll-Rand International Holding Limited, Ingersoll-Rand Company, Ingersoll-Rand Global Holding Company Limited, and Ingersoll-Rand Lux International Holding Company S.à.r.l. as guarantors, and The Bank of New York Mellon, as Trustee.	Incorporated by reference to Exhibit 4.27 to the Company's Form 10-K for the fiscal year ended 2015 (File No. 001-34400) filed with the SEC on February 12, 2016.
4.14	Fifth Supplemental Indenture, dated as of April 5, 2016, by and among Ingersoll-Rand Luxembourg Finance S.A., as Issuer, and Ingersoll-Rand plc, Ingersoll-Rand Company Limited, Ingersoll-Rand Company, Ingersoll-Rand International Holding Limited, Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand Irish Holdings Unlimited Company, as guarantors, and The Bank of New York Mellon, as Trustee.	Incorporated by reference to Exhibit 4.25 to the Company's Form 10-K for the fiscal year ended 2016 (File No. 001-34400) filed with the SEC on February 13, 2017.
4.15	Indenture, dated as of February 21, 2018, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand Irish Holdings Unlimited Company and Ingersoll-Rand Company, as guarantors, and Wells Fargo Bank, National Association, as Trustee.	Incorporated by reference to Exhibit 4.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on February 26, 2018.
4.16	First Supplemental Indenture, dated as of February 21, 2018, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand Irish Holdings Unlimited Company and Ingersoll-Rand Company, as guarantors, and Wells Fargo Bank, National Association, as Trustee, relating to the 2.900% Senior Notes due 2021.	Incorporated by reference to Exhibit 4.2 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on February 26, 2018.

EXHIBIT NO.	DESCRIPTION	METHOD OF FILING
4.17	Second Supplemental Indenture, dated as of February 21, 2018, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand Irish Holdings Unlimited Company and Ingersoll-Rand Company, as guarantors, and Wells Fargo Bank, National Association, as Trustee, relating to the 3.750% Senior Notes due 2028.	Incorporated by reference to Exhibit 4.4 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on February 26, 2018.
4.18	Third Supplemental Indenture, dated as of February 21, 2018, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand Irish Holdings Unlimited Company and Ingersoll-Rand Company, as guarantors, and Wells Fargo Bank, National Association, as Trustee, relating to the 4.300% Senior Notes due 2048.	Incorporated by reference to Exhibit 4.6 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on February 26, 2018.
4.19	Fourth Supplemental Indenture, dated as of March 21, 2019, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand Irish Holdings Unlimited Company and Ingersoll-Rand Company, as guarantors, and Wells Fargo Bank, National Association, as Trustee, relating to the 3.500% Senior Notes due 2026.	Incorporated by reference to Exhibit 4.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on March 26, 2019.
4.20	Fifth Supplemental Indenture, dated as of March 21, 2019, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand Irish Holdings Unlimited Company and Ingersoll-Rand Company, as guarantors, and Wells Fargo Bank, National Association, as Trustee, relating to the 3.800% Senior Notes due 2029.	Incorporated by reference to Exhibit 4.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on March 26, 2019.
4.22	Sixth Supplemental Indenture, dated as of March 21, 2019, by and among Ingersoll-Rand Global Holding Company Limited, as issuer, Ingersoll-Rand plc, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand Irish Holdings Unlimited Company and Ingersoll-Rand Company, as guarantors, and Wells Fargo Bank, National Association, as Trustee, relating to the 4.500% Senior Notes due 2049.	Incorporated by reference to Exhibit 4.5 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on March 26, 2019.
4.23	Form of Ordinary Share Certificate of Ingersoll-Rand plc.	Incorporated by reference to Exhibit 4.6 to the Company's Form S-3 (File No. 333-161334) filed with the SEC on August 13, 2009.
4.24	Description of Registrant's Securities.	Filed herewith.
10.1*	Form of Global Stock Option Award Agreement (June 2018).	Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on June 12, 2018.
10.2*	Form of Global Restricted Stock Unit Award Agreement (June 2018).	Incorporated by reference to Exhibit 10.2 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on June 12, 2018.
10.3*	Form of Global Performance Stock Unit Award Agreement (June 2018).	Incorporated by reference to Exhibit 10.3 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on June 12, 2018.

EXHIBIT NO.	DESCRIPTION	METHOD OF FILING
10.4	Credit Agreement dated March 15, 2016 among Ingersoll-Rand Global Holding Company Limited, Ingersoll-Rand plc, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand International Holding Limited, Ingersoll-Rand Company, JPMorgan Chase Bank, N.A., as Administrative Agent, Citibank, N.A., as Syndication Agent, Bank of America, N.A., BNP Paribas, Deutsche Bank Securities, Inc., Goldman Sachs Bank USA, Mizuho Bank, Ltd., and The Bank of Tokyo-Mitsubishi UFJ, Ltd. as Documentation Agents, and JPMorgan Chase Bank, N.A. and Citigroup Global Markets Inc., as joint lead arrangers and joint bookrunners, and certain lending institutions from time to time parties thereto.	Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on March 17, 2016.
10.5	Supplemental Guarantee dated as of April 5, 2016 made by Ingersoll-Rand Irish Holdings Unlimited Company in favor of JPMorgan Chase Bank, N.A., as Administrative Agent for the Banks that are parties to the Credit Agreement dated as of March 15, 2016.	Incorporated by reference to Exhibit 10.8 to the Company's Form 10-K for the fiscal year ended 2017 (File No. 001-34400) filed with the SEC on February 13, 2017.
10.6	Credit Agreement dated April 17, 2018 among Ingersoll-Rand Global Holding Company Limited, Ingersoll-Rand plc, Ingersoll-Rand Luxembourg Finance S.A., Ingersoll-Rand Lux International Holding Company S.à r.l., Ingersoll-Rand Irish Holdings Unlimited Company, Ingersoll-Rand Company, JPMorgan Chase Bank, N.A., as Administrative Agent, Citibank, N.A., as Syndication Agent, Bank of America, N.A., BNP Paribas, Deutsche Bank Securities Inc., Goldman Sachs Bank USA, Mizuho Bank, Ltd., and MUFG Bank Ltd. as Documentation Agents, and JPMorgan Chase Bank, N.A. and Citigroup Global Markets Inc., as joint lead arrangers and joint bookrunners, and certain lending institutions from time to time parties thereto.	Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on April 19, 2018.
10.7	Deed Poll Indemnity of Ingersoll-Rand plc, an Irish public limited company, as to the directors, secretary and officers and senior executives of Ingersoll-Rand plc and the directors and officers of Ingersoll-Rand plc's subsidiaries.	Incorporated by reference to Exhibit 10.5 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on July 1, 2009.
10.8	Tax Sharing Agreement, dated as of July 16, 2007, by and among American Standard Companies Inc. and certain of its subsidiaries and WABCO Holdings Inc. and certain of its subsidiaries.	Incorporated by reference to Exhibit 10.1 to Trane Inc.'s Form 8-K (File No. 001-11415) filed with the SEC on July 20, 2007.
10.9	Tax Matters Agreement between Ingersoll-Rand plc and Allegion plc, dated November 30, 2013.	Incorporated by reference to Exhibit 10.2 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on December 2, 2013.
10.10*	Ingersoll-Rand plc Incentive Stock Plan of 2013.	Incorporated by reference to Exhibit 4.5 to the Company's Form S-8 (File No. 333-189446) filed with the SEC on June 19, 2013.
10.11*	Ingersoll-Rand plc Incentive Stock Plan of 2018.	Incorporated by reference to Exhibit 4.3 to the Company's Form S-8 (File No. 333-225575) filed with the SEC on June 12, 2018.
10.12*	IR Executive Deferred Compensation Plan (as amended and restated effective January 1, 2017).	Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended June 30, 2017 (File No. 001-34400) filed with the SEC on July 26, 2017.

EXHIBIT NO.	DESCRIPTION	METHOD OF FILING
10.13*	IR Executive Deferred Compensation Plan II (as amended and restated effective January 1, 2017).	Incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q for the quarter ended June 30, 2017 (File No. 001-34400) filed with the SEC on July 26, 2017.
10.14*	First Amendment to IR Executive Deferred Compensation Plan II (dated December 22, 2009).	Incorporated by reference to Exhibit 10.19 to the Company's Form 10-K for the fiscal year ended 2011 (File No. 001-34400) filed with the SEC on February 21, 2012.
10.15*	Second Amendment to IR Executive Deferred Compensation Plan II (dated December 23, 2010).	Incorporated by reference to Exhibit 10.20 to the Company's Form 10-K for the fiscal year ended 2011 (File No. 001-16831) filed with the SEC on February 21, 2012.
10.16*	IR-plc Director Deferred Compensation and Stock Award Plan (as amended and restated effective July 1, 2009).	Incorporated by reference to Exhibit 10.11 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on July 1, 2009.
10.17*	IR-plc Director Deferred Compensation and Stock Award Plan II (as amended and restated effective July 1, 2009).	Incorporated by reference to Exhibit 10.12 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on July 1, 2009.
10.18*	Ingersoll-Rand Company Supplemental Employee Savings Plan (amended and restated effective October 1, 2012).	Incorporated by reference to exhibit 10.23 to the Company's Form 10-K for the fiscal year ended 2012 (File No. 001-34400) filed with the SEC on February 14, 2013.
10.19*	Amendment to the Ingersoll-Rand Company Supplemental Employee Savings Plan dated April 6, 2017.	Incorporated by reference to Exhibit 10.21 to the Company's Form 10-K (File No. 001-34400) filed with the SEC on February 12, 2018.
10.20*	Ingersoll-Rand Company Supplemental Employee Savings Plan II (effective January 1, 2005 and amended and restated through October 1, 2012).	Incorporated by reference to exhibit 10.24 to the Company's Form 10-K for the fiscal year ended 2012 (File No. 001-34400) filed with the SEC on February 14, 2013.
10.21*	Amendment to the Ingersoll-Rand Company Supplemental Employee Savings Plan II dated April 6, 2017.	Incorporated by reference to Exhibit 10.23 to the Company's Form 10-K (File No. 001-34400) filed with the SEC on February 12, 2018.
10.22*	Trane Inc. Deferred Compensation Plan (as amended and restated as of July 1, 2009, except where otherwise stated).	Incorporated by reference to Exhibit 10.19 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on July 1, 2009.
10.23*	Amendment to Trane Inc. Deferred Compensation Plan dated April 6, 2017.	Incorporated by reference to Exhibit 10.25 to the Company's Form 10-K (File No. 001-34400) filed with the SEC on February 12, 2018.
10.24*	Ingersoll-Rand Company Supplemental Pension Plan (Amended and Restated Effective January 1, 2005).	Incorporated by reference to Exhibit 10.28 to the Company's Form 10-K for the fiscal year ended 2008 (File No. 001-16831) filed with the SEC on March 2, 2009.
10.25*	First Amendment to the Ingersoll-Rand Company Supplemental Pension Plan, dated as of July 1, 2009.	Incorporated by reference to Exhibit 10.21 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on July 1, 2009.
10.26*	Ingersoll-Rand Company Elected Officers Supplemental Plan (Effective January 1, 2005 and Amended and Restated effective October 1, 2012).	Incorporated by reference to exhibit 10.32 to the Company's Form 10-K for the fiscal year ended 2012 (File No. 001-34400) filed with the SEC on February 14, 2013.
10.27*	Ingersoll-Rand Company Key Management Supplemental Program (Effective January 1, 2005 and Amended and Restated effective October 1, 2012).	Incorporated by reference to exhibit 10.27 to the Company's Form 10-K for the fiscal year ended 2018 (File No. 001-34400) filed with the SEC on February 12, 2019.

EXHIBIT NO.	DESCRIPTION	METHOD OF FILING
10.28*	First Amendment to the Ingersoll Rand Company Key Management Supplemental Program, dated as of June 15, 2015.	Incorporated by reference to exhibit 10.28 to the Company's Form 10-K for the fiscal year ended 2018 (File No. 001-34400) filed with the SEC on February 12, 2019.
10.29*	Description of Annual Incentive Matrix Program.	Incorporated by reference to Exhibit 10.30 to the Company's Form 10-K (File No. 001-34400) filed with the SEC on February 12, 2018.
10.30*	Form of Tier 1 Change in Control Agreement (Officers before May 19, 2009).	Incorporated by reference to Exhibit 99.1 to the Company's Form 8-K (File No. 001-16831) filed with the SEC on December 4, 2006.
10.31*	Form of Tier 2 Change in Control Agreement (Officers before May 19, 2009).	Incorporated by reference to Exhibit 99.2 to the Company's Form 8-K (File No. 001-16831) filed with the SEC on December 4, 2006.
10.32*	Form of Tier 1 Change in Control Agreement (New Officers on or after May 19, 2009).	Incorporated by reference to Exhibit 10.32 to the Company's Form 10-Q for the period ended June 30, 2009 (File No. 001-34400) filed with the SEC on August 6, 2009.
10.33*	Form of Tier 2 Change in Control Agreement (New Officers on or after May 19, 2009).	Incorporated by reference to Exhibit 10.33 to the Company's Form 10-Q for the period ended June 30, 2009 (File No. 001-34400) filed with the SEC on August 6, 2009.
10.34*	Amended and Restated Major Restructuring Severance Plan (as amended and restated effective April 18, 2019).	Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the period ended June 30, 2019 (File No. 001-34400) filed with the SEC on August 5, 2019.
10.35*	Michael W. Lamach Letter, dated December 24, 2003.	Incorporated by reference to Exhibit 10.35 to the Company's Form 10-K for the fiscal year ended 2003 (File No. 001-16831) filed with the SEC on February 27, 2004.
10.36*	Michael W. Lamach Letter, dated June 4, 2008.	Incorporated by reference to Exhibit 10.2 to the Company's Form 8-K (File No. 001-16831) filed with the SEC on June 10, 2008.
10.37*	Michael W. Lamach Letter, dated February 4, 2009.	Incorporated by reference to Exhibit 10.43 to the Company's Form 10-K for the fiscal year ended 2008 (File No. 001-16831) filed with the SEC on March 2, 2009.
10.38*	Michael W. Lamach Letter, dated February 3, 2010.	Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on February 5, 2010.
10.39*	Michael W. Lamach Letter, dated December 23, 2012.	Incorporated by reference to exhibit 10.48 to the Company's Form 10-K for the fiscal year ended 2012 (File No. 001-34400) filed with the SEC on February 14, 2013.
10.40*	Marcia J. Avedon Letter, dated January 8, 2007.	Incorporated by reference to Exhibit 10.45 to the Company's Form 10-K for the fiscal year ended December 31, 2006 (File No. 001-16831) filed with the SEC on March 1, 2007.
10.41*	Marcia J. Avedon Letter, dated December 20, 2012.	Incorporated by reference to exhibit 10.53 to the Company's Form 10-K for the fiscal year ended 2012 (File No. 001-34400) filed with the SEC on February 14, 2013.
10.43*	Susan K. Carter Letter, dated as of August 19, 2013.	Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on October 2, 2013.

EXHIBIT NO.	DESCRIPTION	METHOD OF FILING
10.44*	David S. Regnery Letter, dated as of September 1, 2017.	Incorporated by reference to Exhibit 10.44 to the Company's Form 10-K for the year ended December 31, 2018 (File No. 001-34400) filed with the SEC on February 12, 2019.
10.45*	David S. Regnery Letter, dated as of December 9, 2019.	Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on December 11, 2019.
10.46*	Christopher J. Kuehn Letter, dated as of December 10, 2019.	Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on December 10, 2019.
10.47*	Employee Matters Agreement between Ingersoll-Rand plc and Allegion plc, dated November 30, 2013.	Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K (File No. 001-34400) filed with the SEC on December 2, 2013.
21	List of Subsidiaries of Ingersoll-Rand plc.	Filed herewith.
23.1	Consent of Independent Registered Public Accounting Firm.	Filed herewith.
31.1	Certification of Chief Executive Officer Pursuant to Rule 13a-14(a) or Rule 15d-14(a), as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith.
31.2	Certification of Chief Financial Officer Pursuant to Rule 13a-14(a) or Rule 15d-14(a), as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith.
32	Certifications of Chief Executive Officer and Chief Financial Officer Pursuant to Rule 13a-14(b) or Rule 15d-14(b) and 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	Furnished herewith.
101	The following materials from the Company's Annual Report on Form 10-K for the year ended December 31, 2019, formatted in Inline XBRL (Extensible Business Reporting Language): (i) the Consolidated Statements of Comprehensive Income, (ii) the Consolidated Balance Sheets, (iii) the Consolidated Statements of Equity, (iv) the Consolidated Statements of Cash Flows, and (v) Notes to Consolidated Financial Statements.	Furnished herewith.

* Management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

Not applicable.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

INGERSOLL-RAND PLC
(Registrant)

By: /s/ Michael W. Lamach
Michael W. Lamach
Chairman of the Board and Chief Executive Officer
Date: February 18, 2020

Pursuant to the requirement of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Michael W. Lamach (Michael W. Lamach)	Chairman of the Board and Chief Executive Officer (Principal Executive Officer)	February 18, 2020
/s/ Susan K. Carter (Susan K. Carter)	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 18, 2020
/s/ Christopher J. Kuehn (Christopher J. Kuehn)	Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 18, 2020
/s/ Kirk E. Arnold (Kirk E. Arnold)	Director	February 18, 2020
/s/ Ann C. Berzin (Ann C. Berzin)	Director	February 18, 2020
/s/ John Bruton (John Bruton)	Director	February 18, 2020
/s/ Jared L. Cohon (Jared L. Cohon)	Director	February 18, 2020
/s/ Gary D. Forsee (Gary D. Forsee)	Director	February 18, 2020
/s/ Linda P. Hudson (Linda P. Hudson)	Director	February 18, 2020
/s/ Myles P. Lee (Myles P. Lee)	Director	February 18, 2020
/s/ Karen B. Peetz (Karen B. Peetz)	Director	February 18, 2020
/s/ John P. Surma (John P. Surma)	Director	February 18, 2020
/s/ Richard J. Swift (Richard J. Swift)	Director	February 18, 2020
/s/ Tony L. White (Tony L. White)	Director	February 18, 2020

INGERSOLL-RAND PLC

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm	F-2
Consolidated Statements of Comprehensive Income	F-5
Consolidated Balance Sheets	F-6
Consolidated Statements of Equity	F-7
Consolidated Statements of Cash Flows	F-8
Notes to Consolidated Financial Statements	F-9
Schedule II – Valuation and Qualifying Accounts	F-58

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors of Ingersoll-Rand plc

OPINIONS ON THE FINANCIAL STATEMENTS AND INTERNAL CONTROL OVER FINANCIAL REPORTING

We have audited the accompanying consolidated balance sheets of Ingersoll-Rand plc and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of comprehensive income, of equity and of cash flows for each of the three years in the period ended December 31, 2019, including the related notes and schedule of valuation and qualifying accounts for each of the three years in the period ended December 31, 2019 listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

CHANGE IN ACCOUNTING PRINCIPLE

As discussed in Note 3 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

BASIS FOR OPINIONS

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

As described in Management's Report on Internal Control over Financial Reporting, management has excluded Precision Flow Systems (PFS) from its assessment of internal control over financial reporting as of December 31, 2019 because it was acquired by the Company in a purchase business combination during 2019. We have also excluded PFS from our 2019 audit of internal control over financial reporting. PFS is a wholly-owned subsidiary whose total assets and total revenues excluded from management's assessment and our audit of internal control over financial reporting represent approximately 2% and approximately 1% respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2019.

DEFINITION AND LIMITATIONS OF INTERNAL CONTROL OVER FINANCIAL REPORTING

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

CRITICAL AUDIT MATTERS

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

LIABILITY FOR ASBESTOS-RELATED MATTERS

As described in Notes 3 and 22 to the consolidated financial statements, certain of the Company's wholly-owned subsidiaries and former companies are named as defendants in asbestos-related lawsuits in state and federal courts for which management recorded asbestos-related liabilities of $547 million as of December 31, 2019. Management engaged an outside expert to perform a detailed analysis and project an estimated range of the Company's total liability for pending and unasserted future asbestos-related claims. Management's key assumptions underlying the estimated asbestos-related liabilities included the number of people likely to have been occupationally exposed to asbestos and likely to develop asbestos-related diseases such as mesothelioma and lung cancer, the number of people likely to file an asbestos-related personal injury claim against the Company, the average settlement and resolution value of claims, and the percentage of claims resolved with no payment.

The principal considerations for our determination that performing procedures relating to the liability for asbestos-related matters is a critical audit matter are (i) there was significant judgment by management in developing the estimate for asbestos-related liabilities, which in turn led to a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating audit evidence related to management's estimate and the aforementioned assumptions underlying the estimated asbestos-related liabilities, and (ii) the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained from these procedures.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's estimate for asbestos-related matters, including controls over development of the aforementioned assumptions underlying the estimated asbestos-related liabilities. These procedures also included, among others, testing management's process for developing the estimate for asbestos-related matters. This included evaluating the appropriateness of the estimate and the reasonableness of the aforementioned assumptions underlying the asbestos-related liabilities. Professionals with specialized skill and knowledge were used to assist in (i) evaluating whether the forecast of new claims that may be filed against the Company was reasonable considering recent Company experience and industry data, which represents the estimated number of individuals likely to have been occupationally exposed to asbestos and expected to develop asbestos-related diseases such as mesothelioma and lung cancer, (ii) evaluating whether the assumed number of people likely to file an asbestos-related personal injury claim against the Company was reasonable, considering the Company's historical experience, (iii) evaluating whether the estimated average settlement and resolution value of claims was reasonable considering the Company's historical experience, and (iv) evaluating whether the percentage of claims resolved with no payment was reasonable considering the Company's historical experience. Procedures were also performed to test the accuracy of data provided by management, including the historical claims filed against the Company, and the cost of resolution for those historical claims.

ACQUISITION OF PRECISION FLOW SYSTEMS - VALUATION OF CUSTOMER RELATIONSHIPS

As described in Note 19 to the consolidated financial statements, on May 15, 2019 the Company acquired all the outstanding capital stock of Precision Flow Systems (PFS) for approximately $1.46 billion, of which approximately $458 million was allocated to the customer relationships intangible asset. The fair values of the customer relationship intangible assets were determined using the multi-period excess earnings method based on discounted projected net cash flows. Management's key assumptions used in estimating future cash flows included projected revenue growth rates and customer attrition rates.

The principal considerations for our determination that performing procedures relating to the acquisition of PFS - valuation of customer relationships is a critical audit matter are (i) there was significant judgment by management in determining the fair value estimate using the multi-period excess earnings method, which in turn led to a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating audit evidence related to management's fair value estimate and significant assumptions, including the revenue growth rates and the customer attrition rates used in the cash flow projections and the discount rate used to estimate present value of the projected future cash flows, and (ii) the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained from these procedures.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the acquisition accounting, including controls over management's valuation of acquired customer relationships and controls over development of the assumptions related to the valuation of the customer relationships, including the revenue growth rates, customer attrition rates, and the discount rate. These procedures also included, among others, (i) reading the purchase agreement, (ii) testing management's process for developing the fair value estimate of the acquired customer relationships, (iii) testing management's cash flow projections used to estimate the fair value of the customer relationships, and (iv) evaluating the reasonableness of significant assumptions used by management in estimating the fair value of the customer relationships, including the revenue growth rates, customer attrition rates, and the discount rate. Evaluating the reasonableness of the revenue growth rates and customer attrition rates involved considering the past performance of the acquired businesses, as well as economic and industry forecasts. Evaluating the reasonableness of the discount rate involved considering the cost of capital of comparable businesses, other industry factors, and the implied rate of return on the overall transaction. Professionals with specialized skill and knowledge were used to assist in the evaluation of the Company's multi-period excess earnings method used to determine the fair value estimate of the acquired customer relationships and certain assumptions, including customer attrition rates and the discount rate.

