# TRANE TECHNOLOGIES plc

## Directors' Report and Financial Statements
## Financial Year Ended December 2019

**TRANE TECHNOLOGIES PLC**

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## DIRECTORS AND OTHER INFORMATION

| | |
|---|---|
| **Board of Directors at 4 May 2020** | Kirk E. Arnold<br>Ann C. Berzin<br>John Bruton<br>Jared L. Cohon<br>Gary D. Forsee<br>Linda Hudson<br>Michael W. Lamach<br>Myles P. Lee<br>Karen B. Peetz<br>John P. Surma<br>Richard J. Swift<br>Tony L. White |
| **Company Secretaries** | Evan M. Turtz (Company Secretary)<br>Sara Walden Brown (Assistant Secretary)<br>Computershare Inc. (Assistant Secretary) |
| **Registered Office** | 170-175 Lakeview Drive<br>Airside Business Park<br>Swords<br>Co. Dublin |
| **Registered Number** | 469272 |
| **Solicitor** | Arthur Cox<br>Ten Earlsfort Terrace<br>Dublin 2 |
| **Auditors** | PricewaterhouseCoopers<br>One Spencer Dock<br>North Wall Quay<br>Dublin 1 |
| **Principal Bankers** | JP Morgan Chase Bank,<br>125 London Wall<br>London EC2Y 5AJ<br>England<br><br>Bank of Ireland<br>Swords, Co Dublin |

**Directors' report for the year ended 31 December 2019**.

The directors present their report and the Financial Statements and related Notes of Trane Technologies plc (formerly known as Ingersoll-Rand plc) for the financial year ended 31 December 2019.

**Principal Activities**

Trane Technologies plc (Plc, Parent Company or Company), a public limited company, listed on the New York Stock Exchange, incorporated in Ireland in 2009, and its consolidated subsidiaries (collectively, we, our, the Group) 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 turnover 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 turnover 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.

**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 turnover of $13,075.9 million (2018: $12,343.8 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 turnover of $3,523.0 million (2018: $3,324.4 million).

**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 turnover in 2019 (2018: 36%) was 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.

**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®.

**Customers**

We have no customer that accounted for more than 10% of our consolidated turnover in 2019 and 2018. 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 31 December, was as follows:

| | 2019<br>$m | 2018<br>$m |
|---|---|---|
| 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 31 December 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 31 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.

For a further discussion of our contingent liabilities, see Note 31 to the Consolidated Financial Statements.

**Employees**

As of 31 December 2019, we employed approximately 49,956 (2018: 48,353) people throughout the world.

## BUSINESS REVIEW

***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 turnover and thus a key measure of anticipated performance. In those industry segments where we are a capital equipment provider, turnover depends 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 turnover 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***

*Completion of Reverse Morris Trust Transaction*

On 29 February 2020 (Distribution Date), the Company completed its Reverse Morris Trust transaction with Gardner Denver Holdings, Inc. (Gardner Denver) whereby the Company separated its former Industrial segment (Ingersoll Rand Industrial) through a pro rata distribution to shareholders of record as of 24 February 2020. Ingersoll Rand Industrial then merged into Gardner Denver and changed its name to Ingersoll Rand Inc. Upon close of the transaction, the Company's existing shareholders received 50.1% of the shares of Gardner Denver common stock on a fully-diluted basis and Gardner Denver stockholders retained 49.9% of the shares of Gardner Denver on a fully diluted basis. As a result, the Company's shareholders received .8824 shares of Gardner Denver common stock with respect to each share owned as of 24 February 2020. In addition, the Company received a one-time special cash payment of $1.9 billion from Gardner Denver pursuant to the terms of the Separation and Distribution Agreement. In connection with the transaction, the Company entered into several agreements covering administrative and tax matters to provide or obtain services on a transitional basis, for varying periods after the Distribution Date. The agreements cover various services such as information technology, human resources and finance.

*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. However, 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 31 December 2019 Compared to the Year Ended 31 December 2018 - Consolidated Results**

| | 2019 | 2018 | Period Change |
|---|---|---|---|
| | $m | $m | $m |
| Turnover | 16,598.9 | 15,668.2 | 930.7 |
| Cost of sales | (11,451.5) | (10,847.6) | (603.9) |
| Distribution costs and administrative expenses | (3,129.8) | (2,903.2) | (226.6) |
| Other operating expense | (36.1) | (42.7) | 6.6 |
| Operating profit | 1,981.5 | 1,874.7 | 106.8 |
| Interest receivable and similar income | 3.1 | 6.4 | (3.3) |
| Other finance (expense)/income | — | (0.1) | 0.1 |
| Interest payable and similar charges | (243.0) | (220.7) | (22.3) |
| Profit on ordinary activities before taxation | 1,741.6 | 1,660.3 | 81.3 |
| Tax on profit on ordinary activities | (353.7) | (281.3) | (72.4) |
| Profit on ordinary activities after taxation | 1,387.9 | 1,379.0 | 8.9 |
| Discontinued operations, net of taxation | 40.6 | (21.5) | 62.1 |
| Profit for the financial year | 1,428.5 | 1,357.5 | 71.0 |

**KEY PERFORMANCE INDICATORS**

***Net Turnover***

Net turnover for the year ended 31 December 2019 increased by 5.9% (2018 increased by 10.4%), or $930.7 million (2018: $1,470.6 million). The components of the period change were as follows:

| | 2019 | 2018 |
|---|---|---|
| Volume/product mix | 4.0 % | 7.3% |
| Acquisitions | 1.5 % | 1.1% |
| Pricing | 1.7 % | 1.6% |
| Currency translation | (1.3)% | 0.4% |
| Total | 5.9 % | 10.4% |

The increase was primarily driven by higher volumes in our Climate segment. Improved pricing, along with incremental turnover 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 Turnover* by segment.

***Cost of Sales***

*Cost of sales* for the year ended 31 December 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 sales related to turnover 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 sales as a percentage of net turnover was relatively flat year-over-year, decreasing 20 basis points from 69.2% of net turnover in 2018 to 69.0% of net turnover in 2019.

***Distribution Costs and Administrative Expenses***

*Distribution costs* and *Administrative expenses* for the year ended 31 December 2019 increased by 7.8%, or $226.6 million, compared with the same period of 2018. The increase in distribution costs 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. Distribution costs and administrative expenses as a percentage of net turnover 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 *Distribution costs and administrative expenses* as a percentage of net turnover by 60 basis points in 2019.

***Operating Profit/Margin***

Operating margin remained flat at 12.2% for the year ended 31 December 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.

***Other operating expense***

The components of *Other operating expense*, for the years ended 31 December are as follows:

| | 2019 | 2018 | Period Change |
|---|---|---|---|
| | $m | $m | $m |
| 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 miscellaneous income/(expense) | 15.5 | (3.2) | 18.7 |
| Other operating expense | (36.1) | (42.7) | 6.6 |

*Other operating expense* includes the results from activities other than normal business operations such as 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 miscellaneous income/(expense) primarily 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 and corresponding insurance asset for potential future claims and recoveries.

***Interest payable and similar charges***

*Interest payable* for the year ended 31 December 2019 increased by $22.3 million compared with the same period of 2018. The increase primarily relates to new debt issuances during the first quarters of 2019 and 2018. This amount is partially offset by $15.4 million of premium expense and $1.2 million of unamortized costs in *Interest payable and similar charges* as a result of the redemption of $1.1 billion of senior notes during the first quarter of 2018.

***Provision for taxation***

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. Turnover from non-U.S. jurisdictions accounted for approximately 34% of our total 2019 turnover, 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. Turnover from non-U.S. jurisdictions accounts for approximately 36% of our total turnover, 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 taxation* for the years ended 31 December are as follows:

| | 2019 | 2018 | Period Change |
|---|---|---|---|
| | $m | $m | $m |
| Pre-tax profit (loss) from discontinued operations | 54.8 | (85.5) | 140.3 |
| Tax benefit (expense) | (14.2) | 64.0 | (78.2) |
| Discontinued operations, net of taxation | 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 31 December 2019 Compared to the Year Ended 31 December 2018 - Results by Segment**

Segment operating profit 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 profit represents the most relevant measure of segment profit and loss. We define Segment operating margin as Segment operating profit as a percentage of *Turnover*.

| | 2019 | 2018 | Period Change | % Change |
|---|---|---|---|---|
| | $m | $m | | |
| **Climate** | | | | |
| Net Turnover | 13,075.9 | 12,343.8 | 732.1 | 5.9 % |
| Segment operating profit | 1,908.5 | 1,766.2 | 142.3 | 8.1 % |
| Segment operating profit as a percentage of net turnover | 14.6% | 14.3% | | |
| **Industrial** | | | | |
| Net Turnover | 3,523.0 | 3,324.4 | 198.6 | 6.0 % |
| Segment operating profit | 455.0 | 405.3 | 49.7 | 12.3 % |
| Segment operating profit as a percentage of net turnover | 12.9% | 12.2% | | |
| Total net turnover | 16,598.9 | 15,668.2 | 930.7 | 5.9 % |
| **Reconciliation to Operating Profit** | | | | |
| Segment operating profit 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 | 2,017.6 | 1,917.4 | 100.2 | 5.2 % |
| Other operating expense | (36.1) | (42.7) | 6.6 | (15.5)% |
| Total operating profit | 1,981.5 | 1,874.7 | 106.8 | 5.7 % |

*Climate*

Net turnover for the year ended 31 December 2019 increased by 5.9% (2018 increased by 10.5%) or $732.1 million (2018: $1,176.3 million), compared with the same period of 2018. The components of the period change are as follows:

| | 2019 | 2018 |
|---|---|---|
| Volume/product mix | 5.2 % | 7.6% |
| Acquisitions | — % | 1.1% |
| Pricing | 1.9 % | 1.5% |
| Currency translation | (1.2)% | 0.3% |
| Total | 5.9 % | 10.5% |

Segment operating margin increased 30 basis points to 14.6% for the year ended 31 December 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 turnover* for the year ended 31 December 2019 increased by 6.0% (2018 increased by 9.7%) or $198.6 million (2018: $294.3 million), compared with the same period of 2018. The components of the period change are as follows:

| | 2019 | 2018 |
|---|---|---|
| Volume/product mix | (0.6)% | 6.3% |
| Acquisitions | 7.4 % | 0.9% |
| Pricing | 1.2 % | 1.6% |
| Currency translation | (2.0)% | 0.9% |
| Total | 6.0 % | 9.7% |

Segment operating margin increased 70 basis points to 12.9% for the year ended 31 December 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 31 December 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 profit in jurisdictions where it is deemed to be permanently reinvested. Our most prominent jurisdiction of operation is the U.S. We expect existing cash at bank and in hand 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 at bank and in hand 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 31 December 2019, we had $1,303.6 million of cash at bank and in hand, of which $931.3 million was held by non-U.S. subsidiaries. As of 31 December 2018, we had $903.4 million of cash at bank and in hand, of which $689.7 million was held by non-U.S. subsidiaries. Cash at bank and in hand 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 at bank and in hand 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 31 December 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 Ingersoll Rand 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 financial year ended 31 December:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Cash at bank and in hand | 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 (including non-controlling interests) | 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 consist 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 31 December 2019. We had no commercial paper outstanding at 31 December 2019 and 31 December 2018. See Note 26 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 31 December 2019 and 31 December 2018. See Note 26 and Note 33 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 29 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 31 December, respectively. For additional details, please see the Consolidated Statements of Cash Flows in the Consolidated Financial Statements.

| | **2019** | **2018** |
|---|---|---|
| | **$m** | **$m** |
| 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 31 December 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 31 December 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 31 December 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 which totaled $254.1 million. During the year ended 31 December 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 31 December 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 31 December 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 31 December 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 31 December 2018 was $66.7 million and primarily related to ongoing costs.

## Capital Resources

Based on historical performance and current expectations, we believe our cash at bank and in hand 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 and $365.6 million for the years ended 31 December 2019 and 2018, 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 turnover, including amounts approved in prior periods. Many of these projects are subject to review and cancellation at our option without incurring substantial charges.

### *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 31 December 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 31 December 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 periods, in millions:

| | Less than 1 year | 1 - 3 years | 3 - 5 years | More than 5 years | Total |
|---|---|---|---|---|---|
| | $m | $m | $m | $m | $m |
| 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 31 December 2019, we had a net unfunded liability of $714.4 million (2018: $698.4 million), which consists of noncurrent pension assets of $50.4 million (2018: $49.9 million) and current and non-current pension benefit liabilities of $764.8 million (2018: $748.3 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 plans worldwide in 2020. The timing and amounts of future contributions are dependent upon the funding status of the plans, which are 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 29 to the Consolidated Financial Statements for additional information regarding pensions.

***Postretirement Benefits Other than Pensions***

At 31 December 2019, we had postretirement benefit obligations of $428.8 million (2018: $442.7 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 29 to the Consolidated Financial Statements for additional information regarding postretirement benefits other than pensions.

***Taxation***

At 31 December 2019, we have total unrecognized tax benefits for uncertain tax positions of $78.2 million (2018: $83.0 million) and $16.9 million (2018: $20.7 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 12 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 31 to the Consolidated Financial Statements for additional information regarding contingent liabilities.

## PRINCIPAL RISKS

***Risks Relating to Business Operations***

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 report. 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.

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 31 December 2019, the net carrying value of our goodwill and other indefinite-lived intangible assets totaled $6.8 billion and $2.8 billion (2018: $6.0 billion and $2.7 billion, respectively), 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 considered 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 accords. 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.

***The COVID-19 global pandemic and resulting adverse economic conditions have already adversely impacted our business and could have a more material adverse impact on our business, financial condition and results of operations.***

We are closely monitoring the impact of the COVID-19 global pandemic on all aspects of our business and geographies, including how it has and will impact our customers, team members, suppliers, vendors, business partners and distribution channels. The COVID-19 global pandemic has created significant volatility, uncertainty and economic disruption, which will adversely affect our business operations and may materially and adversely affect our results of operations, cash flows and financial position.

While our business is largely categorized as "essential" by the U.S. Department of Homeland Security, the COVID-19 global pandemic has caused certain disruptions to and shutdowns of our business and operations and could cause material disruptions to and shutdowns of our business and operations in the future as a result of, among other things, quarantines, worker absenteeism as a result of illness or other factors, social distancing measures and other travel, health-related, business or other restrictions. For similar reasons, the COVID-19 global pandemic has also adversely impacted, and may continue to adversely impact, our suppliers and their manufacturers and our customers. Some of our purchases are from sole or limited source suppliers for reasons of cost effectiveness, uniqueness of design, or product quality. The effects of the COVID-19 global pandemic may exacerbate supply chain issues with these suppliers. Any delay in receiving critical supplies could have a material adverse effect on our results of operations, financial condition and cash flows.

As a result of the effects of the COVID-19 global pandemic, our costs have increased (including the costs to address the health and safety of our employees), our ability to obtain products or services from suppliers has been and may be adversely impacted, and our ability to operate at certain impacted locations has been and may be impacted, and, as a result, our business, financial condition and results of operations have been adversely impacted and could be materially adversely affected if the current outbreak and spread of COVID-19 continues.

The COVID-19 global pandemic has also resulted in severe disruption and volatility in the financial markets which has had a material adverse impact on some of our customers and suppliers and which could impact our access to capital and credit markets. The severity of the pandemic's impact on economies around the world and the potential length of the economic recovery continues to extend. The current outbreak and continued spread of COVID-19 could cause a global recession, which would have a further adverse impact on our financial condition and operations.

***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.

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 turnover, 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 23 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 Group'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 12 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 results 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 our 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 Trane Technologies 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 Trane Technologies plc.

**Risks Related to the Transactions**

On 29 February 2020, we completed our previously announced Reverse Morris Trust transaction with Gardner Denver Holdings, Inc. (GDI) pursuant to which specific assets and liabilities of our Industrial segment were transferred to a newly formed wholly-owned subsidiary, Ingersoll-Rand U.S. HoldCo. Inc. (Ingersoll Rand Industrial), and then the shares of common stock of Ingersoll Rand Industrial were distributed to our shareholders (the Distribution). Charm Merger Sub Inc., a wholly-owned subsidiary of GDI (Merger Sub), was merged with and into Ingersoll Rand Industrial, with Ingersoll Rand Industrial surviving the 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 was renamed and operates under the name Ingersoll Rand Inc. Ingersoll-Rand plc, which held our remaining Climate business, was renamed Trane Technologies plc and trades under the ticker symbol "TT."

***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 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 is 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 were conditioned upon our receipt of an opinion of counsel, to the effect that the Distribution together with certain related transactions qualified 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 was 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 was 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 were 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 qualified as a reorganization within the meaning of Section 368(a) of the Code. These opinions were 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 were 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 a taxable gain or loss on their receipt of GDI common stock in the merger.

**Political Donations**

No political contributions that require disclosure under the Electoral Act, 1997 (as amended) were made during the financial year 2019.

**Future Developments**

The Group is very focused on achieving margin expansion through pricing and sustained productivity. We aspire to and are working toward growing through customer-driven innovation. Successful execution of these critical focus areas will allow us to achieve our mission of being a world leader in creating comfortable, sustainable and efficient environments.

**Subsidiary Companies and Associates**

A list of the principal subsidiary and associated undertakings is included in Note 41 to Consolidated Financial Statements.

**Branches**

The Parent Company does not operate any branches outside of the State**.**

**Accounting records**

The measures that the directors have taken to secure compliance with the requirements of Sections 281 to 285 of the Companies Act 2014 with regards to the keeping of accounting records are the employment of appropriately qualified accounting personnel and the maintenance of computerized accounting systems. These accounting records are kept at the registered office of the Company.

**Dividends**

The gross dividends paid in 2019 to ordinary shareholders and non-controlling interests were $525.3 million (2018: $522.2 million).

**Acquisition and cancellation of shares**

*Shares repurchased and cancelled*

During the year ended 31 December 2019, the Company repurchased 6,401,381 ordinary shares (2018: 9,660,227), or 2.43% of the ordinary shares in issue (2018: 3.63%) at an average price of $117.18 per share. These shares with a nominal value of 6,401,381 were cancelled, giving rise to a capital redemption reserve of an equivalent amount as required by Section 106 (4)

(a) of the Companies Act 2014. The aggregate consideration paid was $750.1 million (2018: $900.2 million) which is reflected as a reduction in the profit and loss account within *Total equity*.

*Treasury shares held by the Company*

At 31 December 2019, the total number of treasury shares held directly by the Company was 24,495,509 (2018: 24,495,509); the nominal value of these shares was $24,495,509 (2018: $24,495,509). During the year ended 31 December 2019 the Company did not acquire any treasury shares under the repurchase program. The total accumulated treasury shares acquired represent 9.3% (2018: 9.2%) of the ordinary shares in issue at 31 December 2019.

*Own shares held by a subsidiary*

At 31 December 2019, a subsidiary of the Company held 4,388 (2018: 4,545) ordinary shares of $1.00 each with an aggregate nominal value of $4,388 (2018: $4,545) in trust for a deferred compensation plan.

**Going Concern**

The Board has formed a judgment at the time of approving the financial statements that there is a reasonable expectation that the Group and the Company have adequate resources to continue in operational existence for at least the next 12 month period extending from the time of approving the financial statements. In arriving at this conclusion, the Board has taken account of current and anticipated uncertainties driven by the COVID-19 pandemic in its going concern assessment. These uncertainties include, but are not limited to, customer demand, customers' and suppliers' financial condition, any temporary closure of production facilities, levels of liquidity, the availability of the committed borrowing facilities and our ongoing compliance with debt covenants. These uncertainties could adversely affect our operations and financial performance through supply chain disruptions, delays in payments received, and the availability and cost of materials. In assessing the potential impact of these uncertainties on our liquidity, the Company prepared cash flow forecasts covering a period of at least 12 months from the date of releasing these financial statements. This assessment included consideration of the forecasted performance of the business, the cash and financing facilities available to the Group and the potential impacts of COVID-19 and a related potential global economic downturn on its business. The Group continues to expect that existing cash and cash equivalents available, the cash generated by our operations, our committed borrowing facilities, as well as our expected ability to access the capital and debt markets will be sufficient to fund the Group's operating and capital needs for at least the next twelve months and thereafter for the foreseeable future. To its knowledge, the Board reasonably believes that these uncertainties would not have a material impact on our ability to continue as a going concern as of the approval date.

As the COVID-19 global pandemic impacts both the broader economy and our operations, we will continue to assess our liquidity needs and our ability to access capital markets. A continued worldwide disruption could materially affect economies and financial markets worldwide, resulting in an economic downturn that could affect demand for our products, our ability to obtain financing on favorable terms and otherwise adversely impact our business, financial condition and results of operations. There are certain measures that the Company can put in place to maintain a sound financial footing such as:

- temporary suspension or reduction of our share repurchase program;
- delay of discretionary expenditures;
- curtailment of potential investments;
- restriction of employee travel or a freeze on headcount in select locations;
- draw on available credit facilities.

The Company has implemented each of these measures except to draw down on available credit facilities. However, the flexibility is available if the need to do so arises and the Company can implement more substantial measures, as appropriate, to remain a going concern. For this reason, the going concern basis continues to be adopted in the preparation of the Consolidated Financial Statements and the Parent Company Financial Statements. However, the Board of Directors understands the importance of monitoring future developments in relation to COVID-19.

**AGM**

The Annual General Meeting of the Company will take place at Trane Technologies plc, 800-C Beaty Street, Davidson, NC 28036 on Thursday, 4 June 2020. 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. The notice of meeting and a description of the business to be transacted is available on the Company's website at www.tranetechnologies.com.

**Directors and Secretaries**

The directors and secretaries of the Company as of 31 December 2019 are listed in the table below and, except as noted, have served from the period of 1 January 2019 through 31 December 2019 and through the date of this report.

**Directors**

Kirk E. Arnold
Ann C. Berzin
John Bruton
Jared L. Cohon
Gary D. Forsee
Linda Hudson
Michael W. Lamach
Myles P. Lee
Karen B. Peetz
John P. Surma
Richard J. Swift
Tony White

**Secretaries**

Evan M. Turtz (Company Secretary)
Sara Walden Brown (Assistant Secretary)
Computershare Inc. (Assistant Secretary)

**Directors' and Secretaries' Interests in Shares**

No director, the company secretary or any member of their immediate families had any interest in shares or debentures of any subsidiary. The beneficial interests, including the interests of spouses and minor children, of the directors and secretaries in office at 31 December 2019 and 2018 in the ordinary share capital of Trane Technologies plc pursuant to section 329 of the Companies Act 2014, are presented in the table below:

| | At 31 December 2019 | | At 1 January 2019 | |
|---|---|---|---|---|
| **Directors** | Shares | Options | Shares | Options |
| Kirk E. Arnold | 938 | — | — | — |
| Ann C. Berzin | 28,118 | — | 26,552 | — |
| John Bruton | 8,669 | — | 7,731 | — |
| Jared L. Cohon | 20,000 | — | 20,000 | — |
| Gary D. Forsee | 27,518 | — | 26,580 | — |
| Linda Hudson | 3,977 | — | 3,039 | — |
| Michael W. Lamach | 183,496 | 495,534 | 173,130 | 1,061,327 |
| Myles P. Lee | 3,743 | — | 2,805 | — |
| Karen B. Peetz | 1,168 | — | 230 | — |
| John P. Surma | 8,315 | — | 7,377 | — |
| Richard J. Swift | 3,487 | — | 2,549 | — |
| Tony L. White | 26,975 | — | 26,037 | — |
| **Secretaries** | | | | |
| Evan M. Turtz | 6,809 | 20,359 | 3,225 | 26,195 |
| Sara Walden Brown | 1,054 | 6,895 | 791 | 6,942 |
| Computershare Inc. | — | — | — | — |

**Non-Financial Statements**

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 our Directors' Report. 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 on pages 10 to 11 of the U.S. 2019 Annual Report are incorporated by reference into this Directors' Report.

Pages 16 to 24 of this Directors' Report provides the Principal Risks for the Group including risks that pertain to the areas of environmental matters, social and employee matters, respect for human rights, and anti-bribery and anti-corruption. In order to

manage and mitigate risks in these areas, we conduct materiality and risk assessments, develop and maintain policies and provide training and certification for our employees and business partners. We have systematic processes in place to govern these relationships, ensuring our suppliers share our values and adhere to our standards of business ethics, health and safety, and environmental and social responsibility.

The Board of Directors has oversight responsibility of the processes established to report and monitor systems for material risks applicable to the Group. The Board of Directors focuses on the Group's general risk management strategy and the most significant risks facing the Group and ensures that appropriate risk mitigation strategies are implemented by management. We have appointed the Chief Financial Officer as our 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 decisions can be made as to any required changes in our risk management and mitigation strategies or in the Board's oversight of these. We also have an Enterprise Risk Management Committee that assists the Board of Directors, our Chief Financial Officer and other members of our executive leadership team in their oversight of strategic, operational and financial risks.

**Directors' Compliance Statement**

The Directors acknowledge that they are responsible for securing compliance by the Company with its relevant obligations as defined in the Companies Act 2014 (the 'Relevant Obligations').

The Directors further confirm that a Compliance Policy Statement has been drawn up and that appropriate arrangements and structures have been put in place which, in the Directors' opinion, are designed to secure material compliance with the Company's Relevant Obligations. For the year ended 31 December 2019, the Directors, with the assistance of the Legal and Finance Group, have conducted a review of the arrangements and structures in place. In discharging their responsibilities under Section 225 of the Companies Act 2014, the Directors relied on the advice of persons who the Directors believe have the requisite knowledge and experience to advise the Company on compliance with its Relevant Obligations.

**Disclosure of Information to the Auditor**

In accordance with the provisions of section 330 of the Companies Act 2014, each of the persons who are Directors at the date of approval of this report confirms that:

- So far as the Director is aware, there is no relevant audit information (as defined in the Companies Act 2014) of which the statutory auditor is unaware; and
- The Director has taken all the steps that he/she ought to have taken as a Director in order to make himself/herself aware of any relevant audit information (as defined) and to ensure that the statutory auditor is aware of such information.

**Audit Committee**

In accordance with Section 167 of the Companies Act 2014, the Company has an established audit committee, which meets the requirements of the Companies Act.

**Statutory Auditors**

The statutory auditors, PricewaterhouseCoopers, have indicated their willingness to continue in office, and a resolution that they be re-appointed will be proposed at the Annual General meeting.

Approved by the Board of Directors on 4 May 2020 and signed on its behalf by:

| | |
|---|---|
| /s/ Myles P. Lee | /s/ John P. Surma |
| Myles P. Lee | John P. Surma |
| Director | Director |

## STATEMENT OF DIRECTORS' RESPONSIBILITIES

The directors are responsible for preparing the directors' report and the financial statements in accordance with Irish law.

