

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

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

For the Fiscal Year Ended December 31, 2021

OR

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

Commission file number 001-11625



Pentair plc

(Exact name of Registrant as specified in its charter)

Ireland

98-1141328

*(State or other jurisdiction of
incorporation or organization)*

*(I.R.S. Employer
Identification number)*

Regal House, 70 London Road,

Twickenham,

London,

TW13QS

United Kingdom

(Address of principal executive offices)

Registrant's telephone number, including area code: 44-74-9421-6154

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Ordinary Shares, nominal value \$0.01 per share	PNR	New York Stock Exchange

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

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

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

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

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

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

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

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

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

Aggregate market value of voting and non-voting common equity held by non-affiliates of the Registrant, based on the closing price of \$67.49 per share as reported on the New York Stock Exchange on June 30, 2021 (the last business day of Registrant's most recently completed second quarter): \$11,084,021,014.

The number of shares outstanding of Registrant's only class of common stock on December 31, 2021 was 165,098,847.

DOCUMENTS INCORPORATED BY REFERENCE

Parts of the Registrant's definitive proxy statement for its annual general meeting to be held on May 17, 2022, are incorporated by reference in this Form 10-K in response to Part III, ITEM 10, 11, 12, 13 and 14.

Pentair plc
Annual Report on Form 10-K
For the Year Ended December 31, 2021

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PART I

ITEM 1. BUSINESS

Unless the context otherwise indicates, references herein to “Pentair,” the “Company,” and such words as “we,” “us,” and “our” include Pentair plc and its consolidated subsidiaries.

GENERAL

At Pentair, we inspire people to move, improve and enjoy life’s essential resources for happier, healthier lives. From our residential and business water solutions, to our sustainable innovations and applications, we deliver smart, sustainable solutions for life.

Pentair strategy

Our vision is to be the leading residential and commercial water treatment company. As a company, we:

- Focus on growth in our core businesses and strategic initiatives;
- Accelerate digital, innovation, technology and environmental, social and governance (“ESG”) investments;
- Expedite growth and drive margin expansion through our transformation program;
- Utilize Win Right values and the Pentair Integrated Management System (“PIMS”) consisting of lean enterprise, growth and talent management to drive sustained and consistent performance.

HISTORY AND DEVELOPMENT

We are an Irish public limited company that was formed in 2014. We are the successor to Pentair Ltd., a Swiss corporation formed in 2012, and Pentair, Inc., a Minnesota corporation formed in 1966 and our wholly-owned subsidiary, under the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Although our jurisdiction of organization is Ireland, we manage our affairs so that we are centrally managed and controlled in the United Kingdom (the “U.K.”) and therefore have our tax residency in the U.K.

Our registered principal office is located at Regal House, 70 London Road, Twickenham, London, TW13QS United Kingdom. Our management office in the United States (“U.S.”) is located at 5500 Wayzata Boulevard, Suite 900, Golden Valley, Minnesota.

BUSINESS AND PRODUCTS

Pentair is comprised of two reportable business segments: Consumer Solutions and Industrial & Flow Technologies. The following is a brief description of each of the Company’s reportable segments and business activities.

Consumer Solutions

The Consumer Solutions segment designs, manufactures and sells energy-efficient residential and commercial pool equipment and accessories, and commercial and residential water treatment products and systems. Residential and commercial pool equipment and accessories include pumps, filters, heaters, lights, automatic controls, automatic cleaners, maintenance equipment and pool accessories. Water treatment products and systems include pressure tanks, control valves, activated carbon products, conventional filtration products, and point-of-entry and point-of-use systems. Applications for our pool business’s products include residential and commercial pool maintenance, repair, renovation, service and construction. Our water treatment products and systems are used in residential whole home water filtration, drinking water filtration and water softening solutions in addition to commercial total water management and filtration in food service operations. The primary focus of this segment is business-to-consumer.

For the fiscal year ended December 31, 2021, our pool business comprised 65% of the Consumer Solutions sales. The pool business is a leader in North American pool equipment, serving a market that is primarily replacement. The other 35% of sales were from the water treatment businesses, which sell residential and commercial components, residential systems and commercial systems.

Consumer Solutions brand names include Everpure, Ken’s Beverage, Kreepy Krauly, Pentair Water Solutions, Pleatco, RainSoft and Sta-Rite.

Customers

Consumer Solutions customers include businesses engaged in wholesale and retail distribution in the residential and commercial verticals. Customers also include end-users, consumers and original equipment manufacturers.

One customer in the Consumer Solutions' pool business represented approximately 20% and 15% of our consolidated net sales for 2021 and 2020, respectively.

Seasonality

We have historically experienced seasonal demand with several end customers and end-users within Consumer Solutions. End-user demand for pool equipment follows warm weather trends and historically has been at seasonal highs from April to August. The magnitude of the sales spike has historically been partially mitigated by employing some advance sale "early buy" programs (generally including extended payment terms and/or additional discounts).

Competition

Consumer Solutions faces numerous domestic and international competitors, some of which have substantially greater resources directed to the verticals in which we compete. Competition focuses on brand names, product performance (including energy-efficient offerings and required specifications), quality, service and price. We compete by offering a wide variety of innovative and high-quality products, which are competitively priced. We believe our distribution channels and reputation for quality also provide us a competitive advantage.

Industrial & Flow Technologies

The Industrial & Flow Technologies segment manufactures and sells a variety of fluid treatment products (advanced membrane filtration, separation systems, membrane bioreactors), pumps (water supply pumps, water disposal pumps, solid handling pumps, fluid transfer pumps, turbine pumps), valves, and spray nozzles as well as systems combining these products (process filtration systems, gas recovery solutions). These products and systems serve the global residential, commercial, industrial, agricultural and infrastructure verticals. They are used in a range of applications, food and beverage, fluid separation technologies (oil and gas and other industries), water and wastewater treatment, water wells, pressure boosting, fire suppression, flood control, agricultural irrigation, crop spray and fluid circulation and transfer. The primary focus of this segment is business-to-business.

For the fiscal year ended December 31, 2021, our residential and irrigation flow businesses comprised 45% of the Industrial & Flow Technologies sales. The residential and irrigation flow businesses sell pumps focused on residential and agriculture. Another 25% of sales were from the commercial & infrastructure flow businesses, which sell larger pumps focused on fire suppression, waste water and flood control. The remaining 30% of sales were from the industrial filtration business, comprised of applications focused on industrial process filtration and sustainable gas.

Industrial & Flow Technologies brand names include Pentair, Aurora, Berkeley, Codeline, Fairbanks-Nijhuis, Haffmans, Hydromatic, Hypro, Jung Pumpen, Myers, Sta-Rite, Shurflo, Südmo and X-Flow.

Customers

Industrial & Flow Technologies customers include businesses engaged with end users, and wholesale and retail distribution in the residential, commercial, food & beverage and industrial verticals.

Seasonality

We have historically experienced increased demand for residential water supply and irrigation pumps following weather trends, which historically has been at seasonal highs from April to August. Seasonal effects may vary from year to year and are impacted by weather patterns, particularly by temperatures, heavy flooding and droughts.

Competition

Industrial & Flow Technologies faces numerous domestic and international competitors, some of which have substantially greater resources directed to the verticals in which we compete. Competition focuses on brand names, product performance (including energy-efficient offerings and required specifications), quality, service and price. We compete by offering a wide variety of innovative and high-quality products, which are competitively priced.

INFORMATION REGARDING ALL REPORTABLE SEGMENTS

Research and development

We conduct research and development activities primarily in our own facilities. These efforts consist mostly of the development of new products, product applications and manufacturing processes.

Raw materials

The principal materials we use in manufacturing our products are mild steel, stainless steel, electronic components (including motors), plastics (resins, fiberglass, epoxies), copper and paint (powder and liquid). In addition to the purchase of raw materials, we purchase some finished goods for distribution for resale.

We purchase the materials we use in various manufacturing processes on the open market, and the majority are available through multiple sources. Supplier capabilities were stressed in 2021 compared to previous years as a result of the unstable situation brought on by the novel coronavirus 2019 (“COVID-19”) pandemic, reduced labor availability and the shortage of electronic components and other raw materials. We have certain long-term commitments, principally price commitments, for the purchase of various component parts and raw materials and continue to work with our suppliers to maintain delivery continuity. Alternate sources of supply are available for most materials and we believe that the termination of any of these commitments would not have a material adverse effect on our financial position, results of operations or cash flows.

Certain commodities, such as metals and resins, are subject to commodity market and duty-driven price fluctuations. We manage these fluctuations through several mechanisms, including long-term agreements with price adjustment clauses for significant commodity market movements in certain circumstances. Prices for raw materials, such as metals, resins and electronics, may trend higher in the near future due to the existing inflationary market trends.

Intellectual property

Patents, non-compete agreements, proprietary technologies, customer relationships, trademarks, trade names and brand names are important to our business. However, we do not regard our business as being materially dependent upon any single patent, non-compete agreement, proprietary technology, customer relationship, trademark, trade name or brand name.

Patents, patent applications and license agreements will expire or terminate over time by operation of law, in accordance with their terms or otherwise. We do not expect the termination of patents, patent applications or license agreements to have a material adverse effect on our financial position, results of operations or cash flows.

Human capital resources

We believe our success depends on our ability to attract, develop and retain strong employees. We believe a deep-rooted culture energizes our employees to make a difference within and beyond the workplace. We strive to be the destination for top talent, and work hard to develop and retain high performers throughout their career. We also believe our Win Right values, positive culture and commitment to inclusion and diversity foster innovation and curiosity, which, in turn, contribute to us being an industry leader.

As of December 31, 2021, we had approximately 11,250 employees worldwide, of which approximately 57% are located in the U.S. A small portion of our U.S. employees are unionized, while outside the U.S., we have employees in certain countries, particularly in Europe, that are represented by an employee representative organization, such as a union, works council or employee association.

Employee engagement and development

Engaging our employees and developing their careers is important to our long-term success and ties directly to our Win Right culture and values. We engage with our employees and gather feedback about our employee programs, practices and policies through various approaches that include: town hall meetings where Pentair leaders share strategies and perspectives; quarterly leadership webcasts to help ensure our results and expectations are clearly communicated; an annual global leadership meeting to help drive growth and productivity initiatives and share best practices; employee surveys; and a feedback feature on our employee intranet.

Training and development

To support employees in their career journey, we have developed and shared through our employee intranet a number of tools and resources. These resources include: live training sessions; on-demand eLearning and virtual classrooms; and downloadable materials. Additionally, our annual talent management process allows employees to build development plans with their leaders to develop their careers.

Our talent development efforts span across all levels of our organization, including our campus Leadership Development Program, a 36-month program in which future leaders participate in rotations intended to develop their capabilities through organization-wide exposure, and our Growth Manager development programs that prepare our new and experienced managers to be more effective and inclusive leaders at Pentair.

Inclusion and diversity

Our commitment to inclusion and diversity is part of living our Win Right values. Our success also depends on our ability to attract, engage and retain a diverse group of employees. We believe an inclusive and diverse workforce contributes different perspectives and innovative ideas that enable us to improve every day. We believe that every employee should be provided the same opportunity to be heard, respected, have a sense of belonging and contribute to our mission. Race, gender, ethnicity, country of origin, age, personal style, sexual orientation, physical ability, religion, life experiences and many more factors contribute to this diversity.

Our statistics are a measure of our performance, and we are committed to advancing a diverse workplace. The following sets forth information regarding the diversity of our workforce as of December 31, 2021:

	Percent of workforce	Percent of leadership roles ⁽³⁾
Minorities ⁽¹⁾	43.3%	26.0%
Women ⁽²⁾	32.4%	30.6%

⁽¹⁾ Inclusive of the following racial minority groups: Black/African American, Hispanic/Latino, American Indian/Alaskan Native, Asian, Native Hawaiian/Other Pacific Islander. Data for U.S. employee population only.

⁽²⁾ Global data.

⁽³⁾ Leadership roles are those of employees who are director level and above.

We take an integrated approach to supporting and promoting workplace inclusion and diversity including: ensuring leadership involvement and ownership; attracting and retaining diverse talent at all levels; fostering a globally aware, inclusive culture; and ensuring our practices are fair and nondiscriminatory. In addition, we promote an inclusive and diverse workplace through: a training called the “The Power of Inclusion”; business resource groups led by employees; Pentair’s Code of Business Conduct and Ethics; and an Inclusion and Diversity Hub on our employee intranet.

Health, safety and wellness

We are committed to providing a safe workplace for all of our employees. We encourage employees to “Stop Work” anytime there is a potential concern regarding worker safety, and promote an open door policy so that all of our employees feel free to speak to their manager if there are any potential health, safety, compliance or sustainability concerns. Additionally, each site maintains a confidential reporting process, and we encourage the use of the Ethics Hotline for employees to report anonymously potential safety concerns. All locations, enterprise wide, must meet and/or exceed regulatory agency standards as applicable to each plant’s location.

In light of the ongoing COVID-19 pandemic, we maintain our commitment to protect the health and safety of our employees by continuing our enhanced safety protocols for those on-site at our manufacturing facilities, for those who provide manufacturing-support activities, and for those working in office environments. In addition, we have maintained flexibility for employees who do not need to be physically present at our facilities and sites to perform their job responsibilities remotely and essential business travel has generally remained the main travel activity.

Compensation and benefits

In the U.S., all non-union full-time employees are eligible to receive the following benefits: short-term and long-term disability insurance; flexible and health savings accounts and wellness programs; health insurance (medical, pharmacy, dental); eight weeks paid parental leave for birth, adoptive and foster parents; two weeks paid caregiver leave; legal services; retirement benefits; stock ownership; tuition reimbursement; holidays; vacation and sick time. Union employee benefits vary by contract.

ESG Activities

As a leading provider of water treatment and sustainable solutions and with a foundation of Win Right values, we recognize that the work we do and the products and services we provide improve lives and the environment around the world. Pentair strives to be a positive influence on the social and environmental issues of today. As we progress, we are committed to building on our Win Right values and culture by further contributing to the development of a sustainable and responsible society that we believe will also drive our future growth. We are focused on further integrating our ESG goals throughout our business by creating broad accountability for our social responsibility strategy and creating shared commitments and targets. In 2020, Pentair completed a formal ESG assessment to identify ESG topics of importance to our shareholders, customers, suppliers, employees and communities. Through engagement with these stakeholders, internal business leaders and subject matter experts, we identified ESG goals, which ultimately culminated into Pentair’s Social Responsibility Targets, which we announced in 2021.

Annually, we publish a corporate responsibility report on our ESG activities and accomplishments, which can be found on our corporate website, and which is not incorporated by reference into this Annual Report on Form 10-K. In addition, we have established a formal social responsibility program to further advance our social responsibility goals.

Environmental Matters

See ITEM 1A “Risk Factors - We are exposed to potential environmental laws, liabilities and litigation.”

Captive insurance subsidiary

A portion of our property and casualty insurance program is insured through our regulated wholly-owned captive insurance subsidiary, Penwald Insurance Company (“Penwald”). Reserves for policy claims are established based on actuarial projections of ultimate losses. Accruals with respect to liabilities insured by third parties, such as liabilities arising from acquired businesses, pre-Penwald liabilities and those of certain non-U.S. operations, are established.

Matters pertaining to Penwald are discussed in ITEM 8, Note 1 of the Notes to Consolidated Financial Statements – Insurance subsidiary, included in this Form 10-K.

Available information

We make available free of charge (other than an investor’s own Internet access charges) through our Internet website (<http://www.pentair.com>) our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and if applicable, amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission (the “SEC”). Reports of beneficial ownership filed by our directors and executive officers pursuant to Section 16(a) of the Exchange Act are also available on our website. We are not including the information contained on our website as part of, or incorporating it by reference into, this Annual Report on Form 10-K.

In addition, the SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, and you may access any materials we file with the SEC through their website at www.sec.gov.

ITEM 1A. RISK FACTORS

You should carefully consider all of the information in this document and the following risk factors before making an investment decision regarding our securities. Any of the following risks could materially and adversely affect our business, financial condition, results of operations, cash flows and the actual outcome of matters as to which forward-looking statements are made in this document.

Risks Relating to Our Business

The COVID-19 pandemic may have a material negative impact on our business, financial condition, results of operations and cash flows.

Our business and financial results have been and may continue to be negatively impacted by the COVID-19 pandemic and its repercussions. The severity, magnitude and duration of the current COVID-19 pandemic is uncertain, rapidly changing and hard to predict. In 2021 and 2020, the COVID-19 pandemic significantly impacted economic activity and markets around the world and our business, and it may negatively impact our business in numerous ways, including but not limited to those outlined below:

- Deteriorating economic and political conditions caused by the COVID-19 pandemic, such as increased unemployment, decreases in capital spending, declines in consumer confidence, or economic slowdowns or recessions, could cause a decrease in demand for our products.
- Due to the impacts of the COVID-19 pandemic, we have experienced and may continue to experience reductions in customer demand for certain products and in certain end-markets.
- Our workforce may be unable or unwilling to work on-site or travel as a result of the continuing pandemic and related vaccine requirements, event cancellations, facility closures, shelter-in-place, travel and other restrictions and changes in industry practice, or if they, their co-workers or their family members become ill or otherwise require care arrangements. Regulations for vaccines and COVID-19 testing have been announced and additional regulations may be announced in the jurisdictions in which our businesses operate. Implementation of new regulations for vaccines may result in attrition of professional and skilled labor and impact our ability to attract and retain talent necessary for our business operations. These measures also may impact our ability to meet production demands or requests and may delay our new product introductions depending on employee attendance or ability to continue to work. In addition, we have experienced disruptions at some of our facilities with higher absenteeism due to the COVID-19 pandemic.
- If the COVID-19 pandemic continues and economic conditions worsen, we may experience additional adverse impacts on our operational and commercial activities, customer orders and our collections of accounts receivable, which could be material, and it remains uncertain the impact on future operational and commercial activities, customer orders, and collections even if economic conditions improve.

- Government or regulatory responses to the COVID-19 pandemic have and may continue to negatively impact our business. During 2021 and 2020, mandatory lockdowns or other restrictions on operations in some countries temporarily disrupted our ability to manufacture or distribute our products in some of these markets. A reoccurrence of these disruptions could materially adversely impact our operations and results. In addition to existing travel restrictions, jurisdictions may continue to close borders, impose increased vaccine or testing requirements, prolong quarantines and further restrict travel and business activity, and other related supply chain delays may develop, which could significantly impact our ability to support our operations and customers, meet demand, develop new products, ship our backlog and also impact the ability of our employees to get to their workplaces to produce products and services, or significantly hamper our products from moving through the supply chain.
- The impacts of the COVID-19 pandemic may limit our ability to reduce our overall operating costs. We have experienced increased costs relating to our efforts to mitigate the impact of the COVID-19 pandemic through, among other things, our continued measures taken to protect our employees' health and well-being.
- The increase in demand as the COVID-19 pandemic has stabilized or waned has disrupted and is expected to continue to disrupt our operations, global supply chain and routes to market and/or those of our suppliers and/or their suppliers. These disruptions or our failure to effectively respond to them have increased and may continue to increase product, logistics or labor costs, limit availability of raw materials or cause delays in delivering our backlog or may cause an inability to deliver products to our customers or meet customer demand.
- While we have experienced high demand in our pool business as consumers have spent more time at home as a result of the COVID-19 pandemic that contributed to growth in our sales during 2021 and 2020, such growth may not be sustainable and may not be repeated in future periods. Furthermore, even if growth in demand continues, we may not be able to meet that demand due to supply, production, capacity, and/or labor challenges.
- Disruptions or uncertainties related to the COVID-19 pandemic for a sustained period of time could result in delays or modifications to some of our strategic plans and initiatives and hinder our ability to achieve our growth targets.
- Actions we have taken or may take, or decisions we have made or may make, as a consequence of the COVID-19 pandemic, may result in legal investigations or claims, regulatory actions, or litigation against us.

We may not be able to predict or respond to all impacts of the COVID-19 pandemic on a timely basis to prevent near- or long-term adverse impacts to our results. Due to the speed with which the COVID-19 situation continues to develop, the global breadth of its spread and the range of governmental and community reactions thereto, there is uncertainty around its duration and severity and ultimate impact, actions taken by parties other than us to respond to the pandemic and the impact of virus variants and the effectiveness of vaccines to address the COVID-19 virus and variants; therefore, any negative impact on our business, financial condition (including without limitation our liquidity), results of operations and cash flows cannot be reasonably estimated at this time, but the COVID-19 pandemic could lead to extended disruption of economic activity and the impact on our business, financial condition, results of operations and cash flows could be material. The foregoing and other impacts of the COVID-19 pandemic could have the effect of heightening many of the other risks described below and any of these impacts could materially adversely affect our business, financial condition, results of operations and cash flows.

General global economic and business conditions affect demand for our products.

We compete in various geographic regions and product markets around the world. Among these, the most significant are global industrial, commercial, and residential markets. We have experienced, and expect to continue to experience, fluctuations in revenues and results of operations due to economic and business cycles. In particular, during 2021, we had higher than anticipated demand in our pool business and certain of our residential and commercial businesses. Such demand may not be sustainable and may not be repeated in future periods. Important factors for our businesses and the businesses of our customers include the overall strength of the global economy and various regional economies and our customers' confidence in these economies, industrial and governmental capital spending, the strength of residential and commercial real estate markets, residential housing markets, the commercial business climate, unemployment rates, availability of consumer and commercial financing, interest rates, inflation rates, and energy and commodity prices. The businesses of many of our industrial customers are to varying degrees cyclical and have experienced periodic downturns. While we attempt to minimize our exposure to economic or market fluctuations by serving a balanced mix of end markets and geographic regions, any of the above factors, individually or in the aggregate, or a significant or sustained downturn in a specific end market or geographic region could reduce demand for our products and services, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We compete in attractive markets with a high level of competition, which may result in pressure on our profit margins and limit our ability to maintain or increase the market share of our products.

The markets for our products and services are geographically diverse and highly competitive. We compete against large and well-established national and global companies, regional and local companies, diversified and pure-play companies, and lower cost manufacturers. Competition may also result from new entrants into the markets we serve offering products and/or services that compete with ours. We compete based on technical expertise, intellectual property, reputation for quality and reliability, timeliness of delivery, previous installation history, contractual terms, service offerings, customer experience and service, and price. Some of our competitors attempt to compete based primarily on price, localized expertise and local relationships, especially with respect to products and applications that do not require a great deal of engineering or technical expertise. In addition, during economic downturns, average selling prices tend to decrease as market participants compete more aggressively on price. Moreover, demand for our products, which impacts profit margins, is affected by changes in customer order patterns, such as changes in the levels of inventory maintained by customers and the timing of customer purchases, adoption of new technology and connected products, and changes in customers' preferences for our products, including the success of products offered by our competitors. Customer purchasing behavior may also shift by product mix in the market or result in a shift to new distribution channels, including e-commerce, which is a rapidly developing area. If we are unable to continue to differentiate our products, services and solutions or adapt to changes in customer purchasing behavior or shifts in distribution channels, or if we are forced to change prices or to incur additional costs to remain competitive, it could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our future growth is dependent upon our ability to transform and adapt our products, services, solutions, and organization to meet the demands of local markets in both developed and emerging economies and by developing or acquiring new technologies that achieve market acceptance with acceptable margins.

We operate in global markets that are characterized by customer demand that is often global in scope but localized in delivery. We compete with thousands of smaller regional and local companies that may be positioned to offer products produced at lower cost than ours, or to capitalize on highly localized relationships and knowledge that are difficult for us to replicate. Also, in several emerging markets, potential customers prefer local suppliers, in some cases because of existing relationships and in other cases because of local legal restrictions or incentives that favor local businesses. In addition, we need to be flexible to adapt our products to ever changing customer preferences, including those relating to regulatory, climate change and social responsibility matters. Accordingly, our future success depends upon a number of factors, including our ability to transform and adapt our products, services, solutions, organization, workforce and sales strategies to fit localities throughout the world, particularly in high growth emerging markets; identify emerging technological and other trends in our target end markets; and develop or acquire competitive technologies, products, services, and solutions and bring them to market quickly and cost-effectively. The failure to effectively adapt our products, services, or solutions could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We may not be able to identify, finance and complete suitable acquisitions and investments, and any completed acquisitions and investments may be unsuccessful or consume significant resources.

Our business strategy includes acquiring businesses and making investments that complement our existing businesses. We continue to analyze and evaluate the acquisition of strategic businesses or product lines with the potential to strengthen our industry position or enhance our existing set of product, service, and solution offerings. We may not be able to identify suitable acquisition candidates, obtain financing or have sufficient cash necessary for acquisitions or successfully complete acquisitions in the future. Acquisitions and investments may involve significant cash expenditures, debt incurrences, equity issuances, operating losses and expenses. Acquisitions 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;
- potential loss of key employees, key contractual relationships or key customers of acquired companies or of ours;
- assumption of the liabilities and exposure to unforeseen liabilities of acquired companies; and
- dilution of interests of holders of our shares through the issuance of equity securities or equity-linked securities.

It may be difficult for us to integrate acquired businesses efficiently into our business operations. Any acquisitions or investments may not be successful or realize the intended benefits and may ultimately result in impairment charges or have a material adverse effect on our business, financial condition, results of operations and cash flows.

We may not achieve some or all of the expected benefits of our business initiatives.

During 2021, 2020 and 2019, we initiated and continued execution of certain business initiatives aimed at reducing our fixed cost structure and realigning our business. During 2021, we also launched and committed resources to a program designed to accelerate growth and drive margin expansion through transformation of our business model to drive operational excellence, reduce complexity and streamline our processes. As a result, we have incurred and expect to continue to incur in the future substantial expense, including transformation costs that include professional services, project management and related design and execution charges, as well as costs related to both labor and non-labor restructuring and IT investments, and restructuring charges. We may not be able to achieve accelerated growth and margin expansion or operating efficiencies to reduce costs or realize benefits that we anticipated in connection with these initiatives. If we are unable to execute these initiatives as planned, we may not realize all or any of the anticipated benefits, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We may experience cost and other inflation.

During 2021, we experienced inflationary cost increases of raw materials, such as metals, resins and electronics (including drives and motors), as well as increases in logistics and labor costs, and we expect inflationary cost increases to continue in 2022. We strive for productivity improvements and implement increases in selling prices to help mitigate cost increases in raw materials (especially metals, resins and electronics), logistics, energy and other costs including wages, pension, health care and insurance. We continue to implement operational initiatives in order to mitigate the impacts of this inflation and continuously reduce our costs. However, these actions may not be successful in managing our costs or increasing our productivity and we anticipate inflation to continue with respect to materials (especially resins, copper, steel, stainless steel and electronics) as well as labor and logistics. Continued cost inflation or failure of our initiatives to increase prices, generate cost savings or improve productivity could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Interruption of our supply chain could affect our ability to produce or deliver our products and could negatively impact our business and profitability.

During 2021, we experienced supply chain challenges, including increased lead times for raw materials due to availability constraints and high demand. While we have elevated our engagement with our suppliers and used secondary suppliers and new methods of procurement where available to mitigate the supply chain pressures, we expect supply chain challenges to continue in 2022. Any material interruption in our supply chain, such as material interruption of the supply of raw materials and components due to the casualty loss of any of our manufacturing plants, interruptions in service by our third-party logistic service providers or common carriers that ship goods within our distribution channels, unexpected delays in shipping or processing through customs of goods, trade restrictions, such as increased tariffs or quotas, embargoes or customs restrictions, or other unexpected or uncontrollable events that cause a material interruption in our supply chain such as pandemics, social or labor unrest, natural disasters or political disputes and military conflicts, could negatively affect our ability to produce or deliver our products and have a negative material impact on our business and our profitability. Additionally, our raw materials and components are sourced from a wide variety of domestic and international business partners. We rely on these suppliers to provide high quality products and to comply with applicable laws. Our ability to find qualified suppliers who meet our standards and supply products in a timely and efficient manner may be a challenge, especially with respect to raw materials and components sourced from outside the U.S. and from countries or regions with diminished infrastructure, developing or failing economies or which are experiencing political instability or social unrest. For certain products, we may rely on one or very few suppliers. A supplier's failure to meet our standards, provide products in a timely and efficient manner, or comply with applicable laws is beyond our control. In addition, our competitors may be less reliant on third party suppliers than we are, which may give such competitors more control over their supply chain and lead times for manufacturing products. These issues could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We are exposed to political, regulatory, economic, trade, and other risks that arise from operating a multinational business.

Sales outside of the U.S. for the year ended December 31, 2021 accounted for 32% of our net sales. Further, most of our businesses obtain some products, components and raw materials from non-U.S. suppliers. Accordingly, our business is subject to the political, regulatory, economic, trade, and other risks that are inherent in operating in, and purchasing from, numerous countries. These risks include:

- changes in general economic and political conditions in countries where we operate, particularly in emerging markets;
- relatively more severe economic conditions in some international markets than in the U.S.;
- the imposition of sanctions, tariffs, duties, exchange controls, currency restrictions or other trade restrictions;
- changes in tax treaties, laws or rulings that could have a material adverse impact on our effective tax rate;
- the difficulty of enforcing agreements and collecting receivables through non-U.S. legal systems;

- the difficulty of communicating and monitoring evolving standards and directives across our product lines, services, and global facilities;
- the difficulty of ensuring that our products, services and supply chains meet ever-changing regional regulations and requirements;
- trade protection measures and import or export licensing requirements and restrictions;
- the possibility of terrorist action affecting us or our operations;
- the threat of nationalization and expropriation;
- changes due to nationalist consumer sentiment;
- the difficulty in staffing and managing widespread operations in non-U.S. labor markets;
- limitations on repatriation of earnings or other regionally-imposed capital requirements;
- the difficulty of protecting intellectual property in non-U.S. countries; and
- changes in and required compliance with a variety of non-U.S. laws and regulations, some of which may be incompatible.

Our success depends in part on our ability to anticipate and effectively manage these and other risks. We cannot assure that these and other factors will not have a material adverse effect on our international operations or on our business as a whole.

Changes in U.S. or foreign government administrative policy, including changes to existing trade agreements, could have a material adverse effect on us.

As a result of changes to U.S. or foreign government administrative policy, there may be changes to existing trade agreements; greater restrictions on free trade generally; significant increases in tariffs on goods including those imported into the U.S., particularly tariffs on products manufactured in Mexico, China, or other countries where we purchase, have operations or manufacture or sell products; prohibitions or restrictions on doing business with certain entities, including those with certain relationships with China; and adverse responses by foreign governments to U.S. trade policy, among other possible changes. It remains unclear what the U.S. administration or foreign governments, including China, will or will not do with respect to tariffs or international trade agreements and policies. A trade war; other governmental action related to tariffs or international trade agreements; changes in U.S. social, political, regulatory and economic conditions or in laws and policies governing foreign trade, manufacturing, development and investment in the territories and countries where we currently purchase, have operations or manufacture and sell products; and any resulting negative sentiments towards the U.S. as a result of such changes, could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Intellectual property challenges may hinder our ability to develop, engineer and market our products.

Patents, non-compete agreements, proprietary technologies, customer relationships, trademarks, trade names and brand names are important to our business. Intellectual property protection, however, may not preclude competitors from developing products similar to ours or from challenging our names or products. Our pending patent applications, and our pending copyright and trademark registration applications, may not be allowed, or competitors may challenge the validity or scope of our patents, copyrights or trademarks. In addition, our patents, copyrights, trademarks and other intellectual property rights may not provide us a significant competitive advantage. Furthermore, our business strategy also includes expanding our smart products and Internet of Things offerings and there are many other companies that hold patents in this space. Over the past few years, we have noticed an increasing tendency for participants in our markets, including competitors, to use challenges to intellectual property as a means to compete. Patent and trademark challenges increase our costs to develop, engineer and market our products. We may need to spend significant resources monitoring, enforcing and defending our intellectual property rights, and we may or may not be able to detect infringement by third parties. If we fail to successfully enforce our intellectual property rights or register new patents, our competitive position could suffer, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We have significant goodwill and intangible assets and future impairment of our goodwill and intangible assets could have a material adverse effect on our results of operations.

We test goodwill and other indefinite-lived intangible assets for impairment on at least an annual basis, and more frequently if circumstances warrant. As of December 31, 2021 our goodwill and intangible assets were \$2,933 million and represented 62% of our total assets. Declines in fair market value could result in future goodwill and intangible asset impairment charges.

A loss of, or material cancellation, reduction, or delay in purchases by or delivery of products to, one or more of our largest customers could harm our business.

Our net sales to our largest customer represented approximately 20% of our consolidated net sales in 2021. While we do not have any other customers that accounted for 10% or more of our consolidated net sales in 2021, we have other customers that are key to the success of our business. Our concentration of sales to a relatively small number of larger customers makes our relationship with each of these customers important to our business. Our success is dependent on retaining these customers, which requires us to successfully manage relationships and anticipate the needs of our customers in the channels in which we sell our products. Our customers also may be impacted by economic conditions in the industries of those customers, which could result in reduced demand for or a delay in purchases of our products. In addition, our customers may cancel orders for purchases of our products or may not order products at rates consistent with past order levels. In addition, we may not be able to timely deliver products to our largest customers due to supply chain interruptions or otherwise. We cannot provide assurance that we will be able to retain our largest customers. In addition, some of our customers may shift their purchases to our competitors in the future. The loss of one or more of our largest customers, any material cancellation, reduction, or delay in purchases by or delivery of products to these customers, or our inability to successfully develop relationships with additional customers could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Catastrophic and other events beyond our control may disrupt operations at our manufacturing facilities and those of our suppliers, which could cause us to be unable to meet customer demands or increase our costs, or reduce customer spending.

If operations at any of our manufacturing facilities or those of our suppliers were to be disrupted as a result of significant equipment failures, natural disasters, earthquakes, power outages, fires, explosions, terrorism, adverse weather conditions, labor disputes, public health epidemics (including the COVID-19 pandemic) or other catastrophic events or disruptions outside of our control, we may be unable to fill customer orders and otherwise meet customer demand for our products. In particular, our pool business operations in North Carolina and California are in areas that are more susceptible to natural disasters such as hurricanes, wildfires, and earthquakes. In addition, these types of events may negatively impact residential, commercial and industrial spending in impacted regions or, depending on the severity, globally. As a result, any of such events could have a material adverse effect on our business, financial condition, results of operations and cash flows. We maintain property insurance that we believe to be adequate to provide for reconstruction of facilities and equipment, and to cover business interruption losses resulting from any production interruption or shutdown caused by an insured loss. However, any recovery under our insurance policies may not offset the lost sales or increased costs that may be experienced during the disruption of operations, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Seasonality of sales and weather conditions could have a material adverse effect on our financial results.

We experience seasonal demand with end-customers and end-users within each of our business segments. Demand for pool equipment in the pool business within the Consumer Solutions segment and residential water supply, infrastructure and agricultural products in the businesses within the Industrial & Flow Technologies segment follows warm weather trends and is at seasonal highs from April to August. While historically we have attempted to mitigate the magnitude of the sales spike in the pool business and in the businesses within the Industrial & Flow Technologies segment by employing some advance sale “early buy” programs (generally including extended payment terms and/or additional discounts), we cannot provide any assurance that should we use such programs in the future they will be successful. In addition, seasonal effects in the pool business and in the businesses within the Industrial & Flow Technologies segment may vary from year to year and be impacted by weather patterns, particularly by temperature, heavy flooding and droughts. Moreover, adverse weather conditions, such as cold or wet weather, may negatively impact demand for, and sales of, pool equipment in the pool business and residential water supply, commercial, infrastructure and agricultural products in the businesses within the Industrial & Flow Technologies segment.

Our focus on consumer solutions for residential and commercial water treatment as a strategic priority exposes us to certain risks that could have a material adverse impact on our revenue and profitability as well as our reputation.

As we introduce residential and commercial water treatment solutions, we may have limited experience in markets we choose to enter, and our customers may not like our value propositions. New initiatives we test through trials and pilots may not scale or grow effectively or as we expected, which could limit our growth and negatively affect our operating results. Designing, marketing and executing these solutions is subject to incremental risks. These risks include, for example:

- increased labor expense to fulfill our customer promises, which may be higher than the related revenue;
- the requirement to recruit, train and retain qualified personnel;
- increased risk of errors or omissions in the sales or fulfillment of solutions or services;
- unpredictable extended warranty failure rates and related expenses;

- employees in transit using company vehicles to visit customer locations and employees being present in customer homes, which may increase our scope of liability;
- the potential for increased scope of liability relating to our consumer products, services and solutions and related business model, including increased exposure to consumer lawsuits and enforcement actions by governmental authorities;
- increased costs of liability insurance to cover risks associated with performing installation and other services;
- the cyber-security and data protection risks related to the collection and storage of consumer data;
- the engagement of third parties to assist with sales, installation or servicing of our products and solutions, and the potential responsibility for the actions they take; and
- increased risk of non-compliance with new laws and regulations applicable to these solutions.

These expanded risks increase the complexity of our business and place significant responsibility on our management, employees, operations, systems, technical expertise, financial resources, and internal controls and compliance functions.

Volatility in currency exchange rates could have a material adverse effect on our financial condition, results of operations and cash flows.

Sales outside of the U.S. for the year ended December 31, 2021 accounted for 32% of our net sales. Our financial statements reflect translation of items denominated in non-U.S. currencies to U.S. dollars. Therefore, if the U.S. dollar strengthens in relation to the principal non-U.S. currencies from which we derive revenue as compared to a prior period, our U.S. dollar reported revenue and income will effectively be decreased to the extent of the change in currency valuations, and vice-versa. Fluctuations in foreign currency exchange rates, most notably the strengthening of the U.S. dollar against the euro, could have a material adverse effect on our reported revenue in future periods. In addition, currency variations could have a material adverse effect on margins on sales of our products in countries outside of the U.S. and margins on sales of products that include components obtained from suppliers located outside of the U.S.

Risks Relating to Our Debt and Financial Markets

Covenants in our debt instruments may adversely affect us.

Our credit agreements and indentures contain customary financial covenants, including those that limit the amount of our debt, which may restrict the operations of our business and our ability to incur additional debt to finance acquisitions. Our ability to meet the financial covenants may be affected by events beyond our control, and we cannot provide assurance that we will meet those tests. A breach of any of these covenants could result in a default under our credit agreements or indentures. Upon the occurrence of an event of default under any of our credit facilities or indentures, the lenders or trustees could elect to declare all amounts outstanding thereunder to be immediately due and payable and, in the case of credit facility lenders, terminate all commitments to extend further credit. If the lenders or trustees accelerate the repayment of borrowings, we cannot provide assurance that we will have sufficient assets to repay our credit facilities and our other indebtedness. Furthermore, acceleration of any obligation under any of our material debt instruments will permit the holders of our other material debt to accelerate their obligations, which could have a material adverse effect on our financial condition.

We may increase our debt or raise additional capital, our credit ratings may be downgraded in the future, or our interest rates may increase, each of which could affect our financial condition, and may decrease our profitability.

As of December 31, 2021, we had \$894.1 million of total debt outstanding. We may increase our debt or raise additional capital in the future, subject to restrictions in our debt agreements. If our cash flow from operations is less than we anticipate, if our cash requirements are more than we expect, or if we intend to finance acquisitions, we may require more financing. However, debt or equity financing may not be available to us on acceptable terms, if at all. If we incur additional debt or raise equity through the issuance of additional capital shares, the terms of the debt or capital shares issued may give the holders rights, preferences and privileges senior to those of holders of our ordinary shares, particularly in the event of liquidation. The terms of the debt may also impose additional and more stringent restrictions on our operations than we currently have. If we raise funds through the issuance of additional equity, the percentage ownership of existing shareholders in our company would decline. If we are unable to raise additional capital when needed, our financial condition could be adversely affected.

Unfavorable changes in the ratings that rating agencies assign to our debt may ultimately negatively impact our access to the debt capital markets and increase the costs we incur to borrow funds. If ratings for our debt fall below investment grade, our access to the debt capital markets may become restricted. Additionally, our credit agreements generally include an increase in interest rates if the ratings for our debt are downgraded. To the extent that our interest rates increase, our interest expense will increase, which could adversely affect our financial condition, results of operations and cash flows.

Our leverage could have a material adverse effect on our business, financial condition or results of operations.

Our ability to make payments on and to refinance our indebtedness, including our existing debt as well as any future debt that we may incur, will depend on our ability to generate cash in the future from operations, financings or asset sales. Our ability to generate cash is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control. If we are not able to repay or refinance our debt as it becomes due, we may be forced to sell assets or take other disadvantageous actions, including (i) reducing financing in the future for working capital, capital expenditures and general corporate purposes or (ii) dedicating an unsustainable level of our cash flow from operations to the payment of principal and interest on our indebtedness. The lenders who hold such debt could also accelerate amounts due, which could potentially trigger a default or acceleration of any of our other debt.