/s/ PricewaterhouseCoopers LLP
Charlotte, North Carolina
February 18, 2020

We have served as the Company's auditor since at least 1906. We have not been able to determine the specific year we began serving as auditor of the Company.

Ingersoll-Rand plc
Consolidated Statements of Comprehensive Income

In millions, except per share amounts

FOR THE YEARS ENDED DECEMBER 31,	2019	2018	2017
Net revenues	$ 16,598.9	$ 15,668.2	$ 14,197.6
Cost of goods sold	(11,451.5)	(10,847.6)	(9,811.6)
Selling and administrative expenses	(3,129.8)	(2,903.2)	(2,720.7)
Operating income	2,017.6	1,917.4	1,665.3
Interest expense	(243.0)	(220.7)	(215.8)
Other income/(expense), net	(33.0)	(36.4)	(31.6)
Earnings before income taxes	1,741.6	1,660.3	1,417.9
Provision for income taxes	(353.7)	(281.3)	(80.2)
Earnings from continuing operations	1,387.9	1,379.0	1,337.7
Discontinued operations, net of tax	40.6	(21.5)	(25.4)
Net earnings	1,428.5	1,357.5	1,312.3
Less: Net earnings attributable to noncontrolling interests	(17.6)	(19.9)	(9.7)
Net earnings attributable to Ingersoll-Rand plc	$ 1,410.9	$ 1,337.6	$ 1,302.6
Amounts attributable to Ingersoll-Rand plc ordinary shareholders:			
Continuing operations	$ 1,370.3	$ 1,359.1	$ 1,328.0
Discontinued operations	40.6	(21.5)	(25.4)
Net earnings	$ 1,410.9	$ 1,337.6	$ 1,302.6
Earnings (loss) per share attributable to Ingersoll-Rand plc ordinary shareholders:			
Basic:			
Continuing operations	$ 5.67	$ 5.50	$ 5.21
Discontinued operations	0.17	(0.09)	(0.10)
Net earnings	$ 5.84	$ 5.41	$ 5.11
Diluted:			
Continuing operations	$ 5.61	$ 5.43	$ 5.14
Discontinued operations	0.16	(0.08)	(0.09)
Net earnings	$ 5.77	$ 5.35	$ 5.05
Net earnings	$ 1,428.5	$ 1,357.5	$ 1,312.3
Other comprehensive income (loss):			
Currency translation	(37.1)	(230.6)	450.3
Cash flow hedges			
Unrealized net gains (losses) arising during period	(2.7)	1.2	(1.8)
Net gains (losses) reclassified into earnings	0.7	0.9	3.6
Tax (expense) benefit	0.9	(0.1)	—
Total cash flow hedges, net of tax	(1.1)	2.0	1.8
Pension and OPEB adjustments:			
Prior service costs for the period	(5.7)	(16.0)	(3.8)
Net actuarial gains (losses) for the period	(41.9)	12.8	39.6
Amortization reclassified into earnings	48.1	50.7	52.1
Settlements/curtailments reclassified to earnings	2.2	2.5	7.7
Currency translation and other	(1.4)	7.5	(15.4)
Tax (expense) benefit	(4.7)	(17.2)	(20.1)
Total pension and OPEB adjustments, net of tax	(3.4)	40.3	60.1
Other comprehensive income (loss), net of tax	(41.6)	(188.3)	512.2
Comprehensive income, net of tax	$ 1,386.9	$ 1,169.2	$ 1,824.5
Less: Comprehensive income attributable to noncontrolling interests	(18.5)	(16.9)	(10.2)
Comprehensive income attributable to Ingersoll-Rand plc	$ 1,368.4	$ 1,152.3	$ 1,814.3

See accompanying notes to Consolidated Financial Statements.

Ingersoll-Rand plc
Consolidated Balance Sheets

In millions, except share amounts

DECEMBER 31,	2019	2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 1,303.6	$ 903.4
Accounts and notes receivable, net	2,798.1	2,679.2
Inventories	1,712.2	1,677.8
Other current assets	403.3	471.6
Total current assets	6,217.2	5,732.0
Property, plant and equipment, net	1,806.2	1,730.8
Goodwill	6,783.1	5,959.5
Intangible assets, net	4,148.8	3,634.7
Other noncurrent assets	1,537.0	857.9
Total assets	$ 20,492.3	$ 17,914.9
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	$ 1,809.2	$ 1,705.3
Accrued compensation and benefits	549.2	531.6
Accrued expenses and other current liabilities	1,853.0	1,728.2
Short-term borrowings and current maturities of long-term debt	650.5	350.6
Total current liabilities	4,861.9	4,315.7
Long-term debt	4,922.9	3,740.7
Postemployment and other benefit liabilities	1,221.9	1,192.9
Deferred and noncurrent income taxes	682.0	538.4
Other noncurrent liabilities	1,491.2	1,062.4
Total liabilities	13,179.9	10,850.1
Equity:		
Ingersoll-Rand plc shareholders' equity		
Ordinary shares, $1 par value (262,804,939 and 266,405,347 shares issued at December 31, 2019 and 2018, respectively)	262.8	266.4
Ordinary shares held in treasury, at cost (24,499,897 and 24,500,054 shares at December 31, 2019 and 2018, respectively)	(1,719.4)	(1,719.4)
Retained earnings	9,730.8	9,439.8
Accumulated other comprehensive loss	(1,006.6)	(964.1)
Total Ingersoll-Rand plc shareholders' equity	7,267.6	7,022.7
Noncontrolling interest	44.8	42.1
Total equity	7,312.4	7,064.8
Total liabilities and equity	$ 20,492.3	$ 17,914.9

See accompanying notes to Consolidated Financial Statements.

Ingersoll-Rand plc
Consolidated Statements of Equity

IN MILLIONS, EXCEPT PER SHARE AMOUNTS	TOTAL EQUITY	INGERSOLL-RAND PLC SHAREHOLDERS' EQUITY: ORDINARY SHARES AMOUNT	ORDINARY SHARES SHARES	ORDINARY SHARES HELD IN TREASURY, AT COST	CAPITAL IN EXCESS OF PAR VALUE	RETAINED EARNINGS	ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)	NONCONTROLLING INTEREST
Balance at December 31, 2016	$ 6,718.3	$ 271.7	271.7	$ (702.7)	$ 346.5	$ 8,018.8	$ (1,290.5)	$ 74.5
Net earnings	1,312.3	—	—	—	—	1,302.6	—	9.7
Other comprehensive income (loss)	512.2	—	—	—	—	—	511.7	0.5
Shares issued under incentive stock plans	51.2	2.3	2.3	—	48.9	—	—	—
Repurchase of ordinary shares	(1,016.9)	—	—	(1,016.9)	—	—	—	—
Share-based compensation	67.9	—	—	—	70.8	(2.9)	—	—
Dividends declared to noncontrolling interest	(15.8)	—	—	—	—	—	—	(15.8)
Adoption of ASU 2016-09 (Stock Compensation)	15.1	—	—	—	—	15.1	—	—
Acquisition/divestiture of noncontrolling interest	(7.3)	—	—	—	(5.0)	—	—	(2.3)
Cash dividends declared ($1.70 per share)	(430.2)	—	—	—	—	(430.2)	—	—
Other	0.1	—	—	0.2	0.1	(0.2)	—	—
Balance at December 31, 2017	$ 7,206.9	$ 274.0	274.0	$(1,719.4)	$ 461.3	$ 8,903.2	$ (778.8)	$ 66.6
Net earnings	1,357.5	—	—	—	—	1,337.6	—	19.9
Other comprehensive income (loss)	(188.3)	—	—	—	—	—	(185.3)	(3.0)
Shares issued under incentive stock plans	43.1	2.1	2.1	—	41.0	—	—	—
Repurchase of ordinary shares	(900.2)	(9.7)	(9.7)	—	(581.2)	(309.3)	—	—
Share-based compensation	74.7	—	—	—	78.8	(4.1)	—	—
Dividends declared to noncontrolling interest	(41.4)	—	—	—	—	—	—	(41.4)
Adoption of ASU 2014-09 (Revenue Recognition)	2.4	—	—	—	—	2.4	—	—
Adoption of ASU 2016-16 (Intra-Entity Transfers)	(9.1)	—	—	—	—	(9.1)	—	—
Cash dividends declared ($1.96 per share)	(480.8)	—	—	—	—	(480.8)	—	—
Other	—	—	—	—	0.1	(0.1)	—	—
Balance at December 31, 2018	$ 7,064.8	$ 266.4	266.4	$(1,719.4)	$ —	$ 9,439.8	$ (964.1)	$ 42.1
Net earnings	1,428.5	—	—	—	—	1,410.9	—	17.6
Other comprehensive income (loss)	(41.6)	—	—	—	—	—	(42.5)	0.9
Shares issued under incentive stock plans	72.5	2.8	2.8	—	69.7	—	—	—
Repurchase of ordinary shares	(750.1)	(6.4)	(6.4)		(136.1)	(607.6)	—	—
Share-based compensation	63.5	—	—	—	66.4	(2.9)	—	—
Dividends declared to noncontrolling interest	(15.8)	—	—	—	—	—	—	(15.8)
Cash dividends declared ($2.12 per share)	(509.5)	—	—	—	—	(509.5)	—	—
Other	0.1	—	—	—	—	0.1	—	—
Balance at December 31, 2019	$ 7,312.4	$ 262.8	262.8	$(1,719.4)	$ —	$ 9,730.8	$ (1,006.6)	$ 44.8

See accompanying notes to Consolidated Financial Statements.

Ingersoll-Rand plc
Consolidated Statements of Cash Flows

In millions

FOR THE YEARS ENDED DECEMBER 31,	2019	2018	2017
Cash flows from operating activities:			
Net earnings	$ 1,428.5	$ 1,357.5	$ 1,312.3
Discontinued operations, net of tax	(40.6)	21.5	25.4
Adjustments for non-cash transactions:			
Depreciation and amortization	397.4	361.5	353.3
Pension and other postretirement benefits	110.2	104.2	113.0
Stock settled share-based compensation	66.4	78.8	70.8
Other non-cash items, net	54.0	(129.2)	(121.9)
Changes in other assets and liabilities, net of the effects of acquisitions:			
Accounts and notes receivable	(53.2)	(236.0)	(156.7)
Inventories	18.4	(169.9)	(112.4)
Other current and noncurrent assets	(229.5)	35.3	(206.8)
Accounts payable	80.6	120.7	167.2
Other current and noncurrent liabilities	124.1	(69.9)	117.4
Net cash provided by (used in) continuing operating activities	1,956.3	1,474.5	1,561.6
Net cash provided by (used in) discontinued operating activities	(36.8)	(66.7)	(38.1)
Net cash provided by (used in) operating activities	1,919.5	1,407.8	1,523.5
Cash flows from investing activities:			
Capital expenditures	(254.1)	(365.6)	(221.3)
Acquisitions and equity method investments, net of cash acquired	(1,539.7)	(285.2)	(157.6)
Proceeds from sale of property, plant and equipment	3.8	22.1	1.5
Other investing activities, net	10.0	(0.7)	2.7
Net cash provided by (used in) investing activities	(1,780.0)	(629.4)	(374.7)
Cash flows from financing activities:			
Short-term borrowings (payments), net	—	(6.4)	(4.0)
Proceeds from long-term debt	1,497.9	1,147.0	—
Payments of long-term debt	(7.5)	(1,123.0)	(7.7)
Net proceeds from (payments of) debt	1,490.4	17.6	(11.7)
Debt issuance costs	(13.1)	(12.0)	(0.2)
Dividends paid to ordinary shareholders	(510.1)	(479.5)	(430.1)
Dividends paid to noncontrolling interests	(15.8)	(41.4)	(15.8)
Acquisition of noncontrolling interest	—	—	(6.8)
Proceeds from shares issued under incentive plans	116.8	68.9	76.7
Repurchase of ordinary shares	(750.1)	(900.2)	(1,016.9)
Other financing activities, net	(47.6)	(32.2)	(27.7)
Net cash provided by (used in) financing activities	270.5	(1,378.8)	(1,432.5)
Effect of exchange rate changes on cash and cash equivalents	(9.8)	(45.6)	118.4
Net increase (decrease) in cash and cash equivalents	400.2	(646.0)	(165.3)
Cash and cash equivalents – beginning of period	903.4	1,549.4	1,714.7
Cash and cash equivalents – end of period	$ 1,303.6	$ 903.4	$ 1,549.4
Cash paid during the year for:			
Interest	$ 220.9	$ 200.6	$ 210.0
Income taxes, net of refunds	$ 425.3	$ 375.4	$ 286.7

See accompanying notes to Consolidated Financial Statements.

Notes to Consolidated Financial Statements

NOTE 1. DESCRIPTION OF COMPANY

Ingersoll-Rand plc (Plc or Parent Company), a public limited company incorporated in Ireland in 2009, and its consolidated subsidiaries (collectively, we, our, the Company) is a diversified, global company that provides products, services and solutions to enhance the quality, energy efficiency and comfort of air in homes and buildings, transport and protect food and perishables and increase industrial productivity and efficiency. The Company's business segments consist of Climate and Industrial, both with strong brands and highly differentiated products within their respective markets. The Company generates revenue and cash primarily through the design, manufacture, sale and service of a diverse portfolio of industrial and commercial products that include well-recognized, premium brand names such as American Standard®, ARO®, Club Car®, Ingersoll-Rand®, Thermo King® and Trane®.

NOTE 2. PROPOSED REVERSE MORRIS TRUST TRANSACTION

In April 2019, the Company and Gardner Denver Holdings, Inc. (GDI) announced that they entered into definitive agreements pursuant to which the Company will separate its Industrial segment businesses (IR Industrial) by way of spin-off to the Company's shareholders and then combine with GDI to create a new company focused on flow creation and industrial technologies. This business is expected to be renamed Ingersoll-Rand Inc. The Company's remaining HVAC and transport refrigeration businesses, reported under the Climate segment, will focus on climate control solutions for buildings, homes and transportation. The Company will rename its remaining business Trane Technologies plc at the time the transaction closes. The transaction is expected to close by early 2020, subject to approval by GDI's shareholders, regulatory approvals and customary closing conditions.

The transaction will be effected through a Reverse Morris Trust transaction, pursuant to which IR Industrial is expected to be spun-off to the Company's shareholders and simultaneously merged with and surviving as a wholly-owned subsidiary of GDI. At the time of close, Trane Technologies plc will receive $1.9 billion in cash from IR Industrial, funded by newly-issued debt expected to be deemed issued under an existing credit agreement of GDI upon consummation of the merger. Upon close of the transaction, existing shareholders of the Company will receive 50.1% of the shares of Ingersoll-Rand Inc. on a fully diluted basis. Existing GDI shareholders will own 49.9% of the shares of Ingersoll-Rand Inc. on a fully diluted basis. The transaction is expected to be tax-free to the Company's respective shareholders for U.S. federal income tax purposes.

NOTE 3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

A summary of significant accounting policies used in the preparation of the accompanying Consolidated Financial Statements follows:

Basis of Presentation: The accompanying Consolidated Financial Statements reflect the consolidated operations of the Company and have been prepared in accordance with U.S. Generally Accepted Accounting Principles (GAAP) as defined by the Financial Accounting Standards Board (FASB) within the FASB Accounting Standards Codification (ASC). Intercompany accounts and transactions have been eliminated. The assets, liabilities, results of operations and cash flows of all discontinued operations have been separately reported as discontinued operations for all periods presented. Certain reclassifications of amounts reported in prior periods have been made to conform with the current period presentation.

The Consolidated Financial Statements include all majority-owned subsidiaries of the Company. A noncontrolling interest in a subsidiary is considered an ownership interest in a majority-owned subsidiary that is not attributable to the parent. The Company includes *Noncontrolling interest* as a component of *Total equity* in the Consolidated Balance Sheet and the *Net earnings attributable* to *noncontrolling interests* are presented as an adjustment from *Net earnings* used to arrive at *Net earnings attributable to Ingersoll-Rand plc* in the Consolidated Statement of Comprehensive Income. Partially-owned equity affiliates represent 20-50% ownership interests in investments where the Company demonstrates significant influence, but does not have a controlling financial interest. Partially-owned equity affiliates are accounted for under the equity method.

Use of Estimates: The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosures of contingent assets and liabilities at the date of the financial statements as well as the reported amounts of revenues and expenses during the reporting period. Estimates are based on several factors including the facts and circumstances available at the time the estimates are made, historical experience, risk of loss, general economic conditions and trends, and the assessment of the probable future outcome. Actual results could differ from those estimates. Estimates and assumptions are reviewed periodically, and the effects of changes, if any, are reflected in the statement of operations in the period that they are determined.

Currency Translation: Assets and liabilities of non-U.S. subsidiaries, where the functional currency is not the U.S. dollar, have been translated at year-end exchange rates, and income and expense accounts have been translated using average exchange rates throughout the year. Adjustments resulting from the process of translating an entity's financial statements into the U.S. dollar have been recorded in the equity section of the Consolidated Balance Sheet within *Accumulated other comprehensive income (loss)*. Transactions that are denominated in a currency other than an entity's functional currency are subject to changes in exchange rates with the resulting gains and losses recorded within *Net earnings*.

Cash and Cash Equivalents: Cash and cash equivalents include cash on hand, demand deposits and all highly liquid investments with original maturities at the time of purchase of three months or less. The Company maintains amounts on deposit at various financial institutions, which may at times exceed federally insured limits. However, management periodically evaluates the credit-worthiness of those institutions and has not experienced any losses on such deposits.

Allowance for Doubtful Accounts: The Company maintains an allowance for doubtful accounts receivable which represents the best estimate of probable loss inherent in the Company's accounts receivable portfolio. This estimate is based upon a two-step policy that results in the total recorded allowance for doubtful accounts. The first step is to record a portfolio reserve based on the aging of the outstanding accounts receivable portfolio and the Company's historical experience with the Company's end markets, customer base and products. The second step is to create a specific reserve for significant accounts as to which the customer's ability to satisfy their financial obligation to the Company is in doubt due to circumstances such as bankruptcy, deteriorating operating results or financial position. In these circumstances, management uses its judgment to record an allowance based on the best estimate of probable loss, factoring in such considerations as the market value of collateral, if applicable. Actual results could differ from those estimates. These estimates and assumptions are reviewed periodically, and the effects of changes, if any, are reflected in the Consolidated Statement of Comprehensive Income in the period that they are determined. The Company reserved $42.2 million and $32.7 million for doubtful accounts as of December 31, 2019 and 2018, respectively.

Inventories: Depending on the business, U.S. inventories are stated at the lower of cost or market using the last-in, first-out (LIFO) method or the lower of cost or market using the first-in, first-out (FIFO) method. Non-U.S. inventories are primarily stated at the lower of cost or market using the FIFO method. At December 31, 2019 and 2018, approximately 54% and 56%, respectively, of all inventory utilized the LIFO method.

Property, Plant and Equipment: Property, plant and equipment are stated at cost, less accumulated depreciation. Assets placed in service are recorded at cost and depreciated using the straight-line method over the estimated useful life of the asset except for leasehold improvements, which are depreciated over the shorter of their economic useful life or their lease term. The range of useful lives used to depreciate property, plant and equipment is as follows:

Buildings	10 to 50 years
Machinery and equipment	2 to 12 years
Software	2 to 7 years

Major expenditures for replacements and significant improvements that increase asset values and extend useful lives are also capitalized. Capitalized costs are amortized over their estimated useful lives using the straight-line method. Repairs and maintenance expenditures that do not extend the useful life of the asset are charged to expense as incurred. The carrying amounts of assets that are sold or retired and the related accumulated depreciation are removed from the accounts in the year of disposal, and any resulting gain or loss is reflected within current earnings.

Per ASC 360, "Property, Plant, and Equipment" (ASC 360), the Company assesses the recoverability of the carrying value of its property, plant and equipment whenever events or changes in circumstances indicate that the carrying amount of the asset group may not be recoverable. Recoverability is measured by a comparison of the carrying amount of an asset group to the future net undiscounted cash flows expected to be generated by the asset group. If the undiscounted cash flows are less than the carrying amount of the asset group, an impairment loss is recognized for the amount by which the carrying value of the asset group exceeds the fair value of the asset group.

Goodwill and Intangible Assets: The Company records as goodwill the excess of the purchase price over the fair value of the net assets acquired in a business combination. In accordance with ASC 350, "Intangibles-Goodwill and Other" (ASC 350), goodwill and other indefinite-lived intangible assets are tested and reviewed annually for impairment during the fourth quarter or whenever there is a significant change in events or circumstances that indicate that the fair value of the asset is more likely than not less than the carrying amount of the asset.

Impairment of goodwill is assessed at the reporting unit level and begins with an optional qualitative assessment to determine if it is more likely than not that the fair value of each reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the goodwill impairment test under ASC 350. For those reporting units that bypass or fail the qualitative assessment, the test compares the carrying amount of the reporting unit to its estimated fair value. If the estimated fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired. To the extent that the carrying value of the reporting unit exceeds its estimated fair value, an impairment loss will be recognized for the amount by which the reporting unit's carrying amount exceeds its fair value, not to exceed the carrying amount of goodwill in that reporting unit.

Intangible assets such as patents, customer-related intangible assets and other intangible assets with finite useful lives are amortized on a straight-line basis over their estimated economic lives. The weighted-average useful lives approximate the following:

Customer relationships	17 years
Patents	10 years
Other	10 years

The Company assesses the recoverability of the carrying value of its intangible assets with finite useful lives whenever events or changes in circumstances indicate that the carrying amount of the asset group may not be recoverable. Recoverability is measured by a comparison of the carrying amount of an asset group to the future net undiscounted cash flows expected to be generated by the asset group. If the undiscounted cash flows are less than the carrying amount of the asset group, an impairment loss is recognized for the amount by which the carrying value of the asset group exceeds the fair value of the asset group.

Business Combinations: In accordance with ASC 805, "Business Combinations" (ASC 805), acquisitions are recorded using the acquisition method of accounting. The Company includes the operating results of acquired entities from their respective dates of acquisition. The Company recognizes and measures the identifiable assets acquired, liabilities assumed, and any non-controlling interest as of the acquisition date fair value. The excess, if any, of total consideration transferred in a business combination over the fair value of identifiable assets acquired, liabilities assumed , and any non-controlling interest is recognized as goodwill. Costs incurred as a result of a business combination other than costs related to the issuance of debt or equity securities are recorded in the period the costs are incurred.

Employee Benefit Plans: The Company provides a range of benefits, including pensions, postretirement and postemployment benefits to eligible current and former employees. Determining the cost associated with such benefits is dependent on various actuarial assumptions, including discount rates, expected return on plan assets, compensation increases, mortality, turnover rates, and healthcare cost trend rates. Actuaries perform the required calculations to determine expense in accordance with GAAP. Actual results may differ from the actuarial assumptions and are generally accumulated into *Accumulated other comprehensive income (loss)* and amortized into *Net earnings* over future periods. The Company reviews its actuarial assumptions at each measurement date and makes modifications to the assumptions based on current rates and trends, if appropriate.

