MOD gideon lens

Modine Manufacturing Company (MOD) - Gideon-Lens Equity Research

Date: 2026-04-30. Analyst: Codex ER2. Current price used in the model: $233.39. Market cap from live FMP quote/profile pull during QF: approximately $12.31 billion. Fiscal year ends March 31.

VERDICT BLOCK

Verdict: PASS

Scorecard:

Gate	Result	Notes
Management	PASS	Credible transformation team, but cash conversion must prove out
Moat	YELLOW	Real thermal moat, but 2046 test remains contested
P/E <= 15 on confident EPS at TTM + 5 calendar years	FAIL	Base EPS cushion is -27.8%
Compounder Score	Audited 51 / 100	51/100; Reject under the diagnostic rubric because improved Climate economics are real, but clean ROIIC, acquisition-inclusive returns, normalized FCF conversion, and 20% underwriting are not proven.
Business Quality Score	Audited 48 / 80	48/80; Modine is an improving industrial platform, not yet a proven elite compounder, because current growth is capital hungry and moat durability is still YELLOW.
20% Return UW Score	Audited 3 / 20	3/20; at $233.39, base-case $11.23 horizon EPS at 15x implies about $168.5 of value and roughly a -6% five-year annualized return, with a 20% buy price near $67.7.

One-line thesis (or reason to pass): Modine is a real AI/data-center cooling beneficiary with credible management, but the current stock price requires bull-case Climate margins and revenue durability that the base case does not yet support.

Kill / trigger criteria:

- BUY trigger: price below roughly $168.50, or higher only if base-case horizon EPS is raised above $15.56 with evidence, not hope.
- PASS triggers: Climate/Data Centers revenue grows while Climate margin remains below 18.0% across the next two reported quarters; FY2027 free cash flow remains negative after the FY2026 capacity ramp; Gentherm RMT closing slips materially beyond calendar 2026 without clear value protection.
- Upgrade to BUY conditions: disclosed backlog and long-term agreements make the $5.057 billion Climate bull revenue case look base-like, Climate margins sustain above 20%, and free cash flow conversion normalizes while the stock still maps to <= 15x confident TTM+5y EPS.

Position sizing if bought: 0% today. If upgraded after proof and price discipline, cap at 2% of equity book because the thesis remains concentrated in data-center thermal execution and customer bargaining power.

Stage 0 - Time Anchor

Today is 2026-04-30. Modine's fiscal year ends March 31. The most recently reported quarter is Q3 FY2026, quarter ended 2025-12-31, reported on 2026-02-04 and filed on 2026-02-05. The TTM anchor is Q4 FY2025 plus Q1 FY2026 plus Q2 FY2026 plus Q3 FY2026, producing TTM ending 2025-12-31. The forward horizon is TTM end plus exactly five calendar years, or 2030-12-31. Every valuation reference to FY+5 in this report means that 2030-12-31 horizon, not a six-fiscal-year stretch from FY2025.

Stage 1 - Disqualifier Sweep

The initial disqualifier sweep did not stop the run. ROIC was yellow/green because recent returns improved with the portfolio transformation, but current cash conversion is weak during the data-center capacity ramp. FCF conversion was yellow because the DR-reviewed data package replaced the initial FMP-derived positive TTM FCF language with company-release evidence of roughly negative $20.3 million, so the conversion question remains open. Net debt/EBITDA was green/yellow: leverage is not excessive, but the balance sheet is carrying ramp and transaction complexity. End markets are green/yellow because data-center cooling demand is structurally strong, while commercial vehicle and legacy Performance Technologies exposures are more cyclical. Governance is yellow but acceptable: no dual class, independent chair, and no unresolved related-party problem, offset by prior IT-control remediation history and insider-selling optics. AI disruption exposure is green because Modine sells into AI infrastructure rather than being replaced by it. Pricing power is yellow/green: qualified thermal engineering and capacity commitments matter, but hyperscaler and OEM customers have bargaining power.