Disruptions in the financial markets could adversely affect us, our customers and our suppliers by increasing funding costs or reducing availability of credit.

In the normal course of our business, we may access credit markets for general corporate purposes, which may include repayment of indebtedness, acquisitions, additions to working capital, repurchase of shares, capital expenditures and investments in our subsidiaries. Although we expect to have sufficient liquidity to meet our foreseeable needs, our access to and the cost of capital could be negatively impacted by disruptions in the credit markets, which have occurred in the past and made financing terms for borrowers unattractive or unavailable. These factors may make it more difficult or expensive for us to access credit markets if the need arises. In addition, these factors may make it more difficult for our suppliers to meet demand for products or for customers to purchase products or commence new projects, as suppliers and customers may experience increased costs of debt financing or difficulties in obtaining debt financing. Disruptions in the financial markets have had adverse effects on other areas of the economy and have led to a slowdown in general economic activity that may continue to adversely affect our businesses. One or more of these factors could adversely affect our business, financial condition, results of operations or cash flows.

Risks Relating to Legal, Regulatory and Compliance Matters

Violations of the U.S. Foreign Corrupt Practices Act, U.K. Bribery Act, and other anti-corruption laws outside the U.S. could have a material adverse effect on us.

The U.S. Foreign Corrupt Practices Act (“FCPA”), U.K. Bribery Act, and other anti-corruption laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to government officials or other persons for the purpose of obtaining or retaining business. Recent years have seen a substantial increase in anti-bribery law enforcement activity, with more frequent and aggressive investigations and enforcement proceedings by both the U.S. Department of Justice and the SEC, increased enforcement activity by non-U.S. regulators and increases in criminal and civil proceedings brought against companies and individuals. Our policies mandate compliance with these anti-bribery laws. We operate in many parts of the world that are recognized as having governmental and commercial corruption and in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices. Because many of our customers and end users are involved in infrastructure construction and energy production, they are often subject to increased regulations and scrutiny by regulators. We cannot assure that our internal control policies and procedures will always protect us from negligent, reckless or criminal acts committed by our employees or third-party intermediaries. In the event that we believe or have reason to believe that our employees, customers, or agents have or may have violated applicable anti-corruption laws, including the FCPA, we may be required to investigate the relevant facts and circumstances, which can be expensive and require significant time and attention from senior management. Violations of these laws may require self-disclosure to government agencies and result in criminal or civil sanctions, which could disrupt our business and result in a material adverse effect on our reputation, business, financial condition, results of operations and cash flows.

Our failure to satisfy international trade compliance regulations, and changes in U.S. government and other applicable sanctions, could have a material adverse effect on us.

Our global operations require importing and exporting goods and technology across international borders on a regular basis. Certain of the products we sell are “dual use” products, which are products that may have both civil and military applications, or may otherwise be involved in weapons proliferation, and are often subject to more stringent export controls. From time to time, we obtain or receive information alleging improper activity in connection with imports or exports. Our policy mandates strict compliance with U.S. and non-U.S. trade laws applicable to our products. However, even when we are in strict compliance with law and our policies, we may suffer reputational damage if certain of our products are sold through various intermediaries to sanctioned entities or to entities operating in sanctioned countries. When we receive information alleging improper activity, our policy is to investigate that information and respond appropriately, including, if warranted, reporting our findings to relevant governmental authorities. Nonetheless, our policies and procedures may not always protect us from actions that would violate U.S. and/or non-U.S. laws. Any improper actions could subject us to civil or criminal penalties, including material monetary fines, or other adverse actions including denial of import or export privileges, and could damage our reputation and business prospects.

We are exposed to environmental laws, liabilities and litigation.

We are subject to U.S. federal, state, local and non-U.S. laws and regulations governing our environmental practices, public and worker health and safety, and the indoor and outdoor environment. Compliance with these environmental, health and safety regulations could require us to satisfy environmental liabilities, increase the cost of manufacturing our products or otherwise have a material adverse effect on our business, financial condition, results of operations and cash flows. Any violations of these laws by us could cause us to incur unanticipated liabilities. We are also required to comply with various environmental laws and maintain permits, many of which are subject to renewal from time to time, for many of our businesses, and we could suffer if we are unable to renew existing permits or to obtain any additional permits that may be required. Compliance with environmental requirements also could require significant operating or capital expenditures or result in significant operational restrictions. We cannot provide assurance that we have been or will be at all times in compliance with environmental and health and safety laws. If we violate these laws, we could be fined, criminally charged or otherwise sanctioned by regulators.

We have been named as a defendant, target or a potentially responsible party (“PRP”) in a number of environmental matters relating to our current or former businesses. We have disposed of a number of businesses and in certain cases, we have retained responsibility and potential liability for certain environmental obligations. We have received claims for indemnification from certain purchasers of businesses from us. We may be named as a PRP at other sites in the future for existing business units, as well as both divested and acquired businesses. In addition to clean-up actions brought by governmental authorities, private parties could bring individual or class-action claims due to the presence of, or exposure to, hazardous substances.

Certain environmental laws impose liability on current or previous owners or operators of real property for the cost of removal or remediation of hazardous substances at their properties or at properties at which they have disposed of hazardous substances. We have projects underway at several current and former manufacturing facilities to investigate and remediate environmental contamination resulting from our past operations or by the operations of divested or acquired businesses or other businesses that previously owned or used the properties. The cost of remediation and other environmental liabilities can be difficult to accurately predict. In addition, environmental requirements change and tend to become more stringent over time. Our eventual environmental remediation costs and liabilities could exceed the amount of our current reserves.

Our subsidiaries are party to asbestos-related litigation that could adversely affect our financial condition, results of operations and cash flows.

Our subsidiaries, along with numerous other companies, are named as defendants in a substantial number of lawsuits based on alleged exposure to asbestos-containing materials, substantially all of which relate to our discontinued operations. These cases typically involve product liability claims based primarily on allegations of manufacture, sale or distribution of industrial products that either contained asbestos or were attached to or used with asbestos-containing components manufactured by third parties. In addition, some cases brought against us involve the presence of asbestos at facilities that we own or used to own. Each case typically names a large number of product manufacturers, service providers and premises owners. Historically, our subsidiaries have been identified as defendants in asbestos-related claims. Our strategy has been, and continues to be, to mount a vigorous defense aimed at having unsubstantiated suits dismissed, and settling claims before trial only where appropriate. As of December 31, 2021, there were approximately 670 claims pending against our subsidiaries, substantially all of which relate to our discontinued operations. We cannot predict with certainty the extent to which we will be successful in litigating or otherwise resolving lawsuits in the future, and we continue to evaluate different strategies related to asbestos claims filed against us including entity restructuring and judicial relief. Unfavorable rulings, judgments or settlement terms could have a material adverse impact on our business and financial condition, results of operations and cash flows. In addition, while most of the asbestos claims against us are covered by liability insurance policies from many years ago, not all claims are insured. As our insurers resolve claims relating to past policy periods, the aggregate coverage provided by those policies erodes. If we exhaust our coverage under those policies, we will be exposed to potential uninsured losses.

Failure to comply with the broad range of standards, laws and regulations in the jurisdictions in which we operate may result in exposure to substantial disruptions, costs and liabilities.

Both our products and the operation of our manufacturing facilities are subject to certain statutory and regulatory requirements. These laws and regulations impose on us increasingly complex, stringent and costly compliance activities, including but not limited to environmental, health, and safety protection standards and permitting, labeling and other requirements regarding (among other things) product efficiency and performance, material makeup, air quality and emissions, and wastewater discharges; the use, handling, and disposal of hazardous or toxic materials; remediation of environmental contamination; and working conditions for and compensation of our employees. We may also be affected by future standards, laws or regulations, including those imposed in response to energy, climate change, product functionality, geopolitical, corporate social responsibility, or similar concerns. These standards, laws, or regulations may impact our costs of operation, the sourcing of raw materials, and the manufacture and distribution of our products and place restrictions and other requirements or impediments on the products and solutions we can sell in certain geographical locations or on the willingness of certain investors to own our shares.

We are exposed to certain regulatory, financial and other risks related to climate change and other sustainability matters.

Climate change is receiving ever increasing attention worldwide. Many scientists, legislators and others attribute global warming to increased levels of greenhouse gases, which has led to significant legislative and regulatory efforts to limit greenhouse gas emissions. The U.S. Environmental Protection Agency (“EPA”) has published findings that emissions of carbon dioxide, methane, and other greenhouse gases (“GHGs”) present an endangerment to public health and the environment because emissions of such gases are, according to the EPA, contributing to the warming of the earth’s atmosphere and other climate changes. Based on these findings, the EPA has implemented regulations that require reporting of GHG emissions, or that limit emissions of GHGs from certain mobile or stationary sources. In addition, the U.S. Congress and federal and state regulatory agencies have considered other legislation and regulatory proposals to reduce emissions of GHGs, and many states have already taken legal measures to reduce emissions of GHGs, primarily through the development of GHG inventories, GHG permitting and/or regional GHG cap-and-trade programs. It is uncertain whether, when and in what form a federal mandatory carbon dioxide emissions reduction program, or other state programs, may be adopted. Similarly, certain countries have adopted the Kyoto Protocol and in February 2021 the U.S. rejoined the Paris Accord, and these and other existing or potential international initiatives and regulations could affect our international operations. To the extent our customers, particularly our energy and industrial customers, are subject to any of these or other similar proposed or newly enacted laws and regulations, we are exposed to risks that the additional costs by customers to comply with such laws and regulations could impact their ability or desire to continue to operate at similar levels in certain jurisdictions as historically seen or as currently anticipated, which could negatively impact their demand for our products and services. As customers become increasingly concerned about the environmental impact of their purchases, if we fail to keep up with changing regulations or innovate or operate in ways that minimize the energy use of our products or operations, customers may choose more energy efficient or sustainable alternatives. These actions could also increase costs associated with our operations, including costs for raw materials and transportation. We may also be subject to consumer lawsuits or enforcement actions by governmental authorities if our ESG claims relating to product marketing are inaccurate. It is uncertain what laws will be enacted and therefore we cannot predict the potential impact of such laws on our future financial condition, results of operations and cash flows.

In addition, as part of our strategy regarding environmental, climate change and sustainability matters, we have set and may set additional targets aimed at reducing our impact on the environment and climate change and/or targets relating to other sustainability matters. It is possible that we may not be able to achieve such targets or our desired impact, which may cause us to suffer from reputational damage or our business or financial condition could be adversely affected. It is also possible that actions we take to achieve our strategy or targets could result in increased costs to our operations. In addition, investors and stakeholders are increasingly focused on ESG matters, and as stakeholder ESG expectations and standards are evolving, our failure to sufficiently respond to these evolving standards and expectations may cause us to suffer from reputational damage and our business or financial condition could be adversely affected.

Increased information technology security threats and computer crime pose a risk to our systems, networks, products and services, and we are exposed to potential regulatory, financial and reputational risks relating to the protection of our data.

We rely upon information technology systems and networks in connection with a variety of business activities, some of which are managed by third parties. As our business increasingly interfaces with employees, customers, dealers and suppliers using information technology systems and networks, we are subject to an increased risk to the secure operation of these systems and networks. Our evolution into smart products, Internet of Things, business-to-consumer, and e-commerce subjects us to increased cyber and technology risks. The secure operation of our information technology systems and networks is critical to our business operations and strategy. Information technology security threats from user error to attacks designed to gain unauthorized access to our systems, networks and data are increasing in frequency and sophistication. These threats pose a risk to the security of our systems and networks and the confidentiality, availability and integrity of the data we process and maintain. Establishing systems and processes to address these threats may increase our costs. We have experienced cybersecurity incidents, and, although we have determined such cybersecurity incidents to be immaterial and such incidents have not had a material adverse effect on our financial condition, results of operations or cash flows, there can be no assurance of similar results in the future. Should future attacks succeed in the theft of assets, exporting sensitive data or financial information or controlling sensitive systems or networks, it could expose us and our employees, customers, dealers and suppliers to the theft of assets, misuse of information or systems, compromising of confidential information, manipulation and destruction of data, defective products, production downtimes and operations disruptions. The occurrence of any of these events could have a material adverse effect on our reputation, business, financial condition, results of operations and cash flows. In addition, such cybersecurity incidents could result in litigation, regulatory action and potential liability and the costs and operational consequences of implementing further data protection measures.

Changes in data privacy laws and our ability to comply with them could have a material adverse effect on us.

We collect and store data that is sensitive to us and our employees, customers, dealers and suppliers. A variety of state, national, foreign and international laws and regulations apply to the collection, use, retention, protection, security, disclosure, transfer and other processing of personal and other data. Many foreign data privacy regulations, including the General Data Protection

Regulation (the “GDPR”) in the European Union, are more stringent than federal regulations in the United States. Within the United States, many states are considering adopting, or have already adopted privacy regulations, including, for example, the California Consumer Privacy Act. The applicability of these laws to our business has increased due to our focus on expanding business-to-consumer and e-commerce offerings. These laws and regulations are rapidly evolving and changing, and could have an adverse effect on our operations. Companies’ obligations and requirements under these laws and regulations are subject to uncertainty in how they may be interpreted by courts and governmental authorities. The costs of compliance with, and the other burdens imposed by, these and other laws or regulatory actions may increase our operational costs, and/or result in interruptions or delays in the availability of systems. In the case of non-compliance with these laws, including the GDPR, regulators have the authority to levy significant fines. In addition, if there is a breach of privacy, we may be required to make notifications under data privacy regulations. The occurrence of any of these events could have a material adverse effect on our reputation, business, financial condition, results of operations and cash flows.

We may be negatively impacted by litigation and other claims.

We are currently, and may in the future, become subject to litigation and other claims. These legal proceedings are typically claims that relate to our products or services or to the conduct of our business and include, without limitation, claims relating to commercial regulatory or contractual disputes with suppliers, authorities, customers or parties to acquisitions and divestitures; intellectual property matters; environmental, asbestos, safety and health matters; product liability; the use or installation of our products; consumer protection matters; and employment and labor matters. The outcome of such legal proceedings cannot be predicted with certainty and some may be disposed of unfavorably to us. We also may not have insurance that covers such claims. While we currently maintain what we believe to be suitable product liability insurance, we may not be able to maintain this insurance on acceptable terms, and this insurance may not provide adequate protection against potential or previously existing liabilities. In addition, we self-insure a portion of product liability claims and must satisfy deductibles on other insured claims. Further, some of our business involves the sale of our products to customers that are constructing large and complex systems, facilities or other capital projects, and while we generally try to limit our exposure to liquidated damages, consequential damages and other potential damages in the contracts for these projects, we could be exposed to significant monetary damages and other liabilities in connection with the sale of our products for these projects for a variety of reasons. In addition, some of our businesses, customers, and dealers are subject to various laws and regulations regarding consumer protection and advertising and sales practices, and we have been named, and may be named in the future, as a defendant in litigation, some of which are or may be class action complaints, arising from alleged violation of these laws and regulations. In addition, our indemnification obligations relating to the purchase or sale of businesses could result in litigation or claims of unknown amounts. Successful claims or litigation against us for significant amounts could have a material adverse effect on our reputation, business, financial condition, results of operations and cash flows.

Risks Relating to Our Jurisdiction of Incorporation in Ireland and Tax Residency in the U.K.

We are subject to changes in law and other factors that may not allow us to maintain a worldwide effective corporate tax rate that is competitive in our industry.

While we believe that we should be able to maintain a worldwide effective corporate tax rate that is competitive in our industry, we cannot give any assurance as to what our effective tax rate will be in the future because of, among other things, uncertainty regarding tax policies of the jurisdictions where we operate. Also, the tax laws and treaties of the U.S., the U.K., Ireland and other jurisdictions could change in the future, and such changes could cause a material change in our worldwide effective corporate tax rate. In addition, legislative action could be taken by the U.S., the U.K., Ireland or the European Union that could override tax treaties or modify tax statutes or regulations upon which we expect to rely and adversely affect our effective tax rate. We cannot predict the outcome of any specific legislative proposals. If proposals were enacted that had the effect of disregarding our incorporation in Ireland or limiting our ability as an Irish company to maintain tax residency in the U.K., we could be subject to increased taxation, which could materially adversely affect our financial condition, results of operations, cash flows or our effective tax rate in future reporting periods.

A change in our tax residency could have a negative effect on our future profitability, and may trigger taxes on dividends or exit charges.

Under current Irish legislation, a company is regarded as resident for tax purposes in Ireland if it is incorporated in Ireland. Under current U.K. legislation, a company that is centrally managed and controlled in the U.K. is regarded as resident in the U.K. for taxation purposes unless it is treated as resident in another jurisdiction pursuant to any appropriate double tax treaty with the U.K. Other jurisdictions may also seek to assert taxing jurisdiction over us.

The Organization for Economic Co-operation and Development proposed a number of measures relating to the tax treatment of multinationals, some of which are implemented by amending double tax treaties through the multilateral convention to implement tax treaty related measures to prevent base erosion and profit shifting (the “MLI”). The MLI has now entered into force for a number of countries, including Ireland and the U.K. Under the Double Tax Convention between Ireland and the

U.K., as amended by the MLI, the residence tie-breaker provides that a company will remain dual resident unless there is a determination otherwise by the tax authorities of the two contracting states.

We have obtained a determination from the Competent Authorities of the Irish Revenue Commissioners and the U.K. HM Revenue & Customs which states that we are resident for tax purposes only in the U.K.

It is possible that in the future, whether as a result of a change in law or the practice of any relevant tax authority or as a result of any change in the conduct of our affairs, we could become, or be regarded as having become, resident in a jurisdiction other than the U.K. If we cease to be resident in the U.K. and become a resident in another jurisdiction, we may be subject to U.K. exit charges, and could become liable for additional tax charges in the other jurisdiction (including dividend withholding taxes or corporate income tax charges). If we were to be treated as resident in more than one jurisdiction, we could be subject to taxation in multiple jurisdictions. If, for example, we were considered to be a tax resident of Ireland, we could become liable for Irish corporation tax, and any dividends paid by us could be subject to Irish dividend withholding tax.

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

It may not be possible to enforce court judgments obtained in the U.S. against us in Ireland based on the civil liability provisions of the U.S. federal or state securities laws. In addition, 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 the civil liabilities provisions of the U.S. federal or state securities laws or hear actions against us or those persons based on those laws. We have been advised that the U.S. currently does not have a treaty with Ireland providing for the reciprocal recognition and enforcement of judgments in civil and commercial matters. Therefore, a final judgment for the payment of money rendered by any U.S. federal or state court based on civil liability, whether or not based solely on U.S. federal or state securities laws, would not automatically be enforceable in Ireland.

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 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 U.S.

Irish law differs from the laws in effect in the United States, which may negatively impact our ability to issue ordinary shares.

Under Irish law, we must have authority from our shareholders to issue any ordinary 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 ordinary shares under our equity compensation plans and, if applicable, to facilitate funding acquisitions or otherwise raise capital could be adversely affected.

Transfers of our ordinary shares may be subject to Irish stamp duty.

Transfers of our ordinary shares effected by means of the transfer of book entry interests in the Depository Trust Company (“DTC”) will not be subject to Irish stamp duty. However, if you hold your ordinary shares directly rather than beneficially through DTC, any transfer of your ordinary shares could be subject to Irish stamp duty (currently at the rate of 1% of the higher of the price paid or the market value of the shares acquired). Payment of Irish stamp duty is generally a legal obligation of the transferee.

We currently intend to pay, or cause one of our affiliates to pay, stamp duty in connection with share transfers made in the ordinary course of trading by a seller who holds shares directly to a buyer who holds the acquired shares beneficially. In other cases we may, in our absolute discretion, pay or cause one of our affiliates to pay any stamp duty. Our articles of association provide that, in the event of any such payment, we (i) may seek reimbursement from the buyer, (ii) will have a lien against the shares acquired by such buyer and any dividends paid on such shares and (iii) may set-off the amount of the stamp duty against future dividends on such shares. Parties to a share transfer may assume that any stamp duty arising in respect of a transaction in our shares has been paid unless one or both of such parties is otherwise notified by us.

Our ordinary shares, received by means of a gift or inheritance could be subject to Irish capital acquisitions tax.

Irish capital acquisitions tax (“CAT”) could apply to a gift or inheritance of our ordinary shares irrespective of the place of residence, ordinary residence or domicile of the parties. This is because our shares will be regarded as property situated in Ireland. The person who receives the gift or inheritance has primary liability for CAT. Gifts and inheritances passing between

spouses are exempt from CAT. Children have a tax-free threshold of €335,000 per lifetime in respect of taxable gifts or inheritances received from their parents for periods on or after October 9, 2019.

General Risk Factors

Our share price may fluctuate significantly.

We cannot predict the prices at which our shares may trade. The market price of our shares may fluctuate widely, depending on many factors, some of which may be beyond our control, including:

- actual or anticipated fluctuations in our results of operations due to factors related to our business;
- success or failure of our business strategy;
- our quarterly or annual earnings, or those of other companies in our industry;
- our ability to obtain third-party financing as needed;
- announcements by us or our competitors of significant acquisitions or dispositions;
- changes in accounting standards, policies, guidance, interpretations or principles;
- changes in earnings estimates or guidance by us or securities analysts or our ability to meet those estimates or guidance;
- the operating and share price performance of other comparable companies;
- investor perception of us;
- effect of certain events or occurrences on our reputation;
- overall market fluctuations;
- results from any material litigation or governmental investigation or environmental liabilities;
- natural or other environmental disasters;
- changes in laws and regulations affecting our business; and
- general economic conditions and other external factors.

Stock markets in general have experienced volatility that has often been unrelated to the operating performance of a particular company. These broad market fluctuations could have a material adverse effect on our share price.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our principal office is located in leased premises in London, U.K., and our management office in the U.S. is located in leased premises in Golden Valley, Minnesota.

Our operations are conducted in facilities throughout the world. These facilities house manufacturing and distribution operations, as well as sales and marketing, engineering and administrative offices. The following is a summary of our principal properties as of December 31, 2021, including manufacturing, distribution, sales offices and service centers:

		No. of Facilities			
	Location	Manufacturing	Distribution	Sales and Corporate Offices	Service Centers
Consumer Solutions	U.S. and 6 foreign countries	17	23	18	25
Industrial & Flow Technologies	U.S. and 15 foreign countries	18	12	7	10
Corporate	U.S. and 3 foreign countries	—	—	5	—
Total		35	35	30	35

We believe that our production facilities, as well as the related machinery and equipment, are well maintained and suitable for their purpose and are adequate to support our businesses.

ITEM 3. LEGAL PROCEEDINGS

We have been, and in the future may be, made parties to a number of actions filed or have been, and in the future may be, given notice of potential claims relating to the conduct of our business, including those relating to commercial, regulatory or contractual disputes with suppliers, customers, authorities or parties to acquisitions and divestitures; intellectual property matters; environmental, asbestos, safety and health matters; product liability; the use or installation of our products; consumer matters; and employment and labor matters. Refer to “*Legal proceedings*” and “*Environmental matters*” within [Note 15 “Commitments and Contingencies”](#), of the consolidated financial statements included in ITEM 8 of Part II of this Form 10-K for information regarding legal and regulatory proceedings we are involved in. In addition, see [Item 1A “Risk Factors - Our subsidiaries are party to asbestos-related product litigation that could adversely affect our financial condition, results of operations and cash flows”](#) related to asbestos matters.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

Current executive officers of Pentair plc, their ages, current position and their business experience during at least the past five years are as follows:

<u>Name</u>	<u>Age</u>	<u>Current Position and Business Experience</u>
John L. Stauch	57	President and Chief Executive Officer since 2018; Executive Vice President and Chief Financial Officer 2007 - 2018; Chief Financial Officer of the Automation and Control Systems unit of Honeywell International Inc. 2005 - 2007; Vice President, Finance and Chief Financial Officer of the Sensing and Controls unit of Honeywell International Inc. 2004 - 2005; Vice President, Finance and Chief Financial Officer of the Automation & Control Products unit of Honeywell International Inc. 2002 - 2004; Chief Financial Officer and IT Director of PerkinElmer Optoelectronics, a unit of PerkinElmer, Inc., 2000 - 2002.
Adrian C. Chiu	43	Executive Vice President, Chief Human Resources Officer and Chief Transformation Officer since 2021; Vice President of Total Rewards and Human Resources Information Systems 2018 - 2021; Vice President and Project Management Office Leader for the separation of nVent plc (Pentair's former electrical business) 2017 - 2018; Vice President of Human Resources Technology, Operations, and Equity Compensation 2016 - 2018; Senior Director of Human Resources Technology and Services 2011 - 2016; Various consulting positions of increasing responsibility at IBM Global Business Services 2000 - 2011.
Mario R. D'Ovidio	52	Executive Vice President and President, Consumer Solutions since 2020; Senior Vice President of Sales and Ownership Solutions - North America of Electrolux AB (a manufacturer of large and small household appliances) 2017 - 2020; Global Vice President Sales and Service - Husqvarna AB (a manufacturer of innovative outdoor power products) 2016 - 2017; Vice President Global Product Management and Development of Husqvarna AB 2014 - 2016.
Robert P. Fishman	58	Executive Vice President, Chief Financial Officer and Chief Accounting Officer since 2020; Executive Vice President and Chief Financial Officer of NCR Corporation (a global provider of omni-channel technology solutions) 2016 - 2018; Senior Vice President and Chief Financial Officer of NCR Corporation 2010 - 2016; Vice President and Corporate Controller of NCR Corporation 2007 - 2009.
Jerome O. Pedretti	51	Executive Vice President and President, Industrial & Flow Technologies since 2020. Senior Vice President of Pentair's former Aquatic Systems reporting segment 2016 - 2019; Vice President of Pentair's former Valves & Controls business 2014 - 2016; Vice President Growth Strategy 2010 - 2014; Various business leadership positions of Pentair 2005 - 2014; Consultant at Bain & Co 2002 - 2005.
Stephen J. Pilla	58	Executive Vice President and Chief Supply Chain Officer since 2020; Vice President and Chief Supply Chain Officer of Red Wing Shoe Co. (a manufacturer of personal protection equipment and footwear) 2017 - 2020; Vice President and General Manager of Pentair's former Enclosure Division 2015 - 2017; Vice President of Pentair's Global Operations and Supply Chain 2014 - 2016; Vice President, Global Supply of Pentair 2009 - 2012; Various other business leadership positions of Pentair 2002 - 2009.
Karla C. Robertson	51	Executive Vice President, General Counsel, Secretary and Chief Social Responsibility Officer since 2020; Executive Vice President, General Counsel and Secretary 2018-2020; General Counsel, Water segment 2017 - 2018; Executive Vice President, General Counsel and Corporate Secretary of SUPERVALU Inc. (a wholesaler and retailer of grocery products) 2013 - 2017; Vice President, Employment, Compensation and Benefits Law of SUPERVALU Inc. 2012 - 2013; Director, Employment Law of SUPERVALU Inc. 2011 - 2012; Senior Counsel, Employment Law of SUPERVALU Inc. 2009 - 2011; Senior Employee Relations Counsel of Target Corporation 2006 - 2008; Associate, Faegre & Benson LLP 2000 - 2005; Judicial Clerk, United States District Court for the Southern District of Iowa 1998 - 2000.
Philip M. Rolchigo	60	Executive Vice President and Chief Technology Officer since 2018; Chief Technology Officer 2017 - 2018; Vice President of Technology 2015 - 2017; Vice President of Engineering 2007 - 2015; Business Development Director of Water Technologies business of GE Global Research Center 2006 - 2007; Director of Technology of GE Water & Process Technologies 2003 - 2006; Chief Technology Officer of Osmonics 2000 - 2003; Vice President of Research & Development of Osmonics 1998 - 2000.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our ordinary shares are listed for trading on the New York Stock Exchange ("NYSE") under the symbol "PNR." As of December 31, 2021, there were 13,318 shareholders of record.

Pentair has paid 184 consecutive quarterly cash dividends, including most recently a dividend of \$0.20 per share in the fourth quarter of 2021. On December 7, 2021, Pentair's Board of Directors approved a 5 percent increase in the Company's regular quarterly cash dividend rate (from \$0.20 per share to \$0.21 per share) that was paid on February 4, 2022 to shareholders of record at the close of business on January 21, 2022. 2022 marks the 46th consecutive year that Pentair has increased its dividend.

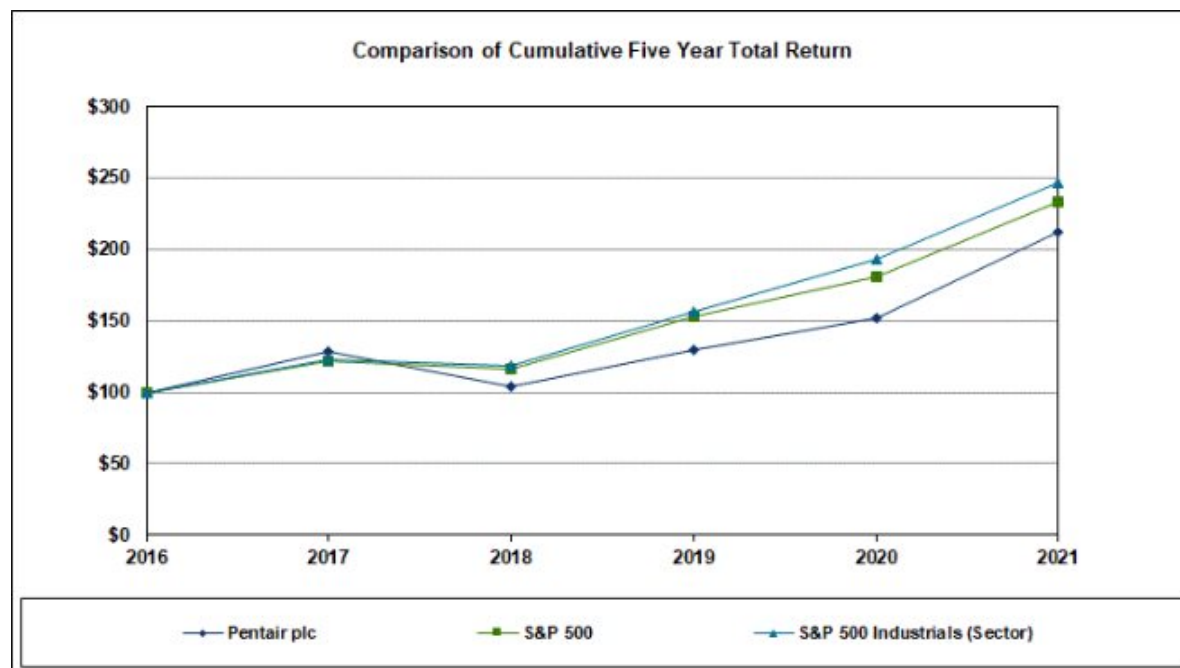
The timing, declaration and payment of future dividends to holders of our ordinary shares will depend upon many factors, including our financial condition and results of operations, the capital requirements of our businesses, industry practice and any other relevant factors.

Share Performance Graph

The following information under the caption "Share Performance Graph" in this ITEM 5 of this Annual Report on Form 10-K is not deemed to be "soliciting material" or to be "filed" with the SEC or subject to Regulation 14A or 14C under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or to the liabilities of Section 18 of the Exchange Act and will not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent we specifically incorporate it by reference into such a filing.

The following graph sets forth the cumulative total shareholder return on our ordinary shares for the last five years, assuming the investment of \$100 on December 31, 2016 and the reinvestment of all dividends since that date to December 31, 2021. The graph also contains for comparison purposes the S&P 500 Index and the S&P 500 Industrials Index, assuming the same investment level and reinvestment of dividends.

By virtue of our market capitalization, we are a component of the S&P 500 Index. On the basis of our size and diversity of businesses, we believe the S&P 500 Industrials Index is an appropriate published industry index for comparison purposes.



Company / Index	Base Period December	INDEXED RETURNS Years ended December 31				
	2016	2017	2018	2019	2020	2021
Pentair plc	\$ 100	\$ 128.67	\$ 104.40	\$ 129.12	\$ 152.22	\$ 211.96
S&P 500 Index	100	121.83	116.49	153.17	181.35	233.41
S&P 500 Industrials Index	100	122.56	118.83	156.82	193.16	247.04

Purchases of Equity Securities

The following table provides information with respect to purchases we made of our ordinary shares during the fourth quarter of 2021:

	(a) Total number of shares purchased	(b) Average price paid per share	(c) Total number of shares purchased as part of publicly announced plans or programs	(d) Dollar value of shares that may yet be purchased under the plans or programs
October 1 – October 30	107,831	\$ 74.43	107,458	\$ 692,001,253
October 31 – November 27	502,229	75.78	501,279	654,002,042
November 28 – December 31	63,539	75.59	52,595	650,002,158
Total	673,599		661,332	

- (a) The purchases in this column include 373 shares for the period October 1 – October 30, 950 shares for the period October 31 – November 27, and 10,944 shares for the period November 28 – December 31 deemed surrendered to us by participants in our equity incentive plans to satisfy the exercise price or withholding of tax obligations related to the exercise of stock options and vesting of restricted and performance shares.
- (b) The average price paid in this column includes shares repurchased as part of our publicly announced plans and shares deemed surrendered to us by participants in our equity incentive plans to satisfy the exercise price for the exercise price of stock options and withholding tax obligations due upon stock option exercises and vesting of restricted and performance shares.
- (c) The number of shares in this column represents the number of shares repurchased as part of our publicly announced plans to repurchase our ordinary shares up to a maximum dollar limit authorized by the Board of Directors, discussed below.
- (d) In December 2020, the Board of Directors authorized the repurchase of our ordinary shares up to a maximum dollar limit of \$750.0 million (the “2020 Authorization”). The 2020 Authorization expires on December 31, 2025. We have \$650.0 million remaining availability for repurchases under the 2020 Authorization. From time to time, we may enter into a Rule 10b5-1 trading plan for the purpose of repurchasing shares under this authorization.

ITEM 6. [RESERVED]

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward-looking statements

This report contains statements that we believe to be “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical fact are forward-looking statements. Without limitation, any statements preceded or followed by or that include the words “targets,” “plans,” “believes,” “expects,” “intends,” “will,” “likely,” “may,” “anticipates,” “estimates,” “projects,” “should,” “would,” “could,” “positioned,” “strategy,” “future” or words, phrases or terms of similar substance or the negative thereof, are forward-looking statements. These forward-looking statements are not guarantees of future performance and are subject to risks, uncertainties, assumptions and other factors, some of which are beyond our control, which could cause actual results to differ materially from those expressed or implied by such forward-looking statements. These factors include the overall impact of the COVID-19 pandemic on our business; the duration and severity of the COVID-19 pandemic, the impact of virus variants and the effectiveness of vaccinations; actions that may be taken by us, other businesses and governments to address or otherwise mitigate the impact of the COVID-19 pandemic, including those that may impact our ability to operate our facilities, meet production demands, and deliver products to our customers; the impacts of the COVID-19 pandemic on the global economy, our workforce, customers and suppliers, and customer demand; overall global economic and business conditions impacting our business, including the strength of housing and related markets; supply, demand, logistics, competition and pricing pressures related to and in the markets we serve; volatility in currency exchange rates; failure of markets to accept new product introductions and enhancements; the ability to successfully identify, finance, complete and integrate acquisitions; the ability to achieve the benefits of our restructuring plans, cost reduction initiatives and transformation program; risks associated with operating foreign businesses; the impact of raw material, logistics and labor costs and other inflation; the impact of seasonality of sales and weather conditions; our ability to comply with laws and regulations; the impact of changes in laws, regulations and administrative policy, including those that limit U.S. tax benefits or impact trade agreements and tariffs; the outcome of litigation and governmental proceedings; and the ability to achieve our long-term strategic operating and ESG goals. Additional information concerning these and other factors is contained in our filings with the U.S. Securities and Exchange Commission (the “SEC”), including this Annual Report on Form 10-K. All forward-looking statements speak only as of the date of this report. Pentair assumes no obligation, and disclaims any obligation, to update the information contained in this report.

Overview

Pentair plc and its consolidated subsidiaries (“we,” “us,” “our,” “Pentair” or the “Company”) is a pure play water industrial manufacturing company comprised of two reporting segments: Consumer Solutions and Industrial & Flow Technologies. We classify our operations into business segments based primarily on types of products offered and markets served. For the year ended December 31, 2021, the Consumer Solutions and Industrial & Flow Technologies segments represented approximately 62% and 38% of total revenues, respectively.

Although our jurisdiction of organization is Ireland, we manage our affairs so that we are centrally managed and controlled in the United Kingdom (the “U.K.”) and therefore have our tax residency in the U.K.

On October 18, 2021, as part of both of our Consumer Solutions and Industrial & Flow Technologies reporting segments, we completed the acquisition of Pleatco Holdings, LLC and related entities (“Pleatco”) for \$254.6 million in cash, net of cash acquired. Pleatco manufactures water filtration and clean air technologies for pool, spa and industrial air customers.

On May 19, 2021, as part of our Consumer Solutions reporting segment, we completed the acquisition of Ken’s Beverage, Inc. (“KBI”) for \$83.1 million in cash, net of cash acquired. KBI provides beverage equipment and services to commercial customers.

COVID-19 Pandemic

In March 2020, the World Health Organization declared the COVID-19 outbreak a pandemic. The COVID-19 pandemic continues to persist throughout the U.S. and the world, with the continued potential for significant impact. The COVID-19 pandemic has resulted in governments around the world implementing stringent measures to help control the spread of the virus, including quarantines, “shelter-in-place” and “stay-at-home” orders, travel restrictions, business curtailments, limits on gatherings, vaccine and mask requirements, and other measures. In addition, governments and central banks in several parts of the world have enacted fiscal and monetary stimulus measures to counteract the economic impacts of the COVID-19 pandemic.

Our businesses generally have been and continue to be considered essential under applicable government-mandated orders which has allowed us substantially to maintain business continuity at substantially all of our manufacturing facilities throughout the COVID-19 pandemic. While our facilities substantially remained operational during 2021, we continue to experience various degrees of manufacturing cost pressures and inefficiencies as a result of supply chain issues and, in certain businesses, increased demand. Although we regularly monitor the financial health and operations of companies in our supply chain, and use

alternative suppliers when necessary and available, financial hardship or government restrictions on our suppliers or sub-suppliers caused by the COVID-19 pandemic could cause a disruption in our ability to obtain raw materials or components required to manufacture our products and adversely affect our operations. Further, as the COVID-19 pandemic conditions have improved and economic activity has increased, we have experienced supply chain challenges, including availability of materials, increased lead times, as well as inflation of raw materials, logistics and labor costs due to availability constraints and high demand. We expect the inflationary trends to continue in 2022.

In light of the ongoing COVID-19 pandemic, we maintain our commitment to protect the health and safety of our employees by continuing our enhanced safety protocols for those on-site at our manufacturing facilities, for those who provide manufacturing-support activities, and for those working in office environments. In addition, we have maintained flexibility for employees who do not need to be physically present at our facilities and sites to perform their job responsibilities remotely and essential business travel has generally remained the main travel activity.

The extent of the COVID-19 pandemic's effect on our operational and financial performance in the future will depend on future developments, including the duration, geographic location and intensity of the pandemic, the impact of virus variants, the effectiveness of vaccinations, our continued ability to manufacture and distribute our products, as well as any future actions that may be taken by governmental authorities or by us relating to the pandemic. For more information regarding factors and events that may impact our business, results of operations and financial condition as a result of the COVID-19 pandemic, see [Part I—ITEM 1A, “Risk Factors,”](#) included herein.

Transformation Program

During 2021, we launched and committed resources to a program designed to accelerate growth and drive margin expansion through transformation across our businesses to elevate our capabilities, reduce complexity and streamline our processes (the “Transformation Program”). The Transformation Program is structured in multiple phases and is expected to empower us to work more efficiently and optimize our business to better serve our customers while meeting our financial objectives.

We are targeting at least 300 basis points of margin expansion by 2025 through:

- reducing business, product, and organizational complexity;
- elevating our proficiency in pricing, sourcing and operations effectiveness;
- delivering decision making speed through organizational clarity and improved processes;
- developing a future state digital enterprise; and
- modernizing general and administrative capabilities.

During 2021, we incurred transformation costs that primarily represented professional services and project management related charges. In 2022, we expect to continue to incur transformation costs that include professional services, project management and related design and execution charges, as well as costs related to both labor and non-labor restructuring and IT investments.