Loss Contingencies: Liabilities are recorded for various contingencies arising in the normal course of business. The Company has recorded reserves in the financial statements related to these matters, which are developed using input derived from actuarial estimates and historical and anticipated experience data depending on the nature of the reserve, and in certain instances with consultation of legal counsel, internal and external consultants and engineers. Subject to the uncertainties inherent in estimating future costs for these types of liabilities, the Company believes its estimated reserves are reasonable and does not believe the final determination of the liabilities with respect to these matters would have a material effect on the financial condition, results of operations, liquidity or cash flows of the Company for any year.

Environmental Costs: The Company is subject to laws and regulations relating to protecting the environment. Environmental expenditures relating to current operations are expensed or capitalized as appropriate. Expenditures relating to existing conditions caused by past operations, which do not contribute to current or future revenues, are expensed. Liabilities for remediation costs are recorded when they are probable and can be reasonably estimated, generally no later than the completion of feasibility studies or the Company's commitment to a plan of action. The assessment of this liability, which is calculated based on existing remediation technology, does not reflect any offset for possible recoveries from insurance companies, and is not discounted.

Asbestos Matters: Certain of the Company's wholly-owned subsidiaries and former companies are named as defendants in asbestos-related lawsuits in state and federal courts. The Company records a liability for actual and anticipated future claims as well as an asset for anticipated insurance settlements. Asbestos-related defense costs are excluded from the asbestos claims liability and are recorded separately as services are incurred. None of the Company's existing or previously-owned businesses were a producer or manufacturer of asbestos. The Company records certain income and expenses associated with asbestos liabilities and corresponding insurance recoveries within discontinued operations, net of tax, as they relate to previously divested businesses, except for amounts associated with Trane U.S. Inc.'s asbestos liabilities and corresponding insurance recoveries which are recorded within continuing operations.

Product Warranties: Standard product warranty accruals are recorded at the time of sale and are estimated based upon product warranty terms and historical experience. The Company assesses the adequacy of its liabilities and will make adjustments as necessary based on known or anticipated warranty claims, or as new information becomes available. The Company's extended warranty liability represents the deferred revenue associated with its extended warranty contracts and is amortized into Revenue on a straight-line basis over the life of the contract, unless another method is more representative of the costs incurred. The Company assesses the adequacy of its liability by evaluating the expected costs under its existing contracts to ensure these expected costs do not exceed the extended warranty liability.

Income Taxes: Deferred tax assets and liabilities are determined based on temporary differences between financial reporting and tax bases of assets and liabilities, applying enacted tax rates expected to be in effect for the year in which the differences are expected to reverse. The Company recognizes future tax benefits, such as net operating losses and tax credits, to the extent that realizing these benefits is considered in its judgment to be more likely than not. The Company regularly reviews the recoverability of its deferred tax assets considering its historic profitability, projected future taxable income, timing of the reversals of existing temporary differences and the feasibility of its tax planning strategies. Where appropriate, the Company records a valuation allowance with respect to a future tax benefit.

Revenue Recognition: Revenue is recognized when control of a good or service promised in a contract (i.e., performance obligation) is transferred to a customer. Control is obtained when a customer has the ability to direct the use of and obtain substantially all of the remaining benefits from that good or service. A majority of the Company's revenues are recognized at a point-in-time as control is transferred at a distinct point in time per the terms of a contract. However, a portion of the Company's revenues are recognized over time as the customer simultaneously receives control as the Company performs work under a contract. For these arrangements, the cost-to-cost input method is used as it best depicts the transfer of control to the customer that occurs as the Company incurs costs. See Note 13 to the Consolidated Financial Statements for additional information regarding revenue recognition.

Research and Development Costs: The Company conducts research and development activities for the purpose of developing and improving new products and services. These expenditures are expensed when incurred. For the years ended December 31, 2019, 2018 and 2017, these expenditures amounted to $237.0 million, $228.7 million and $210.8 million, respectively.

RECENT ACCOUNTING PRONOUNCEMENTS

The FASB ASC is the sole source of authoritative GAAP other than the Securities and Exchange Commission (SEC) issued rules and regulations that apply only to SEC registrants. The FASB issues an Accounting Standards Update (ASU) to communicate changes to the codification. The Company considers the applicability and impact of all ASU's. ASU's not listed below were assessed and determined to be either not applicable or are not expected to have a material impact on the consolidated financial statements.

RECENTLY ADOPTED ACCOUNTING PRONOUNCEMENTS

In February 2016, the FASB issued ASU 2016-02, "Leases" (ASC 842), which requires the lease rights and obligations arising from lease contracts, including existing and new arrangements, to be recognized as assets and liabilities on the balance sheet. The Company adopted this standard using a modified-retrospective approach as of January 1, 2019. Under this approach, the Company recognized and recorded a right-of-use (ROU) asset and related lease liability on the Consolidated Balance Sheet of $521 million with no impact to *Retained earnings*. Reporting periods prior to January 1, 2019 continue to be presented in accordance with previous lease accounting guidance under GAAP. As part of the adoption, the Company elected the package of practical expedients permitted under the transition guidance which includes the ability to carry forward historical lease classification. Refer to Note 11, "Leases," for a further discussion on the adoption of ASC 842.

In August 2017, the FASB issued ASU 2017-12, "Derivatives and hedging (Topic 815): Targeted improvements to accounting for hedging activities" (ASU 2017-12). This standard more closely aligns the results of cash flow and fair value hedge accounting with risk management activities through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results in the financial statements. This standard also addresses specific limitations in current GAAP by expanding hedge accounting for both nonfinancial and financial risk components and by refining the measurement of hedge results to better reflect an entity's hedging strategies. Additionally, by aligning the timing of recognition of hedge results with the earnings effect of the hedged item for cash flow and net investment hedges, and by including the earnings effect of the hedging instrument in the same income statement line item in which the earnings effect of the hedged item is presented, the results of an entity's hedging program and the cost of executing that program will be more visible to users of financial statements. ASU 2017-12 is effective for annual reporting periods beginning after December 15, 2018 with early adoption permitted. The Company adopted this standard on October 1, 2018 with no material impact to the financial statements.

In October 2016, the FASB issued ASU 2016-16, "Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory" (ASU 2016-16) which removed the prohibition in Topic 740 against the immediate recognition of the current and deferred income tax effects of intra-entity transfers of assets other than inventory. As a result, the income tax consequences of an intra-entity transfer of assets other than inventory will be recognized in the current period income statement rather than being deferred until the assets leave the consolidated group. The Company applied ASU 2016-16 on a modified retrospective basis through a cumulative-effect adjustment which reduced *Retained earnings* by $9.1 million as of January 1, 2018.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers" (ASC 606), which created a comprehensive, five-step model for revenue recognition that requires a company to recognize revenue to depict the transfer of promised goods or services to a customer at an amount that reflects the consideration it expects to receive in exchange for those goods or services. Under ASC 606, a company will be required to use more judgment and make more estimates when considering contract terms as well as relevant facts and circumstances when identifying performance obligations, estimating the amount of variable consideration in the transaction price and allocating the transaction price to each separate performance obligation. The Company adopted this standard on January 1, 2018 using the modified retrospective approach and recorded a cumulative effect adjustment to increase *Retained earnings* by $2.4 million with related amounts not materially impacting the Balance Sheet. Refer to Note 13, "Revenue," for a further discussion on the adoption of ASC 606.

In March 2016, the FASB issued ASU No. 2016-09, "Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting" (ASU 2016-09), which simplifies several aspects of the accounting for employee share-based payment transactions. The standard makes several modifications to the accounting for forfeitures, employer tax withholding on share-based compensation and the financial statement presentation of excess tax benefits or deficiencies. In addition, ASU 2016-09 clarifies the statement of cash flows presentation for certain components of share-based awards. The Company adopted this standard on January 1, 2017 and prospectively presented any excess tax benefits or deficiencies in the income statement as a component of *Provision for income taxes* rather than in the Equity section of the Balance Sheet. As part of the adoption, the Company reclassified $15.1 million of excess tax benefits previously unrecognized on a modified retrospective basis through a cumulative-effect adjustment to increase *Retained earnings* as of January 1, 2017.

RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS

In December 2019, the FASB issued ASU 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes" (ASU 2019-12), which simplifies certain aspects of income tax accounting guidance in ASC 740, reducing the complexity of its application. Certain exceptions to ASC 740 presented within the ASU include: intraperiod tax allocation, deferred tax liabilities related to outside basis differences, year-to-date loss in interim periods, among others. ASU 2019-12 is effective for annual reporting periods beginning after December 15, 2020 including interim periods therein with early adoption permitted. The Company is currently assessing the impact of the ASU on its financial statements.

In August 2018, the FASB issued ASU 2018-15, "Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that is a Service Contract" (ASU 2018-15), which aligns the requirements for capitalizing implementation costs in a cloud-computing arrangement service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. In addition, the guidance also clarifies the presentation requirements for reporting such costs in the financial statements. ASU 2018-15 is effective for annual reporting periods beginning after December 15, 2019 with early adoption permitted. Upon adoption, this ASU will be applied on a prospective basis and is not expected to have a material impact on the financial statements.

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments - Credit Losses" (ASU 2016-13), which changes the impairment model for most financial assets and certain other instruments from an incurred loss model to an expected loss model. In addition, the guidance also requires incremental disclosures regarding allowances and credit quality indicators. ASU 2016-13 is required to be adopted using the modified-retrospective approach and will be effective in fiscal years beginning after December 15, 2019, including interim periods within those fiscal years, with early adoption permitted. Upon adoption, this ASU is not expected to have a material impact on the financial statements.

NOTE 4. INVENTORIES

Depending on the business, U.S. inventories are stated at the lower of cost or market using the LIFO method or the lower of cost or market using the FIFO method. Non-U.S. inventories are primarily stated at the lower of cost or market using the FIFO method.

At December 31, the major classes of inventory were as follows:

IN MILLIONS	2019	2018
Raw materials	$ 613.1	$ 550.5
Work-in-process	209.2	182.0
Finished goods	975.5	1,028.8
	1,797.8	1,761.3
LIFO reserve	(85.6)	(83.5)
Total	$ 1,712.2	$ 1,677.8

The Company performs periodic assessments to determine the existence of obsolete, slow-moving and non-saleable inventories and records necessary provisions to reduce such inventories to net realizable value. Reserve balances, primarily related to obsolete and slow-moving inventories, were $126.4 million and $119.9 million at December 31, 2019 and December 31, 2018, respectively.

NOTE 5. PROPERTY, PLANT AND EQUIPMENT

At December 31, the major classes of property, plant and equipment were as follows:

IN MILLIONS	2019	2018
Land	$ 60.6	$ 53.2
Buildings	921.2	870.7
Machinery and equipment	2,210.0	2,079.9
Software	847.9	831.4
	4,039.7	3,835.2
Accumulated depreciation	(2,233.5)	(2,104.4)
Total	$ 1,806.2	$ 1,730.8

Depreciation expense for the years ended December 31, 2019, 2018 and 2017 was $221.2 million, $217.4 million and $217.3 million, which include amounts for software amortization of $25.3 million, $25.7 million and $28.6 million, respectively.

NOTE 6. GOODWILL

The Company records as goodwill the excess of the purchase price over the fair value of the net assets acquired in a business combination. Measurement period adjustments may be recorded once a final valuation has been performed. Goodwill is tested and reviewed annually for impairment during the fourth quarter or whenever there is a significant change in events or circumstances that indicate that the fair value of the reporting unit may be less than its carrying value.

The changes in the carrying amount of Goodwill are as follows:

IN MILLIONS	CLIMATE	INDUSTRIAL	TOTAL
Net balance as of December 31, 2017	$ 5,065.1	$ 870.6	$ 5,935.7
Acquisitions[(1)]	118.1	1.8	119.9
Currency translation	(84.0)	(12.1)	(96.1)
Net balance as of December 31, 2018	5,099.2	860.3	5,959.5
Acquisitions[(1)]	45.3	801.3	846.6
Currency translation	(18.8)	(4.2)	(23.0)
Net balance as of December 31, 2019	$ 5,125.7	$ 1,657.4	$ 6,783.1

(1) Refer to Note 19, "Acquisitions and Divestitures" for more information regarding acquisitions.

The net goodwill balances at December 31, 2019, 2018 and 2017 include $2,496.0 million of accumulated impairment. The accumulated impairment relates entirely to a charge in 2008 associated with the Climate segment.

NOTE 7. INTANGIBLE ASSETS

Indefinite-lived intangible assets are tested and reviewed annually for impairment during the fourth quarter or whenever there is a significant change in events or circumstances that indicate that the fair value of the asset may be less than the carrying amount of the asset. All other intangible assets with finite useful lives are being amortized on a straight-line basis over their estimated useful lives.

The following table sets forth the gross amount and related accumulated amortization of the Company's intangible assets at December 31:

	2019			2018		
IN MILLIONS	GROSS CARRYING AMOUNT	ACCUMULATED AMORTIZATION	NET CARRYING AMOUNT	GROSS CARRYING AMOUNT	ACCUMULATED AMORTIZATION	NET CARRYING AMOUNT
Customer relationships	$ 2,562.1	$ (1,321.8)	$ 1,240.3	$ 2,086.8	$ (1,176.3)	$ 910.5
Patents	207.6	(187.6)	20.0	206.6	(182.0)	24.6
Other	124.5	(73.1)	51.4	84.5	(54.4)	30.1
Total finite-lived intangible assets	$ 2,894.2	$ (1,582.5)	$ 1,311.7	$ 2,377.9	$ (1,412.7)	$ 965.2
Trademarks (indefinite-lived)	2,837.1	—	2,837.1	2,669.5	—	2,669.5
Total	$ 5,731.3	$ (1,582.5)	$ 4,148.8	$ 5,047.4	$ (1,412.7)	$ 3,634.7

Intangible asset amortization expense for 2019, 2018 and 2017 was $171.3 million, $139.3 million and $132.0 million, respectively. Future estimated amortization expense on existing intangible assets in each of the next five years amounts to approximately $177 million for 2020, $174 million for 2021, $174 million for 2022, $173 million for 2023, and $169 million for 2024. As a result of acquisitions that occurred throughout 2019, the Company recorded $687.7 million of intangible assets based on their estimated fair value. Refer to Note 19, "Acquisitions and Divestitures" for more information regarding acquisitions.

NOTE 8. DEBT AND CREDIT FACILITIES

At December 31, *Short-term borrowings and current maturities of long-term debt* consisted of the following:

IN MILLIONS	2019	2018
Debentures with put feature	$ 343.0	$ 343.0
2.625% Senior notes due 2020[(1)]	299.8	—
Other current maturities of long-term debt	7.7	7.6
Total	$ 650.5	$ 350.6

(1) The 2.625% Senior notes are due in May 2020.

The Company's short-term obligations primarily consist of current maturities of long-term debt. The weighted-average interest rate for *Short-term borrowings and current maturities of long-term debt* at December 31, 2019 and 2018 was 4.6% and 6.3%, respectively.

COMMERCIAL PAPER PROGRAM

The Company uses borrowings under its commercial paper program for general corporate purposes. The maximum aggregate amount of unsecured commercial paper notes available to be issued, on a private placement basis, under the commercial paper program is $2.0 billion as of December 31, 2019. Under the commercial paper program, the Company may issue notes from time to time through Ingersoll-Rand Global Holding Company Limited or Ingersoll-Rand Luxembourg Finance S.A. Each of Ingersoll-Rand plc, Ingersoll-Rand Irish Holdings Unlimited Company, Ingersoll-Rand Lux International Holding Company S.à.r.l., Ingersoll-Rand Global Holding Company Limited and Ingersoll-Rand Company provided irrevocable and unconditional guarantees for any notes issued under the commercial paper program. The Company had no outstanding balance under its commercial paper program as of December 31, 2019 and December 31, 2018.

DEBENTURES WITH PUT FEATURE

At December 31, 2019 and December 31, 2018, the Company had $343.0 million of fixed rate debentures outstanding which contain a put feature that the holders may exercise on each anniversary of the issuance date. If exercised, the Company is obligated to repay in whole or in part, at the holder's option, the outstanding principal amount of the debentures plus accrued interest. If these options are not exercised, the final contractual maturity dates would range between 2027 and 2028. Holders of these debentures had the option to exercise the put feature on each of the outstanding debentures in 2019, subject to the notice requirement. No material exercises were made in 2019 or 2018.

At December 31, long-term debt excluding current maturities consisted of:

IN MILLIONS	2019	2018
2.625% Senior notes due 2020[1]	$ —	$ 299.4
2.900% Senior notes due 2021	299.1	298.3
9.000% Debentures due 2021	124.9	124.9
4.250% Senior notes due 2023	697.8	697.1
7.200% Debentures due 2020-2025	37.3	44.8
3.550% Senior notes due 2024	496.6	495.9
6.480% Debentures due 2025	149.7	149.7
3.500% Senior notes due 2026	396.8	—
3.750% Senior notes due 2028	545.1	544.5
3.800% Senior notes due 2029	743.6	—
5.750% Senior notes due 2043	494.5	494.3
4.650% Senior notes due 2044	295.9	295.8
4.300% Senior notes due 2048	296.0	295.9
4.500% Senior notes due 2049	345.5	—
Other loans and notes	0.1	0.1
Total	$ 4,922.9	$ 3,740.7

(1) The 2.625% Senior notes are due in May 2020.

Scheduled maturities of long-term debt, including current maturities, as of December 31, 2019 are as follows:

IN MILLIONS	
2020	$ 650.5
2021	431.6
2022	7.5
2023	705.3
2024	504.1
Thereafter	3,274.4
Total	$ 5,573.4

ISSUANCE OF SENIOR NOTES

In March 2019, the Company issued $1.5 billion principal amount of senior notes in three tranches through Ingersoll-Rand Luxembourg Finance S.A., an indirect, wholly-owned subsidiary. The tranches consist of $400 million aggregate principal amount of 3.500% senior notes due 2026, $750 million aggregate principal amount of 3.800% senior notes due 2029 and $350 million aggregate principal amount of 4.500% senior notes due 2049. The notes are fully and unconditionally guaranteed by each of Ingersoll Rand plc, Ingersoll-Rand Global Holding Company Limited, Ingersoll-Rand Lux International Holding Company S.à.r.l, Ingersoll-Rand Irish Holdings Unlimited Company, and Ingersoll-Rand Company. The Company has the option to redeem the notes in whole or in part at any time, prior to their stated maturity date at redemption prices set forth in the indenture agreement. The notes are subject to certain customary covenants, however, none of these covenants are considered restrictive to the Company's operations. During the three months ended March 31, 2019, the Company capitalized $13.1 million of debt issuance costs which will be amortized over the remaining life of the debt. The Company used the net proceeds to finance the acquisition of Precision Flow Systems (PFS) and for general corporate purposes.

In February 2018, the Company issued $1.15 billion principal amount of senior notes in three tranches through an indirect, wholly-owned subsidiary. The tranches consist of $300 million aggregate principal amount of 2.900% senior notes due 2021, $550 million aggregate principal amount of 3.750% senior notes due 2028 and $300 million aggregate principal amount of 4.300% senior notes due 2048. The notes are fully and unconditionally guaranteed by each of Ingersoll Rand plc, Ingersoll-Rand Irish Holdings Unlimited Company, Ingersoll-Rand Lux International Holding Company S.à.r.l, Ingersoll-Rand Company and Ingersoll-Rand Luxembourg Finance S.A. The Company has the option to redeem the notes in whole or in part at any time, prior to their stated maturity date at redemption prices set forth in the indenture agreement. The notes are subject to certain customary covenants, however, none of these covenants are considered restrictive to the Company's operations. In March 2018, the Company used the proceeds to fund the redemption of $750 million aggregate principal amount of 6.875% senior notes due 2018 and $350 million aggregate principal amount of 2.875% senior notes due 2019, with the remainder used for general corporate purposes. As a result of the early redemption, the Company recognized $15.4 million of premium expense and $1.2 million of unamortized costs in *Interest expense* in 2018.

OTHER CREDIT FACILITIES

The Company maintains two 5-year, $1.0 billion revolving credit facilities (the Facilities) through its wholly-owned subsidiaries, Ingersoll-Rand Global Holding Company Limited and Ingersoll-Rand Luxembourg Finance S.A. (collectively, the Borrowers). Each senior unsecured credit facility, one of which matures in March 2021 and the other in April 2023, provides support for the Company's commercial paper program and can be used for working capital and other general corporate purposes. Ingersoll-Rand plc, Ingersoll-Rand Irish Holdings Unlimited Company, Ingersoll-Rand Lux International Holding Company S.à.r.l. and Ingersoll-Rand Company each provide irrevocable and unconditional guarantees for these Facilities. In addition, each Borrower will guarantee the obligations under the Facilities of the other Borrower. Total commitments of $2.0 billion were unused at December 31, 2019 and December 31, 2018.

FAIR VALUE OF DEBT

The carrying value of the Company's short-term borrowings is a reasonable estimate of fair value due to the short-term nature of the instruments. The fair value of the Company's debt instruments at December 31, 2019 and December 31, 2018 was $6.2 billion and $4.2 billion, respectively. The Company measures the fair value of its long-term debt instruments for disclosure purposes based upon observable market prices quoted on public exchanges for similar assets. These fair value inputs are considered Level 2 within the fair value hierarchy. The methodologies used by the Company to determine the fair value of its long-term debt instruments at December 31, 2019 are the same as those used at December 31, 2018.

GUARANTEES

Along with Ingersoll-Rand plc, certain of the Company's 100% directly or indirectly owned subsidiaries have fully and unconditionally guaranteed, on a joint and several basis, public debt issued by other 100% directly or indirectly owned subsidiaries. Refer to Note 23 for the Company's current guarantor structure.

NOTE 9. FINANCIAL INSTRUMENTS

In the normal course of business, the Company is exposed to certain risks arising from business operations and economic factors. These fluctuations can increase the cost of financing, investing and operating the business. The Company may use various financial instruments, including derivative instruments, to manage the risks associated with interest rate, commodity price and foreign currency exposures. These financial instruments are not used for trading or speculative purposes. The Company recognizes all derivatives on the Consolidated Balance Sheet at their fair value as either assets or liabilities.

On the date a derivative contract is entered into, the Company designates the derivative instrument as a cash flow hedge of a forecasted transaction or as an undesignated derivative. The Company formally documents its hedge relationships, including identification of the derivative instruments and the hedged items, as well as its risk management objectives and strategies for undertaking the hedge transaction. This process includes linking derivative instruments that are designated as hedges to specific assets, liabilities or forecasted transactions.

The Company assesses at inception and at least quarterly thereafter, whether the derivatives used in cash flow hedging transactions are highly effective in offsetting the changes in the cash flows of the hedged item. To the extent the derivative is deemed to be a highly effective hedge, the fair market value changes of the instrument are recorded to *Accumulated other comprehensive income* (AOCI). If the hedging relationship ceases to be highly effective, or it becomes probable that a forecasted transaction is no longer expected to occur, the hedging relationship will be undesignated and any future gains and losses on the derivative instrument will be recorded in *Net earnings*.

The fair values of derivative instruments included within the Consolidated Balance Sheet as of December 31 were as follows:

	DERIVATIVE ASSETS		DERIVATIVE LIABILITIES	
IN MILLIONS	2019	2018	2019	2018
Derivatives designated as hedges:				
Currency derivatives	$ 0.1	$ 1.3	$ 3.9	$ 0.7
Derivatives not designated as hedges:				
Currency derivatives	1.2	0.9	3.3	0.6
Total derivatives	$ 1.3	$ 2.2	$ 7.2	$ 1.3

Asset and liability derivatives included in the table above are recorded within *Other current assets* and *Accrued expenses and other current liabilities*, respectively.