Irish law requires the directors to prepare financial statements for each financial year giving a true and fair view of the consolidated and company's assets, liabilities and financial position as at the end of the financial year and of the profit or loss of the group for the financial year. Under that law, the Directors have prepared the consolidated financial statements in accordance with U.S. accounting standards, as defined in Section 279(1) of the Companies Act 2014, to the extent that the use of those principles in the preparation of the financial statements does not contravene any provision of the Companies Act or of any regulations made thereunder and the Parent Company financial statements in accordance with Generally Accepted Accounting Practice in Ireland (accounting standards issued by the Financial Reporting Council and Irish law) including Financial Reporting Standard 102 "The Financial Reporting Standard applicable in the United Kingdom and the Republic of Ireland" (FRS 102").

Under Irish law, the directors shall not approve the financial statements unless they are satisfied that they give a true and fair view of the Group's and Company's assets, liabilities and financial position as at the end of the financial year and the profit or loss of the Group for the financial year.

In preparing these financial statements, the directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- state that the consolidated financial statements of Trane Technologies plc and its subsidiaries (the Group) comply with accounting principles generally accepted in the United States of America (U.S. GAAP) to the extent that it does not contravene Irish Company Law and that the stand alone entity balance sheet of Trane Technologies plc (the Company) complies with accounting standards issued by the Financial Reporting Council and Irish law subject to any material departures from those standards being disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the company will continue in business.

The directors are responsible for keeping adequate accounting records that are sufficient to:

- correctly record and explain the transactions of the company;
- enable, at any time, the assets, liabilities, financial position and profit or loss of the company to be determined with reasonable accuracy; and
- enable the directors to ensure that the financial statements comply with the Companies Act 2014 and enable those financial statements to be audited.

The directors are also responsible for safeguarding the assets of the company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The directors are responsible for the maintenance and integrity of the corporate and financial information included on the company's website (www.tranetechnologies.com). Legislation in Ireland governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

# *Independent auditors' report to the members of Trane Technologies plc*

## Report on the audit of the financial statements

### Opinion

In our opinion:

- Trane Technologies plc's consolidated financial statements and parent company financial statements (the "financial statements") give a true and fair view of the group's and the parent company's assets, liabilities and financial position as at 31 December 2019 and of the group's profit and cash flows for the year then ended;
- the consolidated financial statements have been properly prepared in accordance with accounting principles generally accepted in the United States of America ("US GAAP"), as defined in Section 279 of the Companies Act 2014, to the extent that the use of those principles in the preparation of Group financial statements does not contravene any provision of Part 6 of the Companies Act 2014;
- the parent company financial statements have been properly prepared in accordance with Generally Accepted Accounting Practice in Ireland (accounting standards issued by the Financial Reporting Council of the UK, including Financial Reporting Standard 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" and Irish law); and
- the financial statements have been properly prepared in accordance with the requirements of the Companies Act 2014.

We have audited the financial statements, included within the Directors' Report and Financial Statements (the "Annual Report"), which comprise:

- the Consolidated Balance Sheet as at 31 December 2019;
- the Parent Company Balance Sheet as at 31 December 2019;
- the Consolidated Profit and Loss Account for the year then ended;
- the Consolidated Statement of Comprehensive Income for the year then ended;
- the Consolidated Statement of Cash Flows for the year then ended;
- the Consolidated Statement of Changes in Equity for the year then ended;
- the Parent Company Statement of Changes in Equity for the year then ended;
- the Parent Company Statement of Comprehensive Income; and
- the notes to the financial statements, which include a description of the significant accounting policies.

### Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (Ireland) ("ISAs (Ireland)") and applicable law. Our responsibilities under ISAs (Ireland) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### *Independence*

We remained independent of the Group in accordance with the ethical requirements that are relevant to our audit of the financial statements in Ireland, which includes IAASA's Ethical Standard as applicable to listed entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

## Our audit approach

### *Overview*


Materiality

- $90 million (2018: $80 million) - Consolidated financial statements.
- Based on C. 5% of profit before tax.
- $142 million (2018: $99 million) - Parent company financial statements. For Group audit purposes the lower consolidated financial statements materiality of $90 million was applied to all balances that did not eliminate in the consolidated financial statements.
- Based on C.0.5% of net assets.

Audit scope

- We conducted full scope audits at three components in which the Group has significant operations.
- Specific audit procedures were performed at ten additional components.
- Additionally, certain centralized Group functions, including treasury, taxation, equity and stock compensation, goodwill and intangible assets, pension and post-retirement benefits, litigation, claims and administrative proceedings and consolidation and financial reporting were subject to full scope procedures.
- Audit coverage for most individual line items within the Consolidated Financial Statements was above 79%.

Key audit matters

- Asbestos related provisions.
- Acquisition of Precision Flow Systems - valuation of customer relationships.

### *The scope of our audit*

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we looked at where the directors made subjective judgements, for example in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. As in all of our audits, we also addressed the risk of management override of internal controls, including evaluating whether there was evidence of bias by the directors that represented a risk of material misstatement due to fraud.

### *Key audit matters*

Key audit matters are those matters that, in the auditors' professional judgement, were of most significance in the audit of the financial statements of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by the auditors, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. These matters, and any comments we make on the results of our procedures thereon, were addressed in the context of our audit of the financial statements as a whole, and

in forming our opinion thereon, and we do not provide a separate opinion on these matters. This is not a complete list of all risks identified by our audit.

| *Key audit matter* | *How our audit addressed the key audit matter* |
|---|---|
| *Asbestos related provisions* | |
| As described in Notes 3(o) and 31 to the consolidated financial statements, certain of the Group's wholly owned subsidiaries and former companies are named as defendants in asbestos related lawsuits in US State and Federal courts for which management recorded asbestos-related provisions of $547 million as of December 31, 2019.<br><br>Management engaged an outside expert to perform a detailed analysis and project an estimated range of the Group's total provision for pending and unasserted future asbestos-related claims.<br><br>We determined the provision for asbestos-related matters to be a key audit matter as there were significant judgment by management in developing the estimate for asbestos-related provisions. | We assessed the design and tested the operating effectiveness of internal controls relating to management's estimate for asbestos related provisions including controls over the development of the assumptions underlying the provisions.<br><br>We tested management's process for developing the estimate for asbestos related provisions including the evaluation of the assumptions and underlying asbestos related provisions.<br><br>We used PwC professionals with specialist skill and knowledge to assist us with the following:<br><br>• evaluation of whether the forecast of new claims that may be filed against the Group was reasonable considering recent Group 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.<br>• evaluated of whether the assumed number of people likely to file an asbestos-related personal injury claim against the Group was reasonable, considering the Group's historical experience.<br>• evaluation of whether the estimated average settlement and resolution value of claims was reasonable considering the Group's historical experience, and<br>• evaluation of whether the percentage of claims expected to be resolved with no payment was reasonable considering the Groups historical experience.<br><br>We also tested the accuracy of the data provided by management including the historical claims filed against the Group and the cost of resolution of these claims.<br><br>We evaluated the appropriateness of the Group's disclosures. |

| *Key audit matter* | *How our audit addressed the key audit matter* |
|---|---|
| *Acquisition of Precision Flow Systems - valuation of customer relationships* | |
| As described in Note 13 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 Customer Relationships intangible assets.<br><br>The fair values of the acquired customer relationship intangible assets were determined using the multi-period excess earnings method based on discounted projected net cash flows.<br><br>Management's key assumptions used in estimating future cash flows included projected revenue growth rates and customer attrition rates.<br><br>We determined the valuation of customer relationships relating to the PFS acquisition to be a key audit matter due to the significant judgment exercised by management in determining the significant assumptions used in the fair value estimate, including the revenue growth rates and the customer attrition rates used in the cash flow projections and the discount rate used to estimate the present value of projected future cash flows. | We assessed the design and operating effectiveness of the Groups internal controls relating to acquisition accounting, including controls over management's valuation of acquired customer relationships and controls over the development of assumptions underlying the valuation of acquired customer relationships for revenue growth rates, customer attrition rates and the discount rate.<br><br>We evaluated the competency of the Group's specialists and read and considered all of the reports prepared by them.<br><br>We read the purchase agreement and tested management's process for developing the fair value estimate of the acquired customer relationships.<br><br>We performed testing over management's cash flow projections used to estimate the fair value of the customer relationships.<br><br>We evaluated 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.<br><br>We evaluated the reasonableness of the assumptions for revenue growth rates and customer attrition rates by considering the past performance of the acquired businesses as at 31 December 2019, as well as economic and industry forecasts.<br><br>We evaluated the reasonableness of the discount rate considering the cost of capital of comparable businesses, other industry factors, and the implied rate of return on the overall transaction.<br><br>PwC professionals with specialized skill and knowledge were used to assist in the evaluation of the Group's multi-period excess earnings method and the discount rate.<br><br>We evaluated the appropriateness of the Group's disclosures. |

## *How we tailored the audit scope*

The Group is structured along two main operating segments being Climate and Industrial. Each operating segment comprises a number of business units primarily across three geographic regions being Americas; Europe, Middle East and Africa ("EMEA"); and Asia Pacific and India ("APAC"). Each operating segment and business unit provides products and solutions through various brands resulting in a number of management reporting entities identified by us as components. The Consolidated financial statements are a consolidation of the components.

We tailored the scope of our audit to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole, taking into account the structure of the Group, the accounting processes and controls, and the industry in which the Group operates.

In determining our audit scope, we considered the nature and extent of audit work that needed to be performed by us, as the Irish Group engagement team, the PwC US global engagement team, or other component auditors within other PwC network firms.

Overall, through three full scope audits and ten specified procedures audits, we obtained coverage above 79% for most individual line items within the Consolidated Profit and Loss Account and Consolidated Balance Sheet. Materiality levels and instructions were issued to each component auditor. In addition to the audit report from each of the component auditors, we received detailed memoranda on work performed and relevant findings which supplemented our understanding of the component, its results and the audit findings. This, together with additional procedures performed by the PwC US global engagement team at Group level, gave us the evidence we needed for our opinion on the financial statements as a whole.

### *Materiality*

The scope of our audit was influenced by our application of materiality. We set certain quantitative thresholds for materiality. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and in evaluating the effect of misstatements, both individually and in aggregate on the financial statements as a whole.

Based on our professional judgement, we determined materiality for the financial statements as a whole as follows:

| | ***Consolidated financial statements*** | ***Parent Company financial statements*** |
|---|---|---|
| ***Overall materiality*** | $90 million (2018: $80 million). | $142 million (2018: $99 million). For Group audit purposes the lower consolidated financial statement materiality of $90 million was applied to all balances that did not eliminate in the consolidated financial statements. |
| ***How we determined it*** | C. 5% of profit before tax. | Circa 0.5% of net assets. |
| ***Rationale for benchmark applied*** | The Group is profit oriented and profit before tax is one of the key metrics used to assess its performance. | The Parent Company is a holding company. Consequently, we consider that net assets is the most relevant measure to reflect the nature of its activities and transactions. |

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above $5 million (2018: $4 million) (group audit) and $7 million (2018: $4.9 million) (parent company audit) as well as misstatements below that amount that, in our view, warranted reporting for qualitative reasons.

## Conclusions relating to going concern

We have nothing to report in respect of the following matters in relation to which ISAs (Ireland) require us to report to you where:

- the directors' use of the going concern basis of accounting in the preparation of the financial statements is not appropriate; or
- the directors have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the Group's or the parent company's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

However, because not all future events or conditions can be predicted, this statement is not a guarantee as to the group's or the parent company's ability to continue as a going concern.

## Reporting on other information

The other information comprises all of the information in the Directors' Report and Financial Statements other than the financial statements and our auditors' report thereon. The directors are responsible for the other information. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

With respect to the Directors' Report, we also considered whether the disclosures required by the Companies Act 2014 (excluding the information included in the "Non-Financial Statement" as defined by that Act on which we are not required to report) have been included.

Based on the responsibilities described above and our work undertaken in the course of the audit, ISAs (Ireland) and the Companies Act 2014 require us to also report certain opinions and matters as described below:

- In our opinion, based on the work undertaken in the course of the audit, the information given in the Directors' Report (excluding the information included in the "Non-Financial Statement" on which we are not required to report) for the year ended 31 December 2019 is consistent with the financial statements and has been prepared in accordance with the applicable legal requirements.
- Based on our knowledge and understanding of the group and parent company and their environment obtained in the course of the audit, we have not identified any material misstatements in the Directors' Report (excluding the information included in the "Non-Financial Statement" on which we are not required to report).

## Responsibilities for the financial statements and the audit

### *Responsibilities of the directors for the financial statements*

As explained more fully in the Statement of Directors' Responsibilities set out on page 28, the directors are responsible for the preparation of the financial statements in accordance with the applicable framework and for being satisfied that they give a true and fair view.

The directors are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the Group's and the parent company's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group or the parent company or to cease operations, or have no realistic alternative but to do so.

### *Auditors' responsibilities for the audit of the financial statements*

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (Ireland) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the IAASA website at:

https://www.iaasa.ie/getmedia/b2389013-1cf6-458b-9b8f-a98202dc9c3a/Description_of_auditors_responsibilities_for_audit.pdf

This description forms part of our auditors' report.

### *Use of this report*

This report, including the opinions, has been prepared for and only for the company's members as a body in accordance with section 391 of the Companies Act 2014 and for no other purpose. We do not, in giving these opinions, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

## Other required reporting

### Companies Act 2014 opinions on other matters

- We have obtained all the information and explanations which we consider necessary for the purposes of our audit.
- In our opinion the accounting records of the parent company were sufficient to permit the parent company financial statements to be readily and properly audited.
- The Parent Company Balance Sheet is in agreement with the accounting records.

### Other exception reporting

*Directors' remuneration and transactions*

Under the Companies Act 2014 we are required to report to you if, in our opinion, the disclosures of directors' remuneration and transactions specified by sections 305 to 312 of that Act have not been made. We have no exceptions to report arising from this responsibility.

*Prior financial year Non Financial Statement*

We are required to report if the company has not provided the information required by Regulation 5(2) to 5(7) of the European Union (Disclosure of Non-Financial and Diversity Information by certain large undertakings and groups) Regulations 2017 in respect of the prior financial year. We have nothing to report arising from this responsibility.

/s/ Kevin Egan

Kevin Egan
for and on behalf of PricewaterhouseCoopers
Chartered Accountants and Statutory Audit Firm
Dublin

4 May 2020

**Trane Technologies plc**
**Consolidated Profit and Loss Account**
**For the financial year ended 31 December 2019**

| | Note | 2019 $m | 2018 Sm |
|---|---|---|---|
| **Turnover** | 4/6 | 16,598.9 | 15,668.2 |
| Cost of sales | | (11,451.5) | (10,847.6) |
| **Gross profit** | | 5,147.4 | 4,820.6 |
| Distribution costs | | (1,544.8) | (1,457.6) |
| Administrative expenses | | (1,585.0) | (1,445.6) |
| Other operating expense | 5 | (36.1) | (42.7) |
| **Operating profit** | 4 | 1,981.5 | 1,874.7 |
| Interest receivable and similar income | 7 | 3.1 | 6.4 |
| Other finance (expense)/income | | — | (0.1) |
| Interest payable and similar charges | 8 | (243.0) | (220.7) |
| **Profit on ordinary activities before taxation** | | 1,741.6 | 1,660.3 |
| Tax on profit on ordinary activities | 12 | (353.7) | (281.3) |
| **Profit on ordinary activities after taxation** | | 1,387.9 | 1,379.0 |
| Discontinued operations, net of taxation | 13 | 40.6 | (21.5) |
| **Profit for the financial year** | | 1,428.5 | 1,357.5 |
| Profit attributable to: | | | |
| Equity holders of Trane Technologies plc | | 1,410.9 | 1,337.6 |
| Non-controlling interests | 37 | 17.6 | 19.9 |
| **Profit for the financial year** | | 1,428.5 | 1,357.5 |
| **Earnings (loss) per share attributable to Trane Technologies plc ordinary shareholders:** | | | |
| Basic: | 15 | | |
| Continuing operations | | $ 5.67 | $ 5.50 |
| Discontinued operations | | 0.17 | (0.09) |
| Net Earnings | | $ 5.84 | $ 5.41 |
| Diluted: | 15 | | |
| Continuing operations | | $ 5.61 | $ 5.43 |
| Discontinued operations | | 0.16 | (0.08) |
| Net Earnings | | $ 5.77 | $ 5.35 |

The accompanying notes are an integral part of the consolidated financial statements.

**Trane Technologies plc**
**Consolidated Statement of Comprehensive Income**
**For the financial year ended 31 December 2019**

| | Note | 2019 $m | 2018 $m |
|---|---|---|---|
| Profit for the financial year | | 1,428.5 | 1,357.5 |
| Other comprehensive income (loss): | | | |
| Currency translation | | (37.1) | (230.6) |
| Cash flow hedges: | | | |
| Unrealized net gains (losses) arising during period | | (2.7) | 1.2 |
| Net gains reclassified into earnings | | 0.7 | 0.9 |
| Tax (expense) benefit | | 0.9 | (0.1) |
| Total cash flow hedges, net of tax | 36 | (1.1) | 2.0 |
| Pension and Post-retirement benefits other than pensions (OPEB) adjustments: | | | |
| Prior service costs for the period | | (5.7) | (16.0) |
| Net actuarial gains (losses) for the period | | (41.9) | 12.8 |
| Amortization reclassified into earnings | | 48.1 | 50.7 |
| Settlements/curtailments reclassified to earnings | | 2.2 | 2.5 |
| Currency translation and other | | (1.4) | 7.5 |
| Tax (expense) benefit | | (4.7) | (17.2) |
| Total pension and OPEB adjustments, net of tax | 36 | (3.4) | 40.3 |
| Other comprehensive income (loss), net of tax | | (41.6) | (188.3) |
| Comprehensive income, net of tax | | 1,386.9 | 1,169.2 |
| Less: Comprehensive income attributable to non-controlling interests | 37 | (18.5) | (16.9) |
| **Comprehensive income attributable to Trane Technologies plc** | | 1,368.4 | 1,152.3 |

The accompanying notes are an integral part of the consolidated financial statements.

**Trane Technologies plc**
**Consolidated Balance Sheet**
**As at 31 December 2019**

| | Note | 2019 $m | 2018 $m |
|---|---|---|---|
| **Fixed assets** | | | |
| Intangible assets | 16 | 10,931.9 | 9,594.2 |
| Tangible assets | 17 | 1,806.2 | 1,730.8 |
| Right-to-use assets | 18 | 560.0 | — |
| Financial assets | 19 | 153.7 | 157.3 |
| | | 13,451.8 | 11,482.3 |
| **Current Assets** | | | |
| Stock | 20 | 1,712.2 | 1,677.8 |
| Debtors | 21 | 3,201.4 | 3,150.8 |
| Cash at bank and in hand | 22 | 1,303.6 | 903.4 |
| | | 6,217.2 | 5,732.0 |
| Debtors: amounts falling due after more than one year | 23 | 823.3 | 700.5 |
| Creditors: amounts falling due within one year | 24 | (4,335.6) | (3,789.7) |
| **Net current assets** | | 1,881.6 | 1,942.3 |
| **Total assets less current liabilities** | | 16,156.7 | 14,125.1 |
| Creditors: amounts falling due after more than one year | 25 | (5,494.4) | (3,809.7) |
| **Net assets excluding provisions for liabilities** | | 10,662.3 | 10,315.4 |
| Provisions for liabilities | 30 | (3,349.9) | (3,250.6) |
| **Net assets including provisions for liabilities** | | 7,312.4 | 7,064.8 |
| **Capital and reserves** | | | |
| Called-up share capital presented as equity | 34 | 262.8 | 266.4 |
| Share premium account | | 934.1 | 650.6 |
| Capital redemption reserve | | 111.2 | 104.8 |
| Other reserves | 36 | (788.1) | (598.3) |
| Profit and loss account | | 6,747.6 | 6,599.2 |
| **Total Trane Technologies plc equity** | | 7,267.6 | 7,022.7 |
| Non-controlling interests | 37 | 44.8 | 42.1 |
| **Total equity** | | 7,312.4 | 7,064.8 |

The accompanying notes are an integral part of the consolidated financial statements.

The consolidated financial statements were approved by the Board of Directors on 4 May 2020 and signed on its behalf by:

/s/ Myles P. Lee
Myles P. Lee
Director

/s/ John P. Surma
John P. Surma
Director

**Trane Technologies plc**
**Consolidated Statement of Changes in Equity**

| | | Called-up share capital - presented as equity | | Share premium account | Capital redemption reserve | Other reserves | Profit and loss account | Total Trane Technologies plc Equity | Non-controlling interests | Total Equity |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Amount | Shares | | | | | | | |
| | Note | $m | Number | $m | $m | $m | $m | $m | $m | $m |
| Balance at 1 January 2018 | | 274.0 | 274.0 | 482.8 | 95.1 | (365.0) | 6,653.4 | 7,140.3 | 66.6 | 7,206.9 |
| Profit for the financial year | | — | — | — | — | — | 1,337.6 | 1,337.6 | 19.9 | 1,357.5 |
| Other comprehensive income (loss) | 36 | — | — | — | — | (185.3) | — | (185.3) | (3) | (188.3) |
| Shares issued under incentive stock plans | 34 | 2.1 | 2.1 | 167.8 | — | (126.9) | — | 43 | — | 43.0 |
| Repurchase of ordinary shares | 34 | (9.7) | (9.7) | — | 9.7 | — | (900.2) | (900.2) | — | (900.2) |
| Share-based compensation | 36 | — | — | — | — | 78.8 | (4.1) | 74.7 | — | 74.7 |
| Dividends declared to non-controlling interests | 37 | — | — | — | — | — | — | — | (41.4) | (41.4) |
| Adoption of ASU 2014-09 (Turnover Recognition) | 3 | — | — | — | — | — | 2.4 | 2.4 | — | 2.4 |
| Adoption of ASU 2016-16 (Intra-Entity Transfers) | 3 | — | — | — | — | — | (9.1) | (9.1) | — | (9.1) |
| Cash dividends declared and paid ($1.96 per share) | 36 | — | — | — | — | — | (480.8) | (480.8) | — | (480.8) |
| Other | | — | — | — | — | 0.1 | — | 0.1 | — | 0.1 |
| Balance at 31 December 2018 | | 266.4 | 266.4 | 650.6 | 104.8 | (598.3) | 6,599.2 | 7,022.7 | 42.1 | 7,064.8 |
| Profit for the financial year | | — | — | — | — | — | 1,410.9 | 1,410.9 | 17.6 | 1,428.5 |
| Other comprehensive income (loss) | 36 | — | — | — | — | (42.5) | — | (42.5) | 0.9 | (41.6) |
| Shares issued under incentive stock plans | 34 | 2.8 | 2.8 | 283.5 | — | (213.8) | — | 72.5 | — | 72.5 |
| Repurchase of ordinary shares | 34 | (6.4) | (6.4) | — | 6.4 | — | (750.1) | (750.1) | — | (750.1) |
| Share-based compensation | 36 | — | — | — | — | 66.4 | (2.9) | 63.5 | — | 63.5 |
| Dividends declared to non-controlling interests | 37 | — | — | — | — | — | — | — | (15.8) | (15.8) |
| Cash dividends declared and paid ($2.12 per share) | 36 | — | — | — | — | — | (509.5) | (509.5) | — | (509.5) |
| Other | | — | — | — | — | 0.1 | — | 0.1 | — | 0.1 |
| Balance at 31 December 2019 | | 262.8 | 262.8 | 934.1 | 111.2 | (788.1) | 6,747.6 | 7,267.6 | 44.8 | 7,312.4 |

The accompanying notes are an integral part of the consolidated financial statements.

**Trane Technologies plc**
**Consolidated Statements of Cash Flows**
**For the financial year ended 31 December 2019**

| | 2019 $m | 2018 $m |
|---|---|---|
| **Cash flows from operating activities:** | | |
| **Profit for the financial year** | 1,428.5 | 1,357.5 |
| Discontinued operations, net of taxation | (40.6) | 21.5 |
| Adjustments for non-cash transactions: | | |
| Depreciation and amortization | 397.4 | 361.5 |
| Pension and other postretirement benefits | 110.2 | 104.2 |
| Stock settled share-based compensation | 66.4 | 78.8 |
| Other non-cash items, net | 54.0 | (129.2) |
| Changes in other assets and liabilities, net of the effects of acquisitions: | | |
| Debtors | (53.2) | (236.0) |
| Stock | 18.4 | (169.9) |
| Other current and non-current assets | (229.5) | 35.3 |
| Trade creditors | 80.6 | 120.7 |
| Other current and non-current liabilities | 124.1 | (69.9) |
| Net cash provided by (used in) continuing operating activities | 1,956.3 | 1,474.5 |
| Net cash provided by (used in) discontinued operating activities | (36.8) | (66.7) |
| Net cash provided by (used in) operating activities | 1,919.5 | 1,407.8 |
| **Cash flows from investing activities:** | | |
| Capital expenditures | (254.1) | (365.6) |
| Acquisitions and equity method investments, net of cash acquired | (1,539.7) | (285.2) |
| Proceeds from sale of tangible fixed assets | 3.8 | 22.1 |
| Other investing activities, net | 10.0 | (0.7) |
| Net cash provided by (used in) investing activities | (1,780.0) | (629.4) |
| **Cash flows from financing activities:** | | |
| Short-term borrowings (payments), net | — | (6.4) |
| Proceeds from long-term debt | 1,497.9 | 1,147.0 |
| Payments of long-term debt | (7.5) | (1,123.0) |
| Net proceeds from (payments of) debt | 1,490.4 | 17.6 |
| Debt issuance costs | (13.1) | (12.0) |
| Dividends paid to ordinary shareholders | (510.1) | (479.5) |
| Dividends paid to non-controlling interests | (15.8) | (41.4) |
| Proceeds from shares issued under incentive plans | 116.8 | 68.9 |
| Repurchase of ordinary shares | (750.1) | (900.2) |
| Other financing activities, net | (47.6) | (32.2) |
| Net cash provided by (used in) financing activities | 270.5 | (1,378.8) |
| **Effect of exchange rate changes on cash at bank and in hand** | (9.8) | (45.6) |
| Net increase (decrease) in cash at bank and in hand | 400.2 | (646.0) |
| Cash at bank and in hand - beginning of period | 903.4 | 1,549.4 |
| Cash at bank and in hand - end of period | 1,303.6 | 903.4 |
| **Cash paid during the year for:** | | |
| Interest | 220.9 | 200.6 |
| Taxation, net of refunds | 425.3 | 375.4 |

The accompanying notes are an integral part of the consolidated financial statements.

