Table of Contents

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

FORM 10-Q

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

For the quarterly period ended September 30, 2022
or

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

For the transition period from ______ to ______
Commission File Number 001-34400

TRANE TECHNOLOGIES PLC
(Exact name of registrant as specified in its charter)

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

170/175 Lakeview Dr.
Airside Business Park
Swords Co. Dublin
Ireland
(Address of principal executive offices, including zip code)
+(353) (0) 18707400
(Registrant's telephone number, including area code)

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

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

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

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

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

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

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

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

The number of ordinary shares outstanding of Trane Technologies plc as of October 21, 2022 was 230,307,296.

TRANE TECHNOLOGIES PLC

FORM 10-Q

INDEX

PART I - FINANCIAL INFORMATION

Item 1. **Financial Statements**

TRANE TECHNOLOGIES PLC
CONDENSED CONSOLIDATED STATEMENTS OF EARNINGS
(Unaudited)

In millions, except per share amounts	Three months ended September 30, 2022	Three months ended September 30, 2021	Nine months ended September 30, 2022	Nine months ended September 30, 2021
Net revenues	$ 4,371.9	$ 3,719.8	$ 11,917.9	$ 10,567.1
Cost of goods sold	(2,939.1)	(2,515.6)	(8,172.6)	(7,139.0)
Selling and administrative expenses	(693.3)	(620.8)	(1,907.0)	(1,840.5)
Operating income	739.5	583.4	1,838.3	1,587.6
Interest expense	(55.8)	(57.7)	(167.6)	(177.7)
Other income/(expense), net	(18.7)	(6.9)	(21.0)	(13.8)
Earnings before income taxes	665.0	518.8	1,649.7	1,396.1
Provision for income taxes	(104.7)	(96.8)	(302.4)	(268.0)
Earnings from continuing operations	560.3	422.0	1,347.3	1,128.1
Discontinued operations, net of tax	(7.9)	(13.3)	(16.6)	(12.6)
Net earnings	552.4	408.7	1,330.7	1,115.5
Less: Net earnings from continuing operations attributable to noncontrolling interests	(4.5)	(3.0)	(13.3)	(9.9)
Net earnings attributable to Trane Technologies plc	$ 547.9	$ 405.7	$ 1,317.4	$ 1,105.6
Amounts attributable to Trane Technologies plc ordinary shareholders:				
Continuing operations	$ 555.8	$ 419.0	$ 1,334.0	$ 1,118.2
Discontinued operations	(7.9)	(13.3)	(16.6)	(12.6)
Net earnings	$ 547.9	$ 405.7	$ 1,317.4	$ 1,105.6
Earnings (loss) per share attributable to Trane Technologies plc ordinary shareholders:				
Basic:				
Continuing operations	$ 2.40	$ 1.76	$ 5.72	$ 4.68
Discontinued operations	(0.04)	(0.06)	(0.08)	(0.06)
Net earnings	$ 2.36	$ 1.70	$ 5.64	$ 4.62
Diluted:				
Continuing operations	$ 2.38	$ 1.73	$ 5.66	$ 4.61
Discontinued operations	(0.04)	(0.05)	(0.07)	(0.06)
Net earnings	$ 2.34	$ 1.68	$ 5.59	$ 4.55
Weighted-average shares outstanding:				
Basic	231.9	238.2	233.4	239.2
Diluted	234.0	241.7	235.7	242.8

See accompanying notes to Condensed Consolidated Financial Statements.

TRANE TECHNOLOGIES PLC
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(Unaudited)

In millions	Three months ended September 30, 2022	Three months ended September 30, 2021	Nine months ended September 30, 2022	Nine months ended September 30, 2021
Net earnings	$ 552.4	$ 408.7	$ 1,330.7	$ 1,115.5
Other comprehensive income (loss):				
Currency translation	(189.5)	(67.7)	(383.8)	(101.4)
Cash flow hedges:				
Unrealized net gains (losses) arising during period	(9.7)	5.1	(31.3)	1.3
Net (gains) losses reclassified into earnings	3.3	(7.9)	0.6	(5.1)
Tax (expense) benefit	(0.7)	0.5	4.4	1.9
Total cash flow hedges, net of tax	(7.1)	(2.3)	(26.3)	(1.9)
Pension and OPEB adjustments:				
Amortization reclassified into earnings	5.3	9.7	16.2	29.1
Net curtailment and settlement (gains) losses reclassified to earnings	15.0	—	15.0	6.9
Currency translation and other	9.6	4.6	22.2	4.9
Tax (expense) benefit	(3.6)	(2.4)	(6.4)	(17.1)
Total pension and OPEB adjustments, net of tax	26.3	11.9	47.0	23.8
Other comprehensive income (loss), net of tax	(170.3)	(58.1)	(363.1)	(79.5)
Comprehensive income, net of tax	$ 382.1	$ 350.6	$ 967.6	$ 1,036.0
Less: Comprehensive income attributable to noncontrolling interests	(2.6)	(1.9)	(10.1)	(8.1)
Comprehensive income attributable to Trane Technologies plc	$ 379.5	$ 348.7	$ 957.5	$ 1,027.9

See accompanying notes to Condensed Consolidated Financial Statements.

TRANE TECHNOLOGIES PLC

CONDENSED CONSOLIDATED BALANCE SHEETS

In millions	(Unaudited) September 30, 2022	December 31, 2021
ASSETS		
Current assets:		
Cash and cash equivalents	$ 1,080.2	$ 2,159.2
Accounts and notes receivable, net	2,867.4	2,429.4
Inventories	1,949.2	1,530.8
Other current assets	402.3	351.5
Total current assets	6,299.1	6,470.9
Property, plant and equipment, net	1,432.1	1,398.8
Goodwill	5,370.3	5,504.8
Intangible assets, net	3,241.1	3,305.6
Other noncurrent assets	1,397.2	1,379.7
Total assets	$ 17,739.8	$ 18,059.8
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	$ 2,061.3	$ 1,787.3
Accrued compensation and benefits	477.9	544.8
Accrued expenses and other current liabilities	1,956.4	2,069.9
Short-term borrowings and current maturities of long-term debt	1,049.9	350.4
Total current liabilities	5,545.5	4,752.4
Long-term debt	3,787.5	4,491.7
Postemployment and other benefit liabilities	730.9	810.9
Deferred and noncurrent income taxes	639.1	581.5
Other noncurrent liabilities	1,168.4	1,150.2
Total liabilities	11,871.4	11,786.7
Equity:		
Trane Technologies plc shareholders' equity:		
Ordinary shares	254.8	259.7
Ordinary shares held in treasury, at cost	(1,719.4)	(1,719.4)
Capital in excess of par value	—	—
Retained earnings	8,320.4	8,353.2
Accumulated other comprehensive income (loss)	(997.5)	(637.6)
Total Trane Technologies plc shareholders' equity	5,858.3	6,255.9
Noncontrolling interests	10.1	17.2
Total equity	5,868.4	6,273.1
Total liabilities and equity	$ 17,739.8	$ 18,059.8

See accompanying notes to Condensed Consolidated Financial Statements.

TRANE TECHNOLOGIES PLC

CONDENSED CONSOLIDATED STATEMENTS OF EQUITY

(Unaudited)

In millions, except per share amounts	Total equity	Ordinary shares Amount at par value	Ordinary shares Shares	Ordinary shares held in treasury, at cost	Capital in excess of par value	Retained earnings	Accumulated other comprehensive income (loss)	Noncontrolling Interests
Balance at December 31, 2021	$ 6,273.1	$ 259.7	259.7	$ (1,719.4)	$ —	$ 8,353.2	$ (637.6)	$ 17.2
Net earnings	263.4	—	—	—	—	260.2	—	3.2
Other comprehensive income (loss)	(1.4)	—	—	—	—	—	(1.4)	—
Shares issued under incentive stock plans	(24.2)	0.5	0.5	—	(24.7)	—	—	—
Repurchase of ordinary shares	(350.0)	(1.9)	(1.9)	—	3.3	(351.4)	—	—
Share-based compensation	21.4	—	—	—	21.3	0.1	—	—
Dividends declared to noncontrolling interest	(2.5)	—	—	—	—	—	—	(2.5)
Dividends declared to common shareholders	(156.7)	—	—	—	—	(156.7)	—	—
Separation of Ingersoll Rand Industrial	(6.7)	—	—	—	—	(6.7)	—	—
Other	0.1	—	—	—	0.1	—	—	—
Balance at March 31, 2022	$ 6,016.5	$ 258.3	258.3	$ (1,719.4)	$ —	$ 8,098.7	$ (639.0)	$ 17.9
Net earnings	514.9	—	—	—	—	509.3	—	5.6
Other comprehensive income (loss)	(191.4)	—	—	—	—	—	(190.1)	(1.3)
Shares issued under incentive stock plans	4.1	0.2	0.2	—	3.9	—	—	—
Repurchase of ordinary shares	(300.1)	(2.3)	(2.3)	—	(5.7)	(292.1)	—	—
Share-based compensation	13.1	—	—	—	13.9	(0.8)	—	—
Dividends declared to noncontrolling interest	(6.4)	—	—	—	—	—	—	(6.4)
Dividends declared to common shareholders	(311.1)	—	—	—	—	(311.1)	—	—
Separation of Ingersoll Rand Industrial	(0.3)	—	—	—	—	(0.3)	—	—
Balance at June 30, 2022	$ 5,739.3	$ 256.2	256.2	$ (1,719.4)	$ 12.1	$ 8,003.7	$ (829.1)	$ 15.8
Net earnings	552.4	—	—	—	—	547.9	—	4.5
Other comprehensive income (loss)	(170.3)	—	—	—	—	—	(168.4)	(1.9)
Shares issued under incentive stock plans	6.5	0.2	0.2	—	6.3	—	—	—
Repurchase of ordinary shares	(250.0)	(1.6)	(1.6)	—	(16.7)	(231.7)	—	—
Share-based compensation	10.0	—	—	—	10.7	(0.7)	—	—
Dividends declared to noncontrolling interest	(5.6)	—	—	—	—	—	—	(5.6)
Acquisition of noncontrolling interest	(15.1)	—	—	—	(12.4)	—	—	(2.7)
Dividends declared to common shareholders	0.4	—	—	—	—	0.4	—	—
Separation of Ingersoll Rand Industrial	0.8	—	—	—	—	0.8	—	—
Balance at September 30, 2022	$ 5,868.4	$ 254.8	254.8	$ (1,719.4)	$ —	$ 8,320.4	$ (997.5)	$ 10.1

See accompanying notes to Condensed Consolidated Financial Statements.

TRANE TECHNOLOGIES PLC
CONDENSED CONSOLIDATED STATEMENTS OF EQUITY (CONTINUED)
(Unaudited)

In millions, except per share amounts	Total equity	Ordinary shares: Amount at par value	Ordinary shares: Shares	Ordinary shares held in treasury, at cost	Capital in excess of par value	Retained earnings	Accumulated other comprehensive income (loss)	Noncontrolling Interests
December 31, 2020	$ 6,427.1	$ 263.3	263.3	$ (1,719.4)	$ —	$ 8,495.3	$ (631.5)	$ 19.4
Net earnings	237.8	—	—	—	—	235.2	—	2.6
Other comprehensive income (loss)	(70.7)	—	—	—	—	—	(68.3)	(2.4)
Shares issued under incentive stock plans	(7.0)	1.0	1.0	—	(8.0)	—	—	—
Repurchase of ordinary shares	(104.2)	(0.7)	(0.7)	—	(16.7)	(86.8)	—	—
Share-based compensation	24.2	—	—	—	24.7	(0.5)	—	—
Dividends declared to noncontrolling interest	(3.5)	—	—	—	—	—	—	(3.5)
Dividends declared to common shareholders	(141.0)	—	—	—	—	(141.0)	—	—
Separation of Ingersoll Rand Industrial	(49.9)	—	—	—	—	(49.9)	—	—
Balance at March 31, 2021	$ 6,312.8	$ 263.6	263.6	$ (1,719.4)	$ —	$ 8,452.3	$ (699.8)	$ 16.1
Net earnings	469.0	—	—	—	—	464.7	—	4.3
Other comprehensive income (loss)	49.3	—	—	—	—	—	47.6	1.7
Shares issued under incentive stock plans	25.7	0.5	0.5	—	25.2	—	—	—
Repurchase of ordinary shares	(250.0)	(1.4)	(1.4)	—	(40.0)	(208.6)	—	—
Share-based compensation	13.9	—	—	—	14.8	(0.9)	—	—
Dividends declared to noncontrolling interest	(6.7)	—	—	—	—	—	—	(6.7)
Dividends declared to common shareholders	(281.4)	—	—	—	—	(281.4)	—	—
Balance at June 30, 2021	$ 6,332.6	$ 262.7	262.7	$ (1,719.4)	$ —	$ 8,426.1	$ (652.2)	$ 15.4
Net earnings	408.7	—	—	—	—	405.7	—	3.0
Other comprehensive income (loss)	(58.1)	—	—	—	—	—	(57.0)	(1.1)
Shares issued under incentive stock plans	43.1	0.6	0.6	—	42.5	—	—	—
Repurchase of ordinary shares	(246.0)	(1.3)	(1.3)	—	(40.0)	(204.7)	—	—
Share-based compensation	11.9	—	—	—	12.6	(0.7)	—	—
Dividends declared to noncontrolling interest	(4.7)	—	—	—	—	—	—	(4.7)
Dividends declared to common shareholders	—	—	—	—	—	—	—	—
Other	0.2	—	—	—	0.1	0.1	—	—
Balance at September 30, 2021	$ 6,487.7	$ 262.0	262.0	$ (1,719.4)	$ 15.2	$ 8,626.5	$ (709.2)	$ 12.6

See accompanying notes to Condensed Consolidated Financial Statements.

TRANE TECHNOLOGIES PLC
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

In millions	Nine months ended September 30, 2022	2021
Cash flows from operating activities:		
Net earnings	$ 1,330.7	$ 1,115.5
Discontinued operations, net of tax	16.6	12.6
Adjustments for non-cash transactions:		
Depreciation and amortization	241.0	223.0
Pension and other postretirement benefits	45.4	40.4
Stock settled share-based compensation	46.0	52.2
Changes in assets and liabilities, net of the effects of acquisitions	(710.0)	(258.9)
Other non-cash items, net	(36.3)	(22.2)
Net cash provided by (used in) continuing operating activities	933.4	1,162.6
Net cash provided by (used in) discontinued operating activities	(189.7)	(1.4)
Net cash provided by (used in) operating activities	743.7	1,161.2
Cash flows from investing activities:		
Capital expenditures	(202.8)	(121.6)
Acquisitions of businesses, net of cash acquired	(109.6)	(18.0)
Other investing activities, net	(12.8)	(69.2)
Net cash provided by (used in) continuing investing activities	(325.2)	(208.8)
Net cash provided by (used in) discontinued investing activities	(0.6)	—
Net cash provided by (used in) investing activities	(325.8)	(208.8)
Cash flows from financing activities:		
Payments of long-term debt	(7.5)	(432.5)
Debt issuance costs	(2.1)	(2.6)
Dividends paid to ordinary shareholders	(467.0)	(421.9)
Dividends paid to noncontrolling interests	(14.5)	(14.9)
Proceeds (payments) from shares issued under incentive plans, net	(13.6)	61.8
Repurchase of ordinary shares	(900.1)	(600.2)
Settlement related to special cash payment	(6.2)	(49.5)
Other financing activities, net	(2.0)	(5.2)
Net cash provided by (used in) financing activities	(1,413.0)	(1,465.0)
Effect of exchange rate changes on cash and cash equivalents	(83.9)	(38.5)
Net increase (decrease) in cash and cash equivalents	(1,079.0)	(551.1)
Cash and cash equivalents - beginning of period	2,159.2	3,289.9
Cash and cash equivalents - end of period	$ 1,080.2	$ 2,738.8

See accompanying notes to Condensed Consolidated Financial Statements.

TRANE TECHNOLOGIES PLC

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

Note 1. Basis of Presentation

Trane Technologies plc, a public limited company, incorporated in Ireland in 2009, and its consolidated subsidiaries (collectively, we, our, the Company or Trane Technologies), is a global climate innovator. The Company brings sustainable and efficient solutions to buildings, homes and transportation through the Company's strategic brands, Trane® and Thermo King®, and its environmentally responsible portfolio of products, services and connected intelligent controls. The Company generates revenue and cash primarily through the design, manufacture, sale and service of solutions for Heating, Ventilation and Air Conditioning (HVAC) and transport refrigeration. As an industry leader with an extensive global install base, the Company's growth strategy includes expanding recurring revenue through services and rental options. The Company's unique business operating system, uplifting culture and highly engaged team around the world are also central to its earnings and cash flow growth.

The accompanying unaudited Condensed Consolidated Financial Statements of Trane Technologies reflects the consolidated operations of the Company and have been prepared in accordance with United States Securities and Exchange Commission (SEC) interim reporting requirements. Accordingly, the accompanying Condensed Consolidated Financial Statements do not include all disclosures required by accounting principles generally accepted in the United States of America (GAAP) for full financial statements and should be read in conjunction with the consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021. In the opinion of management, the accompanying Condensed Consolidated Financial Statements contain all adjustments, which include only normal recurring adjustments, necessary to fairly state the condensed consolidated results for the interim periods presented.

Reorganization of Aldrich and Murray

On May 1, 2020, certain subsidiaries of the Company underwent an internal corporate restructuring that was effectuated through a series of transactions (2020 Corporate Restructuring). As a result, Aldrich Pump LLC (Aldrich) and Murray Boiler LLC (Murray), indirect wholly-owned subsidiaries of Trane Technologies plc, became solely responsible for the asbestos-related liabilities, and the beneficiaries of the asbestos-related insurance assets, of Trane Technologies Company LLC and Trane U.S. Inc, respectively. On a consolidated basis, the 2020 Corporate Restructuring did not have an impact on the Condensed Consolidated Financial Statements. In connection with the 2020 Corporate Restructuring, certain subsidiaries of the Company entered into funding agreements with Aldrich and Murray (collectively the Funding Agreements), pursuant to which those subsidiaries are obligated, among other things, to pay the costs and expenses of Aldrich and Murray during the pendency of the Chapter 11 cases to the extent distributions from their respective subsidiaries are insufficient to do so and to provide an amount for the funding for a trust established pursuant to section 524(g) of the Bankruptcy Code, to the extent that the other assets of Aldrich and Murray are insufficient to provide the requisite trust funding.