CURRENCY HEDGING INSTRUMENTS

The notional amount of the Company's currency derivatives was $0.5 billion and $0.6 billion at December 31, 2019 and 2018, respectively. At December 31, 2019 and 2018, a net loss of $2.9 million and a net gain of $0.5 million, net of tax, respectively, was included in AOCI related to the fair value of the Company's currency derivatives designated as accounting hedges. The amount expected to be reclassified into *Net earnings* over the next twelve months is a loss of $1.6 million. The actual amounts that will be reclassified to *Net earnings* may vary from this amount as a result of changes in market conditions. Gains and losses associated with the Company's currency derivatives not designated as hedges are recorded in *Net earnings* as changes in fair value occur. At December 31, 2019, the maximum term of the Company's currency derivatives was approximately 12 months, except for currency derivatives in place related to a certain long-term contract.

OTHER DERIVATIVE INSTRUMENTS

Prior to 2015, the Company utilized forward-starting interest rate swaps and interest rate locks to manage interest rate exposure in periods prior to the anticipated issuance of certain fixed-rate debt. These instruments were designated as cash flow hedges and had a notional amount of $1.3 billion. Consequently, when the contracts were settled upon the issuance of the underlying debt, any realized gains or losses in the fair values of the instruments were deferred into AOCI. These deferred gains or losses are subsequently recognized in *Interest expense* over the term of the related notes. The net unrecognized gain in AOCI was $6.0 million and $6.7 million at December 31, 2019 and at December 31, 2018. The deferred gain at December 31, 2019 will continue to be amortized over the term of notes with maturities ranging from 2023 to 2044. The amount expected to be amortized over the next twelve months is a net gain of $0.7 million. The Company has no forward-starting interest rate swaps or interest rate lock contracts outstanding at December 31, 2019 or 2018.

The following table represents the amounts associated with derivatives designated as hedges affecting *Net earnings* and AOCI for the years ended December 31:

	AMOUNT OF GAIN (LOSS) RECOGNIZED IN AOCI			LOCATION OF GAIN (LOSS) RECLASSIFIED FROM AOCI AND RECOGNIZED INTO NET EARNINGS	AMOUNT OF GAIN (LOSS) RECLASSIFIED FROM AOCI AND RECOGNIZED INTO NET EARNINGS		
IN MILLIONS	2019	2018	2017		2019	2018	2017
Currency derivatives designated as hedges	$ (2.7)	$ 1.2	$ (1.8)	Cost of goods sold	$ (1.4)	$ (0.8)	$ (3.1)
Interest rate swaps & locks	—	—	—	Interest expense	0.7	(0.1)	(0.5)
Total	$ (2.7)	$ 1.2	$ (1.8)		$ (0.7)	$ (0.9)	$ (3.6)

The following table represents the amounts associated with derivatives not designated as hedges affecting *Other income(expense), net* for the years ended December 31:

	AMOUNT OF GAIN (LOSS) RECOGNIZED IN NET EARNINGS		
IN MILLIONS	2019	2018	2017
Currency derivatives not designated as hedges	$ (6.4)	$ (29.6)	$ 58.0
Total	$ (6.4)	$ (29.6)	$ 58.0

The gains and losses associated with the Company's undesignated currency derivatives are materially offset in *Other income/(expense), net* by changes in the fair value of the underlying transactions.

The following table presents the effects of the Company's designated financial instruments on the associated financial statement line item within the Consolidated Statement of Comprehensive Income where the financial instrument are recorded for the years ended December 31:

	CLASSIFICATION AND AMOUNT OF GAIN (LOSS) RECOGNIZED IN INCOME ON CASH FLOW HEDGING RELATIONSHIPS			
	2019		2018	
IN MILLIONS	COST OF GOODS SOLD	INTEREST EXPENSE	COST OF GOODS SOLD	INTEREST EXPENSE
Total amounts presented in the Consolidated Statements of Comprehensive Income	$ (11,451.5)	$ (243.0)	$ (10,847.6)	$ (220.7)
Gain (loss) on cash flow hedging relationships				
Currency derivatives:				
Amount of gain (loss) reclassified from AOCI and recognized into Net earnings	$ (1.4)	$ —	$ (0.8)	$ —
Amount excluded from effectiveness testing recognized in net earnings based on changes in fair value and amortization	$ (3.0)	$ —	$ (0.1)	$ —
Interest rate swaps & locks:				
Amount of gain (loss) reclassified from AOCI and recognized into Net earnings	$ —	$ 0.7	$ —	$ (0.1)

CONCENTRATION OF CREDIT RISK

The counterparties to the Company's forward contracts consist of a number of investment grade major international financial institutions. The Company could be exposed to losses in the event of nonperformance by the counterparties. However, the credit ratings and the concentration of risk in these financial institutions are monitored on a continuous basis and present no significant credit risk to the Company.

NOTE 10. FAIR VALUE MEASUREMENTS

ASC 820, "Fair Value Measurement," (ASC 820) defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. ASC 820 also establishes a three-level fair value hierarchy that prioritizes information used in developing assumptions when pricing an asset or liability as follows:

- *Level 1:* Observable inputs such as quoted prices in active markets;
- *Level 2:* Inputs, other than quoted prices in active markets, that are observable either directly or indirectly; and
- *Level 3:* Unobservable inputs where there is little or no market data, which requires the reporting entity to develop its own assumptions.

ASC 820 requires the use of observable market data, when available, in making fair value measurements. When inputs used to measure fair value fall within different levels of the hierarchy, the level within which the fair value measurement is categorized is based on the lowest level input that is significant to the fair value measurement.

The following table presents the Company's fair value hierarchy for those assets and liabilities measured at fair value on a recurring basis as of December 31, 2019:

		FAIR VALUE MEASUREMENTS		
IN MILLIONS	FAIR VALUE	LEVEL 1	LEVEL 2	LEVEL 3
Assets:				
Derivative instruments	$ 1.3	$ —	$ 1.3	$ —
Liabilities:				
Derivative instruments	$ 7.2	$ —	$ 7.2	$ —

The following table presents the Company's fair value hierarchy for those assets and liabilities measured at fair value on a recurring basis as of December 31, 2018:

		FAIR VALUE MEASUREMENTS		
IN MILLIONS	FAIR VALUE	LEVEL 1	LEVEL 2	LEVEL 3
Assets:				
Derivative instruments	$ 2.2	$ —	$ 2.2	$ —
Liabilities:				
Derivative instruments	$ 1.3	$ —	$ 1.3	$ —

Derivative instruments include forward foreign currency contracts and instruments related to non-functional currency balance sheet exposures. The fair value of the derivative instruments are determined based on a pricing model that uses spot rates and forward prices from actively quoted currency markets that are readily accessible and observable.

The carrying values of cash and cash equivalents, accounts receivable and accounts payable are a reasonable estimate of their fair value due to the short-term nature of these instruments. These methodologies used by the Company to determine the fair value of its financial assets and liabilities at December 31, 2019 are the same as those used at December 31, 2018. There have been no transfers between levels of the fair value hierarchy.

NOTE 11. LEASES

The Company's lease portfolio includes various contracts for real estate, vehicles, information technology and other equipment. At contract inception, the Company determines a lease exists if the contract conveys the right to control an identified asset for a period of time in exchange for consideration. Control is considered to exist when the lessee has the right to obtain substantially all of the economic benefits from the use of an identified asset as well as the right to direct the use of that asset. If a contract is considered to be a lease, the Company recognizes a lease liability based on the present value of the future lease payments, with an offsetting entry to recognize a right-of-use asset. Options to extend or terminate a lease are included when it is reasonably certain an option will be exercised. As a majority of the Company's leases do not provide an implicit rate within the lease, an incremental borrowing rate is used which is based on information available at the commencement date.

The following table includes a summary of the Company's lease portfolio and Balance Sheet classification:

IN MILLIONS	CLASSIFICATION	DECEMBER 31, 2019	JANUARY 1, 2019
Assets			
Operating lease right-of-use assets [(1)]	Other noncurrent assets	$ 560.0	$ 517.1
Liabilities			
Operating lease current	Other current liabilities	172.0	160.3
Operating lease noncurrent	Other noncurrent liabilities	394.4	360.5

(1) Per ASC 842, prepaid lease payments and lease incentives are recorded as part of the right-of-use asset. The net impact was $6.4 million and $3.7 million at December 31, 2019 and January 1, 2019, respectively.

The Company elected the practical expedient as an accounting policy election by class of underlying asset to account for each separate lease component of a contract and its associated non-lease component as a single lease component. This practical expedient was applied to all underlying asset classes. In addition, the Company elected the practical expedient to utilize a portfolio approach for the vehicle, information technology and equipment asset classes as the application of the lease model to the portfolio would not differ materially from the application of the lease model to the individual leases within the portfolio.

The following table includes lease costs and related cash flow information for the year ended December 31:

IN MILLIONS	2019
Operating lease expense	$ 206.1
Variable lease expense	29.9
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	204.2
Right-of-use assets obtained in exchange for new operating lease liabilities	201.9

Operating lease expense is recognized on a straight-line basis over the lease term. In addition, the Company has certain leases that contain variable lease payments which are based on an index, a rate referenced in the lease or on the actual usage of the leased asset. These payments are not included in the right-to-use asset or lease liability and are expensed as incurred as variable lease expense. The Company elected the practical expedient as an accounting policy election by class of underlying asset to not apply the balance sheet recognition criteria required in ASC 842 to leases with an initial lease term of twelve months or less. Payments for these leases are recognized on a straight-line basis over the lease term.

Maturities of lease obligations were as follows:

IN MILLIONS	DECEMBER 31, 2018
Operating leases:	
2020	$ 192.3
2021	151.6
2022	106.8
2023	75.3
2024	40.0
After 2024	68.1
Total lease payments	$ 634.1
Less: Interest	(67.7)
Present value of lease liabilities	$ 566.4

At December 31, 2019, the weighted average remaining lease term was 4.7 years with a weighted average discount rate of 3.9%.

PRIOR PERIOD DISCLOSURES

As a result of adopting ASC 842 on January 1, 2019, the Company is required to present future minimum lease commitments for operating leases having initial or noncancellable lease terms in excess of one year that were previously disclosed in our 2018 Annual Report on Form 10-K and accounted for under previous lease guidance. Commitments as of December 31, 2018 were as follows:

IN MILLIONS	DECEMBER 31, 2018
Operating leases	
2019	$ 197.1
2020	152.0
2021	107.4
2022	68.4
2023	42.2
After 2023	42.7
Total	$ 609.8

NOTE 12. PENSIONS AND POSTRETIREMENT BENEFITS OTHER THAN PENSIONS

The Company sponsors several U.S. defined benefit and defined contribution plans covering substantially all of the Company's U.S. employees. Additionally, the Company has many non-U.S. defined benefit and defined contribution plans covering eligible non-U.S. employees. Postretirement benefits other than pensions (OPEB) provide healthcare benefits, and in some instances, life insurance benefits for certain eligible employees.

PENSION PLANS

The noncontributory defined benefit pension plans covering non-collectively bargained U.S. employees provide benefits on a final average pay formula while plans for most collectively bargained U.S. employees provide benefits on a flat dollar benefit formula or a percentage of pay formula. The non-U.S. pension plans generally provide benefits based on earnings and years of service. The Company also maintains additional other supplemental plans for officers and other key or highly compensated employees.

The following table details information regarding the Company's pension plans at December 31:

IN MILLIONS	2019	2018
Change in benefit obligations:		
Benefit obligation at beginning of year	$ 3,465.3	$ 3,742.2
Service cost	73.6	75.0
Interest cost	119.1	109.7
Employee contributions	1.1	1.1
Amendments	5.7	16.1
Actuarial (gains) losses	422.8	(224.8)
Benefits paid	(225.3)	(218.9)
Currency translation	9.0	(34.8)
Curtailments, settlements and special termination benefits	(3.1)	(4.6)
Other, including expenses paid	(17.0)	4.3
Benefit obligation at end of year	$ 3,851.2	$ 3,465.3
Change in plan assets:		
Fair value at beginning of year	$ 2,766.9	$ 3,063.1
Actual return on assets	526.1	(125.9)
Company contributions	83.1	86.9
Employee contributions	1.1	1.1
Benefits paid	(225.3)	(218.9)
Currency translation	12.0	(32.8)
Settlements	(5.3)	(9.8)
Other, including expenses paid	(21.8)	3.2
Fair value of assets end of year	$ 3,136.8	$ 2,766.9
Net unfunded liability	$ (714.4)	$ (698.4)
Amounts included in the balance sheet:		
Other noncurrent assets	$ 50.4	$ 49.9
Accrued compensation and benefits	(8.7)	(25.9)
Postemployment and other benefit liabilities	(756.1)	(722.4)
Net amount recognized	$ (714.4)	$ (698.4)

It is the Company's objective to contribute to the pension plans to ensure adequate funds, and no less than required by law, are available in the plans to make benefit payments to plan participants and beneficiaries when required. However, certain plans are not or cannot be funded due to either legal, accounting, or tax requirements in certain jurisdictions. As of December 31, 2019, approximately seven percent of the Company's projected benefit obligation relates to plans that cannot be funded.

The pretax amounts recognized in *Accumulated other comprehensive income (loss)* are as follows:

IN MILLIONS	PRIOR SERVICE BENEFIT (COST)	NET ACTUARIAL GAINS (LOSSES)	TOTAL
December 31, 2018	$ (31.2)	$ (820.6)	$ (851.8)
Current year changes recorded to AOCI	(5.7)	(35.2)	(40.9)
Amortization reclassified to earnings	5.0	54.3	59.3
Settlements/curtailments reclassified to earnings	—	2.2	2.2
Currency translation and other	(0.5)	(0.9)	(1.4)
December 31, 2019	$ (32.4)	$ (800.2)	$ (832.6)

Weighted-average assumptions used to determine the benefit obligation at December 31 are as follows:

	2019	2018
Discount rate:		
U.S. plans	3.22 %	4.21 %
Non-U.S. plans	1.66 %	2.47 %
Rate of compensation increase:		
U.S. plans	4.00 %	4.00 %
Non-U.S. plans	3.75 %	4.00 %

The accumulated benefit obligation for all defined benefit pension plans was $3,734.5 million and $3,364.6 million at December 31, 2019 and 2018, respectively. The projected benefit obligation, accumulated benefit obligation, and fair value of plan assets for pension plans with accumulated benefit obligations more than plan assets were $3,405.7 million, $3,308.2 million and $2,645.1 million, respectively, as of December 31, 2019, and $3,075.2 million, $2,992.0 million and $2,330.4 million, respectively, as of December 31, 2018.

Pension benefit payments are expected to be paid as follows:

IN MILLIONS	
2020	$ 215.3
2021	219.1
2022	226.1
2023	230.7
2024	221.0
2025-2029	1,136.7

The components of the Company's net periodic pension benefit costs for the years ended December 31 include the following:

IN MILLIONS	2019	2018	2017
Service cost	$ 73.6	$ 75.0	$ 70.8
Interest cost	119.1	109.7	109.0
Expected return on plan assets	(138.5)	(146.6)	(141.7)
Net amortization of:			
Prior service costs (benefits)	5.0	4.2	3.8
Plan net actuarial (gains) losses	54.3	51.3	56.8
Net periodic pension benefit cost	113.5	93.6	98.7
Net curtailment, settlement, and special termination benefits (gains) losses	4.5	2.3	5.6
Net periodic pension benefit cost after net curtailment and settlement (gains) losses	$ 118.0	$ 95.9	$ 104.3
Amounts recorded in continuing operations:			
Operating income	$ 69.8	$ 72.7	$ 68.2
Other income/(expense), net	36.1	14.6	25.4
Amounts recorded in discontinued operations	12.1	8.6	10.7
Total	$ 118.0	$ 95.9	$ 104.3

Net periodic pension benefit cost for 2020 is projected to be approximately $89 million. The amounts expected to be recognized in net periodic pension benefit cost during 2020 for prior service cost and plan net actuarial losses are approximately $5 million and $47 million, respectively.

Weighted-average assumptions used to determine net periodic pension cost for the years ended December 31 are as follows:

	2019	2018	2017
Discount rate:			
U.S. plans			
Service cost	4.24%	3.70%	4.18%
Interest cost	3.88%	3.24%	3.36%
Non-U.S. plans			
Service cost	2.81%	2.52%	2.66%
Interest cost	2.83%	2.46%	2.50%
Rate of compensation increase:			
U.S. plans	4.00%	4.00%	4.00%
Non-U.S. plans	4.00%	4.00%	4.00%
Expected return on plan assets:			
U.S. plans	5.75%	5.50%	5.50%
Non-U.S. plans	3.25%	3.25%	3.25%

The expected long-term rate of return on plan assets reflects the average rate of returns expected on the funds invested or to be invested to provide for the benefits included in the projected benefit obligation. The expected long-term rate of return on plan assets is based on what is achievable given the plan's investment policy, the types of assets held and target asset allocations. The expected long-term rate of return is determined as of the measurement date. The Company reviews each plan and its historical returns and target asset allocations to determine the appropriate expected long-term rate of return on plan assets to be used.

The Company's objective in managing its defined benefit plan assets is to ensure that all present and future benefit obligations are met as they come due. It seeks to achieve this goal while trying to mitigate volatility in plan funded status, contribution, and expense by better matching the characteristics of the plan assets to that of the plan liabilities. The Company utilizes a dynamic approach to asset allocation whereby a plan's allocation to fixed income assets increases as the plan's funded status improves. The Company monitors plan funded status and asset allocation regularly in addition to investment manager performance.

The fair values of the Company's pension plan assets at December 31, 2019 by asset category are as follows:

	FAIR VALUE MEASUREMENTS				
IN MILLIONS	LEVEL 1	LEVEL 2	LEVEL 3	NET ASSET VALUE	TOTAL FAIR VALUE
Cash and cash equivalents	$ 7.0	$ 26.3	$ —	$ —	$ 33.3
Equity investments:					
Registered mutual funds – equity specialty	—	—	—	61.5	61.5
Commingled funds – equity specialty	—	—	—	665.2	665.2
	—	—	—	726.7	726.7
Fixed income investments:					
U.S. government and agency obligations	—	528.5	—	—	528.5
Corporate and non-U.S. bonds[(a)]	—	1,393.0	0.4	—	1,393.4
Asset-backed and mortgage-backed securities	—	70.9	—	—	70.9
Registered mutual funds – fixed income specialty	—	—	—	103.3	103.3
Commingled funds – fixed income specialty	—	—	—	127.6	127.6
Other fixed income[(b)]	—	—	26.0	—	26.0
	—	1,992.4	26.4	230.9	2,249.7
Derivatives	—	0.4	—	—	0.4
Real estate[(c)]	—	—	3.4	—	3.4
Other[(d)]	—	—	114.1	—	114.1
Total assets at fair value	$ 7.0	$ 2,019.1	$ 143.9	$ 957.6	$ 3,127.6
Receivables and payables, net					9.2
Net assets available for benefits					$ 3,136.8

The fair values of the Company's pension plan assets at December 31, 2018 by asset category are as follows:

	FAIR VALUE MEASUREMENTS				
IN MILLIONS	LEVEL 1	LEVEL 2	LEVEL 3	NET ASSET VALUE	TOTAL FAIR VALUE
Cash and cash equivalents	$ 4.0	$ 26.8	$ —	$ —	$ 30.8
Equity investments:					
Registered mutual funds – equity specialty	—	—	—	51.1	51.1
Commingled funds – equity specialty	—	—	—	520.7	520.7
	—	—	—	571.8	571.8
Fixed income investments:					
U.S. government and agency obligations	—	476.2	—	—	476.2
Corporate and non-U.S. bonds[(a)]	—	1,225.8	—	—	1,225.8
Asset-backed and mortgage-backed securities	—	67.3	—	—	67.3
Registered mutual funds – fixed income specialty	—	—	—	135.1	135.1
Commingled funds – fixed income specialty	—	—	—	117.7	117.7
Other fixed income[(b)]	—	—	24.8	—	24.8
	—	1,769.3	24.8	252.8	2,046.9
Derivatives	—	(0.4)	—	—	(0.4)
Real estate[(c)]	—	—	4.1	—	4.1
Other[(d)]	—	—	101.6	—	101.6
Total assets at fair value	$ 4.0	$ 1,795.7	$ 130.5	$ 824.6	$ 2,754.8
Receivables and payables, net					12.1
Net assets available for benefits					$ 2,766.9

[a] This class includes state and municipal bonds.
[b] This class includes group annuity and guaranteed interest contracts.
[c] This class includes a private equity fund that invests in real estate.
[d] This investment comprises the Company's non-significant, non-US pension plan assets. It primarily includes insurance contracts.

Cash equivalents are valued using a market approach with inputs including quoted market prices for either identical or similar instruments. Fixed income securities are valued through a market approach with inputs including, but not limited to, benchmark yields, reported trades, broker quotes and issuer spreads. Commingled funds are valued at their daily net asset value (NAV) per share or the equivalent. NAV per share or the equivalent is used for fair value purposes as a practical expedient. NAVs are calculated by the investment manager or sponsor of the fund. Private real estate fund values are reported by the fund manager and are based on valuation or appraisal of the underlying investments. Refer to Note 10, "Fair Value Measurements" for additional information related to the fair value hierarchy defined by ASC 820. There have been no significant transfers between levels of the fair value hierarchy.

The Company made required and discretionary contributions to its pension plans of $83.1 million in 2019, $86.9 million in 2018, and $101.4 million in 2017 and currently projects that it will contribute approximately $90 million to its plans worldwide in 2020. The Company's policy allows it to fund an amount, which could be in excess of or less than the pension cost expensed, subject to the limitations imposed by current tax regulations. However, the Company anticipates funding the plans in 2020 in accordance with contributions required by funding regulations or the laws of each jurisdiction.

Most of the Company's U.S. employees are covered by defined contribution plans. Employer contributions are determined based on criteria specific to the individual plans and amounted to approximately $140.2 million, $131.9 million, and $118.7 million in 2019, 2018 and 2017, respectively. The Company's contributions relating to non-U.S. defined contribution plans and other non-U.S. benefit plans were $56.7 million, $52.0 million and $47.7 million in 2019, 2018 and 2017, respectively.

MULTIEMPLOYER PENSION PLANS

The Company also participates in a number of multiemployer defined benefit pension plans related to collectively bargained U.S. employees of Trane. The Company's contributions, and the administration of the fixed retirement payments, are determined by the terms of the related collective-bargaining agreements. These multiemployer plans pose different risks to the Company than single-employer plans, including:

1. The Company's contributions to multiemployer plans may be used to provide benefits to all participating employees of the program, including employees of other employers.
2. In the event that another participating employer ceases contributions to a plan, the Company may be responsible for any unfunded obligations along with the remaining participating employers.
3. If the Company chooses to withdraw from any of the multiemployer plans, the Company may be required to pay a withdrawal liability, based on the underfunded status of the plan.

As of December 31, 2019, the Company does not participate in any plans that are individually significant, nor is the Company an individually significant participant to any of these plans. Total contributions to multiemployer plans for the years ended December 31 were as follows:

IN MILLIONS	2019	2018	2017
Total contributions	$ 10.4	$ 9.8	$ 9.0

Contributions to these plans may increase in the event that any of these plans are underfunded.