## 1. GENERAL INFORMATION

Trane Technologies plc (Plc, Parent Company or Company), formerly known as Ingersoll-Rand plc, a public limited company, listed on the New York Stock Exchange, incorporated in Ireland in 2009, and its consolidated subsidiaries (collectively, we, our, the Group) 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 Group's business segments consist of Climate and Industrial, both with strong brands and highly differentiated products within their respective markets. The Group generates turnover 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®, and Club Car®, Ingersoll-Rand®, Thermo King® and Trane®.

The registered office address is 170-175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin, Ireland.

## 2. COMPLETION OF REVERSE MORRIS TRUST TRANSACTION

On 29 February 2020 (Distribution Date), the Company completed its Reverse Morris Trust transaction with Gardner Denver Holdings, Inc. (Gardner Denver) whereby the Company separated its former Industrial segment (Ingersoll Rand Industrial) through a pro rata distribution to shareholders of record as of 24 February 2020. Ingersoll Rand Industrial then merged into Gardner Denver and changed its name to Ingersoll Rand Inc. Upon close of the transaction, the Company's existing shareholders received 50.1% of the shares of Gardner Denver common stock on a fully-diluted basis and Gardner Denver stockholders retained 49.9% of the shares of Gardner Denver on a fully diluted basis. As a result, the Company's shareholders received .8824 shares of Gardner Denver common stock with respect to each share owned as of 24 February 2020. In addition, the Company received a one-time special cash payment of $1.9 billion from Gardner Denver pursuant to the terms of the Separation and Distribution Agreement. In connection with the transaction, the Company entered into several agreements covering administrative and tax matters to provide or obtain services on a transitional basis, for varying periods after the Distribution Date. The agreements cover various services such as information technology, human resources and finance.

## 3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND STATEMENT OF COMPLIANCE

The significant accounting policies used in the preparation of the financial statements are set out below. These policies have been consistently applied to all financial years presented, unless otherwise stated.

### (a) Basis of preparation

Irish law requires the directors to prepare financial statements for each financial year giving a true and fair view of the consolidated and company's assets, liabilities and financial position as at the end of the financial year and of the profit or loss of the group for the financial year. Under that law, the Directors have prepared the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP), as defined in Section 279(1) of the Companies Act 2014, to the extent that the use of those principles in the preparation of the financial statements does not contravene any provision of the Companies Act or of any regulations made thereunder and the Parent Company financial statements in compliance with Generally Accepted Accounting Practice in Ireland (accounting standards issued by the Financial Reporting Council and the Companies Act 2014) including Financial Reporting Standard 102, 'The Financial Reporting Standard applicable in the United Kingdom and Republic of Ireland' (FRS 102).

The Consolidated Financial Statements are prepared in accordance with Irish Company Law, to present to the shareholders of Ingersoll-Rand plc and file with the Companies Registration Office in Ireland. Accordingly, these Consolidated Financial Statements include disclosures required by the Companies Act 2014 of Ireland in addition to those required under U.S. GAAP.

The preparation of the Consolidated Financial Statements in conformity with U.S. GAAP 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, turnover 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 estimates. Certain reclassifications of amounts reported in prior periods have been made to conform with the current period presentation.

### (b) Statement of Compliance

The parent financial statements have been prepared on the going concern basis and in compliance with Generally Accepted Accounting Practice in Ireland (applicable accounting standards issued by the Financial Reporting Council and the Companies Act 2014) including Financial Reporting Standard 102, 'The Financial Reporting Standard applicable in the United Kingdom and Republic of Ireland' (FRS 102).

**(c) Currency Translation**

(i) Functional and presentation currency

The group's functional and presentation currency is the U.S. dollar, denominated by the symbol "$" and unless otherwise stated, the financial statements have been presented in millions.

ii) Transactions and balances

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 expenses 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 Consolidated Balance Sheet within Other reserves. 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 profit for the financial year.

**(d) Basis of Consolidation:** The Consolidated Financial Statements include all majority-owned subsidiaries of the Group. A non-controlling interest in a subsidiary is considered an ownership interest in a majority-owned subsidiary that is not attributable to the parent. The Group includes Non-controlling interests as a component of Total Equity in the Consolidated Balance Sheet and the profits attributable to non-controlling interests are presented as an adjustment from profit after taxation used to arrive at the profit for the financial year attributable to Trane Technologies plc in the Consolidated Profit and Loss Account. Partially-owned equity affiliates represent 20-50% ownership interests in investments where the Group demonstrates significant influence, but does not have a controlling financial interest. Partially-owned equity affiliates are accounted for under the equity method.

**(e) Use of Estimates:** The preparation of financial statements in conformity with U.S. 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 turnover 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.

**(f) Cash at Bank and in Hand:** Cash at bank and in hand 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 Group 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.

**(g) Allowance for Doubtful Accounts**: The Group maintains an allowance for doubtful debtors which represents the best estimate of probable loss inherent in the Group's trade debtors 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 debtors portfolio and the Group's historical experience with the Group'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 Group 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 Profit and Loss Account in the period that they are determined. The Group reserved $42.2 million and $32.7 million for doubtful accounts as of 31 December 2019 and 2018, respectively.

**(h) Stock:** 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 31 December 2019 and 2018, approximately 54% and 56%, respectively, of all inventory utilized the LIFO method.

**(i) Tangible Fixed Assets:** Tangible fixed assets 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 |
| Fixture and fittings | 5 | to | 10 | years |
| Software | 2 | to | 7 | years |
| Fleet and rentals | 3 | to | 6 | 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 Group 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.

**(j) Goodwill and Intangible Assets:** The Group records as goodwill the excess of the purchase price over the fair value of the net assets acquired in a business combination. Irish company law requires goodwill and other fixed assets to be written off over a time period which does not exceed their useful life. Consistent with U.S. GAAP, the Group does not amortize goodwill and certain intangibles over an arbitrary period as they are considered to have an indefinite life. 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 Group 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.

**(k) Business Combinations:** In accordance with ASC 805, "Business Combinations" (ASC 805), acquisitions are recorded using the acquisition method of accounting. The Group includes the operating results of acquired entities from their respective dates of acquisition. The Group 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.

**(l) Employee Benefit Plans**: The Group provides a range of benefits, including pensions, post-retirement and post-employment 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 U.S. GAAP. Actual results may differ from the actuarial assumptions and are generally accumulated into *Other reserves* and amortized into *Profit for the financial year* over future periods. The Group reviews its actuarial assumptions at each measurement date and makes modifications to the assumptions based on current rates and trends, if appropriate.

**(m) Loss Contingencies:** Liabilities are recorded for various contingencies arising in the normal course of business. The Group 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 Group 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 Group for any year.

**(n) Environmental Costs:** The Group 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 turnovers, 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 Group'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.

**(o) Asbestos Matters**: Certain of the Group's wholly-owned subsidiaries and former companies are named as defendants in asbestos-related lawsuits in state and federal courts. The Group 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 Group's existing or previously-owned businesses were a producer or manufacturer of asbestos. The Group records certain income and expenses associated with asbestos liabilities and corresponding insurance recoveries within *Discontinued operations, net of taxation*, 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.

**(p) 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 Group 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 Group's extended warranty liability represents the deferred turnover associated with its extended warranty contracts and is amortized into Turnover on a straight-line basis over the life of the contract, unless another method is more representative of the costs incurred. The Group 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.

**(q) Taxation:** Current tax represents the expected tax payable on the taxable income for the year, using tax rates and tax laws enacted or substantially enacted at the balance sheet date, along with any adjustment to tax payable in respect of previous years.

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 Group recognizes future tax benefits, such as net operating losses and non-U.S. tax credits, to the extent that realizing these benefits is considered in its judgment to be more likely than not. The Group 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 Group records a valuation allowance with respect to a future tax benefit.

**(r) Turnover Recognition:** Turnover 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 Group's turnover is 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 turnover is recognized over time as the customer simultaneously receives control as the Group 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 Group incurs costs.

**(s) Research and Development Costs:** The Group 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 31 December 2019 and 2018, these expenditures amounted to approximately $237.0 million and $228.7 million, respectively.

**(t) Provisions:** Provisions are recorded for various liabilities arising in the normal course of business, including litigation and administrative proceedings, environmental matters, product liability, product warranty, worker's compensation and other claims. The Group has recorded provisions 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 provision, 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 Group believes its estimated provisions 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 Group for any year.

**(u) Ordinary shares acquired under share repurchase program**: Share repurchases are made from time to time in accordance with management's capital allocation strategy, subject to market conditions and regulatory requirements. The cost of shares acquired and canceled upon repurchase are accounted as a deduction from the profit and loss reserve. In addition, an amount equal to the nominal value of any shares canceled is included within the capital redemption reserve as required by Section 106 (4) (a) of the Companies Act 2014. The cost of shares acquired and held upon repurchase is accounted as a deduction from the profit and loss reserve and classified as treasury shares until such shares are canceled, reissued or disposed of. No gain or loss

is recognised on the purchase, sale, issue or cancellation of the treasury shares. Where treasury shares are subsequently sold or reissued, any consideration received is included in *Total Equity*. Where treasury shares are subsequently canceled, the nominal value of such shares is transferred to the capital redemption reserve as required by Section 106 (4) (a) of the Companies Act 2014.

**(v) Dividend income from shares in group undertakings:** Dividend income from group undertakings are recognized in the period in which they are received.

**(w) Distributions paid to equity shareholders:** Interim dividends paid to the company's equity shareholders are recognized in the financial statements when approved by the Board of Directors and paid.

**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 Group 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 Group adopted this standard using a modified-retrospective approach as of 1 January 2019. Under this approach, the Group 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 *Profit and loss account reserve*. Reporting periods prior to 1 January 2019 continue to be presented in accordance with previous lease accounting guidance under U.S. GAAP. As part of the adoption, the Group elected the package of practical expedients permitted under the transition guidance which includes the ability to carry forward historical lease classification. Refer to Note 18, “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 U.S. 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 15 December 2018 with early adoption permitted. The Group adopted this standard on 1 October 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 Group applied ASU 2016-16 on a modified retrospective basis through a cumulative-effect adjustment which reduced the *Profit and loss account reserve* by $9.1 million as of 1 January 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 turnover recognition that requires a company to recognize turnover 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 Group adopted this standard on 1 January 2018 using the modified retrospective approach and recorded a cumulative effect adjustment to increase the *Profit and loss account reserve* by $2.4 million with related amounts not materially impacting the Balance Sheet.

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 Group adopted this standard on 1 January 2017 and prospectively presented any excess tax benefits or deficiencies in the income statement as a component of *Taxation* rather than in the Equity section of the Balance Sheet.

***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 15 December 2020 including interim periods therein with early adoption permitted. The Group 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 15 December 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 15 December 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.

## 4. 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 Group prepares financial information for internal review and decision making. The Group largely evaluates performance based on Segment operating profit and Segment operating margins. Intercompany sales between segments are considered immaterial.

The Group'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 Group'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 profit is the measure of profit and loss that the Group'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 Group believes that Segment operating profit represents the most relevant measure of segment profit and loss.

A summary of operations by reportable segments for the years ended 31 December were as follows:

| | 2019 $m | 2018 $m |
|---|---|---|
| **Climate** | | |
| Turnover | 13,075.9 | 12,343.8 |
| Segment operating profit | 1,908.5 | 1,766.2 |
| Segment operating profit as a percentage of turnover | 14.6% | 14.3% |
| Depreciation and amortization | 258.0 | 252.0 |
| Capital expenditures | 188.1 | 217.3 |
| **Industrial** | | |
| Turnover | 3,523.0 | 3,324.4 |
| Segment operating profit | 455.0 | 405.3 |
| Segment operating profit as a percentage of turnover | 12.9% | 12.2% |
| Depreciation and amortization | 108.6 | 79.2 |
| Capital expenditures | 48.7 | 80.9 |
| Total net turnover | 16,598.9 | 15,668.2 |
| **Reconciliation to Operating Profit** | | |
| Segment operating profit from reportable segments | 2,363.5 | 2,171.5 |
| Unallocated corporate expense | (345.9) | (254.1) |
| Other operating expense | (36.1) | (42.7) |
| Total operating profit | 1,981.5 | 1,874.7 |
| Total operating profit as a percentage of turnover | 11.9% | 12.0% |
| **Depreciation and Amortization** | | |
| Depreciation and amortization from reportable segments | 366.6 | 331.2 |
| Unallocated depreciation and amortization | 30.8 | 30.3 |
| Total depreciation and amortization | 397.4 | 361.5 |
| **Capital Expenditures** | | |
| Capital expenditures from reportable segments | 236.8 | 298.2 |
| Corporate capital expenditures | 17.3 | 67.4 |
| Total capital expenditures | 254.1 | 365.6 |

At 31 December, a summary of long-lived assets by geographic area were as follows:

| | 2019 $m | 2018 $m |
|---|---|---|
| **Long-lived assets** | | |
| United States | 2,327.3 | 1,914.7 |
| Non-U.S. | 790.6 | 781.3 |
| Total | 3,117.9 | 2,696.0 |

## 5. OTHER OPERATING EXPENSE

| | 2019 $m | 2018 $m |
|---|---|---|
| Exchange gain (loss) | (12.3) | (17.6) |
| Other components of net periodic benefit cost | (39.3) | (21.9) |
| Other miscellaneous income/(expense) | 15.5 | (3.2) |
| | (36.1) | (42.7) |

*Other operating expense* includes the results from activities other than normal business operations such as 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 miscellaneous income/(expense) include costs associated with Trane U.S. Inc. (Trane) 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. Refer to Note 31, "Commitments and Contingencies," for more information regarding asbestos-related matters.

## 6. TURNOVER

The Group recognizes turnover 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 Group's turnover is 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 Group's turnover is recognized over time as the customer simultaneously receives control as the Group 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 Group identifies performance obligations at the inception of a contract and allocates the transaction price to individual performance obligations to faithfully depict the Group’s performance in transferring control of the promised goods or services to the customer.

The following are the primary performance obligations identified by the Group:

*Equipment and parts*. The Group principally generates turnover from the sale of equipment and parts to customers and recognizes turnover 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 Group in the event the customer cancels the contract. In addition, the Group has the right to payment for performance completed to date. As a result, turnover related to these contracts is recognized over time with progress towards completion measured using an input method as the basis to recognize turnover 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 Group 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. Turnover associated with contracting and installation contracts is recognized over time with progress towards completion measured using an input method as the basis to recognize turnover 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 Group 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. Turnover 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 Group. However, if historical evidence indicates that the cost of providing these services on a straight-line basis is not appropriate, turnover 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 turnover recognition as the Group does not transfer control to the customer until the service is completed. As a result, turnover related to these services is recognized at a point in time.

*Extended warranties*. The Group 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 Group’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 Group 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 Group. Turnover associated with these performance obligations is 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 Group. However, if historical evidence indicates that the cost of providing these services on a straight-line basis is not appropriate, turnover is recognized over the contract period in proportion to the costs expected to be incurred while performing the service. Refer to Note 31, "Commitments and Contingencies," for more information related to product warranties.

The transaction price allocated to performance obligations reflects the Group’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 Group includes variable consideration in the estimated transaction price when it is probable that significant reversal of turnover recognized would not occur when the uncertainty associated with variable consideration is subsequently resolved. The Group considers historical data in determining its best estimates of variable consideration, and the related accruals are recorded using the expected value method. The Group 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 Group has not recognized any significant adjustments to the transaction price due to variable consideration.

The Group 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 Group utilizes observable prices for goods or services sold separately to similar customers in similar circumstances to evaluate relative standalone selling price. Otherwise, list prices are used if they are determined to be representative of standalone selling prices. List prices are used if they are determined to be representative of standalone selling prices. Where necessary, the Group 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 Group recognizes turnover 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 Group excludes from turnover taxes it collects from a customer that are assessed by a government authority.

***Disaggregated Turnover***

A summary of *Net turnover* by destination for the year ended at 31 December was as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| 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 turnover* by major type of good or service for the year ended at 31 December was as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| 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 |

Turnover from goods and services transferred to customers at a point in time accounted for approximately 85% (approximately 84% in 2018) of the Group's turnover for the year ended 31 December 2019.

***Contract Balances***

The opening and closing balances of contract assets and contract liabilities arising from contracts with customers for the period ended 31 December 2019 and 31 December 2018 were as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Contract assets | 190.2 | 210.9 |
| Contract liabilities | 1,042.9 | 846.2 |

The timing of turnover recognition, billings and cash collections results in debtors, contract assets, and customer advances and deposits (contract liabilities) on the Consolidated Balance Sheet. In general, the Group 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 Group has a right to consideration that is unconditional before it transfers a good or service to the customer. Contract liabilities are recognized as turnover as (or when) the Group performs under the contract. During the year ended 31 December 2019, changes in contract asset and liability balances were not materially impacted by any other factors.

Approximately 58% of the contract liability balance at the 31 December 2018 was recognized as turnover during the year ended 31 December 2019. Additionally, approximately 32% of the contract liability balance at 31 December 2019 was classified as noncurrent and not expected to be recognized as turnover in the next 12 months.

## 7. INTEREST RECEIVABLE AND SIMILAR INCOME

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Short term investments | 2.0 | 6.1 |
| Long term investments | 1.1 | 0.3 |
| | 3.1 | 6.4 |

## 8. INTEREST PAYABLE AND SIMILAR CHARGES

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Interest on bank debt (Note 26) | (236.8) | (215.5) |
| Amortization of debt issue costs (Note 26) | (5.5) | (4.5) |
| Interest on discounted receivables | (0.1) | (0.1) |
| Penalties | — | — |
| Other | (0.6) | (0.6) |
| | (243.0) | (220.7) |

## 9. OPERATING EXPENSES

The following operating expenses have been recognised:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Amortization of intangible assets (Note 16) | 171.3 | 139.3 |
| Depreciation (Note 17) | 264.1 | 254.4 |
| Restructuring costs (Note 14) | 90.1 | 93.4 |
| Research and development | 237.0 | 228.7 |

**Auditor's Remuneration**

In accordance with statutory requirements in Ireland, remuneration (including expenses) of the Group's independent auditors in respect of the statutory audit and other services carried out were as follows:

| | PwC Ireland (statutory auditor) | | PwC (network firms) | | Total | |
|---|---|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| | $m | $m | $m | $m | $m | $m |
| Audit of the Group accounts [(a)] | 0.7 | 0.7 | 11.6 | 11.8 | 12.3 | 12.5 |
| Other assurance services [(b] | — | — | 7.5 | 0.2 | 7.5 | 0.2 |
| Tax advisory services [(c)] | — | — | 7.8 | 2.6 | 7.8 | 2.6 |
| Other non-audit [(d)] | — | — | — | — | — | — |
| Total | 0.7 | 0.7 | 26.9 | 14.6 | 27.6 | 15.3 |

(a) Audit of the Group accounts for the years ended 31 December 2019 and 2018, respectively, were for professional services rendered for the audit of the Parent Company and the Group'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) Other assurance services for the year ended 31 December 2019 and 2018 consist of fees related to performing the audit and review of our financial statements including employee benefit plan audits. Other assurance services in the year ended 31 December 2019 include carve out audits related to the Group's Reverse Morris Trust Transaction with Gardner Denver Holdings, Inc. (the RMT Transaction).

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

(d) Other non-audit fees for the year ended 31 December 2019 and 2018 include license fees for technical accounting software.

## 10. EMPLOYEES

(i) Employees

The average monthly number of persons (including executive directors) employed by the Group during the financial year was as follows:

| | 2019 | 2018 |
|---|---|---|
| Business segment | Number | Number |
| Climate | 35,711 | 34,170 |
| Industrial | 9,759 | 9,914 |
| Corporate | 4,486 | 4,269 |
| | 49,956 | 48,353 |

The staff costs for the year for the above employees (including Executive Directors) were:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Wages and salaries | 3,290.8 | 3,151.8 |
| Social insurance costs | 373.0 | 342.0 |
| Other retirement benefit costs | 264.3 | 247.8 |
| Other compensation costs | 268.7 | 231.4 |
| | 4,196.8 | 3,973.0 |

Other compensation costs include private health insurance, tuition reimbursement and expatriate benefits.

Of the total staff costs $250.3million (2018: $236.0 million) has been capitalized into stock and tangible fixed assets and $3,946.5 million (2018: $3,737.0 million) has been treated as an expense in the Consolidated Profit and Loss Account.

## 11. DIRECTORS' REMUNERATION

Directors' remuneration for the financial year 2019 and 2018 is set forth in the table below

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Emoluments | 4.8 | 5.2 |
| Gains by the directors on the exercise of share options | 48.2 | 11.4 |
| Benefits under long-term incentive schemes | 2.8 | 2.9 |
| Contributions to defined benefit retirement schemes | 0.3 | 0.2 |
| Compensation for loss of office paid by the company and other termination payments | — | — |
| | 56.1 | 19.7 |

Retirement benefits are accruing to one director (2018: one) under a defined benefit scheme.

## 12. TAXATION

***Current and deferred provision for income taxes***

Profit on ordinary activities before taxation for the years ended 31 December were taxed within the following jurisdictions:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| United States | 960.6 | 971.6 |
| Non-U.S. | 781.0 | 688.7 |
| Total | 1,741.6 | 1,660.3 |

The components of the *Provision for taxation* for the years ended 31 December were as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Current tax expense (benefit): | | |
| United States | 203.4 | 231.9 |
| Non-U.S. | 133.5 | 193.2 |
| Total: | 336.9 | 425.1 |
| Deferred tax expense (benefit): | | |
| United States | 35.7 | (83.2) |
| Non-U.S. | (18.9) | (60.6) |
| Total: | 16.8 | (143.8) |
| Total tax expense (benefit): | | |
| United States | 239.1 | 148.7 |
| Non-U.S. | 114.6 | 132.6 |
| Total | 353.7 | 281.3 |

The *Provision for taxation* differs from the amount of taxes determined by applying the applicable U.S. statutory tax rate to pretax income, as a result of the following differences:

| | Percent of pretax income | |
|---|---|---|
| | **2019** | **2018** |
| Statutory U.S. rate | 21.0% | 21.0% |
| Increase (decrease) in rates resulting from: | | |
| Non-U.S. tax rate differential | (1.9) | (1.8) |
| Tax on U.S. subsidiaries on non-U.S. earnings [(a)] | 1.1 | 0.7 |
| State and local income taxes [(b)] | 3.1 | 0.1 |
| Valuation allowances [(c)] | (2.4) | 0.7 |
| Change in permanent reinvestment assertion [(a), (d)] | — | (2.3) |
| Transition tax [(d)] | — | 1.5 |
| Remeasurement of deferred tax balances [(d)] | — | 0.3 |
| Stock based compensation | (1.5) | (0.9) |
| Foreign derived intangible income | (0.7) | (1.1) |
| Reserves for uncertain tax positions | (0.3) | (0.8) |
| Provision to return and other true-up adjustments | 0.1 | (0.7) |
| Other adjustments | 1.8 | 0.2 |
| Effective tax rate | 20.3% | 16.9% |

(a) Net of foreign tax credits
(b) Net of changes in state valuation allowances
(c) Primarily federal and non-U.S., excludes state valuation allowances
(d) Provisional amounts reported under SAB 118 were finalized in 2018

Tax incentives, in the form of tax holidays, have been granted to the Group in certain jurisdictions to encourage industrial development. The expiration of these tax holidays varies by country. The tax holidays are conditional on the Group meeting certain employment and investment thresholds. The most significant tax holidays relate to the Group's qualifying locations in China, Puerto Rico, Panama and Singapore. The benefit for the tax holidays for the years ended 31 December 2019 and 2018 was $33.1 million and $25.4 million, respectively.

***Deferred tax assets and liabilities***

A summary of the deferred tax accounts at 31 December are as follows:

| | 2019 $m | 2018 $m |
|---|---|---|
| Deferred tax assets: | | |
| Stock and Debtors | 17.7 | 20.3 |
| Fixed assets and intangibles | 35.3 | 39.2 |
| Operating lease liabilities | 140.2 | — |
| Post-employment 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: | | |
| Stock and Debtors | (20.0) | (18.6) |
| Fixed assets and intangibles | (1,358.3) | (1,220.9) |
| Operating lease right-of-use assets | (140.2) | — |
| Post-employment 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 31 December 2019, no deferred taxes have been provided for earnings of certain of the Group'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 31 December 2019, the Group had the following operating loss and tax credit carryforwards available to offset taxable income in prior and future years:

| | Amount $m | 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 Group's valuation allowance is as follows:

| | 2019 $m | 2018 $m |
|---|---|---|
| At 1 January | 332.2 | 344.6 |
| Increase to valuation allowance | 46.0 | 54.9 |
| Decrease to valuation allowance | (56.8) | (55.1) |
| Write off against valuation allowance | — | (4.6) |
| Acquisition and purchase accounting | 53.3 | — |
| Accumulated other comprehensive income (loss) | (1.0) | (7.6) |
| At 31 December | 373.7 | 332.2 |

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 Group recorded a net addition to the valuation allowance related to excess foreign tax credits in the amount of $17.3 million. In addition, the Group recorded a $35 million reduction in a valuation allowance for certain state net deferred tax assets. The reduction in certain state net deferred tax assets is primarily the result of revised projections of future state taxable income during the carryforward period.

***Unrecognized tax benefits***

The Group has total unrecognized tax benefits of $78.2 million and $83.0 million as of 31 December 2019 and 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 31 December 2019. A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

| | 2019 $m | 2018 $m |
|---|---|---|
| At 1 January | 83.0 | 120.5 |
| Additions based on tax positions related to the current year | 4.1 | 3.4 |
| Additions based on tax positions related to prior years | 10.0 | 23.5 |
| Reductions based on tax positions related to prior years | (14.0) | (47.2) |
| Reductions related to settlements with tax authorities | (0.9) | (14.2) |
| Reductions related to lapses of statute of limitations | (2.9) | (0.9) |
| Translation (gain) loss | (1.1) | (2.1) |
| At 31 December | 78.2 | 83.0 |

The Group records interest and penalties associated with the uncertain tax positions within *Taxation*. The Group had reserves associated with interest and penalties, net of tax, of $16.9 million and $20.7 million at 31 December 2019 and 31 December 2018, respectively. For the year ended 31 December 2019 and 31 December 2018, the Group 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 Group'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 Group 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 Group. In addition, tax authorities periodically review income tax returns filed by the Group 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 Group 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 Group 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 Group. If the ultimate result of these audits differ from original or adjusted estimates, they could have a material impact on the Group's tax provision. In general, the examination of the Group'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 Taxation 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:

| | 2017 Provisional Amounts Reported | 2018 Measurement Period Adjustments | Final Tax Effects of the Act |
|---|---|---|---|
| | $m | $m | $m |
| 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) |

## 13. ACQUISITIONS AND DIVESTITURES

***Acquisitions and Equity Method Investments***

During 2019, the Group 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 15 May 2019, the Group 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 Group acquired an independent dealer to support the ongoing strategy to expand our distribution network as well as other businesses that strengthen the Group'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 26, "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:

| | Preliminary 15 May 2019 | Measurement Period Adjustments | As Adjusted 15 May 2019 |
|---|---|---|---|
| | $m | $m | $m |
| 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 stock and tangible assets 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 Group recorded intangible assets based on their preliminary estimate of fair value, which consisted of the following:

| | Weighted-average useful life (*in years*) | May 15, 2019 |
|---|---|---|
| | $m | $m |
| 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 Profit for the financial year 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 turnover 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 turnover 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 turnover 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 Group incurred $12.9 million of acquisition-related costs which are included in *Administrative expenses* in the accompanying Consolidated Profit and Loss Account. The Group has not included pro forma financial information required under ASC 805 as the pro forma impact was deemed not material.