Key Trends and Uncertainties Regarding Our Existing Business

The following trends and uncertainties affected our financial performance in 2021, and are reasonably likely to impact our results in the future:

- There are many uncertainties regarding the COVID-19 pandemic, including the anticipated duration and severity of the pandemic, the spread of increasing number of virus variants, the extent of worldwide social, political and economic disruption it may continue to cause and the distribution and effectiveness of vaccines to address the COVID-19 virus. The broader implications of the COVID-19 pandemic that are reasonably likely to impact our business, financial condition, results of operations and cash flows cannot be determined at this time, and ultimately will be affected by a number of evolving factors including the length of time that the pandemic continues and the impact of vaccines on it, the impact of virus variants, the effectiveness of vaccinations, the pandemic's effect on the demand for our products and services, our supply chain, and our manufacturing capacity, as well as the impact of governmental regulations imposed in response to the pandemic. See further discussion above under “COVID-19 Pandemic” for key trends and uncertainties with regard to the COVID-19 pandemic.
- We executed certain business restructuring initiatives unrelated to the COVID-19 pandemic aimed at reducing our fixed cost structure and realigning our business. We expect these actions to continue into 2022 and to drive margin growth.
- We created a transformation office and launched and committed resources to the Transformation Program designed to accelerate growth and drive margin expansion by driving operational excellence, reducing complexity and streamlining our processes. We expect to implement Transformation Program initiatives and incur transformation costs in 2022 and beyond.

- We experienced supply chain challenges, including increased lead times for raw materials due to availability constraints and high demand. While we have elevated our engagement with our suppliers and used secondary suppliers and new methods of procurement where available to mitigate the supply chain pressures, we expect supply chain challenges to continue in 2022, and which may continue thereafter and could negatively impact our results of operations.
- We experienced inflationary increases of raw materials such as metals, resins and electronics (including drives and motors), as well as increases in logistics and labor costs. While we have taken pricing actions and we strive for productivity improvements that could help offset these inflationary cost increases, we expect inflationary cost increases to continue in 2022, and which may continue thereafter and could negatively impact our results of operations.
- We have identified specific product and geographic market opportunities that we find attractive and continue to pursue, both within and outside the U.S. We are reinforcing that our businesses more effectively address these opportunities through research and development and additional sales and marketing resources. Unless we successfully penetrate these markets, our core sales growth will likely be limited or may decline.

In 2022, our operating objectives remain to focus on delivering our core while continuing to build out our future. We expect to execute these objectives by:

- Delivering revenue growth in our core businesses;
- Delivering income and cash by managing price/cost inflation, prioritization of growth investments and addressing the cost structures as necessary;
- Continued focus on capital allocation through:
 - Commitment to maintain our investment grade rating;
 - Return cash to shareholders through dividends and share repurchases; and
 - Supplement our business with strategically-aligned mergers and acquisitions.
- Focused growth initiatives that accelerate our investments in digital, technology and services expansion;
- Implementation of Transformation Program initiatives that will drive operational excellence, reduce complexity and improve our organizational structure; and
- Building a high performance growth culture and delivering on our commitments while living our Win Right values.

CONSOLIDATED RESULTS OF OPERATIONS

The consolidated results of operations were as follows:

<i>In millions</i>	Years ended December 31			% / point change	
	2021	2020	2019	2021 vs 2020	2020 vs 2019
Net sales	\$ 3,764.8	\$ 3,017.8	\$ 2,957.2	24.8 %	2.0 %
Cost of goods sold	2,445.6	1,960.2	1,905.7	24.8 %	2.9 %
Gross profit	1,319.2	1,057.6	1,051.5	24.7 %	0.6 %
<i>% of net sales</i>	35.0 %	35.0 %	35.6 %	— pts	(0.6) pts
Selling, general and administrative	596.4	520.5	540.1	14.6 %	(3.6) %
<i>% of net sales</i>	15.8 %	17.2 %	18.3 %	(1.4) pts	(1.1) pts
Research and development	85.9	75.7	78.9	13.5 %	(4.1) %
<i>% of net sales</i>	2.3 %	2.5 %	2.7 %	(0.2) pts	(0.2) pts
Operating income	636.9	461.4	432.5	38.0 %	6.7 %
<i>% of net sales</i>	16.9 %	15.3 %	14.6 %	1.6 pts	0.7 pts
(Gain) loss on sale of businesses	(1.4)	0.1	(2.2)	N.M.	N.M.
Net interest expense	12.5	23.9	30.1	(47.7) %	(20.6) %
Other (income) expense	(1.0)	5.3	(2.9)	N.M.	N.M.
Income from continuing operations before income taxes	626.8	432.1	407.5	45.1 %	6.0 %
Provision for income taxes	70.8	75.0	45.8	(5.6) %	63.8 %
<i>Effective tax rate</i>	11.3 %	17.4 %	11.2 %	(6.1) pts	6.2 pts

N.M. Not Meaningful

Net sales

The components of the consolidated net sales change were as follows:

	2021 vs 2020	2020 vs 2019
Volume	16.3 %	0.4 %
Price	4.6	0.9
Core growth	20.9	1.3
Acquisition	2.6	0.5
Currency	1.3	0.2
Total	24.8 %	2.0 %

The 24.8 percent increase in consolidated net sales in 2021 from 2020 was primarily the result of:

- volume increase in our Consumer Solutions segment mainly driven by continued robust demand in our pool and water treatment businesses;
- volume increase in our Industrial & Flow Technologies segment primarily driven by strong demand in the residential and irrigation flow businesses as well as increased demand and recovery in our food and beverage and commercial flow businesses;
- increases in selling prices to mitigate a rise in inflationary costs; and
- favorable foreign currency effects in 2021 compared to the prior year.

Gross profit

The gross profit as a percentage of net sales was unchanged when comparing 2021 and 2020, primarily as a result of:

- volume expansion in both our Consumer Solutions and Industrial & Flow Technologies segments;
- increases in selling prices to mitigate impacts of inflation;
- complexity reduction and exiting older, less profitable product lines in our residential and commercial flow businesses in our Industrial & Flow Technologies segment; and
- increased productivity in both the Consumer Solutions and Industrial & Flow Technologies segments.

This was offset by:

- inflationary cost increases due to tight supply of raw materials such as metals, resins and electronics (including drives and motors); and
- higher logistics and labor costs due to increased demand as well as factory labor wage increases.

Selling, general and administrative (“SG&A”)

The 1.4 percentage point decrease in SG&A expense as a percentage of net sales in 2021 from 2020 was driven by:

- leverage on certain fixed costs due to the significant increase in sales year over year;
- legal settlements and accrual reductions of \$7.6 million in 2021;
- restructuring and other costs of \$7.4 million in 2021, compared to \$14.1 million in 2020; and
- lower amortization on definite-lived intangible assets.

This decrease was partially offset by:

- higher employee incentive compensation due to increased sales and segment income in our Consumer Solutions and Industrial & Flow Technologies segments; and
- costs of \$11.7 million related to the transformation program launched in 2021.

Net interest expense

The 47.7 percent decrease in net interest expense in 2021 from 2020 was the result of:

- strong cash flows in 2021 used to reduce overall debt levels during the year compared to 2020; and
- lower interest rates on outstanding variable rate debt.

Provision for income taxes

The 6.1 percentage point decrease in the effective tax rate in 2021 from 2020 was primarily due to:

- the unfavorable impact of discrete items, including items related to the Coronavirus Aid, Relief, and Economic Security Act, and items related to final regulations as part of the Tax Cuts and Jobs Act of 2017 that placed limitations on the deductibility of certain interest expense for U.S. tax purposes that occurred during 2020 that did not occur in 2021; and
- the favorable impact resulting from changes in unrecognized tax benefits for tax positions taken in prior periods.

This decrease was partially offset by:

- the unfavorable mix of global earnings.

2020 Comparison with 2019

A discussion of changes in our consolidated results of operations, segment results of operations and liquidity and capital resources from the year ended December 31, 2020 to December 31, 2019 can be found in Part II, ITEM 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations of our Annual Report on Form 10-K for the year

ended December 31, 2020, which was filed with the SEC on February 16, 2021. However, such discussion is not incorporated by reference into, and does not constitute a part of, this Annual Report on Form 10-K.

SEGMENT RESULTS OF OPERATIONS

The summary that follows provides a discussion of the results of operations of our two reportable segments (Consumer Solutions and Industrial & Flow Technologies). Each of these segments is comprised of various product offerings that serve multiple end users.

We evaluate performance based on net sales and segment income and use a variety of ratios to measure performance of our reporting segments. Segment income represents equity income of unconsolidated subsidiaries and operating income exclusive of intangible amortization, certain acquisition related expenses, costs of restructuring and transformation activities, impairments and other unusual non-operating items.

Consumer Solutions

The net sales and segment income for Consumer Solutions were as follows:

<i>In millions</i>	Years ended December 31			% / point change	
	2021	2020	2019	2021 vs 2020	2020 vs 2019
Net sales	\$ 2,341.9	\$ 1,742.9	\$ 1,611.7	34.4 %	8.1 %
Segment income	554.4	419.1	379.6	32.3 %	10.4 %
% of net sales	23.7 %	24.0 %	23.6 %	(0.3) pts	0.4 pts

Net sales

The components of the change in Consumer Solutions net sales were as follows:

	2021 vs 2020	2020 vs 2019
Volume	23.8 %	6.3 %
Price	5.7	0.8
Core growth	29.5	7.1
Acquisition	4.3	1.0
Currency	0.6	—
Total	34.4 %	8.1 %

The 34.4 percent increase in net sales for Consumer Solutions in 2021 from 2020 was primarily the result of:

- increased sales volume in our pool business due to consumers increasing their pool use while continuing to invest in their homes and backyards;
- increased sales volume in our water treatment business as residential demand remained strong and commercial demand improved due to recovery in the restaurant and hospitality industries in 2021;
- increases in selling prices to mitigate impacts of inflation;
- increased sales due to the Pleatco and KBI acquisitions that occurred in 2021; and
- favorable foreign currency effects in 2021 compared to the prior year.

Segment income

The components of the change in Consumer Solutions segment income from the prior period were as follows:

	2021	2020
Growth/Price/Acquisition	5.0 pts	1.9 pts
Currency	(0.1)	0.1
Inflation	(7.7)	(1.3)
Productivity	2.5	(0.3)
Total	(0.3) pts	0.4 pts

The 0.3 percentage point decrease in segment income for Consumer Solutions as a percentage of net sales in 2021 from 2020 was primarily the result of:

- inflationary cost increases due to high demand and tight supply of raw materials such as metals, resins and electronics (including drives and motors) along with increased logistics and labor costs;
- delayed realization of full amount of announced price increases due to order backlogs; and
- higher sales rebates and employee incentive compensation expense in line with increased sales in our pool and water treatment businesses.

This decrease was partially offset by:

- increased sales volume in all of our businesses resulting in cost leverage and higher productivity; and
- increases in selling prices to mitigate the impacts of inflation.

Industrial & Flow Technologies

The net sales and segment income for Industrial & Flow Technologies were as follows:

In millions	Years ended December 31			% / point change	
	2021	2020	2019	2021 vs 2020	2020 vs 2019
Net sales	\$ 1,421.4	\$ 1,273.6	\$ 1,344.1	11.6 %	(5.2) %
Segment income	213.3	164.6	199.0	29.6 %	(17.3) %
% of net sales	15.0 %	12.9 %	14.8 %	2.1 pts	(1.9) pts

Net sales

The components of the change in Industrial & Flow Technologies net sales were as follows:

	2021 vs 2020	2020 vs 2019
Volume	5.9 %	(6.5)%
Price	3.2	0.9
Core growth	9.1	(5.6)
Acquisition	0.4	—
Currency	2.1	0.4
Total	11.6 %	(5.2)%

The 11.6 percent increase in net sales for Industrial & Flow Technologies in 2021 from 2020 was primarily the result of:

- increased sales volume in our residential and irrigation flow businesses in 2021 due to strong demand across all product lines in these businesses;
- increased sales volume in our food and beverage business in 2021 due to demand in sustainable gas solutions and beer membrane filtration systems along with recovery in short cycle orders;
- increased sales volume in our commercial flow business due to demand in our water supply and water disposal product lines;
- increases in selling prices to mitigate inflationary cost increases; and

- favorable foreign currency effects compared to the prior year.

Segment income

The components of the change in Industrial & Flow Technologies segment income from the prior period were as follows:

	2021	2020
Growth/Price/Acquisition	3.6 pts	(1.8) pts
Currency	0.1	—
Inflation	(3.9)	(1.0)
Productivity	2.3	0.9
Total	2.1 pts	(1.9) pts

The 2.1 percentage point increase in segment income for Industrial & Flow Technologies as a percentage of net sales in 2021 from 2020 was primarily the result of:

- increased sales volumes in our residential and irrigation flow and food and beverage businesses which resulted in increased leverage on fixed operating expenses and improved income drop-through;
- increases in selling prices to mitigate inflationary cost increases;
- complexity reduction and exiting older, less profitable product lines in our residential and commercial flow businesses; and
- increased productivity due to cost actions driving manufacturing efficiencies.

This increase was partially offset by:

- inflationary cost increases due to high demand and tight supply of metals, resins and electronics along with increased logistics due to supply chain constraints and labor costs due to workforce shortages.

BACKLOG OF ORDERS BY SEGMENT

In millions	December 31			
	2021	2020	\$ change	% change
Consumer Solutions	\$ 1,073.7	\$ 459.1	\$ 614.6	133.9 %
Industrial & Flow Technologies	446.3	288.7	157.6	54.6 %
Total	\$ 1,520.0	\$ 747.8	\$ 772.2	103.3 %

The majority of our backlog is short cycle in nature with shipments within one year from when a customer places an order and a substantial portion of our revenues has historically resulted from orders received and products delivered in the same month. A portion of our backlog, particularly from orders for major capital projects, can take more than one year from order to delivery depending on the size and type of order. We record, as part of our backlog, all orders from external customers, which represent firm commitments, and are supported by a purchase order or other legitimate contract. Our backlog of orders is dependent upon when customers place orders and is not necessarily an indicator of our expected results for our 2022 net sales.

The increase in our backlog from the prior year was driven by a significant increase in orders due to higher than anticipated demand in our pool business and certain of our residential and commercial businesses, coupled with continuing supply chain disruptions and labor availability challenges.

LIQUIDITY AND CAPITAL RESOURCES

We generally fund cash requirements for working capital, capital expenditures, equity investments, acquisitions, debt repayments, dividend payments and share repurchases from cash generated from operations, availability under existing committed revolving credit facilities and in certain instances, public and private debt and equity offerings. Our primary revolving credit facility has generally been adequate for these purposes, although we have negotiated additional credit facilities or completed debt and equity offerings as needed to allow us to complete acquisitions.

We experience seasonal cash flows primarily due to seasonal demand in a number of markets. Consistent with historical trends, we experienced seasonal cash usage in the first quarter of 2021 and drew on our revolving credit facility to fund our operations. This cash usage reversed in the second quarter of 2021 as the seasonality of our businesses peaked and generated significant

cash to fund our operations. In the second half of 2021, we funded our operations using our continued strong cash flow and our revolving credit facility.

End-user demand for pool and certain pumping equipment follows warm weather trends and historically has been at seasonal highs from April to August. The magnitude of the sales spike has historically been partially mitigated by employing some advance sale “early buy” programs (generally including extended payment terms and/or additional discounts). Demand for residential and agricultural water systems is also impacted by weather patterns, particularly by temperature, heavy flooding and droughts.

In 2021, we completed the acquisitions of KBI and Pleatco for total consideration of approximately \$83.1 million and \$254.6 million, respectively, in cash, net of cash acquired. We funded the purchase price for these acquisitions with cash on hand and borrowings under our revolving credit facility.

Summary of Cash Flows

Cash flows from continuing operations were as follows:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Cash provided by (used for):			
Operating activities	\$ 613.6	\$ 574.2	\$ 345.2
Investing activities	(390.7)	(117.9)	(331.9)
Financing activities	(222.2)	(435.9)	(17.1)

Operating activities

In 2021, net cash provided by operating activities of continuing operations primarily reflects net income from continuing operations of \$633.5 million, net of non-cash depreciation and amortization. Additionally, we had a cash outflow of \$20.8 million as a result of changes in net working capital, primarily due to increased sales demand and inflationary impacts leading to higher accounts receivable, inventory, accounts payable and other current liabilities balances.

In 2020, net cash provided by operating activities of continuing operations primarily reflects net income from continuing operations of \$432.2 million, net of non-cash depreciation and amortization. Additionally, we had a cash inflow of \$109.5 million as a result of changes in net working capital, primarily the result of accounts receivables collections and reduced accounts receivables due to the pool business early buy program shipments with extended payment terms moving from the fourth quarter of 2020 into 2021 due to continued strong demand.

Investing activities

Net cash used for investing activities of continuing operations in 2021 primarily reflects capital expenditures of \$60.2 million and cash paid for acquisitions of \$338.5 million in our Consumer Solutions and Industrial & Flow Technologies reporting segments, net of cash acquired.

Net cash used for investing activities of continuing operations in 2020 primarily reflects capital expenditures of \$62.2 million and cash paid for acquisitions of \$58.0 million in our Consumer Solutions reporting segment, net of cash acquired.

Financing activities

In 2021, net cash used for financing activities primarily relates to repayment of \$103.8 million of senior notes, \$150.0 million of share repurchases, dividend payments of \$133.0 million and payments upon maturity of cross currency swaps of \$14.7 million, partially offset by net borrowings of revolving long-term debt of \$158.9 million.

In 2020, net cash used for financing activities primarily relates to repayment of commercial paper and revolving long-term debt of \$117.5 million, repayment of \$74.0 million of senior notes, \$150.2 million of share repurchases and dividend payments of \$127.1 million.

Free Cash Flow

In addition to measuring our cash flow generation or usage based upon operating, investing and financing classifications included in the Consolidated Statements of Cash Flows, we also measure our free cash flow. We have a long-term goal to consistently generate free cash flow that equals or exceeds 100 percent conversion of net income. Free cash flow is a non-GAAP financial measure that we use to assess our cash flow performance. We believe free cash flow is an important measure of liquidity because it provides us and our investors a measurement of cash generated from operations that is available to pay dividends, repurchase shares and repay debt. In addition, free cash flow is used as a criterion to measure and pay compensation-based incentives. Our measure of free cash flow may not be comparable to similarly titled measures reported by other companies.

The following table is a reconciliation of free cash flow:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Net cash provided by operating activities of continuing operations	\$ 613.6	\$ 574.2	\$ 345.2
Capital expenditures of continuing operations	(60.2)	(62.2)	(58.5)
Proceeds from sale of property and equipment of continuing operations	3.9	0.1	0.6
Free cash flow from continuing operations	\$ 557.3	\$ 512.1	\$ 287.3
Net cash (used for) provided by operating activities of discontinued operations	(0.4)	(0.6)	7.8
Free cash flow	\$ 556.9	\$ 511.5	\$ 295.1

Debt and Capital

Pentair, Pentair Finance S.à r.l (“PFSA”) and Pentair, Inc. are parties to a credit agreement (the “Senior Credit Facility”), with Pentair as guarantor and PFSA and Pentair, Inc. as borrowers, which was amended and restated in December 2021, providing for a \$900.0 million senior unsecured revolving credit facility and a \$200.0 million senior unsecured term loan facility. The revolving credit facility has a maturity date of December 16, 2026 and the term loan facility has a maturity date of December 16, 2024. Borrowings under the Senior Credit Facility bear interest at a rate equal to an adjusted base rate, the London interbank offered rate, the euro interbank offered rate or the central bank rate, plus, in each case, an applicable margin. The applicable margin is based on, at PFSA’s election, Pentair’s leverage level or PFSA’s public credit rating.

As of December 31, 2021, total availability under the Senior Credit Facility was \$705.0 million. In addition, PFSA has the option to request to increase the revolving credit facility and/or to enter into one or more additional tranches of term loans in an aggregate amount of up to \$300.0 million, subject to customary conditions, including the commitment of the participating lenders.

Our debt agreements contain various financial covenants, but the most restrictive covenants are contained in the Senior Credit Facility. The Senior Credit Facility contains covenants requiring us not to permit (i) the ratio of our consolidated debt (net of our consolidated unrestricted cash and cash equivalents in excess of \$5.0 million but not to exceed \$250.0 million) to our consolidated net income (excluding, among other things, non-cash gains and losses) before interest, taxes, depreciation, amortization and non-cash share-based compensation expense (“EBITDA”) on the last day of any period of four consecutive fiscal quarters (each, a “testing period”) to exceed 3.75 to 1.00 (or, at PFSA’s election and subject to certain conditions, 4.25 to 1.00 for four testing periods in connection with certain material acquisitions) (the “Leverage Ratio”) and (ii) the ratio of our EBITDA to our consolidated interest expense, for the same period to be less than 3.00 to 1.00 as of the end of each fiscal quarter. For purposes of the Leverage Ratio, the Senior Credit Facility provides for the calculation of EBITDA giving pro forma effect to certain acquisitions, divestitures and liquidations during the period to which such calculation relates.

In addition to the Senior Credit Facility, we have various other credit facilities with an aggregate availability of \$21.4 million, of which there were no outstanding borrowings at December 31, 2021. Borrowings under these credit facilities bear interest at variable rates.

We have \$88.3 million aggregate principal amount of fixed rate senior notes maturing in the next twelve months. We classified this debt as long-term as of December 31, 2021 as we have the intent and ability to refinance such obligation on a long-term basis under the Senior Credit Facility.

As of December 31, 2021, we had \$60.0 million of cash held in certain countries in which the ability to repatriate is limited due to local regulations or significant potential tax consequences.

Authorized shares

Our authorized share capital consists of 426.0 million ordinary shares with a par value of \$0.01 per share.

Share Repurchases

In May 2018, the Board of Directors authorized the repurchase of our ordinary shares up to a maximum dollar limit of \$750.0 million (the “2018 Authorization”). The 2018 Authorization expired on May 31, 2021. In December 2020, the Board of Directors authorized the repurchase of our ordinary shares up to a maximum dollar limit of \$750.0 million (the “2020 Authorization”). The 2020 Authorization expires on December 31, 2025. The 2020 Authorization supplemented the 2018 Authorization.

During the year ended December 31, 2020, we repurchased 3.7 million of our ordinary shares for \$150.2 million under the 2018 Authorization.

During the year ended December 31, 2021, we repurchased 2.1 million of our ordinary shares for \$150.0 million, of which 0.8 million shares, or \$50.0 million, and 1.3 million shares, or \$100.0 million, were repurchased pursuant to the 2018 Authorization and 2020 Authorization, respectively. As of December 31, 2021, we had \$650.0 million available for share repurchases under the 2020 Authorization.

Dividends

On December 7, 2021, the Board of Directors approved a 5 percent increase in the Company’s regular quarterly dividend rate (from \$0.20 per share to \$0.21 per share) that was paid on February 4, 2022 to shareholders of record at the close of business on January 21, 2022. The balance of dividends payable included in *Other current liabilities* on our Consolidated Balance Sheets was \$33.0 million at December 31, 2021. Dividends paid per ordinary share were \$0.80, \$0.76 and \$0.72 for the years ended December 31, 2021, 2020 and 2019, respectively.

Under Irish law, the payment of future cash dividends and repurchases of shares may be paid only out of Pentair plc’s “distributable reserves” on its statutory balance sheet. Pentair plc is not permitted to pay dividends out of share capital, which includes share premiums. Distributable reserves may be created through the earnings of the Irish parent company and through a reduction in share capital approved by the Irish High Court. Distributable reserves are not linked to a GAAP reported amount (e.g., retained earnings). Our distributable reserve balance was \$8.4 billion and \$8.8 billion as of December 31, 2021 and 2020, respectively.

Supplemental guarantor information

Pentair plc (the “Parent Company Guarantor”), fully and unconditionally, guarantees the senior notes of PFSA (the “Subsidiary Issuer”). The Subsidiary Issuer is a Luxembourg private limited liability company and 100 percent-owned subsidiary of the Parent Company Guarantor.

The Parent Company Guarantor is a holding company established to own directly and indirectly substantially all of its operating and other subsidiaries. The Subsidiary Issuer is a holding company formed to own directly and indirectly substantially all of its operating and other subsidiaries and to issue debt securities, including the senior notes. The Parent Company Guarantor’s principal source of cash flow, including cash flow to make payments on the senior notes pursuant to the guarantees, is dividends from its subsidiaries. The Subsidiary Issuer’s principal source of cash flow is interest income from its subsidiaries. None of the subsidiaries of the Parent Company Guarantor or the Subsidiary Issuer is under any direct obligation to pay or otherwise fund amounts due on the senior notes or the guarantees, whether in the form of dividends, distributions, loans or other payments. In addition, there may be statutory and regulatory limitations on the payment of dividends from certain subsidiaries of the Parent Company Guarantor or the Subsidiary Issuer. If such subsidiaries are unable to transfer funds to the Parent Company Guarantor or the Subsidiary Issuer and sufficient cash or liquidity is not otherwise available, the Parent Company Guarantor or the Subsidiary Issuer may not be able to make principal and interest payments on their outstanding debt, including the senior notes or the guarantees.

The following table presents summarized financial information as of December 31, 2021 for the Parent Company Guarantor and Subsidiary Issuer on a combined basis after elimination of (i) intercompany transactions and balances among the guarantors and issuer and (ii) equity in earnings from and investments in any subsidiary that is a non-Guarantor or issuer.

<i>In millions</i>	December 31, 2021
Current assets ⁽¹⁾	\$ 3.4
Noncurrent assets ⁽²⁾	1,222.3
Current liabilities ⁽³⁾	843.4
Noncurrent liabilities ⁽⁴⁾	1,193.6

⁽¹⁾ No assets due from non-guarantor subsidiaries were included.

⁽²⁾ Includes assets due from non-guarantor subsidiaries of \$1,202.5 million.

⁽³⁾ Includes liabilities due to non-guarantor subsidiaries of \$792.1 million.

⁽⁴⁾ Includes liabilities due to non-guarantor subsidiaries of \$276.8 million.

The Parent Company Guarantor and Subsidiary Issuer do not have material results of operations on a combined basis.

Material cash requirements from contractual obligations and commitments

We expect to continue to have sufficient cash and borrowing capacity to support working capital needs and capital expenditures, to pay interest and service debt and to pay dividends to shareholders quarterly. We believe we have the ability to meet our short-term and long-term cash requirements by using available cash and internally generated funds and to borrow under our committed and uncommitted credit facilities. The following summarizes our material cash requirements from significant contractual obligations and purchase commitments that impact our liquidity as of December 31, 2021:

<i>In millions</i>	Next Twelve Months	Greater Than Twelve Months	Total
Debt obligations (Note 8)	\$ 88.3	\$ 814.3	\$ 902.6
Interest obligations on fixed-rate debt	21.7	128.7	150.4
Operating lease obligations, net of sublease rentals (Note 15)	29.5	68.3	97.8
Purchase and marketing obligations	21.5	17.6	39.1
Pension and other post-retirement plan contributions (Note 11)	8.8	76.3	85.1
Total contractual obligations, net	\$ 169.8	\$ 1,105.2	\$ 1,275.0

The majority of the purchase obligations represent commitments for raw materials to be utilized in the normal course of business. For purposes of the above table, arrangements are considered purchase obligations if a contract specifies all significant terms, including fixed or minimum quantities to be purchased, a pricing structure and approximate timing of the transaction.

In addition to the significant contractual obligations described above, we will incur annual interest expense on outstanding variable rate debt. As of December 31, 2021, variable interest rate debt was \$395.0 million at a weighted average interest rate of 1.07%.

The total gross liability for uncertain tax positions at December 31, 2021 was estimated to be \$37.3 million. We record penalties and interest related to unrecognized tax benefits in *Provision for income taxes* and *Net interest expense*, respectively, which is consistent with our past practices. As of December 31, 2021, we had recorded \$0.2 million for the possible payment of penalties and \$3.9 million related to the possible payment of interest.

COMMITMENTS AND CONTINGENCIES

We have been, and in the future may be, made parties to a number of actions filed or have been, and in the future may be, given notice of potential claims relating to the conduct of our business, including those relating to commercial or contractual disputes with suppliers, customers or parties to acquisitions and divestitures, intellectual property matters, environmental, asbestos, safety and health matters, product liability, the use or installation of our products, consumer matters, and employment and labor matters.

While we believe that a material impact on our consolidated financial position, results of operations or cash flows from any such future claims or potential claims is unlikely, given the inherent uncertainty of litigation, a remote possibility exists that a future adverse ruling or unfavorable development could result in future charges that could have a material impact. We do and will continue to periodically reexamine our estimates of probable liabilities and any associated expenses and receivables and make appropriate adjustments to such estimates based on experience and developments in litigation and applicable accounting rules. As a result, the current estimates of the potential impact on our consolidated financial position, results of operations and cash flows for the proceedings and claims described in ITEM 8, Note 15 of the Notes to Consolidated Financial Statements could change in the future.

Product liability claims

We are subject to various product liability lawsuits and personal injury claims. A substantial number of these lawsuits and claims are insured and accrued for by Penwald, our captive insurance subsidiary. See discussion in ITEM 1 and ITEM 8, Note 1 of the Notes to Consolidated Financial Statements — Insurance subsidiary. Penwald records a liability for these claims based on actuarial projections of ultimate losses. For all other claims, accruals covering the claims are recorded, on an undiscounted basis, when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated based on existing information. The accruals are adjusted periodically as additional information becomes available. We have not experienced significant unfavorable trends in either the severity or frequency of product liability lawsuits or personal injury claims.

Stand-by letters of credit, bank guarantees and bonds

In certain situations, Tyco International Ltd., Pentair Ltd.'s former parent company ("Tyco"), guaranteed performance by the flow control business of Pentair Ltd. ("Flow Control") to third parties or provided financial guarantees for financial commitments of Flow Control. In situations where Flow Control and Tyco were unable to obtain a release from these guarantees in connection with the spin-off of Flow Control from Tyco, we will indemnify Tyco for any losses it suffers as a result of such guarantees.

In the ordinary course of business, we are required to commit to bonds, letters of credit and bank guarantees that require payments to our customers for any non-performance. The outstanding face value of these instruments fluctuates with the value of our projects in process and in our backlog. In addition, we issue financial stand-by letters of credit primarily to secure our performance to third parties under self-insurance programs.

As of December 31, 2021 and 2020, the outstanding value of bonds, letters of credit and bank guarantees totaled \$104.5 million and \$99.1 million, respectively.

CRITICAL ACCOUNTING POLICIES

We have adopted various accounting policies to prepare the consolidated financial statements in accordance with GAAP. Our significant accounting policies are more fully described in ITEM 8, Note 1 of the Notes to Consolidated Financial Statements. Certain accounting policies require the application of significant judgment by management in selecting the appropriate assumptions for calculating financial estimates. By their nature, these judgments are subject to an inherent degree of uncertainty. These judgments are based on our historical experience, terms of existing contracts, our observance of trends in the industry and information available from other outside sources, as appropriate. We consider an accounting estimate to be critical if:

- it requires us to make assumptions about matters that were uncertain at the time we were making the estimate; and
- changes in the estimate or different estimates that we could have selected would have had a material impact on our financial condition or results of operations.

Our critical accounting estimates include the following:

Impairment of goodwill and indefinite-lived intangibles

Goodwill

Goodwill represents the excess of the cost of acquired businesses over the net of the fair value of identifiable tangible net assets and identifiable intangible assets purchased and liabilities assumed.

We test our goodwill for impairment at least annually during the fourth quarter or more frequently if events or changes in circumstances indicate that the asset might be impaired. We perform our annual or interim goodwill impairment test by comparing the fair value of the relevant reporting unit with its carrying amount. We would recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized would not exceed the total amount of goodwill allocated to that reporting unit.

We have the option to perform a qualitative assessment to determine whether it is necessary to perform the quantitative goodwill impairment test. However, we may elect to perform the quantitative goodwill impairment test even if no indications of a potential impairment exist.

During 2021, a qualitative assessment was performed. As a result, it was determined that it was more likely than not that the fair value of the reporting units exceeded their respective carrying values. Factors considered in the analysis included the 2020 discounted cash flow fair value assessment of the reporting units and the calculated excess fair value over carrying amount, financial performance, forecasts and trends, market capitalization, regulatory and environmental issues, macro-economic conditions, industry and market considerations, raw material costs and management stability. We also consider the extent to which each of the adverse events and circumstances identified affect the comparison of the respective reporting unit's fair value with its carrying amount. We place more weight on the events and circumstances that most affect the respective reporting unit's fair value or the carrying amount of its net assets. We consider positive and mitigating events and circumstances that may affect its determination of whether it is more likely than not that the fair value exceeds the carrying amount.

Identifiable intangible assets

Our primary identifiable intangible assets include: customer relationships, trade names, proprietary technology and patents. Identifiable intangibles with finite lives are amortized and those identifiable intangibles with indefinite lives are not amortized. Identifiable intangible assets that are subject to amortization are evaluated for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Identifiable intangible assets not subject to amortization are tested for impairment annually or more frequently if events warrant. We complete our annual impairment test the first day of the fourth quarter each year for those identifiable assets not subject to amortization.

The impairment test for trade names consists of a comparison of the fair value of the trade name with its carrying value. Fair value is measured using the relief-from-royalty method. This method assumes the trade name has value to the extent that the owner is relieved of the obligation to pay royalties for the benefits received from them. This method requires us to estimate the future revenue for the related brands, the appropriate royalty rate and the weighted average cost of capital. The non-recurring fair value measurement is a "Level 3" measurement under the fair value hierarchy. No impairment charge was recorded during 2021 for identifiable intangible assets.

Pension and other post-retirement plans

We sponsor U.S. and non-U.S. defined-benefit pension and other post-retirement plans. The amounts recognized in our consolidated financial statements related to our defined-benefit pension and other post-retirement plans are determined from actuarial valuations. Inherent in these valuations are assumptions, including: expected return on plan assets, discount rates, rate of increase in future compensation levels and health care cost trend rates. These assumptions are updated annually and are disclosed in ITEM 8, Note 11 to the Notes to Consolidated Financial Statements. Differences in actual experience or changes in assumptions may affect our pension and other post-retirement obligations and future expense.

We recognize changes in the fair value of plan assets and net actuarial gains or losses for pension and other post-retirement benefits annually in the fourth quarter each year ("mark-to-market adjustment") and, if applicable, in any quarter in which an interim re-measurement is triggered. Net actuarial gains and losses occur when the actual experience differs from any of the various assumptions used to value our pension and other post-retirement plans or when assumptions change as they may each year. The primary factors contributing to actuarial gains and losses each year are (1) changes in the discount rate used to value pension and other post-retirement benefit obligations as of the measurement date and (2) differences between the expected and the actual return on plan assets. This accounting method also results in the potential for volatile and difficult to forecast mark-to-market adjustments. Mark-to-market adjustments resulted in a pre-tax gain of \$2.4 million in 2021, a pre-tax loss of \$6.7 million in 2020 and a pre-tax gain of \$3.4 million in 2019. The remaining components of pension expense, including service and interest costs and the expected return on plan assets, are recorded on a quarterly basis as ongoing pension expense.

Discount rates

The discount rate reflects the current rate at which the pension liabilities could be effectively settled at the end of the year based on our December 31 measurement date. The discount rate was determined by matching our expected benefit payments to payments from a stream of bonds rated AA or higher available in the marketplace. There are no known or anticipated changes in our discount rate assumptions that will impact our pension expense in 2022.

Expected rate of return

The expected rate of return is designed to be a long-term assumption that may be subject to considerable year-to-year variance from actual returns. In developing the expected long-term rate of return, we considered our historical returns, with consideration given to forecasted economic conditions, our asset allocations, input from external consultants and broader long-term market indices.

Loss contingencies

Accruals are recorded for various contingencies including legal proceedings, self-insurance and other claims that arise in the normal course of business. The accruals are based on judgment, the probability of losses and, where applicable, the consideration of opinions of internal and/or external legal counsel and actuarial estimates. Additionally, we record receivables from third party insurers when recovery has been determined to be probable.

Income taxes

In determining taxable income for financial statement purposes, we must make certain estimates and judgments. These estimates and judgments affect the calculation of certain tax liabilities and the determination of the recoverability of certain of the deferred tax assets, which arise from temporary differences between the tax and financial statement recognition of revenue and expense. In evaluating our ability to recover our deferred tax assets we consider all available positive and negative evidence including our past operating results, the existence of cumulative losses in the most recent years and our forecast of future taxable income. In estimating future taxable income, we develop assumptions including the amount of future pre-tax operating income, the reversal of temporary differences and the implementation of feasible and prudent tax planning strategies. These assumptions require significant judgment about the forecasts of future taxable income and are consistent with the plans and estimates we are using to manage the underlying businesses.

We currently have recorded valuation allowances that we will maintain until when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will be realized. Our income tax expense recorded in the future may be reduced to the extent of decreases in our valuation allowances. The realization of our remaining deferred tax assets is primarily dependent on future taxable income in the appropriate jurisdiction. Any reduction in future taxable income including but not limited to any future restructuring activities may require that we record an additional valuation allowance against our deferred tax assets. An increase in the valuation allowance could result in additional income tax expense in such period and could have a significant impact on our future earnings.

Changes in tax laws and rates could also affect recorded deferred tax assets and liabilities in the future. Management records the effect of a tax rate or law change on the Company's deferred tax assets and liabilities in the period of enactment. Future tax rate or law changes could have a material effect on the Company's financial condition, results of operations or cash flows.

In addition, the calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax regulations in a multitude of jurisdictions across our global operations. We perform reviews of our income tax positions on a quarterly basis and accrue for uncertain tax positions. We recognize potential liabilities and record tax liabilities for anticipated tax audit issues in the tax jurisdictions in which we operate based on our estimate of whether, and the extent to which, additional taxes will be due. These tax liabilities are reflected net of related tax loss carryforwards. As events change or resolution occurs, these liabilities are adjusted, such as in the case of audit settlements with taxing authorities. The ultimate resolution may result in a payment that is materially different from our current estimate of the tax liabilities. If our estimate of tax liabilities proves to be less than the ultimate assessment, an additional charge to expense would result. If payment of these amounts ultimately proves to be less than the recorded amounts, the reversal of the liabilities would result in tax benefits being recognized in the period when we determine the liabilities are no longer necessary.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk is the potential economic loss that may result from adverse changes in the fair value of financial instruments. We are exposed to various market risks, including changes in interest rates and foreign currency rates. Periodically, we use derivative financial instruments to manage or reduce the impact of changes in interest rates and foreign currency rates. Counterparties to all derivative contracts are major financial institutions. All instruments are entered into for other than trading purposes. The major accounting policies and utilization of these instruments is described more fully in ITEM 8, Note 1 of the Notes to Consolidated Financial Statements.

Interest rate risk

Our debt portfolio as of December 31, 2021, was comprised of debt predominantly denominated in U.S. dollars. This debt portfolio is comprised of 56% fixed-rate debt and 44% variable-rate debt. Changes in interest rates have different impacts on the fixed and variable-rate portions of our debt portfolio. A change in interest rates on the fixed portion of the debt portfolio impacts the fair value, but has no impact on interest incurred or cash flows. A change in interest rates on the variable portion of the debt portfolio impacts the interest incurred and cash flows but does not impact the net financial instrument position.

Based on the fixed-rate debt included in our debt portfolio, as of December 31, 2021, a 100 basis point increase or decrease in interest rates would result in a \$31.2 million decrease or \$33.7 million increase in fair value, respectively.

Based on the variable-rate debt included in our debt portfolio as of December 31, 2021, a 100 basis point increase or decrease in interest rates would result in a \$4.0 million increase or decrease in interest incurred.

Foreign currency risk

We conduct business in various locations throughout the world and are subject to market risk due to changes in the value of foreign currencies in relation to our reporting currency, the U.S. dollar. Periodically, we use derivative financial instruments to manage these risks. The functional currencies of our foreign operating locations are generally the local currency in the country of domicile. We manage these operating activities at the local level and revenues, costs, assets and liabilities are generally denominated in local currencies, thereby mitigating the risk associated with changes in foreign exchange. However, our results of operations and assets and liabilities are reported in U.S. dollars and thus will fluctuate with changes in exchange rates between such local currencies and the U.S. dollar.

From time to time, we may enter into short duration foreign currency contracts to hedge foreign currency risks. As the majority of our foreign currency contracts have an original maturity date of less than one year, there is no material foreign currency risk. At December 31, 2021, we had outstanding foreign currency derivative contracts with gross notional U.S. dollar equivalent amounts of \$14.7 million. Changes in the fair value of all derivatives are recognized immediately in income unless the derivative qualifies as a hedge of future cash flows. Gains and losses related to a hedge are deferred and recorded in the Consolidated Balance Sheets as a component of *Accumulated other comprehensive loss* and subsequently recognized in the Consolidated Statements of Operations and Comprehensive Income when the hedged item affects earnings.