POSTRETIREMENT BENEFITS OTHER THAN PENSIONS

The Company sponsors several postretirement plans that provide for healthcare benefits, and in some instances, life insurance benefits that cover certain eligible employees. These plans are unfunded and have no plan assets, but are instead funded by the Company on a pay-as-you-go basis in the form of direct benefit payments. Generally, postretirement health benefits are contributory with contributions adjusted annually. Life insurance plans for retirees are primarily noncontributory.

The following table details changes in the Company's postretirement plan benefit obligations for the years ended December 31:

IN MILLIONS	2019	2018
Benefit obligation at beginning of year	$ 442.7	$ 528.0
Service cost	2.6	2.8
Interest cost	14.8	14.4
Plan participants' contributions	7.7	9.1
Actuarial (gains) losses	6.7	(60.4)
Benefits paid, net of Medicare Part D subsidy(1)	(45.6)	(50.2)
Other	(0.1)	(1.0)
Benefit obligations at end of year	$ 428.8	$ 442.7

(1) Amounts are net of Medicare Part D subsidy of $0.8 million and $0.9 million in 2019 and 2018, respectively

The benefit plan obligations are reflected in the Consolidated Balance Sheets as follows:

IN MILLIONS	DECEMBER 31, 2019	DECEMBER 31, 2018
Accrued compensation and benefits	$ (41.0)	$ (45.1)
Postemployment and other benefit liabilities	(387.8)	(397.6)
Total	$ (428.8)	$ (442.7)

The pre-tax amounts recognized in *Accumulated other comprehensive income (loss)* were as follows:

IN MILLIONS	PRIOR SERVICE BENEFIT (COST)	NET ACTUARIAL GAINS (LOSSES)	TOTAL
Balance at December 31, 2018	$ 0.3	$ 90.4	$ 90.7
Gain (loss) in current period	—	(6.7)	(6.7)
Amortization reclassified to earnings	(0.3)	(10.9)	(11.2)
Balance at December 31, 2019	$ —	$ 72.8	$ 72.8

The components of net periodic postretirement benefit (income) cost for the years ended December 31 were as follows:

IN MILLIONS	2019	2018	2017
Service cost	$ 2.6	$ 2.8	$ 3.1
Interest cost	14.8	14.4	15.7
Net amortization of:			
Prior service costs (benefits)	(0.3)	(3.8)	(8.6)
Net actuarial (gains) losses	(10.9)	(1.0)	0.1
Net periodic postretirement benefit cost	$ 6.2	$ 12.4	$ 10.3
Amounts recorded in continuing operations:			
Operating income	$ 2.6	$ 2.8	$ 3.1
Other income/(expense), net	3.2	7.3	5.6
Amounts recorded in discontinued operations	0.4	2.3	1.6
Total	$ 6.2	$ 12.4	$ 10.3

Postretirement cost for 2020 is projected to be approximately $8 million. The amount expected to be recognized in net periodic postretirement benefits cost in 2020 for net actuarial gains is approximately $5 million.

Weighted-average assumptions used to determine net periodic benefit cost for the years ended December 31 are as follows:

	2019	2018	2017
Discount rate:			
Benefit obligations at December 31	2.99%	4.05%	3.38%
Net periodic benefit cost			
Service cost	4.13%	3.47%	3.82%
Interest cost	3.67%	2.94%	2.99%
Assumed health-care cost trend rates at December 31:			
Current year medical inflation	6.75%	6.45%	6.85%
Ultimate inflation rate	4.75%	5.00%	5.00%
Year that the rate reaches the ultimate trend rate	2028	2023	2023

A 1% change in the assumed medical trend rate would have the following effects as of and for the year ended December 31, 2019:

IN MILLIONS	1% INCREASE	1% DECREASE
Effect on total of service and interest cost components of current year benefit cost	$ 0.5	$ (0.4)
Effect on benefit obligation at year-end	11.8	(10.6)

Benefit payments for postretirement benefits, which are net of expected plan participant contributions and Medicare Part D subsidy, are expected to be paid as follows:

IN MILLIONS	
2020	$ 41.9
2021	41.5
2022	39.5
2023	37.1
2024	35.0
2025 — 2029	142.7

NOTE 13. REVENUE

The Company recognizes revenue when control of a good or service promised in a contract (i.e., performance obligation) is transferred to a customer. Control is obtained when a customer has the ability to direct the use of and obtain substantially all of the remaining benefits from that good or service. A majority of the Company's revenues are recognized at a point-in-time as control is transferred at a distinct point in time per the terms of a contract. However, a portion of the Company's revenues are recognized over time as the customer simultaneously receives control as the Company performs work under a contract. For these arrangements, the cost-to-cost input method is used as it best depicts the transfer of control to the customer that occurs as the Company incurs costs.

PERFORMANCE OBLIGATIONS

A performance obligation is a distinct good, service or a bundle of goods and services promised in a contract. The Company identifies performance obligations at the inception of a contract and allocates the transaction price to individual performance obligations to faithfully depict the Company's performance in transferring control of the promised goods or services to the customer.

The following are the primary performance obligations identified by the Company:

Equipment and parts. The Company principally generates revenue from the sale of equipment and parts to customers and recognizes revenue at a point in time when control transfers to the customer. Transfer of control is generally determined based on the shipping terms of the contract. However, certain transactions within the Industrial segment include contracts to design, deliver and build highly engineered or customized equipment which have no alternative use for the Company in the event the customer cancels the contract. In addition, the Company has the right to payment for performance completed to date. As a result, revenues related to these contracts are recognized over time with progress towards completion measured using an input method as the basis to recognize revenue and an estimated profit. To-date efforts for work performed corresponds with and faithfully depicts transfer of control to the customer.

Contracting and Installation. The Company enters into various construction-type contracts to design, deliver and build integrated solutions to meet customer specifications. These transactions, primarily included within the Climate segment, provide services that range from the development and installation of new HVAC systems to the design and integration of critical building systems to optimize energy efficiency and overall performance. These contracts have a typical term of less than one year and are considered a single performance obligation as multiple combined goods and services promised in the contract represent a single output delivered to the customer. Revenues associated with contracting and installation contracts are recognized over time with progress towards completion measured using an input method as the basis to recognize revenue and an estimated profit. To-date efforts for work performed corresponds with and faithfully depicts transfer of control to the customer.

Services and Maintenance. The Company provides various levels of preventative and/or repair and maintenance type service agreements for its customers. The typical length of a contract is 12 months but can be as long as 60 months. Revenues associated with these performance obligations are primarily recognized over time on a straight-line basis over the life of the contract as the customer simultaneously receives and consumes the benefit provided by the Company. However, if historical evidence indicates that the cost of providing these services on a straight-line basis is not appropriate, revenue is recognized over the contract period in proportion to the costs expected to be incurred while performing the service. Certain repair services do not meet the definition of over time revenue recognition as the Company does not transfer control to the customer until the service is completed. As a result, revenue related to these services is recognized at a point in time.

Extended warranties. The Company enters into various warranty contracts with customers related to its products. A standard warranty generally warrants that a product is free from defects in workmanship and materials under normal use and conditions for a certain period of time. The Company's standard warranty is not considered a distinct performance obligation as it does not provide services to customers beyond assurance that the covered product is free of initial defects. An extended warranty provides a customer with additional time that the Company is liable for covered incidents associated with its products. Extended warranties are purchased separately and can last up to five years. As a result, they are considered separate performance obligations for the Company. Revenue associated with these performance obligations are primarily recognized over time on a straight-line basis over the life of the contract as the customer simultaneously receives and consumes the benefit provided by the Company. However, if historical evidence indicates that the cost of providing these services on a straight-line basis is not appropriate, revenue is recognized over the contract period in proportion to the costs expected to be incurred while performing the service. Refer to Note 22, "Commitments and Contingencies," for more information related to product warranties.

The transaction price allocated to performance obligations reflects the Company's expectations about the consideration it will be entitled to receive from a customer. To determine the transaction price, variable and noncash consideration are assessed as well as whether a significant financing component exists. The Company includes variable consideration in the estimated transaction price when it is probable that significant reversal of revenue recognized would not occur when the uncertainty associated with variable consideration is subsequently resolved. The Company considers historical data in determining its best estimates of variable consideration, and the related accruals are recorded using the expected value method. The Company has performance guarantees related to energy savings contracts that are provided under the maintenance portion of contracting and installation agreements extending from 2020-2047. These performance guarantees represent variable consideration and are estimated as part of the overall transaction price. The Company has not recognized any significant adjustments to the transaction price due to variable consideration.

The Company enters into sales arrangements that contain multiple goods and services, such as equipment, installation and extended warranties. For these arrangements, each good or service is evaluated to determine whether it represents a distinct performance obligation and whether the sales price for each obligation is representative of standalone selling price. If available, the Company utilizes observable prices for goods or services sold separately to similar customers in similar circumstances to evaluate relative standalone selling price. List prices are used if they are determined to be representative of standalone selling prices. Where necessary, the Company ensures that the total transaction price is then allocated to the distinct performance obligations based on the determination of their relative standalone selling price at the inception of the arrangement.

The Company recognizes revenue for delivered goods or services when the delivered good or service is distinct, control of the good or service has transferred to the customer, and only customary refund or return rights related to the goods or services exist. The Company excludes from revenues taxes it collects from a customer that are assessed by a government authority.

DISAGGREGATED REVENUE

A summary of *Net revenues* by destination for the year ended at December 31 is as follows:

IN MILLIONS	2019	2018
Climate		
United States	$ 9,143.5	$ 8,285.4
Non-U.S.	3,932.4	4,058.4
Total Climate	$ 13,075.9	$ 12,343.8
Industrial		
United States	$ 1,811.4	$ 1,763.6
Non-U.S.	1,711.6	1,560.8
Total Industrial	$ 3,523.0	$ 3,324.4

A summary of *Net revenues* by major type of good or service for the year ended at December 31 is as follows:

IN MILLIONS	2019	2018
Climate		
Equipment	$ 8,968.1	$ 8,425.6
Services and parts	4,107.8	3,918.2
Total Climate	$ 13,075.9	$ 12,343.8
Industrial		
Equipment	$ 2,171.4	$ 2,023.3
Services and parts	1,351.6	1,301.1
Total Industrial	$ 3,523.0	$ 3,324.4

Revenue from goods and services transferred to customers at a point in time accounted for approximately 85% and 84% of the Company's revenue for the years ended December 31, 2019 and 2018, respectively.

CONTRACT BALANCES

The opening and closing balances of contract assets and contract liabilities arising from contracts with customers for the period ended December 31, 2019 and December 31, 2018 were as follows:

IN MILLIONS	2019	2018
Contract assets	$ 190.2	$ 210.9
Contract liabilities	1,042.9	846.2

The timing of revenue recognition, billings and cash collections results in accounts receivable, contract assets, and customer advances and deposits (contract liabilities) on the Consolidated Balance Sheet. In general, the Company receives payments from customers based on a billing schedule established in its contracts. Contract assets relate to the conditional right to consideration for any completed performance under the contract when costs are incurred in excess of billings under the percentage-of-completion methodology. Accounts receivable are recorded when the right to consideration becomes unconditional. Contract liabilities relate to payments received in advance of performance under the contract or when the Company has a right to consideration that is unconditional before it transfers a good or service to the customer. Contract liabilities are recognized as revenue as (or when) the Company performs under the contract. During the years ended December 31, 2019 and 2018, changes in contract asset and liability balances were not materially impacted by any other factors.

Approximately 58% of the contract liability balance at December 31, 2018 was recognized as revenue during the year ended December 31, 2019. Additionally, approximately 32% of the contract liability balance at December 31, 2019 was classified as noncurrent and not expected to be recognized as revenue in the next 12 months.

NOTE 14. EQUITY

The authorized share capital of Ingersoll Rand plc is 1,185,040,000 shares, consisting of (1) 1,175,000,000 ordinary shares, par value $1.00 per share, (2) 40,000 ordinary shares, par value EUR 1.00 and (3) 10,000,000 preference shares, par value $0.001 per share. There were no preference shares or Euro-denominated ordinary shares outstanding at December 31, 2019 or 2018.

The changes in ordinary shares and treasury shares for the year ended December 31, 2019 are as follows:

IN MILLIONS	ORDINARY SHARES ISSUED	ORDINARY SHARES HELD IN TREASURY
December 31, 2018	266.4	24.5
Shares issued under incentive plans	2.8	—
Repurchase of ordinary shares	(6.4)	—
December 31, 2019	262.8	24.5

Share repurchases are made from time to time in accordance with management's capital allocation strategy, subject to market conditions and regulatory requirements. Shares acquired and canceled upon repurchase are accounted for as a reduction of *Ordinary Shares* and *Capital in excess of par value*, or *Retained earnings* to the extent *Capital in excess of par value* is exhausted. Shares acquired and held in treasury are presented separately on the balance sheet as a reduction to *Equity* and recognized at cost. In February 2017, the Company's Board of Directors authorized the repurchase of up to $1.5 billion of its ordinary shares under a share repurchase program (the 2017 Authorization) upon completion of the prior authorized share repurchase program. Repurchases under the 2017 Authorization began in May 2017 and ended in December 2018, completing the program. In October 2018, the Company's Board of Directors authorized the repurchase of up to $1.5 billion of its ordinary shares under a share repurchase program (2018 Authorization) upon completion of the 2017 Authorization. No material amounts were repurchased under this program in 2018. During the year ended December 31, 2019, the Company repurchased and canceled approximately $750 million of its ordinary shares leaving approximately $750 million remaining under the 2018 Authorization.

OTHER COMPREHENSIVE INCOME (LOSS)

The changes in *Accumulated other comprehensive income (loss)* are as follows:

IN MILLIONS	DERIVATIVE INSTRUMENTS	PENSION AND OPEB ITEMS	FOREIGN CURRENCY TRANSLATION	TOTAL
December 31, 2017	$ 4.7	$ (494.3)	$ (289.2)	$ (778.8)
Other comprehensive income (loss) attributable to Ingersoll-Rand plc	2.0	40.3	(227.6)	(185.3)
December 31, 2018	$ 6.7	$ (454.0)	$ (516.8)	$ (964.1)
Other comprehensive income (loss) attributable to Ingersoll-Rand plc	(1.1)	(3.4)	(38.0)	(42.5)
December 31, 2019	$ 5.6	$ (457.4)	$ (554.8)	$ (1,006.6)

The amounts of *Other comprehensive income (loss) attributable to noncontrolling interests* for 2019, 2018 and 2017 were $0.9 million, $(3.0) million and $0.5 million, respectively, related to currency translation.

NOTE 15. SHARE-BASED COMPENSATION

The Company accounts for stock-based compensation plans in accordance with ASC 718, "Compensation - Stock Compensation" (ASC 718), which requires a fair-value based method for measuring the value of stock-based compensation. Fair value is measured once at the date of grant and is not adjusted for subsequent changes. The Company's share-based compensation plans include programs for stock options, restricted stock units (RSUs), performance share units (PSUs), and deferred compensation. Under the Company's incentive stock plan, the total number of ordinary shares authorized by the shareholders is 23.0 million, of which 19.1 million remains available as of December 31, 2019 for future incentive awards.

COMPENSATION EXPENSE

Share-based compensation expense related to continuing operations is included in *Selling and administrative expenses*. The following table summarizes the expenses recognized:

IN MILLIONS	2019	2018	2017
Stock options	$ 20.2	$ 23.5	$ 19.5
RSUs	26.5	30.4	26.4
PSUs	17.9	23.0	23.0
Deferred compensation	3.1	3.4	3.1
Other	3.5	0.5	1.6
Pre-tax expense	71.2	80.8	73.6
Tax benefit	(17.3)	(19.6)	(28.2)
After-tax expense	$ 53.9	$ 61.2	$ 45.4

Grants issued during the year ended December 31 were as follows:

	2019		2018		2017	
	NUMBER GRANTED	WEIGHTED-AVERAGE FAIR VALUE PER AWARD	NUMBER GRANTED	WEIGHTED-AVERAGE FAIR VALUE PER AWARD	NUMBER GRANTED	WEIGHTED-AVERAGE FAIR VALUE PER AWARD
Stock options	1,286,857	$ 17.17	1,541,025	$ 15.51	1,518,335	$ 13.46
RSUs	268,465	$ 102.98	327,411	$ 90.07	372,443	$ 81.09
Performance shares(1)	312,362	$ 111.12	363,342	$ 106.31	419,404	$ 93.68

(1) The number of performance shares represents the maximum award level.

STOCK OPTIONS / RSUs

Eligible participants may receive (i) stock options, (ii) RSUs or (iii) a combination of both stock options and RSUs. The fair value of each of the Company's stock option and RSU awards is expensed on a straight-line basis over the required service period, which is generally the 3-year vesting period. However, for stock options and RSUs granted to retirement eligible employees, the Company recognizes expense for the fair value at the grant date.

The average fair value of the stock options granted is determined using the Black Scholes option pricing model. The following assumptions were used during the year ended December 31:

	2019	2018	2017
Dividend yield	2.06%	2.00%	2.00%
Volatility	21.46%	21.64%	22.46%
Risk-free rate of return	2.46%	2.48%	1.80%
Expected life in years	4.8	4.8	4.8

A description of the significant assumptions used to estimate the fair value of the stock option awards is as follows:

- *Volatility* – The expected volatility is based on a weighted average of the Company's implied volatility and the most recent historical volatility of the Company's stock commensurate with the expected life.
- *Risk-free rate of return* –The Company applies a yield curve of continuous risk-free rates based upon the published US Treasury spot rates on the grant date.
- *Expected life* – The expected life of the Company's stock option awards represents the weighted-average of the actual period since the grant date for all exercised or canceled options and an expected period for all outstanding options.
- *Dividend yield* – The Company determines the dividend yield based upon the expected quarterly dividend payments as of the grant date and the current fair market value of the Company's stock.
- *Forfeiture Rate* – The Company analyzes historical data of forfeited options to develop a reasonable expectation of the number of options to forfeit prior to vesting per year. This expected forfeiture rate is applied to the Company's ongoing compensation expense; however, all expense is adjusted to reflect actual vestings and forfeitures.

Changes in options outstanding under the plans for the years 2019, 2018 and 2017 are as follows:

	SHARES SUBJECT TO OPTION	WEIGHTED-AVERAGE EXERCISE PRICE	AGGREGATE INTRINSIC VALUE (MILLIONS)	WEIGHTED-AVERAGE REMAINING LIFE (YEARS)
December 31, 2016	6,846,895	$ 47.81		
Granted	1,518,335	80.27		
Exercised	(1,789,615)	42.79		
Cancelled	(220,733)	61.91		
December 31, 2017	6,354,882	56.49		
Granted	1,541,025	89.71		
Exercised	(1,515,955)	45.44		
Cancelled	(94,601)	79.53		
December 31, 2018	6,285,351	66.95		
Granted	1,286,857	101.42		
Exercised	(2,076,338)	56.17		
Cancelled	(76,624)	92.38		
Outstanding December 31, 2019	5,419,246	$ 78.91	$ 292.7	6.8
Exercisable December 31, 2019	2,689,923	$ 64.22	$ 184.8	5.4

The following table summarizes information concerning currently outstanding and exercisable options:

	OPTIONS OUTSTANDING			OPTIONS EXERCISABLE		
RANGE OF EXERCISE PRICE	NUMBER OUTSTANDING AT DECEMBER 31, 2019	WEIGHTED-AVERAGE REMAINING LIFE (YEARS)	WEIGHTED-AVERAGE EXERCISE PRICE	NUMBER OUTSTANDING AT DECEMBER 31, 2019	WEIGHTED-AVERAGE REMAINING LIFE (YEARS)	WEIGHTED-AVERAGE EXERCISE PRICE
$ 20.01 — $ 30.00	42,296	1.0	$ 24.72	42,296	1.0	$ 24.72
30.01 — 40.00	140,778	1.7	34.07	140,778	1.7	34.07
40.01 — 50.00	820,185	5.0	48.46	820,185	5.0	48.46
50.01 — 60.00	291,706	3.9	59.41	291,706	3.9	59.41
60.01 — 70.00	417,212	4.7	66.99	417,212	4.7	66.99
70.01 — 80.00	14,031	7.0	75.67	—	0.0	—
80.01 — 90.00	1,228,171	6.8	80.84	638,735	6.6	80.33
90.01 — 100.00	1,242,338	7.8	90.12	334,982	7.8	90.07
100.01 — 110.00	1,193,089	8.9	101.29	4,029	7.9	101.22
110.01 — 125.00	29,440	9.5	122.34	—	0.0	—
$ 24.23 — $ 124.95	5,419,246	6.8	$ 78.91	2,689,923	5.4	$ 64.22

At December 31, 2019, there was $12.1 million of total unrecognized compensation cost from stock option arrangements granted under the plan, which is primarily related to unvested shares of non-retirement eligible employees. The aggregate intrinsic value of options exercised during the year ended December 31, 2019 and 2018 was $124.5 million and $74.1 million, respectively. Generally, stock options expire ten years from their date of grant.

The following table summarizes RSU activity for the years 2019, 2018 and 2017:

	RSUs	WEIGHTED-AVERAGE GRANT DATE FAIR VALUE
Outstanding and unvested at December 31, 2016	835,749	$ 56.95
Granted	372,443	81.09
Vested	(370,397)	58.56
Cancelled	(34,096)	63.79
Outstanding and unvested at December 31, 2017	803,699	$ 67.09
Granted	327,411	90.07
Vested	(389,285)	64.88
Cancelled	(20,186)	77.95
Outstanding and unvested at December 31, 2018	721,639	$ 78.40
Granted	268,465	102.98
Vested	(364,817)	70.26
Cancelled	(20,947)	89.64
Outstanding and unvested at December 31, 2019	604,340	$ 93.56

At December 31, 2019, there was $16.3 million of total unrecognized compensation cost from RSU arrangements granted under the plan, which is related to unvested shares of non-retirement eligible employees.

PERFORMANCE SHARES

The Company has a Performance Share Program (PSP) for key employees. The program provides awards in the form of PSUs based on performance against pre-established objectives. The annual target award level is expressed as a number of the Company's ordinary shares based on the fair market value of the Company's stock on the date of grant. All PSUs are settled in the form of ordinary shares.

Beginning with the 2018 grant year, PSU awards are earned based 50% upon a performance condition, measured by relative Cash Flow Return on Invested Capital (CROIC) to the industrial group of companies in the S&P 500 Index over a 3-year performance period, and 50% upon a market condition, measured by the Company's relative total shareholder return (TSR) as compared to the TSR of the industrial group of companies in the S&P 500 Index over a 3-year performance period. The fair value of the market condition is estimated using a Monte Carlo Simulation approach in a risk-neutral framework based upon historical volatility, risk-free rates and correlation matrix. Awards granted prior to 2018 were earned based 50% upon a performance condition, measured by relative earnings-per-share (EPS) growth to the industrial group of companies in the S&P 500 Index over a 3-year performance period, and 50% upon a market condition measured by the Company's relative TSR as compared to the TSR of the industrial group of companies in the S&P Index over a 3-year performance period.

The following table summarizes PSU activity for the maximum number of shares that may be issued for the years 2019, 2018 and 2017:

	PSUS	WEIGHTED-AVERAGE GRANT DATE FAIR VALUE
Outstanding and unvested at December 31, 2016	1,423,796	$ 65.34
Granted	419,404	93.68
Vested	(353,834)	65.35
Forfeited	(124,830)	73.40
Outstanding and unvested at December 31, 2017	1,364,536	$ 73.31
Granted	363,342	106.31
Vested	(309,306)	76.00
Forfeited	(172,408)	90.89
Outstanding and unvested at December 31, 2018	1,246,164	$ 79.83
Granted	312,362	111.12
Vested	(539,402)	53.76
Forfeited	(34,194)	106.14
Outstanding and unvested at December 31, 2019	984,930	$ 103.12

At December 31, 2019, there was $17.6 million of total unrecognized compensation cost from PSU arrangements based on current performance, which is related to unvested shares. This compensation will be recognized over the required service period, which is generally the three-year vesting period.