During 2018, the Group 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 Group does not have a controlling financial interest and reported within *Financial assets* on the Balance Sheet.

Primary activity during 2018 relates 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 Group continues to acquire 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 Group 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, will focus 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 Group's results of operations.

***Divestitures***

The Group 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 taxation* for the years ended 31 December are as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Pre-tax earnings (loss) from discontinued operations | 54.8 | (85.5) |
| Tax benefit (expense) | (14.2) | 64.0 |
| Discontinued operations, net of taxation | 40.6 | (21.5) |

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. Refer to Note 31, "Commitments and Contingencies," for more information related to asbestos. A portion of the tax benefit (expense) in each period represent adjustments for certain tax matters associated with Allegion.

## 14. RESTRUCTURING ACTIVITIES

The Group 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 31 December were as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Climate | 50.8 | 34.1 |
| Industrial | 37.5 | 49.9 |
| Corporate and Other | 1.8 | 9.4 |
| Total | 90.1 | 93.4 |
| Cost of sales | 72.7 | 72.3 |
| Distribution costs and administrative expenses | 17.4 | 21.1 |
| Total | 90.1 | 93.4 |

The changes in the restructuring reserve were as follows:

| | Climate | Industrial | Corporate and Other | Total |
|---|---|---|---|---|
| | $m | $m | $m | $m |
| 1 January 2019 | 18.9 | 29.9 | 2.6 | 51.4 |
| Additions, net of reversals [(1)] | 48.1 | 20.7 | 1.8 | 70.6 |
| Cash paid/Other | (43.2) | (39.1) | (2.8) | (85.1) |
| 31 December 2019 | 23.8 | 11.5 | 1.6 | 36.9 |

(1) 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 Group's cost structure. During the year ended 31 December 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. However, the Group does include costs that are directly attributable to the restructuring activity but do not fall into the severance, exit or disposal categories. As of 31 December 2019, the Group had $36.9 million (2018: $51.4 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.

## 15. EARNINGS PER SHARE (EPS)

Basic EPS is calculated by dividing the Profit attributable to the equity holders of 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 |
|---|---|---|
| Weighted-average number of basic shares outstanding | 241.6 | 247.2 |
| Shares issuable under incentive stock plans | 2.8 | 2.9 |
| Weighted-average number of diluted shares outstanding | 244.4 | 250.1 |
| Anti-dilutive shares | — | 1.5 |
| Dividends declared per ordinary share | 2.12 | 1.96 |

## 16. INTANGIBLE ASSETS

At 31 December, the major classes of intangible assets were as follows:

| | Goodwill | Patents | Covenants Not To Compete | Trademarks & Tradenames | Customer Relationships | Other | Total |
|---|---|---|---|---|---|---|---|
| **Cost:** | | | | | | | |
| At 1 January 2019 | 6,282.4 | 206.6 | 5.9 | 2,671.1 | 2,086.8 | 77.1 | 11,329.9 |
| Acquisitions | 846.6 | 1.5 | — | 168.5 | 476.8 | 40.9 | 1,534.3 |
| Other | — | — | — | — | — | (0.8) | (0.8) |
| Exchange differences | (23.4) | (0.5) | — | (0.6) | (1.6) | (0.4) | (26.5) |
| At 31 December 2019 | 7,105.6 | 207.6 | 5.9 | 2,839.0 | 2,562.0 | 116.8 | 12,836.9 |
| **Accumulated amortization:** | | | | | | | |
| At 1 January 2019 | 322.9 | 182.0 | 5.5 | 0.8 | 1,176.3 | 48.2 | 1,735.7 |
| Charge for the year | — | 5.8 | 0.4 | 0.3 | 146.4 | 18.4 | 171.3 |
| Other | — | — | — | — | — | — | — |
| Exchange differences | (0.4) | (0.2) | — | — | (1.0) | (0.4) | (2.0) |
| At 31 December 2019 | 322.5 | 187.6 | 5.9 | 1.1 | 1,321.7 | 66.2 | 1,905.0 |
| **Net book amount** | | | | | | | |
| At 1 January 2019 | 5,959.5 | 24.6 | 0.4 | 2,670.3 | 910.5 | 28.9 | 9,594.2 |
| At 31 December 2019 | 6,783.1 | 20.0 | — | 2,837.9 | 1,240.3 | 50.6 | 10,931.9 |

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.

Intangible asset amortization expense for 2019 and 2018 was $171.3 million and $139.3 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.

The Group records as goodwill the excess of the purchase price over the fair value of the net assets acquired in an acquisition. 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:

| | Climate | Industrial | Total |
|---|---|---|---|
| | $m | $m | $m |
| Net balance as 1 January 2018 | 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 at 31 December 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 at 31 December 2019 | 5,125.7 | 1,657.4 | 6,783.1 |

(1) Refer to Note 13, "Acquisitions and Divestitures" for more information regarding acquisitions.

The net goodwill balances at 31 December 2019 and 2018 include $2,496.0 million of accumulated impairment. The accumulated impairment relates entirely to a charge in 2008 associated with the Climate segment.

## 17. TANGIBLE ASSETS

At 31 December the major classes of tangible assets were as follows:

| | Land and Buildings | Machinery and Equipment | Fleet & Rentals | Fixtures and Fittings | Software | Construction In Progress | Total |
|---|---|---|---|---|---|---|---|
| | $m | $m | $m | $m | $m | $m | $m |
| **Cost:** | | | | | | | |
| At 1 January 2019 | 806.2 | 1,318.5 | 415.9 | 172.1 | 792.5 | 330.0 | 3,835.2 |
| Additions at cost | 150.9 | 193.0 | 93.0 | 23.3 | 41.1 | (108.9) | 392.4 |
| Transfers | (3.4) | 0.3 | — | (0.1) | — | (50.8) | (54.0) |
| Exchange differences | (3.1) | (6.4) | 0.3 | (1.2) | (0.8) | (1.3) | (12.5) |
| Acquisitions | 34.7 | 46.2 | 0.7 | 3.8 | 2.2 | 2.2 | 89.8 |
| Disposals | (30.5) | (103.8) | (56.1) | (10.0) | (20.6) | — | (221.0) |
| Other | 1.0 | 8.5 | — | (0.7) | 7.2 | (6.2) | 9.8 |
| At 31 December 2019 | 955.8 | 1,456.3 | 453.8 | 187.2 | 821.6 | 165.0 | 4,039.7 |
| **Depreciation:** | | | | | | | |
| At 1 January 2019 | 391.8 | 818.0 | 167.8 | 125.7 | 601.1 | — | 2,104.4 |
| Charge for the year | 34.7 | 101.9 | 45.4 | 14.9 | 67.2 | — | 264.1 |
| Transfers | (1.4) | — | — | — | — | — | (1.4) |
| Exchange differences | (1.2) | (4.7) | 0.2 | (0.9) | (0.7) | — | (7.3) |
| Acquisitions | 7.7 | 24.5 | | 2.6 | 1.5 | — | 36.3 |
| Disposals | (24.4) | (98.2) | (31.9) | (9.0) | (20.5) | — | (184.0) |
| Impairment | — | 15.3 | — | — | — | — | 15.3 |
| Other | 0.9 | 3.4 | — | 0.9 | 0.9 | — | 6.1 |
| At 31 December 2019 | 408.1 | 860.2 | 181.5 | 134.2 | 649.5 | — | 2,233.5 |
| **Net book amount** | | | | | | | |
| At 1 January 2019 | 414.4 | 500.5 | 248.1 | 46.4 | 191.4 | 330.0 | 1,730.8 |
| At 31 December 2019 | 547.7 | 596.1 | 272.3 | 53.0 | 172.1 | 165.0 | 1,806.2 |

During the financial year, tangible fixed assets with a net carrying amount of $37.0 million were disposed of. The assets had a cost of $221.0 million and accumulated depreciation of $184.0 million. The loss on the disposal of these tangible assets was $3.6 million (2018: loss of $5.9 million).

## 18. LEASES

The Group's lease portfolio includes various contracts for real estate, vehicles, information technology and other equipment. At contract inception, the Group 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 Group 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 Group'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 Group's lease portfolio and Balance Sheet classification:

| | Classification | 31 December 2019 $m | 1 January 2019 $m |
|---|---|---|---|
| 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 31 December 2019 and 1 January 2019, respectively.

The Group 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 Group 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.

At 31 December, right-of-use assets consisted of the following:

| | | 2019 $m |
|---|---|---|
| At 1 January 2019 | $ | 517.1 |
| Additions / modifications | | 214.3 |
| Depreciation | | (171.4) |
| At 31 December 2019 | $ | 560.0 |

The following table includes lease costs and related cash flow information for the year ended 31 December:

| | | 2019 $m |
|---|---|---|
| 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 Group 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 Group 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:

| | 31 December 2019 |
|---|---|
| | $m |
| 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 31 December 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 1 January 2019, the Group 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 Directors' Report and Financial Statements and accounted for under previous lease guidance. Commitments as of 31 December 2018 were as follows:

| | 31 December 2018 |
|---|---|
| | $m |
| Operating leases | |
| 2019 | $ 197.1 |
| 2020 | 152.0 |
| 2021 | 107.4 |
| 2022 | 68.4 |
| 2023 | 42.2 |
| After 2023 | 42.7 |
| Total | $ 609.8 |

## 19. FINANCIAL ASSETS

The Group's financial assets were comprised of:

| | Investment in associates and joint ventures (a) | Capital investments | Deposits | Trade & Loans Receivable | Long term notes receivable | Life insurance cash surrender value | Total |
|---|---|---|---|---|---|---|---|
| | $m | $m | $m | $m | $m | $m | $m |
| At 1 January 2019 | 101.3 | 0.5 | 11.8 | 8.0 | 8.8 | 26.9 | 157.3 |
| Capital Stock Investment | — | — | — | — | — | — | — |
| Income/(Expenses) | 30.9 | — | — | — | — | — | 30.9 |
| Dividend | (23.5) | — | — | — | — | — | (23.5) |
| Other | — | — | 0.5 | 0.3 | (1.0) | (10.8) | (11.0) |
| At 31 December 2019 | 108.7 | 0.5 | 12.3 | 8.3 | 7.8 | 16.1 | 153.7 |

(a) Investments in associates and joint ventures includes the 25% interest in Alliance Compressors LLC, and the 50% interest in Mitsubishi JV investment and 49% interest in Dallah Trane JV investment.

## 20. STOCK

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 31 December the major classes of stock were as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| 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 Group 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 31 December 2019 and 31 December 2018, respectively.

## 21. DEBTORS

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| **Amounts falling due within one year:** | | |
| Trade debtors | 2,720.9 | 2,585.2 |
| Less: Provision for impairment of receivables | (42.2) | (32.7) |
| Less: Reserve for customer claims | (3.5) | (3.0) |
| Trade debtors - net | 2,675.2 | 2,549.5 |
| Trade notes receivable | 7.3 | 7.6 |
| Other debtors | 115.6 | 122.0 |
| Prepayments | 302.4 | 408.8 |
| Income tax receivables | 100.9 | 62.9 |
| | 3,201.4 | 3,150.8 |

## 22. CASH AT BANK AND IN HAND

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Cash at bank and in hand | 1,303.6 | 903.4 |

## 23. DEBTORS – AMOUNTS FALLING DUE AFTER MORE THAN ONE YEAR

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Other debtors | 500.5 | 390.6 |
| Benefit trust assets | 154.2 | 156.6 |
| Prepayments | 5.6 | 5.3 |
| Deferred tax asset | 163.0 | 148.0 |
| | 823.3 | 700.5 |

## 24. CREDITORS – AMOUNTS FALLING DUE WITHIN ONE YEAR

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Debt and credit facilities (Note 26) | 650.5 | 350.6 |
| Short term lease obligations (Note 18) | 172.0 | — |
| Payments received on account | 201.3 | 185.9 |
| Trade creditors | 1,809.2 | 1,705.3 |
| Other creditors | 622.7 | 707.7 |
| Corporation tax | 29.8 | 55.9 |
| Other taxes | 29.5 | 35.4 |
| Value added tax | 29.6 | 41.3 |
| Income taxes | 25.2 | 25.8 |
| Excise duty | 61.8 | 58.9 |
| Derivatives payable | 7.1 | 1.2 |
| Deferred income | 304.8 | 258.2 |
| Accruals | 392.1 | 363.5 |
| | 4,335.6 | 3,789.7 |

| Creditors for taxation and social insurance included in the table above: | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Irish PAYE | 2.0 | 2.2 |
| Other income tax | 25.2 | 25.8 |
| Corporation tax | 29.8 | 55.9 |
| Value added tax | 29.6 | 41.3 |
| Other tax | 29.5 | 35.4 |
| | 116.1 | 160.6 |

Trade creditors principally comprise amounts outstanding for day to day purchases and ongoing costs and are payable at various dates in the next three months in accordance with the creditors usual and customary credit terms. The directors consider that the carrying amount of trade creditors approximates to their fair value.

Other creditors and accruals falling due within one year and creditors for tax and social insurance are payable in the timeframe set down in the relevant legislation.

## 25. CREDITORS – AMOUNTS FALLING DUE AFTER MORE THAN ONE YEAR

| | 2019 | 2018 |
|---|---|---|
| **Amounts falling due after more than one year** | $m | $m |
| Long term debt (Note 26) | 4,922.9 | 3,740.7 |
| Long term lease obligations (Note 18) | 394.4 | 0.0 |
| Accruals | 161.1 | 46.1 |
| Deferred income | 16.0 | 22.9 |
| | 5,494.4 | 3,809.7 |

| | 2019 | 2018 |
|---|---|---|
| **Amounts falling due after more than five years** | $m | $m |
| Accruals | 12.9 | 11.8 |
| Deferred income | 2.5 | 3.1 |
| | 15.4 | 14.9 |

## 26. DEBT AND CREDIT FACILITIES

At 31 December, *Short-term borrowings and current maturities of long-term debt consisted of the following*:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| 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 |
| | 650.5 | 350.6 |

(1) The 2.625% Senior notes are due in May 2020.

The Group's short-term obligations primarily consist of current maturities of long-term debt. The weighted-average interest rate for total *Short-term borrowings and current maturities of long-term debt* at 31 December 2019 and 2018 was 4.6% and 6.3%, respectively.

***Commercial Paper Program***

The Group 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 billion as of 31 December 2019. Under the commercial paper program, the Group 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 Group had no outstanding balance under its commercial paper program as of 31 December 2019 and 31 December 2018.

***Debentures with Put Feature***

At 31 December 2019 and 31 December 2018, the Group 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 Group 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.

At 31 December long-term debt excluding current maturities consisted of:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| 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 31 December 2019 are as follows:

| | $m |
|---|---|
| 2020 | 650.5 |
| 2021 | 431.6 |
| 2022 | 7.5 |
| 2023 | 705.3 |
| 2024 | 504.1 |
| Thereafter | 3,274.4 |
| Total | 5,573.4 |

***Issuance and Redemption of Senior Notes***

In March 2019, the Group 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 Group 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 Group’s operations. During the three months ended 31 March 2019, the Group capitalized $13.1 million of debt issuance costs which will be amortized over the remaining life of the debt. The Group used the net proceeds to finance the acquisition of Precision Flow Systems (PFS) and for general corporate purposes.

In February 2018, the Group 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 Group 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 Group’s operations. In March 2018, the Group 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 Group recognized $15.4 million of premium expense and $1.2 million of unamortized costs in *Interest payable and similar charges* in 2018.

***Other Credit Facilities***

The Group 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 Group's commercial paper program and can be used for working capital and other general corporate purposes. Trane Technologies 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 31 December 2019 and 31 December 2018.

***Fair Value of Debt***

The carrying value of the Group'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 Group's debt instruments at 31 December 2019 and 31 December 2018 was $6.2 billion and $4.2 billion, respectively. The Group 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 Group to determine the fair value of its long-term debt instruments at 31 December 2019 are the same as those used at 31 December 2018.

***Guarantees***

Along with Trane Technologies plc, certain of the Group'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 33 for the Group's current guarantor structure.

## 27. FINANCIAL INSTRUMENTS

In the normal course of business, the Group 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 Group may use various financial instruments, including derivative instruments, to manage the risks associated with interest rate and currency rate exposures. These financial instruments are not used for trading or speculative purposes. The Group 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 Group designates the derivative instrument as a cash flow hedge of a forecasted transaction or as an undesignated derivative. The Group 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 Group 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 *Other reserves*. 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 *Profit for the financial year.*

The fair values of derivative instruments included within the Consolidated Balance Sheet as of 31 December were as follows:

| | Derivative assets | | Derivative liabilities | |
|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 |
| | $m | $m | $m | $m |
| 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 *Debtors* and *Creditors: Amounts falling due within one year*, respectively.

***Currency Hedging Instruments***

The notional amount of the Group's currency derivatives was $0.5 billion and $0.6 billion at 31 December 2019 and 2018, respectively. At 31 December 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 Other reserves related to the fair value of the Group's currency derivatives designated as accounting hedges. The amount expected to be reclassified into *Profit for the financial year* over the next twelve months is a loss of $1.6 million. The actual amounts that will be reclassified to *Profit for the financial year* may vary from this amount as a result of changes in market conditions. Gains and losses associated with the Group's currency derivatives not designated as hedges are recorded in *Profit for the financial year* as changes in fair value occur. At 31 December 2019, the maximum term of the Group'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 Group 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 initially deferred into *Other reserves*. These deferred gains or losses are subsequently recognized in *Interest payable and similar charges* over the term of the related notes. The net unrecognized gain in *Other reserves* was $6.0 million and $6.7 million at 31 December 2019 and 2018. The deferred gain at 31 December 2019 will 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 Group has no forward-starting interest rate swaps or interest rate lock contracts outstanding at 31 December 2019 or 2018.

The following table represents the amounts associated with derivatives designated as hedges affecting *Profit on ordinary activities before taxation* and *Other reserves* for the year ended 31 December:

| | Amount of gain (loss) recognized in Other reserves | | Location of gain (loss) reclassified from Other reserves and recognized into Profit on ordinary activities before taxation | Amount of gain (loss) reclassified from Other reserves and recognized into Profit for the financial year | |
|---|---|---|---|---|---|
| | 2019 | 2018 | | 2019 | 2018 |
| | $m | $m | | $m | $m |
| Currency derivatives designated as hedges | (2.7) | 1.2 | Cost of sales | (1.4) | (0.8) |
| Interest rate swaps & locks | — | — | Interest payable and similar charges | 0.7 | (0.1) |
| Total | (2.7) | 1.2 | | (0.7) | (0.9) |

The following table represents the amounts associated with derivatives not designated as hedges affecting *Profit for the financial year* and *Other reserves* for the years ended 31 December:

| | Amount of gain (loss) recognized in Profit after taxation | |
|---|---|---|
| | 2019 | 2018 |
| | $m | $m |
| Currency derivatives not designated as hedges | (6.4) | (29.6) |
| Total | (6.4) | (29.6) |

The gains and losses associated with the Group's undesignated currency derivatives are materially offset in *Other operating expense* by changes in the fair value of the underlying transactions.

The following table presents the effects of the Group's designated financial instruments on the associated financial statement line item within the Consolidated Profit and Loss Account where the financial instruments are recorded for the years ended:

| | Classification and amount of gain (loss) recognized in income on cash flow hedging relationships | | | |
|---|---|---|---|---|
| | 2019 | | 2018 | |
| | $m | $m | $m | $m |
| | Cost of sales | Interest payable | Cost of sales | Interest payable |
| Total amounts presented in the Consolidated Profit and Loss Account | (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 Other reserves and recognized into the Profit for the financial year | (1.4) | — | (0.8) | — |
| Amount excluded from effectiveness testing recognized in Profit for the financial year based on changes in fair value and amortization | (3.0) | — | (0.1) | — |
| Interest rate swaps & locks: | | | | |
| Amount of gain (loss) reclassified from Other reserves and recognized into Profit for the financial year | — | 0.7 | — | (0.1) |

***Concentration of Credit Risk***

The counterparties to the Group's forward contracts consist of a number of investment grade major international financial institutions. The Group 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 Group.

## 28. 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 Group's fair value hierarchy for those assets and liabilities measured at fair value on a recurring basis as of 31 December 2019:

| | | Fair value measurements | | |
|---|---|---|---|---|
| | Fair Value | Level 1 | Level 2 | Level 3 |
| | $m | $m | $m | $m |
| *Assets:* | | | | |
| Derivative instruments | 1.3 | — | 1.3 | — |
| *Liabilities:* | | | | |
| Derivative instruments | 7.2 | — | 7.2 | — |

The following table presents the Group's fair value hierarchy for those assets and liabilities measured at fair value on a recurring basis as of 31 December 2018:

| | | Fair value measurements | | |
|---|---|---|---|---|
| | Fair Value | Level 1 | Level 2 | Level 3 |
| | $m | $m | $m | $m |
| *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 at bank and in hand, debtors, and creditors are a reasonable estimate of their fair value due to the short-term nature of these instruments. These methodologies used by the Group to determine the fair value of its financial assets and liabilities at 31 December 2019 are the same as those used at 31 December 2018. There have been no transfers between levels of the fair value hierarchy.

## 29. PENSIONS AND POST-RETIREMENT BENEFITS OTHER THAN PENSIONS

The Group sponsors several U.S. defined benefit and defined contribution plans covering substantially all of the Group's U.S. employees. Additionally, the Group 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 Group also maintains additional other supplemental plans for officers and other key or highly compensated employees.

The following table details information regarding the Group's pension plans at 31 December:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Change in benefit obligations: | | |
| Benefit obligation at 1 January | 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 31 December | 3,851.2 | 3,465.3 |
| Change in plan assets: | | |
| Fair value at 1 January | 2,766.9 | 3,063.1 |
| Actual return on assets | 526.1 | (125.9) |
| Group 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 at 31 December | 3,136.8 | 2,766.9 |
| Net unfunded liability | (714.4) | (698.4) |
| Amounts included in the balance sheet: | | |
| Debtors: amounts falling due after more than one year | 50.4 | 49.9 |
| Provisions for liabilities | (8.7) | (25.9) |
| Pensions & similar obligations | (756.1) | (722.4) |
| Net amount recognized | (714.4) | (698.4) |

It is the Group'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 31 December 2019, approximately seven percent of the Group's projected benefit obligation relates to plans that cannot be funded.

The pretax amounts recognized in *Other reserves* are as follows:

| | Prior service benefit (cost) | Net actuarial gains (losses) | Total |
|---|---|---|---|
| | $m | $m | $m |
| At 1 January 2019 | (31.2) | (820.6) | (851.8) |
| Current year changes recorded to Other reserves | (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) |
| At 31 December 2019 | (32.4) | (800.2) | (832.6) |

Weighted-average assumptions used to determine the benefit obligation at 31 December 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 31 December 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 31 December 2019, and $3,075.2 million, $2,992.0 million and $2,330.4 million, respectively, as of 31 December 2018.

Pension benefit payments are expected to be paid as follows:

| | $m |
|---|---|
| 2020 | 215.3 |
| 2021 | 219.1 |
| 2022 | 226.1 |
| 2023 | 230.7 |
| 2024 | 221.0 |
| 2025-2029 | 1,136.7 |

The components of the Group's net periodic pension benefit costs for the years ended 31 December include the following:

| | 2019<br>$m | 2018<br>$m |
|---|---|---|
| Service cost | 73.6 | 75.0 |
| Interest cost | 119.1 | 109.7 |
| Expected return on plan assets | (138.5) | (146.6) |
| Net amortization of: | | |
| Prior service costs (benefits) | 5.0 | 4.2 |
| Plan net actuarial (gains) losses | 54.3 | 51.3 |
| Net periodic pension benefit cost | 113.5 | 93.6 |
| Net curtailment, settlement, and special termination benefits (gains) losses | 4.5 | 2.3 |
| Net periodic pension benefit cost after net curtailment and settlement (gains) losses | 118.0 | 95.9 |
| Amounts recorded in continuing operations: | | |
| Operating profit | 69.8 | 72.7 |
| Other operating expense, net | 36.1 | 14.6 |
| Amounts recorded in discontinued operations | 12.1 | 8.6 |
| Total | 118.0 | 95.9 |

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 31 December are as follows:

| | 2019 | 2018 |
|---|---|---|
| Discount rate: | | |
| U.S. plans | | |
| Service cost | 4.24% | 3.70% |
| Interest cost | 3.88% | 3.24% |
| Non-U.S. plans | | |
| Service cost | 2.81% | 2.52% |
| Interest cost | 2.83% | 2.46% |
| Rate of compensation increase: | | |
| U.S. plans | 4.00% | 4.00% |
| Non-U.S. plans | 4.00% | 4.00% |
| Expected return on plan assets: | | |
| U.S. plans | 5.75% | 5.50% |
| Non-U.S. plans | 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 Group 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 Group'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 Group 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 Group monitors plan funded status and asset allocation regularly in addition to investment manager performance.

The fair values of the Group's pension plan assets at 31 December 2019 by asset category are as follows:

| | Fair value measurements | | | Net asset value | Total fair value |
|---|---|---|---|---|---|
| | Level 1 | Level 2 | Level 3 | | |
| | $m | $m | $m | $m | $m |
| Cash at bank and in hand | 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 Group's pension plan assets at 31 December 2018 by asset category are as follows:

| | Fair value measurements | | | Net asset value | Total fair value |
|---|---|---|---|---|---|
| | Level 1 | Level 2 | Level 3 | | |
| | $m | $m | $m | $m | $m |
| Cash at bank and in hand | 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 Group's 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 28, "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 Group made required and discretionary contributions to its pension plans of $83.1 million in 2019 and $86.9 million in 2018 and currently projects that it will contribute approximately $90 million to its plans worldwide in 2020. The Group'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 Group anticipates funding the plans in 2020 in accordance with contributions required by funding regulations or the laws of each jurisdiction.

Most of the Group'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 and $131.9 million in 2019 and 2018, respectively. The Group's contributions relating to non-U.S. defined contribution plans and other non-U.S. benefit plans were $56.7 million and $52.0 million in 2019 and 2018, respectively.