At December 31, 2021, we had outstanding cross currency swap agreements with a combined notional amount of \$794.4 million. The cross currency swap agreements are accounted for as either cash flow hedges to hedge foreign currency fluctuations on certain intercompany debt, or as net investment hedges to manage our exposure to fluctuations in the Euro-U.S. Dollar exchange rate. The currency risk related to the cross currency swap agreements is measured by estimating the potential impact of a 10% change in the value of the U.S. dollar relative to the Euro. A 10% appreciation of the U.S. dollar relative to the Euro would result in a \$64.6 million net increase in accumulated other comprehensive income. Conversely, a 10% depreciation of the U.S. dollar relative to the Euro would result in an \$64.7 million net decrease in accumulated other comprehensive income. However, these increases and decreases in other comprehensive income would be offset by decreases or increases in the hedged items on our balance sheet.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Management of Pentair plc and its subsidiaries (the "Company") is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) of the Securities Exchange Act of 1934. The Company's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. The Company's internal control over financial reporting includes those policies and procedures that (1) pertain to maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of the financial statements in accordance with generally accepted accounting principles and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the effectiveness of internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2021. In making this assessment, management used the criteria for effective internal control over financial reporting described in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management believes that, as of December 31, 2021, the Company's internal control over financial reporting was effective based on those criteria.

Our independent registered public accounting firm, Deloitte & Touche LLP, has issued an attestation report on the Company's internal control over financial reporting as of December 31, 2021. That attestation report is set forth immediately following this management report.

John L. Stauch
President and Chief Executive Officer

Robert P. Fishman
Executive Vice President, Chief Financial Officer and Chief Accounting Officer

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Pentair plc

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Pentair plc and subsidiaries (the “Company”) as of December 31, 2021, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2021, of the Company and our report dated February 22, 2022 expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte & Touche LLP

Minneapolis, Minnesota
February 22, 2022

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Pentair plc

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Pentair plc and subsidiaries (the “Company”) as of December 31, 2021 and 2020, the related consolidated statements of operations and comprehensive income, cash flows, and changes in equity, for each of the three years in the period ended December 31, 2021, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company’s internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 22, 2022, expressed an unqualified opinion on the Company’s internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Income Taxes — Completeness of Uncertain Tax Positions — Refer to Notes 1 and 10 to the financial statements

Critical Audit Matter Description

The Company assesses uncertain tax positions (“UTPs”) based upon an evaluation of available information and records a liability when a position taken or expected to be taken in a tax return does not meet certain measurement or recognition criteria. A tax benefit is recognized only if management believes it is more likely than not that the tax position will be sustained upon examination by the relevant tax authority. Determining the completeness of UTPs is complex and significant judgment is involved in identifying which positions may not meet the required measurement or recognition criteria. As of December 31, 2021, the Company’s recorded UTP balance was \$37.3 million.

The UTP analysis is complex as it includes numerous tax jurisdictions and varying applications of tax laws. Given the multiple jurisdictions in which the Company operates and the complexity of tax regulations, auditing the completeness of UTPs involved a high degree of auditor judgment, and an increased extent of audit effort, including the need to involve our tax specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures to evaluate the completeness of UTPs in material jurisdictions included the following, among others:

- We tested the effectiveness of controls over management's determination of the existence of UTPs.
- With the assistance of our income tax specialists, we assessed the Company's determination of the existence of UTPs. In particular, our procedures included:
 - Evaluating the Company's significant judgments related to completeness of UTPs in material jurisdictions:
 - We performed inquiries of management to assess whether they are aware of any new items or significant changes to the business that would impact the UTP assessment or give rise to new UTPs.
 - We evaluated the following: technical merits of existing UTPs, technical merits of potential UTPs, and significant transactions and their tax implications, including the completeness and accuracy of the underlying data supporting the transactions.
 - We assessed the appropriateness and consistency of management's methods and assumptions used in identifying UTPs.
 - We evaluated former and ongoing tax audits by tax authorities.
 - We considered changes in and assessed the Company's interpretation of applicable tax laws.
 - We inspected the Company's summary of differences between the filed tax returns and the tax provision to obtain an understanding of significant differences. We assessed whether the appropriate UTPs were recorded as well as whether any additional UTPs needed to be considered.
 - We evaluated the appropriateness and consistency of the financial statement disclosures, including judgments associated with unrecognized tax benefits that could increase or decrease within 12 months of the reporting date.

/s/ Deloitte & Touche LLP

Minneapolis, Minnesota
February 22, 2022

We have served as the Company's auditor since 1977.

Pentair plc and Subsidiaries
Consolidated Statements of Operations and Comprehensive Income

<i>In millions, except per-share data</i>	Years ended December 31		
	2021	2020	2019
Net sales	\$ 3,764.8	\$ 3,017.8	\$ 2,957.2
Cost of goods sold	2,445.6	1,960.2	1,905.7
Gross profit	1,319.2	1,057.6	1,051.5
Selling, general and administrative	596.4	520.5	540.1
Research and development	85.9	75.7	78.9
Operating income	636.9	461.4	432.5
Other (income) expense			
(Gain) loss on sale of businesses	(1.4)	0.1	(2.2)
Net interest expense	12.5	23.9	30.1
Other (income) expense	(1.0)	5.3	(2.9)
Income from continuing operations before income taxes	626.8	432.1	407.5
Provision for income taxes	70.8	75.0	45.8
Net income from continuing operations	556.0	357.1	361.7
(Loss) income from discontinued operations, net of tax	(3.0)	1.5	(6.0)
Net income	\$ 553.0	\$ 358.6	\$ 355.7
Comprehensive income, net of tax			
Net income	\$ 553.0	\$ 358.6	\$ 355.7
Changes in cumulative translation adjustment	(47.0)	49.0	(15.3)
Changes in market value of derivative financial instruments, net of tax	40.4	(29.8)	17.4
Comprehensive income	\$ 546.4	\$ 377.8	\$ 357.8
Earnings (loss) per ordinary share			
Basic			
Continuing operations	\$ 3.36	\$ 2.14	\$ 2.14
Discontinued operations	(0.02)	0.01	(0.04)
Basic earnings per ordinary share	\$ 3.34	\$ 2.15	\$ 2.10
Diluted			
Continuing operations	\$ 3.32	\$ 2.13	\$ 2.12
Discontinued operations	(0.02)	0.01	(0.03)
Diluted earnings per ordinary share	\$ 3.30	\$ 2.14	\$ 2.09
Weighted average ordinary shares outstanding			
Basic	165.8	166.5	169.4
Diluted	167.5	167.4	170.4

See accompanying notes to consolidated financial statements.

Pentair plc and Subsidiaries
Consolidated Balance Sheets

<i>In millions, except per-share data</i>	December 31	
	2021	2020
Assets		
Current assets		
Cash and cash equivalents	\$ 94.5	\$ 82.1
Accounts receivable, net of allowances of \$9.1 and \$8.4, respectively	534.3	367.5
Inventories	562.9	420.0
Other current assets	112.3	105.5
Total current assets	1,304.0	975.1
Property, plant and equipment, net	310.0	301.2
Other assets		
Goodwill	2,504.5	2,392.2
Intangibles, net	428.0	325.9
Other non-current assets	207.1	202.8
Total other assets	3,139.6	2,920.9
Total assets	\$ 4,753.6	\$ 4,197.2
Liabilities and Equity		
Current liabilities		
Accounts payable	\$ 385.7	\$ 245.1
Employee compensation and benefits	140.1	117.0
Other current liabilities	525.9	410.4
Total current liabilities	1,051.7	772.5
Other liabilities		
Long-term debt	894.1	839.6
Pension and other post-retirement compensation and benefits	93.2	102.0
Deferred tax liabilities	89.8	107.4
Other non-current liabilities	202.9	269.4
Total liabilities	2,331.7	2,090.9
Commitments and contingencies (Note 15)		
Equity		
Ordinary shares \$0.01 par value, 426.0 authorized, 165.1 and 166.1 issued at December 31, 2021 and 2020, respectively	1.7	1.7
Additional paid-in capital	1,582.7	1,680.7
Retained earnings	1,051.4	631.2
Accumulated other comprehensive loss	(213.9)	(207.3)
Total equity	2,421.9	2,106.3
Total liabilities and equity	\$ 4,753.6	\$ 4,197.2

See accompanying notes to consolidated financial statements.

Pentair plc and Subsidiaries
Consolidated Statements of Cash Flows

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Operating activities			
Net income	\$ 553.0	\$ 358.6	\$ 355.7
Loss (income) from discontinued operations, net of tax	3.0	(1.5)	6.0
Adjustments to reconcile net income from continuing operations to net cash provided by operating activities of continuing operations			
Equity income of unconsolidated subsidiaries	(0.3)	(1.4)	(3.5)
Depreciation	51.2	46.7	48.3
Amortization	26.3	28.4	31.7
(Gain) loss on sale of businesses	(1.4)	0.1	(2.2)
Deferred income taxes	(9.0)	4.6	(18.4)
Share-based compensation	29.8	20.3	21.4
Asset impairment	—	—	21.2
Pension and other post-retirement expense	2.8	12.2	1.9
Pension and other post-retirement contributions	(9.4)	(8.4)	(20.9)
Changes in assets and liabilities, net of effects of business acquisitions			
Accounts receivable	(142.0)	148.3	(17.5)
Inventories	(121.4)	(29.1)	13.6
Other current assets	(12.3)	(2.3)	(18.4)
Accounts payable	114.2	(81.9)	(63.6)
Employee compensation and benefits	24.5	42.5	(19.1)
Other current liabilities	116.2	32.0	(0.4)
Other non-current assets and liabilities	(11.6)	5.1	9.4
Net cash provided by operating activities of continuing operations	613.6	574.2	345.2
Net cash (used for) provided by operating activities of discontinued operations	(0.4)	(0.6)	7.8
Net cash provided by operating activities	613.2	573.6	353.0
Investing activities			
Capital expenditures	(60.2)	(62.2)	(58.5)
Proceeds from sale of property and equipment	3.9	0.1	0.6
Proceeds from sale of businesses, net	1.4	—	15.3
Acquisitions, net of cash acquired	(338.5)	(58.0)	(287.8)
Other	2.7	2.2	(1.5)
Net cash used for investing activities	(390.7)	(117.9)	(331.9)
Financing activities			
Net borrowings (repayments) of revolving long-term debt	158.9	(117.5)	51.5
Proceeds from long-term debt	—	—	600.0
Repayment of long-term debt	(103.8)	(74.0)	(401.5)
Shares issued to employees, net of shares withheld	22.2	32.9	12.5
Repurchases of ordinary shares	(150.0)	(150.2)	(150.0)
Dividends paid	(133.0)	(127.1)	(122.7)
Payments upon the maturity of cross currency swaps	(14.7)	—	—
Other	(1.8)	—	(6.9)
Net cash used for financing activities	(222.2)	(435.9)	(17.1)
Effect of exchange rate changes on cash and cash equivalents	12.1	(20.2)	4.2
Change in cash and cash equivalents	12.4	(0.4)	8.2
Cash and cash equivalents, beginning of year	82.1	82.5	74.3
Cash and cash equivalents, end of year	\$ 94.5	\$ 82.1	\$ 82.5
Supplemental disclosure of cash flow information:			
Cash paid for interest, net	\$ 29.9	\$ 41.0	\$ 33.7
Cash paid for income taxes, net	71.8	67.7	59.0

See accompanying notes to consolidated financial statements.

Pentair plc and Subsidiaries
Consolidated Statements of Changes in Equity

<i>In millions</i>	Ordinary shares		Additional paid-in capital	Retained earnings	Accumulated other comprehensive income (loss)	Total
	Number	Amount				
Balance - December 31, 2018	171.4	\$ 1.7	\$ 1,893.8	\$ 169.2	\$ (228.6)	\$ 1,836.1
Net income	—	—	—	355.7	—	355.7
Other comprehensive income, net of tax	—	—	—	—	2.1	2.1
Dividends declared	—	—	—	(123.9)	—	(123.9)
Share repurchases	(4.0)	—	(150.0)	—	—	(150.0)
Exercise of options, net of shares tendered for payment	0.7	—	17.1	—	—	17.1
Issuance of restricted shares, net of cancellations	0.3	—	—	—	—	—
Shares surrendered by employees to pay taxes	(0.1)	—	(4.6)	—	—	(4.6)
Share-based compensation	—	—	21.4	—	—	21.4
Balance - December 31, 2019	168.3	\$ 1.7	\$ 1,777.7	\$ 401.0	\$ (226.5)	\$ 1,953.9
Net income	—	—	—	358.6	—	358.6
Other comprehensive income, net of tax	—	—	—	—	19.2	19.2
Dividends declared	—	—	—	(128.4)	—	(128.4)
Share repurchases	(3.7)	—	(150.2)	—	—	(150.2)
Exercise of options, net of shares tendered for payment	1.3	—	37.6	—	—	37.6
Issuance of restricted shares, net of cancellations	0.3	—	—	—	—	—
Shares surrendered by employees to pay taxes	(0.1)	—	(4.7)	—	—	(4.7)
Share-based compensation	—	—	20.3	—	—	20.3
Balance - December 31, 2020	166.1	\$ 1.7	\$ 1,680.7	\$ 631.2	\$ (207.3)	\$ 2,106.3
Net income	—	—	—	553.0	—	553.0
Other comprehensive loss, net of tax	—	—	—	—	(6.6)	(6.6)
Dividends declared	—	—	—	(132.8)	—	(132.8)
Share repurchases	(2.1)	—	(150.0)	—	—	(150.0)
Exercise of options, net of shares tendered for payment	0.9	—	30.1	—	—	30.1
Issuance of restricted shares, net of cancellations	0.3	—	—	—	—	—
Shares surrendered by employees to pay taxes	(0.1)	—	(7.9)	—	—	(7.9)
Share-based compensation	—	—	29.8	—	—	29.8
Balance - December 31, 2021	165.1	\$ 1.7	\$ 1,582.7	\$ 1,051.4	\$ (213.9)	\$ 2,421.9

See accompanying notes to consolidated financial statements.

1. Basis of Presentation and Summary of Significant Accounting Policies

Business

Pentair plc and its consolidated subsidiaries (“we,” “us,” “our,” “Pentair” or the “Company”) is a water industrial manufacturing company comprised of two reporting segments: Consumer Solutions and Industrial & Flow Technologies.

COVID-19

In March 2020, the World Health Organization declared the novel coronavirus 2019 (“COVID-19”) a global pandemic. The COVID-19 pandemic has had and may continue to have an unfavorable impact on certain parts of our business. The broader implications of the COVID-19 pandemic on our business, financial condition and results of operations remain uncertain and will depend on certain developments, including the duration and severity of the COVID-19 pandemic, the impact of virus variants, the effectiveness of vaccinations, the COVID-19 pandemic’s impact on our customers and suppliers and the range of governmental and community reactions to the pandemic. We may continue to experience reduced customer demand in certain parts of our business or constrained labor and/or supply that could materially and adversely impact our business, financial condition, results of operations, liquidity and cash flows in future periods.

Basis of presentation

The accompanying consolidated financial statements include the accounts of Pentair and all subsidiaries, both the United States (“U.S.”) and non-U.S., which we control. Intercompany accounts and transactions have been eliminated. Investments in companies of which we own 20% to 50% of the voting stock or have the ability to exercise significant influence over operating and financial policies of the investee are accounted for using the equity method of accounting and as a result, our share of the earnings or losses of such equity affiliates is included in the Consolidated Statements of Operations and Comprehensive Income.

The consolidated financial statements have been prepared in U.S. dollars (“USD”) and in accordance with accounting principles generally accepted in the United States of America (“GAAP”).

Fiscal year

Our fiscal year ends on December 31. We report our interim quarterly periods on a calendar quarter basis.

Use of estimates

The preparation of our consolidated financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the amounts reported in these consolidated financial statements and accompanying notes, disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. These estimates include our accounting for valuation of goodwill and indefinite lived intangible assets, estimated losses on accounts receivable, estimated realizable value on excess and obsolete inventory, percentage of completion revenue recognition, assets acquired and liabilities assumed in acquisitions, estimated selling proceeds from assets held for sale, contingent liabilities, income taxes and pension and other post-retirement benefits. Actual results could differ from our estimates.

Revenue recognition

Revenue is recognized when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for transferring those goods or providing services. We account for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

When determining whether the customer has obtained control of the goods or services, we consider any future performance obligations. Generally, there is no post-shipment obligation on product sold other than warranty obligations in the normal and ordinary course of business. In the event significant post-shipment obligations were to exist, revenue recognition would be deferred until Pentair has substantially accomplished what it must do to be entitled to the benefits represented by the revenue.

Performance obligations

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer, and is the unit of account for purposes of revenue recognition. A contract’s transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. The majority of our contracts have a single performance obligation as the promise to transfer the individual goods or services is not separately identifiable from other promises in the contracts and, therefore, not distinct. For contracts with multiple performance obligations, standalone selling price is generally readily observable.

Our performance obligations are satisfied at a point in time or over time as work progresses. Revenue from goods and services transferred to customers at a point in time accounted for 91.9%, 92.2% and 92.0% of our revenue for the years ended December 31, 2021, 2020 and 2019, respectively. Revenue on these contracts is recognized when obligations under the terms of the contract with our customer are satisfied; generally this occurs with the transfer of control upon shipment.

Revenue from products and services transferred to customers over time accounted for 8.1%, 7.8% and 8.0% of our revenue for the years ended December 31, 2021, 2020 and 2019, respectively. For the majority of our revenue recognized over time, we use an input measure to determine progress towards completion. Under this method, sales and gross profit are recognized as work is performed generally based on the relationship between the actual costs incurred and the total estimated costs at completion (“the cost-to-cost method”) or based on efforts for measuring progress towards completion in situations in which this approach is more representative of the progress on the contract than the cost-to-cost method. Contract costs include labor, material, overhead and, when appropriate, general and administrative expenses. Changes to the original estimates may be required during the life of the contract, and such estimates are reviewed on a regular basis. Sales and gross profit are adjusted using the cumulative catch-up method for revisions in estimated total contract costs. These reviews have not resulted in adjustments that were significant to our results of operations. For performance obligations related to long term contracts, when estimates of total costs to be incurred on a performance obligation exceed total estimates of revenue to be earned, a provision for the entire loss on the performance obligation is recognized in the period the loss is determined.

On December 31, 2021, we had \$89.2 million of remaining performance obligations on contracts with an original expected duration of one year or more. We expect to recognize the majority of our remaining performance obligations on these contracts within the next 12 to 18 months.

Sales returns

The right of return may exist explicitly or implicitly with our customers. Our return policy allows for customer returns only upon our authorization. Goods returned must be products we continue to market and must be in salable condition. When the right of return exists, we adjust the transaction price for the estimated effect of returns. We estimate the expected returns based on historical sales levels, the timing and magnitude of historical sales return levels as a percent of sales, type of product, type of customer and a projection of this experience into the future.

Pricing and sales incentives

Our contracts may give customers the option to purchase additional goods or services priced at a discount. Options to acquire additional goods or services at a discount can come in many forms, such as customer programs and incentive offerings including pricing arrangements, promotions and other volume-based incentives.

We reduce the transaction price for certain customer programs and incentive offerings including pricing arrangements, promotions and other volume-based incentives that represent variable consideration. Sales incentives given to our customers are recorded using either the expected value method or most likely amount approach for estimating the amount of consideration to which Pentair shall be entitled. The expected value is the sum of probability-weighted amounts in a range of possible consideration amounts. An expected value is an appropriate estimate of the amount of variable consideration when there are a large number of contracts with similar characteristics. The most likely amount is the single most likely amount in a range of possible consideration amounts (that is, the single most likely outcome of the contract). The most likely amount is an appropriate estimate of the amount of variable consideration if the contract has limited possible outcomes (for example, an entity either achieves a performance bonus or does not).

Pricing is established at or prior to the time of sale with our customers, and we record sales at the agreed-upon net selling price. However, one of our businesses allows customers to apply for a refund of a percentage of the original purchase price if they can demonstrate sales to a qualifying end customer. We use the expected value method to estimate the anticipated refund to be paid based on historical experience and reduce sales for the probable cost of the discount. The cost of these refunds is recorded as a reduction of the transaction price.

Volume-based incentives involve rebates that are negotiated at or prior to the time of sale with the customer and are redeemable only if the customer achieves a specified cumulative level of sales or sales increase. Under these incentive programs, at the time of sale, we determine the most likely amount of the rebate to be paid based on forecasted sales levels. These forecasts are updated at least quarterly for each customer, and the transaction price is reduced for the anticipated cost of the rebate. If the forecasted sales for a customer change, the accrual for rebates is adjusted to reflect the new amount of rebates expected to be earned by the customer.

Shipping and handling costs

Amounts billed to customers for shipping and handling activities after the customer obtains control are treated as a promised service performance obligation and recorded in *Net sales* in the accompanying Consolidated Statements of Operations and Comprehensive Income. Shipping and handling costs incurred by Pentair for the delivery of goods to customers are considered a cost to fulfill the contract and are included in *Cost of goods sold* in the accompanying Consolidated Statements of Operations and Comprehensive Income.

Contract assets and liabilities

Contract assets consist of unbilled amounts resulting from sales under long-term contracts when the cost-to-cost method of revenue recognition is utilized and revenue recognized exceeds the amount billed to the customer, such as when the customer retains a small portion of the contract price until completion of the contract. We typically receive interim payments on sales under long-term contracts as work progresses, although for some contracts, we may be entitled to receive an advance payment. Contract liabilities consist of advanced payments, billings in excess of costs incurred and deferred revenue.

Contract assets are recorded within *Other current assets*, and contract liabilities are recorded within *Other current liabilities* in the Consolidated Balance Sheets.

Contract assets and liabilities consisted of the following:

<i>In millions</i>	December 31		\$ Change	% Change
	2021	2020		
Contract assets	\$ 48.8	\$ 50.1	\$ (1.3)	(2.6)%
Contract liabilities	39.4	27.5	11.9	43.3 %
Net contract assets	\$ 9.4	\$ 22.6	\$ (13.2)	(58.4)%

The \$13.2 million decrease in net contract assets from December 31, 2020 to December 31, 2021 was primarily the result of timing of milestone payments. Approximately 80% of our contract liabilities at December 31, 2020 were recognized in revenue during the twelve months ended December 31, 2021. There were no impairment losses recognized on our contract assets for the twelve months ended December 31, 2021 and December 31, 2020.

Practical expedients and exemptions

We generally expense incremental costs of obtaining a contract when incurred because the amortization period would be less than one year. These costs primarily relate to sales commissions and are recorded in *Selling, general and administrative expense* in the Consolidated Statements of Operations and Comprehensive Income.

We do not disclose the value of unsatisfied performance obligations for contracts with an original expected length of one year or less. Further, we do not adjust the promised amount of consideration for the effects of a significant financing component if we expect, at contract inception, that the period between when we transfer a promised good or service to a customer and when the customer pays for that good or service will be one year or less.

Revenue by category

We disaggregate our revenue from contracts with customers by segment, geographic location and vertical, as we believe these best depict how the nature, amount, timing and uncertainty of our revenue and cash flows are affected by economic factors. Refer to Note 14 for revenue disaggregated by segment.

Geographic net sales information, based on geographic destination of the sale, was as follows:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
U.S.	\$ 2,571.2	\$ 2,011.7	\$ 1,866.7
Western Europe	460.4	375.3	401.6
Developing ⁽¹⁾	487.1	427.5	480.6
Other Developed ⁽²⁾	246.1	203.3	208.3
Consolidated net sales ⁽³⁾	\$ 3,764.8	\$ 3,017.8	\$ 2,957.2

⁽¹⁾ Developing includes China, Eastern Europe, Latin America, the Middle East and Southeast Asia.

⁽²⁾ Other Developed includes Australia, Canada and Japan.

⁽³⁾ Net sales in Ireland, for each of the years presented, were not material.

Vertical net sales information was as follows:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Residential	\$ 2,437.6	\$ 1,883.4	\$ 1,668.2
Commercial	665.9	528.6	627.3
Industrial	661.3	605.8	661.7
Consolidated net sales	\$ 3,764.8	\$ 3,017.8	\$ 2,957.2

Research and development

We conduct research and development (“R&D”) activities primarily in our own facilities, which mostly consist of development of new products, product applications and manufacturing processes. We expense R&D costs as incurred. R&D expenditures during 2021, 2020 and 2019 were \$85.9 million, \$75.7 million and \$78.9 million, respectively.

Cash equivalents

We consider highly liquid investments with original maturities of three months or less at the date of acquisition to be cash equivalents.

Trade receivables and concentration of credit risk

We record an allowance for credit losses, reducing our receivables balance to an amount we estimate is collectible from our customers. Estimates used in determining the allowance for credit losses are based on current trends, aging of accounts receivable, periodic credit evaluations of our customers’ financial condition, and historical collection experience as well as reasonable and supportable forecasts of future economic conditions. We generally do not require collateral.

The following table summarizes the activity in the allowance for credit losses:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Beginning balance	\$ 8.4	\$ 10.3	\$ 14.0
Bad debt expense (benefit) ⁽¹⁾	1.1	(0.5)	0.7
Acquisitions	1.0	0.1	0.7
Write-offs, net of recoveries	(0.9)	(1.6)	(4.1)
Other ⁽²⁾	(0.5)	0.1	(1.0)
Ending balance	\$ 9.1	\$ 8.4	\$ 10.3

⁽¹⁾ The bad debt benefit for the year-ended December 31, 2020 includes the positive impact related to the adoption of Accounting Standards Update No. 2016-13 “Financial Instruments-Credit Losses.”

⁽²⁾ Other amounts are primarily the effects of changes in currency translations and the impact of allowance for credits.

Inventories

Inventories are stated at the lower of cost or net realizable value with substantially all inventories recorded using the first-in, first-out (“FIFO”) cost method.

Property, plant and equipment, net

Property, plant and equipment is stated at historical cost. We compute depreciation by the straight-line method based on the following estimated useful lives:

	Years
Land improvements	5 to 20
Buildings and leasehold improvements	5 to 50
Machinery and equipment	3 to 15

Significant improvements that add to productive capacity or extend the lives of properties are capitalized. Costs for repairs and maintenance are charged to expense as incurred. When property is retired or otherwise disposed of, the recorded cost of the assets and their related accumulated depreciation are removed from the Consolidated Balance Sheets and any related gains or losses are included in income.

The following table presents geographic *Property, plant and equipment, net* by region as of December 31:

<i>In millions</i>	2021	2020
U.S.	\$ 198.7	\$ 183.6
Western Europe	71.5	76.7
Developing ⁽¹⁾	29.5	30.4
Other Developed ⁽²⁾	10.3	10.5
Consolidated ⁽³⁾	\$ 310.0	\$ 301.2

⁽¹⁾ Developing includes China, Eastern Europe, Latin America, the Middle East and Southeast Asia.

⁽²⁾ Other Developed includes Australia, Canada and Japan.

⁽³⁾ *Property, plant and equipment, net* in Ireland, for each of the years presented, were not material.

We review the recoverability of long-lived assets to be held and used, such as property, plant and equipment, when events or changes in circumstances occur that indicate the carrying value of the asset or asset group may not be recoverable. The assessment of possible impairment is based on our ability to recover the carrying value of the asset or asset group from the expected future pre-tax cash flows (undiscounted and without interest charges) of the related operations. If these cash flows are less than the carrying value of such asset or asset group, an impairment loss is recognized for the difference between estimated fair value and carrying value. Impairment losses on long-lived assets held for sale are determined in a similar manner, except that fair values are reduced for the cost to dispose of the assets. The measurement of impairment requires us to estimate future cash flows and the fair value of long-lived assets. We recorded no material long-lived asset impairment charges in 2021, 2020, or 2019.

Goodwill and identifiable intangible assets

Goodwill

Goodwill represents the excess of the cost of acquired businesses over the net of the fair value of identifiable tangible net assets and identifiable intangible assets purchased and liabilities assumed.

We test our goodwill for impairment at least annually during the fourth quarter or more frequently if events or changes in circumstances indicate that the asset might be impaired. We perform our annual or interim goodwill impairment test by comparing the fair value of the relevant reporting unit with its carrying amount. We would recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized would not exceed the total amount of goodwill allocated to that reporting unit.

We have the option to perform a qualitative assessment to determine whether it is necessary to perform the quantitative goodwill impairment test. However, we may elect to perform the quantitative goodwill impairment test even if no indications of a potential impairment exist.

During 2021, a qualitative assessment was performed. As a result, it was determined that it was more likely than not that the fair value of the reporting units exceeded their respective carrying values. Factors considered in the analysis included the 2020 discounted cash flow fair value assessment of the reporting units and the calculated excess fair value over carrying amount, financial performance, forecasts and trends, market capitalization, regulatory and environmental issues, macro-economic conditions, industry and market considerations, raw material costs and management stability. We also consider the extent to which each of the adverse events and circumstances identified affect the comparison of the respective reporting unit's fair value with its carrying amount. We place more weight on the events and circumstances that most affect the respective reporting unit's fair value or the carrying amount of its net assets. We consider positive and mitigating events and circumstances that may affect its determination of whether it is more likely than not that the fair value exceeds the carrying amount. The non-recurring fair value measurement is a "Level 3" measurement under the fair value hierarchy.

During 2020, a quantitative assessment was performed. The fair value of each reporting unit was determined using a discounted cash flow analysis and market approach. Projecting discounted future cash flows requires us to make significant estimates regarding future revenues and expenses, projected capital expenditures, changes in working capital and the appropriate discount rate. Use of the market approach consists of comparisons to comparable publicly-traded companies that are similar in size and industry. The non-recurring fair value measurement is a "Level 3" measurement under the fair value hierarchy. For the 2020 annual impairment test, the estimated fair value exceeded the carrying value in each of our reporting units, therefore, no impairment charge was required.

Identifiable intangible assets

Our primary identifiable intangible assets include: customer relationships, trade names, proprietary technology and patents. Identifiable intangibles with finite lives are amortized and those identifiable intangibles with indefinite lives are not amortized. Identifiable intangible assets that are subject to amortization are evaluated for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Identifiable intangible assets not subject to amortization are tested for impairment annually or more frequently if events warrant. We complete our annual impairment test the first day of the fourth quarter each year for those identifiable assets not subject to amortization.

The impairment test for trade names consists of a comparison of the fair value of the trade name with its carrying value. Fair value is measured using the relief-from-royalty method. This method assumes the trade name has value to the extent that the owner is relieved of the obligation to pay royalties for the benefits received from them. This method requires us to estimate the future revenue for the related brands, the appropriate royalty rate and the weighted average cost of capital. The non-recurring fair value measurement is a "Level 3" measurement under the fair value hierarchy described in Note 9.

There were no impairment charges recorded in any of the years presented for identifiable intangible assets.

Income taxes

We use the asset and liability approach to account for income taxes. Under this method, deferred tax assets and liabilities are recognized for the expected future tax consequences of differences between the carrying amounts of assets and liabilities and their respective tax bases using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period when the change is enacted. We maintain valuation allowances unless it is more likely than not that all or a portion of the deferred tax assets will be realized. Changes in valuation allowances from period to period are included in our tax provision in the period of change. We recognize the effect of income tax positions only if those positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is greater than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs.

Pension and other post-retirement plans

We sponsor U.S. and non-U.S. defined-benefit pension and other post-retirement plans. The pension and other post-retirement benefit costs for company-sponsored benefit plans are determined from actuarial assumptions and methodologies, including discount rates and expected returns on plan assets. These assumptions are updated annually and are disclosed in Note 11.

We recognize changes in the fair value of plan assets and net actuarial gains or losses for pension and other post-retirement benefits annually in the fourth quarter each year ("mark-to-market adjustment") and, if applicable, in any quarter in which an interim re-measurement is triggered. Net actuarial gains and losses occur when the actual experience differs from any of the various assumptions used to value our pension and other post-retirement plans or when assumptions change, as they may each year. The remaining components of pension expense, including service and interest costs and estimated return on plan assets, are recorded on a quarterly basis. The service costs are recorded within *Operating income* and the interest costs, expected return on plan assets and net actuarial gain/loss components of net periodic pension and other post-retirement benefit costs are recorded within *Other (income) expense*.

Insurance subsidiary

A portion of our property and casualty insurance program is insured through our regulated wholly-owned captive insurance subsidiary, Penwald Insurance Company (“Penwald”). Reserves for policy claims are established based on actuarial projections of ultimate losses. As of December 31, 2021 and 2020, reserves for policy claims were \$55.6 million, of which \$13.0 million was included in *Other current liabilities* and \$42.6 million was included in *Other non-current liabilities*, and \$55.0 million, of which \$13.0 million was included in *Other current liabilities* and \$42.0 million was included in *Other non-current liabilities*, respectively.

Share-based compensation

We account for share-based compensation awards on a fair value basis. The estimated grant date fair value of each option award is recognized in income on an accelerated basis over the requisite service period (generally the vesting period). The estimated fair value of each option award is calculated using the Black-Scholes option-pricing model. From time to time, we have elected to modify the terms of the original grant. These modified grants are accounted for as a new award and measured using the fair value method, resulting in the inclusion of additional compensation expense in our Consolidated Statements of Operations and Comprehensive Income.

Restricted share awards and units (“RSUs”) are recorded as compensation cost over the requisite service periods based on the market value on the date of grant.

Performance share units (“PSUs”) are stock awards where the ultimate number of shares issued will be contingent on the Company’s performance against certain performance goals. The Compensation Committee has the ability to adjust performance goals or modify the manner of measuring or evaluating a performance goal using its discretion. The fair value of each PSU is based on the market value on the date of grant. We recognize expense related to the estimated vesting of our PSUs granted. The estimated vesting of the PSUs is based on the probability of achieving certain performance metrics over the specified performance period.

Earnings per ordinary share

We present two calculations of earnings per ordinary share (“EPS”). Basic EPS equals net income divided by the weighted-average number of ordinary shares outstanding during the period. Diluted EPS is computed by dividing net income by the sum of weighted-average number of ordinary shares outstanding plus dilutive effects of ordinary share equivalents.

Derivative financial instruments

We recognize all derivatives, including those embedded in other contracts, as either assets or liabilities at fair value in our Consolidated Balance Sheets. If the derivative is designated and is effective as a cash-flow hedge, the effective portion of changes in the fair value of the derivative are recorded in *Accumulated other comprehensive income (loss)* (“AOCI”) as a separate component of equity in the Consolidated Balance Sheets and are recognized in the Consolidated Statements of Operations and Comprehensive Income when the hedged item affects earnings. If the underlying hedged transaction ceases to exist or if the hedge becomes ineffective, all changes in fair value of the related derivatives that have not been settled are recognized in current earnings. For a derivative that is not designated as or does not qualify as a hedge, changes in fair value are reported in earnings immediately.

Gains and losses on net investment hedges are included in AOCI as a separate component of equity in the Consolidated Balance Sheets.

We use derivative instruments for the purpose of hedging interest rate and currency exposures, which exist as part of ongoing business operations. We do not hold or issue derivative financial instruments for trading or speculative purposes. Our policy is not to enter into contracts with terms that cannot be designated as normal purchases or sales. From time to time, we may enter into short duration foreign currency contracts to hedge foreign currency risks.

Foreign currency translation

The financial statements of the Company’s non-U.S. dollar functional currency international subsidiaries are measured using the local currency as the functional currency. Assets and liabilities of these subsidiaries are translated at the rates of exchange at the balance sheet date. Income (loss) and expense items are translated at average monthly rates of exchange. The resultant translation adjustments are included in AOCI, a component of equity.

2. Acquisitions

On October 18, 2021, as part of both of our Consumer Solutions and Industrial & Flow Technologies reporting segments, we completed the acquisition of Pleatco Holdings, LLC and related entities for \$254.6 million in cash, net of cash acquired. The excess of purchase price over tangible net assets acquired has been preliminarily allocated to goodwill in the amount of \$137.3 million, \$131.4 million of which is expected to be deductible for income tax purposes. Identifiable intangible assets acquired consisted of \$97.9 million of definite-lived customer relationships with an estimated useful life of 17 years.

On May 19, 2021, as part of our Consumer Solutions reporting segment, we completed the acquisition of Ken's Beverage, Inc. for \$83.1 million in cash, net of cash acquired. The excess of purchase price over tangible net assets acquired has been preliminarily allocated to goodwill in the amount of \$29.2 million, all of which is expected to be deductible for income tax purposes. Identifiable intangible assets acquired consisted of \$38.0 million of definite-lived customer relationships with an estimated useful life of 22 years.

In 2020, our Consumer Solutions reporting segment completed acquisitions with purchase prices totaling \$58.0 million in cash, net of cash acquired.

In February 2019, as part of Consumer Solutions, we completed the acquisitions of Aquion, Inc. ("Aquion") and Pelican Water Systems ("Pelican") for \$163.4 million and \$121.1 million, respectively, in cash, net of cash acquired and final working capital true-ups.

For Aquion, the excess of purchase price over tangible net assets and identified intangible assets acquired has been allocated to goodwill in the amount of \$101.9 million, \$4.6 million of which is expected to be deductible for income tax purposes. Identifiable intangible assets acquired as part of the Aquion acquisition include \$15.7 million of indefinite-lived trade name intangible assets and \$78.8 million of definite-lived customer relationships with an estimated useful life of 15 years.

For Pelican, the excess purchase price over tangible net assets acquired has been allocated to goodwill in the amount of \$118.0 million, \$7.6 million of which is expected to be deductible for income tax purposes.

The pro forma impact of the acquisitions in 2021, 2020 and 2019 were not material.

3. Earnings Per Share

Basic and diluted earnings per share were calculated as follows:

<i>In millions, except per share data</i>	Years ended December 31		
	2021	2020	2019
Net income	\$ 553.0	\$ 358.6	\$ 355.7
Net income from continuing operations	\$ 556.0	\$ 357.1	\$ 361.7
Weighted average ordinary shares outstanding			
Basic	165.8	166.5	169.4
Dilutive impact of stock options and restricted stock awards	1.7	0.9	1.0
Diluted	167.5	167.4	170.4
Earnings (loss) per ordinary share			
Basic			
Continuing operations	\$ 3.36	\$ 2.14	\$ 2.14
Discontinued operations	(0.02)	0.01	(0.04)
Basic earnings per ordinary share	\$ 3.34	\$ 2.15	\$ 2.10
Diluted			
Continuing operations	\$ 3.32	\$ 2.13	\$ 2.12
Discontinued operations	(0.02)	0.01	(0.03)
Diluted earnings per ordinary share	\$ 3.30	\$ 2.14	\$ 2.09
Anti-dilutive stock options excluded from the calculation of diluted earnings per share	0.1	1.7	2.1

4. Restructuring and Transformation Program

In 2021, we launched and committed resources to a program designed to accelerate growth and drive margin expansion through transformation of our business model to drive operational excellence, reduce complexity and streamline our processes (the “Transformation Program”). The Transformation Program is structured in multiple phases and is expected to empower us to work more efficiently and optimize our business to better serve our customers while meeting our financial objectives.

During 2021, 2020 and 2019, we initiated and continued execution of certain business restructuring initiatives aimed at reducing our fixed cost structure and realigning our business. Initiatives during the years ended December 31, 2021, 2020 and 2019 included a reduction in hourly and salaried headcount of approximately 75 employees, 175 employees and 375 employees, respectively.

Restructuring and transformation-related costs included in *Selling, general and administrative* expenses in the Consolidated Statements of Operations and Comprehensive Income included costs for severance and other restructuring costs as follows:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Severance and related costs	\$ 7.0	\$ 9.7	\$ 11.7
Other restructuring costs ⁽¹⁾	0.4	4.4	2.3
Total restructuring costs	7.4	14.1	14.0
Transformation costs ⁽²⁾	11.7	—	—
Total restructuring and transformation costs	\$ 19.1	\$ 14.1	\$ 14.0

⁽¹⁾ Other restructuring costs primarily consist of asset impairment and various contract termination costs.

⁽²⁾ Transformation costs primarily consist of professional services and project management and related costs.