On June 18, 2020 (Petition Date), Aldrich and Murray filed voluntary petitions for relief under Chapter 11 of Title 11 of the United States Code (the Bankruptcy Code) in the United States Bankruptcy Court for the Western District of North Carolina (the Bankruptcy Court) to resolve equitably and permanently all current and future asbestos related claims in a manner beneficial to claimants and to Aldrich and Murray. As a result of the Chapter 11 filings, all asbestos-related lawsuits against Aldrich and Murray have been stayed due to the imposition of a statutory automatic stay applicable in Chapter 11 bankruptcy cases. Only Aldrich and Murray have filed for Chapter 11 relief. Neither Aldrich's wholly-owned subsidiary, 200 Park, Inc. (200 Park), Murray's wholly-owned subsidiary, ClimateLabs LLC (ClimateLabs), Trane Technologies plc nor its other subsidiaries (the Trane Companies) are part of the Chapter 11 filings. The Trane Companies are expected to continue to operate as usual, with no disruption to their employees, suppliers, or customers globally. As of the Petition Date, Aldrich and its wholly-owned subsidiary 200 Park and Murray and its wholly-owned subsidiary ClimateLabs were deconsolidated and their respective assets and liabilities were derecognized from the Company's Condensed Consolidated Financial Statements. Refer to Note 18, "Commitments and Contingencies," for more information regarding the status of Chapter 11 bankruptcy and asbestos-related matters.

Note 2. Recent Accounting Pronouncements

The Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) is the sole source of authoritative GAAP other than SEC issued rules and regulations that apply only to SEC registrants. The FASB issues an Accounting Standards Update (ASU) to communicate changes to the codification. The Company considers the applicability and impact of all ASU's. ASU's not listed below were assessed and determined to be either not applicable or are not expected to have a material impact on the Condensed Consolidated Financial Statements.

Recently Adopted Accounting Pronouncements

In November 2021, the FASB issued ASU 2021-10, "Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance" (ASU 2021-10), which requires additional disclosures regarding government grants and cash contributions. The additional disclosures required by this update include information about the nature of the transactions and the related accounting policy used to account for the transaction, the financial statement line items affected by the transactions and the amounts applicable to each financial statement line item and significant terms and conditions of the transactions, including commitments and contingencies. ASU 2021-10 is effective for annual periods beginning after December 15, 2021 with early adoption permitted. The Company adopted this standard on January 1, 2022 with no material impact on its financial statements.

In October 2021, the FASB issued ASU 2021-08, "Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers" (ASU 2021-08), which requires contract assets and contract liabilities acquired in a business combination to be recognized and measured by the acquirer on the acquisition date in accordance with ASC 606, "Revenue from Contracts with Customers" (ASC 606). ASU 2021-08 is effective for fiscal years beginning after December 15, 2022 including interim periods therein with early adoption permitted. The Company early adopted this standard during the fourth quarter of 2021 and applied it retrospectively to all business combinations for which the acquisition date occurred on or after January 1, 2021 resulting in no material impact on its financial statements.

In December 2019, the FASB issued ASU 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes" (ASU 2019-12), which simplifies certain aspects of income tax accounting guidance in ASC 740, reducing the complexity of its application. Certain exceptions to ASC 740 presented within the ASU include: intraperiod tax allocation, deferred tax liabilities related to outside basis differences and year-to-date loss in interim periods, among others. ASU 2019-12 is effective for annual reporting periods beginning after December 15, 2020 including interim periods therein with early adoption permitted. The Company adopted this standard on January 1, 2021 with no material impact on its financial statements.

Recently Issued Accounting Pronouncements

In September 2022, the FASB issued ASU 2022-04, "Liabilities - Supplier Finance Program (Subtopic 405-50): Disclosure of Supplier Program Finance Obligations", which requires that a company that enters into a supplier finance program disclose sufficient information about the program to allow a user of financial statements to understand the program's nature, activity during the period, changes from period to period, and potential magnitude. To achieve that objective, the company should disclose qualitative and quantitative information about its supplier finance programs. ASU 2022-04 is effective for fiscal periods beginning after December 15, 2022, including interim periods within those fiscal years, with early adoption permitted. The Company is evaluating the impact of this ASU on the financial statements, and does not expect a material impact. The Company will adopt this standard on January 1, 2023.

Note 3. Inventories

Depending on the business, U.S. inventories are stated at the lower of cost or market using the last-in, first-out (LIFO) method or the lower of cost and net realizable value (NRV) using the first-in, first-out (FIFO) method. Non-U.S. inventories are primarily stated at the lower of cost and NRV using the FIFO method.

The major classes of inventory were as follows:

In millions	September 30, 2022	December 31, 2021
Raw materials	$ 503.0	$ 404.6
Work-in-process	316.0	215.9
Finished goods	1,243.6	982.9
	2,062.6	1,603.4
LIFO reserve	(113.4)	(72.6)
Total	$ 1,949.2	$ 1,530.8

The Company performs periodic assessments to determine the existence of obsolete, slow-moving and non-saleable inventories and records necessary provisions to reduce such inventories to the lower of cost and NRV. Reserve balances, primarily related to obsolete and slow-moving inventories, were $80.3 million and $79.0 million at September 30, 2022 and December 31, 2021, respectively.

Note 4. Goodwill

The changes in the carrying amount of goodwill for the nine months ended September 30, 2022 were as follows:

In millions	Americas	EMEA	Asia Pacific	Total
Net balance as of December 31, 2021	$ 4,185.2	$ 740.8	$ 578.8	$ 5,504.8
Acquisitions [(1)]	42.2	(1.0)	—	41.2
Currency translation	(5.8)	(113.0)	(56.9)	(175.7)
Net balance as of September 30, 2022	$ 4,221.6	$ 626.8	$ 521.9	$ 5,370.3

[(1)] Includes measurement period adjustment related to prior year acquisition.

The net goodwill balances at September 30, 2022 and December 31, 2021 include $2,496.0 million of accumulated impairment, primarily related to the Americas segment. The accumulated impairment relates entirely to a charge recorded in 2008.

Note 5. Intangible Assets

The gross amount of the Company's intangible assets and related accumulated amortization were as follows:

	September 30, 2022			December 31, 2021		
In millions	Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
Customer relationships	$ 2,131.4	$ (1,550.9)	$ 580.5	$ 2,110.8	$ (1,475.3)	$ 635.5
Other	244.0	(205.6)	38.4	245.5	(201.3)	44.2
Total finite-lived intangible assets	2,375.4	(1,756.5)	618.9	2,356.3	(1,676.6)	679.7
Trademarks (indefinite-lived)	2,622.2	—	2,622.2	2,625.9	—	2,625.9
Total	$ 4,997.6	$ (1,756.5)	$ 3,241.1	$ 4,982.2	$ (1,676.6)	$ 3,305.6

Intangible asset amortization expense was $35.8 million and $29.0 million for the three months ended September 30, 2022 and 2021, respectively. Intangible asset amortization expense was $105.6 million and $90.7 million for the nine months ended September 30, 2022 and 2021, respectively.

Note 6. Debt and Credit Facilities

Short-term borrowings and current maturities of long-term debt consisted of the following:

In millions	September 30, 2022	December 31, 2021
Debentures with put feature	$ 342.9	$ 342.9
4.250% Senior notes due 2023	699.5	—
Other current maturities of long-term debt	7.5	7.5
Total	$ 1,049.9	$ 350.4

Commercial Paper Program

The Company uses borrowings under its commercial paper program for general corporate purposes. The maximum aggregate amount of unsecured commercial paper notes available to be issued, on a private placement basis, under the commercial paper program is $2.0 billion. The Company had no outstanding balance under its commercial paper program as of September 30, 2022 and December 31, 2021.

Debentures with Put Feature

At September 30, 2022 and December 31, 2021, the Company had $342.9 million of fixed rate debentures outstanding which contain a put feature that the holders may exercise on each anniversary of the issuance date. If exercised, the Company is obligated to repay in whole or in part, at the holder's option, the outstanding principal amount of the debentures plus accrued interest. If these options are not exercised, the final contractual maturity dates would range between 2027 and 2028. Holders of these debentures had the option to exercise the put feature on $37.2 million of the outstanding debentures in February 2022, subject to the notice requirement. No exercises were made.

Long-term debt, excluding current maturities, consisted of the following:

In millions	September 30, 2022	December 31, 2021
4.250% Senior notes due 2023	$ —	$ 699.1
7.200% Debentures due 2022-2025	14.9	22.4
3.550% Senior notes due 2024	498.5	498.0
6.480% Debentures due 2025	149.7	149.7
3.500% Senior notes due 2026	398.2	397.8
3.750% Senior notes due 2028	546.6	546.2
3.800% Senior notes due 2029	745.6	745.0
5.750% Senior notes due 2043	495.2	495.0
4.650% Senior notes due 2044	296.4	296.3
4.300% Senior notes due 2048	296.4	296.3
4.500% Senior notes due 2049	346.0	345.9
Total	$ 3,787.5	$ 4,491.7

Other Credit Facilities

On April 25, 2022, the Company entered into a new $1.0 billion senior unsecured revolving credit facility which matures in April 2027 (2027 Credit Facility) and terminated its $1.0 billion credit facility that would have expired in April 2023. As a result, the Company maintains two $1.0 billion senior unsecured revolving credit facilities, one of which matures in June 2026 (2026 Credit Facility) and the other which matures in April 2027 (collectively, the Facilities) through its wholly-owned subsidiaries, Trane Technologies HoldCo Inc., Trane Technologies Global Holding Company Limited and Trane Technologies Financing Limited (collectively, the Borrowers). On June 30, 2022, the Company amended its 2026 Credit Facility to include a Secured Overnight Financing Rate (SOFR) borrowing index provision and to eliminate the London Interbank Offer Rate (LIBOR) index provision. These provisions are consistent with the 2027 Credit Facility. Additionally, both Facilities include Environmental, Social, and Governance (ESG) metrics related to two of the Company's sustainability commitments: a reduction in greenhouse gas intensity and an increase in the percentage of women in management. The Company's annual performance against these ESG metrics may result in price adjustments to the commitment fee and applicable interest rate.

The Facilities provide support for the Company's commercial paper program and can be used for working capital and other general corporate purposes. Trane Technologies plc, Trane Technologies Irish Holdings Unlimited Company, Trane Technologies Lux International Holding Company S.à.r.l. and Trane Technologies Company LLC each provide irrevocable and unconditional guarantees for these Facilities. In addition, each Borrower will guarantee the obligations under the Facilities of the other Borrowers. Total commitments of $2.0 billion were unused at September 30, 2022 and December 31, 2021.

Fair Value of Debt

The fair value of the Company's debt instruments at September 30, 2022 and December 31, 2021 was $4.5 billion and $5.6 billion, respectively. The Company measures the fair value of its debt instruments for disclosure purposes based upon observable market prices quoted on public exchanges for similar assets. These fair value inputs are considered Level 2 within the fair value hierarchy. See Note 8, "Fair Value Measurements" for information on the fair value hierarchy.

Note 7. Financial Instruments

In the normal course of business, the Company is exposed to certain risks arising from business operations and economic factors. These fluctuations can increase the cost of financing, investing and operating the business. The Company uses various financial instruments, including derivative instruments, to manage the risks associated with interest rate, commodity price and foreign currency exposures. These financial instruments are not used for trading or speculative purposes. The Company recognizes all derivatives in the Condensed Consolidated Balance Sheets at their fair value as either assets or liabilities.

On the date a derivative contract is entered into, the Company designates the derivative instrument as a cash flow hedge of a forecasted transaction or as an undesignated derivative. The Company formally documents its hedge relationships, including identification of the derivative instruments and the hedged items, as well as its risk management objectives and strategies for undertaking the hedge transaction. This process includes linking derivative instruments that are designated as hedges to specific assets, liabilities or forecasted transactions.

The Company assesses at inception and at least quarterly thereafter, whether the derivatives used in cash flow hedging transactions are highly effective in offsetting the changes in the cash flows of the hedged item. To the extent the derivative is deemed to be a highly effective hedge, the fair market value changes of the instrument are recorded to *Accumulated other comprehensive income (loss)* (AOCI). If the hedging relationship ceases to be highly effective, or it becomes probable that a forecasted transaction is no longer expected to occur, the hedging relationship will be undesignated and any future gains and losses on the derivative instrument will be recorded in *Net earnings*.

The fair values of derivative instruments included within the Condensed Consolidated Balance Sheets were as follows:

	Derivative assets		Derivative liabilities	
In millions	September 30, 2022	December 31, 2021	September 30, 2022	December 31, 2021
Derivatives designated as hedges:				
Currency derivatives	$ 0.1	$ 0.1	$ 5.5	$ 2.7
Commodity derivatives	—	4.9	19.9	0.2
Derivatives not designated as hedges:				
Currency derivatives	2.1	10.5	1.4	14.0
Total derivatives	$ 2.2	$ 15.5	$ 26.8	$ 16.9

Asset and liability derivatives included in the table above are recorded within *Other current assets* and *Accrued expenses and other current liabilities*, respectively.

Currency Derivative Instruments

The notional amount of the Company's currency derivatives was approximately $400 million and $500 million at September 30, 2022 and December 31, 2021, respectively. At September 30, 2022 and December 31, 2021, a net loss of $5.1 million and $2.2 million, net of tax, respectively, was included in AOCI related to the fair value of the Company's currency derivatives designated as accounting hedges. The amount expected to be reclassified into *Net earnings* over the next twelve months is a net loss of $5.1 million. The actual amounts that will be reclassified to *Net earnings* may vary from this amount as a result of changes in market conditions. Gains and losses associated with the Company's currency derivatives not designated as hedges are recorded in *Net earnings* as changes in fair value occur. At September 30, 2022, the maximum term of the Company's currency derivatives was 12 months.

Commodity Derivative Instruments

At September 30, 2022 and December 31, 2021, a net loss of $14.9 million and net gain of $3.5 million, net of tax, respectively, was included in AOCI related to the fair market value of the Company's commodity derivatives designated as accounting hedges. A change in fair value of commodity derivative instruments deemed highly effective is included in AOCI and is reclassified to *Cost of goods sold* in the period the sale of the finished goods inventory containing the commodity impacts *Net earnings*. The amount expected to be reclassified into *Net earnings* over the next twelve months is a net loss of $14.9 million. The actual amounts that will be reclassified to *Net earnings* may vary from this amount as a result of changes in market conditions. At September 30, 2022, the Company has commodity contracts to hedge certain forecasted purchases over the next 12 months.

The Company had the following outstanding contracts to hedge forecasted commodity purchases:

	Volume outstanding as of	
Commodity	**September 30, 2022**	**December 31, 2021**
Aluminum	22,149 metric tons	16,488 metric tons
Copper	3,630,000 pounds	4,035,000 pounds

Other Derivative Instruments

Prior to 2015, the Company utilized forward-starting interest rate swaps and interest rate locks to manage interest rate exposure in periods prior to the anticipated issuance of certain fixed-rate debt. These instruments were designated as cash flow hedges and had a notional amount of $1,250.0 million. Consequently, when the contracts were settled upon the issuance of the underlying debt, any realized gains or losses in the fair values of the instruments were deferred into AOCI. These deferred gains or losses are subsequently recognized in *Interest expense* over the term of the related notes. The net unrecognized gain in AOCI was $4.2 million at September 30, 2022 and $4.7 million at December 31, 2021. The net deferred gain at September 30, 2022 will continue to be amortized over the term of notes with maturities ranging from 2023 to 2044. The amount expected to be amortized over the next twelve months is a net gain of $0.5 million. The Company had no forward-starting interest rate swaps or interest rate lock contracts outstanding at September 30, 2022 or December 31, 2021.

The following table represents the amounts associated with derivatives designated as hedges affecting *Net earnings* and AOCI for the three months ended September 30:

In millions	Amount of gain (loss) recognized in AOCI 2022	Amount of gain (loss) recognized in AOCI 2021	Location of gain (loss) reclassified from AOCI and recognized into Net earnings	Amount of gain (loss) reclassified from AOCI and recognized into Net earnings 2022	Amount of gain (loss) reclassified from AOCI and recognized into Net earnings 2021
Currency derivatives designated as hedges [1]	$ (2.1)	$ (0.9)	Cost of goods sold	$ (2.5)	$ 7.5
Commodity derivatives designated as hedges	(7.6)	6.0	Cost of goods sold	(1.0)	0.2
Interest rate swaps & locks	—	—	Interest expense	0.2	0.2
Total	$ (9.7)	$ 5.1		$ (3.3)	$ 7.9

[1] Amounts excluded from effectiveness testing and recognized into *Cost of goods sold* based on changes in fair value and amortization was a loss of $0.2 million and a gain of $0.9 million for the three months ended September 30, 2022 and 2021, respectively.

The following table represents the amounts associated with derivatives not designated as hedges affecting *Net earnings* for the three months ended September 30:

In millions	Location of gain (loss) recognized in Net earnings	Amount of gain (loss) recognized in Net earnings 2022	Amount of gain (loss) recognized in Net earnings 2021
Currency derivatives	Other income (expense), net	$ (3.3)	$ 0.9
Total		$ (3.3)	$ 0.9

The gains and losses associated with the Company's undesignated currency derivatives are materially offset in *Net earnings* by changes in the fair value of the underlying transactions.

The following table represents the amounts associated with derivatives designated as hedges affecting *Net earnings* and AOCI for the nine months ended September 30:

In millions	Amount of gain (loss) recognized in AOCI 2022	Amount of gain (loss) recognized in AOCI 2021	Location of gain (loss) reclassified from AOCI and recognized into Net earnings	Amount of gain (loss) reclassified from AOCI and recognized into Net earnings 2022	Amount of gain (loss) reclassified from AOCI and recognized into Net earnings 2021
Currency derivatives designated as hedges [1]	$ (10.2)	$ (6.2)	Cost of goods sold	$ (6.3)	$ 4.4
Commodity derivatives designated as hedges	(21.1)	7.5	Cost of goods sold	5.2	0.2
Interest rate swaps & locks	—	—	Interest expense	0.5	0.5
Total	$ (31.3)	$ 1.3		$ (0.6)	$ 5.1

[1] Amounts excluded from effectiveness testing and recognized into *Cost of goods sold* based on changes in fair value and amortization was a loss of $0.3 million and $0.7 million for the nine months ended September 30, 2022 and 2021, respectively.