***Multiemployer Pension Plans***

The Group also participates in a number of multiemployer defined benefit pension plans related to collectively bargained U.S. employees of Trane. The Group'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 Group than single-employer plans, including:

1. The Group'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 Group may be responsible for any unfunded obligations along with the remaining participating employers.
3. If the Group chooses to withdraw from any of the multiemployer plans, the Group may be required to pay a withdrawal liability, based on the underfunded status of the plan.

As of 31 December 2019, the Group does not participate in any plans that are individually significant, nor is the Group an individually significant participant to any of these plans. Total contributions to multiemployer plans for the years ended 31 December were as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Total contributions | 10.4 | 9.8 |

Contributions to these plans may increase in the event that any of these plans are underfunded.

***Post-retirement Benefits Other Than Pensions***

The Group 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 Group 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 Group's postretirement plan benefit obligations for the years ended 31 December:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Benefit obligation at 1 January | 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 31 December | 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:

| | 31 December 2019 | 31 December |
|---|---|---|
| | $m | $m |
| Creditors - Amounts falling due within one year | (41.0) | (45.1) |
| Creditors - Amounts falling due after more than one year | (387.8) | (397.6) |
| Total | (428.8) | (442.7) |

The pretax amounts recognized in *Other reserves* were as follows:

| | Prior service benefit (cost) | Net actuarial gains (losses) | Total |
|---|---|---|---|
| | $m | $m | $m |
| Balance at 1 January 2019 | 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 31 December 2019 | — | 72.8 | 72.8 |

The components of net periodic post-retirement benefit (income) cost for the years ended 31 December were as follows:

| | 2018 | 2018 |
|---|---|---|
| | $m | $m |
| Service cost | 2.6 | 2.8 |
| Interest cost | 14.8 | 14.4 |
| Net amortization of: | | |
| Prior service costs (benefits) | (0.3) | (3.8) |
| Net actuarial (gains) losses | (10.9) | (1.0) |
| Net periodic post-retirement benefit cost | 6.2 | 12.4 |
| Amounts recorded in continuing operations: | | |
| Operating profit | 2.6 | 2.8 |
| Other operating expense, net | 3.2 | 7.3 |
| Amounts recorded in discontinued operations | 0.4 | 2.3 |
| Total | 6.2 | 12.4 |

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 31 December are as follows:

| | 2019 | 2018 |
|---|---|---|
| Discount rate: | | |
| Benefit obligations at 31 December | 2.99% | 4.05% |
| Net periodic benefit cost | | |
| Service cost | 4.13% | 3.47% |
| Interest cost | 3.67% | 2.94% |
| Assumed health-care cost trend rates at 31 December: | | |
| Current year medical inflation | 6.75% | 6.45% |
| Ultimate inflation rate | 4.75% | 5.00% |
| Year that the rate reaches the ultimate trend rate | 2028 | 2023 |

A 1% change in the assumed medical trend rate would have the following effects as of and for the year ended 31 December 2019:

| | 1% Increase | 1% Decrease |
|---|---|---|
| | $m | $m |
| 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 post-retirement benefits, which are net of expected plan participant contributions and Medicare Part D subsidy, are expected to be paid as follows:

| | $m |
|---|---|
| 2020 | 41.9 |
| 2021 | 41.5 |
| 2022 | 39.5 |
| 2023 | 37.1 |
| 2024 | 35.0 |
| 2025 — 2029 | 142.7 |

## 30. PROVISIONS FOR LIABILITIES

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Pensions & similar obligations | 1,325.0 | 1,309.5 |
| Taxation including deferred taxation | 686.4 | 538.0 |
| Other provisions | 1,338.5 | 1,403.1 |
| | 3,349.9 | 3,250.6 |

The movement on other provisions were as follows:

| | Asbestos (a) | Standard Warranty (a) | Extended Warranty (a) | Environmental (a) | Restructuring | Insurance | Other | Total |
|---|---|---|---|---|---|---|---|---|
| | $m | $m | $m | $m | $m | $m | $m | $m |
| 1 January 2019 | 611.6 | 278.9 | 292.2 | 41.2 | 51.4 | 112.0 | 15.8 | 1,403.1 |
| Arising during the year | — | 155.9 | 133.2 | 1.5 | 70.6 | — | 5.6 | 366.8 |
| Utilised in the year | (64.2) | (153.1) | (120.9) | 0.6 | (85.1) | (4.7) | (3.9) | (431.3) |
| Changes to pre-existing accruals | — | 3.8 | (0.4) | (0.7) | — | 4.0 | (6.0) | 0.7 |
| Currency translation | — | (0.8) | — | — | — | — | — | (0.8) |
| 31 December 2019 | 547.4 | 284.7 | 304.1 | 42.6 | 36.9 | 111.3 | 11.5 | 1,338.5 |
| | | | | | | | | |
| Analysed by: | | | | | | | | |
| Current | 63.0 | 157.6 | 107.3 | 8.7 | 36.9 | 37.0 | 11.5 | 422.0 |
| Non-current | 484.4 | 127.1 | 196.8 | 33.9 | — | 74.3 | — | 916.5 |
| 31 December 2019 | 547.4 | 284.7 | 304.1 | 42.6 | 36.9 | 111.3 | 11.5 | 1,338.5 |

(a) See Note 31 to the Consolidated Financial Statements for additional information of these provisions.

## 31. COMMITMENTS AND CONTINGENCIES

The Group 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 Group 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 Group.

### *Environmental Matters*

The Group 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 Group is currently engaged in site investigations and remediation activities to address environmental cleanup from past operations at current and former manufacturing facilities.

The Group 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 Group’s involvement is minimal.

In estimating its liability, the Group 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 Group'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 31 December 2019 and 2018, the Group 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 Group.

***Asbestos 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 Group engages an outside expert to perform a detailed analysis and project an estimated range of the Group's total liability for pending and unasserted future asbestos-related claims. In accordance with ASC 450, the Group 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 Group's historical experience with the filing of non-malignancy claims and claims alleging other types of malignant diseases filed against the Group relative to the number of lung cancer claims filed against the Group;
- the outside expert's analysis of the number of people likely to file an asbestos-related personal injury claim against the Group based on such epidemiological and historical data and the Group's most recent three-year claims history;
- an analysis of the Group's pending cases, by type of disease claimed and by year filed;
- an analysis of the Group'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 Group has and is likely to resolve asbestos-related claims against it in the future (currently projected through 2053).

At 31 December 2019 and 2018, over 73 percent of the open claims against the Group are non-malignant or unspecified disease claims. In addition, the Group 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 Group.

The Group's liability for asbestos-related matters and the asset for probable asbestos-related insurance recoveries are included in the following balance sheet accounts:

| | 31 December 2019 | 31 December 2018 |
|---|---|---|
| | $m | $m |
| Other provisions - current | 63.0 | 63.3 |
| Other provisions - non-current liabilities | 484.4 | 548.3 |
| Total asbestos-related liabilities | 547.4 | 611.6 |
| Other debtors | 66.2 | 69.2 |
| Other debtors - amount falling due after more than one year | 237.8 | 199.0 |
| Total asset for probable asbestos-related insurance recoveries | 304.0 | 268.2 |

The Group's asbestos insurance receivable related to Ingersoll-Rand Company and Trane was $188.7 million and $115.3 million at 31 December 2019, and $141.7 million and $126.5 million at 31 December 2018, respectively. The receivable attributable to Trane for probable insurance recoveries as of 31 December 2019 is entirely supported by settlement agreements between Trane and the respective insurance carriers. Most of these settlement agreements constitute "coverage-in-place" arrangements, in which the insurer signatories agree to reimburse Trane for specified portions of its costs for asbestos bodily injury claims and Trane 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 Group's liability for potential future claims 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 Group in 2000. Income and expenses associated with Trane's asbestos-related matters are recorded within *Other operating expense, net* as part of continuing operations.

The income (expense) associated with these transactions for the years ended 31 December, were as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Continuing operations | 7.0 | (10.4) |
| Discontinued operations | 68.2 | (56.5) |
| Total | 75.2 | (66.9) |

During the year ended 31 December 2019, the Group 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 31 December 2018, Group'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.

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 Group'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 Group's right to recovery, and raised various coverage defenses. As of 31 December 2019, Ingersoll Rand Company has resolved both actions through settlements with all of the remaining solvent insurer defendants.

The amounts recorded by the Group for asbestos-related liabilities and insurance-related assets are based on currently available information. The Group'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 Group'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 Group 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 Group 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 31 December, were as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| 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 a *Provision for liabilities*. The Group's total current standard product warranty reserve at 31 December 2019 and 31 December 2018 was $157.6 million and $149.5 million, respectively.

The Group's extended warranty liability represents the deferred income associated with its extended warranty contracts and is amortized into *Turnover* on a straight-line basis over the life of the contract, unless another method is more representative of the costs incurred. The Group 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 31 December, were as follows:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Balance at beginning of period | 292.2 | 293.0 |
| Amortization of deferred income 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 a *Provision for liabilities* based on the timing of when the deferred income is expected to be amortized into *Turnover*. The Group's total current extended warranty liability at 31 December 2019 and 31 December 2018 was $107.3 million and $103.1 million, respectively. For the years ended 31 December 2019 and 2018, the Group incurred costs of $63.7 million and $63.2 million, respectively, related to extended warranties.

## 32. 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 (2018: 23.0 million), of which 19.1 million (2018: 22.9 million) remains available as of 31 December 2019 for future incentive awards.

### *Compensation Expense*

Share-based compensation expense related to continuing operations is included in *Distribution costs and administrative expenses*. The following table summarizes the expenses recognized:

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Stock options | 20.2 | 23.5 |
| RSUs | 26.5 | 30.4 |
| PSUs | 17.9 | 23.0 |
| Deferred compensation | 3.1 | 3.4 |
| Other | 3.5 | 0.5 |
| Pre-tax expense | 71.2 | 80.8 |
| Tax benefit | (17.3) | (19.6) |
| After-tax expense | 53.9 | 61.2 |

Grants issued during the year ended 31 December were as follows:

| | 2019 | | 2018 | |
|---|---|---|---|---|
| | 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 |
| RSUs | 268,465 | $ 102.98 | 327,411 | $ 90.07 |
| Performance shares [1] | 312,362 | $ 111.12 | 363,342 | $ 106.31 |

(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 31 December:

| | 2019 | 2018 |
|---|---|---|
| Dividend yield | 2.06% | 2.00% |
| Volatility | 21.46% | 21.64% |
| Risk-free rate of return | 2.46% | 2.48% |
| Expected life in years | 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 and 2018 are as follows:

| | Shares subject to option | Weighted-average exercise price | Aggregate intrinsic value (millions) | Weighted-average remaining life |
|---|---|---|---|---|
| 31 December 2017 | 6,354,882 | $ 56.49 | | |
| Granted | 1,541,025 | $ 89.71 | | |
| Exercised | (1,515,955) | $ 45.44 | | |
| Cancelled | (94,601) | $ 79.53 | | |
| 31 December 2018 | 6,285,351 | $ 66.95 | | |
| Granted | 1,286,857 | $ 101.42 | | |
| Exercised | (2,076,338) | $ 56.17 | | |
| Cancelled | (76,624) | $ 92.38 | | |
| Outstanding 31 December 2019 | 5,419,246 | $ 78.91 | $ 292.7 | 6.8 |
| Exercisable 31 December 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 31 December 2019 | Weighted-average remaining life (years) | Weighted-average exercise price | Number outstanding at 31 December 2019 | Weighted-average remaining life | 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 31 December 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 31 December 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 and 2018:

| | RSUs | Weighted-average grant date fair value |
|---|---|---|
| Outstanding and unvested at 31 December 2017 | 803,699 | $ 67.09 |
| Granted | 327,411 | $ 90.07 |
| Vested | (389,285) | $ 64.88 |
| Cancelled | (20,186) | $ 77.95 |
| Outstanding and unvested at 31 December 2018 | 721,639 | $ 78.40 |
| Granted | 268,465 | $ 102.98 |
| Vested | (364,817) | $ 70.26 |
| Cancelled | (20,947) | $ 89.64 |
| Outstanding and unvested at 31 December 2019 | 604,340 | $ 93.56 |

At 31 December 2019 there was $16.3 million (2018: $16.8 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 and 2018:

| | PSUs | | Weighted-average grant date fair value |
|---|---|---|---|
| Outstanding and unvested at 31 December 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 31 December 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 31 December 2019 | 984,930 | $ | 103.12 |

At 31 December 2019 there was $17.6 million (2018: $18.6 million) of total unrecognized compensation cost from the 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 Group 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.

## 33. GUARANTOR INFORMATION

The 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 table shows the Company's guarantor relationships as of 31 December 2019:

| Parent, issuer or guarantors | Notes issued | Notes guaranteed [1] |
|---|---|---|
| Trane Technologies 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<br>4.250% Senior notes due 2023<br>3.750% Senior notes due 2028<br>5.750% Senior notes due 2043<br>4.300% Senior notes due 2048 | All notes issued by Lux Finance |
| Ingersoll-Rand Company (New Jersey) | 9.000% Debentures due 2021<br>7.200% Debentures due 2020-2025<br>6.480% Debentures due 2025<br>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<br>3.550% Notes due 2024<br>3.500% Notes due 2026<br>3.800% Notes due 2029<br>4.650% Notes due 2044<br>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.

## 34. SHARE CAPITAL

| Authorised share capital | Number in millions | $m |
|---|---|---|
| 1,175,000,000 ordinary shares of $1 par value | 1,175.0 | 1,175.0 |
| 10,000,000 preference shares of $0.001 par value | 10.0 | — |
| 40,000 ordinary shares of €1.00 Euro par value | — | — |
| At 31 December 2019 and 31 December 2018 | 1,185.0 | 1,175.0 |

***Allotted and fully paid - presented as equity***

| Ordinary shares of $1.00 each | Number | $m |
|---|---|---|
| At 1 January 2018 | 273,980,824 | 274.0 |
| Issued during the financial year | 2,084,750 | 2.1 |
| Repurchase of ordinary shares | (9,660,227) | (9.7) |
| At 31 December 2018 | 266,405,347 | 266.4 |
| Issued during the financial year | 2,800,973 | 2.8 |
| Repurchase of ordinary shares | (6,401,381) | (6.4) |
| At 31 December 2019 | 262,804,939 | 262.8 |

During 2019, a total of 2,800,973 (2018: 2,084,750) ordinary shares, each with a nominal value of $1.00, were issued for a consideration of $286.3 million (2018: $169.9 million) under the Company's share-based payment plans.

The holders of ordinary shares are entitled to such dividends that may be declared from time to time on such shares and are entitled to attend, speak and vote at the Annual General Meeting of the Company. On return of capital on a winding up, the holder of ordinary shares is entitled to participate in a distribution of surplus assets of the Company.

There were no Euro denominated ordinary shares or US dollar preference shares outstanding at 31 December 2019 or 2018.

***Share repurchase program***

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, 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 31 December 2019, the Company repurchased and canceled approximately $750 million of its ordinary shares leaving approximately $750 million remaining under the 2018 Authorization.

*Shares repurchased and cancelled*

During the year ended 31 December 2019, the Company repurchased 6,401,381 ordinary shares (2018: 9,660,227), or 2.43% of the ordinary shares in issue (2018: 3.63%) at an average price of $117.18 per share. These shares with a nominal value of $6,401,381 were cancelled, giving rise to a capital redemption reserve of an equivalent amount as required by Section 106 (4) (a) of the Companies Act 2014. The aggregate consideration paid was $750.1 million (2018: $900.2 million) which is reflected as a reduction in the profit and loss account within Total equity.

*Treasury shares held by the Company*

At 31 December 2019, the total number of treasury shares held directly by the Company was 24,495,509 (2018: 24,495,509); the nominal value of these shares was $24,495,509 (2018: $24,495,509). During the year ended 31 December 2019 the Company did not acquire any treasury shares under the repurchase program. The total accumulated treasury shares acquired represent 9.3% (2018: 9.2%) of the ordinary shares in issue at 31 December 2019.

*Own shares held by a subsidiary*

At 31 December 2019, a subsidiary of the Company held 4,388 (2018: 4,545) ordinary shares of $1.00 each with an aggregate nominal value of $4,388 (2018: $4,545) in trust for a deferred compensation plan.

The following table summarises the movement in treasury shares held and own shares reserve:

| | Number and aggregate nominal value of shares held | | | Cost of shares held | | |
|---|---|---|---|---|---|---|
| | Treasury | Trust | Total | Treasury | Trust | Total |
| | | | | $m | $m | $m |
| At 1 January 2018 | 24,495,509 | 6,158 | 24,501,667 | 1,719.1 | 0.3 | 1,719.4 |
| Purchase of shares held in treasury | — | — | — | — | — | — |
| Purchase of shares held by employee trust | — | 98 | 98 | — | — | — |
| Exercise of share awards | — | (1,711) | (1,711) | — | — | — |
| At 31 December 2018 | 24,495,509 | 4,545 | 24,500,054 | 1,719.1 | 0.3 | 1,719.4 |
| Purchase of shares held in treasury | — | — | — | — | — | — |
| Purchase of shares held by employee trust | — | 83 | 83 | — | — | — |
| Exercise of share awards | — | (240) | (240) | — | — | — |
| At 31 December 2019 | 24,495,509 | 4,388 | 24,499,897 | 1,719.1 | 0.3 | 1,719.4 |

## 35. PROFIT ATTRIBUTABLE TO TRANE TECHNOLOGIES PLC

In accordance with section 304 of the Companies Act 2014 and Section 348 of the Companies Act 2014, the Company is availing of the exemption from presenting its individual profit and loss account to the Annual General Meeting and from filing it with the Registrar of Companies. The Company's profit for the financial year determined in accordance with Irish GAAP is $9.0 million (2018: $54.2 million).

## 36. OTHER RESERVES

| | Derivative Instruments | Pension and OPEB items | Currency translation reserve | Share based payment reserve | Other reserves | Total |
|---|---|---|---|---|---|---|
| | $m | $m | $m | $m | $m | $m |
| At 1 January 2018 | 4.7 | (494.3) | (289.3) | 418.9 | (5.0) | (365.0) |
| Currency translation and other | — | 7.5 | (230.6) | — | — | (223.1) |
| Unrealized net gains (losses) arising during period | 1.2 | — | — | — | — | 1.2 |
| Net gains (losses) reclassified into earnings | 0.9 | — | — | — | — | 0.9 |
| Tax (expense) benefit | (0.1) | (17.2) | — | — | — | (17.3) |
| Prior service costs for the period | — | (16.0) | — | — | — | (16.0) |
| Net actuarial gains (losses) for the period | — | 12.8 | — | — | — | 12.8 |
| Amortization reclassified into earnings | — | 50.7 | — | — | — | 50.7 |
| Settlements/curtailments reclassified to earnings | — | 2.5 | — | — | — | 2.5 |
| Shares issued under incentive stock plans | — | — | — | (126.9) | — | (126.9) |
| Share-based compensation | — | — | — | 78.8 | — | 78.8 |
| Other | — | — | — | 0.1 | 3.0 | 3.1 |
| Balance at 31 December 2018 | 6.7 | (454.0) | (519.9) | 370.9 | (2.0) | (598.3) |
| Currency translation and other | — | (1.4) | (37.1) | — | — | (38.5) |
| Unrealized net gains (losses) arising during period | (2.7) | — | — | — | — | (2.7) |
| Net gains (losses) reclassified into earnings | 0.7 | — | — | — | — | 0.7 |
| Tax (expense) benefit | 0.9 | (4.7) | — | — | — | (3.8) |
| Prior service costs for the period | — | (5.7) | — | — | — | (5.7) |
| Net actuarial gains (losses) for the period | — | (41.9) | — | — | — | (41.9) |
| Amortization reclassified into earnings | — | 48.1 | — | — | — | 48.1 |
| Settlements/curtailments reclassified to earnings | — | 2.2 | — | — | — | 2.2 |
| Shares issued under incentive stock plans | — | — | — | (213.8) | — | (213.8) |
| Share-based compensation | — | — | — | 66.4 | — | 66.4 |
| Other | — | — | — | 0.1 | (0.9) | (0.8) |
| Balance at 31 December 2019 | 5.6 | (457.4) | (557.0) | 223.6 | (2.9) | (788.1) |

A description of each reserve within equity is outlined below:

***Share premium account***

Share premium represents the excess of proceeds received over the nominal value of new shares issued.

***Capital redemption reserve***

The capital redemption reserve arose from the purchase and cancellation of own share capital, and represents the nominal amount of the share capital cancelled.

***Share-based payment reserve***

The share-based payment reserve represents the cumulative charge of share options granted which are not yet exercised and issued as shares.

***Profit and loss account***

The profit and loss account represents accumulated comprehensive income for the financial year and prior financial years plus the Irish High Court approved creation of distributable reserves through the reduction of the share premium account, plus the transfers from the revaluation reserve realised on the Security Spin-off, less share repurchases and acquisition of treasury shares less dividends paid in cash and in-kind.

The Company's share premium, capital redemption reserve, revaluation reserve and share-based payment reserves are undistributable reserves. Under Irish law, dividends and distributions cannot be made from undistributable reserves.

***Dividends paid to shareholders***

| | 2019 $m | 2018 $m |
|---|---|---|
| First interim - paid $0.53c per Ordinary Share (2018: $0.45c) | 127.7 | 112.0 |
| Second interim - paid $0.53c per Ordinary Share (2018: $0.45c) | 127.9 | 110.4 |
| Third interim - paid $0.53c per Ordinary Share (2018: $0.53c) | 127.4 | 130.2 |
| Fourth interim - paid $0.53c per Ordinary Share (2018: $0.53c) | 126.5 | 128.2 |
| Total | 509.5 | 480.8 |

*Future dividends*

Future dividends on our ordinary shares, if any, will be at the discretion of our Board of Directors and will depend on, among other considerations, our results of operations, cash requirements and surplus, financial condition, contractual restrictions and other factors that the Board of Directors may deem relevant, as well as our ability to pay dividends in compliance with the Irish Companies Act 2014. Under the Irish Companies Act 2014, dividends and distributions may only be made from distributable reserves.

Distributable reserves, broadly, means the accumulated realized profits (so far as not previously distributed or capitalized) less its accumulated, realized losses (so far as not previously written off in a reduction or reorganization of its share capital) of Trane Technologies plc. In addition, no distribution or dividend may be made unless the net assets of Trane Technologies plc are equal to, or in excess of, the aggregate of Trane Technologies plc's called up share capital plus undistributable reserves and the distribution does not reduce Trane Technologies plc's net assets below such aggregate.

## 37. NON-CONTROLLING INTERESTS

| | 2019 $m | 2018 $m |
|---|---|---|
| At 1 January | 42.1 | 66.6 |
| Share of profit for the financial year | 17.6 | 19.9 |
| Dividends to non-controlling interests | (15.8) | (41.4) |
| Adoption of ASU 2016-09 (See Note 3) | — | — |
| Other | 0.9 | (3.0) |
| At 31 December | 44.8 | 42.1 |

## 38. LOANS TO DIRECTORS

Section 307 of the Companies Act 2014 prohibits the Company from making a loan or quasi-loan to a director of the Company. The directors confirm that they are in compliance with the legislation.

## 39. CAPITAL EXPENDITURE COMMITMENTS

| | 2019 $m | 2018 $m |
|---|---|---|
| Capital expenditure that has been authorised by the Directors but not yet been contracted | 190.7 | 249.3 |

## 40. RELATED PARTY DISCLOSURES

The principal related party relationships requiring disclosure in the consolidated financial statements pertain to the existence of subsidiaries and associates and transactions with these entities entered into by the Group and the identification of key management personnel as addressed in greater detail below.

*Subsidiaries, Joint Ventures and Associates*

The consolidated financial statements include the results of operations, financial positions and cash flows of the company and its subsidiaries, joint ventures and associates over which the company has control or otherwise qualify for consolidation or equity accounting. A listing of the principal subsidiaries and associates is provided in Note 41. Associates not consolidated or equity accounted are included in Note 19 to the Consolidated Financial Statements.

*Trading Transactions*

There were no transactions requiring disclosure under Section 67 (1) of the Irish Companies Act 2014.

*Compensation of Key Management Personnel of the Group*

Key management personnel are the Company's executive and non-executive directors and the following is the aggregate compensation of these directors.