DEFERRED COMPENSATION

The Company allows key employees to defer a portion of their eligible compensation into a number of investment choices, including its ordinary share equivalents. Any amounts invested in ordinary share equivalents will be settled in ordinary shares of the Company at the time of distribution.

NOTE 16. RESTRUCTURING ACTIVITIES

The Company incurs costs associated with restructuring initiatives intended to result in improved operating performance, profitability and working capital levels. Actions associated with these initiatives include workforce reduction, improving manufacturing productivity, realignment of management structures and rationalizing certain assets. Restructuring charges recorded during the years ended December 31 were as follows:

IN MILLIONS	2019	2018	2017
Climate	$ 50.8	$ 34.1	$ 42.3
Industrial	37.5	49.9	14.5
Corporate and Other	1.8	9.4	4.9
Total	$ 90.1	$ 93.4	$ 61.7
Cost of goods sold	$ 72.7	$ 72.3	$ 46.8
Selling and administrative expenses	17.4	21.1	14.9
Total	$ 90.1	$ 93.4	$ 61.7

The changes in the restructuring reserve were as follows:

IN MILLIONS	CLIMATE	INDUSTRIAL	CORPORATE AND OTHER	TOTAL
December 31, 2017	$ 7.4	$ 6.1	$ 2.5	$ 16.0
Additions, net of reversals(1)	16.3	49.9	9.4	75.6
Cash paid/Other	(4.8)	(26.1)	(9.3)	(40.2)
December 31, 2018	18.9	29.9	2.6	51.4
Additions, net of reversals(2)	48.1	20.7	1.8	70.6
Cash paid/Other	(43.2)	(39.1)	(2.8)	(85.1)
December 31, 2019	$ 23.8	$ 11.5	$ 1.6	$ 36.9

(1) Excludes the non-cash costs of asset rationalizations ($12.3 million) and pension-related impacts ($5.5 million).

(2) Excludes the non-cash costs of asset rationalizations ($19.5 million).

Current restructuring actions include general workforce reductions as well as the closure and consolidation of certain manufacturing facilities in an effort to improve the Company's cost structure. During the year ended December 31, 2019, costs associated with announced restructuring actions primarily included the following:

- the plan to close a U.S. manufacturing facility within the Industrial segment and relocate production to other U.S. and Non-U.S. facilities announced in 2019; and
- the plan to close two U.S. manufacturing facilities within the Climate segment and relocate production to another existing U.S. facility announced in 2018.

Amounts recognized primarily relate to severance and exit costs. In addition, the Company also includes costs that are directly attributable to the restructuring activity but do not fall into the severance, exit or disposal categories. As of December 31, 2019, the Company had $36.9 million accrued for costs associated with its ongoing restructuring actions, of which a majority is expected to be paid within one year. These actions primarily relate to workforce reduction benefits.

NOTE 17. OTHER INCOME/(EXPENSE), NET

The components of *Other income/(expense), net* for the years ended December 31, 2019, 2018 and 2017 are as follows:

IN MILLIONS	2019	2018	2017
Interest income	$ 3.1	$ 6.4	$ 9.4
Foreign currency exchange gain (loss)	(12.3)	(17.6)	(8.8)
Other components of net periodic benefit cost	(39.3)	(21.9)	(31.0)
Other activity, net	15.5	(3.3)	(1.2)
Other income/(expense), net	$ (33.0)	$ (36.4)	$ (31.6)

Other income/(expense), net includes the results from activities other than normal business operations such as interest income and foreign currency gains and losses on transactions that are denominated in a currency other than an entity's functional currency. In addition, the Company includes the components of net periodic benefit cost for pension and post retirement obligations other than the service cost component. Other activity, net includes items associated with Trane U.S. Inc. for the settlement of asbestos-related claims, insurance settlements on asbestos-related matters and the revaluation of its liability for potential future claims and recoveries. Refer to Note 22, "Commitments and Contingencies," for more information regarding asbestos-related matters.

NOTE 18. INCOME TAXES

CURRENT AND DEFERRED PROVISION FOR INCOME TAXES

Earnings before income taxes for the years ended December 31 were taxed within the following jurisdictions:

IN MILLIONS	2019	2018	2017
United States(1)	$ 960.6	$ 971.6	$ (17.6)
Non-U.S.	781.0	688.7	1,435.5
Total	$ 1,741.6	$ 1,660.3	$ 1,417.9

(1) Amount reported in 2017 includes the impact of a premium paid of approximately $520 million related to the early retirement of certain intercompany debt obligations

The components of the *Provision for income taxes* for the years ended December 31 were as follows:

IN MILLIONS	2019	2018	2017
Current tax expense (benefit):			
United States	$ 203.4	$ 231.9	$ 102.2
Non-U.S.	133.5	193.2	95.4
Total:	336.9	425.1	197.6
Deferred tax expense (benefit):			
United States	35.7	(83.2)	(234.7)
Non-U.S.	(18.9)	(60.6)	117.3
Total:	16.8	(143.8)	(117.4)
Total tax expense (benefit):			
United States	239.1	148.7	(132.5)
Non-U.S.	114.6	132.6	212.7
Total	$ 353.7	$ 281.3	$ 80.2

The *Provision for income taxes* differs from the amount of income taxes determined by applying the applicable U.S. statutory income tax rate to pretax income, as a result of the following differences:

	PERCENT OF PRETAX INCOME		
	2019	2018	2017
Statutory U.S. rate	21.0%	21.0%	35.0%
Increase (decrease) in rates resulting from:			
Non-U.S. tax rate differential (a)	(1.9)	(1.8)	(28.8)
Tax on U.S. subsidiaries on non-U.S. earnings (b)	1.1	0.7	0.8
State and local income taxes (c)	3.1	0.1	1.2
Valuation allowances (d)	(2.4)	0.7	2.8
Change in permanent reinvestment assertion (b), (e)	—	(2.3)	8.4
Transition tax (e)	—	1.5	11.3
Remeasurement of deferred tax balances (e)	—	0.3	(21.2)
Stock based compensation	(1.5)	(0.9)	(1.7)
Foreign derived intangible income	(0.7)	(1.1)	—
Reserves for uncertain tax positions	(0.3)	(0.8)	(0.9)
Provision to return and other true-up adjustments	0.1	(0.7)	(1.7)
Other adjustments	1.8	0.2	0.5
Effective tax rate	20.3%	16.9%	5.7%

(a) Amount reported in 2017 includes the impact of a premium paid of approximately $520 million related to the early retirement of certain intercompany debt obligations
(b) Net of foreign tax credits
(c) Net of changes in state valuation allowances
(d) Primarily federal and non-U.S., excludes state valuation allowances
(e) Provisional amounts reported under SAB 118 were finalized in 2018

Tax incentives, in the form of tax holidays, have been granted to the Company in certain jurisdictions to encourage industrial development. The expiration of these tax holidays varies by country. The tax holidays are conditional on the Company meeting certain employment and investment thresholds. The most significant tax holidays relate to the Company's qualifying locations in China, Puerto Rico, Panama and Singapore. The benefit for the tax holidays for the years ended December 31, 2019, 2018 and 2017 was $33.1 million, $25.4 million and $19.7 million, respectively.

DEFERRED TAX ASSETS AND LIABILITIES

A summary of the deferred tax accounts at December 31 are as follows:

IN MILLIONS	2019	2018
Deferred tax assets:		
Inventory and accounts receivable	$ 17.7	$ 20.3
Fixed assets and intangibles	35.3	39.2
Operating lease liabilities	140.2	—
Postemployment and other benefit liabilities	392.5	386.1
Product liability	70.0	95.1
Other reserves and accruals	157.1	147.6
Net operating losses and credit carryforwards	659.2	589.9
Other	40.6	34.9
Gross deferred tax assets	1,512.6	1,313.1
Less: deferred tax valuation allowances	(373.7)	(332.2)
Deferred tax assets net of valuation allowances	$ 1,138.9	$ 980.9
Deferred tax liabilities:		
Inventory and accounts receivable	$ (20.0)	$ (18.6)
Fixed assets and intangibles	(1,358.3)	(1,220.9)
Operating lease right-of-use assets	(140.2)	—
Postemployment and other benefit liabilities	(11.0)	(9.7)
Other reserves and accruals	(12.5)	(11.8)
Product liability	—	(1.2)
Undistributed earnings of foreign subsidiaries	(39.3)	(39.5)
Other	(22.2)	(10.6)
Gross deferred tax liabilities	(1,603.5)	(1,312.3)
Net deferred tax assets (liabilities)	$ (464.6)	$ (331.4)

At December 31, 2019, no deferred taxes have been provided for earnings of certain of the Company's subsidiaries, since these earnings have been, and under current plans will continue to be permanently reinvested in these subsidiaries. These earnings amount to approximately $4.4 billion which if distributed would result in additional taxes, which may be payable upon distribution, of approximately $400.0 million.

At December 31, 2019, the Company had the following operating loss, capital loss and tax credit carryforwards available to offset taxable income in prior and future years:

IN MILLIONS	AMOUNT	EXPIRATION PERIOD
U.S. Federal net operating loss carryforwards	$ 766.2	2020-2038
U.S. Federal credit carryforwards	140.6	2022-2028
U.S. Capital loss carryforwards	36.3	Unlimited
U.S. State net operating loss carryforwards	3,119.7	2020-Unlimited
U.S. State credit carryforwards	35.2	2020-Unlimited
Non-U.S. net operating loss carryforwards	865.8	2020-Unlimited
Non-U.S. credit carryforwards	7.7	Unlimited

The U.S. state net operating loss carryforwards were incurred in various jurisdictions. The non-U.S. net operating loss carryforwards were incurred in various jurisdictions, predominantly in Belgium, Brazil, China, India, Luxembourg, Spain, and the United Kingdom.

Activity associated with the Company's valuation allowance is as follows:

IN MILLIONS	2019	2018	2017
Beginning balance	$ 332.2	$ 344.6	$ 184.5
Increase to valuation allowance	46.0	54.9	176.5
Decrease to valuation allowance	(56.8)	(55.1)	(19.1)
Write off against valuation allowance	—	(4.6)	—
Acquisition and purchase accounting	53.3	—	—
Accumulated other comprehensive income (loss)	(1.0)	(7.6)	2.7
Ending balance	$ 373.7	$ 332.2	$ 344.6

During 2019, the Company recorded a $50.5 million reduction in valuation allowance on deferred tax assets primarily related to non-U.S. net operating losses. In addition, the Company recorded a $19.3 million increase in a valuation allowance for certain state net deferred tax assets as a result of revised projections of future state taxable income during the carryforward period. In addition, the Company recorded a $53.3 million valuation allowance in acquisition accounting related to deferred tax assets acquired in the PFS acquisition, primarily related to foreign tax credits, capital loss carryforwards and non-U.S. net operating loss carryforwards.

During 2018, the Company recorded a net addition to the valuation allowance related to excess foreign tax credits in the amount of $17.3 million. In addition, the Company recorded a $35 million reduction in a valuation allowance for certain state net deferred tax assets primarily the result of revised projections of future state taxable income during the carryforward period.

During 2017, the Company recorded a valuation allowance of approximately $30 million on certain net deferred tax assets in Brazil that were no longer expected to be realized. In addition, the Company recorded a valuation allowance of approximately $100 million related to excess foreign tax credits generated as a result of the Tax Cuts and Jobs Act (the Act).

UNRECOGNIZED TAX BENEFITS

The Company has total unrecognized tax benefits of $78.2 million and $83.0 million as of December 31, 2019, and December 31, 2018, respectively. The amount of unrecognized tax benefits that, if recognized, would affect the continuing operations effective tax rate are $54.1 million as of December 31, 2019. A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

IN MILLIONS	2019	2018	2017
Beginning balance	$ 83.0	$ 120.5	$ 107.1
Additions based on tax positions related to the current year	4.1	3.4	6.2
Additions based on tax positions related to prior years	10.0	23.5	16.8
Reductions based on tax positions related to prior years	(14.0)	(47.2)	(8.6)
Reductions related to settlements with tax authorities	(0.9)	(14.2)	(4.8)
Reductions related to lapses of statute of limitations	(2.9)	(0.9)	(1.3)
Translation (gain) loss	(1.1)	(2.1)	5.1
Ending balance	$ 78.2	$ 83.0	$ 120.5

The Company records interest and penalties associated with the uncertain tax positions within its *Provision for income taxes*. The Company had reserves associated with interest and penalties, net of tax, of $16.9 million and $20.7 million at December 31, 2019 and December 31, 2018, respectively. For the year ended December 31, 2019 and December 31, 2018, the Company recognized a $1.0 million and a $13.4 million tax benefit, respectively, in interest and penalties, net of tax in continuing operations related to these uncertain tax positions.

The total amount of unrecognized tax benefits relating to the Company's tax positions is subject to change based on future events including, but not limited to, the settlements of ongoing audits and/or the expiration of applicable statutes of limitations. Although the outcomes and timing of such events are highly uncertain, it is reasonably possible that the balance of gross unrecognized tax benefits, excluding interest and penalties, could potentially be reduced by up to approximately $4.4 million during the next 12 months.

The provision for income taxes involves a significant amount of management judgment regarding interpretation of relevant facts and laws in the jurisdictions in which the Company operates. Future changes in applicable laws, projected levels of taxable income and tax planning could change the effective tax rate and tax balances recorded by the Company. In addition, tax authorities periodically review income tax returns filed by the Company and can raise issues regarding its filing positions, timing and amount of income or deductions, and the allocation of income among the jurisdictions in which the Company operates. A significant period of time may elapse between the filing of an income tax return and the ultimate resolution of an issue raised by a revenue authority with respect to that return. In the normal course of business the Company is subject to examination by taxing authorities throughout the world, including such major jurisdictions as Brazil, Canada, China, France, Germany, Ireland, Italy, Mexico, Spain, the Netherlands, the United Kingdom and the United States. These examinations on their own, or any subsequent litigation related to the examinations, may result in additional taxes or penalties against the Company. If the ultimate result of these audits differ from original or adjusted estimates, they could have a material impact on the Company's tax provision. In general, the examination of the Company's material tax returns are complete or effectively settled for the years prior to 2011, with certain matters prior to 2011 being resolved through appeals and litigation and also unilateral procedures as provided for under double tax treaties.

TAX CUTS AND JOB ACT

In December 2017, the U.S. enacted the Act which made widespread changes to the Internal Revenue Code. The Act, among other things, reduced the U.S. federal corporate tax rate from 35% to 21%, requires companies to pay a transition tax on earnings of certain foreign subsidiaries that were previously not subject to U.S. tax and creates new income taxes on certain foreign sourced earnings. The SEC issued Staff Accounting Bulletin No. 118 (SAB 118) which provided guidance on accounting for the tax effects of the Act and allowed for adjustments to provisional amounts during a measurement period of up to one year. In accordance with SAB 118, we made reasonable estimates related to (1) the remeasurement of U.S. deferred tax balances for the reduction in the tax rate (2) the liability for the transition tax and (3) the taxes accrued relating to the change in permanent reinvestment assertion for unremitted earnings of certain foreign subsidiaries. As a result, we recognized a net provisional income tax benefit of $21.0 million associated with these items in the fourth quarter of 2017. We completed the accounting for the income tax effects of the Act during 2018 and recorded $9.0 million of net measurement period adjustments as a component of Provision for income taxes during the year to increase the net provisional income tax benefit recorded as of December 31, 2017.

A reconciliation of the provisional amounts reported to the final tax effect of the Act is as follows:

IN MILLIONS	2017 PROVISIONAL AMOUNTS REPORTED	2018 MEASUREMENT PERIOD ADJUSTMENTS	FINAL TAX EFFECTS OF THE ACT
Remeasurement of deferred tax balances	$ (300.6)	$ 4.8	$ (295.8)
Transition tax	160.7	24.6	185.3
Change in permanent reinvestment assertion	118.9	(38.4)	80.5
Income tax benefit, net	$ (21.0)	$ (9.0)	$ (30.0)

NOTE 19. ACQUISITIONS AND DIVESTITURES

ACQUISITIONS AND EQUITY METHOD INVESTMENTS

During 2019, the Company acquired several businesses that complement existing products and services. Primary activity during 2019 related to the acquisition of PFS, reported within the Industrial segment. On May 15, 2019, the Company acquired all the outstanding capital stock of PFS, a manufacturer of precision flow control equipment including precision dosing pumps and controls that serve the global water, oil and gas, agriculture, industrial and specialty market segments. Total cash paid, net of cash acquired, was approximately $1.46 billion. In addition, the Company acquired an independent dealer to support the ongoing strategy to expand our distribution network as well as other businesses that strengthen the Company's product portfolios, reported within the Climate segment.

The aggregate cash paid for all acquisitions in 2019, net of cash acquired, totaled $1.54 billion and was financed through a combination of the issuance of senior notes and cash on hand. Refer to Note 8, "Debt and Credit Facilities" for more information regarding financing. Acquisitions are recorded using the acquisition method of accounting in accordance with ASC 805, "Business Combinations" (ASC 805). As a result, the aggregate price has been allocated to assets acquired and liabilities assumed based on the estimate of fair market value of such assets and liabilities at the date of acquisition. Intangible assets associated with these acquisitions totaled $687.7 million and primarily relate to trademarks and customer relationships. The excess purchase price over the estimated fair value of net assets acquired was recognized as goodwill and totaled $846.6 million.

The preliminary allocation of the purchase price and related measurement period adjustments related to the PFS acquisition were as follows:

IN MILLIONS	PRELIMINARY MAY 15, 2019	MEASUREMENT PERIOD ADJUSTMENTS	AS ADJUSTED MAY 15, 2019
Current assets	$ 124.8	$ (0.9)	$ 123.9
Intangibles	662.2	—	662.2
Goodwill	888.0	(86.7)	801.3
Other noncurrent assets	48.4	(1.9)	46.5
Accounts payable, accrued expenses and other liabilities	(72.3)	2.3	(70.0)
Noncurrent deferred tax liabilities	(195.9)	88.3	(107.6)
Total purchase price, net of cash acquired	$ 1,455.2	$ 1.1	$ 1,456.3

Accounts receivable and current liabilities were stated at their historical carrying values, which approximates fair value given the short-term nature of these assets and liabilities. The estimate of fair value for inventory and property, plant and equipment are based on an assessment of the acquired assets condition as well as an evaluation of current market value of such assets. Measurement period adjustments primarily relate to changes in estimated deferred taxes as additional information was obtained during the measurement period, including assessment of realizability of certain acquired deferred tax assets and tax rates applicable to non-US intangible assets.

The Company recorded intangible assets based on their preliminary estimate of fair value, which consisted of the following:

IN MILLIONS	WEIGHTED-AVERAGE USEFUL LIFE *(IN YEARS)*	MAY 15, 2019
Customer relationships	14	$ 457.6
Trade names	Indefinite	168.2
Other	7	36.4
Total		$ 662.2

The valuation of intangible assets was determined using an income approach methodology. The fair values of the customer relationship intangible assets were determined using the multi-period excess earnings method based on discounted projected net cash flows associated with the net earnings attributable to the acquired customer relationships. These projected cash flows are estimated over the remaining economic life of the intangible asset and are considered from a market participant perspective. Key assumptions used in estimating future cash flows included projected revenue growth rates and customer attrition rates. The projected future cash flows are discounted to present value using an appropriate discount rate. The fair values of the trade name intangible assets were estimated utilizing the relief from royalty method which is a form of the income approach based on royalty rates determined from observed market royalties applied to projected revenue supporting the trade names and discounted to present value using an appropriate discount rate. Any excess of the purchase price over the estimated fair value of net assets was recognized as goodwill. The goodwill is attributed primarily to the fair value of the expected cost synergies and revenue growth from PFS businesses and is not expected to be deductible for tax purposes.

The results of PFS are reported within the Industrial segment from the date of acquisition. During 2019, the Company incurred $12.9 million of acquisition-related costs which are included in *Selling and administrative expenses* in the accompanying Consolidated Statements of Comprehensive Income. The Company has not included pro forma financial information required under ASC 805 as the pro forma impact was deemed not material.

During 2018, the Company acquired several businesses and entered into a joint venture. The aggregate cash paid, net of cash acquired, totaled $285.2 million and was funded through cash on hand. Ownership interests in a joint venture are accounted for under the equity method when the Company does not have a controlling financial interest and reported within *Other noncurrent assets* on the Balance Sheet.

Primary activity during 2018 related to the acquisition of ICS Group Holdings Limited in January 2018. The business, reported within the Climate segment, specializes in the temporary rental of energy efficient chillers for commercial and industrial buildings across Europe. In addition, the Company acquired independent dealers to expand its distribution network. Intangible assets associated with these acquisitions totaled $45.2 million and primarily relate to trademarks and customer relationships. The excess purchase price over the estimated fair value of net assets acquired was recognized as goodwill and totaled $119.9 million.

In addition, the Company completed its investment of a 50% ownership interest in a joint venture with Mitsubishi Electric Corporation (Mitsubishi) in May 2018. The joint venture, reported within the Climate segment, focuses on marketing, selling and supporting variable refrigerant flow (VRF) and ductless heating and air conditioning systems through Trane, American Standard and Mitsubishi channels in the U.S. and select Latin American countries. Ongoing results since the date of investment are accounted for under the equity method and are not considered material to the Company's results of operations.

During 2017, the Company acquired several businesses, including channel acquisitions, that complement existing products and services. Acquisitions within the Climate segment primarily consisted of independent dealers which support the ongoing strategy to expand the Company's distribution network. Acquisitions within the Industrial segment primarily consisted of a telematics business which builds upon our growing portfolio of connected assets. The aggregate cash paid, net of cash acquired, totaled $157.6 million and was funded through cash on hand.

DIVESTITURES

The Company has retained obligations from previously sold businesses, including amounts related to the 2013 spin-off of its commercial and residential security business, that primarily include ongoing expenses for postretirement benefits, product liability and legal costs. The components of *Discontinued operations, net of tax* for the years ended December 31 are as follows:

IN MILLIONS	2019	2018	2017
Pre-tax earnings (loss) from discontinued operations	$ 54.8	$ (85.5)	$ (34.0)
Tax benefit (expense)	(14.2)	64.0	8.6
Discontinued operations, net of tax	$ 40.6	$ (21.5)	$ (25.4)

Pre-tax earnings (loss) from discontinued operations includes costs associated with Ingersoll Rand Company for the settlement and defense of asbestos-related claims, insurance settlements on asbestos-related matters and the revaluation of its liability for potential future claims and recoveries. Refer to Note 22, "Commitments and Contingencies," for more information related to asbestos.