Restructuring and transformation costs by reportable segment were as follows:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Consumer Solutions	\$ 0.9	\$ 3.6	\$ 6.7
Industrial & Flow Technologies	0.9	4.7	4.9
Other	17.3	5.8	2.4
Consolidated	\$ 19.1	\$ 14.1	\$ 14.0

Activity related to accrued severance and related costs recorded in *Other current liabilities* in the Consolidated Balance Sheets is summarized as follows:

<i>In millions</i>	Years ended December 31	
	2021	2020
Beginning balance	\$ 15.2	\$ 16.2
Costs incurred	7.0	9.7
Cash payments and other	(11.5)	(10.7)
Ending balance	\$ 10.7	\$ 15.2

5. Goodwill and Other Identifiable Intangible Assets

The changes in the carrying amount of goodwill for the years ended December 31, 2021 and 2020 by reportable segment were as follows:

<i>In millions</i>	December 31, 2020	Acquisitions	Purchase accounting adjustments	Foreign currency translation	December 31, 2021
Consumer Solutions	\$ 1,580.5	\$ 152.9	\$ (1.2)	\$ (9.7)	\$ 1,722.5
Industrial & Flow Technologies	811.7	13.6	—	(43.3)	782.0
Total goodwill	\$ 2,392.2	\$ 166.5	\$ (1.2)	\$ (53.0)	\$ 2,504.5

<i>In millions</i>	December 31, 2019	Acquisitions	Purchase accounting adjustments	Foreign currency translation	December 31, 2020
Consumer Solutions	\$ 1,501.4	\$ 51.9	\$ 14.4	\$ 12.8	\$ 1,580.5
Industrial & Flow Technologies	756.9	—	—	54.8	811.7
Total goodwill	\$ 2,258.3	\$ 51.9	\$ 14.4	\$ 67.6	\$ 2,392.2

There has been no impairment of goodwill for any of the years presented.

Identifiable intangible assets consisted of the following at December 31:

<i>In millions</i>	2021			2020		
	Cost	Accumulated amortization	Net	Cost	Accumulated amortization	Net
Definite-life intangibles						
Customer relationships	\$ 558.8	\$ (320.1)	\$ 238.7	\$ 435.9	\$ (308.1)	\$ 127.8
Proprietary technology and patents	46.3	(32.1)	14.2	46.9	(29.4)	17.5
Total finite-life intangibles	605.1	(352.2)	252.9	482.8	(337.5)	145.3
Indefinite-life intangibles						
Trade names	175.1	—	175.1	180.6	—	180.6
Total intangibles	\$ 780.2	\$ (352.2)	\$ 428.0	\$ 663.4	\$ (337.5)	\$ 325.9

Identifiable intangible asset amortization expense in 2021, 2020 and 2019 was \$26.3 million, \$28.4 million and \$31.7 million, respectively.

There was no impairment charge for intangible assets in any of the years presented.

Estimated future amortization expense for identifiable intangible assets during the next five years is as follows:

<i>In millions</i>	2022	2023	2024	2025	2026
Estimated amortization expense	\$ 23.3	\$ 21.0	\$ 20.5	\$ 20.5	\$ 19.2

6. Supplemental Balance Sheet Information

<i>In millions</i>	December 31	
	2021	2020
Inventories		
Raw materials and supplies	\$ 290.3	\$ 218.7
Work-in-process	77.4	67.2
Finished goods	195.2	134.1
Total inventories	\$ 562.9	\$ 420.0
Other current assets		
Cost in excess of billings	\$ 48.8	\$ 50.1
Prepaid expenses	57.1	48.5
Other current assets	6.4	6.9
Total other current assets	\$ 112.3	\$ 105.5
Property, plant and equipment, net		
Land and land improvements	\$ 34.8	\$ 35.9
Buildings and leasehold improvements	194.5	195.4
Machinery and equipment	607.3	589.7
Capitalized software	66.5	79.9
Construction in progress	62.8	47.8
Total property, plant and equipment	965.9	948.7
Accumulated depreciation and amortization	655.9	647.5
Total property, plant and equipment, net	\$ 310.0	\$ 301.2
Other non-current assets		
Right-of-use lease assets	\$ 84.5	\$ 83.6
Deferred income taxes	23.1	27.4
Deferred compensation plan assets	25.6	22.6
Other non-current assets	73.9	69.2
Total other non-current assets	\$ 207.1	\$ 202.8
Other current liabilities		
Dividends payable	\$ 33.0	\$ 33.2
Accrued warranty	40.5	37.0
Accrued rebates and incentives	198.7	122.0
Accrued freight	36.5	20.5
Billings in excess of cost	31.2	22.5
Current lease liability	25.6	22.1
Income taxes payable	32.0	14.6
Accrued restructuring	10.7	15.2
Other current liabilities	117.7	123.3
Total other current liabilities	\$ 525.9	\$ 410.4
Other non-current liabilities		
Long-term lease liability	\$ 62.6	\$ 65.1
Income taxes payable	34.1	44.8
Self-insurance liabilities	42.6	42.0
Deferred compensation plan liabilities	25.6	22.6
Foreign currency contract liabilities	9.5	69.6
Other non-current liabilities	28.5	25.3
Total other non-current liabilities	\$ 202.9	\$ 269.4

7. Accumulated Other Comprehensive Loss

Components of *Accumulated Other Comprehensive Loss* consist of the following:

<i>In millions</i>	December 31	
	2021	2020
Cumulative translation adjustments	\$ (224.1)	\$ (177.1)
Market value of derivative financial instruments, net of tax	10.2	(30.2)
Accumulated other comprehensive loss	\$ (213.9)	\$ (207.3)

8. Debt

Debt and the average interest rates on debt outstanding were as follows:

<i>In millions</i>	Average interest rate at December 31, 2021	Maturity year	December 31	
			2021	2020
Revolving credit facilities	1.107%	2026	\$ 195.0	\$ 36.1
Term loans	1.033%	2024	200.0	200.0
Senior notes - fixed rate ⁽¹⁾	5.000%	2021	—	103.8
Senior notes - fixed rate ⁽¹⁾	3.150%	2022	88.3	88.3
Senior notes - fixed rate ⁽¹⁾	4.650%	2025	19.3	19.3
Senior notes - fixed rate ⁽¹⁾	4.500%	2029	400.0	400.0
Unamortized issuance costs and discounts	N/A	N/A	(8.5)	(7.9)
Total debt			\$ 894.1	\$ 839.6

⁽¹⁾ Senior notes are guaranteed as to payment by Pentair plc.

Pentair, Pentair Finance S.à r.l (“PFSA”) and Pentair, Inc. are parties to a credit agreement (the “Senior Credit Facility”), with Pentair as guarantor and PFSA and Pentair, Inc. as borrowers, which was amended and restated in December 2021, providing for a \$900.0 million senior unsecured revolving credit facility and a \$200.0 million senior unsecured term loan facility. The revolving credit facility has a maturity date of December 16, 2026 and the term loan facility has a maturity date of December 16, 2024. Borrowings under the Senior Credit Facility bear interest at a rate equal to an adjusted base rate, the London interbank offered rate, the euro interbank offered rate or the central bank rate, plus, in each case, an applicable margin. The applicable margin is based on, at PFSA’s election, Pentair’s leverage level or PFSA’s public credit rating.

As of December 31, 2021, total availability under the Senior Credit Facility was \$705.0 million. In addition, PFSA has the option to request to increase the revolving credit facility and/or to enter into one or more additional tranches of term loans in an aggregate amount of up to \$300.0 million, subject to customary conditions, including the commitment of the participating lenders.

Our debt agreements contain various financial covenants, but the most restrictive covenants are contained in the Senior Credit Facility. The Senior Credit Facility contains covenants requiring us not to permit (i) the ratio of our consolidated debt (net of our consolidated unrestricted cash and cash equivalents in excess of \$5.0 million but not to exceed \$250.0 million) to our consolidated net income (excluding, among other things, non-cash gains and losses) before interest, taxes, depreciation, amortization and non-cash share-based compensation expense (“EBITDA”) on the last day of any period of four consecutive fiscal quarters (each, a “testing period”) to exceed 3.75 to 1.00 (or, at PFSA’s election and subject to certain conditions, 4.25 to 1.00 for four testing periods in connection with certain material acquisitions) (the “Leverage Ratio”) and (ii) the ratio of our EBITDA to our consolidated interest expense, for the same period to be less than 3.00 to 1.00 as of the end of each fiscal quarter. For purposes of the Leverage Ratio, the Senior Credit Facility provides for the calculation of EBITDA giving pro forma effect to certain acquisitions, divestitures and liquidations during the period to which such calculation relates.

In addition to the Senior Credit Facility, we have various other credit facilities with an aggregate availability of \$21.4 million, of which there were no outstanding borrowings at December 31, 2021. Borrowings under these credit facilities bear interest at variable rates.

We have \$88.3 million aggregate principal amount of fixed rate senior notes maturing in the next twelve months. We classified this debt as long-term as of December 31, 2021 as we have the intent and ability to refinance such obligation on a long-term basis under the Senior Credit Facility.

Debt outstanding, excluding unamortized issuance costs and discounts, at December 31, 2021 matures on a calendar year basis as follows:

<i>In millions</i>	2022	2023	2024	2025	2026	Thereafter	Total
Contractual debt obligation maturities	\$ 88.3	\$ —	\$ 200.0	\$ 19.3	\$ 195.0	\$ 400.0	\$ 902.6

9. Derivatives and Financial Instruments

Derivative financial instruments

We are exposed to market risk related to changes in foreign currency exchange rates. To manage the volatility related to this exposure, we periodically enter into a variety of derivative financial instruments. Our objective is to reduce, where it is deemed appropriate to do so, fluctuations in earnings and cash flows associated with changes in foreign currency rates. The derivative contracts contain credit risk to the extent that our bank counterparties may be unable to meet the terms of the agreements. The amount of such credit risk is generally limited to the unrealized gains, if any, in such contracts. Such risk is minimized by limiting those counterparties to major financial institutions of high credit quality.

Foreign currency contracts

We conduct business in various locations throughout the world and are subject to market risk due to changes in the value of foreign currencies in relation to our reporting currency, the U.S. dollar. We manage our economic and transaction exposure to certain market-based risks through the use of foreign currency derivative financial instruments. Our objective in holding these derivatives is to reduce the volatility of net earnings and cash flows associated with changes in foreign currency exchange rates. The majority of our foreign currency contracts have an original maturity date of less than one year.

At December 31, 2021 and 2020, we had outstanding foreign currency derivative contracts with gross notional U.S. dollar equivalent amounts of \$14.7 million and \$12.4 million, respectively. The impact of these contracts on the Consolidated Statements of Operations and Comprehensive Income was not material for any period presented.

Cross Currency Swaps

At December 31, 2021 and 2020, we had outstanding cross currency swap agreements with a combined notional amount of \$794.4 million and \$855.1 million, respectively. The agreements are accounted for as either cash flow hedges, to hedge foreign currency fluctuations on certain intercompany debt, or as net investment hedges to manage our exposure to fluctuations in the Euro-U.S. Dollar exchange rate. As of December 31, 2021 and 2020, we had a deferred foreign currency gain of \$7.3 million and a deferred foreign currency loss of \$32.8 million, respectively, recorded in *Accumulated other comprehensive loss* associated with our cross currency swap activity. The periodic interest settlements related to our cross currency swap agreements are classified as operating activities. The cash flows that relate to principal balances are classified as financing activities for the cash flow hedges on intercompany debt and investing activities for the net investment hedges.

In January 2021, one of our cross currency swap agreements, which was accounted for as a cash flow hedge, matured, resulting in a net cash payment of \$14.7 million. The net cash payment is included within financing activities on the Condensed Consolidated Statements of Cash Flows.

Fair value measurements

Fair value is defined 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. Assets and liabilities measured at fair value are classified using the following hierarchy, which is based upon the transparency of inputs to the valuation as of the measurement date:

- Level 1:* Valuation is based on observable inputs such as quoted market prices (unadjusted) for identical assets or liabilities in active markets.
- Level 2:* Valuation is based on inputs such as quoted market prices for similar assets or liabilities in active markets or other inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument.
- Level 3:* Valuation is based upon other unobservable inputs that are significant to the fair value measurement.

In making fair value measurements, observable market data must be used when available. 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.

Fair value of financial instruments

The following methods were used to estimate the fair values of each class of financial instrument:

- *short-term financial instruments (cash and cash equivalents, accounts and notes receivable, accounts and notes payable and variable-rate debt)* — recorded amount approximates fair value because of the short maturity period;
- *long-term fixed-rate debt, including current maturities* — fair value is based on market quotes available for issuance of debt with similar terms, which are inputs that are classified as Level 2 in the valuation hierarchy defined by the accounting guidance;
- *foreign currency contract agreements* — fair values are determined through the use of models that consider various assumptions, including time value, yield curves, as well as other relevant economic measures, which are inputs that are classified as Level 2 in the valuation hierarchy defined by the accounting guidance; and
- *deferred compensation plan assets (mutual funds, common/collective trusts and cash equivalents for payment of certain non-qualified benefits for retired, terminated and active employees)* — fair value of mutual funds and cash equivalents are based on quoted market prices in active markets that are classified as Level 1 in the valuation hierarchy defined by the accounting guidance; fair value of common/collective trusts are valued at net asset value (“NAV”), which is based on the fair value of the underlying securities owned by the fund and divided by the number of shares outstanding.

The recorded amounts and estimated fair values of total debt, excluding unamortized issuance costs and discounts, at December 31 were as follows:

<i>In millions</i>	2021		2020	
	Recorded Amount	Fair Value	Recorded Amount	Fair Value
Variable rate debt	\$ 395.0	\$ 395.0	\$ 236.1	\$ 236.1
Fixed rate debt	507.6	564.3	611.4	695.4
Total debt	\$ 902.6	\$ 959.3	\$ 847.5	\$ 931.5

Financial assets and liabilities measured at fair value on a recurring and nonrecurring basis were as follows:

Recurring fair value measurements

<i>In millions</i>	December 31, 2021				
	Level 1	Level 2	Level 3	NAV	Total
Foreign currency contract assets	\$ —	\$ 7.2	\$ —	\$ —	\$ 7.2
Foreign currency contract liabilities	—	(9.5)	—	—	(9.5)
Deferred compensation plan assets	13.6	—	—	12.0	25.6
Total recurring fair value measurements	\$ 13.6	\$ (2.3)	\$ —	\$ 12.0	\$ 23.3

Recurring fair value measurements

<i>In millions</i>	December 31, 2020				
	Level 1	Level 2	Level 3	NAV	Total
Foreign currency contract liabilities	\$ —	\$ (69.6)	\$ —	\$ —	\$ (69.6)
Deferred compensation plan assets	12.2	—	—	10.4	22.6
Total recurring fair value measurements	\$ 12.2	\$ (69.6)	\$ —	\$ 10.4	\$ (47.0)

10. Income Taxes

Income from continuing operations before income taxes consisted of the following:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Federal ⁽¹⁾	\$ (11.2)	\$ 7.2	\$ (1.6)
International ⁽²⁾	638.0	424.9	409.1
Income from continuing operations before income taxes	\$ 626.8	\$ 432.1	\$ 407.5

⁽¹⁾ “Federal” reflects United Kingdom (“U.K.”) income (loss) from continuing operations before income taxes.

⁽²⁾ “International” reflects non-U.K. income from continuing operations before income taxes.

The provision for income taxes consisted of the following:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Currently payable (receivable)			
Federal ⁽¹⁾	\$ —	\$ 0.1	\$ —
International ⁽²⁾	79.8	70.3	64.2
Total current taxes	79.8	70.4	64.2
Deferred			
International ⁽²⁾	(9.0)	4.6	(18.4)
Total deferred taxes	(9.0)	4.6	(18.4)
Total provision for income taxes	\$ 70.8	\$ 75.0	\$ 45.8

⁽¹⁾ “Federal” represents U.K. taxes.

⁽²⁾ “International” represents non-U.K. taxes.

Reconciliations of the federal statutory income tax rate to our effective tax rate were as follows:

<i>Percentages</i>	Years ended December 31		
	2021	2020	2019
U.K. federal statutory income tax rate	19.0 %	19.0 %	19.0 %
Tax effect of international operations ⁽¹⁾	(5.1)	(3.9)	(8.2)
Change in valuation allowances	(0.2)	1.3	1.1
Excess tax benefits on stock-based compensation	(1.1)	(0.7)	(0.7)
Base erosion and anti-abuse tax	—	1.7	—
Unrecognized tax benefits	(1.3)	—	—
Effective tax rate	11.3 %	17.4 %	11.2 %

⁽¹⁾ The tax effect of international operations consists of non-U.K. jurisdictions.

Reconciliations of the beginning and ending gross unrecognized tax benefits were as follows:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Beginning balance	\$ 46.3	\$ 47.4	\$ 51.4
Gross increases for tax positions in prior periods	2.5	0.6	0.4
Gross decreases for tax positions in prior periods	(0.7)	—	(0.8)
Gross increases based on tax positions related to the current year	0.2	0.2	0.4
Gross decreases related to settlements with taxing authorities	(0.9)	(1.1)	(2.9)
Reductions due to statute expiration	(10.1)	(0.8)	(1.1)
Ending balance	\$ 37.3	\$ 46.3	\$ 47.4

We record gross unrecognized tax benefits in *Other current liabilities* and *Other non-current liabilities* in the Consolidated Balance Sheets. Included in the \$37.3 million of total gross unrecognized tax benefits as of December 31, 2021 was \$37.0 million of tax benefits that, if recognized, would impact the effective tax rate. It is reasonably possible that the gross unrecognized tax benefits as of December 31, 2021 may decrease by a range of zero to \$3.4 million during 2022, primarily as a result of the resolution of non-U.K. examinations, including U.S. federal and state examinations.

Based on the outcome of these examinations, or as a result of the expiration of statutes of limitations for specific jurisdictions, it is reasonably possible that certain unrecognized tax benefits for tax positions taken on previously filed tax returns will materially change from those recorded as liabilities in our financial statements. A number of tax periods from 2009 to present are under audit by tax authorities in various jurisdictions, including Germany, India, Italy, and the U.S. We anticipate that several of these audits may be concluded in the foreseeable future.

We record penalties and interest related to unrecognized tax benefits in *Provision for income taxes* and *Net interest expense*, respectively, in the Consolidated Statements of Operations and Comprehensive Income. At December 31, 2021 and 2020, our

liabilities for the possible payment of penalties was \$0.2 million at both dates and for the possible payment of interest expense were \$3.9 million and \$4.6 million, respectively, which are recorded in *Other current liabilities* in the Consolidated Balance Sheets.

Deferred taxes arise because of different treatment between financial statement accounting and tax accounting, known as “temporary differences.” We record the tax effect of these temporary differences as “deferred tax assets” (generally items that can be used as a tax deduction or credit in future periods) and “deferred tax liabilities” (generally items for which we received a tax deduction but the tax impact has not yet been recorded in the Consolidated Statements of Operations and Comprehensive Income).

Deferred taxes were recorded in the Consolidated Balance Sheets as follows:

<i>In millions</i>	December 31	
	2021	2020
Other non-current assets	\$ 23.1	\$ 27.4
Deferred tax liabilities	89.8	107.4
Net deferred tax liabilities	\$ 66.7	\$ 80.0

The tax effects of the major items recorded as deferred tax assets and liabilities were as follows:

<i>In millions</i>	December 31	
	2021	2020
Deferred tax assets		
Accrued liabilities and reserves	\$ 57.8	\$ 59.4
Pension and other post-retirement compensation and benefits	24.6	26.2
Employee compensation and benefits	18.2	18.5
Tax loss and credit carryforwards	729.7	744.5
Interest limitations	67.5	49.9
Total deferred tax assets	897.8	898.5
Valuation allowance	727.2	747.3
Deferred tax assets, net of valuation allowance	170.6	151.2
Deferred tax liabilities		
Property, plant and equipment	10.2	5.3
Goodwill and other intangibles	210.4	209.0
Other liabilities	16.7	16.9
Total deferred tax liabilities	237.3	231.2
Net deferred tax liabilities	\$ 66.7	\$ 80.0

Included in tax loss and credit carryforwards in the table above is a deferred tax asset of \$29.6 million as of December 31, 2021 related to foreign tax credit carryover from the tax period ended December 31, 2017 and related to transition taxes. The entire amount is subject to a valuation allowance. The foreign tax credit is eligible for carryforward until the tax period ending December 31, 2027.

As of December 31, 2021, tax loss carryforwards of \$2,917.3 million were available to offset future income. A valuation allowance of \$684.7 million exists for deferred income tax benefits related to the tax loss carryforwards which may not be realized. We believe sufficient taxable income will be generated in the respective jurisdictions to allow us to fully recover the remainder of the tax losses. The tax losses primarily relate to non-U.S. carryforwards of \$2,778.5 million which are subject to varying expiration periods. Non-U.S. carryforwards of \$1,895.8 million are located in jurisdictions with unlimited tax loss carryforward periods, while the remainder will begin to expire in 2022. In addition, there were \$10.2 million of U.S. federal loss carryforwards with unlimited tax loss carryforward periods and \$128.6 million of U.S. state tax loss carryforwards as of December 31, 2021. U.S. state tax losses of \$64.3 million are in jurisdictions with unlimited tax loss carryforward periods, while the remainder will expire in future years through 2041.

Taxes have not been provided on undistributed earnings of subsidiaries where it is our intention to reinvest these earnings permanently or to repatriate the earnings only when it is tax effective to do so. It is not practicable to estimate the amount of tax that might be payable if such earnings were to be remitted.

Impacts of U.S. tax legislation

In April 2020, the IRS released final regulations as part of the Tax Cuts and Jobs Act of 2017 that place limitations on the deductibility of certain interest expense for U.S. tax purposes. These regulations resulted in discrete tax expense of approximately \$14.1 million in 2020, as well as an increase to our 2020 annual effective tax rate of approximately 0.3%.

In March 2020, the U.S. enacted the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) in response to the COVID-19 pandemic. The CARES Act contains numerous income tax provisions, such as relaxing limitations on the deductibility of interest and the ability to carryback net operating losses arising in taxable years from 2018 through 2020. The CARES Act provided positive cash benefits of approximately \$26.9 million, offset by an increase to our 2020 annual effective tax rate of approximately 1.0% and \$5.1 million in discrete tax items recorded in 2020, mainly attributable to base erosion and anti-abuse tax related to 2019.

11. Benefit Plans

Pension and other post-retirement plans

We sponsor U.S. and non-U.S. defined-benefit pension and other post-retirement plans. Pension benefits are based principally on an employee’s years of service and/or compensation levels near retirement. In addition, we provide certain post-retirement health care and life insurance benefits. Generally, the post-retirement health care and life insurance plans require contributions from retirees.

Obligations and funded status

The following tables present reconciliations of plan benefit obligations, fair value of plan assets and the funded status of pension plans and other post-retirement plans as of and for the years ended December 31, 2021 and 2020:

<i>In millions</i>	Pension plans		Other post-retirement plans	
	2021	2020	2021	2020
Change in benefit obligations				
Benefit obligation beginning of year	\$ 120.8	\$ 112.1	\$ 13.8	\$ 14.6
Service cost	2.8	3.3	—	—
Interest cost	2.0	2.9	0.2	0.4
Actuarial (gain) loss	(2.1)	9.3	(1.4)	0.1
Foreign currency translation	(0.6)	1.4	—	—
Benefits paid	(6.8)	(8.2)	(1.3)	(1.3)
Benefit obligation end of year	\$ 116.1	\$ 120.8	\$ 11.3	\$ 13.8
Change in plan assets				
Fair value of plan assets beginning of year	\$ 33.7	\$ 31.0	\$ —	\$ —
Actual return on plan assets	(0.3)	3.0	—	—
Company contributions	8.1	7.1	1.3	1.3
Foreign currency translation	(0.3)	0.8	—	—
Benefits paid	(6.8)	(8.2)	(1.3)	(1.3)
Fair value of plan assets end of year	\$ 34.4	\$ 33.7	\$ —	\$ —
Funded status				
Benefit obligations in excess of the fair value of plan assets	\$ (81.7)	\$ (87.1)	\$ (11.3)	\$ (13.8)

The actuarial gain in 2021 was primarily due to increases in the discount rates to reflect economic conditions at December 31, 2021.

Amounts recorded in the Consolidated Balance Sheets were as follows:

<i>In millions</i>	Pension plans		Other post-retirement plans	
	2021	2020	2021	2020
Current liabilities	\$ (5.7)	\$ (5.6)	\$ (1.3)	\$ (1.5)
Non-current liabilities	(76.0)	(81.5)	(10.0)	(12.3)
Benefit obligations in excess of the fair value of plan assets	\$ (81.7)	\$ (87.1)	\$ (11.3)	\$ (13.8)

The accumulated benefit obligation for all defined benefit plans was \$112.7 million and \$119.3 million at December 31, 2021 and 2020, respectively.

Information for pension plans with an accumulated benefit obligation or projected benefit obligation in excess of plan assets as of December 31 was as follows:

<i>In millions</i>	Projected benefit obligation exceeds the fair value of plan assets		Accumulated benefit obligation exceeds the fair value of plan assets	
	2021	2020	2021	2020
Projected benefit obligation	\$ 116.1	\$ 120.8	\$ 116.1	\$ 120.8
Fair value of plan assets	34.4	33.7	34.4	33.7
Accumulated benefit obligation	N/A	N/A	112.7	119.3

Components of net periodic benefit expense for our pension plans for the years ended December 31 were as follows:

<i>In millions</i>	2021	2020	2019
Service cost	\$ 2.8	\$ 3.3	\$ 2.6
Interest cost	2.0	2.9	7.3
Expected return on plan assets	(0.5)	(0.8)	(3.9)
Net actuarial (gain) loss	(1.5)	6.8	(4.1)
Net periodic benefit expense	\$ 2.8	\$ 12.2	\$ 1.9

Components of net periodic benefit expense for our other post-retirement plans for the years ended December 31, 2021, 2020 and 2019, were not material.

Assumptions

The following table provides the weighted-average assumptions used to determine benefit obligations and net periodic benefit cost as they pertain to our pension and other post-retirement plans.

	Pension plans			Other post-retirement plans		
	2021	2020	2019	2021	2020	2019
Benefit obligation assumptions						
Discount rate	2.21 %	1.74 %	2.68 %	2.34 %	1.77 %	2.81 %
Rate of compensation increase	3.61 %	3.62 %	3.68 %	N/A	N/A	N/A
Net periodic benefit expense assumptions						
Discount rate	1.74 %	2.68 %	3.70 %	1.77 %	2.81 %	3.95 %
Expected long-term return on plan assets	2.60 %	3.32 %	4.37 %	N/A	N/A	N/A
Rate of compensation increase	3.62 %	3.68 %	3.72 %	N/A	N/A	N/A

Discount rates

The discount rate reflects the current rate at which the pension liabilities could be effectively settled at the end of the year based on our December 31 measurement date. The discount rate was determined by matching our expected benefit payments to payments from a stream of bonds rated AA or higher available in the marketplace. There are no known or anticipated changes in our discount rate assumptions that will impact our pension expense in 2022.

Expected rates of return

The expected rate of return is designed to be a long-term assumption that may be subject to considerable year-to-year variance from actual returns. In developing the expected long-term rate of return, we considered our historical returns, with consideration given to forecasted economic conditions, our asset allocations, input from external consultants and broader long-term market indices. Pension plan assets yielded a loss of (0.89)% in 2021 and returns of 9.68% and 8.85% in 2020 and 2019, respectively.

Healthcare cost trend rates

The assumed healthcare cost trend rates for other post-retirement plans as of December 31 were as follows:

	2021	2020
Healthcare cost trend rate assumed for following year	5.5 %	5.4 %
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)	4.0 %	4.4 %
Year the cost trend rate reaches the ultimate trend rate	2046	2038

Pension plans assets

Objective

The primary objective of our investment strategy is to meet the pension obligation to our employees at a reasonable cost to us. This is primarily accomplished through growth of capital and safety of the funds invested.

Asset allocation

Our actual overall asset allocation for our pension plans as compared to our investment policy goals as of December 31 was as follows:

	Actual		Target	
	2021	2020	2021	2020
Fixed income	67 %	70 %	68 %	71 %
Alternative	32 %	30 %	32 %	29 %
Cash	1 %	— %	— %	— %

Fair value measurement

The fair values of our pension plan assets and their respective levels in the fair value hierarchy as of December 31, 2021 and December 31, 2020 were as follows:

In millions	December 31, 2021			
	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	\$ 0.3	\$ —	\$ —	0.3
Other investments	—	—	11.0	11.0
Total investments at fair value	\$ 0.3	\$ —	\$ 11.0	11.3
Investments measured at NAV				23.1
Total			\$	34.4

In millions	December 31, 2020			
	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	\$ 0.1	\$ —	\$ —	0.1
Other investments	—	—	10.0	10.0
Total investments at fair value	\$ 0.1	\$ —	\$ 10.0	10.1
Investments measured at NAV				23.6
Total			\$	33.7

Valuation methodologies used for investments measured at fair value were as follows:

- **Cash and cash equivalents:** Cash consists of cash held in bank accounts and is considered a Level 1 investment. Cash equivalents consist of investments in commingled funds valued based on observable market data. Such investments are considered a Level 2 investment.
- **Other investments:** Other investments include investments in commingled funds with diversified investment strategies. Investments in commingled funds that were valued based on unobservable inputs due to liquidation restrictions were classified as Level 3.

Activity for our Level 3 pension plan assets held during the years ended December 31, 2021 and 2020 was not material.

Cash flows

Contributions

Pension contributions totaled \$8.1 million and \$7.1 million in 2021 and 2020, respectively. We anticipate our 2022 pension contributions to be approximately \$6.6 million. The 2022 expected contributions will equal or exceed our minimum funding requirements.

Estimated future benefit payments

The following benefit payments, which reflect expected future service or payout from termination, as appropriate, are expected to be paid by the plans in each of the next five fiscal years and in the aggregate for the five fiscal years thereafter are as follows:

<i>In millions</i>	Pension plans		Other post-retirement plans	
2022	\$	7.4	\$	1.4
2023		7.5		1.3
2024		7.8		1.2
2025		7.6		1.1
2026		7.4		1.0
2027 - 2031		37.7		3.7

Savings plan

We have a 401(k) plan (the “401(k) plan”) with an employee share ownership (“ESOP”) bonus component, which covers certain union and all non-union U.S. employees who met certain age requirements. Under the 401(k) plan, eligible U.S. employees may voluntarily contribute a percentage of their eligible compensation. We match contributions made by employees who met certain eligibility and service requirements. The 401(k) company match contribution is a dollar-for-dollar (100%) matching contribution on up to 5% of employee eligible earnings, contributed as before-tax contributions.

Our expense for the 401(k) plan, including the ESOP, was \$19.0 million, \$15.3 million and \$14.4 million in 2021, 2020 and 2019, respectively.

Other retirement compensation

Total other accrued retirement compensation, primarily related to deferred compensation and supplemental retirement plans, was \$32.7 million and \$30.7 million as of December 31, 2021 and 2020, respectively, and is included in *Pension and other post-retirement compensation and benefits* and *Other non-current liabilities* in the Consolidated Balance Sheets.

12. Shareholders’ Equity

Authorized shares

Our authorized share capital consists of 426.0 million ordinary shares with a par value of \$0.01 per share.

Share repurchases

In May 2018, the Board of Directors authorized the repurchase of our ordinary shares up to a maximum dollar limit of \$750.0 million (the “2018 Authorization”). The 2018 Authorization expired on May 31, 2021. In December 2020, the Board of Directors authorized the repurchase of our ordinary shares up to a maximum dollar limit of \$750.0 million (the “2020 Authorization”). The 2020 Authorization expires on December 31, 2025. The 2020 Authorization supplemented the 2018 Authorization.

During the year ended December 31, 2020, we repurchased 3.7 million of our ordinary shares for \$150.2 million under the 2018 Authorization.

During the year ended December 31, 2021, we repurchased 2.1 million of our ordinary shares for \$150.0 million, of which 0.8 million shares, or \$50.0 million, and 1.3 million shares, or \$100.0 million, were repurchased pursuant to the 2018 Authorization and 2020 Authorization, respectively. As of December 31, 2021, we had \$650.0 million available for share repurchases under the 2020 Authorization.

Dividends payable

On December 7, 2021, the Board of Directors approved a 5 percent increase in the Company's regular quarterly dividend rate (from \$0.20 per share to \$0.21 per share) that was paid on February 4, 2022 to shareholders of record at the close of business on January 21, 2022. The balance of dividends payable included in *Other current liabilities* on our Consolidated Balance Sheets was \$33.0 million at December 31, 2021. Dividends paid per ordinary share were \$0.80, \$0.76 and \$0.72 for the years ended December 31, 2021, 2020 and 2019, respectively.

13. Share Plans

Share-based compensation expense

Total share-based compensation expense for 2021, 2020 and 2019 was as follows:

<i>In millions</i>	December 31		
	2021	2020	2019
Restricted stock units	\$ 13.0	\$ 12.5	\$ 11.2
Stock options	3.4	3.0	4.5
Performance share units	13.4	4.8	5.7
Total share-based compensation expense	\$ 29.8	\$ 20.3	\$ 21.4

Share incentive plans

In May 2020, the Pentair plc 2020 Share and Incentive Plan ("2020 Share Plan") was approved during the Annual General Meeting of Shareholders. The Pentair plc 2012 Stock and Incentive Plan ("2012 Stock Plan") terminated upon the approval of the 2020 Share Plan, although awards outstanding under the 2012 Stock Plan continue in effect. Beginning May 5, 2020, all share-based compensation grants were made under the 2020 Share Plan.

The 2020 Share Plan authorizes the issuance of 3.3 million of our ordinary shares, plus the number of shares reserved under the 2012 Stock Plan that were not the subject of outstanding awards as of the date the 2020 Share Plan became effective, which was 2.5 million shares, plus certain shares that would become available under the 2012 Stock Plan if it had remained in effect. The shares may be issued as new shares or from shares held in treasury. Our practice is to settle equity-based awards by issuing new shares. The 2020 Share Plan terminates on the date all shares reserved for issuance have been issued. The 2020 Share Plan allows for the granting to our employees, consultants and directors of stock options, stock appreciation rights, performance share units, restricted shares, restricted stock units, deferred stock rights, incentive awards, dividend equivalent units and other equity-based awards.

The 2020 Share Plan is administered by our compensation committee (the "Committee"), which is made up of independent members of our Board of Directors. Employees eligible to receive awards under the 2020 Share Plan are managerial, administrative or professional employees. The Committee has the authority to select the recipients of awards, determine the type and size of awards, establish certain terms and conditions of award grants and take certain other actions as permitted under the 2020 Share Plan. The 2020 Share Plan prohibits the Committee from re-pricing awards or canceling and reissuing awards at lower prices.

Non-qualified and incentive stock options

Under the 2020 Share Plan, we may grant stock options to any eligible employee with an exercise price equal to the market value of the shares on the dates the options were granted. Options generally vest one-third each year over a period of three years commencing on the grant date and expire 10 years after the grant date.

Restricted shares and restricted stock units

Under the 2020 Share Plan, eligible employees may be awarded restricted shares or restricted stock units of our common stock. Restricted shares and restricted stock units generally vest one-third each year over a period of three years commencing on the grant date, subject to continuous employment and certain other conditions. Restricted shares and restricted stock units are valued at market value on the date of grant and are expensed over the vesting period.

Stock appreciation rights, performance shares and performance units

Under the 2020 Share Plan, the Committee is permitted to issue these awards which are generally contingent on the achievement of predetermined performance goals over a vesting period of three years. The Committee has the ability to adjust performance goals or modify the manner of measuring or evaluating a performance goal using its discretion. PSUs are granted to certain employees that vest based on the satisfaction of a service period of three years and the achievement of certain performance metrics over that same period. Upon vesting, PSU holders receive dividends that accumulate during the vesting period. The fair value of these PSUs is determined based on the closing market price of the Company's ordinary shares at the date of grant. Compensation expense is recognized over the period an employee is required to provide service based on the estimated vesting of the PSUs granted. The estimated vesting of the PSUs is based on the probability of achieving certain performance metrics during the vesting period.

Stock options

The following table summarizes stock option activity under all plans for the year ended December 31, 2021:

	Number of shares	Weighted- average exercise price	Weighted- average remaining contractual life (years)	Aggregate intrinsic value
<i>Shares and intrinsic value in millions</i>				
Outstanding as of January 1, 2021	2.8	\$ 40.47		
Granted	0.3	53.25		
Exercised	(0.9)	38.88		
Outstanding as of December 31, 2021	2.2	\$ 42.86	5.5	\$ 66.4
Options exercisable as of December 31, 2021	1.6	\$ 40.90	4.5	\$ 50.9
Options expected to vest as of December 31, 2021	0.6	\$ 47.83	8.0	\$ 14.9

Fair value of options granted

The weighted average grant date fair value of options granted under Pentair plans in 2021, 2020 and 2019 was estimated to be \$12.88, \$9.55 and \$8.86 per share, respectively. The total intrinsic value of options that were exercised during 2021, 2020 and 2019 was \$29.0 million, \$18.0 million and \$9.5 million, respectively. At December 31, 2021, the total unrecognized compensation cost related to stock options was \$3.9 million. This cost is expected to be recognized over a weighted average period of 1.9 years.

We estimated the fair value of each stock option award issued in the annual share-based compensation grant using a Black-Scholes option pricing model, modified for dividends and using the following assumptions:

	December 31		
	2021	2020	2019
Risk-free interest rate	0.37 %	1.61 %	2.89 %
Expected dividend yield	1.56 %	1.80 %	1.78 %
Expected share price volatility	29.60 %	24.10 %	23.30 %
Expected term (years)	6.5	6.8	6.1

These estimates require us to make assumptions based on historical results, observance of trends in our share price, changes in option exercise behavior, future expectations and other relevant factors. If other assumptions had been used, share-based compensation expense, as calculated and recorded under the accounting guidance, could have been affected.

We based the expected life assumption on historical experience as well as the terms and vesting periods of the options granted. For purposes of determining expected volatility, we considered a rolling average of historical volatility measured over a period approximately equal to the expected option term. The risk-free rate for periods that coincide with the expected life of the options is based on the U.S. Treasury Department yield curve in effect at the time of grant.

Cash received from option exercises for the years ended December 31, 2021, 2020 and 2019 was \$29.3 million, \$30.8 million and \$15.5 million, respectively. The actual tax benefit realized for the tax deductions from options exercised totaled \$6.2 million, \$2.9 million and \$2.8 million for the years ended December 31, 2021, 2020 and 2019, respectively.

Restricted stock units

The following table summarizes restricted stock unit activity under all plans for the year ended December 31, 2021:

<i>Shares in millions</i>	Number of shares	Weighted average grant date fair value
Outstanding as of January 1, 2021	0.7 \$	42.52
Granted	0.3	56.42
Vested	(0.3)	41.56
Forfeited	(0.1)	47.06
Outstanding as of December 31, 2021	0.6 \$	47.78

As of December 31, 2021, there was \$23.4 million of unrecognized compensation cost related to restricted share compensation arrangements granted under the 2020 Plan and previous plans. That cost is expected to be recognized over a weighted-average period of 1.0 year. The total fair value of shares vested during the years ended December 31, 2021, 2020 and 2019, was \$10.5 million, \$11.2 million and \$9.3 million, respectively. For the year ended December 31, 2021, there was \$0.6 million of tax benefit realized. For the year ended December 31, 2020, no tax benefit was realized. The actual tax benefit realized for the year ended December 31, 2019, was \$0.1 million.

Performance share units

The following table summarizes performance share unit activity under all plans for the year ended December 31, 2021:

<i>Shares in millions</i>	Number of shares	Weighted average grant date fair value
Outstanding as of January 1, 2021	0.4 \$	42.78
Granted	0.1	52.56
Vested	(0.1)	45.42
Outstanding as of December 31, 2021	0.4 \$	45.55

The expense recognized each period is dependent upon our estimate of the number of shares that will ultimately be issued. As of December 31, 2021, there was \$15.3 million of unrecognized compensation cost related to performance share compensation arrangements granted under the 2020 Plan and previous plans. That cost is expected to be recognized over a weighted-average period of 1.2 years. There were \$0.1 million, \$0.1 million, and \$0.2 million of actual tax benefits realized for the years ended December 31, 2021, 2020, and 2019, respectively.

14. Segment Information

We classify our operations into the following business segments:

- **Consumer Solutions** - This segment designs, manufactures and sells energy-efficient residential and commercial pool equipment and accessories, and commercial and residential water treatment products and systems. Residential and commercial pool equipment and accessories include pumps, filters, heaters, lights, automatic controls, automatic cleaners, maintenance equipment and pool accessories. Water treatment products and systems include pressure tanks, control valves, activated carbon products, conventional filtration products, and point-of-entry and point-of-use systems. Applications for our pool business's products include residential and commercial pool maintenance, repair, renovation, service and construction. Our water treatment products and systems are used in residential whole home water filtration, drinking water filtration and water softening solutions in addition to commercial total water management and filtration in foodservice operations. The primary focus of this segment is business-to-consumer.
- **Industrial & Flow Technologies** - This segment manufactures and sells a variety of fluid treatment and pump products and systems, including pressure vessels, gas recovery solutions, membrane bioreactors, wastewater reuse systems and advanced membrane filtration, separation systems, water disposal pumps, water supply pumps, fluid transfer pumps, turbine pumps, solid handling pumps, and agricultural spray nozzles, while serving the global residential, commercial and industrial markets. These products and systems are used in a range of applications, fluid delivery, ion exchange, desalination, food and beverage, separation technologies for the oil and gas industry, residential and municipal wells, water treatment, wastewater solids handling, pressure boosting, circulation and transfer, fire suppression, flood control, agricultural irrigation and crop spray. The primary focus of this segment is business-to-business.