Management

Management clears the Gideon gate. The Brinker/Lucareli team has a credible multi-year transformation record: portfolio simplification, margin expansion, data-center growth, and a coherent pivot toward higher-growth Climate applications. Capital allocation is consistent with the strategy: capacity for data centers, Climate acquisitions, the pending Performance Technologies/Gentherm Reverse Morris Trust, and no dividend distraction. Compensation is reasonably aligned, with adjusted EBITDA growth/margin and multi-year cash-flow ROI both relevant to incentives. Governance is clean enough, with an independent chair, independent non-CEO directors, no dual-class structure, and no unresolved related-party concern in the reviewed proxy. The pass is not blind. The main watch item is cash conversion during the current ramp; management's explanation of inventory, capex, acquisitions, and timing is plausible, but the numbers still need to normalize. The FY2024 IT-control material weakness was remediated by FY2025, but it remains a monitor because the company is scaling and reorganizing around a cleaner Climate/data-center profile.

Moat

The moat gate is YELLOW, not PASS. Climate Solutions has a real moat in mission-critical thermal engineering, customer-qualified capacity, and high-trust procurement, especially in data-center cooling. The evidence is visible in Climate growth, margin improvement, product breadth across air, liquid, and hybrid thermal systems, and management commentary on order intake and long-term agreements. However, this is not software-like unilateral pricing power. Data-center buyers are sophisticated, concentrated, and capable of qualifying multiple suppliers. Larger competitors are moving aggressively across thermal management, liquid cooling, power, service, and rack-level ecosystems. The 2046 test is plausible but not settled: Modine could be a focused climate and thermal-management supplier to data infrastructure, commercial HVAC, and industrial heat-transfer markets, but the architecture of data-center cooling can shift over twenty years. The moat is strong enough to keep Modine on a watch list, but not strong enough to overcome a failed valuation gate at today's price.

Stage 5 Synthesis

The synthesis passed 11 of 11 arithmetic tie-outs, but the price gate failed. The central modeling boundary is the pending Gentherm RMT. Reported TTM includes both Climate Solutions and Performance Technologies, but the continuing-MOD horizon model excludes Performance Technologies revenue and operating income if the RMT closes. The standalone PT case is preserved only as a failed-RMT sensitivity, which prevents double-counting. On that continuing-company close case, Climate is the operating engine.

Case	Revenue	OI	NI	EPS	EPS x 15	vs. $233.39
Bear	$2.636B	$0.419B	$0.270B	$5.11	$76.7	-67.1%
Base	$3.861B	$0.807B	$0.590B	$11.23	$168.5	-27.8%
Bull	$5.057B	$1.222B	$0.909B	$17.38	$260.7	+11.7%
Probability-weighted	n/m	n/m	n/m	$10.62	$159.4	-31.7%

The base case assumes strong execution: Climate revenue rises to $3.861 billion, Climate segment margin reaches 22.4%, and Climate segment operating income reaches $866 million before retained corporate expense. After retained corporate cost, normalized interest, tax, and explicit share-count math, base EPS is $11.23. At $233.39, the required TTM+5y EPS for a 15x P/E is $15.56, leaving a negative 27.8% cushion. The bull case clears, but it requires $5.057 billion of Climate revenue, 25.3% Climate segment margin, lower interest expense, and clean execution. ER2 underwriting cannot treat that as the

confident case without more evidence. The failed-RMT sensitivity, which keeps PT, improves base EPS to about $12.72, still below the required $15.56. The verdict is therefore not an artifact of excluding PT.

Red Team

The red team agrees with the PASS direction. The strongest bear argument is that Modine can be a genuine AI data-center cooling winner and still fail as a stock if hyperscaler buyer power, architecture churn, and peer capacity turn revenue growth into lower-than-modeled margin and cash conversion. The most fragile base assumption is Climate's 22.4% horizon segment margin, especially the 24.0% assumed product margin on $2.759 billion of data-center revenue. The most optimistic Stage 5 number is bull EPS of $17.38, because it requires the full bull Climate revenue and margin stack plus lower interest and smooth execution. The clearest exit signal is margin conversion: if the next two reported quarters show strong Climate/Data Centers revenue but Climate operating margin remains below 18.0%, the thesis is failing in the way that matters.

Kill / Trigger Criteria

- Buy only below roughly $168.50 on the current base-case EPS path, or after updated evidence raises base-case EPS above $15.56 while the share price still leaves a positive cushion.
- Upgrade if Data Centers backlog, long-term agreements, and segment disclosure make $5 billion-plus Climate revenue a base case rather than a bull case.
- Upgrade if Climate margins sustain above 20% while capex and working capital normalize into positive free cash flow.
- Maintain PASS if Climate revenue is strong but margin remains below 18% across the next two reported quarters.
- Maintain PASS if FY2027 free cash flow remains negative after capacity commissioning, because that would undercut the quality-compounder framing.