The following table represents the amounts associated with derivatives not designated as hedges affecting *Other income/(expense), net* for the nine months ended September 30:

In millions	Location of gain (loss) recognized in Net earnings	Amount of gain (loss) recognized in Net earnings 2022	Amount of gain (loss) recognized in Net earnings 2021
Currency derivatives	Other income (expense), net	$ (9.0)	$ (5.0)
Total		$ (9.0)	$ (5.0)

Concentration of Credit Risk

The counterparties to the Company's forward contracts consist of a number of investment grade major international financial institutions. The Company could be exposed to losses in the event of nonperformance by the counterparties. However, the credit ratings and the concentration of risk in these financial institutions are monitored on a continuous basis and present no significant credit risk to the Company.

Note 8. Fair Value Measurements

Fair value is 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. The fair value hierarchy that prioritizes information used in developing assumptions when pricing an asset or liability is as follows:

- *Level 1:* Observable inputs such as quoted prices in active markets;
- *Level 2:* Inputs, other than quoted prices in active markets, that are observable either directly or indirectly; and
- *Level 3:* Unobservable inputs where there is little or no market data, which requires the reporting entity to develop its own assumptions.

Observable market data is required to be used in making fair value measurements 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.

The following table presents the Company's fair value hierarchy for those assets and liabilities measured at fair value on a recurring basis as of September 30, 2022:

		Fair value measurements		
In millions	**Fair Value**	**Level 1**	**Level 2**	**Level 3**
Assets:				
Derivative instruments	$ 2.2	$ —	$ 2.2	$ —
Liabilities:				
Derivative instruments	26.8	—	26.8	—
Contingent consideration	$ 80.8	$ —	$ —	$ 80.8

The following table presents the Company's fair value hierarchy for those assets and liabilities measured at fair value on a recurring basis as of December 31, 2021:

		Fair value measurements		
In millions	**Fair Value**	**Level 1**	**Level 2**	**Level 3**
Assets:				
Derivative instruments	$ 15.5	$ —	$ 15.5	$ —
Liabilities:				
Derivative instruments	16.9	—	16.9	—
Contingent consideration	$ 96.2	$ —	$ —	$ 96.2

Derivative instruments include forward foreign currency contracts and instruments related to non-functional currency balance sheet exposures and commodity swaps. The fair value of the foreign exchange derivatives is determined based on a pricing model that uses spot rates and forward prices from actively quoted currency markets that are readily accessible and observable. The fair value of the commodity derivatives is valued under a market approach using published prices, where applicable, or dealer quotes.

On October 15, 2021, the Company acquired 100% of Farrar Scientific Corporation's (Farrar Scientific) assets. In connection with the acquisition, the Company agreed to contingent consideration of up to $115.0 million to be paid in 2025, tied to the attainment of key financial targets during the period January 1, 2022 through December 31, 2024. This additional payment, to the extent earned, will be payable in cash. The fair value of the contingent consideration is determined using the Monte Carlo simulation model based on projections of revenues for Farrar Scientific during the period of January 1, 2022 through December 31, 2024, implied revenue volatility and a risk adjusted discount rate. Each quarter the Company is required to remeasure the fair value of the liability as assumptions change and such non-cash adjustments are recorded in *Selling and administrative expenses* in the Condensed Consolidated Statements of Earnings.

Contingent consideration related to acquisitions are measured at fair value each reporting period using Level 3 unobservable inputs. The changes in the fair value of the Company's Level 3 liabilities were as follows:

In millions	September 30, 2022	December 31, 2021
Balance at beginning of period	$ 96.2	$ —
Fair value of contingent consideration recorded in connection with acquisition	—	98.7
Change in fair value of contingent consideration	(15.4)	(2.5)
Balance at end of period	$ 80.8	$ 96.2

The fair value of the contingent consideration is measured on a recurring basis at each reporting date. The following inputs and assumptions were used in the Monte Carlo simulation model to estimate the fair value of the contingent consideration:

	September 30, 2022	December 31, 2021
Discount rate	12.00 %	8.00 %
Volatility	20.00 %	20.00 %

The carrying values of cash and cash equivalents, accounts receivable, and accounts payable are a reasonable estimate of their fair value due to the short-term nature of these instruments. There have been no transfers between levels of the fair value hierarchy.

Note 9. Pensions and Postretirement Benefits Other than Pensions

The Company sponsors several U.S. defined benefit and defined contribution plans covering substantially all of the Company's U.S. employees. Additionally, the Company has many non-U.S. defined benefit and defined contribution plans covering eligible non-U.S. employees. Postretirement benefits other than pensions (OPEB) provide healthcare benefits, and in some instances, life insurance benefits for certain eligible employees.

Pension Plans

The noncontributory defined benefit pension plans covering non-collectively bargained U.S. employees provide benefits on a final average pay formula while plans for most collectively bargained U.S. employees provide benefits on a flat dollar benefit formula or a percentage of pay formula. The non-U.S. pension plans generally provide benefits based on earnings and years of service. The Company also maintains additional other supplemental plans for officers and other key or highly compensated employees.

The components of the Company's net periodic pension benefit cost for the three and nine months ended September 30 were as follows:

In millions	Three months ended 2022	Three months ended 2021	Nine months ended 2022	Nine months ended 2021
Service cost	$ 11.8	$ 12.6	$ 35.7	$ 38.2
Interest cost	17.4	14.7	52.8	44.0
Expected return on plan assets	(25.7)	(26.5)	(78.0)	(79.7)
Net amortization of:				
Prior service costs	0.9	1.3	2.9	3.8
Net actuarial losses	5.8	8.9	17.5	26.8
Net periodic pension benefit cost	$ 10.2	$ 11.0	$ 30.9	$ 33.1
Net curtailment and settlement losses	15.0	—	15.0	6.9
Net periodic pension benefit cost after net curtailment and settlement losses	$ 25.2	$ 11.0	$ 45.9	$ 40.0
Amounts recorded in continuing operations:				
Operating income	$ 10.7	$ 11.8	$ 32.4	$ 35.5
Other income/(expense), net	13.5	(1.8)	10.6	1.4
Amounts recorded in discontinued operations	1.0	1.0	2.9	3.1
Total	$ 25.2	$ 11.0	$ 45.9	$ 40.0

The Company made contributions to its defined benefit pension plans of $82.4 million and $47.1 million during the nine months ended September 30, 2022 and 2021, respectively. The Company currently projects that it will contribute a total of approximately $90 million to its enterprise plans worldwide in 2022.

The *Net curtailment and settlement losses* are associated with lump sum distribution under supplemental benefit plans for officers and other key employees.

Postretirement Benefits Other Than Pensions

The Company sponsors several postretirement plans that provide for healthcare benefits, and in some instances, life insurance benefits that cover certain eligible employees. These plans are unfunded and have no plan assets, but are instead funded by the Company on a pay-as-you-go basis in the form of direct benefit payments. Generally, postretirement health benefits are contributory with contributions adjusted annually. Life insurance plans for retirees are primarily noncontributory.

The components of net periodic postretirement benefit cost for the three and nine months ended September 30 were as follows:

In millions	Three months ended 2022	Three months ended 2021	Nine months ended 2022	Nine months ended 2021
Service cost	$ 0.4	$ 0.6	$ 1.4	$ 1.6
Interest cost	1.7	1.3	5.1	4.1
Net amortization of net actuarial (gains)	(1.4)	(0.5)	(4.2)	(1.5)
Net periodic postretirement benefit cost	$ 0.7	$ 1.4	$ 2.3	$ 4.2
Amounts recorded in continuing operations:				
Operating income	$ 0.4	$ 0.6	$ 1.4	$ 1.6
Other income/(expense), net	0.4	0.6	1.0	1.9
Amounts recorded in discontinued operations	(0.1)	0.2	(0.1)	0.7
Total	$ 0.7	$ 1.4	$ 2.3	$ 4.2

Note 10. Equity

The authorized share capital of Trane Technologies plc is 1,185,040,000 shares, consisting of (1) 1,175,000,000 ordinary shares, par value $1.00 per share, (2) 40,000 ordinary shares, par value EUR 1.00 and (3) 10,000,000 preference shares, par value $0.001 per share. There were no Euro-denominated ordinary shares or preference shares outstanding at September 30, 2022 or December 31, 2021.

Changes in ordinary shares and treasury shares for the nine months ended September 30, 2022 were as follows:

In millions	Ordinary shares issued	Ordinary shares held in treasury
December 31, 2021	259.7	24.5
Shares issued under incentive plans, net	0.9	—
Repurchase of ordinary shares	(5.8)	—
September 30, 2022	254.8	24.5

Share repurchases are made from time to time in accordance with management's capital allocation strategy, subject to market conditions and regulatory requirements. Shares acquired and canceled upon repurchase are accounted for as a reduction of *Ordinary shares and Capital in excess of par value*, or *Retained earnings* to the extent *Capital in excess of par value* is exhausted. Shares acquired and held in treasury are presented separately on the balance sheet as a reduction to *Equity* and recognized at cost.

In February 2021, the Company's Board of Directors authorized the repurchase of up to $2.0 billion of its ordinary shares under a share repurchase program (2021 Authorization). During the nine months ended September 30, 2022, the Company repurchased and canceled approximately $900 million of its ordinary shares leaving approximately $500 million remaining under the 2021 Authorization. In February 2022, the Company's Board of Directors authorized the repurchase of up to $3.0 billion of its ordinary shares under a new share repurchase program (2022 Authorization) upon completion of the 2021 Authorization.

Accumulated Other Comprehensive Income (Loss)

The changes in *Accumulated other comprehensive income (loss)* for the nine months ended September 30, 2022 were as follows:

In millions	Derivative Instruments	Pension and OPEB	Foreign Currency Translation	Total
Balance at December 31, 2021	$ 7.1	$ (297.9)	$ (346.8)	$ (637.6)
Other comprehensive income (loss) attributable to Trane Technologies plc	(26.3)	47.0	(380.6)	(359.9)
Balance at September 30, 2022	$ (19.2)	$ (250.9)	$ (727.4)	$ (997.5)

Other comprehensive income (loss) attributable to noncontrolling interests for the nine months ended September 30, 2022 included a loss of $3.2 million related to currency translation.

The changes in *Accumulated other comprehensive income (loss)* for the nine months ended September 30, 2021 were as follows:

In millions	Derivative Instruments	Pension and OPEB	Foreign Currency Translation	Total
Balance at December 31, 2020	$ 10.8	$ (416.5)	$ (225.8)	$ (631.5)
Other comprehensive income (loss) attributable to Trane Technologies plc	(1.9)	23.8	(99.6)	(77.7)
Balance at September 30, 2021	$ 8.9	$ (392.7)	$ (325.4)	$ (709.2)

Other comprehensive income (loss) attributable to noncontrolling interests for the nine months ended September 30, 2021 included a loss of $1.8 million related to currency translation.

Note 11. Revenue

The Company recognizes revenue when control of a good or service promised in a contract (i.e., performance obligation) is transferred to a customer. Control is obtained when a customer has the ability to direct the use of and obtain substantially all of the remaining benefits from that good or service. A majority of the Company's revenues are recognized at a point-in-time as control is transferred at a distinct point in time per the terms of a contract. However, a portion of the Company's revenues are recognized over time as the customer simultaneously receives control as the Company performs work under a contract. For these arrangements, the cost-to-cost input method is used as it best depicts the transfer of control to the customer that occurs as the Company incurs costs.

Disaggregated Revenue

Net revenues by geography and major type of good or service for the three and nine months ended September 30 were as follows:

	Three months ended		Nine months ended	
In millions	2022	2021	2022	2021
Americas				
Equipment	$ 2,331.1	$ 1,878.6	$ 6,411.9	$ 5,458.0
Services	1,150.3	1,031.7	3,089.1	2,749.6
Total Americas	$ 3,481.4	$ 2,910.3	$ 9,501.0	$ 8,207.6
EMEA				
Equipment	$ 345.1	$ 322.7	$ 1,015.8	$ 996.7
Services	168.0	172.3	460.2	465.4
Total EMEA	$ 513.1	$ 495.0	$ 1,476.0	$ 1,462.1
Asia Pacific				
Equipment	$ 274.9	$ 218.9	$ 670.6	$ 619.7
Services	102.5	95.6	270.3	277.7
Total Asia Pacific	$ 377.4	$ 314.5	$ 940.9	$ 897.4
Total Net revenues	$ 4,371.9	$ 3,719.8	$ 11,917.9	$ 10,567.1

Revenue from goods and services transferred to customers at a point in time accounted for approximately 82% and 81% of the Company's revenue for the nine months ended September 30, 2022 and 2021, respectively.

Contract Balances

The opening and closing balances of contract assets and contract liabilities arising from contracts with customers for the period ended September 30, 2022 and December 31, 2021 were as follows:

In millions	Location on Condensed Consolidated Balance Sheets	September 30, 2022	December 31, 2021
Contract assets- - current	*Other current assets*	$ 193.6	$ 164.8
Contract assets - noncurrent	*Other noncurrent assets*	237.7	218.5
Contract liabilities - current	*Accrued expenses and other current liabilities*	919.8	805.4
Contract liabilities - noncurrent	*Other noncurrent liabilities*	464.2	446.6

The timing of revenue recognition, billings and cash collections results in accounts receivable, contract assets, and customer advances and deposits (contract liabilities) on the Condensed Consolidated Balance Sheets. In general, the Company receives payments from customers based on a billing schedule established in its contracts. Contract assets relate to the conditional right to consideration for any completed performance under the contract when costs are incurred in excess of billings under the percentage-of-completion methodology. Accounts receivable are recorded when the right to consideration becomes unconditional. Contract liabilities relate to payments received in advance of performance under the contract or when the Company has a right to consideration that is unconditional before it transfers a good or service to the customer. Contract liabilities are recognized as revenue as (or when) the Company performs under the contract. During the three and nine months ended September 30, 2022, changes in contract asset and liability balances were not materially impacted by any other factors.

Approximately 8% and 47% of the contract liability balance at December 31, 2021 was recognized as revenue during the three and nine months ended September 30, 2022, respectively. Additionally, approximately 34% of the contract liability balance at September 30, 2022 was classified as noncurrent and not expected to be recognized as revenue in the next 12 months.

Note 12. Share-Based Compensation

The Company accounts for share-based compensation plans under the fair value based method. Fair value is measured once at the date of grant and is not adjusted for subsequent changes. The Company's share-based compensation plans include programs for stock options, restricted stock units (RSUs), performance share units (PSUs) and deferred compensation.

Share-based compensation expense related to continuing operations is included in *Selling and administrative expenses*. The expense recognized for the three and nine months ended September 30 was as follows:

	Three months ended		Nine months ended	
In millions	2022	2021	2022	2021
Stock options	$ 2.1	$ 2.9	$ 12.3	$ 14.7
RSUs	3.0	3.6	16.7	19.0
Performance shares	5.2	5.8	15.6	17.4
Deferred compensation	0.8	0.8	0.6	2.4
Pre-tax expense	11.1	13.1	45.2	53.5
Tax benefit	(2.7)	(3.2)	(10.9)	(13.1)
After-tax expense	$ 8.4	$ 9.9	$ 34.3	$ 40.4
Amounts recorded in continuing operations	8.6	9.9	34.7	40.4
Amounts recorded in discontinued operations	(0.2)	—	(0.4)	—
Total	$ 8.4	$ 9.9	$ 34.3	$ 40.4

Grants issued during the nine months ended September 30 were as follows:

	2022		2021	
	Number granted	Weighted-average fair value per award	Number granted	Weighted-average fair value per award
Stock options	429,796	$ 35.96	582,657	$ 29.55
RSUs	135,625	$ 165.32	149,214	$ 153.53
Performance shares [1]	192,826	$ 170.30	283,412	$ 181.71

[1] The number of performance shares represents the maximum award level.

Stock Options / RSUs

Eligible participants may receive (i) stock options, (ii) RSUs or (iii) a combination of both stock options and RSUs. The fair value of each of the Company's stock option and RSU awards is expensed on a straight-line basis over the required service period, which is generally the 3-year vesting period. However, for stock options and RSUs granted to retirement eligible employees, the Company recognizes an expense for the entire fair value at the grant date.

The average fair value of the stock options granted is determined using the Black-Scholes option-pricing model. The following assumptions were used during the nine months ended September 30:

	2022	2021
Dividend yield	1.60 %	1.60 %
Volatility	28.23 %	27.90 %
Risk-free rate of return	1.56 %	0.45 %
Expected life in years	4.8	4.8

A description of the significant assumptions used to estimate the fair value of the stock option awards is as follows:

- *Dividend yield* - The Company determines the dividend yield based upon the expected quarterly dividend payments as of the grant date and the current fair market value of the Company's stock.
- *Volatility* - The expected volatility is based on a weighted average of the Company's implied volatility and the most recent historical volatility of the Company's stock commensurate with the expected life.
- *Risk-free rate of return* - The Company applies a yield curve of continuous risk-free rates based upon the published U.S. Treasury spot rates on the grant date.
- *Expected life in years* - The expected life of the Company's stock option awards represents the weighted-average of the actual period since the grant date for all exercised or canceled options and an expected period for all outstanding options.

Performance Shares

The Company has a Performance Share Program (PSP) for key employees. The program provides awards in the form of PSUs based on performance against pre-established objectives. The annual target award level is expressed as a number of the Company's ordinary shares based on the fair market value of the Company's stock on the date of grant. All PSUs are settled in the form of ordinary shares.