We evaluate performance based on net sales and segment income (loss) and use a variety of ratios to measure performance of our reporting segments. These results are not necessarily indicative of the results of operations that would have occurred had each segment been an independent, stand-alone entity during the periods presented. Segment income (loss) represents equity income of unconsolidated subsidiaries and operating income exclusive of intangible amortization, certain acquisition related expenses, costs of restructuring and transformation activities, impairments and other unusual non-operating items.

Financial information by reportable segment is included in the following summary:

	2021	2020	2019	2021	2020	2019
<i>In millions</i>	Net sales			Segment income (loss)		
Consumer Solutions	\$ 2,341.9	\$ 1,742.9	\$ 1,611.7	\$ 554.4	\$ 419.1	\$ 379.6
Industrial & Flow Technologies	1,421.4	1,273.6	1,344.1	213.3	164.6	199.0
Other	1.5	1.3	1.4	(81.8)	(66.1)	(62.3)
Consolidated ⁽¹⁾	\$ 3,764.8	\$ 3,017.8	\$ 2,957.2	\$ 685.9	\$ 517.6	\$ 516.3

⁽¹⁾ One customer in the Consumer Solutions' pool business represented approximately 20%, 15%, and 15% of our consolidated net sales in 2021, 2020 and 2019, respectively.

	2021	2020	2019	2021	2020	2019	2021	2020	2019
<i>In millions</i>	Identifiable assets ⁽¹⁾			Capital expenditures			Depreciation		
Consumer Solutions	\$ 2,823.0	\$ 2,327.9	\$ 2,329.9	\$ 32.5	\$ 27.4	\$ 31.2	\$ 23.7	\$ 21.4	\$ 21.8
Industrial & Flow Technologies	1,716.4	1,661.7	1,562.8	23.0	26.6	20.3	21.4	19.8	21.0
Other	214.2	207.6	246.8	4.7	8.2	7.0	6.1	5.5	5.5
Consolidated	\$ 4,753.6	\$ 4,197.2	\$ 4,139.5	\$ 60.2	\$ 62.2	\$ 58.5	\$ 51.2	\$ 46.7	\$ 48.3

⁽¹⁾ All cash and cash equivalents are included in "Other."

The following table presents a reconciliation of consolidated segment income to consolidated income from continuing operations before income taxes:

<i>In millions</i>	2021	2020	2019
Segment income	\$ 685.9	\$ 517.6	\$ 516.3
Restructuring and other costs	(7.5)	(15.4)	(21.0)
Transformation costs	(11.7)	—	—
Inventory step-up	(2.3)	—	(2.2)
Intangible amortization	(26.3)	(28.4)	(31.7)
Pension and other post-retirement mark-to-market gain (loss)	2.4	(6.7)	3.4
Asset impairment	—	—	(21.2)
Gain (loss) on sale of businesses	1.4	(0.1)	2.2
Interest expense, net	(12.5)	(23.9)	(30.1)
Deal related costs and expenses	(7.9)	(0.6)	(4.2)
COVID-19 related costs and expenses	(0.6)	(10.4)	—
Legal settlement and accrual adjustments	7.6	—	—
Other expense	(1.7)	—	(4.0)
Income from continuing operations before income taxes	\$ 626.8	\$ 432.1	\$ 407.5

15. Commitments and Contingencies

Legal proceedings

We have been, and in the future may be, made parties to a number of actions filed or have been, and in the future may be, given notice of potential claims relating to the conduct of our business, including those relating to commercial, regulatory or contractual disputes with suppliers, authorities, customers or parties to acquisitions and divestitures, intellectual property matters, environmental, asbestos, safety and health matters, product liability, the use or installation of our products, consumer matters, and employment and labor matters.

While we believe that a material impact on our consolidated financial position, results of operations or cash flows from any such future claims or potential claims is unlikely, given the inherent uncertainty of litigation, a remote possibility exists that a future adverse ruling or unfavorable development could result in future charges that could have a material adverse impact. We do and will continue to periodically reexamine our estimates of probable liabilities and any associated expenses and receivables and make appropriate adjustments to such estimates based on experience and developments in litigation and applicable accounting rules. As a result, the current estimates of the potential impact on our consolidated financial position, results of operations and cash flows for the proceedings and claims described in the notes to our consolidated financial statements could change in the future.

Environmental matters

We have been named as defendant, target or a potentially responsible party in a number of environmental clean-ups relating to our current or former business units. Accruals for environmental matters are recorded on a site-by-site basis when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated, based on current law and existing technologies. It can be difficult to estimate reliably the final costs of investigation and remediation due to various factors. In our opinion, the amounts accrued are appropriate based on facts and circumstances as currently known. As of December 31, 2021, our recorded reserves for environmental matters were not material.

Leases

Our lease portfolio principally consists of operating leases related to facilities, machinery, equipment and vehicles. Our lease terms do not include options to extend or terminate the lease until we are reasonably certain that we will exercise that option. Operating lease cost for lease payments is recognized on a straight-line basis over the lease term and principally consists of fixed payments for base rent.

These operating lease right-of-use (“ROU”) assets are included in *Other non-current assets* on the Consolidated Balance Sheets, and represent our right to use the underlying asset for the lease term. Our obligation to make lease payments arising from the lease are included in *Other current liabilities* and *Other non-current liabilities* on the Consolidated Balance Sheets. Lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As we cannot readily determine the rate implicit in the lease, we use our incremental borrowing rate, determined by country of lease origin, based on the anticipated lease term at the commencement date in determining the present value of lease payments. The ROU asset also excludes any accrued lease payments and unamortized lease incentives.

For measurement and classification of lease agreements, we group lease and non-lease components into a single lease component for all underlying asset classes. Accordingly, all costs associated with a lease contract are accounted for as one lease cost.

The components of lease cost were as follows:

<i>In millions</i>	December 31, 2021	December 31, 2020
Operating lease cost	\$ 37.2	\$ 32.5
Sublease income	(1.0)	(1.0)
Total lease cost	\$ 36.2	\$ 31.5

Supplemental cash flow information related to leases was as follows:

<i>In millions</i>	December 31, 2021	December 31, 2020
Operating cash flows from operating leases	\$ 41.5	\$ 28.5
Right-of-use assets obtained in exchange for lease obligations	\$ 12.2	\$ 13.6

Other information related to leases was as follows:

	December 31, 2021		December 31, 2020
Weighted-average remaining lease term of operating leases (years)	4.1		4.7
Weighted-average discount rate of operating leases	5.1 %		5.5 %

Future minimum lease commitments under non-cancelable operating leases as of December 31, 2021 were as follows:

<i>In millions</i>			
2022	\$		29.5
2023			25.3
2024			19.7
2025			9.6
2026			6.0
Thereafter			7.7
Total lease payments			97.8
Less: imputed interest			(9.6)
Total	\$		88.2

Warranties and guarantees

In connection with the disposition of our businesses or product lines, we may agree to indemnify purchasers for various potential liabilities relating to the sold business, such as pre-closing tax, product liability, warranty, environmental, or other obligations. The subject matter, amounts and duration of any such indemnification obligations vary for each type of liability indemnified and may vary widely from transaction to transaction.

Generally, the maximum obligation under such indemnifications is not explicitly stated and as a result, the overall amount of these obligations cannot be reasonably estimated. Historically, we have not made significant payments for these indemnifications. We believe that if we were to incur a loss in any of these matters, the loss would not have a material effect on our financial position, results of operations or cash flows.

We recognize, at the inception of a guarantee, a liability for the fair value of the obligation undertaken in issuing the guarantee. In connection with the disposition of the Valves & Controls business, we agreed to indemnify Emerson Electric Co. for certain pre-closing tax liabilities. We have recorded a liability representing the fair value of our expected future obligation for this matter.

We provide service and warranty policies on our products. Liability under service and warranty policies is based upon a review of historical warranty and service claim experience. Adjustments are made to accruals as claim data and historical experience warrant.

The changes in the carrying amount of service and product warranties were as follows:

<i>In millions</i>	Years ended December 31		
	2021	2020	2019
Beginning balance	\$ 37.0	\$ 32.1	\$ 33.9
Service and product warranty provision	55.6	55.5	53.8
Payments	(51.8)	(51.1)	(55.5)
Foreign currency translation	(0.3)	0.5	(0.1)
Ending balance	\$ 40.5	\$ 37.0	\$ 32.1

Stand-by letters of credit, bank guarantees and bonds

In certain situations, Tyco International Ltd., Pentair Ltd.'s former parent company ("Tyco"), guaranteed performance by the flow control business of Pentair Ltd. ("Flow Control") to third parties or provided financial guarantees for financial commitments of Flow Control. In situations where Flow Control and Tyco were unable to obtain a release from these guarantees in connection with the spin-off of Flow Control from Tyco, we will indemnify Tyco for any losses it suffers as a result of such guarantees.

In the ordinary course of business, we are required to commit to bonds, letters of credit and bank guarantees that require payments to our customers for any non-performance. The outstanding face value of these instruments fluctuates with the value of our projects in process and in our backlog. In addition, we issue financial stand-by letters of credit primarily to secure our performance to third parties under self-insurance programs.

As of December 31, 2021 and 2020, the outstanding value of bonds, letters of credit and bank guarantees totaled \$104.5 million and \$99.1 million, respectively.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the year ended December 31, 2021, pursuant to Rule 13a-15(b) of the Securities Exchange Act of 1934 (“the Exchange Act”). Based upon their evaluation, our Chief Executive Officer and our Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the year ended December 31, 2021 to ensure that information required to be disclosed by us in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission’s rules and forms and to ensure that information required to be disclosed by us in the reports we file or submit under the Exchange Act is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosures.

Management’s Annual Report on Internal Control Over Financial Reporting

The report of management required under this ITEM 9A is contained in ITEM 8 of this Annual Report on Form 10-K under the caption “Management’s Report on Internal Control Over Financial Reporting.”

Attestation Report of Independent Registered Public Accounting Firm

The attestation report required under this ITEM 9A is contained in ITEM 8 of this Annual Report on Form 10-K under the caption “Report of Independent Registered Public Accounting Firm.”

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the quarter ended December 31, 2021 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information required under this item with respect to directors is contained in our Proxy Statement for our 2022 annual general meeting of shareholders under the captions “Corporate Governance Matters” and “Proposal 1 Re-elect Director Nominees” and is incorporated herein by reference.

Information required under this item with respect to executive officers is contained in Part I of this Form 10-K under the caption “Information About Our Executive Officers.”

Our Board of Directors has adopted Pentair’s Code of Business Conduct and Ethics and designated it as the code of ethics for the Company’s Chief Executive Officer and senior financial officers. The Code of Business Conduct and Ethics also applies to all employees and directors in accordance with New York Stock Exchange Listing Standards. We have posted a copy of Pentair’s Code of Business Conduct and Ethics on our website at <http://pentair.com/en/about-us/leadership/corporate-governance>. We intend to satisfy the disclosure requirements under Item 5.05 of Form 8-K regarding amendments to or waivers from, Pentair’s Code of Business Conduct and Ethics by posting such information on our website at <http://pentair.com/en/about-us/leadership/corporate-governance>.

We are not including the information contained on our website as part of, or incorporating it by reference into, this report.

ITEM 11. EXECUTIVE COMPENSATION

Information required under this item is contained in our Proxy Statement for our 2022 annual general meeting of shareholders under the captions “Compensation Discussion and Analysis,” “Compensation Committee Report,” “Executive Compensation Tables” and “Corporate Governance Matters - Director Compensation” and is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information required under this item with respect to security ownership is contained in our Proxy Statement for our 2022 annual general meeting of shareholders under the caption “Security Ownership” and is incorporated herein by reference.

The following table summarizes, as of December 31, 2021, information about compensation plans under which our equity securities are authorized for issuance:

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders:			
2020 Share and Incentive Plan	777,309 ⁽¹⁾	\$ 53.28 ⁽²⁾	5,151,819 ⁽³⁾
2012 Stock and Incentive Plan	2,597,495 ⁽⁴⁾	41.04 ⁽²⁾	360,068 ⁽⁵⁾
Total	3,374,804	\$ 42.63 ⁽²⁾	5,511,887

⁽¹⁾ Consists of 307,572 shares subject to stock options, 337,364 shares subject to restricted stock units, and 132,373 shares subject to performance share awards.

⁽²⁾ Represents the weighted average exercise price of outstanding stock options and does not take into account outstanding restricted stock units or performance share units.

⁽³⁾ Represents securities remaining available for issuance under the 2020 Share and Incentive Plan.

⁽⁴⁾ Consists of 2,066,108 shares subject to stock options, 291,305 shares subject to restricted stock units, and 240,082 shares subject to performance share awards.

⁽⁵⁾ The 2012 Stock and Incentive Plan was terminated in 2020. Stock options, restricted stock units and performance share awards previously granted under the 2012 Stock and Incentive Plan remain outstanding, but no further options or shares may be granted under this plan.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

Information required under this item is contained in our Proxy Statement for our 2022 annual general meeting of shareholders under the captions “Proposal 1 Re-elect Director Nominees - Director Independence” and “Corporate Governance Matters - The Board’s Role and Responsibilities - Policies and Procedures Regarding Related Person Transactions” and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Information required under this item is contained in our Proxy Statement for our 2022 annual general meeting of shareholders under the caption “Proposal 3 Ratify, by Nonbinding, Advisory Vote, the Appointment of Deloitte & Touche LLP (PCAOB ID No. 34) as the Independent Auditor of Pentair plc and to Authorize, by Binding Vote, the Audit and Finance Committee of the Board of Directors to Set the Auditor’s Remuneration” and is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) List of documents filed as part of this report:

(1) Financial Statements

Consolidated Statements of Operations and Comprehensive Income for the years ended December 31, 2021, 2020 and 2019

Consolidated Balance Sheets as of December 31, 2021 and 2020

Consolidated Statements of Cash Flows for the years ended December 31, 2021, 2020 and 2019

Consolidated Statements of Changes in Equity for the years ended December 31, 2021, 2020 and 2019

Notes to Consolidated Financial Statements

(2) Financial Statement Schedule

None.

All other schedules for which provision is made in the applicable accounting regulations of the Securities and Exchange Commission have been omitted because they are not applicable or the required information is shown in the financial statements or notes thereto.

(3) Exhibits

The exhibits of this Annual Report on Form 10-K included herein are set forth below.

Exhibit Number	Exhibit
---------------------------	----------------

- | | |
|----------------------------|--|
| <u>3.1</u> | Amended and Restated Memorandum and Articles of Association of Pentair plc (Incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of Pentair plc filed with the Commission on May 9, 2017 (File No. 001-11625)). |
| <u>4.1</u> | Indenture, dated as of September 24, 2012, among Pentair Finance S.A. (formerly Tyco Flow Control International Finance S.A.) (as Issuer), Pentair Ltd. (as Guarantor) and Wells Fargo Bank, National Association (as Trustee) (Incorporated by reference to Exhibit 4.1 in the Current Report on Form 8-K of Pentair Ltd. filed with the Commission on September 28, 2012 (File No. 001-11625)). |
| <u>4.2</u> | Second Supplemental Indenture, dated as of September 24, 2012, among Pentair Finance S.A. (formerly Tyco Flow Control International Finance S.A.) (as Issuer), Pentair Ltd. (as Guarantor), Pentair, Inc. and Wells Fargo Bank, National Association (as Trustee) (Incorporated by reference to Exhibit 4.3 in the Current Report on Form 8-K of Pentair Ltd. filed with the Commission on September 28, 2012 (File No. 001-11625)). |
| <u>4.3</u> | Sixth Supplemental Indenture, dated as of May 20, 2014, among Pentair Finance S.A., Pentair Ltd., Pentair Investments Switzerland GmbH, Pentair plc and Wells Fargo Bank, National Association, as trustee (Incorporated by reference to Exhibit 4.3 in the Current Report on Form 8-K of Pentair plc filed with the Commission on May 20, 2014 (File No. 001-11625)). |
| <u>4.4</u> | Seventh Supplemental Indenture, dated as of May 26, 2017, among Pentair Finance S.A., Pentair plc, Pentair Investments Switzerland GmbH and Wells Fargo Bank, National Association as trustee (Incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K of Pentair plc filed with the Commission on May 31, 2017 (File No. 001-11625)). |
| <u>4.5</u> | Amended and Restated Credit Agreement, dated as of December 16, 2021, among Pentair plc, Pentair Finance S.à r.l., Pentair, Inc. and the lenders and agents party thereto (Incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K of Pentair plc filed with the Commission on December 20, 2021 (File No. 001-11625)). |
| <u>4.6</u> | Indenture, dated as of September 16, 2015, among Pentair Finance S.A. (as Issuer), Pentair plc (as Parent and Guarantor), Pentair Investments Switzerland GmbH (as Guarantor) and U.S. Bank National Association (as Trustee) (Incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K of Pentair plc filed with the Commission on September 16, 2015 (File No. 001-11625)). |

- [4.7](#) Third Supplemental Indenture, dated as of September 16, 2015, among Pentair Finance S.A. (as Issuer), Pentair plc (as Parent and Guarantor), Pentair Investments Switzerland GmbH (as Guarantor) and U.S. Bank National Association (as Trustee) (Incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K of Pentair plc filed with the Commission on September 16, 2015 (File No. 001-11625)).
- [4.8](#) Fifth Supplemental Indenture, dated as of May 26, 2017, among Pentair Finance S.A., Pentair plc, Pentair Investments Switzerland GmbH and U.S. Bank National Association, as trustee (Incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K of Pentair plc filed with the Commission on May 31, 2017 (File No. 001-11625)).
- [4.9](#) Sixth Supplemental Indenture, dated as of June 21, 2019, among Pentair Finance S.à r.l. (as Issuer), Pentair plc (as Parent and Guarantor), Pentair Investments Switzerland GmbH (as Guarantor) and U.S. Bank National Association (as Trustee) (Incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K of Pentair plc filed with the Commission on June 21, 2019 (File No. 001-11625)).
- [4.10](#) Seventh Supplemental Indenture, dated as of June 22, 2020, among Pentair Finance S.à r.l. (as Issuer), Pentair plc (as Parent and Guarantor), Pentair Investments Switzerland GmbH (as Guarantor) and U.S. Bank National Association (as Trustee) (Incorporated by reference to Exhibit 4.2 to the Quarterly Report on Form 10-Q of Pentair plc filed with the Commission on July 23, 2020 (File No. 001-11625)).
- [4.11](#) Eighth Supplemental Indenture, dated as of June 22, 2020, among Pentair Finance S.à r.l. (as Issuer), Pentair plc (as Successor Parent Guarantor), Pentair Investments Switzerland GmbH (as Guarantor) and Wells Fargo Bank National Association (as Trustee) (Incorporated by reference to Exhibit 4.1 to the Quarterly Report on Form 10-Q of Pentair plc filed with the Commission on July 23, 2020 (File No. 001-11625)).
- [4.12](#) Description of Securities.
- [10.1](#) Tax Matters Agreement, dated as of April 27, 2018, by and between Pentair plc and nVent Electric plc (Incorporated by reference to Exhibit 2.2 to the Current Report on Form 8-K of Pentair plc filed with the Commission on April 30, 2018 (File No. 001-11625)).
- [10.2](#) Pentair plc 2012 Stock and Incentive Plan, as amended and restated effective as of January 1, 2017. (Incorporated by reference to Exhibit 10.2 to the Annual Report on Form 10-K of Pentair plc for the year ended December 31, 2016 (File No. 001-11625)).*
- [10.3](#) Form of Executive Officer Stock Option Grant Agreement for grants made prior to January 1, 2017 (Incorporated by reference to Exhibit 10.7 in the Current Report on Form 8-K of Pentair plc filed with the Commission on June 3, 2014 (File No. 001-11625)).*
- [10.4](#) Form of Non-Employee Director Stock Option Grant Agreement (Incorporated by reference to Exhibit 10.10 in the Current Report on Form 8-K of Pentair plc filed with the Commission on June 3, 2014 (File No. 001-11625)).*
- [10.5](#) Form of Assignment and Assumption Agreement, among Pentair, Inc., Pentair Ltd. and the executive officers of Pentair Ltd. relating to Key Executive Employment and Severance Agreement (Incorporated by reference to Exhibit 10.12 in the Current Report on Form 8-K of Pentair Ltd. filed with the Commission on October 1, 2012 (File No. 001-11625)).*
- [10.6](#) Form of Key Executive Employment and Severance Agreement for John L. Stauch (Incorporated by reference to Exhibit 10.1 in the Quarterly Report on Form 10-Q of Pentair plc for the quarter ended June 30, 2018 (File No. 001-11625)).*
- [10.7](#) Form of Key Executive Employment and Severance Agreement for Karla C. Robertson, Philip M. Rolchigo, Robert P. Fishman, Jerome O. Pedretti, Mario R. D'Ovidio and Stephen J. Pilla (Incorporated by reference to Exhibit 10.3 in the Quarterly Report on Form 10-Q of Pentair plc for the quarter ended June 30, 2018 (File No. 001-11625)).*
- [10.8](#) Form of Key Executive Employment and Severance Agreement for Adrian C. Chiu.*
- [10.9](#) Pentair plc Compensation Plan for Non-Employee Directors, as amended and restated (Incorporated by reference to Exhibit 10.6 in the Current Report on Form 8-K of Pentair plc filed with the Commission on June 3, 2014 (File No. 001-11625)).*
- [10.10](#) Pentair plc Employee Stock Purchase and Bonus Plan, as amended and restated effective as of January 1, 2021. (Incorporated by reference to Exhibit 10.11 to the Annual Report on Form 10-K of Pentair plc for the year ended December 31, 2020 (File No. 001-11625)).*
- [10.11](#) Pentair, Inc. Non-Qualified Deferred Compensation Plan, as amended and restated (Incorporated by reference to Exhibit 10.17 to the Annual Report on Form 10-K of Pentair plc for the year ended December 31, 2018 (File No. 001-11625)).*

- [10.12](#) Trust Agreement for Pentair, Inc. Non-Qualified Deferred Compensation Plan between Pentair, Inc. and Fidelity Management Trust Company (Incorporated by reference to Exhibit 10.18 contained in the Annual Report on Form 10-K of Pentair, Inc. for the year ended December 31, 1995 (File No. 000-04689)).*
- [10.13](#) Pentair, Inc. Supplemental Executive Retirement Plan effective January 1, 2009, as amended and restated (Incorporated by reference to Exhibit 10.13 in the Current Report on Form 8-K of Pentair plc filed with the Commission on June 3, 2014 (File No. 001-11625)).*
- [10.14](#) Pentair, Inc. Restoration Plan effective January 1, 2009, as amended and restated (Incorporated by reference to Exhibit 10.14 in the Current Report on Form 8-K of Pentair plc filed with the Commission on June 3, 2014 (File No. 001-11625)).*
- [10.15](#) Form of Deed of Indemnification for directors and executive officers of Pentair plc (Incorporated by reference to Exhibit 10.15 in the Current Report on Form 8-K of Pentair plc filed with the Commission on June 3, 2014 (File No. 001-11625)).*
- [10.16](#) Form of Indemnification Agreement for directors and executive officers of Pentair plc (Incorporated by reference to Exhibit 10.16 in the Current Report on Form 8-K of Pentair plc filed with the Commission on June 3, 2014 (File No. 001-11625)).*
- [10.17](#) Form of Executive Officer Key Talent Award Agreement for grants made prior to May 5, 2020 (Incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of Pentair plc for the quarter ended March 31, 2018 (File No. 001-11625)).*
- [10.18](#) Form of Executive Officer Stock Option Grant Agreement for grants made on or after January 1, 2017 and prior to February 26, 2018 (Incorporated by reference to Exhibit 10.31 to the Annual Report on Form 10-K of Pentair plc for the year ended December 31, 2016 (File No. 001-11625)).*
- [10.19](#) Form of Executive Officer Restricted Stock Unit Award Agreement for grants made on or after February 26, 2018 and prior to May 5, 2020 (Incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q of Pentair plc for the quarter ended March 31, 2018 (File No. 001-11625)).*
- [10.20](#) Form of Executive Officer Stock Option Award Agreement for grants made on or after February 26, 2018 and prior to May 5, 2020 (Incorporated by reference to Exhibit 10.4 to the Quarterly Report on Form 10-Q of Pentair plc for the quarter ended March 31, 2018 (File No. 001-11625)).*
- [10.21](#) Form of Executive Officer Performance Stock Unit Award Agreement for grants made on or after January 1, 2019 and prior to May 5, 2020 (Incorporated by reference to Exhibit 10.32 to the Annual Report on Form 10-K of Pentair plc for the year ended December 31, 2018 (File No. 001-11625)).*
- [10.22](#) Pentair plc 2020 Share and Incentive Plan, effective as of May 5, 2020 (Incorporated by reference to Appendix B to the Definitive Proxy Statement on Schedule 14A of Pentair plc filed on March 20, 2020 (File No. 001-11625)).*
- [10.23](#) Form of Employee Restricted Stock Unit Award Agreement under the Pentair plc 2020 Share and Incentive Plan (Incorporated by reference to Exhibit 99.1 to the Registration Statement on Form S-8 of Pentair plc (Reg. No. 333-238544)).*
- [10.24](#) Form of Non-Employee Director Restricted Stock Unit Award Agreement under the Pentair plc 2020 Share and Incentive Plan (Incorporated by reference to Exhibit 99.2 to the Registration Statement on Form S-8 of Pentair plc (Reg. No. 333-238544)).*
- [10.25](#) Form of Key Talent Award Agreement under the Pentair plc 2020 Share and Incentive Plan (Incorporated by reference to Exhibit 99.3 to the Registration Statement on Form S-8 of Pentair plc (Reg. No. 333-238544)).*
- [10.26](#) Form of Stock Option Award Agreement under the Pentair plc 2020 Share and Incentive Plan (Incorporated by reference to Exhibit 99.4 to the Registration Statement on Form S-8 of Pentair plc (Reg. No. 333-238544)).*
- [10.27](#) Form of Performance Share Unit Award Agreement under the Pentair plc 2020 Share and Incentive Plan (Incorporated by reference to Exhibit 99.5 to the Registration Statement on Form S-8 of Pentair plc (Reg. No. 333-238544)).*
- [10.28](#) Pentair plc Executive Officer Severance Plan (Incorporated by reference to Exhibit 10.30 to the Annual Report on Form 10-K of Pentair plc for the year ended December 31, 2020 (File No. 001-11625)).*
- [10.29](#) Amendment No. 1 to the Pentair plc 2020 Share and Incentive Plan (Incorporated by reference to Exhibit 10.31 to the Annual Report on Form 10-K of Pentair plc for the year ended December 31, 2020 (File No. 001-11625)).*

- [10.30](#) Amendment to Key Executive Employment and Severance Agreement, as of January 1, 2021, for John L. Stauch, Karla C. Robertson, Philip M. Rolchigo, Robert P. Fishman, Jerome O. Pedretti, Mario R. D'Ovidio and Stephen J. Pilla (Incorporated by reference to Exhibit 10.32 to the Annual Report on Form 10-K of Pentair plc for the year ended December 31, 2020 (File No. 001-11625)).*
- [21](#) List of Pentair plc subsidiaries.
- [22](#) List of Guarantors and Subsidiary Issuers of Guaranteed Securities. (Incorporated by reference to Exhibit 22 to the Quarterly Report on Form 10-Q of Pentair plc for the quarter ended June 30, 2021 (File No. 001-11625)).
- [23](#) Consent of Independent Registered Public Accounting Firm — Deloitte & Touche LLP.
- [24](#) Power of attorney.
- [31.1](#) Certification of Chief Executive Officer.
- [31.2](#) Certification of Chief Financial Officer.
- [32.1](#) Certification of Chief Executive Officer, Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
- [32.2](#) Certification of Chief Financial Officer, Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
- 101** The following materials from Pentair plc's Annual Report on Form 10-K for the year ended December 31, 2021 are filed herewith, formatted in iXBRL (Inline Extensible Business Reporting Language): (i) the Consolidated Statements of Operations and Comprehensive Income for the years ended December 31, 2021, 2020 and 2019, (ii) the Consolidated Balance Sheets as of December 31, 2021 and 2020, (iii) the Consolidated Statements of Cash Flows for the years ended December 31, 2021, 2020 and 2019, (iv) the Consolidated Statements of Changes in Equity for the years ended December 31, 2021, 2020 and 2019 and (v) the Notes to the Consolidated Financial Statements. The instance document does not appear in the interactive data file because its XBRL tags are embedded within the Inline XBRL document.
- 104** Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

* Denotes a management contract or compensatory plan or arrangement.

ITEM 16. FORM 10-K SUMMARY

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on February 22, 2022.

PENTAIR PLC

By /s/ Robert P. Fishman

Robert P. Fishman

Executive Vice President, Chief Financial Officer and
Chief Accounting Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities indicated, on February 22, 2022.

<u>Signature</u>	<u>Title</u>
/s/ John L. Stauch	President and Chief Executive Officer, Director
John L. Stauch	
/s/ Robert P. Fishman	Executive Vice President, Chief Financial Officer and Chief Accounting Officer
Robert P. Fishman	
*	Director
Mona Abutaleb Stephenson	
*	Director
Melissa Barra	
*	Director
Glynis A. Bryan	
*	Director
T. Michael Glenn	
*	Director
Theodore L. Harris	
*	Director
David A. Jones	
*	Director
Gregory E. Knight	
*	Director
Michael T. Speetzen	
*	Director
Billie I. Williamson	
*By /s/ Karla C. Robertson	
Karla C. Robertson	
Attorney-in-fact	

DESCRIPTION OF ORDINARY SHARES

The following description of the material terms of ordinary shares of Pentair plc (“Pentair”) is based on the provisions of the Pentair articles of association (the “Pentair Articles”). This description is not complete and is subject to the applicable provisions of Irish law and the Pentair Articles, which are filed as an exhibit to this Annual Report on Form 10-K.

Capital Structure

The current authorized share capital of Pentair is €40,000 and \$4,260,000 divided into 40,000 ordinary shares with a nominal value of €1.00 per share and 426,000,000 ordinary shares with a nominal value of \$0.01 per share. The authorized share capital includes 40,000 shares with a nominal value of €1 per share, which was required on incorporation in order to satisfy statutory requirements for all Irish public limited companies commencing operations.

Pentair may issue shares subject to the maximum authorized share capital contained in the Pentair Articles. The authorized share capital may be increased by a resolution approved by a two-thirds majority of the votes of Pentair’s shareholders cast at a general meeting (referred to as a “variation resolution”) or reduced by a resolution approved by a simple majority of the votes of Pentair’s shareholders cast at a general meeting (referred to under Irish law as an “ordinary resolution”). The shares comprising the authorized share capital of Pentair may be divided into shares of such nominal value as the resolution shall prescribe. As a matter of Irish company law, the directors of a company may issue new ordinary shares without shareholder approval once authorized to do so by the articles of association or by an ordinary resolution adopted by the shareholders at a general meeting. In accordance with current customary practice in Ireland, Pentair sought, and received, shareholder approval at Pentair’s 2021 annual general meeting of shareholders to authorize the board of directors to issue up to a maximum of 33% of Pentair’s issued ordinary share capital as of March 5, 2021 (an aggregate nominal amount of \$548,368 or 54,836,794 shares), for a period to expire 18 months from the approval, or November 4, 2022.

The rights and restrictions to which the ordinary shares are subject are prescribed in the Pentair Articles.

Preemption Rights

Under Irish law certain statutory preemption rights apply automatically in favor of shareholders where shares are to be issued for cash. However, Pentair initially opted out of these preemption rights in the Pentair Articles as permitted under Irish company law. Because Irish law requires this opt-out to be renewed at least every five years by a resolution approved by not less than 75% of the votes of the shareholders of Pentair cast at a general meeting (referred to under Irish law as a “special resolution”), the Pentair Articles provide that this opt-out must be so renewed. If the opt-out is not renewed, shares issued for cash must be offered to existing shareholders of Pentair on a pro rata basis to their existing shareholding before the shares can be issued to any new shareholders. The statutory preemption rights do not apply where shares are issued for non-cash consideration (such as in a stock-for-stock acquisition) and do not apply to the issue of non-equity shares (that is, shares that have the right to participate only up to a specified amount in any income or capital distribution) or where shares are issued pursuant to an employee option or similar equity plan. In accordance with current customary practice in Ireland, Pentair sought, and received, shareholder approval at Pentair’s 2021 annual general meeting of shareholders to authorize Pentair to opt out of preemption rights with respect to the allotment of equity securities up to a maximum of 10% of Pentair’s issued ordinary share capital as of March 5, 2021 (an aggregate nominal amount of \$166,172 or 16,617,210 shares), provided that any amount above 5% of Pentair’s issued ordinary share capital as of March 5, 2021 (an aggregate nominal amount of \$83,086 or 8,308,605 shares) is to be used only for the purpose of an acquisition or a specific capital investment. This approval will expire 18 months from the date of the approval, or November 4, 2022.

Dividends

Under Irish law, dividends and distributions may only be made from distributable reserves. Distributable reserves generally means accumulated realized profits less accumulated realized losses and includes reserves created by way of capital reduction. In addition, no distribution or dividend may be made unless the net assets of Pentair are equal to, or in excess of, the aggregate of Pentair’s called up share capital plus undistributable reserves and the distribution does not reduce Pentair’s net assets below such aggregate. Undistributable reserves include undenominated capital and the amount by which Pentair’s accumulated unrealized profits, so far as not previously utilized by any capitalization, exceed Pentair’s accumulated unrealized losses, so far as not previously written off in a reduction or reorganization of capital.

The determination as to whether or not Pentair has sufficient distributable reserves to fund a dividend must be made by reference to “relevant financial statements” of Pentair. The “relevant financial statements” will be either the last set of unconsolidated annual audited financial statements or other financial statements properly prepared in accordance with the Companies Act, which give a “true and fair view” of Pentair’s unconsolidated financial position and accord with accepted accounting practice. The relevant financial statements must be filed in the Companies Registration Office (the official public registry for companies in Ireland).

The Pentair Articles authorize the directors to declare dividends to the extent they appear justified by profits without shareholder approval. The Pentair board of directors may also recommend a dividend to be approved and declared by the Pentair shareholders at a general meeting. The Pentair board of directors may direct that the payment be made by distribution of assets, shares or cash and no dividend issued may exceed the amount recommended by the directors. Dividends may be declared and paid in the form of cash or non-cash assets and may be paid in U.S. dollars or any other currency. All holders of ordinary shares of Pentair will participate pro rata in respect of any dividend which may be declared in respect of ordinary shares by Pentair.

The directors of Pentair may deduct from any dividend payable to any shareholder any amounts payable by such shareholder to Pentair in relation to the ordinary shares of Pentair.

Bonus Shares

The Pentair Articles authorize the Pentair board of directors to capitalize any amount credited to any reserve, including undenominated capital, or credited to the profit and loss account, and use such amount for the issuance to shareholders of shares as fully paid bonus shares on the same basis of entitlement as would apply in respect of a dividend distribution.

Share Repurchases, Redemptions and Conversions

Overview

The Pentair Articles provide that unless the Board specifically elects to treat such acquisition as a purchase for the purposes of the Irish Companies Act 2014 (as amended) (the “Companies Act”), any ordinary shares which Pentair has agreed to acquire shall be deemed to be a redeemable share on, and from the time of, existence or creation of an agreement, transaction, or trade between Pentair and any third party pursuant to which Pentair acquires, or will acquire, ordinary shares, or an interest in ordinary shares, from such third party. Accordingly, for Irish company law purposes, the repurchase of ordinary shares by Pentair will technically be effected as a redemption of those shares as described below under “Repurchases and Redemptions by Pentair”. If the Pentair Articles did not contain such provision, all repurchases by Pentair would be subject to many of the same rules that apply to purchases of Pentair ordinary shares by subsidiaries described below under “Purchases by Subsidiaries of Pentair” including the shareholder approval requirements described below and the requirement that any on-market purchases be effected on a “recognized stock exchange”. Neither Irish law nor any constituent document of Pentair places limitations on the right of nonresident or foreign owners to vote or hold Pentair ordinary shares. Except where otherwise noted, references elsewhere in this document to repurchasing or buying back ordinary shares of Pentair refer to the redemption of ordinary shares by Pentair or the purchase of ordinary shares of Pentair by a subsidiary of Pentair, in each case in accordance with the Pentair Articles and Irish company law as described below.

Repurchases and Redemptions by Pentair

Under Irish law, a company may issue redeemable shares and redeem them out of distributable reserves or the proceeds of a new issue of shares for that purpose. Pentair may only issue redeemable shares if the nominal value of the issued share capital that is not redeemable is not less than 10% of the nominal value of the total issued share capital of Pentair. All redeemable shares must also be fully-paid and the terms of redemption of the shares must provide for payment on redemption. Redeemable shares may, upon redemption, be canceled or held in treasury. Based on the provision of the Pentair Articles described above, shareholder approval will not be required to redeem Pentair ordinary shares.

Pentair may also be given an additional general authority by its shareholders to purchase its own shares on-market which would take effect on the same terms and be subject to the same conditions as applicable to purchases by Pentair’s subsidiaries as described below.

Repurchased and redeemed shares may be canceled or held as treasury shares. The nominal value of treasury shares held by Pentair at any time must not exceed 10% of the nominal value of the issued share capital of Pentair. Pentair may not exercise any voting rights in respect of any shares held as treasury shares. Treasury shares may be canceled by Pentair or re-issued subject to certain conditions.

Purchases by Subsidiaries of Pentair

Under Irish law, an Irish or non-Irish subsidiary may purchase Pentair ordinary shares either as overseas market purchases or off-market purchases. For a subsidiary of Pentair to make overseas market purchases of Pentair ordinary shares, the shareholders of Pentair must provide general authorization for such purchase by way of ordinary resolution. However, as long as this general authority has been granted, no specific shareholder authority for a particular overseas market purchase by a subsidiary of Pentair ordinary shares is required. For an off-market purchase by a subsidiary of Pentair, the proposed purchase contract must be authorized by special resolution of the shareholders before the contract is entered into. The person whose Pentair ordinary shares are to be bought back

cannot vote in favor of the special resolution and, for at least 21 days prior to the special resolution being passed, the purchase contract must be on display or must be available for inspection by shareholders at the registered office of Pentair.

In order for a subsidiary of Pentair to make an overseas market purchase of Pentair ordinary shares, such shares must be purchased on a “recognized stock exchange”. The New York Stock Exchange, on which the shares of Pentair are listed, is specified as a recognized stock exchange for this purpose by Irish company law.

The number of Pentair ordinary shares acquired and held by the subsidiaries of Pentair at any time will count as treasury shares and will be included in any calculation of the permitted treasury share threshold of 10% of the nominal value of the issued share capital of Pentair. While a subsidiary holds Pentair ordinary shares, it cannot exercise any voting rights in respect of those shares. The acquisition of Pentair ordinary shares by a subsidiary must be funded out of distributable reserves of the subsidiary.

Lien on Shares, Calls on Shares and Forfeiture of Shares

The Pentair Articles provide that Pentair will have a first and paramount lien on every share that is not a fully paid up share for all moneys payable at a fixed time or called in respect of that share, whether presently due or not in respect of such Pentair ordinary shares. Subject to the terms of their allotment, directors may call for any unpaid amounts in respect of any Pentair ordinary shares to be paid, and if payment is not made, the shares may be forfeited. These provisions are standard inclusions in the articles of association of an Irish public company limited by shares such as Pentair and will only be applicable to Pentair ordinary shares that have not been fully paid up.

Consolidation and Division; Subdivision

Under the Pentair Articles, Pentair may, by ordinary resolution, consolidate and divide all or any of its share capital into shares of larger nominal value than its existing shares or subdivide its shares into smaller amounts than is fixed by the Pentair Articles.

Reduction of Share Capital

Pentair may, by special resolution, reduce its authorized share capital in any way. Pentair also may, by special resolution and subject to confirmation by the Irish High Court, reduce or cancel its issued share capital in any manner permitted by the Companies Act.