Analyst Flags

QF initially cleared with two errors that QFR caught: Q3 FY2026 operating income needed the SEC 10-Q value of $89.3 million rather than FMP's $96.8 million, and FY2026 product labels needed to preserve Heavy-duty equipment and On-highway applications rather than relabeling them. QF was repaired and QFR then cleared. DR also made targeted data-package edits, including distinguishing Q4 FY2025 PT external sales from segment sales and replacing initial TTM FCF language with company-release evidence of roughly negative $20.3 million. The Climate appendix has acceptable data gaps around exact Q4 FY2025 product split and Heat transfer/HVAC quarterly dollars. The moat appendix was written before final segment peer reviews, but its gate remained conservative at YELLOW and is directionally consistent with the reviewed segment work. The final report should be used as a watch-list screen, not a buy recommendation.

Appendix A - Company Primer

Modine Manufacturing Company (MOD) - Appendix A: Company Primer

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Stage 0 Anchor

Today is 2026-04-30. Modine Manufacturing Company has a fiscal year ending March 31. The latest reported quarter is Q3 FY2026, ended 2025-12-31 and reported/filed on 2026-02-04/2026-02-05. The TTM anchor is Q4 FY2025 plus Q1 FY2026, Q2 FY2026, and Q3 FY2026, producing TTM ending 2025-12-31. The forward horizon for all FY+5 references is TTM end plus five calendar years, or 2030-12-31. This primer uses the quantitative foundation as the controlling source for historical financials and uses live SEC, FMP, transcript, and investor-relations source files saved under `raw/primer_20260430/` for qualitative support.

Source Discipline and Data Caveats

The controlling financial source for this primer is `quant_foundation.md`, which reconciles live FMP pulls to SEC filings and reports `RECONCILIATION: 8/8 checks PASSED`. It documents several important source exceptions. FMP's current product segmentation endpoint only shows current `Data Centers` rows for Q1-Q3 FY2026, while the annual endpoint is stale and only returns old FY2013-FY2018 product rows. FMP also overstated Q3 FY2026 operating income versus the SEC 10-Q; the official SEC value controls. Therefore, segment and product numbers in this primer use the reconciled quantitative foundation, not the stale FMP product endpoint. For qualitative support, this appendix used fresh live source pulls saved in `raw/primer_20260430/`, including the FY2025 10-K, Q3 FY2026 10-Q, Q3 FY2026 8-K, Q3 FY2026 FMP earnings-call transcript, SEC submissions/companyfacts, FMP profile/quote/financial endpoints, and the February 2026 investor fact sheet.

One live-source limitation should travel with the primer. The direct HTML download of the Modine investor-relations Q3 FY2026 results page failed twice with a Cloudflare JavaScript/cookie challenge. Per the live-fetch rule, the identical call was retried once and then flagged; the primer did not substitute a cached copy. The live SEC 8-K Q3 FY2026 results exhibit, the live FMP Q3 FY2026 transcript, and the live February 2026 investor fact sheet were available and are sufficient for the qualitative points made here.

Business Overview

Modine is a thermal-management engineering and manufacturing company. The simplest way to understand the business is this: customers have equipment, buildings, vehicles, or data centers that generate heat, need controlled air quality, or must meet energy, emissions, and reliability standards. Modine designs and manufactures systems, modules, coils, exchangers, coolers, heaters, and related controls that move heat away from where it is harmful and toward where it is useful. The company traces its roots to 1916 in Racine, Wisconsin, where Arthur B. Modine built a heat-transfer business around radiators and unit heaters. The company now operates across four continents, in 16 countries, with roughly 11,300 employees according to the FY2025 10-K text extract in `raw/primer_20260430/SEC_10K_2025_live.htm.txt`.

The customer set is industrial rather than consumer. Modine sells to developers and operators of data centers, hyperscale cloud and colocation customers, commercial HVAC and refrigeration OEMs, distributors and contractors, school and healthcare facility operators, power-generation customers, agricultural and construction equipment OEMs, truck and bus OEMs, automotive and specialty vehicle OEMs, and industrial end users. Its products are generally bought as engineered systems, components, or program-specific modules, not as low-touch catalog purchases. A customer often needs Modine to engineer to an application, validate performance, help manage energy/water usage, support reliability requirements, and in many cases coordinate around a long production ramp or customer-owned tooling.