PSU awards are earned based 50% upon a performance condition, measured by relative Cash Flow Return on Invested Capital (CROIC) to the S&P 500 Industrials Index over a 3-year performance period, and 50% upon a market condition, measured by the Company's relative total shareholder return (TSR) as compared to the TSR of the S&P 500 Industrials Index over a 3-year performance period. The fair value of the market condition is estimated using a Monte Carlo simulation model in a risk-neutral framework based upon historical volatility, risk-free rates and correlation matrix.

Deferred Compensation

The Company allows key employees to defer a portion of their eligible compensation into a number of investment choices, including its ordinary share equivalents. Any amounts invested in ordinary share equivalents will be settled in ordinary shares of the Company at the time of distribution.

Note 13. Other Income/(Expense), Net

The components of *Other income/(expense), net* for the three and nine months ended September 30 were as follows:

	Three months ended		Nine months ended	
In millions	**2022**	**2021**	**2022**	**2021**
Interest income	$ 2.4	$ 0.8	$ 5.2	$ 3.0
Foreign currency exchange loss	(5.5)	(2.2)	(13.1)	(8.9)
Other components of net periodic benefit credit/(cost)	(13.9)	1.2	(11.6)	(3.3)
Other activity, net	(1.7)	(6.7)	(1.5)	(4.6)
Other income/(expense), net	$ (18.7)	$ (6.9)	$ (21.0)	$ (13.8)

Other income/(expense), net includes the results from activities other than core business operations such as interest income and foreign currency gains and losses on transactions that are denominated in a currency other than an entity's functional currency. In addition, the Company includes the components of net periodic benefit credit/(cost) for pension and post retirement obligations other than the service cost component. During the three and nine months ended September 30, 2022, the Company recorded a $15.0 million settlement charge for a retired executive within other components of *net periodic benefit credit/(cost)*. *Other activity, net* primarily includes items associated with certain legal matters, as well as asbestos-related activities of Murray. During the three and nine months ended September 30, 2021, the Company recorded a charge of $7.2 million to increase its Funding Agreement liability from asbestos-related activities of Murray within other activity, net. Refer to Note 18, "Commitments and Contingencies," for more information regarding asbestos-related matters.

Note 14. Income Taxes

The Company accounts for its *Provision for income taxes* by applying an estimate of the annual effective income tax rate for the full year to the respective interim period, taking into account year-to-date amounts and projected results for the full year. For the nine months ended September 30, 2022 and September 30, 2021, the Company's effective income tax rate was 18.3% and 19.2%, respectively. The effective income tax rate for the nine months ended September 30, 2022 was lower than the U.S. statutory rate of 21% primarily due to a $33.1 million reduction in valuation allowances on certain net state deferred tax assets partially offset by a related $4.2 million expense associated with a deferred tax revaluation resulting from U.S. legal entity restructurings. These items have reduced the effective tax rate for the nine months ended September 30, 2022 by 1.7 percentage points. In addition, excess tax benefits from employee share-based payments and earnings in non-U.S. jurisdictions, which in aggregate have a lower effective tax rate, partially offset by U.S. state and local taxes, provided net effective tax rate benefits. The effective tax rate for the nine months ended September 30, 2021 was lower than the U.S. statutory rate of 21% primarily due to excess tax benefits from employee share-based payments and earnings in non-U.S. jurisdictions, which in aggregate have a lower effective tax rate, partially offset by U.S. state and local taxes.

Total unrecognized tax benefits as of September 30, 2022 and December 31, 2021 were $63.2 million and $65.2 million, respectively. Although management believes its tax positions and related provisions reflected in the Condensed Consolidated Financial Statements are fully supportable, it recognizes that these tax positions and related provisions may be challenged by various tax authorities. These tax positions and related provisions are reviewed on an ongoing basis and are adjusted as additional facts and information become available, including progress on tax audits, changes in interpretations of tax laws, developments in case law and closing of statute of limitations. To the extent that the ultimate results differ from the original or adjusted estimates of the Company, the effect will be recorded in *Provision for income taxes*.

The *Provision for income taxes* involves a significant amount of management judgment regarding interpretation of relevant facts and laws in the jurisdictions in which the Company operates. Future changes in applicable laws, projected levels of taxable income and tax planning could change the effective tax rate and tax balances recorded by the Company. In addition, tax authorities periodically review income tax returns filed by the Company and can raise issues regarding its filing positions, timing and amount of income or deductions, and the allocation of income among the jurisdictions in which the Company operates. A significant period of time may elapse between the filing of an income tax return and the ultimate resolution of an issue raised by a revenue authority with respect to that return. In the normal course of business, the Company is subject to examination by taxing authorities throughout the world, including such major jurisdictions as Belgium, Brazil, Canada, China, France, Germany, Ireland, Italy, Luxembourg, Mexico, Spain, the Netherlands, the United Kingdom and the United States. These examinations on their own, or any subsequent litigation related to the examinations, may result in additional taxes or penalties against the Company. If the ultimate result of these audits differ from original or adjusted estimates, they could have a material impact on the Company's tax provision. In general, the examination of the Company's U.S. federal tax returns is complete or effectively settled for years prior to 2016. The Company's U.S. federal returns for 2016 to 2018 are currently under examination by the Internal Revenue Service (IRS). In general, the examination of the Company's material non-U.S. tax returns is complete or effectively settled for the years prior to 2013, with certain matters prior to 2013 being resolved through appeals and litigation and also unilateral procedures as provided for under double tax treaties.

Note 15. Acquisitions

On April 1, 2022, the Company acquired a Commercial HVAC independent dealer, reported within the Americas segment, to support the Company's ongoing strategy to expand its distribution network and service area. The aggregate cash paid, net of cash acquired, totaled $110.0 million and was financed through cash on hand. Intangible assets associated with this acquisition totaled $52.7 million and primarily relate to customer relationships. The excess purchase price over the estimated fair value of net assets acquired was recognized as goodwill and totaled $42.5 million.

The fair values of the customer relationship intangible assets were determined using the multi-period excess earnings method based on discounted projected net cash flows associated with the net earnings attributable to the acquired customer relationships. These projected cash flows are estimated over the remaining economic life of the intangible asset and are considered from a market participant perspective. Key assumptions used in estimating future cash flows included projected revenue growth rates and customer attrition rates. The projected future cash flows are discounted to present value using an appropriate discount rate. The customer relationships had a weighted-average useful life of 15 years. The Company has not included pro forma financial information as the pro forma impact was deemed not material.

On October 31, 2022, the Company acquired 100% of AL-KO Air Technology (AL-KO). AL-KO designs, engineers, manufactures, sells, installs, and services air handling and extraction systems in commercial applications. The results of the acquisition will be reported within the EMEA and Asia Pacific segments starting in the fourth quarter of 2022.

Due to the close proximity of the acquisition date and the Company's filing of its quarterly report on Form 10-Q for the nine months ended September 30, 2022, the initial accounting for the business combination is still in process, and therefore the Company has not disclosed the information required by ASC 805, Business Combinations. Such information will be included in the Company's subsequent Form 10-K for the year ended December 31, 2022.

Note 16. Earnings Per Share

Basic EPS is calculated by dividing *Net earnings attributable to Trane Technologies plc* by the weighted-average number of ordinary shares outstanding for the applicable period. Diluted EPS is calculated after adjusting the denominator of the basic EPS calculation for the effect of all potentially dilutive ordinary shares, which in the Company's case, includes shares issuable under share-based compensation plans. The following table summarizes the weighted-average number of ordinary shares outstanding for basic and diluted earnings per share calculations for the three and nine months ended September 30:

	Three months ended		Nine months ended	
In millions, except per share amounts	2022	2021	2022	2021
Weighted-average number of basic shares	231.9	238.2	233.4	239.2
Shares issuable under incentive share plans	2.1	3.5	2.3	3.6
Weighted-average number of diluted shares	234.0	241.7	235.7	242.8
Anti-dilutive shares	0.7	—	0.9	0.3
Dividends declared per ordinary share	$ —	$ —	$ 2.01	$ 1.77

Note 17. Business Segment Information

The Company operates under four regional operating segments designed to create deep customer focus and relevance in markets around the world. The Company determined that its two Europe, Middle East and Africa (EMEA) operating segments meet the aggregation criteria based on similar operating and economic characteristics, resulting in one reportable segment. Therefore, the Company has three regional reportable segments, Americas, EMEA and Asia Pacific. Intercompany sales between segments are immaterial.

- The Company's Americas segment innovates for customers in North America and Latin America. The Americas segment encompasses commercial heating and cooling systems, building controls, and energy services and solutions; residential heating and cooling; and transport refrigeration systems and solutions.
- The Company's EMEA segment innovates for customers in the Europe, Middle East and Africa region. The EMEA segment encompasses heating and cooling systems, services and solutions for commercial buildings, and transport refrigeration systems and solutions.
- The Company's Asia Pacific segment innovates for customers throughout the Asia Pacific region. The Asia Pacific segment encompasses heating and cooling systems, services and solutions for commercial buildings, and transport refrigeration systems and solutions.

Management measures operating performance based on net earnings excluding interest expense, income taxes, depreciation and amortization, restructuring, non-cash adjustments for contingent consideration, insurance settlement on property claim in Q3 2022, unallocated corporate expenses and discontinued operations (Segment Adjusted EBITDA). Segment Adjusted EBITDA is not defined under GAAP and may not be comparable to similarly-titled measures used by other companies and should not be considered a substitute for net earnings or other results reported in accordance with GAAP. The Company believes Segment Adjusted EBITDA provides the most relevant measure of profitability as well as earnings power and the ability to generate cash. This measure is a useful financial metric to assess the Company's operating performance from period to period by excluding certain items that it believes are not representative of its core business and the Company uses this measure for business planning purposes. Segment Adjusted EBITDA also provides a useful tool for assessing the comparability between periods and the Company's ability to generate cash from operations sufficient to pay taxes, to service debt and to undertake capital expenditures because it eliminates non-cash charges such as depreciation and amortization expense.

A summary of operations by reportable segment for the three and nine months ended September 30 was as follows:

	Three months ended		Nine months ended	
In millions	2022	2021	2022	2021
Net revenues				
Americas	$ 3,481.4	$ 2,910.3	$ 9,501.0	$ 8,207.6
EMEA	513.1	495.0	1,476.0	1,462.1
Asia Pacific	377.4	314.5	940.9	897.4
Total Net revenues	$ 4,371.9	$ 3,719.8	$ 11,917.9	$ 10,567.1
Segment Adjusted EBITDA				
Americas	$ 697.7	$ 566.9	$ 1,805.5	$ 1,571.7
EMEA	94.7	99.4	246.2	283.4
Asia Pacific	81.8	57.3	168.6	163.8
Total Segment Adjusted EBITDA	$ 874.2	$ 723.6	$ 2,220.3	$ 2,018.9
Reconciliation of Segment Adjusted EBITDA to earnings before income taxes				
Total Segment Adjusted EBITDA	$ 874.2	$ 723.6	$ 2,220.3	$ 2,018.9
Interest expense	(55.8)	(57.7)	(167.6)	(177.7)
Depreciation and amortization	(84.0)	(72.2)	(241.0)	(223.0)
Restructuring costs	(10.7)	(7.9)	(17.2)	(19.7)
Non-cash adjustments for contingent consideration	(0.7)	—	15.4	—
Insurance settlement on property claim in Q3 2022	25.0	—	25.0	—
Unallocated corporate expenses	(83.0)	(67.0)	(185.2)	(202.4)
Earnings before income taxes	$ 665.0	$ 518.8	$ 1,649.7	$ 1,396.1

Note 18. Commitments and Contingencies

The Company is involved in various litigation, claims and administrative proceedings, including those related to the bankruptcy proceedings for Aldrich and Murray and environmental and product liability matters. The Company records accruals for loss contingencies when it is both probable that a liability will be incurred and the amount of the loss can be reasonably estimated. Amounts recorded for identified contingent liabilities are estimates, which are reviewed periodically and adjusted to reflect additional information when it becomes available. Subject to the uncertainties inherent in estimating future costs for contingent liabilities, except as expressly set forth in this note, management believes that any liability which may result from these legal matters would not have a material adverse effect on the financial condition, results of operations, liquidity or cash flows of the Company.

Asbestos-Related Matters

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

On June 18, 2020, Aldrich and Murray filed voluntary petitions for relief under Chapter 11 of the Bankruptcy Code to resolve equitably and permanently all current and future asbestos related claims in a manner beneficial to claimants and to Aldrich and Murray. As a result of the Chapter 11 filings, all asbestos-related lawsuits against Aldrich and Murray have been stayed due to the imposition of a statutory automatic stay applicable in Chapter 11 bankruptcy cases. In addition, at the request of Aldrich and Murray, the Bankruptcy Court has entered an order temporarily staying all asbestos-related claims against the Trane Companies that relate to claims against Aldrich or Murray (except for asbestos-related claims for which the exclusive remedy is provided under workers' compensation statutes or similar laws). On August 23, 2021, the Bankruptcy Court entered its findings of facts and conclusions of law and order declaring that the automatic stay applies to certain asbestos related claims against the Trane

Companies and enjoining such actions. As a result, all asbestos-related lawsuits against Aldrich, Murray and the Trane Companies remain stayed.

The goal of these Chapter 11 filings is to resolve equitably and permanently all current and future asbestos-related claims in a manner beneficial to claimants and to Aldrich and Murray through court approval of a plan of reorganization that would create a trust pursuant to section 524(g) of the Bankruptcy Code, establish claims resolution procedures for all current and future asbestos-related claims against Aldrich and Murray and channel such claims to the trust for resolution in accordance with those procedures. Aldrich and Murray intend to seek an agreement with representatives of the asbestos claimants on the terms of a plan for the establishment of such a trust.

Prior to the Petition Date, predecessors of each of Aldrich and Murray had been litigating asbestos-related claims brought against them. No such claims have been paid since the Petition Date, and it is not contemplated that any such claims will be paid until the end of the Chapter 11 cases.

From an accounting perspective, the Company no longer has control over Aldrich and Murray as of the Petition Date as their activities are subject to review and oversight by the Bankruptcy Court. Therefore, Aldrich and its wholly-owned subsidiary 200 Park and Murray and its wholly-owned subsidiary ClimateLabs were deconsolidated as of the Petition Date and their respective assets and liabilities were derecognized from the Company's Condensed Consolidated Financial Statements. Amounts derecognized in the second quarter of 2020 primarily related to the legacy asbestos-related liabilities and asbestos-related insurance recoveries and $41.7 million of cash.

Upon deconsolidation in the second quarter of 2020, the Company recorded its retained interest in Aldrich and Murray at fair value within *Other noncurrent assets* in the Condensed Consolidated Balance Sheet. In determining the fair value of its equity investment, the Company used a market-adjusted multiple of earnings valuation technique. As a result, the Company recorded an aggregate equity investment of $53.6 million as of the Petition Date.

Simultaneously, the Company recognized a liability of $248.8 million within *Other noncurrent liabilities* in the Condensed Consolidated Balance Sheet related to its obligation under the Funding Agreements. The liability was based on asbestos related liabilities and insurance related assets balances previously recorded by the Company prior to the Petition Date.

As a result of the deconsolidation, the Company recognized an aggregate loss of $24.9 million in its Condensed Consolidated Statements of Earnings during the year ended December 31, 2020. A gain of $0.9 million related to Murray and its wholly-owned subsidiary ClimateLabs was recorded within *Other income / (expense), net* and a loss of $25.8 million related to Aldrich and its wholly-owned subsidiary 200 Park was recorded within *Discontinued operations, net of tax*. Additionally, the deconsolidation resulted in an investing cash outflow of $41.7 million in the Company's Condensed Consolidated Statements of Cash Flows, of which $10.8 million was recorded within continuing operations during the year ended December 31, 2020.

On August 26, 2021, the Company announced that Aldrich and Murray reached an agreement in principle with the court-appointed legal representative of future asbestos claimants (the FCR) in the bankruptcy proceedings. The agreement in principle includes the key terms for the permanent resolution of all current and future asbestos claims against Aldrich and Murray pursuant to a plan of reorganization (the Plan). Under the agreed terms, the Plan would create a trust pursuant to section 524(g) of the Bankruptcy Code and establish claims resolution procedures for all current and future claims against Aldrich and Murray (Asbestos Claims). On the effective date of the Plan, Aldrich and Murray would fund the trust with $545.0 million, comprised of $540.0 million in cash and a promissory note to be issued by Aldrich and Murray to the trust in the principal amount of $5.0 million, and the Asbestos Claims would be channeled to the trust for resolution in accordance with the claims resolution procedures. Following the effective date of the Plan, Aldrich and Murray would have no further obligations with respect to the Asbestos Claims. The FCR has agreed to support such Plan. The agreement in principle with the FCR is subject to final documentation and is conditioned on arrangements acceptable to Aldrich and Murray with respect to their asbestos insurance assets. It is currently contemplated that the asbestos insurance assets of Aldrich and Murray would be contributed to the trust, and that, in consideration of their cash contribution to the trust, Aldrich and Murray would have the exclusive right to pursue, collect and retain all insurance reimbursements available in connection with the resolution of Asbestos Claims by the trust. The committee representing current asbestos claimants (the ACC) is not a party to the agreement in principle. Any settlement and its implementation in a plan of reorganization is subject to the approval of the Bankruptcy Court, and there can be no assurance that the Bankruptcy Court will approve the agreement on the terms proposed.

On September 24, 2021, Aldrich and Murray filed the Plan with the Bankruptcy Court. The Plan is supported by, and reflects the agreement in principle reached with the FCR. In connection with the Plan, Aldrich and Murray filed a motion with the Bankruptcy Court to create a $270.0 million trust intended to constitute a "qualified settlement fund" within the meaning of the Treasury Regulations under Section 468B of the Internal Revenue Code (QSF). The funds held in the QSF would be available to provide funding for the Section 524(g) Trust upon effectiveness of the Plan.

During the third quarter of 2021, in connection with the agreement in principle reached by Aldrich and Murray with the FCR and the motion to create a $270.0 million QSF, the Company recorded a charge of $21.2 million to increase its Funding Agreement liability to $270.0 million. The corresponding charge was bifurcated between *Other income / (expense), net* of $7.2 million relating to Murray and discontinued operations of $14.0 million relating to Aldrich.