Extraordinary General Meetings of Shareholders

Extraordinary general meetings of Pentair may be convened (i) by the Pentair board of directors, (ii) on requisition of the shareholders holding not less than 10% of the paid up share capital of Pentair carrying voting rights, or (iii) on requisition of Pentair’s auditors. Extraordinary general meetings are generally held for the purposes of approving shareholder resolutions as may be required from time to time. At any extraordinary general meeting only such business shall be conducted as is set forth in the notice thereof.

Voting

Each ordinary share is entitled to one vote on each matter properly brought before the shareholders. At any meeting of Pentair, all resolutions will be decided on a poll.

Treasury shares or Pentair ordinary shares that are held by subsidiaries of Pentair are not entitled to be voted at general meetings of shareholders.

Irish company law requires special resolutions of the shareholders at a general meeting to approve certain matters. Examples of matters requiring special resolutions include:

- amending the Pentair Articles;
- approving a change of name of Pentair;
- authorizing the entering into of a guarantee or provision of security in connection with a loan, quasi-loan or credit transaction to a director or connected person;
- opting out of preemption rights on the issuance of new shares;
- re-registration of Pentair from a public limited company to a private company;
- variation of class rights attaching to classes of shares (where the Pentair Articles do not provide otherwise);

- purchase of Pentair shares off-market;
- reduction of issued share capital;
- sanctioning a compromise/scheme of arrangement;
- resolving that Pentair be wound up by the Irish courts;
- resolving in favor of a shareholders' voluntary winding-up;
- re-designation of shares into different share classes;
- setting the re-issue price of treasury shares; and
- a cross-border merger pursuant to Directive (EU) 2017/1132 of 14 June 2017 relating to certain aspects of company law.

Variation of Rights Attaching to a Class or Series of Shares

Under the Pentair Articles and the Companies Act, any variation of class rights attaching to the issued shares of Pentair must be approved in writing by holders of three-quarters of the issued shares in that class or with the sanction of a special resolution passed at a separate general meeting of the holders of the shares of that class, provided that, if the relevant class of holders has only one holder, that person present in person or by proxy shall constitute the necessary quorum.

Acquisitions

An Irish public limited company may be acquired in a number of ways, including:

- a court-approved scheme of arrangement under the Companies Act. A scheme of arrangement with shareholders requires a court order from the Irish High Court and the approval of a majority in number representing 75% in value of the shareholders present and voting in person or by proxy at a meeting called to approve the scheme;
- through a tender or takeover offer by a third party for all of the shares of Pentair. Where the holders of 80% or more of Pentair's ordinary shares have accepted an offer for their shares in Pentair, the remaining shareholders may also be statutorily required to transfer their shares. If the bidder does not exercise its "squeeze out" right, then the non-accepting shareholders also have a statutory right to require the bidder to acquire their shares on the same terms. If shares of Pentair were to be listed on the Irish Stock Exchange or another regulated stock exchange in the European Union, this threshold would be increased to 90%; and
- it is also possible for Pentair to be acquired by way of a transaction with an EU-incorporated company under Directive (EU) 2017/1132 of 14 June 2017 relating to certain aspects of company law. Such a transaction must be approved by a special resolution. If Pentair is being merged with another EU company under Directive (EU) 2017/1132 and the consideration payable to Pentair shareholders is not all in the form of cash, Pentair shareholders may be entitled to require their shares to be acquired at fair value.

Disclosure of Interests in Shares

Under the Companies Act, Pentair shareholders must notify Pentair if, as a result of a transaction, the shareholder will become interested in 3% or more of the shares of Pentair; or if as a result of a transaction a shareholder who was interested in more than 3% of the shares of Pentair ceases to be so interested. Where a shareholder is interested in more than 3% of the shares of Pentair, the shareholder must notify Pentair of any alteration of his or her interest that brings his or her total holding through the nearest whole percentage number, whether an increase or a reduction. The relevant percentage figure is calculated by reference to the aggregate nominal value of the shares in which the shareholder is interested as a proportion of the entire nominal value of the issued share capital of Pentair (or any such class of share capital in issue). Where the percentage level of the shareholder's interest does not amount to a whole percentage this figure may be rounded down to the next whole number. Pentair must be notified within five business days of the transaction or alteration of the shareholder's interests that gave rise to the notification requirement. If a shareholder fails to comply with these notification requirements, the shareholder's rights in respect of any Pentair ordinary shares it holds will not be enforceable, either directly or indirectly. However, such person may apply to the court to have the rights attaching to such shares reinstated.

In addition to these disclosure requirements, Pentair, under the Companies Act, may, by notice in writing, require a person whom Pentair knows or has reasonable cause to believe to be, or at any time during the three years immediately preceding the date on which such notice is issued to have been, interested in shares comprised in Pentair's relevant share capital to: (i) indicate whether or not it is the case and (ii) where such person holds or has during that time held an interest in the shares of Pentair, to provide additional information, including the person's own past or present interests in shares of Pentair. If the recipient of the notice fails to respond within the reasonable time period specified in the notice, Pentair may apply to court for an order directing that the affected shares be subject to certain restrictions, as prescribed by the Companies Act, as follows:

- any transfer of those shares, or in the case of unissued shares any transfer of the right to be issued with shares and any issue of shares, shall be void;
- no voting rights shall be exercisable in respect of those shares;
- no further shares shall be issued in right of those shares or in pursuance of any offer made to the holder of those shares; and
- no payment shall be made of any sums due from Pentair on those shares, whether in respect of capital or otherwise.

The court may also order that shares subject to any of these restrictions be sold with the restrictions terminating upon the completion of the sale.

In the event Pentair is in an offer period pursuant to the Irish Takeover Rules (as defined below), accelerated disclosure provisions apply for persons holding an interest in Pentair securities of 1% or more.

Anti-Takeover Provisions

Irish Takeover Rules and Substantial Acquisition Rules

A transaction in which a third party seeks to acquire 30% or more of the voting rights of Pentair will be governed by the Irish Takeover Panel Act 1997 and the Irish Takeover Rules 2007 (as amended) (the "Irish Takeover Rules") made thereunder and will be regulated by the Irish Takeover Panel (the "Panel"). The "General Principles" of the Irish Takeover Rules and certain important aspects of the Irish Takeover Rules are described below.

General Principles

The Irish Takeover Rules are built on the following General Principles which will apply to any transaction regulated by the Panel:

- in the event of an offer, all holders of security of the target company should be afforded equivalent treatment and, if a person acquires control of a company, the other holders of securities must be protected;
- the holders of the securities in the target company must have sufficient time and information to enable them to reach a properly informed decision on the offer; where it advises the holders of securities, the board of the target company must give its views on the effects of implementation of the offer on employment, conditions of employment and the locations of the target company's places of business;
- the board of the target company must act in the interests of the company as a whole and must not deny the holders of securities the opportunity to decide on the merits of the offer;
- false markets must not be created in the securities of the target company, the bidder or of any other company concerned by the offer in such a way that the rise or fall of the prices of the securities becomes artificial and the normal functioning of the markets is distorted;
- a bidder must announce an offer only after ensuring that he or she can fulfill in full, any cash consideration, if such is offered, and after taking all reasonable measures to secure the implementation of any other type of consideration;
- a target company must not be hindered in the conduct of its affairs for longer than is reasonable by an offer for its securities; and
- a "substantial acquisition" of securities (whether such acquisition is to be effected by one transaction or a series of transactions) shall take place only at an acceptable speed and shall be subject to adequate and timely disclosure.

Mandatory Bid

Under certain circumstances, a person who acquires shares or other voting rights in Pentair may be required under the Takeover Rules to make a mandatory cash offer for the remaining outstanding shares in Pentair at a price not less than the highest price paid for the shares by the acquirer (or any parties acting in concert with the acquirer) during the previous 12 months. This mandatory bid requirement is triggered if an acquisition of shares would increase the aggregate holding of an acquirer (including the holdings of any parties acting in concert with the acquirer) to shares representing 30% or more of the voting rights in Pentair, unless the Panel otherwise consents. An acquisition of shares by a person holding (together with its concert parties) shares representing between 30% and 50% of the voting rights in Pentair would also trigger the mandatory bid requirement if, after giving effect to the acquisition, the percentage of the voting rights held by that person (together with its concert parties) would increase by 0.05% within a 12-month period. Any person (excluding any parties acting in concert with the holder) holding shares representing more than 50% of the voting rights of a company is not subject to these mandatory offer requirements in purchasing additional securities.

Voluntary Bid; Requirements to Make a Cash Offer and Minimum Price Requirements

If a person makes a voluntary offer to acquire outstanding Pentair ordinary shares, the offer price must be no less than the highest price paid for Pentair ordinary shares by the bidder or its concert parties during the three-month period prior to the commencement of the offer period. The Panel has the power to extend the “look back” period to 12 months if the Panel, taking into account the General Principles, believes it is appropriate to do so.

If the bidder or any of its concert parties has acquired Pentair ordinary shares (i) during the period of 12 months prior to the commencement of the offer period which represent more than 10% of the total Pentair ordinary shares or (ii) at any time after the commencement of the offer period, the offer must be in cash (or accompanied by a full cash alternative) and the price per Pentair ordinary shares must not be less than the highest price paid by the bidder or its concert parties during, in the case of (i), the 12-month period prior to the commencement of the offer period and, in the case of (ii), the offer period. The Panel may apply this rule to a bidder who, together with its concert parties, has acquired less than 10% of the total Pentair ordinary shares in the 12-month period prior to the commencement of the offer period if the Panel, taking into account the General Principles, considers it just and proper to do so.

An offer period will generally commence from the date of the first announcement of the offer or proposed offer.

Substantial Acquisition Rules

The Irish Takeover Rules also contain rules governing substantial acquisitions of shares which restrict the speed at which a person may increase his or her holding of shares and rights over shares to an aggregate of between 15% and 30% of the voting rights of Pentair. Except in certain circumstances, an acquisition or series of acquisitions of shares or rights over shares representing 10% or more of the voting rights of Pentair is prohibited, if such acquisition(s), when aggregated with shares or rights already held, would result in the acquirer holding 15% or more but less than 30% of the voting rights of Pentair and such acquisitions are made within a period of seven days. These rules also require accelerated disclosure of acquisitions of shares or rights over shares relating to such holdings.

Frustrating Action

Under the Irish Takeover Rules, the Pentair board of directors is not permitted to take any action which might frustrate an offer for the shares of Pentair once the Pentair board of directors has received an approach which may lead to an offer or has reason to believe an offer is imminent, subject to certain exceptions. Potentially frustrating actions such as (i) the issue of shares, options or convertible securities, (ii) material acquisitions or disposals, (iii) entering into contracts other than in the ordinary course of business or (iv) any action, other than seeking alternative offers, which may result in frustration of an offer, are prohibited during the course of an offer or at any time during which the Pentair board of directors has reason to believe an offer is imminent. Exceptions to this prohibition are available where:

- the action is approved by Pentair’s shareholders at a general meeting; or
- the Panel has given its consent, where:
- it is satisfied the action would not constitute frustrating action;
- Pentair shareholders that hold 50% of the voting rights state in writing that they approve the proposed action and would vote in favor of it at a general meeting;
- the action is taken in accordance with a contract entered into prior to the announcement of the offer; or

- the decision to take such action was made before the announcement of the offer and either has been at least partially implemented or is in the ordinary course of business.

Certain other provisions of Irish law or the Pentair Articles may be considered to have anti-takeover effects, including those described under the following captions in this “Description of Ordinary Shares”: “Capital Structure”, “Preemption Rights”, and “Disclosure of Interests in Shares”.

Duration; Dissolution; Rights Upon Liquidation

Pentair’s duration will be unlimited. Pentair may be dissolved and wound up at any time by way of a shareholders’ voluntary winding up or a creditors’ winding up. In the case of a shareholders’ voluntary winding-up, a special resolution of shareholders is required. Pentair may also be dissolved by way of court order on the application of a creditor, or by the Companies Registration Office as an enforcement measure where Pentair has failed to file certain returns.

The rights of the shareholders to a return of Pentair’s assets on dissolution or winding up, following the settlement of all claims of creditors, may be prescribed in the Pentair Articles. If the Pentair Articles contain no specific provisions in respect of dissolution or winding up then, subject to the priorities of any creditors, the assets will be distributed to shareholders in proportion to the paid-up nominal value of the shares held. The Pentair Articles provide that the ordinary shareholders of Pentair are entitled to participate pro rata in a winding up.

No Sinking Fund

The Pentair ordinary shares have no sinking fund provisions.

No Liability for Further Calls or Assessments

When the ordinary shares offered hereby are issued, they will be duly and validly issued, fully paid and nonassessable.

Transfer and Registration of Shares

The transfer agent for Pentair maintains the share register, registration in which is determinative of membership in Pentair. A shareholder of Pentair who holds shares beneficially is not the holder of record of such shares. Instead, the depository or other nominee is the holder of record of those shares. Accordingly, a transfer of shares from a person who holds such shares beneficially to a person who also holds such shares beneficially through a depository or other nominee is not registered in Pentair’s official share register, as the depository or other nominee remains the record holder of any such shares.

A written instrument of transfer is required under Irish law to register on Pentair’s official share register any transfer of shares (i) from a person who holds such shares directly to any other person, (ii) from a person who holds such shares beneficially to a person who holds such shares directly or (iii) from a person who holds such shares beneficially to another person who holds such shares beneficially where the transfer involves a change in the depository or other nominee that is the record owner of the transferred shares. An instrument of transfer is also required for a shareholder who directly holds shares to transfer those shares into his or her own broker account (or vice versa). Such instruments of transfer may give rise to Irish stamp duty, which must be paid prior to registration of the transfer on Pentair’s official Irish share register. However, a shareholder who directly holds shares may transfer those shares into his or her own broker account (or vice versa) without giving rise to Irish stamp duty, provided that the shareholder has confirmed to Pentair’s transfer agent that there is no change in the ultimate beneficial ownership of the shares as a result of the transfer and the transfer is not made in contemplation of a sale of the shares.

Any transfer of Pentair ordinary shares that is subject to Irish stamp duty is not registered in the name of the buyer unless an instrument of transfer was duly stamped and provided to the transfer agent. The Pentair Articles allow Pentair, in its absolute discretion, to create an instrument of transfer and pay (or procure the payment of) any stamp duty, which is the legal obligation of a buyer. In the event of any such payment, Pentair is (on behalf of itself or its affiliates) entitled to (i) seek reimbursement from the buyer or seller (at its discretion), (ii) set-off the amount of the stamp duty against future dividends payable to the buyer or seller (at its discretion) and (iii) claim a lien against the Pentair ordinary shares on which it has paid stamp duty. Parties to a share transfer may assume that any stamp duty arising in respect of a transaction in Pentair ordinary shares has been paid unless one or both of such parties is otherwise notified by Pentair.

The Pentair Articles delegate to Pentair’s secretary or assistant secretary (or their nominees) the authority to execute an instrument of transfer on behalf of a transferring party.

In order to help ensure that the official share register is regularly updated to reflect trading of Pentair ordinary shares occurring through normal electronic systems, Pentair intends to regularly produce any required instruments of transfer in connection

with any transactions for which it pays stamp duty (subject to the reimbursement and set-off rights described above). In the event that Pentair notifies one or both of the parties to a share transfer that it believes stamp duty is required to be paid in connection with the transfer and that it will not pay the stamp duty, the parties may either themselves arrange for the execution of the required instrument of transfer (and may request a form of instrument of transfer from Pentair for this purpose) or request that Pentair execute an instrument of transfer on behalf of the transferring party in a form determined by Pentair. In either event, if the parties to the share transfer have the instrument of transfer duly stamped (to the extent required) and then provide it to Pentair's transfer agent, the buyer will be registered as the legal owner of the relevant shares on Pentair's official Irish share register (subject to the matters described below).

The directors may suspend registration of transfers from time to time, not exceeding 30 days in aggregate each year.

KEY EXECUTIVE EMPLOYMENT AND SEVERANCE AGREEMENT

THIS KEY EXECUTIVE EMPLOYMENT AND SEVERANCE AGREEMENT ("Agreement"), is made and entered into as of the ____ day of _____, _____, by and between Pentair plc, an Irish corporation limited by shares (hereinafter referred to as the "Company"), and _____ (hereinafter referred to as the "Executive").

W I T N E S S E T H

WHEREAS, the Executive is or will become employed by the Company and/or a subsidiary of the Company (hereinafter referred to collectively as the "Employer") in a key executive capacity and the Executive's services are valuable to the conduct of the business of the Company;

WHEREAS, the Company desires to continue to attract and retain dedicated and skilled management employees in a period of industry consolidation, consistent with achieving the best possible value for its shareholders in any change in control of the Company;

WHEREAS, the Company recognizes that circumstances may arise in which a change in control of the Company occurs, through acquisition or otherwise, thereby causing a potential conflict of interest between the Company's needs for the Executive to remain focused on the Company's business and for the necessary continuity in management prior to and following a change in control, and the Executive's reasonable personal concerns regarding future employment with the Employer and economic protection in the event of loss of employment as a consequence of a change in control;

WHEREAS, the Company and the Executive are desirous that any proposal for a change in control or acquisition of the Company will be considered by the Executive objectively and with reference only to the best interests of the Company and its shareholders;

WHEREAS, the Executive will be in a better position to consider the Company's best interests if the Executive is afforded reasonable economic security, as provided in this Agreement, against altered conditions of employment which could result from any such change in control or acquisition;

WHEREAS, the Executive possesses intimate knowledge of the business and affairs of the Company and has acquired certain confidential information and data with respect to the Company; and

WHEREAS, the Company desires to insure, insofar as possible, that it will continue to have the benefit of the Executive's services and to protect its confidential information and goodwill.

NOW, THEREFORE, in consideration of the foregoing and of the mutual covenants and agreements hereinafter set forth, the parties hereto mutually covenant and agree as follows:

1. Definitions.

(a) 409A Affiliate. The term “409A Affiliate” means each entity that is required to be included in the Company’s controlled group of corporations within the meaning of Section 414(b) of the Code, or that is under common control with the Company within the meaning of Section 414(c) of the Code; *provided, however*, that the phrase “at least 50 percent” shall be used in place of the phrase “at least 80 percent” each place it appears therein or in the regulations thereunder.

(b) Accrued Benefits. The Executive’s “Accrued Benefits” shall include the following amounts, payable as described herein: (i) all base salary for the time period ending with the Termination Date; (ii) reimbursement for any and all monies advanced in connection with the Executive’s employment for reasonable and necessary expenses incurred by the Executive on behalf of the Employer for the time period ending with the Termination Date; (iii) any and all other cash earned through the Termination Date and deferred at the election of the Executive or pursuant to any deferred compensation plan then in effect; (iv) notwithstanding any provision of any cash bonus or cash incentive compensation plan applicable to the Executive, but subject to any irrevocable deferral election then in effect, a lump sum amount, in cash, equal to the sum of (A) any cash bonus or cash incentive compensation that has been allocated or awarded to the Executive for a fiscal year or other measuring period under the plan that ends prior to the Termination Date but has not yet been paid (pursuant to Section 5(e) or otherwise) and (B) a pro rata portion to the Termination Date of the aggregate value of all contingent bonus or incentive compensation awards to the Executive for all uncompleted periods under the plan calculated as to each such award as if the Goals with respect to such bonus or incentive compensation award had been attained; and (v) all other payments and benefits to which the Executive (or in the event of the Executive’s death, the Executive’s surviving spouse or other beneficiary) may be entitled on the Termination Date as compensatory fringe benefits or under the terms of any benefit plan of the Employer, excluding severance payments under any Employer severance policy, practice or agreement in effect on the Termination Date. Payment of Accrued Benefits shall be made promptly in accordance with the Company’s prevailing practice with respect to clauses (i) and (ii) or, with respect to clauses (iii), (iv) and (v), pursuant to the terms of the benefit plan or practice establishing such benefits; provided that payments pursuant to clause (iv)(B) shall be paid on the first day of the seventh month following the month in which the Executive’s Separation from Service occurs to the extent necessary for compliance with the requirements of Code Section 409A(a)(2)(B) relating to specified employees or, to the extent not so required, within ninety (90) days of the Executive’s Separation from Service.

(c) Act. The term “Act” means the Securities Exchange Act of 1934, as amended.

(d) Affiliate and Associate. The terms “Affiliate” and “Associate” shall have the respective meanings ascribed to such terms in Rule 12b-2 of the General Rules and Regulations under the Act.

(e) Annual Cash Compensation. The term “Annual Cash Compensation” shall mean the sum of (i) the Executive’s Annual Base Salary (determined as of the time of the Change in Control of the Company or, if higher, immediately prior to the date the Notice of Termination is given) plus (ii) an amount equal to the greatest of the Executive’s annual cash incentive target bonus for the fiscal year in which the Termination Date occurs, the annual cash incentive bonus the Executive received during the fiscal year prior to the Change in Control of the Company or the annual cash incentive bonus the Executive received with respect to the fiscal

year prior to the Change in Control of the Company (the aggregate amount set forth in clause (i) and clause (ii) shall hereafter be referred to as the “Annual Cash Compensation”).

(f) Beneficial Owner. A Person shall be deemed to be the “Beneficial Owner” of any securities:

(i) which such Person or any of such Person’s Affiliates or Associates has the right to acquire (whether such right is exercisable immediately or only after the passage of time) pursuant to any agreement, arrangement or understanding, or upon the exercise of conversion rights, exchange rights, rights, warrants or options, or otherwise; *provided, however*, that a Person shall not be deemed the Beneficial Owner of, or to beneficially own, (A) securities tendered pursuant to a tender or exchange offer made by or on behalf of such Person or any of such Person’s Affiliates or Associates until such tendered securities are accepted for purchase, or (B) securities issuable upon exercise of any rights issued pursuant to the terms of any rights agreement of the Company, at any time before the issuance of such securities;

(ii) which such Person or any of such Person’s Affiliates or Associates, directly or indirectly, has the right to vote or dispose of or has “beneficial ownership” of (as determined pursuant to Rule 13d-3 of the General Rules and Regulations under the Act), including pursuant to any agreement, arrangement or understanding; *provided, however*, that a Person shall not be deemed the Beneficial Owner of, or to beneficially own, any security under this clause (ii) as a result of an agreement, arrangement or understanding to vote such security if the agreement, arrangement or understanding: (A) arises solely from a revocable proxy or consent given to such Person in response to a public proxy or consent solicitation made pursuant to, and in accordance with, the applicable rules and regulations under the Act and (B) is not also then reportable on a Schedule 13D under the Act (or any comparable or successor report); or

(iii) which are beneficially owned, directly or indirectly, by any other Person with which such Person or any of such Person’s Affiliates or Associates has any agreement, arrangement or understanding for the purpose of acquiring, holding, voting (except pursuant to a revocable proxy as described in clause (ii) above) or disposing of any voting securities of the Company.

(g) Cause. “Cause” for termination by the Employer of the Executive’s employment shall be limited to (i) the engaging by the Executive in intentional conduct that the Company establishes, by clear and convincing evidence, has caused demonstrable and serious financial injury to the Employer, as evidenced by a determination in a binding and final judgment, order or decree of a court or administrative agency of competent jurisdiction, in effect after exhaustion or lapse of all rights of appeal, in an action, suit or proceeding, whether civil, criminal, administrative or investigative; (ii) the Executive’s conviction of a felony (as evidenced by binding and final judgment, order or decree of a court of competent jurisdiction, in effect after exhaustion of all rights of appeal); or (iii) continuing willful and unreasonable refusal by the Executive to perform the Executive’s duties or responsibilities (unless significantly changed without the Executive’s consent).

(h) Change in Control of the Company. A “Change in Control of the Company” shall be deemed to have occurred if an event set forth in any one of the following paragraphs shall have occurred:

(i) any Person (other than (A) the Company or any of its subsidiaries, (B) a trustee or other fiduciary holding securities under any employee benefit plan of the Company or any of its subsidiaries, (C) an underwriter temporarily holding securities pursuant to an offering of such securities or (D) a corporation owned, directly or indirectly, by the shareholders of the Company in substantially the same proportions as their ownership of stock in the Company (“Excluded Persons”)) is or becomes the Beneficial Owner, directly or indirectly, of securities of the Company (not including in the securities beneficially owned by such Person any securities acquired directly from the Company or its Affiliates after the date of this Agreement, pursuant to express authorization by the Board that refers to this exception) representing 30% or more of either the then outstanding shares of common stock of the Company or the combined voting power of the Company’s then outstanding voting securities; or

(ii) the following individuals cease for any reason to constitute a majority of the number of directors of the Company then serving: (A) individuals who, on the date of this Agreement constituted the Board and (B) any new director (other than a director whose initial assumption of office is in connection with an actual or threatened election contest, including but not limited to a consent solicitation, relating to the election of directors of the Company, as such terms are used in Rule 14a 11 of Regulation 14A under the Act) whose appointment or election by the Board or nomination for election by the Company’s shareholders was approved by a vote of at least two-thirds (2/3) of the directors then still in office who either were directors on the date of this Agreement, or whose appointment, election or nomination for election was previously so approved (collectively the “Continuing Directors”); *provided, however*, that individuals who are appointed to the Board pursuant to or in accordance with the terms of an agreement relating to a merger, consolidation, or share exchange involving the Company (or any direct or indirect subsidiary of the Company) shall not be Continuing Directors for purposes of this Agreement until after such individuals are first nominated for election by a vote of at least two-thirds (2/3) of the then Continuing Directors and are thereafter elected as directors by the shareholders of the Company at a meeting of shareholders held following consummation of such merger, consolidation, or share exchange; and, *provided further*, that in the event the failure of any such persons appointed to the Board to be Continuing Directors results in a Change in Control of the Company, the subsequent qualification of such persons as Continuing Directors shall not alter the fact that a Change in Control of the Company occurred; or

(iii) the consummation of a merger, consolidation or share exchange of the Company with any other corporation or the issuance of voting securities of the Company in connection with a merger, consolidation or share exchange of the Company (or any direct or indirect subsidiary of the Company), in each case, which requires approval of the shareholders of the Company, other than (A) a merger, consolidation or share exchange which would result in the voting securities of the Company outstanding immediately prior to such merger, consolidation or share exchange continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or any parent thereof) at least 50% of the combined voting power of the voting securities of the Company or such surviving entity or any parent thereof outstanding immediately after such merger, consolidation or share exchange, or (B) a merger, consolidation or share exchange effected to implement a recapitalization of the Company (or similar transaction) in which no Person (other than an Excluded Person) is or becomes the Beneficial Owner, directly or indirectly, of securities of the Company (not

including in the securities beneficially owned by such Person any securities acquired directly from the Company or its Affiliates after the date of this Agreement, pursuant to express authorization by the Board that refers to this exception) representing 30% or more of either the then outstanding shares of common stock of the Company or the combined voting power of the Company's then outstanding voting securities; or

(iv) the consummation of a plan of complete liquidation or dissolution of the Company or a sale or disposition by the Company of all or substantially all of the Company's assets (in one transaction or a series of related transactions within any period of 24 consecutive months), in each case, which requires approval of the shareholders of the Company, other than a sale or disposition by the Company of all or substantially all of the Company's assets to an entity at least 75% of the combined voting power of the voting securities of which are owned by Persons in substantially the same proportions as their ownership of the Company immediately prior to such sale.

Notwithstanding the foregoing, no "Change in Control of the Company" shall be deemed to have occurred if there is consummated any transaction or series of integrated transactions immediately following which the record holders of the common stock of the Company immediately prior to such transaction or series of transactions continue to own, directly or indirectly, in the same proportions as their ownership in the Company, an entity that owns all or substantially all of the assets or voting securities of the Company immediately following such transaction or series of transactions.

(i) Code. The term "Code" means the Internal Revenue Code of 1986, including any amendments thereto or successor tax codes thereof. Any reference to a specific provision of the Code includes any regulations promulgated under such provision and any successor provision.

(j) Covered Termination. Subject to Section 2(b), the term "Covered Termination" means any Termination of Employment during the Employment Period where the Termination Date or the date Notice of Termination is delivered is any date prior to the end of the Employment Period.

(k) Employment Period. Subject to Section 2(b), the term "Employment Period" means a period commencing on the date of a Change in Control of the Company, and ending at 11:59 p.m. Central Time on the earlier of the second anniversary of such date or the Executive's Normal Retirement Date.

(l) Good Reason. The Executive shall have "Good Reason" for termination of employment in the event of any of the following without the Executive's prior written consent:

(i) any breach of this Agreement by the Employer, including specifically any breach by the Employer of the agreements contained in Section 3, Section 4, Section 5, or Section 6, other than an isolated, insubstantial and inadvertent failure not occurring in bad faith that the Employer remedies within ten (10) days after receipt of written notice thereof given by the Executive;

(ii) any reduction in the Executive's (A) base salary, (B) percentage of base salary available as cash incentive compensation or bonus opportunity, (C) grant date fair value of annual equity-based awards or (D) other benefits, in each case relative to those most favorable to the Executive in effect at any time during the 180-day period prior to the Change in Control of the Company or, to the extent more favorable to the Executive, those in effect at any time during the Employment Period;

(iii) the removal of the Executive from, or any failure to reelect or reappoint the Executive to, any of the positions held with the Employer on the date of the Change in Control of the Company or any other positions with the Employer to which the Executive shall thereafter be elected, appointed or assigned, except in the event that such removal or failure to reelect or reappoint relates to the termination by the Employer of the Executive's employment for Cause or by reason of disability pursuant to Section 12;

(iv) a good faith determination by the Executive that there has been a material adverse change in the Executive's working conditions or status with the Employer relative to the most favorable working conditions or status in effect during the 180-day period prior to the Change in Control of the Company, or, to the extent more favorable to the Executive, those in effect at any time during the Employment Period, including but not limited to (A) a significant change in the nature or scope of the Executive's authority, powers, functions, duties or responsibilities, or (B) a significant reduction in the level of support services, staff, secretarial and other assistance, office space and accoutrements, but in each case excluding for this purpose an isolated, insubstantial and inadvertent event not occurring in bad faith that the Employer remedies within ten (10) days after receipt of written notice thereof given by the Executive;

(v) the relocation of the Executive's principal place of employment to a location more than 50 miles from the Executive's principal place of employment on the date 180 days prior to the Change in Control of the Company (or if the Executive has not been employed for 180 days prior to the Change in Control of the Company, as in effect on the date the Executive entered into this Agreement);

(vi) the Employer requires the Executive to travel on Employer business 20% in excess of the average number of days per month the Executive was required to travel during the 180-day period prior to the Change in Control of the Company; or

(vii) failure by the Company to obtain the Agreement referred to in Section 17(a) as provided therein.

(m) Normal Retirement Date. The term "Normal Retirement Date" means the Executive's attainment of age sixty-five (65).

(n) Person. The term "Person" shall mean any individual, firm, partnership, corporation or other entity, including any successor (by merger or otherwise) of such entity, or a group of any of the foregoing acting in concert.

(o) Separation from Service. For purposes of this Agreement, the term "Separation from Service" means the Executive's Termination of Employment, or if the Executive continues to provide services following his or her Termination of Employment, such later date as is considered a separation from service from the Company and its 409A Affiliates within the meaning of Code Section 409A. Specifically, if the Executive continues to provide services to the Company or a 409A Affiliate in a capacity other than as an employee, such shift in status is not automatically a Separation from Service.

(p) Termination of Employment. For purposes of this Agreement, the Executive's termination of employment shall be presumed to occur when the Company and Executive reasonably anticipate that no further services will be performed by the Executive for the Company and its 409A Affiliates or that the level of bona fide services the Executive will perform as an employee of the Company and its 409A Affiliates will permanently decrease to no more than 20% of the average level of bona fide services performed by the Executive (whether

as an employee or independent contractor) for the Company and its 409A Affiliates over the immediately preceding 36-month period (or such lesser period of services). Whether the Executive has experienced a Termination of Employment shall be determined by the Employer in good faith and consistent with Section 409A of the Code. Notwithstanding the foregoing, if the Executive takes a leave of absence for purposes of military leave, sick leave or other bona fide reason, the Executive will not be deemed to have incurred a Separation from Service for the first 6 months of the leave of absence, or if longer, for so long as the Executive's right to reemployment is provided either by statute or by contract, including this Agreement; *provided that* if the leave of absence is due to a medically determinable physical or mental impairment that can be expected to result in death or last for a continuous period of not less than six months, where such impairment causes the Executive to be unable to perform the duties of his or her position of employment or any substantially similar position of employment, the leave may be extended by the Employer for up to 29 months without causing a Termination of Employment.

(q) Termination Date. Except as otherwise provided in Section 2(b), Section 10(b), and Section 17(a), the term "Termination Date" means (i) if the Executive's Termination of Employment is by the Executive's death, the date of death; (ii) if the Executive's Termination of Employment is by reason of voluntary early retirement, as agreed in writing by the Employer and the Executive, the date of such early retirement which is set forth in such written agreement; (iii) if the Executive's Termination of Employment is, for purposes of this Agreement, by reason of disability pursuant to Section 12, the earlier of thirty (30) days after the Notice of Termination is given or one day prior to the end of the Employment Period; (iv) if the Executive's Termination of Employment is by the Executive voluntarily (other than for Good Reason), the date the Notice of Termination is given; and (v) if the Executive's Termination of Employment is by the Employer (other than by reason of disability pursuant to Section 12) or by the Executive for Good Reason, the earlier of thirty (30) days after the Notice of Termination is given or one day prior to the end of the Employment Period. Notwithstanding the foregoing,

(A) If termination is for Cause pursuant to Section 1(g)(iii) and if the Executive has cured the conduct constituting such Cause as described by the Employer in its Notice of Termination within such 30-day or shorter period, then the Executive's employment hereunder shall continue as if the Employer had not delivered its Notice of Termination.

(B) If the Executive shall in good faith give a Notice of Termination for Good Reason and the Employer notifies the Executive that a dispute exists concerning the termination within the 15-day period following receipt thereof, then the Executive may elect to continue his or her employment during such dispute and the Termination Date shall be determined under this paragraph. If the Executive so elects and it is thereafter determined that Good Reason did exist, the Termination Date shall be the earliest of (1) the date on which the dispute is finally determined, either (x) by mutual written agreement of the parties or (y) in accordance with Section 22, (2) the date of the Executive's death or (3) one day prior to the end of the Employment Period. If the Executive so elects and it is thereafter determined that Good Reason did not exist, then the employment of the Executive hereunder shall continue after such determination as if the Executive had not delivered the Notice of Termination asserting Good Reason and there shall be no Termination Date arising out of such Notice. In either case, this Agreement continues, until the Termination Date, if any, as if the Executive had not delivered the Notice of Termination except that, if it is finally determined that Good Reason did exist, the Executive shall in no case be denied the benefits described in Section 9 (including a Termination Payment) based on events occurring after the Executive delivered his Notice of Termination.

(C) Except as provided in Section 1(q)(B), if the party receiving the Notice of Termination notifies the other party that a dispute exists concerning the termination within the appropriate period following receipt thereof and it is finally determined that the reason asserted in such Notice of Termination did not exist, then (1) if such Notice was delivered by the Executive, the Executive will be deemed to have voluntarily terminated his employment and the Termination Date shall be the earlier of the date 15 days after the Notice of Termination is given or one day prior to the end of the Employment Period and (2) if delivered by the Company, the Company will be deemed to have terminated the Executive other than by reason of death, disability or Cause.

Capitalized terms used in this Agreement not defined in this Section 1 have the meanings assigned in the other sections of this Agreement. The definitions of the following terms may be found in the sections indicated:

Term Section

Annual Base Salary Section 5(a)
Base Period Income Section 9(b)(iii)
Bonus Amount Section 5(e)(i)
Bonus Plan Section 5(e)
Company Incentive Plan Section 5(e)(iii)
Excise Tax Section 9(b)(i)
Expenses Section 15
Goals Section 5(e)(iii)
National Tax Counsel Section 9(b)(ii)
Notice of Termination Section 13
Plans Section 9(c)(iv)
Termination Payment Section 9(a)
Total Payments Section 9(b)(i)

2. Termination or Cancellation Prior to Change in Control.

(a) Subject to Section 2(b), the Employer and the Executive shall each retain the right to terminate the employment of the Executive at any time and for any reason (or no reason) prior to a Change in Control of the Company. Subject to Section 2(b), in the event that prior to a Change in Control of the Company (i) the Executive's employment is terminated or (ii) as determined in writing by the Compensation Committee of the Board of Directors of the Company in its sole discretion, the Executive's authority, powers, functions, duties, responsibilities or pay grade are materially reduced, this Agreement shall be terminated and cancelled and of no further force and effect, and any and all rights and obligations of the parties hereunder shall cease.

(b) Anything in this Agreement to the contrary notwithstanding, if the Executive's employment with the Employer is terminated by the Employer (other than a termination due to the Executive's death or as a result of the Executive's disability (as determined under Section 12) during the period of 180 days prior to the date on which a Change in Control of the Company occurs, and if it is reasonably demonstrated by the Executive that such termination of employment (i) was at the request of a third party who has taken steps reasonably calculated to effect a Change in Control of the Company or (ii) otherwise arose in connection with or in anticipation of a Change in Control of the Company, then for all purposes of this Agreement such termination of employment shall be deemed a "Covered Termination," a "Notice of Termination" shall be deemed to have been given, and the "Employment Period" shall be deemed to have begun on the date of such termination which shall be deemed to be the "Termination Date" and the date of the Change of Control of the Company for purposes of this

Agreement. Anything in this Agreement to the contrary notwithstanding, if the Executive's authority, powers, functions, duties, responsibilities or pay grade were reduced pursuant to Section 2(a)(ii) during the period of 180 days prior to the date on which the Change in Control of the Company occurs, and if it is reasonably demonstrated by the Executive that such reduction in authority, powers, functions, duties, responsibilities or pay grade (i) was at the request of a third party who has taken steps reasonably calculated to effect a Change in Control of the Company or (ii) otherwise arose in connection with or in anticipation of a Change in Control of the Company, then the termination and cancellation of this Agreement pursuant to Section 2(a) shall be deemed null and void, this Agreement shall be deemed to remain in full force and effect with any and all rights and obligations of the parties hereunder continuing and such reduction in authority, powers, functions, duties, responsibilities or pay grade shall be considered "Good Reason" for the Executive to terminate employment in connection with a Change in Control of the Company.

3. Employment Period. If a Change in Control of the Company occurs when the Executive is employed by the Employer, the Employer will continue thereafter to employ the Executive during the Employment Period, and the Executive will remain in the employ of the Employer in accordance with and subject to the terms and provisions of this Agreement. Any Termination of Employment during the Employment Period, whether by the Company or the Employer, shall be deemed a termination by the Company for purposes of this Agreement.

4. Duties. During the Employment Period, the Executive shall, in the same capacities and positions held by the Executive at the time of the Change in Control of the Company or in such other capacities and positions as may be agreed to by the Employer and the Executive in writing, devote the Executive's best efforts and all of the Executive's business time, attention and skill to the business and affairs of the Employer, as such business and affairs now exist and as they may hereafter be conducted.

5. Compensation. During the Employment Period, the Executive shall be compensated as follows:

(a) The Executive shall receive, at reasonable intervals (but not less often than monthly) and in accordance with such standard policies as may be in effect immediately prior to the Change in Control of the Company, an annual base salary in cash equivalent of not less than twelve times the Executive's highest monthly base salary for the twelve-month period immediately preceding the month in which the Change in Control of the Company occurs or, if higher, annual base salary at the rate in effect immediately prior to the Change in Control of the Company (which base salary shall, unless otherwise agreed in writing by the Executive or subject to any irrevocable deferral election then in effect, include the current receipt by the Executive of any amounts which, prior to the Change in Control of the Company, the Executive had elected to defer, whether such compensation is deferred under Section 401(k) of the Code or otherwise), subject to adjustment as hereinafter provided in Section 6 (such salary amount as adjusted upward from time to time is hereafter referred to as the "Annual Base Salary").

(b) The Executive shall receive fringe benefits at least equal in value to the highest value of such benefits provided for the Executive at any time during the 180-day period immediately prior to the Change in Control of the Company or, if more favorable to the Executive, those provided generally at any time during the Employment Period to any executives of the Employer of comparable status and position to the Executive; and shall be reimbursed, at such intervals and in accordance with such standard policies that are most favorable to the Executive that were in effect at any time during the 180-day period immediately prior to the Change in Control of the Company, for any and all monies advanced in connection with the Executive's employment for reasonable and necessary expenses incurred by the Executive on behalf of the Employer, including travel expenses.