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Emoluments | 4.8 | 5.2 |
| Gains by the directors on the exercise of share options | 48.2 | 11.4 |
| Benefits under long-term incentive schemes | 2.8 | 2.9 |
| Contributions to defined benefit retirement schemes | 0.3 | 0.2 |
| Compensation for loss of office paid by the company and other termination payments | — | — |
| | 56.1 | 19.7 |

## 41. PRINCIPAL SUBSIDIARIES, JOINT VENTURES AND ASSOCIATES

The principal subsidiaries, joint ventures and associate undertakings at 31 December 2019, all of which are included in the consolidated financial statements, are listed below:

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| 200 Park, Inc. | Operating | c/o Corporation Service Company, 1703 Laurel Street, Columbia, SC 29201 | 100% |
| Accudyne Industries Acquisition S.à r.l. | Non-Operating | 1, Avenue du Bois, L - 1251 Luxembourg, Grand Duchy of Luxembourg | 100% |
| Accudyne Industries Asia Pte. Ltd | Operating | Building Thomson Road #1301 SLF Building Singapore | 100% |
| Accudyne Industries Borrower S.C.A. | Non-Operating | 1, Avenue du Bois, L - 1251 Luxembourg, Grand Duchy of Luxembourg | 100% |
| Accudyne Industries Canada Inc. | Non-Operating | c/o Cassels Brock, 2200 HSBC Building, 885 West Georgia Street, Vancouver, British Columbia, V6C 3E8 | 100% |
| Accudyne Industries India Private Limited | Operating | Plot No. P45/1, Eighth Avenue, Domestic Tariff Area, Mahindra World City, Chengalpet, Tamil Nadu 603002 | 100% |
| Accudyne Industries, LLC | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808 | 100% |
| Accudyne Industries S.à r.l. | Non-Operating | R.C.S. Luxembourg: B172911 | 100% |
| Accudyne Industries Services Limited | Operating | 10-12 Marshall Road, Eastbourne, United Kingdom, BN22 9AN | 100% |
| Airco Limited | Manufacturing & Distribution | 30th-31st Floor Vanit Building ?, 1126/2 New Petchburi Road, Makkasan, Rachthevee, Bangkok 10400 Thailand. | 48% |
| Airtec Limited | Non-Operating | Sefton House, Northgate Close, Middlebrook Business Park, Bolton, BL6 6PQ, England | 100% |
| Alliance Compressors LLC | Non-Operating | 100 Industrial Drive, Natchitoches, LA, 71457, United States | 25% |
| Amair Limited | Manufacturing & Distribution | 999/1 Mu9, Bangna-Trad KM. 19 Road, Bangchalong, Bangplee, Samutprakran | 97% |
| Arctic Cool Chillers Limited | Operating | 199 Bay Street, Commerce Court West, Suite 5300, Toronto, Ontario M5L 1B9 | 100% |
| Aro De Venezuela, C.A. | Manufacturing & Distribution | Edificio Aldemo, 6 Piso, Avenida Venezuela, El Rosal, Caracas, Venezuela | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Best Matic International Limited | Non-Operating | Sefton House, Northgate Close, Middlebrook Business Park, Bolton, BL6 6PQ, England | 100% |
| Best Matic Vermogensverwaltungs Gmbh | Non-Operating | Max-Planck-Ring 27, 46049 Oberhausen, Germany | 100% |
| Calmac Corp. | Trading Company | c/o Corporation Service Company, 80 State Street, Albany, NY, 12207-2543 | 100% |
| Celtrak Limited | Trading Company | Unit 9 Ballybrit Business Park, Ballybrit, Galway, Ireland | 100% |
| Club Car Limited | Trading Company | RSM New Zealand (Auckland), 86 Highbrook Drive, East Tamaki, Auckland, 2013 New Zealand | 100% |
| Club Car, LLC | Trading Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Comercial Ingersoll-Rand (Chile) Limitada | Trading Company | Av. Américo Vespucio 2512, Conchalí, Santiago, Chile | 100% |
| Comingersoll-Comercio E Industria De Equipamentos S.A. (Portugal) | Trading Company | Linda-a-Velha, Carnaxide, Estrado, Rue A, 9-A, Portugal | 22% |
| Compagnie Ingersoll-Rand SAS | Trading Company | 1 rues des Amériques, Golbey, 88190, France | 100% |
| Cool Energy Limited | Non-Operating | ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, Hampshire, SO40 | 100% |
| Dallah Trane For Manufacturing Air-Conditioners | Trading Company | PO Box 19902, Rabigh 21445, Saudi Arabia | 49% |
| Diasorin International B.V. | Non-Operating | Produktieweg 10, Zoeterwoude, 2382PB, Netherlands, | 100% |
| Dosatron International SAS | Operating | Rue Pascal, 33370 Tresses | 100% |
| Dradnats Inc. | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| EBB Holdings Limited | Holding Company | David King & Company, Ground Floor, Belleville Corporate Centre, #38 Pine Road, Belleville, St. Michael, Barbados | 100% |
| Filairco Inc. | Manufacturing & Distribution | JJM Bldg. No. 5, NAIA Road, Brgy. San Dionisio, Paranaque City, 1704 Philippines | 100% |
| Filairco Technical Services Co., Inc. | Trading Company | JJM Bldg. No. 5, NAIA Road, Brgy. San Dionisio, Paranaque City, 1704 Philippines | 25% |
| FlexEnergy Holdings, LLC | Non-Operating | 800-E Beaty Street, Davidson, NC, 28036 | 8% |
| Flowcool Limited | Non-Operating | ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, Hampshire, SO40 3SA, United Kingdom | 100% |
| Frigoblock Grosskopf Gmbh | Trading Company | Weidkamp 274, Essen, 45356, Germany | 100% |
| Frigoblock UK Limited | Non-Operating | Chandos House, School Lane, Buckingham, Buckinghamshire, MK18 1HD, England | 100% |
| GHH-Rand Schraubenkompressoren Gmbh | Manufacturing & Distribution | Steinbrinkstr. 1, D-46145 Oberhausen, Germany | 100% |
| Golf Academies Limited | Trading Company | 18 Hyde Gardens, Eastbourne, East Sussex, BN21 4PT, United Kingdom | 100% |
| GPS Industries, LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| GPSI Holdings, LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| GPSI Leasing II - Accord, LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| GPSI Leasing, LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| GPSI Telematics LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Haskel Europe Ltd | Operating | North Hylton Road, Sunderland, SR5 3JD | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Haskel France SAS | Operating | 34 Rue Des Chateaux, 59290 Wasquehal | 100% |
| Haskel Holdings UK, Limited | Non-Operating | c/o Haskel Europe Ltd, North Hylton Road, Sunderland, Tyne & Wear, SR5 3JD | 100% |
| Haskel International, LLC | Operating | 2710 Gateway Oaks Drive, Suite 150N, Sacramento, CA, 95833-3505 | 100% |
| Haskel Sistemas de Fluidos España, S.R.L. | Operating | Pº Ubarburu, 81 Edificio 5 - Planta 1ª Locales 1 y 2. Polígono 27. Martutene 20115 Astigarraga Gipuzkoa | 100% |
| Hermann Trane Harrisburg Inc. | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Hibon Inc. | Manufacturing & Distribution | 100 Voyageur, Pointe Claire, PQ, H9R 6A8, Canada | 100% |
| ICS Cool Energy (SAS) | Trading Company | Rue Des Chataignier, 77590, Chartrettes, Melun, France | 100% |
| ICS Cool Energy AG | Trading Company | Wiesenstrasse 1a, 8865 Bilten, Switzerland | 100% |
| ICS Cool Energy B.V. | Trading Company | Rotschotseweg 2, 5271 WX Sint-Michielsgestel, Netherlands | 100% |
| ICS Cool Energy Gmbh | Trading Company | Steinerne Furt 76<br>86167 Augsburg, Germany | 100% |
| ICS Cool Energy Investments Limited | Non-Operating | ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, Hampshire, SO40 3SA, United Kingdom | 100% |
| ICS Cool Energy Limited | Trading Company | ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, Hampshire, SO40 3SA, United Kingdom | 100% |
| ICS Group Holdings Limited | Non-Operating | ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, Hampshire, SO40 3SA, United Kingdom | 100% |
| ICS Heat Pumps Limited | Non-Operating | ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, Hampshire, SO40 3SA, United Kingdom | 100% |
| ICS Renewable Energy Limited | Non-Operating | ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, Hampshire, SO40 3SA, United Kingdom | 100% |
| ICS Servicing Limited | Non-Operating | ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, Hampshire, SO40 3SA, United Kingdom | 100% |
| Industrial Chill Servicing Private Ltd. | Holding Company | c/o SGG Corporate Services (Mauritius) Ltd, 33, Edith Cavell Street, Port Louis, 11324, Mauritius | 100% |
| Ingersoll Rand Maroc S.À R.L. | Trading Company | 219 Boulevard Zerktouni, Résidence El Berdai, CASABLANCA, 20100, Morocco | 100% |
| Ingersoll Rand Service Do Brasil Ltda. | Non-Operating | Avenida dos Pinherais, 565, Bloco 5, Chapada, CEP 83.707-762, Araucária, PR,Brazil | 100% |
| Ingersoll Rand, S.A. De C.V. | Trading Company | Boulevard Centro Industrial #11, Fracc. Industrial Puente de Vigas, Edo. de, Tlalnepantla | 100% |
| Ingersoll Rand-Trane Energy-Saving Services (Shanghai) Co., Ltd. | Trading Company | Unit 1106, Tower B, No. 100 Zun Yi Road, Chang Ning District,Shanghai | 100% |
| Ingersoll-Rand (Australia) Ltd. | Trading Company | 45-47 Ventura Place, Dandenong South, VIC 3175, Australia | 100% |
| Ingersoll-Rand (Chang Zhou) Tools Co., Ltd. | Trading Company | No.190, Chen Feng Road, Block A Hua Luo Geng Science and Technology Town, Jin Tan, Changzhou, China | 100% |
| Ingersoll-Rand (China) Industrial Equipment Manufacturing Co., Ltd. | Manufacturing & Distribution | Pangjin Road, Wujiang Economics Development Zone, Jiangsu Province, Wujiang, China | 100% |
| Ingersoll-Rand (China) Investment Company Limited | Non-Operating | 10th Floor, Bldg B, City Center of Shanghai, 100 Zun Yi Road, Shanghai, 200051, China | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Ingersoll-Rand (Europe) Limited | Non-Operating | Sefton House, Northgate Close, Middlebrook Business Park, Bolton, BL6 6PQ, England | 100% |
| Ingersoll-Rand U.S. HoldCo, Inc. | Holding Company | 800-E Beaty Street, Davidson, NC 28036 | 100% |
| Ingersoll-Rand (Guilin) Tools Company Limited | Manufacturing & Distribution | Qi Ma Shan, Zhao Yang Road, Guilin, China | 100% |
| Ingersoll-Rand (Hong Kong) Holding Company Limited | Holding Company | FLAT/RM 501 , 5/F Cambridge House, Tai Koo Place, 979 King's Road Tai Koo Place, Quarry Bay, HongKong | 100% |
| Ingersoll-Rand (India) Limited | Manufacturing & Distribution | 8th Floor, Tower D, IBC Knowledge Park, No. 4/1, Bannerghatta Main Road, Bangalore 560029, India | 74% |
| Ingersoll-Rand (Shanghai) Trading Co., Ltd. | Trading Company | 10 F, Unit 03-05 , L'Avenue, 99 Xianxia Road, Changning district, Shanghai | 100% |
| Ingersoll-Rand AB | Trading Company | Lindberghs Gatan 9,195 61 Arlandastad, Sweden | 100% |
| Ingersoll-Rand AIR Solutions Hibon Sarl | Manufacturing & Distribution | 2 Rue Jean Paul Sartre, Wasquehal, 59290, France | 100% |
| Ingersoll-Rand Best-Matic AB | Non-Operating | Lindberghs Gatan 9,195 61 Arlandastad, Sweden | 100% |
| Ingersoll-Rand Beteiligungs Und Grundstucksverwaltungs Gmbh | Holding Company | Max-Planck-Ring 27, 46049 Oberhausen, Germany | 100% |
| Ingersoll-Rand Buford LLC | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand Charitable Foundation | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand China Limited, LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand Climate Limited | Non-Operating | Sefton House, Northgate Close, Middlebrook Business Park, Bolton, BL6 6PQ, England | 100% |
| Ingersoll-Rand Climate Solutions Private Limited | Trading Company | 8th Floor, Tower D, IBC Knowledge Park, No. 4/1, Bannerghatta Main Road, Bangalore – 560029 | 100% |
| Ingersoll-Rand Club Car S.A.S. | Non-Operating | Bruno Conseils, 5127065 R.C.S. Toulouse, France | 100% |
| Ingersoll-Rand Colombia S.A.S. | Manufacturing & Distribution | Av. KR 45 #108-27, Piso 18, Bogotá, Colombia | 100% |
| Ingersoll-Rand Company | Non-Operating | c/o Corporation Service Company, Princeton South Corporate Ctr., Suite 160, 100 Charles Ewing Blvd., Ewing, NJ 08628 | 100% |
| Ingersoll-Rand Company Limited (UK) | Trading Company | Sefton House, Northgate Close, Middlebrook Business Park, Bolton, BL6 6PQ, England | 100% |
| Ingersoll-Rand Company of Peru S.A.C. | Trading Company | Calle Los Antares N° 320, Centro Empresarial El Nuevo Trigal Torre A, Of. 908, Urbanización La Alborada, Santiago de Surco, Lima, Peru | 100% |
| Ingersoll-Rand Company South Africa (PTY) Limited | Trading Company | Michele Ferrero Business Park, 21 Innes Road, Jet Park, 1459, South Africa | 100% |
| INGERSOLL-RAND COMÉRCIO E SERVIÇOS DE MÁQUINAS E EQUIPAMENTOS INDUSTRIAIS LTDA. | Operating | No. 311, Ground Floor and First Floor Floor Alameda Caiapos Bairro Tambore Barueri, State of Sao Paulo 06460-110 Brazil | 100% |
| Ingersoll-Rand Costa Rica S.A. | Trading Company | Apartado 664-1000, San Jose, Costa Rica | 100% |
| Ingersoll-Rand Croatia D.O.O. Za Trgovinu | Trading Company | Zagreb, Ulica grada Vukovara 284, Croatia | 100% |
| Ingersoll-Rand CZ S.R.O. | Manufacturing & Distribution | č.p. 292, 280 02 Ovčáry, Czech Republic | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Ingersoll-Rand De Mexico, Sociedad De Responsabilidad Limitada De Capital Variable | Non-Operating | Av. Campestre No. 4905 Col. Santa Cruz Buenavista, Puebla 72150 Mexico | 100% |
| Ingersoll-Rand De Puerto Rico, Inc. | Non-Operating | The Prentice-Hall Corporation System Of Puerto Rico, Inc. C/O Fast Solutions LLC, Citi Tower 252, Ponce de Leon Avenue, Floor 20, San Juan, 00918, Puerto Rico | 100% |
| Ingersoll-Rand Equipements De Production S.A.S. | Trading Company | 529, Avenue Roger Salengro, Douai, France | 100% |
| Ingersoll-Rand European Holding Company B.V. | Holding Company | Produktieweg 10, Zoeterwoude, 2382PB, Netherlands | 100% |
| Ingersoll-Rand Financial Services Corporation | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand Financing Limited | Non-Operating | 170/175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin, Ireland | 100% |
| Ingersoll-Rand Finland OY | Non-Operating | Metsänneidonkuja 4, 02130 ESPOO, Finland | 100% |
| Ingersoll-Rand Funding Ltd. | Non-Operating | c/o Estera Services (Bermuda) Limited, Canon's Court, 22 Victoria Street, Hamilton, HM 12, Bermuda | 100% |
| Ingersoll-Rand Global Holding Company Limited | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand Gmbh | Non-Operating | Max-Planck-Ring 27, 46049 Oberhausen, Germany | 100% |
| Ingersoll-Rand Holdings B.V. | Holding Company | Produktieweg 10, Zoeterwoude, 2382PB, Netherlands | 100% |
| Ingersoll-Rand Holdings Limited | Holding Company | Sefton House, Northgate Close, Middlebrook Business Park, Bolton, BL6 6PQ, England | 100% |
| Ingersoll-Rand Industrial U.S., Inc. | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808 | 100% |
| Ingersoll-Rand Industria, Comercio E Servicos De Ar Condicionado, Ar Comprimido E Refrigeracao Ltda. | Trading Company | Avenida dos Pinherais, 565, Blocos 2 e 4, Chapada, CEP 83.707-762, Araucária, PR, Brazil | 100% |
| Ingersoll-Rand Industrial SP. ZO.O | Non-Operating | Jerozolimskie 195b, 02-222 Warszawa, Poland | 100% |
| Ingersoll-Rand Industrial U.S., Inc. | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808 | 100% |
| Ingersoll-Rand International (India) Private Limited | Non-Operating | 8th Floor, Tower D, IBC Knowledge Park, No. 4/1, Bannerghatta Main Road, Bangalore 560029, India | 100% |
| Ingersoll-Rand International Finance Limited | Non-Operating | 170/175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin, Ireland | 100% |
| Ingersoll-Rand International Holding LLC | Holding Company | c/o Corporation Service Company, Princeton South Corporate Ctr., Suite 160, 100 Charles Ewing Blvd., Ewing, NJ 08628 | 100% |
| Ingersoll-Rand International Limited | Trading Company | 170/175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin, Ireland | 100% |
| Ingersoll-Rand Irish Holdings Unlimited Company | Holding Company | Monivea Road, Mervue, Galway, Ireland | 100% |
| Ingersoll-Rand Italia S.R.L. | Holding Company | Strada Provinciale Cassanese 108-110, Italy, 20060 Vignate, Milan | 100% |
| Ingersoll-Rand Italiana S.P.A. | Manufacturing & Distribution | Strada Provinciale Cassanese 108-110, Italy, 20060 Vignate, Milan | 100% |
| Ingersoll-Rand ITS Japan Ltd. | Trading Company | Honda Denki Building 5F, 5-37, Kami-Osaki 4-Chome, Shinagawa-ku, Tokyo, Japan, 141-0021 | 100% |
| Ingersoll-Rand Japan, Ltd. | Trading Company | Honda Denki Building 5F, 5-37, Kami-Osaki 4-chome, Shinagawa-ku, Tokyo | 100% |
| Ingersoll-Rand Korea Holding LLC | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Ingersoll-Rand Korea Limited | Trading Company | Trutec Building, 10F, 12, Worldcupbuk-ro 56-gil, Mapo-gu, Seoul, Korea. | 100% |
| Ingersoll-Rand Latin America B.V. | Non-Operating | Produktieweg 10, Zoeterwoude, 2382PB, Netherlands | 100% |
| Ingersoll-Rand Latin America, S. DE R.L. DE C.V. | Operating | Av. Nafta No. 750, Suite 1 Parque Industrial STIVA Aeropuerto Apodaca, Nuevo León 66600 Mexico | 100% |
| Ingersoll-Rand Lux Euro III Financing S.À R.L. | Non-Operating | 1 Avenue du Bois, L-1251, Luxembourg | 100% |
| Ingersoll-Rand Lux Holdings II Company S.À R.L. | Non-Operating | 1 Avenue du Bois, L-1251, Luxembourg | 100% |
| Ingersoll-Rand Lux International Holding Company S.À R.L. | Non-Operating | 1 Avenue du Bois, L-1251, Luxembourg | 100% |
| Ingersoll-Rand Lux Investments S.à r.l.; | Holding Company | 1 Avenue du Bois L-1251, Luxembourg | 100% |
| Ingersoll-Rand Luxembourg Finance S.A. | Non-Operating | 1 Avenue du Bois, L-1251, Luxembourg | 100% |
| Ingersoll-Rand Luxembourg United S.À R.L. | Non-Operating | 1 Avenue du Bois, L-1251, Luxembourg | 100% |
| Ingersoll-Rand Machinery (Shanghai) Company Limited | Trading Company | Waigaoqiao Free Trade Zone, 301 Xi Ya Road Building 21, 200121, Shanghai, China | 100% |
| Ingersoll-Rand Malaysia Co. Sdn. Bhd. | Trading Company | Unit 30-1, Level 30, Tower A, Vertical Business Suite, Avenue 3, Bangsar South, No. 8, Jalan Kerinchi, 59200 Kuala Lumpur, Primary - Lot 4881 Jalan SS 13/2, Subang Jaya 47500 Selangor, Malaysia | 100% |
| Ingersoll-Rand Manufactura, S. De R.L De C.V. | Manufacturing & Distribution | Avenue Nafta No. 750, Parque Industrial Stiva Aeropuerto, Apocada, Nuevo Leon, 66600, Mexico | 100% |
| Ingersoll-Rand Manufacturing S.R.O. | Trading Company | č.p. 292, 280 02 Ovčáry, Czech Republic | 100% |
| Ingersoll-Rand Netherlands B.V. | Trading Company | Nieuwegracht 22, 3763 LB, Soest, Netherlands | 100% |
| Ingersoll-Rand Nexia Intelligence LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand NY, Inc. | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand Philippines, Inc. | Trading Company | JJM Bldg. No. 5, NAIA Road, Brgy. San Dionisio, Paranaque City, 1704 Philippines | 100% |
| Ingersoll-Rand Polska Sp. Z.o.o. | Trading Company | al. Jerozolimskie 195b, 02-222 Warszawa, Poland | 100% |
| Ingersoll-Rand Portugal - Sociedade, Unipessoal, LDA. | Trading Company | Alameda António Sérgio, 7 - Sala L, Distrito: Lisboa Concelho: Oeiras Freguesia: Algés, Linda-a-Velha e Cruz Quebrada-Dafundo 2795 023 Linda-a-Velha, Lisbon, Portugal | 100% |
| Ingersoll-Rand Rodamientos Holding, S.L. | Holding Company | C/ Casas de Miravete Nº 22B, Edificio 1B - 3ª planta, Madrid, 28031, Spain | 100% |
| Ingersoll-Rand Rus LLC | Trading Company | office XVIIa, floor 5, ulitsa Sergeya Makeeva 13, 123022, Moskow, Russian Federation | 100% |
| Ingersoll-Rand S.A. | Non-Operating | Boulevard de Perolles 55, c/o Ingersoll-Rand S.A., Fribourg, CH-1700, Switzerland | 100% |
| Ingersoll-Rand Sales Company, LLC | Trading Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand Services and Trading Limited Liability Company | Trading Company | office XVIIa, floor 5, ulitsa Sergeya Makeeva 13, 123022, Moskow, Russian Federation | 100% |
| Ingersoll-Rand Services Company | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand Services Limited | Non-Operating | Sefton House, Northgate Close, Middlebrook Business Park, Bolton, BL6 6PQ, England | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Ingersoll-Rand Services S.R.O. | Non-Operating | Sumperská 1345, Uničov, 783 91, Czech Republic | 100% |
| Ingersoll-Rand Singapore Enterprises Pte. Ltd. | Non-Operating | 18 Cross Street #07-06/07, China Square Central, Singapore | 100% |
| Ingersoll-Rand South East Asia (Pte.) Ltd. | Non-Operating | 42 Benoi Road, Singapore 629903 | 100% |
| Ingersoll-Rand Spain, S.A. | Trading Company | C/ Casas de Miravete Nº 22B, Edificio 1B - 3ª planta, Madrid, 28031, Spain | 100% |
| Ingersoll-Rand Superay Holdings Limited | Holding Company | FLAT/RM 501 , 5/F Cambridge House, Tai Koo Place, 979 King's Road Tai Koo Place, Quarry Bay, HongKong | 100% |
| Ingersoll-Rand Svenska AB | Trading Company | Box 145, V Gotalands Lan, Goteborg kommun, Hisings, Karra, 42502, Sweden | 100% |
| Ingersoll-Rand Technical and Services Limited | Non-Operating | 170/175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin, Ireland | 100% |
| Ingersoll-Rand Technical and Services S.A.R.L. | Non-Operating | Boulevard de Perolles 55, c/o Ingersoll-Rand S.A., Fribourg, CH-1700, Switzerland | 100% |
| Ingersoll-Rand Technologies and Services Private Limited | Non-Operating | 8th & 9th Floor, Tower C & D, IBC Knowledge Park, No. 4/1, Bannerghatta Main Road, Bangalore 560029 India | 100% |
| Ingersoll-Rand Technologies S.R.O. | Trading Company | č.p. 292, 280 02 Ovčáry, Czech Republic | 100% |
| Ingersoll-Rand Tool Holdings Limited | Holding Company | FLAT/RM 501 , 5/F Cambridge House, Tai Koo Place, 979 King's Road Tai Koo Place, Quarry Bay, Hong Kong | 100% |
| Ingersoll-Rand Trading Gmbh | Trading Company | Max-Planck-Ring 27, 46049 Oberhausen, Germany | 100% |
| Ingersoll-Rand U.S. HoldCo, Inc. | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Ingersoll-Rand UK Limited | Trading Company | Harrow House, Bessemer Road, Basingstoke, Hampshire, RG21 3NB, United Kingdom | 100% |
| Ingersoll-Rand Ukraine Limited Liability Company | Non-Operating | Yaroslaviv Val/Ivana Franka Street, 11/1,01034 Kyiv, Ukraine | 100% |
| Ingersoll-Rand Vietnam Company Limited | Non-Operating | Unit 903, 9th floor, Centre Point Building. 106 Nguyen Van Troi Street, Ward 8, Phu Nhuan District, Ho Chi Minh City, Vietnam | 100% |
| Ingersoll-Rand World Trade Gmbh | Non-Operating | Boulevard de Perolles 55, c/o Ingersoll-Rand S.A., Fribourg, CH-1700, Switzerland | 100% |
| Ingersoll-Rand Worldwide Capital S.À R.L. | Non-Operating | 1 Avenue du Bois, L-1251, Luxembourg | 100% |
| Ingersoll-Rand ZimbABwe (Private) Limited | Non-Operating | Central Africa House-8th Fl., Abercorn Street, Bulawayo | 100% |
| IR Canada Holdings ULC | Holding Company | c/o Lawson Lundell LLP<br>1600 - 925 West Georgia Street Vancouver, BC V6C 3L2 | 100% |
| IR Canada Sales & Service ULC | Manufacturing & Distribution | c/o Lawson Lundell LLP<br>1600 - 925 West Georgia Street Vancouver, BC V6C 3L2 | 100% |
| IR France SAS | Trading Company | 1 rues des Amériques, Golbey, 88190, France | 100% |
| MB Air Systems Limited | Trading Company | 149 Glasgow Road, Wishaw, Lanarkshire, ML2 7QJ | 100% |
| Milton Roy Europa BV | Operating | Hoogoorddreef 15, 1101 BA Amsterdam, The Netherlands | 100% |
| Milton Roy Europe SAS | Operating | 10 Grande Rue, 27360 Pont-Saint-Pierre | 100% |
| Milton Roy Industrial (Shanghai) Co., Ltd | Operating | Building 1th Shenfu Road, Xinzhuang Industrial Zone Minhang District Shanghai China | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Milton Roy (Hong Kong) Limited | Operating | 50 Floor Central Plaza 18 Harbour Road Hong Kong China | 100% |
| Milton Roy, LLC | Operating | c/o Corporation Service Company, 2595 Interstate Drive, Suite 103, Harrisburg, PA, 17110 | 100% |
| Milton Roy (UK) Limited | Non-Operating | c/o Haskel Europe Ltd, North Hylton Road, Sunderland, Tyne & Wear, SR5 3JD | 100% |
| Milton Roy US Purchaser, Inc. | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808 | 100% |
| Mitsubishi Electric Trane HVAC US LLC | Operating | c/o The Corporation Trust Company, 1209 Orange Street, Wilmington, DE 19801 | 50% |
| Officina Meccaniche Industriali Srl | Manufacturing & Distribution | via Dell'Artigianato 34, 34070 Fogliano Redipuglia, Gorizia, Italy | 100% |
| Perfect Pitch, L.P. | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 68% |
| Plurifilter D.O.O. | Manufacturing & Distribution | Obrtan Cona 14, 1370 Logatec, Slovenia | 100% |
| Prime AIR Limited | Manufacturing & Distribution | 30th-31st Floor, Vanit Building II 1126/2 New Petchburi Road, Makkasan Rachthevee, Bangkok 10400 Thailand | 100% |
| Pt Ingersoll-Rand Indonesia | Trading Company | Jl. Celebration Boulevard AA 9 No.6 | 100% |
| Pt Trane Indonesia | Trading Company | EightyEight@Kasablanka, 11th Floor, Unit A & H Jl. Casablanca Kav. 88, Jakarta Selatan 12870 | 100% |
| R&O Immobilien Gmbh | Holding Company | Max-Planck-Ring 27, 46049 Oberhausen, Germany | 100% |
| Reftrans, S.A. | Manufacturing & Distribution | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 85% |
| Shanghai Ingersoll-Rand Compressor Limited | Manufacturing & Distribution | No. 468 Wen Jing Road, Minhang, Shanghai, China | 100% |
| Societe Trane SAS | Manufacturing & Distribution | 1 rues des Amériques, Golbey, 88190, France | 100% |
| Spanashview Unlimited Company | Non-Operating | Monivea Road, Mervue, Galway, Ireland | 100% |
| Standard Centennial Property, LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Standard Compressors Inc. | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Standard Industrial Mineral Products Corp. | Non-Operating | Purok 2, Calaboso Road, Sto. Tomas, Binan, Laguna, Philippines | 40% |
| Standard Resources and Development Corporation | Non-Operating | Unit 304, 3rd Floor, Jovan Condominium, Shaw Boulevard, Mandaluyong City, Metro Manila, Philippines | 40% |
| Standard Trane Insurance Company | Non-Operating | c/o Corporation Service Company, 2626 Glenwood Avenue, Suite 550, Raleigh, NC 27608 | 100% |
| Standard Trane Insurance Ireland Designated Activity Company | Non-Operating | c/o Aon Risk Solutions Global Risk Consulting, 3rd Floor The Metropolitan Building, James Joyce Street, Dublin 1, Ireland | 100% |
| Standard Trane Warranty Company | Non-Operating | c/o Corporation Service Company, 1703 Laurel Street, Columbia, SC 29201 | 100% |
| T.I. Solutions (Israel) Ltd. | Trading Company | 26 Harokmim st., Azrieli center, building B, 5th floor, Holon, 5811702, Israel | 100% |
| Tast Limited | Holding Company | 942/142-3 Charn Issara Tower, Rama IV Road, Suriyawong, Bangrak, Bangkok 10500, Thailand. | 48% |
| The Trane Company | Non-Operating | c/o CSC Services of Nevada, Inc., 2215-B Renaissance Drive, Las Vegas, NV 89119 | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Thermo King Container Temperature Control (Suzhou) Corporation Ltd. | Manufacturing & Distribution | No. 2333, west side of Pang Jin Road, Wu Jiang Economic Development Zone, Jiang Su Province, China | 82% |
| Thermo King Container-Denmark A/S | Trading Company | Arne Jacobsens Allé 7, 2300 København S, Denmark | 100% |
| Thermo King Corporation | Manufacturing & Distribution | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Thermo King De Puerto Rico, Inc. | Manufacturing & Distribution | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Thermo King European Manufacturing Limited | Non-Operating | 170/175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin, Ireland | 100% |
| Thermo King (Hong Kong) Company Limited | Operating | Units 3207-08A 32/F AIA Tower 183 Electric Rd North Point | 100% |
| Thermo King India Private Limited | Trading Company | 8th Floor, Tower D, IBC Knowledge Park, No. 4/1, Bannerghatta Main Road, Bangalore – 560029 | 100% |
| Thermo King Ireland Limited | Non-Operating | Monivea Road, Mervue, Galway, Ireland | 100% |
| Thermo King Puerto Rico Manufactura, Inc. | Manufacturing & Distribution | The Prentice-Hall Corporation System Of Puerto Rico, Inc. C/O Fast Solutions LLC, Citi Tower 252, Ponce de Leon Avenue, Floor 20, San Juan, 00918, Puerto Rico | 100% |
| Thermo King Services Limited | Non-Operating | Monivea Road, Mervue, Galway, Ireland | 100% |
| Thermo King (Shanghai) Co., Ltd | Operating | 10 Floor NO.99, Xianxia Road ChangNing District Shanghai China | 100% |
| Thermo King Svc, Inc. | Trading Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Thermo King Trading Company | Trading Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Thermo King Transportkoeling B.V. | Trading Company | Driemanssteeweg 60, Rotterdam, 3084CB, Netherlands | 100% |
| TK Puerto Rico Aire, Inc. | Trading Company | 517 Zona Industrial Zeno Gandia, Calle B, Areibo, 00901, Puerto Rico | 100% |
| TK Puerto Rico Comercial, Inc. | Trading Company | 517 Zona Industrial Zeno Gandia, Calle B, Areibo, 00901, Puerto Rico | 100% |
| TK Puerto Rico Ensamblaje, Inc. | Trading Company | 517 Zona Industrial Zeno Gandia, Calle B, Areibo, 00901, Puerto Rico | 100% |
| TK Puerto Rico Fabricacion, Inc. | Trading Company | 517 Zona Industrial Zeno Gandia, Calle B, Areibo, 00901, Puerto Rico | 100% |
| TK Puerto Rico Logistica, Inc. | Trading Company | 517 Zona Industrial Zeno Gandia, Calle B, Areibo, 00901, Puerto Rico | 100% |
| TK Puerto Rico Operaciones Industriales, Inc. | Trading Company | 517 Zona Industrial Zeno Gandia, Calle B, Areibo, 00901, Puerto Rico | 100% |
| TK Puerto Rico Produccion, Inc. | Trading Company | 517 Zona Industrial Zeno Gandia, Calle B, Areibo, 00901, Puerto Rico | 100% |
| TK Puerto Rico Soluciones Climaticas, Inc. | Trading Company | 517 Zona Industrial Zeno Gandia, Calle B, Areibo, 00901, Puerto Rico | 100% |
| TK Puerto Rico Tecnologias, Inc. | Trading Company | 517 Zona Industrial Zeno Gandia, Calle B, Areibo, 00901, Puerto Rico | 100% |
| TM AIR Conditioning Sdn. Bhd. | Trading Company | 2047, Lorong Perusahaan 10, Kawasan Perusahaan Perai, Perai, Seberang Perai, 13600, Malaysia | 100% |
| Trane (Ireland) Limited | Trading Company | F7 Centrepoint Business Park, Oak Road, Dublin, 12, Ireland | 100% |
| Trane (Schweiz) Gmbh / Trane (Suisse) S.A.R.L. | Trading Company | Indusstriestrasse 28, Dietikon, CH-8108, Switzerland | 100% |
| Trane Singapore Enterprises Pte. Ltd | Operating | #02-00 80 Robinson Road Singapore 068898 | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Trane (Thailand) Limited | Manufacturing & Distribution | 30th - 31 st Floor, Vanit Building II, 1126/2 New Petchburi Road, Makkasan, Rachthevee, Bangkok 10400 Thailand | 100% |
| Trane (UK) Ltd. | Non-Operating | Harrow House, Bessemer Road, BASINGSTOKE Hampshire, RG21 3NB, England | 100% |
| Trane AIR Conditioning Products Limited | Non-Operating | c/o Maples and Calder, PO Box 309, Ugland House, South Church Street, George Town, Grand Cayman, KY1-1104, Cayman Islands | 100% |
| Trane AIR Conditioning Systems (China) Co. Ltd. | Manufacturing & Distribution | No.88 Suzhou Road East, Taicang, Jiangsu Province, China | 100% |
| Trane AIR Conditioning Systems And Service Co., Limited | Trading Company | Suite 501, 5/F Cambridge House, 979 King's Road,Tai Koo Place, Quarry Bay, HongKong | 100% |
| Trane Airconditioning Pte. Ltd. | Trading Company | 27 Benoi Sector, Singapore 629859 | 100% |
| Trane Aire Acondicionado S.L. | Trading Company | calle Casas de Miravete, número 22 B, Edificio 1B-2a planta, Madrid, Spain | 100% |
| Trane Bermuda Ltd. | Non-Operating | c/o Estera Services (Bermuda) Limited, Canon's Court, 22 Victoria Street, Hamilton, HM 12, Bermuda | 100% |
| Trane Brands, Inc. | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane BVBA | Trading Company | Lenneke Marelaan 6, 1932 St-Stevens-Woluwe, ON: 0477.659.177 - RPR, Bruxelles/Brussel, Belgium | 100% |
| Trane Canada LP | Non-Operating | 4051 Gordon Baker Road Scarborough Ontario, CA M1W 2P3 Canada | 100% |
| Trane Canada ULC | Trading Company | Fasken Martineau DuMoulin LLP 2900 - 550 Burrard Street, Vancouver, British Columbia V6C 0A3 | 100% |
| Trane Central America, Inc. | Trading Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane China Holdings Limited | Holding Company | c/o Maples and Calder, P.O. Box 309, Ugland House, South Church Street, George Town, Grand Cayman, KY1-1104, Cayman Islands | 100% |
| Trane Climate Manufacturing S.R.L. | Manufacturing & Distribution | Via Dei Ciclamini 25, Modugno, Bari, Italy | 100% |
| Trane CR Spol SRO. | Trading Company | Thamova 183/11, 18600 Praha 8, Karlin, Czech Republic | 100% |
| Trane De Argentina S.A. | Trading Company | c/o Brons & Salas Abogados, Maipú 1210, 5to Piso, Buenos Aires, C1006ACT, Argentina | 100% |
| Trane De Chile S.A. | Manufacturing & Distribution | Calle Nueva 1820, Huechuraba, Santiago, Chile | 100% |
| Trane De Colombia S.A. | Trading Company | Av. KR 45 #108-27, Piso 18, Bogotá, Colombia | 100% |
| Trane Deutschland Gmbh | Trading Company | Max-Planck-Ring 27, 46049 Oberhausen, Germany | 100% |
| Trane Distribution Pte Ltd | Manufacturing & Distribution | 27 Benoi Sector, Singapore | 100% |
| Trane Do Brasil Indústria E Comércio De Productos Para Condicionamento De Ar Ltda. | Trading Company | Rua Pinheirinho, 144, térreo, sala 01, Jabaquara, State of São Paulo, City of São Paulo, CEP 04.321, Brazil | 100% |
| Trane Dominicana, S.R.L. | Trading Company | c/o Jorge Mera & Villegas, Calle Pablo Casals #12, Piantini, Santo Domingo, Dominican Republic | 100% |
| Trane Egypt LLC | Trading Company | 45 Abdel Hamid Badawi Street, Heliopolis, Cairo, Egypt | 99% |
| Trane Energy Choice, LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Trane Europe Holdings B.V. | Holding Company | Nieuwegracht 22, 3763 LB, Soest, Netherlands | 100% |
| Trane Export LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane Energy Services LLC | Operating | c/o Corporation Service Company, 421 West Main Street, Frankfort, KY 40601 | 100% |
| Trane Finance Sprl | Non-Operating | Lenneke Marelaan 6, 1932 St-Stevens-Woluwe, ON: 0477.659.177 - RPR, Bruxelles/Brussel, Belgium | 100% |
| Trane Foundation of New York | Non-Operating | c/o Corporation Service Company, 80 State Street, Albany, NY 12207-2543 | 100% |
| Trane France SAS | Trading Company | 1 rues des Amériques, Golbey, 88190, France | 100% |
| Trane Gmbh | Trading Company | Campus 21, Liebermannstraße F03 201, 2345 Brunn am Gebirge, Austria | 100% |
| Trane GP Inc. | Holding Company | c/o Baker & McKenzie LLP, Brookfield Place, Suite 2100, 181 Bay Street, P.O. Box 874, Toronto, ON, M5J 2T3, Canada | 100% |
| Trane Grid Services LLC | Operating | c/o Corporation Service Company, 421 West Main Street, Frankfort, KY 40601 | 100% |
| Trane Hellas S.A. | Trading Company | 18, Erifilis str, Halandri, Athens, 15232, Greece | 100% |
| Trane Holding Co. | Holding Company | c/o McInnes Cooper, 1300-1559 Upper Water Street, Halifax, Nova Scotia, B3J 3R7, Canada | 100% |
| Trane Holdings Company Yk | Holding Company | Honda Denki Building 5F, 5-37, Kami-Osaki 4-chome, Shinagawa-ku, Tokyo, 141-0021 Japan | 100% |
| Trane Hungary Kft | Trading Company | H-2040 Budaörs, Baross utca, 165 Budapest, Hungary | 100% |
| Trane Inc. | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane Inc. Of Delaware | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane India Ltd. | Trading Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane International Inc. | Holding Company | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane IP Inc. | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane Italia S.R.L | Trading Company | Viele Europa, 30/C/2, 20090 Cusago, Milano, Italy | 100% |
| Trane Japan, Ltd. | Trading Company | Honda Denki Building 5F, 5-37, Kami-Osaki 4-chome, Shinagawa-ku, Tokyo, | 100% |
| Trane Klima Ticaret AS | Trading Company | Aytar Cad Metro IS Hani 10 Kat 3, F. Levent 80600, Istanbul, 80600, Turkey | 100% |
| Trane Korea, Inc. | Trading Company | 8FL Trutec Building, 12, Worldcupbuk-ro 56-gil Sangam-dong 1598, Mapo-gu, Seoul, 121-835, Korea | 100% |
| Trane Kuwait Airconditioning Co WLL | Trading Company | P.O. Box 42039, Shuwaikh Ind. Area, 70651, Kuwait | 49% |
| Trane Holding Limited | Non-Operating | c/o Estera Services (Bermuda) Limited, Canon's Court, 22 Victoria Street, Hamilton, HM 12, Bermuda | 100% |
| Trane Malaysia Sales & Services Sdn. Bhd. | Trading Company | Registered Office - Unit 30-01, Level 30, Tower A Vertical Business Suite, Avenue 3 Bangsar South, No. 8, Jalan Kerinchi, Primary - Lot 4881, Jalan SS 13/2, 47500 Subang Jaya, Selangor Darul Ehsan, 47500 Malaysia | 100% |