That matters for the investment case because Modine is neither a pure commodity component maker nor a pure software-like growth company. It is a manufacturing business with real material, labor, factory, working-capital, and warranty risk. But it also owns application-specific thermal know-how, customer relationships, validation capabilities, and manufacturing processes that are difficult to replicate quickly in mission-critical settings. Its current transformation is an attempt to steer that manufacturing base toward higher-growth, higher-margin, more differentiated thermal applications, especially data center cooling and commercial HVAC/indoor-air-quality products, while deemphasizing lower-return vehicular and automotive exposures.

Revenue Architecture

Modine reported two operating segments through the Q3 FY2026 period: Climate Solutions and Performance Technologies. FY2025 consolidated external sales were $2,583.5 million. Climate Solutions generated $1,440.6 million of external sales, or 55.8% of total, and $248.4 million of operating income, a 17.2% margin on external sales. Performance Technologies generated $1,142.9 million of external sales, or 44.2% of total, and $108.0 million of operating income, a 9.4% margin on external sales. On a TTM basis ending 2025-12-31, the mix had already shifted further toward Climate: Climate Solutions revenue was $1,749.7 million, or 60.9% of consolidated TTM sales, while Performance Technologies revenue was $1,124.2 million, or 39.1%. Segment operating income on that TTM base was $273.8 million for Climate and $111.9 million for Performance, before a corporate/eliminations/other bridge of negative $72.7 million to consolidated operating income of $313.0 million.

Climate Solutions is the growth engine and the future shape of the company if the announced Performance Technologies separation closes. The segment contains data center cooling, heat transfer products, and HVAC&R/HVAC technologies. FY2025 product revenue in Climate was $644.2 million from data center cooling, $402.9 million from heat transfer, and $393.5 million from HVAC&R. In Q1-Q3 FY2026, the product labels changed in the SEC 10-Q to Data centers, Heat transfer solutions, and HVAC technologies; the year-to-date values were $710.1 million, $422.4 million, and $260.9 million, respectively. The data center line has become the main mix-shift driver. It includes precision air conditioning units, CRAC and CRAH units, fan coils, fan walls, chillers, condensers, condensing units, controls, maintenance, replacement parts, coolant distribution units, and immersion/liquid-cooling solutions for high-density compute environments. The customer problem is direct and urgent: cloud and AI workloads raise power density, power usage, water usage, and uptime requirements, and cooling is a constraint on data center buildouts.

Heat Transfer Products is a more mature industrial/HVAC component business. It sells heat exchanger coils and anti-corrosion coating products and services into HVAC&R markets across North America, Europe, and Asia. This line benefits from energy-efficiency and refrigerant-transition requirements, but it can also face cyclical weakness in residential/commercial HVAC and specific end-market softness, such as European heat-pump delays. The product is engineered and important, but the growth profile is not as explosive as data center cooling.

HVAC Technologies includes heating, indoor air quality, refrigeration, and industrial power/process products. Customers include mechanical contractors, HVAC wholesalers, installers, end users, school and healthcare buyers, commercial and industrial refrigeration customers, and industrial OEMs. The segment has been built through both legacy products and acquisitions. In FY2026 year-to-date, acquisitions contributed meaningfully to HVAC Technologies growth. The Q3 FY2026 10-Q states that Modine acquired AbsolutAire, L.B. White, and Climate by Design in the first and second quarters of FY2026, all inside Climate Solutions. Their annual sales run-rates were approximately $25 million, $75 million, and $45 million, respectively, and the company also integrated Scott Springfield, acquired in March 2024, into the data-center/indoor-air-quality platform.

Performance Technologies historically housed air-cooled applications, liquid-cooled applications, and advanced solutions. In the Q3 FY2026 10-Q, current product labels are Heavy-duty equipment and On-highway applications. The 9M FY2026 values were $300.9 million for Heavy-duty equipment and $532.4 million for On-highway applications. The business sells heat exchangers, engine-cooling modules, charge-air coolers, radiators, condensers, cooling module generator sets, engine oil coolers, EGR coolers, battery thermal-management systems, electronics cooling packages, battery chillers, cooling plates, and related solutions for commercial vehicles, off-highway equipment, construction and mining equipment, power generation, buses, specialty vehicles, and zero-emission or hybrid platforms. It is still a real business, but its end markets have been weaker, its margin profile is lower than Climate, and management has now agreed to spin it and combine it with Gentherm in a Reverse Morris Trust transaction.