NOTE 20. EARNINGS PER SHARE (EPS)

Basic EPS is calculated by dividing *Net earnings attributable to Ingersoll-Rand plc* by the weighted-average number of ordinary shares outstanding for the applicable period. Diluted EPS is calculated after adjusting the denominator of the basic EPS calculation for the effect of all potentially dilutive ordinary shares, which in the Company's case, includes shares issuable under share-based compensation plans. The following table summarizes the weighted-average number of ordinary shares outstanding for basic and diluted earnings per share calculations:

IN MILLIONS	2019	2018	2017
Weighted-average number of basic shares outstanding	241.6	247.2	254.9
Shares issuable under incentive stock plans	2.8	2.9	3.2
Weighted-average number of diluted shares outstanding	244.4	250.1	258.1
Anti-dilutive shares	—	1.5	1.6
Dividends declared per ordinary share	2.12	1.96	1.70

NOTE 21. BUSINESS SEGMENT INFORMATION

The accounting policies of the operating segments are the same as those described in the summary of significant accounting policies except that the operating segments' results are prepared on a management basis that is consistent with the manner in which the Company prepares financial information for internal review and decision making. The Company largely evaluates performance based on Segment operating income and Segment operating margins. Intercompany sales between segments are considered immaterial.

The Company's Climate segment delivers energy-efficient products and innovative energy services. It includes Trane® and American Standard® Heating & Air Conditioning which provide heating, ventilation and air conditioning (HVAC) systems, and commercial and residential building services, parts, support and controls; energy services and building automation through Trane Building Advantage™ and Nexia™; and Thermo King® transport temperature control solutions.

The Company's Industrial segment delivers products and services that enhance energy efficiency, productivity and operations. It includes compressed air and gas systems and services, power tools, material handling systems, fluid management systems, as well as Club Car ® golf, utility and rough terrain vehicles.

Segment operating income is the measure of profit and loss that the Company's chief operating decision maker uses to evaluate the financial performance of the business and as the basis for performance reviews, compensation and resource allocation. For these reasons, the Company believes that Segment operating income represents the most relevant measure of segment profit and loss.

A summary of operations by reportable segments for the years ended December 31 were as follows:

DOLLAR AMOUNTS IN MILLIONS	2019	2018	2017
Climate			
Net revenues	$ 13,075.9	$ 12,343.8	$ 11,167.5
Segment operating income	1,908.5	1,766.2	1,572.7
Segment operating income as a percentage of net revenues	14.6%	14.3%	14.1%
Depreciation and amortization	258.0	252.0	247.6
Capital expenditures	188.1	217.3	103.8
Industrial			
Net revenues	3,523.0	3,324.4	3,030.1
Segment operating income	455.0	405.3	357.6
Segment operating income as a percentage of net revenues	12.9%	12.2%	11.8%
Depreciation and amortization	108.6	79.2	77.3
Capital expenditures	48.7	80.9	57.4
Total net revenues	$ 16,598.9	$ 15,668.2	$ 14,197.6
Reconciliation to Operating Income			
Segment operating income from reportable segments	$ 2,363.5	$ 2,171.5	$ 1,930.3
Unallocated corporate expense	(345.9)	(254.1)	(265.0)
Total operating income	$ 2,017.6	$ 1,917.4	$ 1,665.3
Total operating income as a percentage of revenues	12.2%	12.2%	11.7%
Depreciation and Amortization			
Depreciation and amortization from reportable segments	$ 366.6	$ 331.2	$ 324.9
Unallocated depreciation and amortization	30.8	30.3	28.4
Total depreciation and amortization	$ 397.4	$ 361.5	$ 353.3
Capital Expenditures			
Capital expenditures from reportable segments	$ 236.8	$ 298.2	$ 161.2
Corporate capital expenditures	17.3	67.4	60.1
Total capital expenditures	$ 254.1	$ 365.6	$ 221.3

At December 31, a summary of long-lived assets by geographic area were as follows:

IN MILLIONS	2019	2018
United States	$ 2,327.3	$ 1,914.7
Non-U.S.	790.6	781.3
Total	$ 3,117.9	$ 2,696.0

NOTE 22. COMMITMENTS AND CONTINGENCIES

The Company is involved in various litigations, claims and administrative proceedings, including those related to environmental, asbestos, and product liability matters. In accordance with ASC 450, "Contingencies" (ASC 450), the Company records accruals for loss contingencies when it is both probable that a liability will be incurred and the amount of the loss can be reasonably estimated. Amounts recorded for identified contingent liabilities are estimates, which are reviewed periodically and adjusted to reflect additional information when it becomes available. Subject to the uncertainties inherent in estimating future costs for contingent liabilities, except as expressly set forth in this note, management believes that any liability which may result from these legal matters would not have a material adverse effect on the financial condition, results of operations, liquidity or cash flows of the Company.

ENVIRONMENTAL MATTERS

The Company continues to be dedicated to environmental and sustainability programs to minimize the use of natural resources, and reduce the utilization and generation of hazardous materials from our manufacturing processes and to remediate identified environmental concerns. As to the latter, the Company is currently engaged in site investigations and remediation activities to address environmental cleanup from past operations at current and former manufacturing facilities.

The Company is sometimes a party to environmental lawsuits and claims and has received notices of potential violations of environmental laws and regulations from the Environmental Protection Agency and similar state authorities. It has also been identified as a potentially responsible party (PRP) for cleanup costs associated with off-site waste disposal at federal Superfund and state remediation sites. For all such sites, there are other PRPs and, in most instances, the Company's involvement is minimal.

In estimating its liability, the Company has assumed it will not bear the entire cost of remediation of any site to the exclusion of other PRPs who may be jointly and severally liable. The ability of other PRPs to participate has been taken into account, based on the Company's understanding of the parties' financial condition and probable contributions on a per site basis. Additional lawsuits and claims involving environmental matters are likely to arise from time to time in the future.

Reserves for environmental matters are classified as *Accrued expenses and other current liabilities* or *Other noncurrent liabilities* based on their expected term. As of December 31, 2019 and 2018, the Company has recorded reserves for environmental matters of $42.6 million and $41.2 million, respectively. Of these amounts $37.5 million and $36.1 million, respectively, relate to remediation of sites previously disposed by the Company.

ASBESTOS-RELATED MATTERS

Certain wholly-owned subsidiaries and former companies of ours are named as defendants in asbestos-related lawsuits in state and federal courts. In virtually all of the suits, a large number of other companies have also been named as defendants. The vast majority of those claims have been filed against either Ingersoll-Rand Company or Trane U.S. Inc. (Trane) and generally allege injury caused by exposure to asbestos contained in certain historical products sold by Ingersoll-Rand Company or Trane, primarily pumps, boilers and railroad brake shoes. None of our existing or previously-owned businesses were a producer or manufacturer of asbestos.

The Company engages an outside expert to perform a detailed analysis and project an estimated range of the Company's total liability for pending and unasserted future asbestos-related claims. In accordance with ASC 450, the Company records the liability at the low end of the range as it believes that no amount within the range is a better estimate than any other amount. Asbestos-related defense costs are excluded from the liability and are recorded separately as services are incurred. The methodology used to prepare estimates relies upon and includes the following factors, among others:

- the outside expert's interpretation of a widely accepted forecast of the population likely to have been occupationally exposed to asbestos;
- epidemiological studies estimating the number of people likely to develop asbestos-related diseases such as mesothelioma and lung cancer;
- the Company's historical experience with the filing of non-malignancy claims and claims alleging other types of malignant diseases filed against the Company relative to the number of lung cancer claims filed against the Company;
- the outside expert's analysis of the number of people likely to file an asbestos-related personal injury claim against the Company based on such epidemiological and historical data and the Company's claims history;
- an analysis of the Company's pending cases, by type of disease claimed and by year filed;
- an analysis of the Company's history to determine the average settlement and resolution value of claims, by type of disease claimed;
- an adjustment for inflation in the future average settlement value of claims, at a 2.5% annual inflation rate, adjusted downward to 1.0% to take account of the declining value of claims resulting from the aging of the claimant population; and
- an analysis of the period over which the Company has and is likely to resolve asbestos-related claims against it in the future (currently projected through 2053).

At December 31, 2019, over 73 percent of the open and active claims against the Company are non-malignant or unspecified disease claims. In addition, the Company has a number of claims which have been placed on inactive or deferred dockets and expected to have little or no settlement value against the Company.

The Company's liability for asbestos-related matters and the asset for probable asbestos-related insurance recoveries are included in the following balance sheet accounts:

IN MILLIONS	DECEMBER 31, 2019	DECEMBER 31, 2018
Accrued expenses and other current liabilities	$ 63.0	$ 63.3
Other noncurrent liabilities	484.4	548.3
Total asbestos-related liabilities	$ 547.4	$ 611.6
Other current assets	$ 66.2	$ 69.2
Other noncurrent assets	237.8	199.0
Total asset for probable asbestos-related insurance recoveries	$ 304.0	$ 268.2

The Company's asbestos insurance receivable related to Ingersoll-Rand Company and Trane was $188.7 million and $115.3 million at December 31, 2019, and $141.7 million and $126.5 million at December 31, 2018, respectively. These receivables attributable to Ingersoll-Rand Company and Trane for probable insurance recoveries as of December 31, 2019 are entirely supported by settlement agreements between Ingersoll-Rand Company and Trane and their respective insurance carriers. Most of these settlement agreements constitute "coverage-in-place" arrangements, in which the insurer signatories agree to reimburse Ingersoll-Rand Company or Trane, as applicable, for specified portions of their respective costs for asbestos bodily injury claims and Ingersoll-Rand Company or Trane, as applicable, agrees to certain claims-handling protocols and grants to the insurer signatories certain releases and indemnifications.

The costs associated with the settlement and defense of asbestos-related claims, insurance settlements on asbestos-related matters and the revaluation of the Company's liability for potential future claims and recoveries are included in the income statement within continuing operations or discontinued operations depending on the business to which they relate. Income and expenses associated with Ingersoll-Rand Company's asbestos-related matters are recorded within discontinued operations as they relate to previously divested businesses, primarily Ingersoll-Dresser Pump, which was sold by the Company in 2000. Income and expenses associated with Trane's asbestos-related matters are recorded within continuing operations.

The net income (expense) associated with these transactions for the years ended December 31, were as follows:

IN MILLIONS	2019	2018	2017
Continuing operations	$ 7.0	$ (10.4)	$ (3.1)
Discontinued operations	68.2	(56.5)	(11.9)
Total	$ 75.2	$ (66.9)	$ (15.0)

During the year ended December 31, 2019, the Company reached settlements with several insurance carriers associated with pending asbestos insurance coverage litigation (as discussed below). All but one of these settlements relate to Ingersoll-Rand Company and are recorded within discontinued operations. The settlement that relates to Trane is recorded within continuing operations. During the year ended December 31, 2018, the Company's valuation model was updated to address a change in potential future claims. The adjustment, which increased the asbestos-related liability for both Ingersoll-Rand Company and Trane, was partially offset by asbestos-related receivables from insurance carriers. During the year ended December 31, 2017, the Company recorded an adjustment to update its liability for potential future claims. This amount was partially offset by asbestos-related settlements reached with various insurance carriers.

In 2012 and 2013, Ingersoll-Rand Company filed actions in the Superior Court of New Jersey, Middlesex County, seeking a declaratory judgment and other relief regarding the Company's rights to defense and indemnity for asbestos claims. The defendants were several dozen solvent insurance companies, including companies that had been paying a portion of Ingersoll-Rand Company's asbestos claim defense and indemnity costs. The responding defendants generally challenged the Company's right to recovery, and raised various coverage defenses. As of December 31, 2019, Ingersoll-Rand Company has resolved both actions through settlements with all of the remaining solvent insurer defendants.

The amounts recorded by the Company for asbestos-related liabilities and insurance-related assets are based on currently available information. The Company's actual liabilities or insurance recoveries could be significantly higher or lower than those recorded if assumptions used in the calculations vary significantly from actual results. Key assumptions underlying the estimated asbestos-related liabilities include the number of people occupationally exposed and likely to develop asbestos-related diseases such as mesothelioma and lung cancer, the number of people likely to file an asbestos-related personal injury claim against the Company, the average settlement and resolution of each claim and the percentage of claims resolved with no payment. Furthermore, predictions with respect to estimates of the liability are subject to greater uncertainty as the projection period lengthens. Other factors that may affect the Company's liability include uncertainties surrounding the litigation process from jurisdiction to jurisdiction and from case to case, reforms that may be made by state and federal courts, and the passage of state or federal tort reform legislation.

The aggregate amount of the stated limits in insurance policies available to the Company for asbestos-related claims acquired, over many years and from many different carriers, is substantial. However, limitations in that coverage, primarily due to the considerations described above, are expected to result in the projected total liability to claimants substantially exceeding the probable insurance recovery.

WARRANTY LIABILITY

Standard product warranty accruals are recorded at the time of sale and are estimated based upon product warranty terms and historical experience. The Company assesses the adequacy of its liabilities and will make adjustments as necessary based on known or anticipated warranty claims, or as new information becomes available.

The changes in the standard product warranty liability for the year ended December 31, were as follows:

IN MILLIONS	2019	2018
Balance at beginning of period	$ 278.9	$ 270.5
Reductions for payments	(153.1)	(159.0)
Accruals for warranties issued during the current period	155.9	158.2
Changes to accruals related to preexisting warranties	3.8	11.5
Translation	(0.8)	(2.3)
Balance at end of period	$ 284.7	$ 278.9

Standard product warranty liabilities are classified as *Accrued expenses and other current liabilities*, or *Other noncurrent liabilities* based on their expected term. The Company's total current standard product warranty reserve at December 31, 2019 and December 31, 2018 was $157.6 million and $149.5 million, respectively.

The Company's extended warranty liability represents the deferred revenue associated with its extended warranty contracts and is amortized into *Net revenues* on a straight-line basis over the life of the contract, unless another method is more representative of the costs incurred. The Company assesses the adequacy of its liability by evaluating the expected costs under its existing contracts to ensure these expected costs do not exceed the extended warranty liability.

The changes in the extended warranty liability for the year ended December 31, were as follows:

IN MILLIONS	2019	2018
Balance at beginning of period	$ 292.2	$ 293.0
Amortization of deferred revenue for the period	(120.9)	(115.0)
Additions for extended warranties issued during the period	133.2	116.1
Changes to accruals related to preexisting warranties	(0.4)	(0.5)
Translation	—	(1.4)
Balance at end of period	$ 304.1	$ 292.2

The extended warranty liability is classified as *Accrued expenses and other current liabilities* or *Other noncurrent liabilities* based on the timing of when the deferred revenue is expected to be amortized into *Net revenues*. The Company's total current extended warranty liability at December 31, 2019 and December 31, 2018 was $107.3 million and $103.1 million, respectively. For the years ended December 31, 2019 and 2018, the Company incurred costs of $63.7 million and $63.2 million, respectively, related to extended warranties.

NOTE 23. GUARANTOR FINANCIAL INFORMATION

Ingersoll-Rand plc (Plc or Parent Company) and certain of its 100% directly or indirectly owned subsidiaries provide guarantees of public debt issued by other 100% directly or indirectly owned subsidiaries. The following condensed consolidating financial information is provided so that separate financial statements of these subsidiary issuer and guarantors are not required to be filed with the U.S. Securities and Exchange Commission.

The following table shows the Company's guarantor relationships as of December 31, 2019:

PARENT, ISSUER OR GUARANTORS	NOTES ISSUED	NOTES GUARANTEED [1]
Ingersoll-Rand plc (Plc)	None	All registered notes and debentures
Ingersoll-Rand Irish Holdings Unlimited Company (Irish Holdings)	None	All notes issued by Global Holding and Lux Finance
Ingersoll-Rand Lux International Holding Company S.a.r.l. (Lux International)	None	All notes issued by Global Holding and Lux Finance
Ingersoll-Rand Global Holding Company Limited (Global Holding)	2.900% Senior notes due 2021 4.250% Senior notes due 2023 3.750% Senior notes due 2028 5.750% Senior notes due 2043 4.300% Senior notes due 2048	All notes issued by Lux Finance
Ingersoll-Rand Company (New Jersey)	9.000% Debentures due 2021 7.200% Debentures due 2020-2025 6.480% Debentures due 2025 Puttable debentures due 2027-2028	All notes issued by Global Holding and Lux Finance
Ingersoll-Rand Luxembourg Finance S.A. (Lux Finance)	2.625% Notes due 2020 3.550% Notes due 2024 3.500% Notes due 2026 3.800% Notes due 2029 4.650% Notes due 2044 4.500% Notes due 2049	All notes and debentures issued by Global Holding and New Jersey

[1] All subsidiary issuers and guarantors provide irrevocable guarantees of borrowings, if any, made under revolving credit facilities

Each subsidiary debt issuer and guarantor is owned 100% directly or indirectly by the Parent Company. Each guarantee is full and unconditional, and provided on a joint and several basis. There are no significant restrictions of the Parent Company, or any guarantor, to obtain funds from its subsidiaries, such as provisions in debt agreements that prohibit dividend payments, loans or advances to the parent by a subsidiary.

BASIS OF PRESENTATION

The following Condensed Consolidating Financial Statements present the financial position, results of operations and cash flows of each issuer or guarantor on a legal entity basis. The financial information for all periods has been presented based on the Company's legal entity ownerships and guarantees outstanding at December 31, 2019. Assets and liabilities are attributed to each issuer and guarantor generally based on legal entity ownership. Investments in subsidiaries of the Parent Company, subsidiary guarantors and issuers represent the proportionate share of their subsidiaries' net assets. Certain adjustments are needed to consolidate the Parent Company and its subsidiaries, including the elimination of investments in subsidiaries and related activity that occurs between entities in different columns. These adjustments are presented in the Consolidating Adjustments column. This basis of presentation is intended to comply with the specific reporting requirements for subsidiary issuers and guarantors, and is not intended to present the Company's financial position or results of operations or cash flows for any other purpose.

Transfers of businesses within a consolidated group should be reflected on a retrospective basis in the Condensed Consolidating Financial Statements for all periods presented. As a result, the Company updated its Condensed Consolidating Financial Statements to recast the presentation of certain subsidiaries between the New Jersey and Other Subsidiaries columns in connection with the proposed separation of the Industrial Segment businesses. These modifications relate to fourth quarter 2019 intercompany transactions that changed the ownership of certain IR Industrial businesses reported in the New Jersey column to a newly created entity reported within the Other Subsidiaries column. The updated presentation is shown in the following tables:

CONDENSED CONSOLIDATING STATEMENT OF COMPREHENSIVE INCOME

For the year ended December 31, 2019

IN MILLIONS	PLC	IRISH HOLDINGS	LUX INTERNATIONAL	GLOBAL HOLDING	NEW JERSEY	LUX FINANCE	OTHER SUBSIDIARIES	CONSOLIDATING ADJUSTMENTS	CONSOLIDATED
Net revenues	$ —	$ —	$ —	$ —	$ —	$ —	$ 16,598.9	$ —	$ 16,598.9
Cost of goods sold	—	—	—	—	(18.3)	—	(11,433.2)	—	(11,451.5)
Selling and administrative expenses	(16.1)	—	(0.8)	(0.3)	(245.3)	(0.3)	(2,867.0)	—	(3,129.8)
Operating income (loss)	(16.1)	—	(0.8)	(0.3)	(263.6)	(0.3)	2,298.7	—	2,017.6
Equity earnings (loss) in subsidiaries, net of tax	1,544.1	1,542.8	1,237.3	1,189.9	1,274.2	209.9	—	(6,998.2)	—
Interest expense	—	—	—	(106.6)	(46.2)	(89.7)	(0.5)	—	(243.0)
Intercompany interest and fees	(125.0)	—	74.7	(294.8)	159.2	26.5	159.4	—	—
Other income/(expense), net	(0.1)	—	59.5	—	(12.0)	4.7	(85.1)	—	(33.0)
Earnings (loss) before income taxes	1,402.9	1,542.8	1,370.7	788.2	1,111.6	151.1	2,372.5	(6,998.2)	1,741.6
Benefit (provision) for income taxes	8.0	—	5.1	106.1	16.5	—	(489.4)	—	(353.7)
Earnings (loss) from continuing operations	1,410.9	1,542.8	1,375.8	894.3	1,128.1	151.1	1,883.1	(6,998.2)	1,387.9
Discontinued operations, net of tax	—	—	—	—	36.2	—	4.4	—	40.6
Net earnings (loss)	1,410.9	1,542.8	1,375.8	894.3	1,164.3	151.1	1,887.5	(6,998.2)	1,428.5
Less: Net earnings attributable to noncontrolling interests	—	—	—	—	—	—	(17.6)	—	(17.6)
Net earnings attributable to Ingersoll-Rand plc	$ 1,410.9	$ 1,542.8	$ 1,375.8	$ 894.3	$ 1,164.3	$ 151.1	$ 1,869.9	$ (6,998.2)	$ 1,410.9
Other comprehensive income (loss), net of tax	(42.5)	(42.2)	(30.7)	(16.6)	(16.0)	(13.7)	(71.6)	190.8	(42.5)
Comprehensive income attributable to Ingersoll-Rand plc	$ 1,368.4	$ 1,500.6	$ 1,345.1	$ 877.7	$ 1,148.3	$ 137.4	$ 1,798.3	$ (6,807.4)	$ 1,368.4

CONDENSED CONSOLIDATING STATEMENT OF COMPREHENSIVE INCOME

For the year ended December 31, 2018

IN MILLIONS	PLC	IRISH HOLDINGS	LUX INTERNATIONAL	GLOBAL HOLDING	NEW JERSEY	LUX FINANCE	OTHER SUBSIDIARIES	CONSOLIDATING ADJUSTMENTS	CONSOLIDATED
Net revenues	$ —	$ —	$ —	$ —	$ —	$ —	$ 15,668.2	$ —	$ 15,668.2
Cost of goods sold	—	—	—	—	(28.7)	—	(10,818.9)	—	(10,847.6)
Selling and administrative expenses	(39.6)	—	(0.4)	(0.3)	(86.5)	(0.3)	(2,776.1)	—	(2,903.2)
Operating income (loss)	(39.6)	—	(0.4)	(0.3)	(115.2)	(0.3)	2,073.2	—	1,917.4
Equity earnings (loss) in subsidiaries, net of tax	1,460.9	1,458.6	1,183.7	1,190.5	1,213.0	195.6	—	(6,702.3)	—
Interest expense	—	—	0.4	(130.3)	(46.8)	(43.0)	(1.0)	—	(220.7)
Intercompany interest and fees	(92.7)	—	41.1	(196.5)	25.1	(11.2)	234.2	—	—
Other income/(expense), net	—	—	(48.8)	0.7	(10.5)	0.1	22.1	—	(36.4)
Earnings (loss) before income taxes	1,328.6	1,458.6	1,176.0	864.1	1,065.6	141.2	2,328.5	(6,702.3)	1,660.3
Benefit (provision) for income taxes	9.0	—	—	86.2	145.0	—	(521.5)	—	(281.3)
Earnings (loss) from continuing operations	1,337.6	1,458.6	1,176.0	950.3	1,210.6	141.2	1,807.0	(6,702.3)	1,379.0
Discontinued operations, net of tax	—	—	—	—	(20.1)	—	(1.4)	—	(21.5)
Net earnings (loss)	1,337.6	1,458.6	1,176.0	950.3	1,190.5	141.2	1,805.6	(6,702.3)	1,357.5
Less: Net earnings attributable to noncontrolling interests	—	—	—	—	—	—	(19.9)	—	(19.9)
Net earnings attributable to Ingersoll-Rand plc	$ 1,337.6	$ 1,458.6	$ 1,176.0	$ 950.3	$ 1,190.5	$ 141.2	$ 1,785.7	$ (6,702.3)	$ 1,337.6
Other comprehensive income (loss), net of tax	(185.3)	(184.7)	(174.2)	(86.2)	(86.2)	(83.5)	(256.2)	871.0	(185.3)
Comprehensive income attributable to Ingersoll-Rand plc	$ 1,152.3	$ 1,273.9	$ 1,001.8	$ 864.1	$ 1,104.3	$ 57.7	$ 1,529.5	$ (5,831.3)	$ 1,152.3