| Name of Subsidiary | Nature of Business | Registered Office and Country of Incorporation | Percent of Ownership |
|---|---|---|---|
| Trane Puerto Rico LLC | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane Qatar LLC | Trading Company | Building no. (1), (Financial Square Building) in C ring road, Al Muntazah Signal, Doha, Qatar | 49% |
| Trane Romania S.R.L. | Trading Company | Starda Cauzasi Nr. 22B, Bloc CORP A, Sector 3, Bucuresti, Cod 030802, Romania | 100% |
| Trane S.A. | Holding Company | c/o PHH Consulting, HEYER Route de la Belle-Croix 4, 1680 Romont FR, Switzerland | 100% |
| Trane S.A.E. | Manufacturing & Distribution | 45, Abdel Hamid, Badawi St., Heliopolis, Cairo, Egypt | 100% |
| Trane Servicefirst, C.A. | Trading Company | Apartado Postal 62015, Caracas 1060A, Venezuela, Caracas, Venezuela | 100% |
| Trane Singapore Enterprises Pte. Ltd | Operating | #02-00 80 Robinson Road Singapore 068898 | 100% |
| Trane Sistemas Integrales, S. De R.L. De C.V. | Trading Company | Félix Guzmán 21, El Parque de los Remedios y Joselillo, Naucalpan, Mexico, CP, 53398, Mexico | 100% |
| Trane Services Limited | Non-Operating | Harrow House, Bessemer Road, BASINGSTOKE Hampshire, RG21 3NB, England | 100% |
| Trane Support SAS | Non-Operating | 1 rues des Amériques, Golbey, 88190, France | 100% |
| Trane Sweden AB | Trading Company | Flygfältsgatan 8, SE-128 30 Skarpnäck, Sweden | 100% |
| Trane Systems Solutions of Panama, Inc. | Trading Company | Edificio Blue Business Center Oficina 5-3, Calle 67, San Francisco, Ciudad de Panama, Panama | 100% |
| Trane Taiwan Distribution Ltd. | Trading Company | 6F-1, No. 338, Wen-Lin Road, Shih Lin 111, Taipei, Taiwan Province of China | 100% |
| Trane Thermo King Pty Ltd | Operating | Unit 28/8 Avenue of the Americas, Newington, NSW, 2127 | 100% |
| Trane Thermo King (Shanghai) Enterprise Management Co., Ltd. | Operating | 10 Floor NO.99, Xianxia Road ChangNing District Shanghai China | 100% |
| Trane U.S. Inc. | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| Trane Vidalia LLC | Non-Operating | c/o Corporation Service Company, 40 Technology Parkway South, #300, Norcross, GA 30092 | 100% |
| Trane Vietnam Services Company Limited | Trading Company | Unit 901-903, Centre Point Bld, 106 Nguyen Van Troi St., Ward 8, Phu Nhuan Dist., Ho Chi Minh City. Vietnam | 100% |
| Trane, S.A. De C.V. | Manufacturing & Distribution | Félix Guzmán 21, El Parque de los Remedios y Joselillo, Naucalpan, Mexico, CP, 53398, Mexico | 100% |
| Tricool Thermal Limited | Non-Operating | ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, Hampshire, SO40 3SA, United Kingdom | 100% |
| TSI Anstalt Ltd. | Holding Company | Staedtle 36, Vaduz, FL-9490, Liechtenstein | 100% |
| TwentyThreeC, LLC | Operating | c/o Corporation Service Company 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| TYS Limited | Trading Company | 12/F Dragon Centre, 79 Wing Hong Centre, Cheung Sha Wan, Kowloon, Hong Kong | 50% |
| World Standard Ltd. | Non-Operating | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |
| ZEKS Compressed AIR Solutions LLC | Manufacturing & Distribution | c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808 | 100% |

## 42. EVENTS SINCE THE END OF THE FINANCIAL YEAR

*Dividends declared*

On 5 February 2020, the Board of Directors declared a quarterly cash dividend of $0.53 per ordinary share, which was paid on 31 March 2020 to shareholders of record as of 13 March 2020.

*Completion of Reverse Morris Trust Transaction*

On 29 February 2020, the Company completed its Reverse Morris Trust transaction with Gardner Denver. Refer to Note 2, "Completion of Reverse Morris Trust Transaction" for a further discussion on the separation of Ingersoll Rand Industrial.

*COVID-19 Global Pandemic*

On March 11, 2020, the World Health Organization declared the outbreak of a respiratory disease caused by a newly discovered coronavirus, known now as COVID-19, as a global pandemic and recommended containment and mitigation measures worldwide. In response, many countries have implemented measures to combat the outbreak which impacted global business operations and resulted in a Company decision to temporarily close or limit its workforce to essential crews within many facilities throughout the world in order to ensure employee safety. In compliance with government protocols with respect to stay-in-place procedures, the Company's non-essential employees were instructed to work from home. Within the United States, the Company has been designated as an essential service provider by the U.S. Department of Homeland Security and will continue operating its plants, installing and servicing its products.

During the three months ended March 31, 2020, the Company was adversely impacted by the COVID-19 global pandemic. Temporary facility closures during January and February disrupted results in the Asia Pacific region. Commencing in March and through the date of this filing, impacts were more widely felt throughout operations in the Americas and EMEA. As a result, COVID-19 impacted the Company's business globally, including, but not limited to, lower revenue volumes, temporary facility closures, supply chain disruptions and unfavorable foreign currency exchange rate movements. The Company will continue to monitor its liquidity needs and ability to access capital markets. Operationally, the Company’s financial reporting systems, internal control over financial reporting and disclosure controls and procedures continue to operate effectively despite a remote workforce. The Company will continue to monitor the ongoing situation.

The Company has treated COVID-19 as a non-adjusting post balance sheet event.

As part of the response to COVID-19 global pandemic, many countries are implementing emergency economic relief plans as a way of minimizing the economic impact of this health crisis. The Company is evaluating the potential benefits from certain of these measures and will continue to monitor the plans as they are finalized and implemented. In the United States, the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) was enacted on March 27, 2020 providing numerous tax provisions and other stimulus measures. The Company is currently anticipating an impact of the CARES Act, which includes the deferral of employer social security payroll tax payments under the CARES Act until January 1, 2021, with 50 percent owed on December 31, 2021 and the other half owed on December 31, 2022.

## 43. APPROVAL OF FINANCIAL STATEMENTS

The Board of Directors approved and authorised for issue the Consolidated Financial Statements in respect of the financial year ended 31 December 2019 on 4 May 2020.

**Trane Technologies plc**
**Parent Company Balance Sheet**
**As at 31 December 2019**

| | Note | 2019 | 2018 |
|---|---|---|---|
| | | $m | $m |
| **Fixed assets** | | | |
| Financial assets | 7 | 31,676.1 | 22,069.4 |
| **Current Assets** | | | |
| Debtors | 8 | 66.9 | 61.9 |
| Cash at bank and in hand | | — | — |
| | | 66.9 | 61.9 |
| Creditors: amounts falling due within one year | 9 | (3,302.9) | (2,345.3) |
| **Net current liabilities** | | (3,236.0) | (2,283.4) |
| **Total assets less current liabilities** | | 28,440.1 | 19,786.0 |
| Creditors: amounts falling due after more than one year | 10 | (2.5) | (2.6) |
| **Net assets** | | 28,437.6 | 19,783.4 |
| **Capital and reserves** | | | |
| Called-up share capital presented as equity | 11 | 262.8 | 266.4 |
| Share premium account | | 934.1 | 650.6 |
| Capital redemption reserve | 11 | 111.2 | 104.8 |
| Revaluation reserve | 11 | 16,570.7 | 6,943.1 |
| Share based payment reserve | | 357.4 | 366.5 |
| Profit and loss account | | 10,201.4 | 11,452.0 |
| **Total equity** | | 28,437.6 | 19,783.4 |

The accompanying notes are an integral part of the financial statements.

The financial statements were approved by the Board of Directors on 4 May 2020 and signed on its behalf by:

| /s/ Myles P. Lee | /s/ John P. Surma |
|---|---|
| Myles P. Lee | John P. Surma |
| Director | Director |

**Trane Technologies plc**
**Parent Company Statement of Changes in Equity**
**For the year ended 31 December 2019**

| | Note | Called-up Share Capital Presented as Equity $m | Share Premium Account $m | Capital Redemption Reserve $m | Revaluation Reserve $m | Share Based Payment Reserve $m | Profit and Loss Account $m | Total Equity $m |
|---|---|---|---|---|---|---|---|---|
| Balance as at 1 January 2018 | | 274.0 | 482.8 | 95.1 | 8,089.1 | 354.3 | 12,778.8 | 22,074.1 |
| Profit for the financial year | | — | — | — | — | — | 54.2 | 54.2 |
| Proceeds from shares issued | 11 | 2.1 | 167.8 | — | — | — | — | 169.9 |
| Repurchase of ordinary shares | 11 | (9.7) | — | 9.7 | — | — | (900.2) | (900.2) |
| Revaluation of financial assets | 7 | — | — | — | (1,146.0) | — | — | (1,146) |
| Net share-based payment charge | 11 | — | — | — | — | 12.2 | — | 12.2 |
| Dividends paid | 11 | — | — | — | — | — | (480.8) | (480.8) |
| Balance as at 31 December 2018 | | 266.4 | 650.6 | 104.8 | 6,943.1 | 366.5 | 11,452.0 | 19,783.4 |
| Profit for the financial year | | — | — | — | — | — | 9.0 | 9.0 |
| Proceeds from shares issued | 11 | 2.8 | 283.5 | — | — | — | — | 286.3 |
| Repurchase of ordinary shares | 11 | (6.4) | — | 6.4 | — | — | (750.1) | (750.1) |
| Revaluation of financial assets | 7 | — | — | — | 9,627.6 | — | — | 9,627.6 |
| Net share-based payment charge | 11 | — | — | — | — | (9.1) | — | (9.1) |
| Dividends paid | 11 | — | — | — | — | — | (509.5) | (509.5) |
| Balance as at 31 December 2019 | | 262.8 | 934.1 | 111.2 | 16,570.7 | 357.4 | 10,201.4 | 28,437.6 |

**Trane Technologies plc**
**Parent Company Statement of Comprehensive Income**
**For the financial year ended 31 December 2019**

| | Note | 2019 | 2018 |
|---|---|---|---|
| | | $m | $m |
| **Profit for the financial year** | | 9.0 | 54.2 |
| **Other comprehensive income (loss):** | | | |
| Revaluation of financial assets | 11 | 9,627.6 | (1,146.0) |
| **Total comprehensive income (loss) for the financial year** | | 9,636.6 | (1,091.8) |

## 1. GENERAL INFORMATION

Trane Technologies plc (formerly known as Ingersoll-Rand plc) is a public limited company incorporated under registered number 469272 in Ireland. The address of its registered office is 170-175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin.

## 2. STATEMENT OF COMPLIANCE

The parent financial statements have been prepared on the going concern basis and in compliance with Generally Accepted Accounting Practice in Ireland (applicable accounting standards issued by the Financial Reporting Council and the Companies Act 2014) including Financial Reporting Standard 102, 'The Financial Reporting Standard applicable in the United Kingdom and Republic of Ireland' (FRS 102).

## 3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The significant accounting policies used in the preparation of the financial statements are set out below. These policies have been consistently applied to all financial years presented, unless otherwise stated.

### (a) Basis of preparation

The financial statements of Trane Technologies plc (the "Company") present the profit and loss account, the statement of comprehensive income, the balance sheet and the statement of changes in equity on a stand-alone basis, including related party transactions.

The financial statements have been prepared under the historical cost convention except for fixed asset investments (shares in group undertakings) that are measured on a valuation basis as explained in the accounting policies below.

The preparation of financial statements in conformity with FRS 102 requires the use of certain key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the financial year. FRS 102 also requires the directors to exercise their judgement in the process of applying the Company's accounting policies. The areas involving a higher degree of judgement or areas where assumptions and estimates have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are disclosed in Note 4.

### (b) Going concern

The Company meets its day-to-day working capital requirements through its bank facilities and facilities with its Group undertakings.The Company's forecasts and projections, taking account of reasonably possible changes in operating performance, show that the Company should be able to operate within the level of its current facilities. The Company has net current liabilities, and after making enquiries, the directors have a reasonable expectation that the use of the going concern basis of accounting is appropriate because there are no material uncertainties related to events or conditions that may cast significant doubt about the ability of the Company to continue as a going concern.

### (c) Disclosure exemptions for qualifying entities under FRS 102

FRS 102 allows a qualifying entity certain disclosure exemptions. As a qualifying entity the Company has availed of a number of exemptions from the disclosure requirements of FRS 102 in the preparation of the entity financial statements.

In accordance with FRS 102 the Company has availed of an exemption from the following paragraphs of FRS 102:

- Exemption from the requirements of Section 7 of FRS 102 and FRS 102 paragraph 3.17(d) to present a statement of cash flows.
- Exemption from the financial instrument disclosure requirements of Section 11 paragraphs 11.39 to 11.48A and Section 12 paragraphs 12.26 to 12.29A of FRS 102 as the equivalent disclosures are included in the consolidated financial statements of the group in which the entity is consolidated.
- Exemption from certain disclosure requirements of Section 26 of FRS 102 (paragraphs 26.18(b), 26.19 to 26.21 and 26.23, in respect of share-based payments as the share-based payment concerns its own equity instruments and its separate financial statements are presented alongside the consolidated financial statements of the group; and the equivalent disclosures are included in the consolidated financial statements of the group in which the entity is consolidated.
- Exemption from the requirement of FRS 102 paragraph 33.7 to disclose key management personnel compensation in total.