Geographically, Modine is global but not evenly global. The FY2025 10-K states that the company operates in North America, South America, Europe, and Asia, with manufacturing and technical resources in the United States, Canada, Mexico, Brazil, Germany, Hungary, Italy, the Netherlands, Serbia, China, India, South Korea, and the United Arab Emirates. Climate Solutions had 22 manufacturing facilities at FY2025 year-end, Performance Technologies had 19, and the company also operated four coatings facilities. The most important current geographic theme is not just revenue by region; it is capacity placement. Data center customers are expanding globally and require local or regional manufacturing capacity, while Modine is adding data-center production lines in the United States and maintaining established capabilities in the UK/Europe through Airedale and related assets.

How Customers Buy

Modine sells through a mix of direct OEM/program relationships, engineered project relationships, and distributor/channel relationships depending on the product group. Data center cooling is primarily a strategic direct-sales and project business. Hyperscale and colocation customers care about technology road maps, capacity assurance, reliability, energy and water efficiency, service support, and speed of deployment. On the Q3 FY2026 call, management described customers increasingly discussing long-term supply agreements and capacity commitments. That is economically important: when a customer asks a supplier to build capacity ahead of demand, the supplier wants evidence that orders will arrive; when the customer expects a supplier to reserve capacity, the customer wants assurance that the supplier can finance, staff, and ramp production without quality failure.

HVAC and refrigeration products use more traditional OEM, contractor, wholesaler, installer, and end-user channels. Heating products such as unit heaters, makeup-air units, duct furnaces, and infrared units can move through wholesalers and installers, while school/commercial indoor-air-quality products can be sold through contractors and project channels. Heat transfer coils are sold to OEMs and distributors. Performance Technologies is more programmatic, with commercial-vehicle, off-highway, industrial, automotive, and power-generation OEMs buying components and modules against vehicle or equipment production programs. These programs may include customer-owned tooling, engineering support, validation work, and pricing mechanisms tied to material inputs.

Unit Economics

A dollar of Modine revenue starts as an engineered sale, but it becomes operating profit only after material input, labor, overhead, freight, warranty, factory utilization, SG&A, and program execution are controlled. The core cost inputs include aluminum, copper, steel, stainless steel and nickel-containing materials, purchased components, labor, and logistics. The FY2025 10-K risk disclosures are explicit that material-cost recovery can lag. Some contracts include prospective price adjustment provisions tied to raw materials, but there can be a three-month to one-year lag before those adjustments flow through. That means reported margins can temporarily compress when copper, aluminum, steel, tariffs, or freight costs rise faster than pricing mechanisms recover them.

Climate Solutions has the better structural unit economics, but the near-term picture is not linear. In FY2025, Climate earned 17.2% operating margin on external sales. On a TTM basis through 2025-12-31, Climate operating income was $273.8 million on $1,749.7 million of revenue, a 15.6% margin. The decline versus FY2025 is not because demand disappeared; it reflects the cost of scaling rapidly. The Q3 FY2026 10-Q states that Climate gross margin declined because of temporary operating inefficiencies associated with rapid expansion of data-center manufacturing capacity and higher raw material costs. The Q3 transcript adds operating color: management commissioned new chiller lines and launched or prepared production in Jefferson City, Grenada, Dallas, and Franklin while carrying fixed costs ahead of full utilization. If those lines fill with data center volume, the same fixed-cost headwind can become operating leverage. If orders slip, mix shifts unfavorably, or the lines underperform, the fixed-cost burden remains.

Data center cooling is the highest-conviction growth vector inside Climate, but it is still manufacturing. The attractive side is product criticality, customer urgency, customization, possible long-term supply agreements, service and replacement parts, and potential pricing power from energy/water efficiency. The less attractive side is that Modine must fund capacity before all revenue is realized. TTM free cash flow was only $7.4 million versus TTM net income of $97.8 million, primarily reflecting capex and working-capital demands during the ramp. The Q3 call indicated FY2026 capex expectations of $150 million to $180 million, much higher than FY2025 capital expenditures of $84.0 million in the 10-K segment table. For a primer reader, the takeaway is simple: data center cooling can lift revenue and margins, but it temporarily consumes cash.