CONDENSED CONSOLIDATING STATEMENT OF COMPREHENSIVE INCOME

For the year ended December 31, 2017

IN MILLIONS	PLC	IRISH HOLDINGS	LUX INTERNATIONAL	GLOBAL HOLDING	NEW JERSEY	LUX FINANCE	OTHER SUBSIDIARIES	CONSOLIDATING ADJUSTMENTS	CONSOLIDATED
Net revenues	$ —	$ —	$ —	$ —	$ —	$ —	$ 14,197.6	$ —	$ 14,197.6
Cost of goods sold	—	—	—	—	(25.2)	—	(9,786.4)	—	(9,811.6)
Selling and administrative expenses	(15.6)	—	(0.1)	(1.2)	(102.9)	(0.2)	(2,600.7)	—	(2,720.7)
Operating income (loss)	(15.6)	—	(0.1)	(1.2)	(128.1)	(0.2)	1,810.5	—	1,665.3
Equity earnings (loss) in subsidiaries, net of tax	1,349.2	1,334.7	982.3	565.4	1,271.7	107.9	—	(5,611.2)	—
Interest expense	—	—	—	(127.0)	(47.2)	(41.0)	(0.6)	—	(215.8)
Intercompany interest and fees	(33.1)	—	253.0	(493.9)	(514.3)	(8.2)	796.5	—	—
Other income/(expense), net	—	—	0.1	—	(4.8)	—	(26.9)	—	(31.6)
Earnings (loss) before income taxes	1,300.5	1,334.7	1,235.3	(56.7)	577.3	58.5	2,579.5	(5,611.2)	1,417.9
Benefit (provision) for income taxes	2.1	—	—	247.2	15.9	—	(345.4)	—	(80.2)
Earnings (loss) from continuing operations	1,302.6	1,334.7	1,235.3	190.5	593.2	58.5	2,234.1	(5,611.2)	1,337.7
Discontinued operations, net of tax	—	—	—	—	(27.9)	—	2.5	—	(25.4)
Net earnings (loss)	1,302.6	1,334.7	1,235.3	190.5	565.3	58.5	2,236.6	(5,611.2)	1,312.3
Less: Net earnings attributable to noncontrolling interests	—	—	—	—	—	—	(9.7)	—	(9.7)
Net earnings attributable to Ingersoll-Rand plc	$ 1,302.6	$ 1,334.7	$ 1,235.3	$ 190.5	$ 565.3	$ 58.5	$ 2,226.9	$ (5,611.2)	$ 1,302.6
Other comprehensive income (loss), net of tax	511.7	510.3	471.1	367.8	367.3	102.1	499.0	(2,317.6)	511.7
Comprehensive income attributable to Ingersoll-Rand plc	$ 1,814.3	$ 1,845.0	$ 1,706.4	$ 558.3	$ 932.6	$ 160.6	$ 2,725.9	$ (7,928.8)	$ 1,814.3

CONDENSED CONSOLIDATING BALANCE SHEET

December 31, 2019

IN MILLIONS	PLC	IRISH HOLDINGS	LUX INTERNATIONAL	GLOBAL HOLDING	NEW JERSEY	LUX FINANCE	OTHER SUBSIDIARIES	CONSOLIDATING ADJUSTMENTS	CONSOLIDATED
ASSETS									
Current assets:									
Cash and cash equivalents	$ —	$ —	$ 0.1	$ —	$ 313.1	$ 0.5	$ 989.9	$ —	$ 1,303.6
Accounts and notes receivable, net	—	—	0.2	—	0.7	—	2,797.2	—	2,798.1
Inventories	—	—	—	—	—	—	1,712.2	—	1,712.2
Other current assets	0.3	—	2.4	39.2	82.2	—	279.2	—	403.3
Intercompany receivables	40.0	—	89.7	—	4,644.9	1,473.7	4,967.0	(11,215.3)	—
Total current assets	40.3	—	92.4	39.2	5,040.9	1,474.2	10,745.5	(11,215.3)	6,217.2
Property, plant and equipment, net	—	—	—	—	156.9	—	1,649.3	—	1,806.2
Goodwill and other intangible assets, net	—	—	—	—	2.7	—	10,929.2	—	10,931.9
Other noncurrent assets	—	—	13.3	198.4	746.3	—	990.2	(411.2)	1,537.0
Investments in consolidated subsidiaries	10,506.2	10,488.7	4,943.5	14,328.0	10,140.5	1,464.5	—	(51,871.4)	—
Intercompany notes receivable	—	—	2,781.9	—	—	—	2,249.7	(5,031.6)	—
Total assets	$ 10,546.5	$ 10,488.7	$ 7,831.1	$ 14,565.6	$ 16,087.3	$ 2,938.7	$ 26,563.9	$ (68,529.5)	$ 20,492.3
LIABILITIES AND EQUITY									
Current liabilities:									
Accounts payable and accrued expenses	$ 10.1	$ —	$ —	$ 17.8	$ 438.7	$ 23.3	$ 3,721.5	$ —	$ 4,211.4
Short-term borrowings and current maturities of long-term debt	—	—	—	—	350.4	299.8	0.3	—	650.5
Intercompany payables	3,268.8	—	2,917.4	3,920.5	1,058.9	29.4	20.3	(11,215.3)	—
Total current liabilities	3,278.9	—	2,917.4	3,938.3	1,848.0	352.5	3,742.1	(11,215.3)	4,861.9
Long-term debt	—	—	—	2,332.4	312.1	2,278.3	0.1	—	4,922.9
Other noncurrent liabilities	—	—	—	0.3	1,107.7	—	2,698.3	(411.2)	3,395.1
Intercompany notes payable	—	—	—	3,699.7	—	—	1,331.9	(5,031.6)	—
Total liabilities	3,278.9	—	2,917.4	9,970.7	3,267.8	2,630.8	7,772.4	(16,658.1)	13,179.9
Equity:									
Total equity	7,267.6	10,488.7	4,913.7	4,594.9	12,819.5	307.9	18,791.5	(51,871.4)	7,312.4
Total liabilities and equity	$ 10,546.5	$ 10,488.7	$ 7,831.1	$ 14,565.6	$ 16,087.3	$ 2,938.7	$ 26,563.9	$ (68,529.5)	$ 20,492.3

CONDENSED CONSOLIDATING BALANCE SHEET

December 31, 2018

IN MILLIONS	PLC	IRISH HOLDINGS	LUX INTERNATIONAL	GLOBAL HOLDING	NEW JERSEY	LUX FINANCE	OTHER SUBSIDIARIES	CONSOLIDATING ADJUSTMENTS	CONSOLIDATED
ASSETS									
Current assets:									
Cash and cash equivalents	$ —	$ 0.1	$ 0.2	$ —	$ 357.7	$ —	$ 545.4	$ —	$ 903.4
Accounts and notes receivable, net	—	—	0.1	—	1.5	—	2,677.6	—	2,679.2
Inventories	—	—	—	—	—	—	1,677.8	—	1,677.8
Other current assets	0.2	—	7.8	—	86.9	—	377.5	(0.8)	471.6
Intercompany receivables	59.5	—	3.9	—	3,831.0	0.1	3,970.9	(7,865.4)	—
Total current assets	59.7	0.1	12.0	—	4,277.1	0.1	9,249.2	(7,866.2)	5,732.0
Property, plant and equipment, net	—	—	0.1	—	163.6	—	1,567.1	—	1,730.8
Goodwill and other intangible assets, net	—	—	—	—	6.8	—	9,587.4	—	9,594.2
Other noncurrent assets	—	—	8.0	180.0	508.4	—	613.2	(451.7)	857.9
Investments in consolidated subsidiaries	9,308.9	9,267.8	3,935.4	11,742.6	10,778.8	1,264.2	—	(46,297.7)	—
Intercompany notes receivable	—	—	—	—	—	—	2,249.7	(2,249.7)	—
Total assets	$ 9,368.6	$ 9,267.9	$ 3,955.5	$ 11,922.6	$ 15,734.7	$ 1,264.3	$ 23,266.6	$ (56,865.3)	$ 17,914.9
LIABILITIES AND EQUITY									
Current liabilities:									
Accounts payable and accrued expenses	$ 11.3	$ —	$ 0.1	$ 41.7	$ 347.0	$ 6.9	$ 3,558.9	$ (0.8)	$ 3,965.1
Short-term borrowings and current maturities of long-term debt	—	—	—	—	350.4	—	0.2	—	350.6
Intercompany payables	2,334.6	—	132.9	3,518.7	1,879.0	0.2	—	(7,865.4)	—
Total current liabilities	2,345.9	—	133.0	3,560.4	2,576.4	7.1	3,559.1	(7,866.2)	4,315.7
Long-term debt	—	—	—	2,330.0	319.5	1,091.0	0.2	—	3,740.7
Other noncurrent liabilities	—	—	—	5.5	1,096.1	—	2,143.8	(451.7)	2,793.7
Intercompany notes payable	—	—	—	2,249.7	—	—	—	(2,249.7)	—
Total liabilities	2,345.9	—	133.0	8,145.6	3,992.0	1,098.1	5,703.1	(10,567.6)	10,850.1
Equity:									
Total equity	7,022.7	9,267.9	3,822.5	3,777.0	11,742.7	166.2	17,563.5	(46,297.7)	7,064.8
Total liabilities and equity	$ 9,368.6	$ 9,267.9	$ 3,955.5	$ 11,922.6	$ 15,734.7	$ 1,264.3	$ 23,266.6	$ (56,865.3)	$ 17,914.9

CONDENSED CONSOLIDATING STATEMENT OF CASH FLOWS

For the year ended December 31, 2019

IN MILLIONS	PLC	IRISH HOLDINGS	LUX INTERNATIONAL	GLOBAL HOLDING	NEW JERSEY	LUX FINANCE	OTHER SUBSIDIARIES	CONSOLIDATING ADJUSTMENTS	CONSOLIDATED
CASH FLOWS FROM OPERATING ACTIVITIES:									
Net cash provided by (used in) continuing operating activities	$ 191.7	$ —	$ 134.8	$ (332.7)	$ 1,522.6	$ (66.1)	$ 506.0	$ —	$ 1,956.3
Net cash provided by (used in) discontinued operating activities	—	—	—	—	(41.3)	—	4.5	—	(36.8)
Net cash provided by (used in) operating activities	191.7	—	134.8	(332.7)	1,481.3	(66.1)	510.5	—	1,919.5
CASH FLOWS FROM INVESTING ACTIVITIES:									
Capital expenditures	—	—	—	—	(12.7)	—	(241.4)	—	(254.1)
Acquisitions and equity method investments, net of cash acquired	—	—	(58.0)	(1,446.3)	—	—	(35.4)	—	(1,539.7)
Proceeds from sale of property, plant and equipment	—	—	—	—	—	—	3.8	—	3.8
Other investing activities, net	—	—	—	—	4.3	—	5.7	—	10.0
Intercompany investing activities, net	150.4	149.8	(1,454.0)	—	889.2	(1,449.9)	2,040.1	(325.6)	—
Net cash provided by (used in) investing activities	150.4	149.8	(1,512.0)	(1,446.3)	880.8	(1,449.9)	1,772.8	(325.6)	(1,780.0)
CASH FLOWS FROM FINANCING ACTIVITIES:									
Net proceeds from (payments of) debt	—	—	—	—	(7.5)	1,497.9	—	—	1,490.4
Debt issuance costs	—	—	—	—	(0.2)	(12.9)	—	—	(13.1)
Dividends paid to ordinary shareholders	(510.1)	—	—	—	—	—	—	—	(510.1)
Dividends paid to noncontrolling interests	—	—	—	—	—	—	(15.8)	—	(15.8)
Proceeds from shares issued under incentive plans	116.8	—	—	—	—	—	—	—	116.8
Repurchase of ordinary shares	(750.1)	—	—	—	—	—	—	—	(750.1)
Other financing activities, net	(44.3)	—	—	—	—	—	(3.3)	—	(47.6)
Intercompany financing activities, net	845.6	(149.9)	1,377.1	1,779.0	(2,399.0)	31.5	(1,809.9)	325.6	—
Net cash provided by (used in) financing activities	(342.1)	(149.9)	1,377.1	1,779.0	(2,406.7)	1,516.5	(1,829.0)	325.6	270.5
Effect of exchange rate changes on cash and cash equivalents	—	—	—	—	—	—	(9.8)	—	(9.8)
Net increase (decrease) in cash and cash equivalents	—	(0.1)	(0.1)	—	(44.6)	0.5	444.5	—	400.2
Cash and cash equivalents - beginning of period	—	0.1	0.2	—	357.7	—	545.4	—	903.4
Cash and cash equivalents - end of period	$ —	$ —	$ 0.1	$ —	$ 313.1	$ 0.5	$ 989.9	$ —	$ 1,303.6

CONDENSED CONSOLIDATING STATEMENT OF CASH FLOWS

For the year ended December 31, 2018

IN MILLIONS	PLC	IRISH HOLDINGS	LUX INTERNATIONAL	GLOBAL HOLDING	NEW JERSEY	LUX FINANCE	OTHER SUBSIDIARIES	CONSOLIDATING ADJUSTMENTS	CONSOLIDATED
CASH FLOWS FROM OPERATING ACTIVITIES:									
Net cash provided by (used in) continuing operating activities	$ 78.8	$ (2.7)	$ 31.5	$ (217.6)	$ 1,321.4	$ (52.0)	$ 315.1	$ —	$ 1,474.5
Net cash provided by (used in) discontinued operating activities	—	—	—	—	(65.3)	—	(1.4)	—	(66.7)
Net cash provided by (used in) operating activities	78.8	(2.7)	31.5	(217.6)	1,256.1	(52.0)	313.7	—	1,407.8
CASH FLOWS FROM INVESTING ACTIVITIES:									
Capital expenditures	—	—	—	—	(62.0)	—	(303.6)	—	(365.6)
Acquisitions and equity method investments, net of cash acquired	—	—	—	—	—	—	(285.2)	—	(285.2)
Proceeds from sale of property, plant and equipment	—	—	—	—	9.0	—	13.1	—	22.1
Other investing activities, net	—	—	(7.9)	—	3.0	—	4.2	—	(0.7)
Intercompany investing activities, net	1,058.7	(481.2)	545.4	9.5	307.1	—	2,463.0	(3,902.5)	—
Net cash provided by (used in) investing activities	1,058.7	(481.2)	537.5	9.5	257.1	—	1,891.5	(3,902.5)	(629.4)
CASH FLOWS FROM FINANCING ACTIVITIES:									
Net proceeds from (payments of) debt	—	—	—	31.6	(7.5)	—	(6.5)	—	17.6
Debt issuance costs	—	—	—	(12.0)	—	—	—	—	(12.0)
Dividends paid to ordinary shareholders	(479.5)	—	—	—	—	—	—	—	(479.5)
Dividends paid to noncontrolling interests	—	—	—	—	—	—	(41.4)	—	(41.4)
Proceeds from shares issued under incentive plans	68.9	—	—	—	—	—	—	—	68.9
Repurchase of ordinary shares	(900.2)	—	—	—	—	—	—	—	(900.2)
Other financing activities, net	(25.8)	—	—	—	—	—	(6.4)	—	(32.2)
Intercompany financing activities, net	199.1	484.0	(569.4)	188.5	(1,499.1)	52.0	(2,757.6)	3,902.5	—
Net cash provided by (used in) financing activities	(1,137.5)	484.0	(569.4)	208.1	(1,506.6)	52.0	(2,811.9)	3,902.5	(1,378.8)
Effect of exchange rate changes on cash and cash equivalents	—	—	—	—	—	—	(45.6)	—	(45.6)
Net increase (decrease) in cash and cash equivalents	—	0.1	(0.4)	—	6.6	—	(652.3)	—	(646.0)
Cash and cash equivalents - beginning of period	—	—	0.6	—	351.1	—	1,197.7	—	1,549.4
Cash and cash equivalents - end of period	$ —	$ 0.1	$ 0.2	$ —	$ 357.7	$ —	$ 545.4	$ —	$ 903.4

CONDENSED CONSOLIDATING STATEMENT OF CASH FLOWS

For the year ended December 31, 2018

IN MILLIONS	PLC	IRISH HOLDINGS	LUX INTERNATIONAL	GLOBAL HOLDING	NEW JERSEY	LUX FINANCE	OTHER SUBSIDIARIES	CONSOLIDATING ADJUSTMENTS	CONSOLIDATED
CASH FLOWS FROM OPERATING ACTIVITIES:									
Net cash provided by (used in) continuing operating activities	$ 83.8	$ —	$ (42.8)	$ (284.9)	$ 305.9	$ (48.0)	$ 1,547.6	$ —	$ 1,561.6
Net cash provided by (used in) discontinued operating activities	—	—	—	—	(36.9)	—	(1.2)	—	(38.1)
Net cash provided by (used in) operating activities	83.8	—	(42.8)	(284.9)	269.0	(48.0)	1,546.4	—	1,523.5
CASH FLOWS FROM INVESTING ACTIVITIES:									
Capital expenditures	—	—	—	—	(56.4)	—	(164.9)	—	(221.3)
Acquisitions and equity method investments, net of cash acquired	—	—	—	—	(2.7)	—	(154.9)	—	(157.6)
Proceeds from sale of property, plant and equipment	—	—	—	—	—	—	1.5	—	1.5
Other investing activities, net	—	—	—	—	—	—	2.7	—	2.7
Intercompany investing activities, net	285.1	285.2	2,050.2	270.1	4,933.4	11.7	6,713.1	(14,548.8)	—
Net cash provided by (used in) investing activities	285.1	285.2	2,050.2	270.1	4,874.3	11.7	6,397.5	(14,548.8)	(374.7)
CASH FLOWS FROM FINANCING ACTIVITIES:									
Net proceeds from (payments of) debt	—	—	—	—	(7.5)	—	(4.2)	—	(11.7)
Debt issuance costs	—	—	—	(0.2)	—	—	—	—	(0.2)
Dividends paid to ordinary shareholders	(430.1)	—	—	—	—	—	—	—	(430.1)
Dividends paid to noncontrolling interests	—	—	—	—	—	—	(15.8)	—	(15.8)
Acquisition of noncontrolling interest	—	—	—	—	—	—	(6.8)	—	(6.8)
Proceeds from shares issued under incentive plans	76.7	—	—	—	—	—	—	—	76.7
Repurchase of ordinary shares	(1,016.9)	—	—	—	—	—	—	—	(1,016.9)
Other financing activities, net	(25.4)	—	—	—	—	—	(2.3)	—	(27.7)
Intercompany financing activities, net	1,026.8	(285.2)	(2,006.8)	15.0	(5,414.8)	36.3	(7,920.1)	14,548.8	—
Net cash provided by (used in) financing activities	(368.9)	(285.2)	(2,006.8)	14.8	(5,422.3)	36.3	(7,949.2)	14,548.8	(1,432.5)
Effect of exchange rate changes on cash and cash equivalents	—	—	—	—	—	—	118.4	—	118.4
Net increase (decrease) in cash and cash equivalents	—	—	0.6	—	(279.0)	—	113.1	—	(165.3)
Cash and cash equivalents - beginning of period	—	—	—	—	630.1	—	1,084.6	—	1,714.7
Cash and cash equivalents - end of period	$ —	$ —	$ 0.6	$ —	$ 351.1	$ —	$ 1,197.7	$ —	$ 1,549.4

SCHEDULE II

INGERSOLL-RAND PLC
VALUATION AND QUALIFYING ACCOUNTS
FOR THE YEARS ENDED DECEMBER 31 2019, 2018 AND 2017

(Amounts in millions)

ALLOWANCES FOR DOUBTFUL ACCOUNTS:	
Balance December 31, 2016	$ 26.0
Additions charged to costs and expenses	9.7
Deductions (a)	(9.7)
Currency translation	1.3
Other	(0.4)
Balance December 31, 2017	26.9
Additions charged to costs and expenses	15.3
Deductions (a)	(9.1)
Business acquisitions and divestitures, net	0.5
Currency translation	(0.9)
Balance December 31, 2018	32.7
Additions charged to costs and expenses	15.2
Deductions (a)	(7.1)
Business acquisitions and divestitures, net	1.5
Currency translation	(0.1)
Balance December 31, 2019	$ 42.2

(a) "Deductions" include accounts and advances written off, less recoveries.

This page intentionally left blank.

This page intentionally left blank.

Annual General Meeting
The company's 2019 Annual Report on Form 10-K as filed with the United States Securities and Exchange Commission, and other company information, is available through Trane Technologies' website, www.tranetechnologies.com. Securities analysts, portfolio managers and representatives of institutional investors seeking information about the company should contact:

Shane Lawrence
Director, Investor Relations
704-655-5651

Date and Time
Thursday, June 4, 2020, at 8:00 a.m., local time

Location
Trane Technologies plc
800-C Beaty Street
Davidson, NC 28036

Ireland
Shareholders in Ireland may participate in the Annual General Meeting remotely on June 4, 2020 at 1:00 p.m. (Dublin time) telephonically at the Arthur Cox Building, Ten Earlsfort Terrace, Dublin 2, D02 T380, Ireland.

New York Stock Exchange

TT
LISTED
NYSE

Transfer Agent and Registrar
Computershare
Telephone Inquiries: 866-229-8405
Website: www.computershare.com/Investor

Address shareholder inquiries with standard priority:
Computershare
PO BOX 505000
Louisville, KY 40233-5000

Address shareholder inquiries with overnight priority:
Computershare
462 South 4th Street Suite 1600
Louisville, KY 40202

MIX
Paper from responsible sources
FSC
www.fsc.org

This integrated annual report and the 2019 online ESG Report at www.tranetechnologies.com/sustainability-reports is produced in accordance with the G4 framework established by the Global Reporting Initiative (GRI) and reports on our financial and non-financial performance for the 2019 fiscal year. For more information on GRI, please visit www.globalreporting.org. To ensure the quality of our environmental, health and safety data, we assure selected data with a third-party provider. The results of this assurance can be found in our 2019 ESG Report at www.tranetechnologies.com/sustainability-reports. At the time of publication, assurance of our environmental and safety data from operations was not yet complete and the data presented in this document is subject to change. This annual report, including the letter to shareholders, contains "forward-looking statements," which are statements that are not historical facts, including our ability to address environmental and social challenges, the future success of our operational excellence initiatives, our future financial performance, our growth, market opportunities and our positioning in and the performance of the markets in which we operate. These statements are based on currently available information and our current assumptions, expectations and projections about future events. While we believe that our assumptions, expectations and projections are reasonable in view of the currently available information, you are cautioned not to place undue dependence on our forward-looking statements. Forward-looking statements speak only as of the date they are made and are not guarantees of future performance. They are subject to future events, risks and uncertainties—many of which are beyond our control—as well as potentially inaccurate assumptions that could cause actual results to differ materially from our expectations and projections. You are advised to review the factors described under the captions "Risk Factors" and "Management's Discussion and Analysis of Financial Conditions and Results of Operations" in our Form 10-K for the fiscal year ended December 31, 2019, and any further disclosures we make on related subjects in materials we file with or furnish to the SEC. We do not undertake any obligation to update any forward-looking statements.

TRANE
TECHNOLOGIES™

About Trane Technologies

Trane Technologies is a global climate innovator. Through our strategic brands Trane and Thermo King, and our environmentally responsible portfolio of products and services, we bring efficient and sustainable climate solutions to buildings, homes and transportation.

www.tranetechnologies.com