On January 27, 2022, the Bankruptcy Court granted the request to fund the QSF, which was funded on March 2, 2022, resulting in an operating cash outflow of $270.0 million in the Company's Condensed Consolidated Statements of Cash Flows, of which $91.8 million was allocated to continuing operations and $178.2 million was allocated to discontinued operations for the nine months ended September 30, 2022. The Bankruptcy Court also granted the ACC standing to investigate and pursue certain causes of action including fraudulent conveyance and certain other derivative causes of action. Additionally, the Bankruptcy Court denied motions to dismiss a complaint filed by the ACC seeking substantive consolidation. The Company is vigorously opposing and defending against these claims. At this point in the Chapter 11 cases of Aldrich and Murray, it is not possible to predict whether the Bankruptcy Court will approve the terms of the Plan, what the extent of the asbestos liability will be or how long the Chapter 11 cases will last. The Chapter 11 cases remain pending as of November 2, 2022.

Furthermore, in connection with the 2020 Corporate Restructuring, Aldrich, Murray and their respective subsidiaries entered into several agreements with subsidiaries of the Company to ensure they each have access to services necessary for the effective operation of their respective businesses and access to capital to address any liquidity needs that arise as a result of working capital requirements or timing issues. In addition, the Company regularly transacts business with Aldrich and its wholly-owned subsidiary 200 Park and Murray and its wholly-owned subsidiary ClimateLabs. As of the Petition Date, these entities are considered related parties and post-deconsolidation activity between the Company and them are reported as third party transactions and are reflected within the Company's Condensed Consolidated Statements of Earnings. Since the Petition Date, there were no material transactions between the Company and these entities other than as described above.

Environmental Matters

The Company continues to be dedicated to environmental and sustainability programs to minimize the use of natural resources, and reduce the utilization and generation of hazardous materials from our manufacturing processes and to remediate identified environmental concerns. As to the latter, the Company is currently engaged in site investigations and remediation activities to address environmental cleanup from past operations at current and former manufacturing facilities and off-site waste disposal facilities.

It is the Company's policy to establish environmental reserves for investigation and remediation activities when it is probable that a liability has been incurred and a reasonable estimate of the liability can be made. Estimated liabilities are determined based upon existing remediation laws and technologies. Inherent uncertainties exist in such evaluations due to unknown environmental conditions, changes in government laws and regulations, and changes in cleanup technologies. The environmental reserves are updated on a routine basis as remediation efforts progress and new information becomes available.

The Company is sometimes a party to environmental lawsuits and claims and has received notices of potential violations of environmental laws and regulations from the Environmental Protection Agency and similar state and international authorities. The Company has also been identified as a potentially responsible party (PRP) for cleanup costs associated with off-site waste disposal at federal Superfund and state remediation sites. In most instances at multi-party sites, the Company's share of the liability is not material.

In estimating its liability at multi-party sites, the Company has assumed it will not bear the entire cost of remediation of any site to the exclusion of other PRPs who may be jointly and severally liable. The ability of other PRPs to participate has been taken into account, based on the Company's understanding of the parties' financial condition and probable contributions on a per site basis.

Reserves for environmental matters are classified as *Accrued expenses and other current liabilities* or *Other noncurrent liabilities* based on their expected payment date. As of September 30, 2022 and December 31, 2021, the Company has recorded reserves for environmental matters of $42.8 million and $39.6 million, respectively. Of these amounts, $36.4 million and $36.3 million, respectively, relate to investigation and remediation of properties and multi-waste disposal sites related to businesses formerly owned by the Company.

Warranty Liability

Standard product warranty accruals are recorded at the time of sale and are estimated based upon product warranty terms and historical experience. The Company assesses the adequacy of its liabilities and will make adjustments as necessary based on known or anticipated warranty claims, or as new information becomes available.

The changes in the standard product warranty liability for the nine months ended September 30 were as follows:

In millions		2022
Balance at beginning of period	$	296.2
Reductions for payments		(93.0)
Accruals for warranties issued during the current period		112.1
Changes to accruals related to preexisting warranties		(0.1)
Translation		(5.7)
Balance at end of period	$	309.5

Standard product warranty liabilities are classified as *Accrued expenses and other current liabilities* or *Other noncurrent liabilities* based on their expected payment date. The Company's total current standard product warranty reserve at September 30, 2022 and December 31, 2021 was $113.7 million and $106.6 million, respectively.

Warranty Deferred Revenue

The Company's extended warranty liability represents the deferred revenue associated with its extended warranty contracts and is amortized into *Net revenues* on a straight-line basis over the life of the contract, unless another method is more representative of the costs incurred. The Company assesses the adequacy of its liability by evaluating the expected costs under its existing contracts to ensure these expected costs do not exceed the extended warranty liability.

The changes in the extended warranty liability for the nine months ended September 30 were as follows:

In millions		2022
Balance at beginning of period	$	311.7
Amortization of deferred revenue for the period		(86.9)
Additions for extended warranties issued during the period		92.5
Changes to accruals related to preexisting warranties		(0.7)
Translation		(3.5)
Balance at end of period	$	313.1

The extended warranty liability is classified as *Accrued expenses and other current liabilities* or *Other noncurrent liabilities* based on the timing of when the deferred revenue is expected to be amortized into revenue. The Company's total current extended warranty liability at September 30, 2022 and December 31, 2021 was $108.2 million and $115.4 million, respectively.

Item 2 – Management’s Discussion and Analysis of Financial Condition and Results of Operations

The following Management’s Discussion and Analysis of Financial Condition and Results of Operations contains forward-looking statements that involve risks and uncertainties. Our actual results may differ materially from the results discussed in the forward-looking statements. Factors that might cause a difference include, but are not limited to, those discussed under Part I, Item 1A – Risk Factors in the Annual Report on Form 10-K for the fiscal year ended December 31, 2021, as updated by any disclosures under Part II, Item 1A - Risk Factors in our Quarterly Reports on Form 10-Q. The following section is qualified in its entirety by the more detailed information, including our financial statements and the notes thereto, which appears elsewhere in this Quarterly Report.

Overview

Organizational

Trane Technologies plc is a global climate innovator. We bring sustainable and efficient solutions to buildings, homes and transportation through our strategic brands, Trane® and Thermo King®, and our environmentally responsible portfolio of products, services and connected intelligent controls.

2030 Sustainability Commitments

Our commitment to sustainability extends to the environmental and social impacts of our people, operations, products and services. We have announced ambitious sustainability commitments with a goal of achieving these commitments by 2030 (2030 Sustainability Commitments), including our Gigaton Challenge to reduce customers' carbon emissions by a billion metric tons. We are one of a handful of companies whose emissions reductions targets have been validated three times by the Science Based Targets Initiative (SBTi), and one of the very few companies worldwide whose net-zero targets have also been validated. We are Leading by Example as we make progress toward carbon-neutral operations and zero waste-to-landfill across our global footprint and net positive water use in water-stressed locations. Our Opportunity for All commitment focuses on gender parity in leadership, workforce diversity reflective of our communities, and a citizenship strategy that helps underserved communities through enhanced learning environments and pathways to green and Science, Technology, Engineering and Math (STEM) careers.

Significant Events

Coronavirus Disease 2019 (COVID-19) Global Pandemic

Since early 2020, we have closely monitored the impact of the COVID-19 global pandemic on all aspects of our business and geographies, including how it has and will impact our customers, team members, suppliers, vendors, business partners and distribution channels. Our main priority from the onset of the COVID-19 global pandemic has been, and will continue to be, the health and safety of our employees and customers around the world. In addition, we remain focused on selling, installing and servicing our products, investing in our businesses, developing and launching new products and delivering innovative customer solutions for low-carbon, highly efficient heating, cooling and transport, healthy and efficient indoor environmental quality, and precise temperature control along the full cold chain for food and medicines.

During the nine months ended September 30, 2022, overall end market demand improved across all segments. We continue to proactively manage global supply chain and resource constraints by working closely with our suppliers, customers and logistics providers to mitigate the impacts on our business as we continue to sell, install and service our products.

We will continue to monitor the ongoing COVID-19 global pandemic as well as any localized shutdowns as it evolves and will assess any potential impacts to our business and financial statements as necessary.

Acquisitions

On October 31, 2022, we completed the acquisition of AL-KO Air Technology. AL-KO Air will bring complementary, high-performing solutions to the comprehensive Trane Commercial HVAC product and services portfolios in Europe and Asia. The results of the acquisition will be reported within the EMEA and Asia Pacific segments.

On April 1, 2022, we completed a channel acquisition of a Commercial HVAC independent dealer to support our ongoing strategy to expand our distribution network and service area. The results of the channel acquisition are reported within the Americas segment.

Reorganization of Aldrich and Murray

On June 18, 2020 (Petition Date), our indirect wholly-owned subsidiaries, Aldrich and Murray each filed a voluntary petition for reorganization under Chapter 11 of Title 11 of the United States Code (the Bankruptcy Code) in the United States Bankruptcy Court for the Western District of North Carolina in Charlotte (the Bankruptcy Court). As a result of the Chapter 11 filings, all asbestos-related lawsuits against Aldrich and Murray have been stayed due to the imposition of a statutory automatic stay applicable in Chapter 11 bankruptcy cases. Only Aldrich and Murray have filed for Chapter 11 relief. Neither Aldrich's wholly-owned subsidiary, 200 Park, Inc. (200 Park), Murray's wholly-owned subsidiary, ClimateLabs LLC (ClimateLabs), Trane Technologies plc nor its other subsidiaries (the Trane Companies) are part of the Chapter 11 filings.

The goal of these Chapter 11 filings is to resolve equitably and permanently all current and future asbestos-related claims in a manner beneficial to claimants and to Aldrich and Murray through court approval of a plan of reorganization that would create a trust pursuant to section 524(g) of the Bankruptcy Code, establish claims resolution procedures for all current and future asbestos-related claims against Aldrich and Murray and channel such claims to the trust for resolution in accordance with those procedures.

Aldrich and its wholly-owned subsidiary 200 Park and Murray and its wholly-owned subsidiary ClimateLabs were deconsolidated as of the Petition Date and their respective assets and liabilities were derecognized from our Condensed Consolidated Financial Statements.

During the third quarter of 2021, in connection with the agreement in principle reached by Aldrich and Murray with the court-appointed legal representative of future asbestos claimants (the FCR) and the motion to create a $270.0 million trust intended to constitute a "qualified settlement fund" within the meaning of the Treasury Regulations under Section 468B of the Internal Revenue Code (QSF), we recorded a charge of $21.2 million to increase our Funding Agreement liability to $270.0 million. The corresponding charge was bifurcated between *Other income / (expense), net* of $7.2 million relating to Murray and discontinued operations of $14.0 million relating to Aldrich.

On January 27, 2022, the Bankruptcy Court granted the request to fund the QSF, which was funded on March 2, 2022, resulting in an operating cash outflow of $270.0 million in our Condensed Consolidated Statements of Cash Flows, of which $91.8 million was allocated to continuing operations and $178.2 million was allocated to discontinued operations for the nine months ended September 30, 2022. At this point in the Chapter 11 cases of Aldrich and Murray, it is not possible to predict whether the Bankruptcy Court will approve the terms of a plan of reorganization (the Plan), what the extent of the asbestos liability will be or how long the Chapter 11 cases will last. The Chapter 11 cases remain pending as of November 2, 2022.

See also the discussion in Note 18 to the Condensed Consolidated Financial Statements.

Trends and Economic Events

We are a global corporation with worldwide operations. As a global business, our operations are affected by worldwide, regional and industry-specific economic factors as well as political and social factors wherever we operate or do business. These factors include urbanization, resource constraints, climate change, workforce dynamics, indoor environmental quality and digital connectedness. As part of our long-term sustainability strategy, we innovate to provide solutions for our customers to address the impacts of these factors. Our geographic diversity and the breadth of our product and services portfolios have helped mitigate the impact of any one industry or the economy of any single country on our consolidated operating results.

Given our broad range of products manufactured and geographic markets served, management uses a variety of factors to predict the outlook for the Company. We monitor key competitors and customers in order to gauge relative performance and the outlook for the future. We regularly perform detailed evaluations of the different market segments we are serving to proactively detect trends and to adapt our strategies accordingly. In addition, we believe our backlog and order levels are indicative of future revenue and thus are a key measure of anticipated performance.

Current economic conditions remain mixed across our end markets. The COVID-19 global pandemic continues to impact both the global Heating, Ventilation and Air Conditioning (HVAC) and Transport end markets as disruptions and delays in the global supply chain, as well as resource constraints continue to be experienced. We expect market conditions to remain mixed across the geographies where we serve our customers as the impact from COVID-19 decreases; however, macroeconomic events including material cost, wage, and energy inflation and tightening financial conditions, as a result of higher interest rates, could increase the likelihood of deteriorating economic conditions which could have a negative impact on our business.

Furthermore, when Russia invaded Ukraine in February 2022, we immediately halted new orders and shipments into and out of Russia and Belarus. During the second quarter of fiscal 2022, after careful consideration, we announced the decision to exit all business activity in Russia and Belarus by the end of the year. We are following due process to exit these markets. As of September 30, 2022, there has been no material impact on our operations; however, the situation may impact other risks the Company faces. Refer to Part II, Item 1A - Risk Factors within our Form 10-Q for the period ended March 31, 2022 for additional information.

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

Results of Operations

Three Months Ended September 30, 2022 Compared to the Three Months Ended September 30, 2021 - Consolidated Results

Dollar amounts in millions	2022	2021	Period Change	2022 % of revenues	2021 % of revenues
Net revenues	$ 4,371.9	$ 3,719.8	$ 652.1		
Cost of goods sold	(2,939.1)	(2,515.6)	(423.5)	67.2 %	67.6 %
Gross profit	1,432.8	1,204.2	228.6	32.8 %	32.4 %
Selling and administrative expenses	(693.3)	(620.8)	(72.5)	15.9 %	16.7 %
Operating income	739.5	583.4	156.1	16.9 %	15.7 %
Interest expense	(55.8)	(57.7)	1.9		
Other income/(expense), net	(18.7)	(6.9)	(11.8)		
Earnings before income taxes	665.0	518.8	146.2		
Provision for income taxes	(104.7)	(96.8)	(7.9)		
Earnings from continuing operations	560.3	422.0	138.3		
Discontinued operations, net of tax	(7.9)	(13.3)	5.4		
Net earnings	$ 552.4	$ 408.7	$ 143.7		

Net Revenues

Net revenues for the three months ended September 30, 2022 increased by 17.5%, or $652.1 million, compared with the same period in 2021, which resulted from the following:

Pricing	10.3 %
Volume	9.0 %
Acquisitions	1.0 %
Currency translation	(2.8)%
Total	17.5 %

The increase in *Net revenues* was primarily driven by inflation-based price increases, end customer demand within all our reportable segments, incremental revenues from acquisitions, partially offset by an unfavorable impact from foreign currency translation. Refer to the “Results by Segment” below for a discussion of *Net revenues* by segment.

Gross Profit Margin

Gross profit margin for the three months ended September 30, 2022 increased 40 basis points to 32.8% compared to 32.4% for the same period of 2021 primarily due to pricing improvements in excess of direct material and freight inflation and from increased volumes.

Selling and Administrative Expenses

Selling and administrative expenses for the three months ended September 30, 2022 increased by 11.7%, or $72.5 million compared with the same period of 2021. The increase in *Selling and administrative expenses* was primarily driven by an increase in human capital related costs, an increase in amortization due to acquisitions, partially offset by lower consulting costs. *Selling and administrative expenses* as a percentage of *Net revenues* for the three months ended September 30, 2022 decreased 80 basis points from 16.7% to 15.9% primarily due to higher revenues during the period.

Interest Expense

Interest expense for the three months ended September 30, 2022 decreased by 3.3%, or $1.9 million compared with the same period of 2021 primarily due to the repayment of $125.0 million of 9.000% Debentures in August 2021.

Other Income/(Expense), Net

The components of *Other income/(expense), net* for the three months ended September 30 were as follows:

In millions	2022	2021
Interest income	$ 2.4	$ 0.8
Foreign currency exchange loss	(5.5)	(2.2)
Other components of net periodic benefit credit/(cost)	(13.9)	1.2
Other activity, net	(1.7)	(6.7)
Other income/(expense), net	$ (18.7)	$ (6.9)

Other income/(expense), net includes the results from activities other than core business operations such as interest income and foreign currency gains and losses on transactions that are denominated in a currency other than an entity's functional currency. In addition, we include the components of net periodic benefit credit/(cost) for pension and post retirement obligations other than the service cost component. During the three months ended September 30, 2022, we recorded a $15.0 million settlement charge for a compensation related payment to a retired executive within other components of net periodic benefit credit/(cost). *Other activity, net* primarily includes items associated with certain legal and tax matters, as well as asbestos-related activities of Murray. During the three months ended September 30, 2021, the Company recorded a charge of $7.2 million to increase its Funding Agreement liability from asbestos-related activities of Murray within other activity, net.

Provision for Income Taxes

For the three months ended September 30, 2022, our effective tax rate was 15.7% which was lower than the U.S. statutory rate of 21% primarily due to a $33.1 million reduction in valuation allowances on certain net state deferred tax assets partially offset by a related $4.2 million expense associated with a deferred tax revaluation resulting from U.S. legal entity restructurings. These items have decreased the effective tax rate for the three months ended September 30, 2022 by 4.3 percentage points. In addition, adjustments related to filing the U.S. Federal tax return, earnings in non-U.S. jurisdictions, which in aggregate have a lower effective tax rate, partially offset by U.S. state and local taxes, provided net effective tax rate benefits. For the three months ended September 30, 2021 our effective tax rate was 18.7% which was lower than the U.S. statutory rate of 21% primarily due to excess tax benefits from employee share-based payments, the recognition of a claim for refund related to previously paid interest and earnings in non-U.S. jurisdictions, which in aggregate have a lower effective tax rate, partially offset by U.S. state and local taxes.