(c) The Executive and/or the Executive's family, as the case may be, shall be included, to the extent eligible thereunder (which eligibility shall not be conditioned on the Executive's salary grade or on any other requirement which excludes persons of comparable status to the Executive unless such exclusion was in effect for such plan or an equivalent plan at any time during the 180-day period immediately prior to the Change in Control of the Company), in any and all plans providing benefits for the Employer's salaried employees in general, including but not limited to group life insurance, hospitalization, medical, dental, profit sharing and stock bonus plans; *provided, that*, (i) in no event shall the aggregate level of benefits under such plans in which the Executive is included be less than the aggregate level of benefits under plans of the Employer of the type referred to in this Section 5(c) in which the Executive was participating at any time during the 180-day period immediately prior to the Change in Control of the Company and (ii) in no event shall the aggregate level of benefits under such plans be less than the aggregate level of benefits under plans of the type referred to in this Section 5(c) provided at any time after the Change in Control of the Company to any executive of the Employer of comparable status and position to the Executive.

(d) The Executive shall annually be entitled to not less than the amount of paid vacation and not fewer than the highest number of paid holidays to which the Executive was entitled annually at any time during the 180-day period immediately prior to the Change in Control of the Company or such greater amount of paid vacation and number of paid holidays as may be made available annually to other executives of the Employer of comparable status and position to the Executive at any time during the Employment Period.

(e) The Executive shall be included in all plans providing additional benefits to executives of the Employer of comparable status and position to the Executive, including but not limited to short- or long-term cash-based incentive compensation plans (such plan or plans together, the "Bonus Plan"), deferred compensation plans, supplemental retirement plans, equity awards, and similar or comparable plans; *provided, that*, unless otherwise provided in clauses (i) or (ii) below, in no event shall the aggregate level of benefits under such plans or awards be less than the higher of (x) the highest aggregate level of benefits under plans of the Employer of the type referred to in this Section 5(e) in which the Executive was participating at any time during the 180-day period immediately prior to the Change in Control of the Company and (y) the aggregate levels of benefits under plans of the type referred to in this Section 5(e) provided at any time after the Change in Control of the Company to any executive of the Employer comparable in status and position to the Executive.

(i) With respect to the Bonus Plan, the amount of the compensation (the "Bonus Amount") that the Executive is eligible to earn under the Bonus Plan if the threshold, target and maximum performance objectives are met shall be no less than the highest threshold, target and maximum amounts, respectively, that Executive was eligible to receive under awards outstanding under the Employer's short- or long-term cash-based incentive compensation plan or plans as in effect at any time during the 180-day period immediately prior to the Change in Control of the Company; provided that the amount Executive is eligible to earn shall in no event be lower than the amount of short- or long-term cash-based incentive compensation that any executive of the Employer comparable in status and position to the Executive is eligible to earn. Payment of the Bonus Amount, if earned, shall not be affected by the Executive's Termination of Employment after the end of the Employment Period.

(ii) With respect to equity awards, the Executive shall annually receive awards under one or more equity-based compensation plan or plans of the Employer. Such annual equity awards shall have a grant date fair value at least equal to the aggregate grant date fair value of the largest equity-based awards granted to the Executive at any time during the one-year period immediately prior to the Change in Control of the

Company, measured, in each case, as a multiple of the Executive's Annual Base Salary; *provided that*, solely for purposes of determining the grant date fair value of the largest equity-based awards granted to the Executive during such one-year period immediately prior to the Change in Control of the Company, any inducement awards or other awards that are intended to be non-recurring shall be disregarded or, to the extent such awards are intended to replace more than one annual award, shall be pro-rated so that only a one-year portion of the award shall be counted; and *provided further* that the grant date fair value of the equity awards granted to the Executive shall in no event be lower than the grant date fair value of the annual equity-based awards granted to any executive of the Employer comparable in status and position to the Executive.

(iii) To the extent any compensation that the Executive has an opportunity to earn after a Change in Control of the Company is subject to achieving performance objectives, such performance objectives shall be established and communicated in writing to the Executive within the first ninety (90) days of the performance period and shall be reasonably related to the business of the Employer (the "Goals"). All Goals shall be attainable with approximately the same degree of probability as the most attainable goals under the Employer's performance-based compensation plan or plans as in effect at any time during the 180-day period immediately prior to the Change in Control of the Company (whether one or more, the "Company Incentive Plan") and in view of the Employer's existing and projected financial and business circumstances applicable at the time, and shall have a performance period that is no longer than the performance period corresponding to the most analogous type of compensation under the Company Incentive Plan.

6. Annual Compensation Adjustments. During the Employment Period, the Board of Directors of the Company (or an appropriate committee thereof) will consider and appraise, at least annually, the contributions of the Executive to the Company, and in accordance with the Company's practice prior to the Change in Control of the Company, due consideration shall be given to the upward adjustment of the Executive's Annual Base Salary, at least annually, (a) commensurate with increases generally given to other executives of the Employer of comparable status and position to the Executive, and (b) as the scope of the Company's operations or the Executive's duties expand.

7. Termination For Cause or Without Good Reason. If there is a Covered Termination for Cause or due to the Executive's voluntarily terminating his or her employment other than for Good Reason (any such terminations to be subject to the procedures set forth in Section 13), then the Executive shall be entitled to receive only Accrued Benefits.

8. Termination Giving Rise to a Termination Payment and Certain Other Benefits. If there is a Covered Termination by the Executive for Good Reason, or by the Company other than by reason of (i) death, (ii) disability pursuant to Section 12, or (iii) Cause (any such terminations to be subject to the procedures set forth in Section 13), then (A) the Executive shall be entitled to receive Accrued Benefits and, in lieu of further base salary for periods following the Termination Date, as liquidated damages and additional severance pay and in consideration of the covenant of the Executive set forth in Section 14(a), the Termination Payment pursuant to Section 9(a), (B) all equity-based and cash incentive awards then held by the Executive that were granted prior to the Change in Control of the Company shall be subject to the terms of the 2012 Stock and Incentive Awards Plan or a successor incentive compensation plan under which the awards were granted and (C) all equity-based and cash incentive awards then held by the Executive that were granted on or after the Change in Control of the Company shall vest or be earned in full immediately upon such Covered Termination, with the amount or value of any performance-based awards determined based on the deemed achievement of all applicable performance conditions at 100% of target, without pro-ration.

9. Payments Upon Termination.

(a) Termination Payment. The “Termination Payment” shall be an amount equal to the Annual Cash Compensation times two; provided, however, in the event the Executive’s Termination Date is pursuant to Section 2(b), then the “Termination Payment” shall be an amount equal to the Annual Cash Compensation times two minus any cash amounts received by the Executive under the Pentair plc Executive Officer Severance Plan (if any) as of the date on which a Change in Control of the Company occurs. The Termination Payment shall be paid to the Executive in cash equivalent (i) on the first day of the seventh month following the month in which the Executive’s Separation from Service occurs, without interest thereon, to the extent necessary for compliance with the requirements of Code Section 409A(a)(2)(B) relating to specified employees or (ii) to the extent not so required, within ten (10) business days after the Termination Date. Notwithstanding the foregoing, in the event the Executive’s Termination Date is pursuant to Section 2(b), the Termination Payment shall be paid within ten (10) business days after the date of the Change in Control of the Company (as defined without reference to Section 2(b)), without interest. Such lump sum payment shall not be reduced by any present value or similar factor, and the Executive shall not be required to mitigate the amount of the Termination Payment by securing other employment or otherwise, nor will such Termination Payment be reduced by reason of the Executive securing other employment or for any other reason, except as provided in subsection (b) below. The Termination Payment shall be in lieu of, and acceptance by the Executive of the Termination Payment shall constitute the Executive’s release of any rights of the Executive to, any other cash severance payments under any Company severance policy, practice or agreement.

(b) 280G Provision.

(i) Notwithstanding any other provision of this Agreement, if any portion of the Termination Payment or any other payment or other benefit to the Executive under this Agreement, or under any other agreement with or plan of the Employer or any 409A Affiliate (in the aggregate, “Total Payments”), would constitute an “excess parachute payment” (as defined below) and would, but for this Section 9(b)(i), result in the imposition on the Executive of an excise tax under Code Section 4999 (the “Excise Tax”), then the Total Payments to be made to the Executive shall either be (A) delivered in full, or (B) delivered in a reduced amount that is One Dollar (\$1.00) less than the amount that would cause any portion of such Total Payments to be subject to the Excise Tax, whichever of the foregoing results in the receipt by the Executive of the greatest benefit on an after-tax basis (taking into account the applicable federal, state and local income taxes and the Excise Tax).

(ii) Within forty (40) days following the Executive’s Termination of Employment or notice by one party to the other of its belief that there is a payment or benefit due the Executive that will result in an excess parachute payment, the Executive and the Company, at the Company’s expense, shall obtain the opinion (which need not be unqualified) of nationally recognized tax counsel (“National Tax Counsel”) selected by the Company’s independent auditors and reasonably acceptable to the Executive (which may be regular outside counsel to the Company), which opinion sets forth (A) the amount of the Base Period Income (as defined below), (B) the amount and present value of Total Payments, (C) the amount and present value of any excess parachute payments determined without regard to any reduction of Total Payments pursuant to Section 9(b)(i), and (D) the net after-tax proceeds to the Executive, taking into account the tax imposed under Code Section 4999 if (1) the Total Payments were reduced in accordance with Section 9(b)(i)(B), or (2) the Total Payments were not so reduced. The opinion of National Tax Counsel shall be addressed to the Company and the Executive and shall be binding upon the Company and the Executive. If such National Tax Counsel opinion determines that

clause (B) of Section 9(b)(i) applies, then the payments hereunder or any other payment or benefit determined by such counsel to be includable in Total Payments shall be reduced or eliminated so that under the bases of calculations set forth in such opinion there will be no excess parachute payment. In such event, payments or benefits included in the Total Payments shall be reduced or eliminated by applying the following principles, in order: (x) the payment or benefit with the higher ratio of the parachute payment value to present economic value (determined using reasonable actuarial assumptions) shall be reduced or eliminated before a payment or benefit with a lower ratio; (y) the payment or benefit with the later possible payment date shall be reduced or eliminated before a payment or benefit with an earlier payment date; and (z) cash payments shall be reduced prior to non-cash benefits; *provided that* if the foregoing order of reduction or elimination would violate Code Section 409A, then the reduction shall be made pro rata among the payments or benefits included in the Total Payments (on the basis of the relative present value of the parachute payments).

(iii) For purposes of this Agreement, (A) the terms “excess parachute payment” and “parachute payments” shall have the meanings assigned to them in Section 280G of the Code and such “parachute payments” shall be valued as provided therein, (B) present value for purposes of this Agreement shall be calculated in accordance with Section 1274(b)(2) of the Code, (C) the term “Base Period Income” means an amount equal to the Executive’s “annualized includable compensation for the base period” as defined in Section 280G(d)(1) of the Code, (D) for purposes of the National Tax Counsel opinion, the value of any noncash benefits or any deferred payment or benefit shall be determined by the Company’s independent auditors in accordance with the principles of Section 280G(d)(3) and (4) of the Code, which determination shall be evidenced in a certificate of such auditors addressed to the Company and the Executive, and (E) the Executive shall be deemed to pay federal income tax and employment taxes at the highest marginal rate of federal income and employment taxation, and state and local income taxes at the highest marginal rate of taxation in the state or locality of the Executive’s domicile (determined in both cases in the calendar year in which the Covered Termination occurs or notice described in Section 9(b)(ii) is given, whichever is earlier), net of the maximum reduction in federal income taxes that may be obtained from the deduction of such state and local taxes. If the National Tax Counsel so requests in connection with the opinion required by this Section 9(b), the Executive and the Company shall obtain, at the Company’s expense, and the National Tax Counsel may rely on, the advice of a firm of recognized executive compensation consultants as to the reasonableness of any item of compensation to be received by the Executive solely with respect to its status under Section 280G of the Code and the regulations thereunder.

(iv) The Company agrees to bear all costs associated with, and to indemnify and hold harmless, the National Tax Counsel of and from any and all claims, damages, and expenses resulting from or relating to its determinations pursuant to this Section 9(b), except for claims, damages or expenses resulting from the gross negligence or willful misconduct of such firm.

(v) This Section 9(b) shall be amended to comply with any amendment or successor provision to Sections 280G or 4999 of the Code. If such provisions are repealed without successor, then this Section 9(b) shall be cancelled without further effect.

(c) Additional Benefits. If there is a Covered Termination and the Executive is entitled to Accrued Benefits and the Termination Payment, then the Company shall provide to the Executive the following additional benefits:

(i) The Executive shall receive until the end of the second calendar year following the calendar year in which the Executive's Separation from Service occurs, at the expense of the Company, outplacement services, on an individualized basis at a level of service commensurate with the Executive's status with the Company immediately prior to the date of the Change in Control of the Company (or, if higher, immediately prior to the Executive's Termination of Employment), provided by a nationally recognized executive placement firm selected by the Company; *provided that* the cost to the Company of such services shall not exceed 10% of the Executive's Annual Base Salary.

(ii) Until the earlier of the end of the Employment Period or such time as the Executive has obtained new employment and is covered by benefits which in the aggregate are at least equal in value to the following benefits, the Executive shall continue to be covered, at the expense of the Company, by the same or equivalent life insurance, hospitalization, medical and dental coverage as was required hereunder with respect to the Executive immediately prior to the date the Notice of Termination is given, subject to the following:

(A) Following the end of the COBRA continuation period, if such hospitalization, medical or dental coverage is provided under a health plan that is subject to Section 105(h) of the Code, benefits payable under such health plan shall comply with the requirements of Treasury regulation section 1.409A-3(i)(1)(iv) and, if necessary, the Company shall amend such health plan to comply therewith.

(B) To the extent required to comply with Code Section 409A, during the first six months following the Executive's Separation from Service, the Executive shall pay the Company for any life insurance coverage that provides a benefit in excess of \$50,000 under a group term life insurance policy.. After the end of such six month period, the Company shall make a cash equivalent payment to the Executive equal to the aggregate premiums paid by the Executive for such coverage, and thereafter such coverage shall be provided at the expense of the Company for the remainder of the period as set forth above; *provided that* this clause (B) shall cease to apply if on the date of the Executive's Separation from Service, neither the Company nor any other entity that is considered a "service recipient" with respect to the Executive within the meaning of Code Section 409A has any stock which is publicly traded on an established securities market (within the meaning of Treasury Regulation Section 1.897-1(m)) or otherwise.

(iii) The Company shall bear up to \$15,000 in the aggregate of fees and expenses of consultants and/or legal or accounting advisors engaged by the Executive to advise the Executive as to matters relating to the computation of benefits due and payable under this Section 9.

(iv) The Company shall cause the Executive to be fully and immediately vested in his or her account under any nonqualified defined contribution retirement plan of the Employer.

10. Death.

(a) Except as provided in Section 10(b), in the event of a Covered Termination due to the Executive's death, the Executive's estate, heirs and beneficiaries shall receive all the Executive's Accrued Benefits through the Termination Date.

(b) In the event the Executive dies after a Notice of Termination is given (i) by the Company or (ii) by the Executive for Good Reason, the Executive's estate, heirs and beneficiaries shall be entitled to the benefits described in Section 10(a) and, subject to the provisions of this Agreement, to such Termination Payment as the Executive would have been entitled to had the Executive lived, except that the Termination Payment shall be paid within 90 days following the date of the Executive's death, without interest thereon. For purposes of this Section 10(b), the Termination Date shall be the earlier of 30 days following the giving of the Notice of Termination, subject to extension pursuant to Section 1(q), or one day prior to the end of the Employment Period.

11. Retirement. If, during the Employment Period, the Executive and the Employer shall execute an agreement providing for the early retirement of the Executive from the Employer, or the Executive shall otherwise give notice that he is voluntarily choosing to retire early from the Employer, the Executive shall receive Accrued Benefits through the Termination Date; *provided, that* if the Executive's employment is terminated by the Executive for Good Reason or by the Company other than by reason of death, disability or Cause and the Executive also, in connection with such termination, elects voluntary early retirement, the Executive shall also be entitled to receive a Termination Payment pursuant to Section 9.

12. Termination for Disability. If, during the Employment Period, as a result of the Executive's disability due to physical or mental illness or injury (regardless of whether such illness or injury is job-related), the Executive shall have been absent from the Executive's duties hereunder on a full-time basis for a period of six consecutive months and, within 30 days after the Company notifies the Executive in writing that it intends to terminate the Executive's employment (which notice shall not constitute the Notice of Termination contemplated below), the Executive shall not have returned to the performance of the Executive's duties hereunder on a full-time basis, the Company may terminate the Executive's employment for purposes of this Agreement pursuant to a Notice of Termination given in accordance with Section 13. If the Executive's employment is terminated on account of the Executive's disability in accordance with this Section, the Executive shall receive Accrued Benefits through the Termination Date and shall remain eligible for all benefits provided by any long term disability programs of the Employer in effect at the time of such termination.

13. Termination Notice and Procedure. Any Covered Termination by the Company or the Executive (other than a termination of the Executive's employment that is a Covered Termination by virtue of Section 2(b)) shall be communicated by a written notice of termination ("Notice of Termination") to the Executive, if such Notice is given by the Company, and to the Company, if such Notice is given by the Executive, all in accordance with the following procedures and those set forth in Section 24:

(a) If such termination is for disability, Cause or Good Reason, the Notice of Termination shall indicate in reasonable detail the facts and circumstances alleged to provide a basis for such termination.

(b) Any Notice of Termination by the Company shall have been approved, prior to the giving thereof to the Executive, by a resolution duly adopted by a majority of the directors of the Company (or any successor corporation) then in office.

(c) If the Notice is given by the Executive for Good Reason, the Executive may cease performing his duties hereunder on or after the date fifteen (15) days after the delivery of Notice of Termination and shall in any event cease employment on the Termination Date. If the Notice is given by the Company, then the Executive may cease performing his duties hereunder on the date of receipt of the Notice of Termination, subject to the Executive's rights hereunder.

(d) The Executive shall have thirty (30) days, or such longer period as the Company may determine to be appropriate, to cure any conduct or act, if curable, alleged to provide grounds for termination of the Executive's employment for Cause under this Agreement pursuant to Section 1(g)(iii).

(e) The recipient of any Notice of Termination shall personally deliver or mail in accordance with Section 24 written notice of any dispute relating to such Notice of Termination to the party giving such Notice within 15 days after receipt thereof; *provided, however*, that if the Executive's conduct or act alleged to provide grounds for termination by the Company for Cause is curable, then such period shall be 30 days. After the expiration of such period, the contents of the Notice of Termination shall become final and not subject to dispute.

14. Further Obligations of the Executive.

(a) Competition. The Executive agrees that, in the event of any Covered Termination where the Executive is entitled to Accrued Benefits and the Termination Payment, the Executive shall not, for a period expiring one year after the Termination Date, without the prior written approval of the Company's Board of Directors, (i) solicit for employment an employee of the Company or its subsidiaries or (ii) participate in the management of, be employed by or own any business enterprise at a location anywhere in the World that engages in substantial competition with the Company or its subsidiaries, where such enterprise's revenues from any competitive activities amount to 10% or more of such enterprise's net revenues and sales for its most recently completed fiscal year; provided, however, that nothing in this Section 14(a) shall prohibit the Executive from owning stock or other securities of a competitor amounting to less than five percent (5%) of the outstanding capital stock of such competitor.

(b) Confidentiality. During and following the Executive's employment by the Company, the Executive shall hold in confidence and not directly or indirectly disclose or use or copy or make lists of any confidential information or proprietary data of the Company (including that of the Employer), except to the extent authorized in writing by the Board of Directors of the Company or required by any court or administrative agency, other than to an employee of the Company or a person to whom disclosure is reasonably necessary or appropriate in connection with the performance by the Executive of duties as an executive of the Company. Confidential information shall not include any information known generally to the public or any information of a type not otherwise considered confidential by persons engaged in the same business or a business similar to that of the Company. All records, files, documents and materials, or copies thereof, relating to the business of the Company which the Executive shall prepare, or use, or come into contact with, shall be and remain the sole property of the Company and shall be promptly returned to the Company upon termination of employment with the Company. Notwithstanding anything to the contrary herein, however, nothing in this Agreement prohibits the Executive from reporting possible violations of local, state, foreign or federal law or regulation, or related facts, to any governmental agency or entity or making other reports or disclosures that, in each case, the Executive believes are protected under the whistleblower provisions of local, state, foreign or federal law or regulation. Without limitation, the Executive may report possible violations of law or regulation and related facts to the U.S. Department of Justice, the Securities and Exchange Commission, Congress, and any agency Inspector General. The Executive does not need the prior authorization of the Company (including, but not limited to, its law department) to make any such reports or disclosures, and the Executive does not need to notify the Company that the Executive has made such reports or disclosures. Making such reports or disclosures does not in any way have adverse consequences to the Executive under this Agreement.

15. Expenses and Interest. If, after a Change in Control of the Company, (a) a dispute arises with respect to the enforcement of the Executive's rights under this Agreement or

(b) any legal or arbitration proceeding shall be brought to enforce or interpret any provision contained herein or to recover damages for breach hereof, in either case so long as the Executive is not acting in bad faith, then the Company shall reimburse the Executive for any reasonable attorneys' fees and necessary costs and disbursements incurred as a result of the dispute, legal or arbitration proceeding ("Expenses"), and prejudgment interest on any money judgment or arbitration award obtained by the Executive calculated at the rate of interest announced by U.S. Bank National Association, Minneapolis, Minnesota, from time to time at its prime or base lending rate from the date that payments to him or her should have been made under this Agreement. Within ten days after the Executive's written request therefore (but in no event later than the end of the calendar year following the calendar year in which such Expense is incurred), the Company shall reimburse the Executive, or such other person or entity as the Executive may designate in writing to the Company, the Executive's reasonable Expenses.

16. Payment Obligations Absolute. The Company's obligation during and after the Employment Period to pay the Executive the amounts and to make the benefit and other arrangements provided herein shall be absolute and unconditional and shall not be affected by any circumstances, including, without limitation, any setoff, counterclaim, recoupment, defense or other right which the Company may have against him or her or anyone else. Except as provided in Section 15, all amounts payable by the Company hereunder shall be paid without notice or demand. Each and every payment made hereunder by the Company shall be final, and the Company will not seek to recover all or any part of such payment from the Executive, or from whomsoever may be entitled thereto, for any reason whatsoever.

17. Successors.

(a) If the Company sells, assigns or transfers all or substantially all of its business and assets to any Person or if the Company merges into or consolidates or otherwise combines (where the Company does not survive such combination) with any Person (any such event, a "Sale of Business"), then the Company shall assign all of its right, title and interest in this Agreement as of the date of such event to such Person, and the Company shall cause such Person, by written agreement in form and substance reasonably satisfactory to the Executive, to expressly assume and agree to perform from and after the date of such assignment all of the terms, conditions and provisions imposed by this Agreement upon the Company. Failure of the Company to obtain such written agreement prior to the effective date of such Sale of Business shall be a breach of this Agreement constituting "Good Reason" hereunder, except that for purposes of implementing the foregoing the date upon which such Sale of Business becomes effective shall be deemed the Termination Date. In case of such assignment by the Company and of assumption and agreement by such Person, as used in this Agreement, "Company" shall thereafter mean such Person which executes and delivers the agreement provided for in this Section 17 or which otherwise becomes bound by all the terms and provisions of this Agreement by operation of law, and this Agreement shall inure to the benefit of, and be enforceable by, such Person. The Executive shall, in his or her discretion, be entitled to proceed against any or all of such Persons, any Person which theretofore was such a successor to the Company and the Company (as so defined) in any action to enforce any rights of the Executive hereunder. Except as provided in this Section 17(a), this Agreement shall not be assignable by the Company. This Agreement shall not be terminated by the voluntary or involuntary dissolution of the Company.

(b) This Agreement and all rights of the Executive shall inure to the benefit of and be enforceable by the Executive's personal or legal representatives, executors, administrators, heirs and beneficiaries. All amounts payable to the Executive under Sections 3, 7, 8, 9, 10, 11, 12 and 15 if the Executive had lived shall be paid, in the event of the Executive's death, to the Executive's estate, heirs and representatives; *provided, however*, that the foregoing shall not be construed to modify any terms of any benefit plan of the Employer, as such terms are

in effect on the date of the Change in Control of the Company, that expressly govern benefits under such plan in the event of the Executive's death.

18. Severability. The provisions of this Agreement shall be regarded as divisible, and if any of said provisions or any part hereof are declared invalid or unenforceable by a court of competent jurisdiction, the validity and enforceability of the remainder of such provisions or parts hereof and the applicability thereof shall not be affected thereby.

19. Contents of Agreement; Waiver of Rights; Amendment. This Agreement sets forth the entire understanding between the parties hereto with respect to the subject matter hereof and shall supersede in all respects, and the Executive hereby waives all rights under, any prior or other agreement or understanding between the parties with respect to such subject matter, including, but not limited to any Key Executive Employment and Severance Agreement between the Company and the Executive entered into prior to the date hereof. This Agreement may not be amended or modified at any time except by written instrument executed by the Company and the Executive.

20. Withholding. The Company shall be entitled to withhold from amounts to be paid to the Executive hereunder any federal, state or local withholding or other taxes or charges which it is from time to time required to withhold; *provided, that* the amount so withheld shall not exceed the minimum amount required to be withheld by law. In addition, if prior to the date of payment of the Termination Payment hereunder, the Federal Insurance Contributions Act (FICA) tax imposed under Sections 3101, 3121(a) and 3121(v)(2), where applicable, becomes due with respect to any payment or benefit to be provided hereunder, the Employer may provide for an immediate payment of the amount needed to pay the Executive's portion of such tax (plus an amount equal to the taxes that will be due on such amount) and the Executive's Termination Payment shall be reduced accordingly. The Employer shall be entitled to rely on an opinion of the National Tax Counsel if any question as to the amount or requirement of any such withholding shall arise.

21. Certain Rules of Construction. No party shall be considered as being responsible for the drafting of this Agreement for the purpose of applying any rule construing ambiguities against the drafter or otherwise. No draft of this Agreement shall be taken into account in construing this Agreement. Any provision of this Agreement which requires an agreement in writing shall be deemed to require that the writing in question be signed by the Executive and an authorized representative of the Company.

22. Governing Law; Resolution of Disputes. This Agreement and the rights and obligations hereunder shall be governed by and construed in accordance with the laws of the State of Minnesota, without reference to the conflict of law principles thereof. Any dispute arising out of this Agreement shall, at the Executive's election, be determined by arbitration under the rules of the American Arbitration Association then in effect (in which case both parties shall be bound by the arbitration award) or by litigation. Whether the dispute is to be settled by arbitration or litigation, the venue for the arbitration or litigation shall be Minneapolis, Minnesota or, at the Executive's election, if the Executive is not then residing or working in the Minneapolis, Minnesota metropolitan area, in the judicial district encompassing the city in which the Executive resides; provided, that, if the Executive is not then residing in the United States, the election of the Executive with respect to such venue shall be either Minneapolis, Minnesota or in the judicial district encompassing that city in the United States among the thirty cities having the largest population (as determined by the most recent United States Census data available at the Termination Date) which is closest to the Executive's residence. The parties consent to personal jurisdiction in each trial court in the selected venue having subject matter jurisdiction notwithstanding their residence or situs, and each party irrevocably consents to service of process in the manner provided hereunder for the giving of notices.

23. Additional Section 409A Provisions. (a) If, after the date of a Change in Control of the Company, any payment amount or the value of any benefit under this Agreement is required to be included in the Executive's income prior to the date such amount is actually paid or the benefit provided as a result of the failure of this Agreement (or any other arrangement that is required to be aggregated with this Agreement under Code Section 409A) to comply with Code Section 409A, then the Executive shall receive a distribution, in a lump sum, within 90 days after the date it is finally determined that the Agreement (or such other arrangement that is required to be aggregated with this Agreement) fails to meet the requirements of Section 409A of the Code; such distribution shall equal the amount required to be included in the Executive's income as a result of such failure and shall reduce the amount of payments or benefits otherwise due hereunder.

(b) The Company and the Executive intend the terms of this Agreement to be in compliance with Section 409A of the Code. The Company does not guarantee the tax treatment or tax consequences associated with any payment or benefit, including but not limited to consequences related to Section 409A of the Code. To the maximum extent permissible, any ambiguous terms of this Agreement shall be interpreted in a manner that avoids a violation of Section 409A of the Code.

(c) If the Executive believes he or she is entitled to a payment or benefit pursuant to the terms of this Agreement that was not timely paid or provided, and such payment or benefit is considered deferred compensation subject to the requirements of Section 409A of the Code, the Executive acknowledges that to avoid an additional tax on such payment or benefit pursuant to the provisions of Section 409A of the Code, the Executive must make a reasonable, good faith effort to collect such payment or benefit no later than 90 days after the latest date upon which the payment could have been timely made or benefit timely provided without violating Section 409A of the Code, and if not paid or provided, must take further enforcement measures within 180 days after such latest date.

24. Notice. Notices given pursuant to this Agreement shall be in writing and, except as otherwise provided by Section 13(d), shall be deemed given when actually received by the Executive or actually received by the Company's Secretary or any officer of the Company other than the Executive. If mailed, such notices shall be mailed by United States registered or certified mail, return receipt requested, addressee only, postage prepaid, if to the Company, to Pentair plc, c/o Pentair, Inc., Attention: Secretary (or Chief Executive Officer, if the Executive is then Secretary), 5500 Wayzata Blvd., Suite 800, Golden Valley, Minnesota 55416, or if to the Executive, at the address set forth below the Executive's signature to this Agreement, or to such other address as the party to be notified shall have theretofore given to the other party in writing.

25. No Waiver. No waiver by either party at any time of any breach by the other party of, or compliance with, any condition or provision of this Agreement to be performed by the other party shall be deemed a waiver of similar or dissimilar provisions or conditions at the same time or any prior or subsequent time.

26. Headings. The headings herein contained are for reference only and shall not affect the meaning or interpretation of any provision of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first above written.

PENTAIR PLC

By: _____

Its: _____

Attest: _____

Its: _____

EXECUTIVE:

Address:

Pentair plc and subsidiaries as of December 31, 2021

Name of Company	Jurisdiction of Incorporation
ACP Pleatco Blocker Corp.	United States
Air Capital Filtration, LLC	United States
APEL International, LLC	United States
Aplex Industries, Inc.	United States
Aqua Membranes, Inc. ⁽¹⁾	United States
Aquion (Xi'an) Water Treatment Equipment Co., Ltd.	China
Aquion Hong Kong Limited	Hong Kong
Aquion, Inc.	United States
Be the Change Labs, Inc.	United States
Century Mfg. Co.	United States
Chansuba Pumps Private Limited ⁽²⁾	India
ClearWater Tech, L.L.C.	United States
delMAC Filters, LLC	United States
Enviro Water Solutions LLC	United States
ETE Coliban Pty Limited	Australia
Everpure Japan Kabushiki Kaisha	Japan
FARADYNE Motors (Suzhou) Co., Ltd ⁽³⁾	China
Faradyne Motors LLC ⁽³⁾	United States
FilterDeal, LLC	United States
Filter-Medic, LLC	United States
FilterSoft, LLC	United States
Fleck Controls, Inc.	United States
Goyen Controls Co. Pty. Limited	Australia
Goyen Valve LLC	United States
Greenspan Environmental Technology Pty Ltd	Australia
Guardian Filtration Products, LLC	United States
Haffmans B.V.	Netherlands
Haffmans North America, Inc.	United States
Hawley Group Canada Limited	Canada
Hypro EU Limited	United Kingdom
Jung Pumpen GmbH	Germany
Lincoln Automotive Company	United States
McNeil (Ohio) Corporation	United States
MECAIR S.r.L.	Italy
Milperra Developments Pty Limited	Australia
Milton Acquisition ULC	Canada
Mobile Pool Builder, Inc.	United States
Moraine Properties, LLC	United States
Nano Terra, Inc. ⁽⁴⁾	United States
Nijhuis Pompen B.V.	Netherlands
Panthro Acquisition Co.	United States
Pelican Holding Corporation	United States
Pentair Aquatic Eco-Systems, Inc.	United States
Pentair Australia Holdings Pty Limited	Australia
Pentair Canada, Inc.	Canada
Pentair Clean Process Technologies India Private Limited	India
Pentair Commercial Services LLC	United States
Pentair Denmark Holding ApS	Denmark
Pentair Federal Pump, LLC	United States
Pentair Filtration Sales & Service Company, LLC	United States

Pentair Filtration Solutions, LLC	United States
Pentair Finance Group GmbH	Switzerland
Pentair Finance S.a.r.l.	Luxembourg
Pentair Finance Switzerland GmbH	Switzerland
Pentair Flow Control International Pty Limited	Australia
Pentair Flow Services AG	Switzerland
Pentair Flow Technologies de Mexico, S. de R.L. de C.V.	Mexico
Pentair Flow Technologies Pacific Pty Ltd	Australia
Pentair Flow Technologies, LLC	United States
Pentair France SARL	France
Pentair Germany GmbH	Germany
Pentair Global Holdings B.V.	Netherlands
Pentair Global S.a.r.l.	Luxembourg
Pentair Group (Thailand) Limited ⁽⁵⁾	Thailand
Pentair Holdings S.a.r.l.	Luxembourg
Pentair Holdings, Inc.	United States
Pentair Housing, Inc.	United States
Pentair Housing, LP	United States
Pentair International (UK) Ltd	United Kingdom
Pentair International Holding S.a.r.l.	Luxembourg
Pentair International Sarl	Switzerland
Pentair Investments Switzerland GmbH	Switzerland
Pentair Ireland Limited	Ireland
Pentair Janus Holding LLC	United States
Pentair Janus Holdings	Bermuda
Pentair Kenya Limited	Kenya
Pentair Luxembourg S.a.r.l.	Luxembourg
Pentair Management Company	United States
Pentair Manufacturing Belgium BV	Belgium
Pentair Manufacturing Italy S.r.L.	Italy
Pentair Middle East FZE	United Arab Emirates
Pentair Nanosoft US Holdings, LLC	United States
Pentair Netherlands Euro Finance B.V.	Netherlands
Pentair Netherlands Finance B.V.	Netherlands
Pentair Netherlands Holding B.V.	Netherlands
Pentair Pacific Rim (Water) Limited	Hong Kong
Pentair Pacific Rim, Limited	Hong Kong
Pentair Philippines, Inc. ⁽⁵⁾	Philippines
Pentair Pleatco Acquisition LLC	United States
Pentair Residential Filtration, LLC	United States
Pentair Sales LLC	United States
Pentair Sudmo GmbH	Germany
Pentair Tamimi LLC ⁽⁶⁾	Saudi Arabia
Pentair Trading (Shanghai) Co., Ltd.	China
Pentair Transport, Inc.	United States
Pentair UK Holdings Limited	United Kingdom
Pentair US LLC 1	United States
Pentair US LLC 2	United States
Pentair US LP	United States
Pentair Valves & Controls del Uruguay S.A.	Uruguay
Pentair Water (Suzhou) Company, Ltd.	China
Pentair Water Asia Pacific Pte. Ltd.	Singapore
Pentair Water Australia Pty Ltd	Australia
Pentair Water Belgium BV	Belgium

Pentair Water Brazil LLC	United States
Pentair Water do Brasil Ltda.	Brazil
Pentair Water France SAS	France
Pentair Water Group, Inc.	United States
Pentair Water Holdings, LLC	United States
Pentair Water India Private Limited	India
Pentair Water Italy S.r.l.	Italy
Pentair Water Latinamerica S.A.	Argentina
Pentair Water Operations Australia Pty Ltd	Australia
Pentair Water Polska Sp.zoo	Poland
Pentair Water Pool and Spa, Inc.	United States
Pentair Water Proces Technologie Holding B.V.	Netherlands
Pentair Water Process Technology B.V.	Netherlands
Pentair Water Purification Systems (Shanghai) Co., Ltd.	China
Pentair Water Spain, S.L.	Spain
Pentair Water Treatment (OH) Company	United States
Pentair Water Treatment Company	United States
Pentair Water Treatment Private Limited	India
Pentair Water, LLC	United States
Pentair Water-Mexico, S. de R.L. de C.V.	Mexico
Pentair, Inc.	United States
Penwald Insurance Company	United States
PES Pty Ltd	Australia
PFAM, Inc.	United States
Pleatco Holdings, LLC	United States
Pleatco Intermediate Holdings, LLC	United States
Pleatco Mexican Holding Company, LLC	United States
Pleatco Mexicana, S. De R.L. De C.V.	Mexico
Pleatco, LLC	United States
Plymouth Products, Inc.	United States
Procam Controls, Inc.	United States
PTG Accessories Corp.	United States
Seneca Enterprises Co.	United States
Shupeco, LLC	United States
Sta-Rite de Mexico, S.A. de C.V.	Mexico
Sta-Rite Industries, LLC	United States
Surface Logix LLC ⁽⁷⁾	United States
Tupelo Real Estate, LLC	United States
TVS Filters Acquisition, LLC	United States
U.S. Milton Holdings, Inc.	United States
Union Engineering (NingBo) Co., Ltd.	China
Union Engineering A/S	Denmark
Union Engineering Holding LLC	United States
Union Engineering Latam Ltda ⁽⁸⁾	Brazil
Union Engineering North America LLC	United States
Urban Organics Pentair Group, LLC	United States
Urban Organics Schmidt Real Estate Group, LLC	United States
Urban Organics St. Paul, LLC	United States
Voltea Ltd. ⁽⁹⁾	United Kingdom
Water Ingenuity Holdings Corp.	United States
Webster Electric Company, LLC	United States
X-Flow B.V.	Netherlands

- (1) 10.37% owned
- (2) 47% owned
- (3) 50% owned
- (4) 4.81% owned
- (5) 99.99% owned
- (6) 70% owned
- (7) 0.03% owned
- (8) 99% owned
- (9) 1.69% owned

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-184151, 333-184152 and 333-238544 on Form S-8 and Registration Statement No. 333-231828 on Form S-3 of our reports dated February 22, 2022, relating to the financial statements of Pentair plc and the effectiveness of Pentair plc's internal control over financial reporting, appearing in this Annual Report on Form 10-K for the year ended December 31, 2021.

/s/ Deloitte & Touche LLP

Minneapolis, Minnesota
February 22, 2022

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS that the undersigned directors of Pentair plc, an entity organized under the laws of Ireland, hereby constitute and appoint John L. Stauch and Karla C. Robertson, or either of them, his/her attorney-in-fact and agent, with full power of substitution, for the purpose of signing on his/her behalf as a director of Pentair plc the Annual Report on Form 10-K, to be filed with the Securities and Exchange Commission within the next sixty days, and to file the same, with all exhibits thereto and other supporting documents, with the Commission, granting unto such attorney-in-fact, full power and authority to do and perform any and all acts necessary or incidental to the performance and execution of the powers herein expressly granted.

Date: February 22, 2022

<u>Signature</u>	<u>Title</u>
/s/ Mona Abutaleb Stephenson Mona Abutaleb Stephenson	Director
/s/ Melissa Barra Melissa Barra	Director
/s/ Glynis A. Bryan Glynis A. Bryan	Director
/s/ T. Michael Glenn T. Michael Glenn	Director
/s/ Theodore L. Harris Theodore L. Harris	Director
/s/ David A. Jones David A. Jones	Director
/s/ Gregory E. Knight Gregory E. Knight	Director
/s/ Michael T. Speetzen Michael T. Speetzen	Director
/s/ Billie I. Williamson Billie I. Williamson	Director

Certification

I, John L. Stauch, certify that:

1. I have reviewed this report on Form 10-K of Pentair plc;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2022

/s/ John L. Stauch

John L. Stauch

President and Chief Executive Officer

Certification

I, Robert P. Fishman, certify that:

1. I have reviewed this report on Form 10-K of Pentair plc;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2022

/s/ Robert P. Fishman

Robert P. Fishman

Executive Vice President, Chief Financial Officer and Chief Accounting Officer

**Certification of CEO Pursuant To
18 U.S.C. Section 1350,
As Adopted Pursuant To
Section 906 Of The Sarbanes-Oxley Act Of 2002**

In connection with the Annual Report of Pentair plc (the “Company”) on Form 10-K for the period ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, John L. Stauch, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that based on my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: February 22, 2022

/s/ John L. Stauch

John L. Stauch

President and Chief Executive Officer

**Certification of CFO Pursuant To
18 U.S.C. Section 1350,
As Adopted Pursuant To
Section 906 Of The Sarbanes-Oxley Act Of 2002**

In connection with the Annual Report of Pentair plc (the “Company”) on Form 10-K for the period ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Robert P. Fishman, Executive Vice President, Chief Financial Officer and Chief Accounting Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that based on my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: February 22, 2022

/s/ Robert P. Fishman

Robert P. Fishman

Executive Vice President, Chief Financial Officer and Chief Accounting Officer