### d) Foreign currency

(i) Functional and presentation currency

The Company's functional and presentation currency is the U.S. dollar, denominated by the symbol "$" and unless otherwise stated, the financial statements have been presented in millions.

ii) Transactions and balances
Transactions during the period denominated in foreign currencies have been translated at the rates of exchange ruling at the dates of the transactions. Assets and liabilities denominated in foreign currencies are translated to United States dollars at the rates of exchange at the balance sheet date. The resulting profits or losses are dealt with in the profit and loss account.

**(e) Financial assets:** Investments in group undertakings in the financial statements of the Company are stated at fair value at each reporting date. The revaluation is determined by reference to the market capitalisation of the Company at the close of trading of its Ordinary Shares on the New York Stock Exchange at each reporting date. A deficit on revaluation is charged to the profit and loss account to the extent that it is not covered by a surplus previously credited to the revaluation reserve.

**(f) Dividend income from shares in group undertakings:** Dividend income from group undertakings are recognized in the period in which they are received.

**(g) Distributions paid to equity shareholders:** Dividends may only be declared and paid out of the profits available for distribution in accordance with accounting practice generally accepted in Ireland and applicable Irish company law. Any dividends, if and when declared, will be declared and paid in U.S. dollars. Dividends declared by the directors are recognized when paid.

**(h) Taxation:** Corporation tax is provided on taxable profits at current rates. Deferred taxation is accounted for in respect of all timing differences at tax rates enacted or substantially enacted at the balance sheet date. Timing differences arise from the inclusion of items of income and expenditure in tax computations in periods different from those in which they are included in the financial statements. A deferred tax asset is only recognized when it is more likely than not the asset will be recoverable in the foreseeable future out of suitable taxable profits from which the underlying timing differences can be recovered.

**(i) Share capital presented as equity:** Ordinary shares are classified as Equity. Incremental costs directly attributable to the issue of new shares or options are shown in Equity as a deduction from the proceeds.

**(j) Share premium:** The difference between the proceeds received on issue of shares and the nominal value of the shares is credited to the share premium account.

**(k) Ordinary shares acquired under share repurchase program**: Share repurchases are made from time to time in accordance with management's capital allocation strategy, subject to market conditions and regulatory requirements. The cost of shares acquired and canceled upon repurchase are accounted as a deduction from the profit and loss reserve. In addition, an amount equal to the nominal value of any shares cancelled is included within the capital redemption reserve as required by Section 106 (4) (a) of the Companies Act 2014. The cost of shares acquired and held upon repurchase is accounted as a deduction from the profit and loss reserve and classified as treasury shares until such shares are cancelled, reissued or disposed of. No gain or loss is recognised on the purchase, sale, issue or cancellation of the treasury shares. Where treasury shares are subsequently sold or reissued, any consideration received is included in Total Equity. Where treasury shares are subsequently cancelled, the nominal value of such shares is transferred to the capital redemption reserve as required by Section 106 (4) (a) of the Companies Act 2014.

**(l) Share-based payments:** The Company and its subsidiaries operate equity-settled share-based compensation plans. The fair value of the employee services received in exchange for the grant of the options has been valued using the Black-Scholes option-pricing model. In accordance with Section 26 of FRS 102 'Share-based Payments', the resulting cost for the Company's employees is charged to the profit and loss account over the vesting period. The value of the charge is adjusted to reflect expected and actual levels of awards vesting. The cost for awards granted to the Company's subsidiaries' employees represents additional capital contributions by the Company to its subsidiaries. An additional investment in subsidiaries has been recorded in respect of those awards granted to the Company's subsidiaries' employees, with a corresponding increase in the Company's shareholder equity. The additional capital contribution is based on the fair value at the grant date of the awards issued, allocated over the life of the underlying grant's vesting period. Proceeds received from employees, if any, for the exercise of share-based awards are credited to share capital (nominal value) and the balance to share premium.

With effect from 1 January 2017, the Company entered into Equity Recharge Agreements with some of its U.S. subsidiaries under which they have committed to pay the Company the grant-date fair value as well as subsequent movements in fair value of those awards at the time of delivery of its shares to their employees. The portion of the equity recharge amount in excess of the nominal value of the share issued is credited to the share premium account in accordance with section 71(5) of the Companies 2014 Act with the corresponding offset to related-party debtors. In addition, the recharge has the impact of reducing the investment in

subsidiaries with a corresponding offset to the Company's shareholder equity. Note 32 of the Consolidated Financial Statements provides additional details of the Group share-based compensation plans.

**(m) Contingencies:** The Company has guaranteed certain liabilities and credit arrangements of the group. The Company reviews the status of these guarantees at each reporting date and considers whether it is required to make a provision for payment on those guarantees based on the probability of the commitment being called.

**(n) Financial Instruments:** The Company has chosen to adopt Sections 11 and 12 of FRS 102 in respect of financial instruments.

(i) Financial assets

Basic financial assets, including trade and other receivables and cash and bank balances, are initially recognised at transaction price, unless the arrangement constitutes a financing transaction, where the transaction is measured at the present value of the future receipts discounted at a market rate of interest. Such assets are subsequently carried at amortised cost using the effective interest method. At the end of each reporting period financial assets measured at amortised cost are assessed for objective evidence of impairment. If an asset is impaired the impairment loss is the difference between the carrying amount and the present value of the estimated cash flows discounted at the asset's original effective interest rate. The impairment loss is recognised in profit or loss. If there is decrease in the impairment loss arising from an event occurring after the impairment was recognised the impairment is reversed. The reversal is such that the current carrying amount does not exceed what the carrying amount would have been had the impairment not previously been recognised. The impairment reversal is recognised in profit or loss.

Financial assets are derecognised when (a) the contractual rights to the cash flows from the asset expire or are settled, or (b) substantially all the risks and rewards of the ownership of the asset are transferred to another party or (c) control of the asset has been transferred to another party who has the practical ability to unilaterally sell the asset to an unrelated third party without imposing additional restrictions.

(ii) Financial liabilities

Basic financial liabilities, including trade and other payables, bank loans, and loans from fellow group companies, are initially recognised at transaction price, unless the arrangement constitutes a financing transaction, where the debt instrument is measured at the present value of the future receipts discounted at a market rate of interest.

Trade creditors are obligations to pay for goods or services that have been acquired in the ordinary course of business from suppliers. Trade creditors are classified as current liabilities if payment is due within one year or less. If not, they are presented within creditors amounts falling due after more than one year.

Financial liabilities are derecognised when the liability is extinguished, that is when the contractual obligation is discharged, cancelled or expires.

**(o) Employee benefits:** The Company provides a range of benefits to employees, including short term employee benefits such as annual bonus arrangements and paid holiday arrangements and post-employment benefits (in the form of defined contribution pension plans).

(i) Short-term employee benefits

Short-term employee benefits, including paid holiday arrangements and other similar non-monetary benefits, are recognised as an expense in the financial year in which employees render the related service. The Company operates an annual bonus plan for employees. An expense is recognised in the profit and loss account when the Company has a present legal or constructive obligation to make payments under the plan as a result of past events and a reliable estimate of the obligation can be made.

(ii) Post-employment benefits

The Company operates a defined contribution plan for certain employees. A defined contribution plan is a pension plan under which the Company pays fixed contributions into a separate entity and has no legal or constructive obligation to pay further contributions or to make direct benefit payments to employees if the fund does not hold sufficient assets to pay all employee benefits relating to employee service in the current and prior periods. The assets of the plan are held separately from the Company in independently administered funds. The contributions to the defined contribution plan are recognised as an expense when they are due. Amounts not paid are shown in accruals in the balance sheet.

**(p) Cash and cash equivalents:** Cash and cash equivalents includes cash in hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less. Bank overdrafts are shown within borrowings in current liabilities. Cash and cash equivalents are initially measured at transaction price and subsequently measured at amortised

cost. Bank deposits which have original maturities of more than three months are not cash and cash equivalents and are presented as current asset investments.

## 4. CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS

In the application of the Company's accounting policies, which are described above in Note 3, the directors are required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates. The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods. There are no specific critical accounting estimates or judgements in the current year.

## 5. EMPLOYEES AND DIRECTORS' REMUNERATION

(i) Employees

The average number of persons employed in administration by the Company in 2019 and 2018 was 3.

| | 2019 $m | 2018 $m |
|---|---|---|
| Wages and salaries | 0.2 | 0.2 |
| Social insurance costs | — | — |
| Other retirement benefit costs | — | — |
| **Total staff costs** | 0.2 | 0.2 |

ii) Directors (executive and non-executive)

| | 2019 $m | 2018 $m |
|---|---|---|
| Emoluments | 3.9 | 3.8 |
| Gains by the directors on the exercise of share options | — | — |
| Benefits under long-term incentive schemes | 0.3 | 0.3 |
| Contributions to defined benefit retirement schemes | — | — |
| Compensation for loss of office paid by the Company and other termination payments | — | — |
| | 4.2 | 4.1 |

The emoluments above were paid directly by the Company. Refer to Note 11 in the Consolidated Financial Statements for details of directors' remuneration paid by the Group.

## 6. AUDITORS REMUNERATION

Remuneration (including expenses) for the statutory audit and other services carried out for the Company by the Company's auditors is as follows:

| | 2019 $m | 2018 $m |
|---|---|---|
| Audit of the entity financial statements (including expenses) | 0.2 | 0.2 |
| Other assurance services | — | — |
| Tax advisory services | — | — |
| Other non-audit services | — | — |
| | 0.2 | 0.2 |

Note 9 of the Consolidated Financial Statements provides additional details of fees paid by the Group.

## 7. FINANCIAL FIXED ASSETS - SHARES IN GROUP UNDERTAKINGS

| | 2019 $m | 2018 $m |
|---|---|---|
| At 1 January | 22,069.4 | 22,251.6 |
| Additions [1] | — | 944.8 |
| Capital contribution relating to share-based payments | (20.9) | 19.0 |
| Revaluation | 9,627.6 | (1,146.0) |
| At 31 December | 31,676.1 | 22,069.4 |

| **Historical cost of revalued assets** | 2019 $m | 2018 $m |
|---|---|---|
| At cost | 7,341.6 | 7,362.6 |
| Revaluation | 24,334.5 | 14,706.8 |
| Carrying amount | 31,676.1 | 22,069.4 |

[1] The additions in the prior financial year relate to the Company's investment in its subsidiary Ingersoll-Rand Irish Holdings Unlimited Company.

**Subsidiaries**

Details of the Company's direct subsidiaries as at 31 December 2019 are as follows:

| Subsidiary Company and Registered Office | Country of Incorporation | Principal Activity | Holding % |
|---|---|---|---|
| Ingersoll-Rand Funding Limited<br>Canons Court, 22 Victoria Street, Hamilton, Bermuda | Bermuda | Non-Operating | 100% |
| Ingersoll-Rand U.S. HoldCo, Inc.<br>800-E Beaty Street, Davidson, NC 28036 | United States | Holding Company | 100% |
| Ingersoll-Rand Irish Holdings Unlimited Company<br>170-175 Lakeview Drive, Airside Business Park, Swords, Co. Dublin, Ireland | Ireland | Holding Company | 100% |
| Ingersoll-Rand Luxembourg United S.A.R.L<br>9, Allée Scheffer, L-2520 Luxembourg, Grand Duchy of Luxembourg | Luxembourg | Treasury Company | 100% |
| Ingersoll-Rand Korea Limited<br>10F, 12, World Cup buk-ro 56-gil, Mapo-gu, Seoul, Republic of Korea | Korea | Trading Company | 51% |
| Frigoblock Grosskopf GmbH<br>Weidkamp 274, Essen 45356, Germany | Germany | Holding Company | 10% |
| Ingersoll-Rand Beteiligungs Und Grundstucksverwaltungs GmbH<br>Max-Planck-Ring 27, 46049 Oberhausen, Germany | Germany | Holding Company | 5.3% |
| R&O Immobilien GmbH<br>Max-Planck-Ring 27, 46049 Oberhausen, Germany | Germany | Holding Company | 5.1% |

Details of indirect subsidiaries can be found in Note 41 of the 2019 consolidated financial statements.

## 8. DEBTORS

| **Amounts falling due within one year:** | 2019 $m | 2018 $m |
|---|---|---|
| Loans advanced to a group undertaking | — | 0.2 |
| Amounts owed by group undertakings | 66.6 | 61.5 |
| Prepayments | 0.3 | 0.2 |
| At 31 December | 66.9 | 61.9 |

Amounts owed by group undertakings are unsecured, interest free and repayable on demand. The directors consider that the carrying amount of debtors approximates their fair value.

## 9. CREDITORS –AMOUNTS FALLING DUE WITHIN ONE YEAR

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Trade creditors | 1.0 | 0.6 |
| Income tax deducted under PAYE | 0.2 | 0.2 |
| Pay related social insurance | — | — |
| Dividend withholding tax | 3.2 | 3.8 |
| Amounts due to group undertakings | 3,295.4 | 2,336.6 |
| Other creditors | 3.1 | 4.1 |
| At 31 December | 3,302.9 | 2,345.3 |

| | | |
|---|---|---|
| Creditors for taxation and social welfare included in the table above: | | |
| Income tax deducted under PAYE | 0.2 | 0.2 |
| Pay related social insurance | — | — |
| Dividend withholding tax | 3.2 | 3.8 |
| At 31 December | 3.4 | 4.0 |

The amounts due to group undertakings are unsecured and have interest rates which ranged from 2.34% to 3.12% in 2019 (2018: 1.94% to 2.71%). The interest payable on amounts due to group undertakings is generally settled on a semi-annual or annual basis.

Trade creditors are payable at various dates in the next three months in accordance with the supplier's usual and customary credit terms. Tax amounts are payable in the timeframe set down in the relevant legislation. The directors consider that the carrying amount of trade creditors approximates to their fair value.

## 10. CREDITORS –AMOUNTS FALLING DUE AFTER MORE THAN ONE YEAR

| | 2019 | 2018 |
|---|---|---|
| | $m | $m |
| Other creditors | 2.5 | 2.6 |

Amounts included in other creditors relate to dividend accruals for unvested restricted stock units (RSUs) and performance share units (PSUs) that are expected to vest and fall due between two and three years.

## 11. SHARE CAPITAL AND RESERVES

| ***Authorised share capital*** | Number in millions | $m |
|---|---|---|
| 1,175,000,000 ordinary shares of $1 par value | 1,175.0 | 1,175.0 |
| 10,000,000 preference shares of $0.001 par value | 10.0 | — |
| 40,000 ordinary shares of €1.00 Euro par value | — | — |
| At 31 December 2019 and 31 December 2018 | 1,185.0 | 1,175.0 |

***Allotted and fully paid - presented as equity***

| Ordinary shares of $1.00 each | Number | $m |
|---|---|---|
| At 1 January 2018 | 273,980,824 | 274.0 |
| Issued during the financial year | 2,084,750 | 2.1 |
| Repurchase of ordinary shares | (9,660,227) | (9.7) |
| At 31 December 2018 | 266,405,347 | 266.4 |
| Issued during the financial year | 2,800,973 | 2.8 |
| Repurchase of ordinary shares | (6,401,381) | (6.4) |
| At 31 December 2019 | 262,804,939 | 262.8 |

During 2018, a total of 2,800,973 (2018: 2,084,750) ordinary shares, each with a nominal value of $1.00, were issued for a consideration of $286.3 million (2018: $169.9 million) under the Company's share-based payment plans.

The holders of ordinary shares are entitled to such dividends that may be declared from time to time on such shares and are entitled to attend, speak and vote at the Annual General Meeting of the Company. On return of capital on a winding up, the holder of ordinary shares is entitled to participate in a distribution of surplus assets of the Company.

There were no Euro denominated ordinary shares or US dollar preference shares outstanding at 31 December 2019 or 2018.

***Share repurchase program***

Share repurchases are made from time to time in accordance with the Company's capital allocation strategy, subject to market conditions and regulatory requirements. 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 (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. However, no material shares were repurchased under this program in 2018. During the year ended 31 December 2019, the Company repurchased and cancelled approximately $750 million of its ordinary shares leaving approximately $750 million remaining under the 2018 Authorization.

*Shares repurchased and cancelled*

During the year ended 31 December 2019, the Company repurchased 6,401,381 ordinary shares (2018: 9,660,227), or 2.43% of the ordinary shares in issue (2018: 3.63%) at an average price of $117.18 per share. These shares with a nominal value of $6,401,381 were cancelled, giving rise to a capital redemption reserve of an equivalent amount as required by Section 106 (4) (a) of the Companies Act 2014. The aggregate consideration paid was $750.1 million (2017: $900.2) which is reflected as a reduction in the profit and loss account within Total equity.

*Treasury shares held by the Company*

At 31 December 2019, the total number of treasury shares held directly by the Company was 24,495,509 (2018: 24,495,509); the nominal value of these shares was $24,495,509 (2018: $24,495,509). During the year ended 31 December 2019 the Company did not acquire any treasury shares under the repurchase program. The total accumulated treasury shares acquired represent 9.3% (2018: 9.2%) of the ordinary shares in issue at 31 December 2019.

*Own shares held by a subsidiary*

At 31 December 2019, a subsidiary of the Company held 4,388 (2018: 4,545) ordinary shares of $1.00 each with an aggregate nominal value of $4,388 (2018: $4,545) in trust for a deferred compensation plan.

The following table summarises the movement in treasury shares held and own shares reserve:

| | Number and aggregate nominal value of shares held | | | Cost of shares held | | |
|---|---|---|---|---|---|---|
| | Treasury | Trust | Total | Treasury $m | Trust $m | Total $m |
| At 1 January 2018 | 24,495,509 | 6,158 | 24,501,667 | 1,719.1 | 0.3 | 1,719.4 |
| Purchase of shares held in treasury | — | — | — | — | — | — |
| Purchase of shares held by employee trust | — | 98 | 98 | — | — | — |
| Exercise of share awards | — | (1,711) | (1,711) | — | — | — |
| At 31 December 2018 | 24,495,509 | 4,545 | 24,500,054 | 1,719.1 | 0.3 | 1,719.4 |
| Purchase of shares held in treasury | — | — | — | — | — | — |
| Purchase of shares held by employee trust | — | 83 | 83 | — | — | — |
| Exercise of share awards | — | (240) | (240) | — | — | — |
| At 31 December 2019 | 24,495,509 | 4,388 | 24,499,897 | 1,719.1 | 0.3 | 1,719.4 |

A description of each reserve within equity is outlined below:

***Share premium account***

The share premium account comprises the excess of proceeds received in respect of share capital over the nominal value of shares issued.

***Capital redemption reserve***

The capital redemption reserve represents the nominal value of share capital repurchased and cancelled. At 31 December 2019 the reserve balance stands at $111.2 million (2018: $104.8 million).

***Revaluation reserve***

This reserve is used to record increases in the fair value of investments in group undertakings and decreases to the extent that such decrease relates to an increase on the same asset. At 31 December 2019 the reserve balance stands at $16,570.7 million (2018: $6,943.1 million).

***Share-based payment reserve***

The share-based payment reserve represents the cumulative charge for share options granted, which are not yet exercised and issued as shares, net of amounts recharged to subsidiaries. The share-based compensation charge, net of amounts recharged to subsidiaries during the financial year 2019 was $(9.1) million (2018: $12.2 million).

***Profit and loss account***

The profit and loss account represents accumulated comprehensive income for the financial year and prior financial years plus the Irish High Court approved creation of distributable reserves through the reduction of the share premium account, plus the transfers from the revaluation reserve realised on the Security Spin-off, less share repurchases and acquisition of treasury shares less dividends paid in cash and in-kind.

The Company's share premium, capital redemption reserve, revaluation reserve and share-based payment reserves are undistributable reserves. Under Irish law, dividends and distributions cannot be made from undistributable reserves.

***Dividends paid to shareholders***

| | 2019 $m | 2018 $m |
|---|---|---|
| First interim - paid $0.53c per Ordinary Share (2018: $0.45c) | 127.7 | 112.0 |
| Second interim - paid $0.53c per Ordinary Share (2018: $0.45c) | 127.9 | 110.4 |
| Third interim - paid $0.53c per Ordinary Share (2018: $0.53c) | 127.4 | 130.2 |
| Fourth interim - paid $0.53c per Ordinary Share (2018: $0.53c) | 126.5 | 128.2 |
| Total | 509.5 | 480.8 |

*Future dividends*

Future dividends on our ordinary shares, if any, will be at the discretion of our Board of Directors and will depend on, among other things, our results of operations, cash requirements and surplus, financial condition, contractual restrictions and other factors that the Board of Directors may deem relevant, as well as our ability to pay dividends in compliance with the Irish Companies Act 2014. Under the Irish Companies Act 2014, dividends and distributions may only be made from distributable reserves.

Distributable reserves, broadly, means the accumulated realized profits (so far as not previously distributed or capitalized) less its accumulated, realized losses (so far as not previously written off in a reduction or reorganization of its share capital) of Trane Technologies plc. In addition, no distribution or dividend may be made unless the net assets of Trane Technologies plc are equal to, or in excess of, the aggregate of Trane Technologies plc's called up share capital plus undistributable reserves and the distribution does not reduce Trane Technologies plc's net assets below such aggregate.

## 12. FINANCIAL INSTRUMENTS

The Company does not undertake hedging activities on behalf of itself or any other companies within the Group. Financial instruments in the Company primarily take the form of loans to subsidiary undertakings.

## 13. CONTINGENCIES

*Guarantees*

To help secure cost effective finance facilities for its group undertakings, the Company has given cross party guarantees to some of its finance providers. At 31 December 2019 guarantees totaling $1,985.2 million (2018: $2,026.9 million) were in place in support of such facilities. The Company treats these guarantee contracts as contingent liabilities until such time as it becomes probable that a payment will be required under such guarantees.

*Section 357 Guarantees*

Pursuant to the provisions of Section 357(1)(b) of the Companies Act, 2014 the Company has guaranteed all commitments entered into, including amounts shown as liabilities (within the meaning of Section 357 of tghe Companies Act, 2014), by certain wholly-owned subsidiary undertakings in the Republic of Ireland for the financial year ended 31 December 2019 and has met the other conditions set out in Section 357 and, as a result, the following subsidiary undertakings; Trane Technologies Irish Holdings Unlimited Company and Trane Technologies International Limited have been exempted from the filing provisions of Sections 347 and 348 of the Companies Act, 2014.

## 14. GUARANTEES

Trane Technologies plc 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 table shows the Company's guarantor relationships as of 31 December 2019:

| Parent, issuer or guarantors | Notes issued | Notes guaranteed [1] |
|---|---|---|
| Trane Technologies 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<br>4.250% Senior notes due 2023<br>3.750% Senior notes due 2028<br>5.750% Senior notes due 2043<br>4.300% Senior notes due 2048 | All notes issued by Lux Finance |
| Ingersoll-Rand Company (New Jersey) | 9.000% Debentures due 2021<br>7.200% Debentures due 2020-2025<br>6.480% Debentures due 2025<br>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<br>3.550% Notes due 2024<br>3.500% Notes due 2026<br>3.800% Notes due 2029<br>4.650% Notes due 2044<br>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.

## 15. RELATED PARTY TRANSACTIONS

The Company has not disclosed any other related party transactions as it has availed of the exemption available under the provisions of FRS 102 Section 33.1A "Related Party Disclosures" which exempts disclosure of transactions entered into between two or more members of a group, provided that any subsidiary which is a party to the transaction is wholly owned by a member of that group.

## 16. EVENTS SINCE THE END OF THE FINANCIAL YEAR

*Dividends declared*

On 5 February 2020, the Board of Directors declared a quarterly cash dividend of $0.53 per ordinary share, which was paid on 31 March 2020 to shareholders of record as of 13 March 2020.

*Completion of Reverse Morris Trust Transaction*

On 29 February 2020 (Distribution Date), the Company completed its Reverse Morris Trust transaction with Gardner Denver Holdings, Inc. (Gardner Denver) whereby the Company separated its former Industrial segment (Ingersoll Rand Industrial) through a pro rata distribution to shareholders of record as of 24 February 2020. Ingersoll Rand Industrial then merged into Gardner Denver and changed its name to Ingersoll Rand Inc. Upon close of the transaction, the Company's existing shareholders received 50.1% of the shares of Gardner Denver common stock on a fully-diluted basis and Gardner Denver stockholders retained 49.9% of the shares of Gardner Denver on a fully diluted basis. As a result, the Company's shareholders received .8824 shares of Gardner Denver common stock with respect to each share owned as of 24 February 2020. In addition, the Company received a one-time special cash payment of $1.9 billion from Gardner Denver pursuant to the terms of the Separation and Distribution Agreement. In connection with the transaction, the Company entered into several agreements covering administrative and tax matters to provide or obtain services on a transitional basis, for varying periods after the Distribution Date. The agreements cover various services such as information technology, human resources and finance.

*COVID-19 Global Pandemic*

On March 11, 2020, the World Health Organization declared the outbreak of a respiratory disease caused by a newly discovered coronavirus, known now as COVID-19, as a global pandemic and recommended containment and mitigation measures worldwide.

In response, many countries have implemented measures to combat the outbreak which impacted global business operations and resulted in a Company decision to temporarily close or limit its workforce to essential crews within many facilities throughout the world in order to ensure employee safety. In compliance with government protocols with respect to stay-in-place procedures, the Company's non-essential employees were instructed to work from home. Within the United States, the Company has been designated as an essential service provider by the U.S. Department of Homeland Security and will continue operating its plants, installing and servicing its products.

During the three months ended March 31, 2020, the Company was adversely impacted by the COVID-19 global pandemic. Temporary facility closures during January and February disrupted results in the Asia Pacific region. Commencing in March and through the date of this filing, impacts were more widely felt throughout operations in the Americas and EMEA. As a result, COVID-19 impacted the Company's business globally, including, but not limited to, lower revenue volumes, temporary facility closures, supply chain disruptions and unfavorable foreign currency exchange rate movements. The Company will continue to monitor its liquidity needs and ability to access capital markets. Operationally, the Company’s financial reporting systems, internal control over financial reporting and disclosure controls and procedures continue to operate effectively despite a remote workforce. The Company will continue to monitor the ongoing situation.

The Company has treated COVID-19 as a non-adjusting post balance sheet event.

As part of the response to COVID-19 global pandemic, many countries are implementing emergency economic relief plans as a way of minimizing the economic impact of this health crisis. The Company is evaluating the potential benefits from certain of these measures and will continue to monitor the plans as they are finalized and implemented. In the United States, the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) was enacted on March 27, 2020 providing numerous tax provisions and other stimulus measures. The Company is currently anticipating an impact of the CARES Act, which includes the deferral of employer social security payroll tax payments under the CARES Act until January 1, 2021, with 50 percent owed on December 31, 2021 and the other half owed on December 31, 2022.

## 17. APPROVAL OF FINANCIAL STATEMENTS

The Board of Directors approved and authorised for issue the Company Financial Statements in respect of the financial year ended 31 December 2019 on 4 May 2020.