Nine Months Ended September 30, 2022 Compared to the Nine Months Ended September 30, 2021 - Consolidated Results

Dollar amounts in millions	2022	2021	Period Change	2022 % of revenues	2021 % of revenues
Net revenues	$ 11,917.9	$ 10,567.1	$ 1,350.8		
Cost of goods sold	(8,172.6)	(7,139.0)	(1,033.6)	68.6 %	67.6 %
Gross profit	3,745.3	3,428.1	317.2	31.4 %	32.4 %
Selling and administrative expenses	(1,907.0)	(1,840.5)	(66.5)	16.0 %	17.4 %
Operating income	1,838.3	1,587.6	250.7	15.4 %	15.0 %
Interest expense	(167.6)	(177.7)	10.1		
Other income/(expense), net	(21.0)	(13.8)	(7.2)		
Earnings before income taxes	1,649.7	1,396.1	253.6		
Provision for income taxes	(302.4)	(268.0)	(34.4)		
Earnings from continuing operations	1,347.3	1,128.1	219.2		
Discontinued operations, net of tax	(16.6)	(12.6)	(4.0)		
Net earnings	$ 1,330.7	$ 1,115.5	$ 215.2		

Net Revenues

Net revenues for the nine months ended September 30, 2022 increased by 12.8%, or $1,350.8 million, compared with the same period in 2021, which resulted from the following:

Pricing	9.5 %
Volume	4.7 %
Acquisitions	0.6 %
Currency translation	(2.0)%
Total	12.8 %

The increase in *Net revenues* was primarily driven by inflation-based price increases, end customer demand and incremental revenues from acquisitions, partially offset by an unfavorable impact from foreign currency translation. Pricing and volume increases were experienced in all segments. Refer to the "Results by Segment" below for a discussion of *Net revenues* by segment.

Gross Profit Margin

Gross profit margin for the nine months ended September 30, 2022 decreased 100 basis points to 31.4% compared to 32.4% for the same period of 2021 primarily due to significant direct material and freight inflation, and unfavorable productivity arising from supply chain, freight and logistics challenges, partially offset by improved pricing.

Selling and Administrative Expenses

Selling and administrative expenses for the nine months ended September 30, 2022 increased by $66.5 million, or 3.6%, compared with the same period of 2021. The increase in *Selling and administrative expenses* was primarily driven by an increase in human capital related costs as a result of investing in our people, as well as an increase in amortization due to acquisitions, partially offset by a decrease in the non-cash adjustment for contingent consideration and lower consulting costs. *Selling and administrative expenses* as a percentage of *Net revenues* for the nine months ended September 30, 2022 decreased 140 basis points from 17.4% to 16.0% primarily due to higher revenues during the period.

Interest Expense

Interest expense for the nine months ended September 30, 2022 decreased by 5.7% or $10.1 million compared with the same period of 2021 primarily due to the repayments of $125.0 million of 9.000% Debentures in August 2021 and $300.0 million of 2.900% Senior notes in February 2021.

Other Income/(Expense), Net

The components of *Other income/(expense), net* for the nine months ended September 30 are as follows:

In millions	2022	2021
Interest income	$ 5.2	$ 3.0
Foreign currency exchange loss	(13.1)	(8.9)
Other components of net periodic benefit credit/(cost)	(11.6)	(3.3)
Other activity, net	(1.5)	(4.6)
Other income/(expense), net	$ (21.0)	$ (13.8)

Other income/(expense), net includes the results from activities other than normal business operations such as interest income and foreign currency gains and losses on transactions that are denominated in a currency other than an entity's functional currency. In addition, we include the components of net periodic benefit credit/(cost) for pension and post retirement obligations other than the service cost component. During the nine months ended September 30, 2022, we recorded a $15.0 million settlement charge for a compensation related payment to a retired executive within other components of net periodic benefit credit/(cost). Other activity, net primarily includes items associated with certain legal and tax matters, as well as asbestos-related activities of Murray. During the nine months ended September 30, 2021, the Company recorded a charge of $7.2 million to increase its Funding Agreement liability from asbestos-related activities of Murray within other activity, net.

Provision for Income Taxes

For the nine months ended September 30, 2022, our effective tax rate was 18.3% which was lower than the U.S. statutory rate of 21% primarily due to a $33.1 million reduction in valuation allowances on certain net state deferred tax assets partially offset by a related $4.2 million expense associated with a deferred tax revaluation resulting from U.S. legal entity restructurings. These items have reduced the effective tax rate for the nine months ended September 30, 2022 by 1.7 percentage points. In addition, excess tax benefits from employee share-based payments and earnings in non-U.S. jurisdictions, which in aggregate have a lower effective tax rate, partially offset by U.S. state and local taxes, provided net effective tax rate benefits. The effective tax rate for the nine months ended September 30, 2021 was 19.2% which was lower than the U.S. statutory rate of 21% primarily due to excess tax benefits from employee share-based payments and earnings in non-U.S. jurisdictions, which in aggregate have a lower effective tax rate, partially offset by the remeasurement of deferred taxes as a result of law changes in certain non-U.S. tax jurisdictions, primarily in the United Kingdom and India, and U.S. state and local taxes.

Three Months Ended September 30, 2022 Compared to the Three Months Ended September 30, 2021 - Segment Results

We operate under four regional operating segments designed to create deep customer focus and relevance in markets around the world. We determined that our two EMEA operating segments meet the aggregation criteria based on similar operating and economic characteristics, resulting in one reportable segment. Therefore, we have three regional reportable segments, Americas, EMEA and Asia Pacific.

- Our Americas segment innovates for customers in North America and Latin America. The Americas segment encompasses commercial heating and cooling systems, building controls, and energy services and solutions; residential heating and cooling; and transport refrigeration systems and solutions.
- Our EMEA segment innovates for customers in the Europe, Middle East and Africa region. The EMEA segment encompasses heating and cooling systems, services and solutions for commercial buildings, and transport refrigeration systems and solutions.
- Our Asia Pacific segment innovates for customers throughout the Asia Pacific region. The Asia Pacific segment encompasses heating and cooling systems, services and solutions for commercial buildings and transport refrigeration systems and solutions.

Management measures operating performance based on net earnings excluding interest expense, income taxes, depreciation and amortization, restructuring, non-cash adjustments for contingent consideration, insurance settlement on property claim in Q3 2022 , unallocated corporate expenses and discontinued operations (Segment Adjusted EBITDA). Segment Adjusted EBITDA is not defined under accounting principles generally accepted in the United States of America (GAAP) and may not be comparable to similarly-titled measures used by other companies and should not be considered a substitute for net earnings or other results reported in accordance with GAAP. We believe Segment Adjusted EBITDA provides the most relevant measure of profitability as well as earnings power and the ability to generate cash. This measure is a useful financial metric to assess our operating performance from period to period by excluding certain items that we believe are not representative of our core business and we use this measure for business planning purposes. Segment Adjusted EBITDA also provides a useful tool for assessing the comparability between periods and our ability to generate cash from operations sufficient to pay taxes, to service debt and to undertake capital expenditures because it eliminates non-cash charges such as depreciation and amortization expense.

The following discussion compares our results for each of our three reportable segments for the three months ended September 30, 2022 compared to the three months ended September 30, 2021.

In millions	**2022**	**2021**	**% change**
Americas			
Net revenues	$ 3,481.4	$ 2,910.3	19.6 %
Segment Adjusted EBITDA	697.7	566.9	23.1 %
Segment Adjusted EBITDA as a percentage of net revenues	20.0 %	19.5 %	
EMEA			
Net revenues	$ 513.1	$ 495.0	3.7 %
Segment Adjusted EBITDA	94.7	99.4	(4.7)%
Segment Adjusted EBITDA as a percentage of net revenues	18.5 %	20.1 %	
Asia Pacific			
Net revenues	$ 377.4	$ 314.5	20.0 %
Segment Adjusted EBITDA	81.8	57.3	42.8 %
Segment Adjusted EBITDA as a percentage of net revenues	21.7 %	18.2 %	
Total Net revenues	$ 4,371.9	$ 3,719.8	17.5 %
Total Segment Adjusted EBITDA	874.2	723.6	20.8 %

Americas

Net revenues for the three months ended September 30, 2022 increased by 19.6% or $571.1 million, compared with the same period of 2021.

The components of the period change were as follows:

Pricing	11.3 %
Volume	7.3 %
Acquisitions	1.2 %
Currency translation	(0.2)%
Total	19.6 %

The increase in *Net revenues* was primarily driven by inflation-based price increases, higher volumes driven by increased end-customer demand and incremental revenues from acquisitions.

Segment Adjusted EBITDA margin for the three months ended September 30, 2022 increased by 50 basis points to 20.0% compared to 19.5% for the same period in 2021 primarily due to favorable pricing and volume, partially offset by unfavorable productivity arising from supply chain, freight and logistics challenges and continued business reinvestment.

EMEA

Net revenues for the three months ended September 30, 2022 increased by 3.7% or $18.1 million, compared with the same period of 2021.

The components of the period change were as follows:

Pricing	8.1 %
Volume	10.1 %
Currency translation	(14.5)%
Total	3.7 %

The increase in *Net revenues* was driven by inflation-based price increases and higher volumes, which was partially offset by an unfavorable impact from foreign currency translation. Excluding the impact of foreign currency translation, *Net revenues* increased by 18.2%.

Segment Adjusted EBITDA margin for the three months ended September 30, 2022 decreased by 160 basis points to 18.5% compared to 20.1% for the same period of 2021, primarily due to inflation and unfavorable productivity arising from supply chain, freight and logistics challenges and an unfavorable impact from foreign currency translation, partially offset by inflation-based price increases.

Asia Pacific

Net revenues for the three months ended September 30, 2022 increased by 20.0% or $62.9 million, compared with the same period of 2021.

The components of the period change were as follows:

Pricing	4.0 %
Volume	24.1 %
Currency translation	(8.1)%
Total	20.0 %

The increase in *Net revenues* was primarily driven by a strong recovery in volumes following the ending of localized COVID-19 shutdowns in China in the second quarter and higher end-market demand, partially offset by an unfavorable impact from foreign currency translation.

Segment Adjusted EBITDA margin for the three months ended September 30, 2022 increased by 350 basis points to 21.7% compared to 18.2% for the same period of 2021 primarily due to favorable pricing, direct material productivity and volume increases following the localized shutdowns in China, partially offset by unfavorable direct material inflation.

Nine Months Ended September 30, 2022 Compared to the Nine Months Ended September 30, 2021- Segment Results

The following discussion compares our results for each of our three reportable segments for the nine months ended September 30, 2022, compared to the nine months ended September 30, 2021.

In millions	2022	2021	% change
Americas			
Net revenues	$ 9,501.0	$ 8,207.6	15.8 %
Segment Adjusted EBITDA	1,805.5	1,571.7	14.9 %
Segment Adjusted EBITDA as a percentage of net revenues	19.0 %	19.1 %	
EMEA			
Net revenues	$ 1,476.0	$ 1,462.1	1.0 %
Segment Adjusted EBITDA	246.2	283.4	(13.1)%
Segment Adjusted EBITDA as a percentage of net revenues	16.7 %	19.4 %	
Asia Pacific			
Net revenues	$ 940.9	$ 897.4	4.8 %
Segment Adjusted EBITDA	168.6	163.8	2.9 %
Segment Adjusted EBITDA as a percentage of net revenues	17.9 %	18.3 %	
Total net revenues	$ 11,917.9	$ 10,567.1	12.8 %
Total Segment Adjusted EBITDA	2,220.3	2,018.9	10.0 %

Americas

Net revenues for the nine months ended September 30, 2022 increased by 15.8% or $1,293.4 million, compared with the same period of 2021.

The components of the period change were as follows:

Pricing	10.7 %
Volume	4.5 %
Acquisitions	0.7 %
Currency translation	(0.1)%
Total	15.8 %

The increase in *Net revenues* was primarily driven by inflation-based price increases, higher volumes driven by increased end-customer demand and incremental revenues from acquisitions.

Segment Adjusted EBITDA margin for the nine months ended September 30, 2022 decreased by 10 basis points to 19.0% compared to 19.1% for the same period of 2021 primarily due to favorable price increases and volume, offset by unfavorable productivity arising from supply chain, freight and logistics challenges and material cost inflation.

EMEA

Net revenues for the nine months ended September 30, 2022 increased by 1.0% or $13.9 million, compared with the same period of 2021.

The components of the period change were as follows:

Pricing	6.3 %
Volume	5.5 %
Currency translation	(10.8)%
Total	1.0 %

Price and volume improvements were partially offset by the unfavorable currency translation. Excluding the impact of foreign currency translation, *Net revenues* increased by 11.8%.

Segment Adjusted EBITDA margin for the nine months ended September 30, 2022 decreased by 270 basis points to 16.7% compared to 19.4% for the same period of 2021 primarily due to inflation and unfavorable productivity arising from supply chain, freight and logistics challenges and an unfavorable impact from foreign currency translation, offset by price increases and higher volume.

Asia Pacific

Net revenues for the nine months ended September 30, 2022 increased by 4.8% or $43.5 million, compared with the same period of 2021.

The components of the period change were as follows:

Pricing	3.5 %
Volume	5.6 %
Currency translation	(4.3)%
Total	4.8 %

The increase in *Net revenues* was primarily driven by higher volumes related to increased end-customer demand. Price increases were partially offset by an unfavorable impact from foreign currency translation.

Segment Adjusted EBITDA margin for the nine months ended September 30, 2022 decreased by 40 basis points to 17.9% compared to 18.3% for the same period of 2021 primarily due to favorable inflation-based price increases and volume, partially offset by unfavorable productivity arising from supply chain, freight and logistics challenges and material cost inflation.

Liquidity and Capital Resources

We assess our liquidity in terms of our ability to generate cash to fund our operating, investing and financing activities. In doing so, we review and analyze our current cash on hand, the number of days our sales are outstanding, inventory turns, capital expenditure commitments and income tax payments. Our cash requirements primarily consist of the following:

- Funding of working capital
- Debt service requirements
- Funding of capital expenditures
- Dividend payments
- Funding of acquisitions, joint ventures and equity investments
- Share repurchases

Our primary sources of liquidity include cash balances on hand, cash flow from operations, proceeds from debt offerings, commercial paper, and borrowing availability under our existing credit facilities. We earn a significant amount of our operating income in jurisdictions where it is deemed to be permanently reinvested. Our most prominent jurisdiction of operation is the U.S. We expect existing cash and cash equivalents available to the U.S. operations, the cash generated by our U.S. operations, our committed credit lines as well as our expected ability to access the capital and debt markets will be sufficient to fund our U.S. operating and capital needs for at least the next twelve months and thereafter for the foreseeable future. In addition, we expect existing non-U.S. cash and cash equivalents and the cash generated by our non-U.S. operations will be sufficient to fund our non-U.S. operating and capital needs for at least the next twelve months and thereafter for the foreseeable future. The maximum aggregate amount of unsecured commercial paper notes available to be issued, on a private placement basis, under the commercial paper program is $2.0 billion, of which the Company had no outstanding balance as of September 30, 2022.

As of September 30, 2022, we had $1,080.2 million of cash and cash equivalents on hand, of which $499.7 million was held by non-U.S. subsidiaries. Cash and cash equivalents held by our non-U.S. subsidiaries are generally available for use in our U.S. operations via intercompany loans, equity infusions or via distributions from direct or indirectly owned non-U.S. subsidiaries for which we do not assert permanent reinvestment. In general, repatriation of cash to the U.S. can be completed with no significant incremental U.S. tax. However, to the extent that we repatriate funds from non-U.S. subsidiaries for which we assert permanent reinvestment to fund our U.S. operations, we would be required to accrue and pay applicable non-U.S. taxes. As of September 30, 2022, we currently have no plans to repatriate funds from subsidiaries for which we assert permanent reinvestment.

We expect to pay a competitive and growing dividend. Since the launch of Trane Technologies in March 2020, we have increased our quarterly share dividend by 26%, from $0.53 to $0.67 per ordinary share, or $2.12 to $2.68 per share annualized. The first, second and third quarter 2022 dividends were paid during the nine months ended September 30, 2022 and the fourth quarter 2022 dividend was declared in October 2022.

Share repurchases are made from time to time in accordance with management's capital allocation strategy, subject to market conditions and regulatory requirements. In February 2021, our Board of Directors authorized the repurchase of up to $2.0 billion of our ordinary shares under a share repurchase program (2021 Authorization). During the nine months ended September 30, 2022, we repurchased and canceled $900.0 million of our ordinary shares leaving approximately $500 million remaining under the 2021 Authorization. In February 2022, our Board of Directors authorized the repurchase of up to $3.0 billion of our ordinary shares under a new share repurchase program (2022 Authorization) upon completion of the 2021 Authorization.

We continue to actively manage and strengthen our business portfolio to meet the current and future needs of our customers. We achieve this partly through engaging in research and development and sustaining activities and partly through acquisitions. Sustaining activities include costs incurred to reduce production costs, improve existing products, create custom solutions for customers and provide support to our manufacturing facilities. Our research and development and sustaining costs account for approximately two percent of annual *Net revenues*. Each year, we make investments in new product development, new technology innovation and leaner manufacturing systems as they are key factors in achieving our strategic objectives as a leader in the climate sector. In addition, we make investments in renewable energy production and other carbon performance improvement projects. For example, during the nine months ended September 30, 2022, we invested in onsite solar energy generation systems at our Pueblo, Colorado facility to generate electricity to offset fossil based electricity purchased from the grid. We ramped up operations of the onsite solar system at our Zhongshan, China facility. Two key factories in China (Taicang and Zhongshan) recently entered into supply agreements to receive a significant quantity of electricity generated from 100 percent renewable sources. We also transitioned to a next generation refrigerant with low global warming potential (GWP) for transport equipment manufactured at our Arecibo, Puerto Rico facility and are actively working to transition to low GWP refrigerant on our first commercial product at our Pueblo, Colorado factory. These actions represent important steps to reduce our Scope 1 and Scope 2 carbon emissions and improve our customer's carbon performance over the operating life of Trane Technologies' cooling equipment. Furthermore, during the nine months ended September 30, 2022, we also completed implementation of processing equipment for our Tyler, Texas facility to fully achieve zero waste to landfill. These Leading by Example successes did not result in material expenditures for the nine months ended September 30, 2022.

We continue to look for similar improvement opportunities including, but not limited to, increasing energy efficiency, developing products that allow for use of lower GWP refrigerants, reducing material content in products, and designing products for circularity. All new product development (NPD) programs must complete a Design for Sustainability module within our NPD process to ensure that every program has a positive impact on sustainability. We also focus on partnering with our suppliers and technology providers to align their investment decisions with our technical requirements.

In pursuing our business strategy, we routinely conduct discussions, evaluate targets and enter into agreements regarding possible acquisitions, divestitures, joint ventures and equity investments. Since 2020, we acquired several businesses, entered into joint ventures and invested in companies that complement existing products and services further enhancing our product portfolio.

We incur ongoing costs associated with restructuring initiatives intended to result in improved operating performance, profitability and working capital levels. Actions associated with these initiatives may include workforce reductions, improving manufacturing productivity, realignment of management structures and rationalizing certain assets. On February 29, 2020, we completed our Reverse Morris Trust transaction with Ingersoll Rand Inc., where we separated our former Industrial segment through a pro rata distribution to shareholders of record as of February 24, 2020. Post separation, we achieved savings of $190 million through 2021 and expect to achieve an additional $110 million by 2023 for a total of $300 million in total savings under our transformation initiatives. In order to achieve these cost savings, we anticipate to incur costs up to $150 million through 2022. We have incurred approximately $129 million cumulatively through September 30, 2022. We believe that our existing cash flow, committed credit lines and access to the capital markets will be sufficient to fund share repurchases, dividends, research and development, sustaining activities, business portfolio changes and ongoing restructuring actions.

Certain of our subsidiaries entered into Funding Agreements with Aldrich and Murray pursuant to which those subsidiaries are obligated, among other things, to pay the costs and expenses of Aldrich and Murray during the pendency of the Chapter 11 cases to the extent distributions from their respective subsidiaries are insufficient to do so and to provide an amount for the funding for a trust established pursuant to section 524(g) of the Bankruptcy Code, to the extent that the other assets of Aldrich and Murray are insufficient to provide the requisite trust funding. During the third quarter of 2021, Aldrich and Murray filed a motion with the Bankruptcy Court to create a $270 million QSF. The funds held in the QSF would be available to provide funding for the Section 524(g) Trust upon effectiveness of the Plan. On January 27, 2022, the Bankruptcy Court granted the request to fund the QSF, which was funded on March 2, 2022.

As the COVID-19 global pandemic impacts both the broader economy and our operations, we will continue to assess our liquidity needs and our ability to access capital markets. A continued worldwide disruption could materially affect economies and financial markets worldwide, resulting in an economic downturn that could affect demand for our products, our ability to obtain financing on favorable terms and otherwise adversely impact our business, financial condition and results of operations. See Part I, Item 1A – Risk Factors in the Annual Report on Form 10-K for the fiscal year ended December 31, 2021 for more information.

Liquidity

The following table contains several key measures of our financial condition and liquidity at the period ended:

In millions	September 30, 2022	December 31, 2021
Cash and cash equivalents	$ 1,080.2	$ 2,159.2
Short-term borrowings and current maturities of long-term debt	1,049.9	350.4
Long-term debt	3,787.5	4,491.7
Total debt	4,837.4	4,842.1
Total Trane Technologies plc shareholders' equity	5,858.3	6,255.9
Total equity	5,868.4	6,273.1
Debt-to-total capital ratio	45.2 %	43.6 %

Debt and Credit Facilities

Our short-term obligations primarily consist of current maturities of $699.5 million of long-term debt that matures in June 2023 and $342.9 million of fixed rate debentures that contain a put feature that the holders may exercise on each anniversary of the issuance date. If exercised, we are obligated to repay in whole or in part, at the holder's option, the outstanding principal amount (plus accrued and unpaid interest) of the debentures held by the holder. We also maintain a commercial paper program which is used for general corporate purposes. Under the program, the maximum aggregate amount of unsecured commercial paper notes available to be issued, on a private placement basis, is $2.0 billion. We had no outstanding balance under our commercial paper program as of September 30, 2022 and December 31, 2021. See Note 6 to the Condensed Consolidated Financial Statements for additional information regarding the terms of our short-term obligations.

Our long-term obligations primarily consist of long-term debt with final maturity dates ranging between 2024 and 2049. In addition, we maintain two $1.0 billion senior unsecured revolving credit facilities, one of which matures in June 2026 and the other which matures in April 2027. The facilities provide support for our commercial paper program and can be used for working capital and other general corporate purposes. Total commitments of $2.0 billion were unused at September 30, 2022 and December 31, 2021. See Note 6 to the Condensed Consolidated Financial Statements and further below in *Supplemental Guarantor Financial Information* for additional information regarding the terms of our long-term obligations and their related guarantees.

Cash Flows

The following table reflects the major categories of cash flows for the nine months ended September 30. For additional details, see the Condensed Consolidated Statements of Cash Flows in the Condensed Consolidated Financial Statements.

In millions	2022	2021
Net cash provided by (used in) continuing operating activities	$ 933.4	$ 1,162.6
Net cash provided by (used in) continuing investing activities	(325.2)	(208.8)
Net cash provided by (used in) continuing financing activities	(1,413.0)	(1,465.0)

Operating Activities

Net cash provided by continuing operating activities for the nine months ended September 30, 2022 was $933.4 million, of which *Net earnings* provided $1,643.4 million after adjusting for non-cash transactions. Net cash provided by continuing operating activities for the nine months ended September 30, 2021 was $1,162.6 million, of which *Net earnings* provided $1,421.5 million after adjusting for non-cash transactions. The year-over-year decrease in net cash from continuing operating activities was primarily due to higher working capital balances in the current year, the funding of the continuing operations component of the QSF for $91.8 million and a planned funding of pension and postemployment liabilities, resulting in a cash outflow. These reductions were partially offset by higher net earnings.

Investing Activities

Cash flows from investing activities represent inflows and outflows regarding the purchase and sale of assets. Primary activities associated with these items include capital expenditures, proceeds from the sale of property, plant and equipment, acquisitions, investments in joint ventures and complementary businesses and divestitures. During the nine months ended September 30, 2022, net cash used in investing activities from continuing operations was $325.2 million. The primary drivers of the usage were attributable to capital expenditures of $202.8 million and acquisition of businesses for $109.6 million, net of cash acquired, primarily within the Americas segment. During the nine months ended September 30, 2021 net cash used in investing activities from continuing operations was $208.8 million. The primary drivers of the usage were attributable to capital expenditures of $121.6 million and other investing activities of $69.2 million primarily related to investment in companies that complement existing products and services further enhancing our product portfolio.

Financing Activities

Cash flows from financing activities represent inflows and outflows that account for external activities affecting equity and debt. Primary activities associated with these actions include paying dividends to shareholders, repurchasing our own shares, issuing our own stock and debt transactions. During the nine months ended September 30, 2022, net cash used in financing activities from continuing operations was $1,413.0 million. The primary drivers of the outflow related to the repurchase of $900.1 million in ordinary shares and dividends paid to ordinary shareholders of $467.0 million. During the nine months ended September 30, 2021, net cash used in financing activities from continuing operations was $1,465.0 million. The primary drivers of the outflow related to the repurchase of $600.2 million in ordinary shares, the repayment of long-term debt of $432.5 million and dividends paid to ordinary shareholders of $421.9 million.

Free Cash Flow

Free cash flow is a non-GAAP measure and defined as *Net cash provided by (used in) continuing operating activities*, less capital expenditures, plus cash payments for restructuring, transformation costs, the continuing operations component of the QSF funding and payout of executive compensation less an insurance settlement on a property claim in Q3 2022. This measure is useful to management and investors because it is consistent with management's assessment of our operating cash flow performance. The most comparable GAAP measure to free cash flow is *Net cash provided by (used in) continuing operating activities*. Free cash flow may not be comparable to similarly-titled measures used by other companies and should not be considered a substitute for *Net cash provided by (used in) continuing operating activities* in accordance with GAAP.

A reconciliation of *Net cash provided by (used in) continuing operating activities* to free cash flow for the nine months ended September 30 is as follows:

In millions	**2022**	**2021**
Net cash provided by continuing operating activities	$ 933.4	$ 1,162.6
Capital expenditures	(202.8)	(121.6)
Cash payments for restructuring	20.4	27.1
Transformation costs paid	8.9	13.5
QSF funding (continuing operations component)	91.8	—
Compensation related payment to a retired executive	64.3	—
Insurance settlement on property claim in Q3 2022	(25.0)	—
Free cash flow [1]	$ 891.0	$ 1,081.6

[1] Represents a non-GAAP measure.

Pensions

Our investment objective in managing defined benefit plan assets is to ensure that all present and future benefit obligations are met as they come due. We seek to achieve this goal while trying to mitigate volatility in plan funded status, contribution and expense by better matching the characteristics of the plan assets to that of the plan liabilities. We use a dynamic approach to asset allocation whereby a plan's allocation to fixed income assets increases as the plan's funded status improves. We monitor plan funded status and asset allocation regularly in addition to investment manager performance.

We monitor the impact of market conditions on our defined benefit plans on a regular basis. None of our defined benefit pension plans have experienced a significant impact on their liquidity due to market volatility. The Company currently projects that it will contribute a total of approximately $90 million to our enterprise plans worldwide in 2022. For further details on pension plan activity, see Note 9 to the Condensed Consolidated Financial Statements.

Supplemental Guarantor Financial Information

Trane Technologies plc (Plc or Parent Company) and certain of its 100% directly or indirectly owned subsidiaries provide guarantees of public debt issued by other 100% directly or indirectly owned subsidiaries of Plc. The following table shows our guarantor relationships as of September 30, 2022:

Parent, issuer or guarantors	Notes issued	Notes guaranteed
Trane Technologies plc (Plc)	None	All registered notes and debentures
Trane Technologies Irish Holdings Unlimited Company (TT Holdings)	None	All notes issued by TTFL and TTC HoldCo
Trane Technologies Lux International Holding Company S.à.r.l. (TT International)	None	All notes issued by TTFL and TTC HoldCo
Trane Technologies Global Holding Company Limited (TT Global)	None	All notes issued by TTFL and TTC HoldCo
Trane Technologies Financing Limited (TTFL)	3.550% Senior notes due 2024 3.500% Senior notes due 2026 3.800% Senior notes due 2029 4.650% Senior notes due 2044 4.500% Senior notes due 2049	All notes and debentures issued by TTC HoldCo and TTC
Trane Technologies HoldCo Inc. (TTC HoldCo)	4.250% Senior notes due 2023 3.750% Senior notes due 2028 5.750% Senior notes due 2043 4.300% Senior notes due 2048	All notes issued by TTFL
Trane Technologies Company LLC (TTC)	7.200% Debentures due 2022-2025 6.480% Debentures due 2025 Puttable debentures due 2027-2028	All notes issued by TTFL and TTC HoldCo

Each subsidiary debt issuer and guarantor is owned 100% directly or indirectly by the Parent Company. Each guarantee is full and unconditional, and provided on a joint and several basis. There are no significant restrictions of the Parent Company, or any guarantor, to obtain funds from its subsidiaries, such as provisions in debt agreements that prohibit dividend payments, loans or advances to the Parent Company by a subsidiary. The following tables present summarized financial information for the Parent Company and subsidiary debt issuers and guarantors on a combined basis (together, "obligor group") after elimination of intercompany transactions and balances based on the Company’s legal entity ownerships and guarantees outstanding at September 30, 2022. Our obligor groups as of September 30, 2022 were as follows: obligor group 1 consists of Plc, TT Holdings, TT International, TT Global, TTFL, TTC HoldCo and TTC; obligor group 2 consists of Plc, TTFL and TTC.

Summarized Statements of Earnings

In millions	Nine months ended September 30, 2022	
	Obligor group 1	Obligor group 2
Net revenues	$ —	$ —
Gross profit (loss)	—	—
Intercompany interest and fees	0.7	193.9
Earnings (loss) from continuing operations	(220.1)	5.6
Discontinued operations, net of tax	(16.9)	(16.5)
Net earnings (loss)	(237.0)	(10.9)
Less: Net earnings attributable to noncontrolling interests	—	—
Net earnings (loss) attributable to Trane Technologies plc	$ (237.0)	$ (10.9)

Summarized Balance Sheets

In millions	September 30, 2022	
	Obligor group 1	Obligor group 2
ASSETS		
Intercompany receivables	$ 163.5	$ 669.2
Current assets	708.3	1,186.0
Intercompany notes receivable	1,831.9	5,531.6
Noncurrent assets	2,597.8	6,106.9
LIABILITIES		
Intercompany payables	5,574.6	3,788.0
Current liabilities	7,118.2	4,601.8
Intercompany notes payable	2,400.0	2,400.0
Noncurrent liabilities	6,822.2	5,473.6

In millions	December 31, 2021	
	Obligor group 1	Obligor group 2
ASSETS		
Intercompany receivables	$ 128.9	$ 494.0
Current assets	1,348.3	1,623.4
Intercompany notes receivable	1,831.9	5,531.6
Noncurrent assets	2,662.9	6,135.7
LIABILITIES		
Intercompany payables	4,160.1	2,452.0
Current liabilities	5,045.6	3,288.8
Intercompany notes payable	2,400.7	2,400.7
Noncurrent liabilities	7,758.7	5,712.6

For a further discussion of Liquidity and Capital Resources, refer to the discussion under that heading herein and in Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," contained in our Annual Report on Form 10-K for the period ended December 31, 2021.

Commitments and Contingencies

We are involved in various litigation, claims and administrative proceedings, including those related to the bankruptcy proceedings for Aldrich and Murray and environmental and product liability matters. Amounts recorded for identified contingent liabilities are estimates, which are reviewed periodically and adjusted to reflect additional information when it becomes available. Subject to the uncertainties inherent in estimating future costs for contingent liabilities, except as expressly set forth in Note 18 to the Condensed Consolidated Financial Statements, management believes that the liability which may result from these legal matters would not have a material adverse effect on our financial condition, results of operations, liquidity or cash flows.

Critical Accounting Estimates

Management's Discussion and Analysis of Financial Condition and Results of Operations are based upon our Condensed Consolidated Financial Statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of financial statements in conformity with those accounting principles requires management to use judgments in making estimates and assumptions based on the relevant information available at the end of each period. These estimates and assumptions have a significant effect on reported amounts of assets and liabilities, revenue and expenses, as well as the disclosure of contingent assets and liabilities because they result primarily from the need to make estimates and assumptions on matters that are inherently uncertain. Actual results may differ from estimates.

Management believes there have been no significant changes during the nine months ended September 30, 2022, to the items that we disclosed as our critical accounting estimates in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K for the year ended December 31, 2021.

Recent Accounting Pronouncements

See Note 2 to the Condensed Consolidated Financial Statements for a discussion of recent accounting pronouncements.

Safe Harbor Statement

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

Forward-looking statements may relate to such matters as projections of revenue, margins, expenses, tax provisions, earnings, cash flows, benefit obligations, share or debt repurchases or other financial items; any statements of the plans, strategies and objectives of management for future operations, including those relating to any statements concerning expected development, performance or market share relating to our products and services; any statements regarding future economic conditions or our performance including our future performance statements related to the continued impact of the COVID-19 global pandemic; any statements regarding our sustainability commitments; any statements regarding pending investigations, claims or disputes; any statements of expectation or belief; and any statements of assumptions underlying any of the foregoing. These statements are based on currently available information and our current assumptions, expectations and projections about future events. While we believe that our assumptions, expectations and projections are reasonable in view of the currently available information, you are cautioned not to place undue reliance on our forward-looking statements. You are advised to review any further disclosures we make on related subjects in materials we file with or furnish to the SEC. Forward-looking statements speak only as of the date they are made and are not guarantees of future performance. They are subject to future events, risks and uncertainties - many of which are beyond our control - as well as potentially inaccurate assumptions, that could cause actual results to differ materially from our expectations and projections. We do not undertake to update any forward-looking statements.

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

- impacts of the COVID-19 global pandemic on our business operations, financial results and financial position and on the world economy;
- overall economic, political and business conditions in the markets in which we operate including recessions, economic downturns, price instability, slowing economic growth and social and political instability;
- commodity shortages, supply chain risks and price increases;
- national and international conflict, including war, civil disturbances and terrorist acts;
- trade protection measures such as import or export restrictions and requirements, the imposition of tariffs and quotas or revocation or material modification of trade agreements;
- competitive factors in the industries in which we compete;
- the development, commercialization and acceptance of new and enhanced products and services;
- other capital market conditions, including availability of funding sources, interest rate fluctuations and other changes in borrowing costs;
- currency exchange rate fluctuations, exchange controls and currency devaluations;
- the outcome of any litigation, governmental investigations, claims or proceedings;

- risks and uncertainties associated with the Chapter 11 proceedings for our deconsolidated subsidiaries Aldrich and Murray;
- the impact of potential information technology system failures, vulnerabilities, data security breaches or other cybersecurity issues;
- evolving data privacy and protection laws;
- intellectual property infringement claims and the inability to protect our intellectual property rights;
- changes in laws and regulations;
- health epidemics or pandemics or other contagious outbreaks;
- climate change, changes in weather patterns, natural disasters and seasonal fluctuations;
- the outcome of any tax audits or settlements;
- the strategic acquisition or divestiture of businesses, product lines and joint ventures;
- impairment of our goodwill, indefinite-lived intangible assets and/or our long-lived assets;
- changes in tax laws and requirements (including tax rate changes, new tax laws, new and/or revised tax law interpretations and any legislation that may limit or eliminate potential tax benefits resulting from our incorporation in a non-U.S. jurisdiction, such as Ireland); and
- work stoppages, union negotiations, labor disputes and similar issues

Some of the significant risks and uncertainties that could cause actual results to differ materially from our expectations and projections are described more fully in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021 and as further updated by the risk factors contained in our Form 10-Q for the period ended March 31, 2022. There may also be other factors that have not been anticipated or that are not described in our periodic filings with the SEC, generally because we did not believe them to be significant at the time, which could cause results to differ materially from our expectations.

Available Information

We have used, and intend to continue to use, the homepage, the investor relations and the “News” section of our website (www.tranetechnologies.com), among other sources such as press releases, public conference calls and webcasts, as a means of disclosing additional information, which may include future developments regarding the Company and/or material non-public information. We encourage investors, the media, and others interested in our Company to review the information it makes public in these locations on its website.

Item 3 – Quantitative and Qualitative Disclosures about Market Risk

For a discussion of the Company's exposure to market risk, refer to Part II, Item 7A, "Quantitative and Qualitative Disclosures About Market Risk," contained in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

Item 4 – Controls and Procedures

The Company's management, including its Chief Executive Officer and Chief Financial Officer, have conducted an evaluation of the effectiveness of disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)), as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded as of September 30, 2022, that the disclosure controls and procedures are effective in ensuring that all material information required to be filed in this Quarterly Report on Form 10-Q has been recorded, processed, summarized and reported when required and the information is accumulated and communicated to the Company's management, including its Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

There has been no change in the Company's internal control over financial reporting that occurred during the third quarter of 2022 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II – OTHER INFORMATION

Item 1 – Legal Proceedings

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

Asbestos-Related Matters

On the Petition Date, Aldrich and Murray each filed a voluntary petition for reorganization under Chapter 11 of the Bankruptcy Code. As a result of the Chapter 11 filings, all asbestos-related lawsuits against Aldrich and Murray have been stayed. Only Aldrich and Murray have filed for Chapter 11 relief. Neither Aldrich's wholly-owned subsidiary, 200 Park, Murray's wholly-owned subsidiary, ClimateLabs, Trane Technologies plc nor the Trane Companies are part of the Chapter 11 filings.

The goal of these Chapter 11 filings is to resolve equitably and permanently all current and future asbestos-related claims in a manner beneficial to claimants and to Aldrich and Murray through court approval of a plan of reorganization that would create a trust pursuant to section 524(g) of the Bankruptcy Code, establish claims resolution procedures for all current and future asbestos-related claims against Aldrich and Murray and channel such claims to the trust for resolution in accordance with those procedures. Such a resolution, if achieved, would likely include a channeling injunction to enjoin asbestos claims resolved in the Chapter 11 cases from being filed or pursued against us or our affiliates.

On August 26, 2021, we announced that Aldrich and Murray reached an agreement in principle with the court-appointed legal representative of future asbestos claimants (the FCR) in the bankruptcy proceedings. The agreement includes the key terms for the permanent resolution of all current and future asbestos claims against Aldrich and Murray pursuant to the Plan. Under the agreed terms, the Plan would create a trust pursuant to section 524(g) of the Bankruptcy Code and establish claims resolution procedures for the Asbestos Claims. On the effective date of the Plan, Aldrich and Murray would fund the trust with $545.0 million, comprised of $540.0 million in cash and a promissory note to be issued by Aldrich and Murray to the trust in the principal amount of $5.0 million, and the Asbestos Claims would be channeled to the trust for resolution in accordance with the claims resolution procedures. Following the effective date of the Plan, Aldrich and Murray would have no further obligations with respect to the Asbestos Claims. The FCR has agreed to support such Plan. The agreement in principle with the FCR is subject to final documentation and is conditioned on arrangements acceptable to Aldrich and Murray with respect to their asbestos insurance assets. It is currently contemplated that the asbestos insurance assets of Aldrich and Murray would be contributed to the trust, and that, in consideration of their cash contribution to the trust, Aldrich and Murray would have the exclusive right to pursue, collect and retain all insurance reimbursements available in connection with the resolution of Asbestos Claims by the trust. The committee representing current asbestos claimants (the ACC) is not a party to the agreement in principle. Any settlement and its implementation in a plan of reorganization is subject to the approval of the Bankruptcy Court, and there can be no assurance that the Bankruptcy Court will approve the agreement on the terms proposed.

On September 24, 2021, Aldrich and Murray filed the Plan with the Bankruptcy Court. The Plan is supported by, and reflects the agreement in principle reached with the FCR. In connection with the Plan, Aldrich and Murray filed a motion with the Bankruptcy Court to create a $270.0 million trust intended to constitute a QSF. The funds held in the QSF would be available to provide funding for the Section 524(g) Trust upon effectiveness of the Plan.

On January 27, 2022, the Bankruptcy Court granted the request to fund the QSF, which was funded on March 2, 2022. At this point in the Chapter 11 cases of Aldrich and Murray, it is not possible to predict whether the Bankruptcy Court will approve the terms of the Plan, what the extent of the asbestos liability will be or how long the Chapter 11 cases will last. The Bankruptcy Court also granted the ACC standing to investigate and pursue certain causes of action including fraudulent conveyance and certain other derivative causes of action. The ACC filed complaints with respect to these and other causes of action on June 18, 2022. Additionally, the Bankruptcy Court denied motions to dismiss a complaint filed by the ACC seeking substantive consolidation. We are vigorously opposing and defending against these claims. The Chapter 11 cases remain pending as of November 2, 2022.

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

See also the discussion contained in our Annual Report on Form 10-K for the period ended December 31, 2021 under Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations and also Note 18 to the Condensed Consolidated Financial Statements in this Form 10-Q.

Item 1A – Risk Factors

In addition to the other information set forth in this report, you should carefully consider the risk factors discussed in Item 1A. "Risk Factors" contained in our Annual Report on Form 10-K for the period ended December 31, 2021 or as further updated by the risk factors contained in our Form 10-Q for the periods ended March 31, 2022 and June 30, 2022.

The Aldrich and Murray Chapter 11 cases involve various risks and uncertainties that could have a material effect on us.

On June 18, 2020, our indirect wholly-owned subsidiaries Aldrich and Murray each filed a voluntary petition for reorganization under the Bankruptcy Code in the Bankruptcy Court. The goal of these Chapter 11 filings is to resolve equitably and permanently all current and future asbestos-related claims in a manner beneficial to claimants, Aldrich and Murray through court approval of a plan of reorganization that would create a trust pursuant to section 524(g) of the Bankruptcy Code, establish claims resolution procedures for all current and future asbestos-related claims against Aldrich and Murray and channel such claims to the trust for resolution in accordance with those procedures. Such a resolution, if achieved, would likely include a channeling injunction to enjoin asbestos claims resolved in the Chapter 11 cases from being filed or pursued against us or our affiliates. The Chapter 11 cases remain pending as of November 2, 2022.

Certain of our subsidiaries have entered into funding agreements with Aldrich and Murray (collectively the Funding Agreements), pursuant to which those subsidiaries are obligated, among other things, to fund the costs and expenses of Aldrich and Murray during the pendency of the Chapter 11 cases to the extent distributions from their respective subsidiaries are insufficient to do so and to provide an amount for the funding for a trust established pursuant to section 524(g) of the Bankruptcy Code, to the extent that the other assets of Aldrich and Murray are insufficient to provide the requisite trust funding.

On August 26, 2021, we announced that Aldrich and Murray reached an agreement in principle with the FCR in the bankruptcy proceedings. The agreement in principle includes the key terms for the permanent resolution of all current and future asbestos claims against Aldrich and Murray (Asbestos Claims) pursuant to the Plan as described further in Note 21, "Commitments and Contingencies" and "Item 1- Legal Proceedings" in this report. The agreement in principle with the FCR is subject to final documentation and is conditioned on arrangements acceptable to Aldrich and Murray with respect to their asbestos insurance assets. The current asbestos claimants (the ACC) are not a party to the agreement in principle. Any settlement and its implementation in a plan of reorganization is subject to the approval of the Bankruptcy Court, and there can be no assurance that the Bankruptcy Court will approve the agreement on the terms proposed.

On September 24, 2021, Aldrich and Murray filed the Plan with the Bankruptcy Court. The Plan is supported by and reflects the agreement in principle reached with the FCR. In connection with the Plan, Aldrich and Murray filed a motion with the Bankruptcy Court to create a $270.0 million trust intended to constitute a QSF. The funds held in the QSF would be available to provide funding for the Section 524(g) Trust upon effectiveness of the Plan.

On January 27, 2022, the Bankruptcy Court granted the request to fund the QSF. The QSF was funded on March 2, 2022. On April 18, 2022, the Bankruptcy Court entered an order granting the Debtors' request to seek to estimate their aggregate liability for all current and future asbestos-related personal injury claims. The Debtors' are pursuing discovery and related matters in connection with the estimation proceedings. At this point in the Chapter 11 cases of Aldrich and Murray, it is not possible to predict whether the Bankruptcy Court will approve the terms of the Plan, what the extent of the asbestos liability will be or how long the Chapter 11 cases will last.

On April 14, 2022, the Bankruptcy Court granted the ACC standing to pursue certain causes of action, including fraudulent conveyance and certain other derivative causes of action. On June 18, 2022, the ACC filed complaints against us and other related parties asserting various claims and causes of action arising from or related to our 2020 internal corporate restructuring. Additionally, the Bankruptcy Court denied motions to dismiss the ACC's substantive consolidation complaint. While the Company is vigorously opposing and defending against these claims, it is not possible to predict whether we will be successful.

There are a number of risks and uncertainties associated with these Chapter 11 cases, including, among others, those related to:

- the ultimate determination of the asbestos liability of Aldrich and Murray to be satisfied under a Chapter 11 plan and the ability to consummate the settlement reached with the FCR;
- the outcome of negotiations with the ACC and the FCR and other participants in the Chapter 11 cases, including insurers, concerning, among other things, the size and structure of a potential section 524(g) trust to pay the asbestos liability of Aldrich and Murray and the means for funding that trust;
- the actions of representatives of the asbestos claimants, including the ACC's pursuit of certain causes of action against us, following the Bankruptcy Court's grant of the ACC's motion seeking standing to investigate and pursue

certain causes of action at a hearing held on January 27, 2022, and other potential actions by the ACC in opposition to, or otherwise inconsistent with, the efforts by Aldrich and Murray to diligently prosecute the Chapter 11 cases and ultimately seek Bankruptcy Court approval of a plan of reorganization;

- the decisions of the Bankruptcy Court relating to numerous substantive and procedural aspects of the Chapter 11 cases, including in connection with a proceeding by Aldrich and Murray to estimate their aggregate liability for asbestos claims, following the Bankruptcy Court's grant of their motion seeking such a proceeding at a hearing held on January 27, 2022, and other efforts by Aldrich and Murray to diligently prosecute the Chapter 11 cases and ultimately seek Bankruptcy Court approval of a plan of reorganization, whether such decisions are in response to actions of representatives of the asbestos claimants or otherwise;
- the risk that Aldrich and Murray may be unable to obtain the necessary approvals of the Bankruptcy Court or the United States District Court for the Western District of North Carolina (the District Court) of a plan of reorganization;
- the risk that any orders approving a plan of reorganization and issuing the channeling injunction do not become final;
- the terms and conditions of any plan of reorganization that is ultimately confirmed in the Chapter 11 cases;
- delays in the confirmation or effective date of a plan of reorganization due to factors beyond the Company’s control;
- the risk that the ultimate amount required under any final plan of reorganization may exceed the amounts agreed to with the FCR in the Plan;
- the risk that the insurance carriers do not support the Plan and the risk that the ACC objects to the Plan; and
- the decisions of appellate courts regarding approval of a plan of reorganization or relating to orders of the Bankruptcy Court or the District Court that may be appealed.

The ability of Aldrich and Murray to successfully reorganize and resolve their asbestos liabilities will depend on various factors, including their ability to reach agreements with representatives of the asbestos claimants on the terms of a plan of reorganization that satisfies all applicable legal requirements and to obtain the requisite court approvals of such plan, and remains subject to the risks and uncertainties described above. We cannot ensure that Aldrich and Murray can successfully reorganize, nor can we give any assurances as to the amount of the ultimate obligations under the Funding Agreements or any plan of reorganization, or the resulting impact on our financial condition, results of operations or future prospects. We also are unable to predict the timing of any of the foregoing matters or the timing for a resolution of the Chapter 11 cases, all of which could have an impact on us.

It also is possible that, in the Chapter 11 cases, various parties will be successful in bringing claims against us and other related parties, including by successfully challenging the 2020 corporate restructuring, consolidating entities and/or raising allegations that we are liable for the asbestos-related liabilities of Aldrich and Murray as set forth in certain pleadings filed by the ACC in the Chapter 11 cases. Although we believe we have no such responsibility for liabilities of Aldrich and Murray, except indirectly through our obligation to provide funding to Aldrich and Murray under the terms of the Funding Agreements, we cannot provide assurances that such claims will not be successful.

In sum, the outcome of the Chapter 11 cases is uncertain and there is uncertainty as to what extent we may have to contribute to a section 524(g) trust under the Funding Agreements.

Item 2 - Unregistered Sales of Equity Securities and Use of Proceeds

Issuer Purchases of Equity Securities

The following table provides information with respect to purchases of our ordinary shares during the third quarter of 2022:

Period	Total number of shares purchased (000's) (a) (b)	Average price paid per share (a) (b)	Total number of shares purchased as part of program (000's) (a)	Approximate dollar value of shares still available to be purchased under the program ($000's) (a)
July 1 - July 31	0.5	$ 131.37	—	$ 749,778
August 1 - August 31	724.3	159.71	722.3	634,392
September 1 - September 30	865.3	155.58	865.3	499,776
Total	1,590.1	$ 157.45	1,587.6	

(a) Share repurchases are made from time to time in accordance with management's capital allocation strategy, subject to market conditions and regulatory requirements. In February 2021, our Board of Directors authorized the repurchase of up to $2.0 billion of our ordinary shares under a new share repurchase program (2021 Authorization) upon completion of the prior share repurchase program. During the three months ended September 30, 2022, we repurchased and canceled $250.0 million of our ordinary shares leaving approximately $500 million remaining under the 2021 Authorization. In February 2022, our Board of Directors authorized the repurchase of up to $3.0 billion of our ordinary shares under a new share repurchase program (2022 Authorization) upon completion of the 2021 Authorization.

(b) We may also reacquire shares outside of the repurchase program from time to time in connection with the surrender of shares to cover taxes on vesting of share-based awards. We reacquired 543 shares in July and 1,984 shares in August in transactions outside of the repurchase programs.

Item 6 – Exhibits

(a) Exhibits

Exhibit No.	Description	Method of Filing
22.1	List of Guarantors and Subsidiary Issuers of Guaranteed Securities.	Filed herewith.
31.1	Certification of Chief Executive Officer Pursuant to Rule 13a-14(a) or Rule 15d-14(a), as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith.
31.2	Certification of Chief Financial Officer Pursuant to Rule 13a-14(a) or Rule 15d-14(a), as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith.
32	Certifications of Chief Executive Officer and Chief Financial Officer Pursuant to Rule 13a-14(b) or Rule 15d-14(b) and 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	Furnished herewith.
101	The following materials from the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, formatted in iXBRL (Inline Extensible Business Reporting Language): (i) the Condensed Consolidated Statements of Earnings (ii) the Condensed Consolidated Statements of Comprehensive Income (Loss), (iii) the Condensed Consolidated Balance Sheets, (iv) the Condensed Consolidated Statements of Equity, (v) the Condensed Consolidated Statements of Cash Flows, and (vi) Notes to Condensed Consolidated Financial Statements.	Filed herewith.
104	Cover Page Interactive Data File (embedded within the iXBRL document and contained in Exhibit 101).	Filed herewith.

TRANE TECHNOLOGIES PLC

SIGNATURES

Pursuant to the requirements 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.

TRANE TECHNOLOGIES PLC
(Registrant)

Date: November 2, 2022

/s/ Christopher J. Kuehn

Christopher J. Kuehn, Executive Vice President
and Chief Financial Officer
Principal Financial and Accounting Officer

Exhibit 22.1

List of Guarantors and Subsidiary Issuers of Guaranteed Securities

Trane Technologies plc (Plc or Parent Company) and certain of its 100% directly or indirectly owned subsidiaries provide guarantees of public debt issued by other 100% directly or indirectly owned subsidiaries of Plc. The following table shows our guarantor relationships as of September 30, 2022:

Parent, issuer or guarantors	Notes issued	Notes guaranteed
Trane Technologies plc (Plc)	None	All registered notes and debentures
Trane Technologies Irish Holdings Unlimited Company (TT Holdings)	None	All notes issued by TTFL and TTC HoldCo
Trane Technologies Lux International Holding Company S.à.r.l. (TT International)	None	All notes issued by TTFL and TTC HoldCo
Trane Technologies Global Holding Company Limited (TT Global)	None	All notes issued by TTFL and TTC HoldCo
Trane Technologies Financing Limited (TTFL)	3.550% Senior notes due 2024 3.500% Senior notes due 2026 3.800% Senior notes due 2029 4.650% Senior notes due 2044 4.500% Senior notes due 2049	All notes and debentures issued by TTC HoldCo and TTC
Trane Technologies HoldCo Inc. (TTC HoldCo)	4.250% Senior notes due 2023 3.750% Senior notes due 2028 5.750% Senior notes due 2043 4.300% Senior notes due 2048	All notes issued by TTFL
Trane Technologies Company LLC (TTC)	7.200% Debentures due 2022-2025 6.480% Debentures due 2025 Puttable debentures due 2027-2028	All notes issued by TTFL and TTC HoldCo

Exhibit 31.1

CERTIFICATION

I, David S. Regnery, certify that:

1. I have reviewed the Quarterly Report on Form 10-Q of Trane Technologies plc for the three and nine months ended September 30, 2022;
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: November 2, 2022

/s/ DAVID S. REGNERY

David S. Regnery
Principal Executive Officer

Exhibit 31.2

CERTIFICATION

I, Christopher J. Kuehn, certify that:

1. I have reviewed the Quarterly Report on Form 10-Q of Trane Technologies plc for the three and nine months ended September 30, 2022;
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: November 2, 2022

/s/ CHRISTOPHER J. KUEHN

Christopher J. Kuehn

Principal Financial Officer

Exhibit 32

Section 1350 Certifications
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code)

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code), each of the undersigned officers of Trane Technologies plc (the Company), does hereby certify that to our knowledge:

The Quarterly Report on Form 10-Q for the three and nine months ended September 30, 2022 (the Form 10-Q) of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in the Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ DAVID S. REGNERY
David S. Regnery
Principal Executive Officer
November 2, 2022

/s/ CHRISTOPHER J. KUEHN
Christopher J. Kuehn
Principal Financial Officer
November 2, 2022