Heat Transfer Products and HVAC Technologies have more mixed unit economics. They can benefit from energy-efficiency regulation, replacement cycles, indoor-air-quality demand, corrosion-resistant coatings, and acquired product lines. They are also exposed to distributor inventory, residential/commercial construction cycles, European heat-pump adoption timing, material-cost lags, and normal seasonality. Management's Q3 call commentary suggested non-data-center Climate businesses remain healthy in HVAC and indoor-air-quality orders, while Heat Transfer Solutions has seen some margin pressure from material spikes and delayed price recovery.

Performance Technologies has lower reported margin but meaningful improvement potential from cost actions. FY2025 operating margin was 9.4%; TTM margin was roughly 10.0%. The Q3 FY2026 transcript said Performance Technologies adjusted EBITDA margin improved despite weak volumes, helped by cost reductions, labor/overhead/material efficiencies, tariff recovery surcharges, pass-through mechanisms, and lower SG&A after reorganization. The problem is not that the business lacks engineering content. It is that end markets such as heavy-duty equipment, on-highway vehicles, agriculture, construction, and parts of automotive are cyclical, customer concentrated, and often price-sensitive. That is why management

is separating the business rather than asking the market to value Modine as a mixed data-center/HVAC plus vehicular thermal supplier.

Growth Drivers

The main growth driver is AI and high-performance-computing infrastructure. In the FY2025 10-K, Modine states that data center growth is being fueled by artificial intelligence and high-performance computing, which increase heat loads and the need for high-density cooling solutions such as hybrid and liquid cooling. The Q3 FY2026 transcript is more specific: Climate Solutions revenue grew 51% in Q3, organic segment revenue grew 36%, and data center sales grew 78%. Management also said Modine was on track for more than $1 billion of data center sales in FY2026, had capacity expansion intended to support $2 billion of data center sales by FY2028, and had updated data center expectations to 50% to 70% annual revenue growth over the next two years. Those statements are forward-looking and should be treated as management targets, not audited facts, but they explain why the market has re-rated the company.

The second driver is portfolio focus. Modine has been using 80/20 principles to focus on higher-return products, customers, and markets. In practice, that has meant acquisitions in Climate, divestitures of non-core automotive businesses, facility rationalization, product-line transfers, and pricing discipline. The FY2025 10-K says the company has simplified and re-segmented its organization since late FY2021 and aligned resources around market-based verticals. The announced Gentherm transaction is the largest portfolio step. Modine plans to spin off Performance Technologies and combine it with Gentherm, with Modine shareholders receiving approximately 40% of the combined company and Modine receiving approximately $210 million of cash before closing, subject to adjustment. The transaction value is described as approximately $1.0 billion and is expected to close by the end of calendar 2026, subject to approvals and conditions. If completed, Modine becomes a purer Climate Solutions company focused on data centers, commercial HVAC, refrigeration, and related technologies.

The third driver is HVAC and indoor-air-quality consolidation. Modine acquired AbsolutAire, L.B. White, and Climate by Design during FY2026 and had previously acquired Scott Springfield. These deals add direct-fired heating, specialty heating, desiccant dehumidification, critical process air handlers, and air-handling units. They also broaden customer access beyond data centers. This matters because a pure data-center story could become too narrow; HVAC/IAQ acquisitions may give Modine a second Climate growth leg with different cycles and margin characteristics.

The fourth driver is power and water efficiency. Data center customers increasingly focus on power usage effectiveness and water usage effectiveness. Management argued on the Q3 call that higher-temperature liquid loops can help Modine because they may reduce the energy required for mechanical cooling and make free-cooling/hybrid designs more valuable. Modine also launched a 3-megawatt turbo chilled chiller platform aimed at high-density next-generation GPU-powered data centers. The key analytical point is that Modine's pitch is not merely more capacity; it is cooling capacity that can reduce operating cost and resource usage for customers.

Competitive Position

Modine competes with many heat-transfer and HVAC&R manufacturers, including divisions of larger companies and suppliers with lower-cost geographies. It does not have monopoly economics. The competitive advantage, if it exists, comes from engineering history, qualification with demanding customers, product breadth, ability to customize at scale, technology centers, manufacturing footprint, and the trust required for mission-critical thermal systems. The FY2025 10-K notes that customers often ask Modine and other primary suppliers to provide R&D, design, and validation support for new projects, and that this work can deepen relationships. The company also emphasizes technology centers in Racine, Grenada, Allen, Leeds, Pocenia, Soderkoping, Mezokovesd, and Sao Paulo.

Customer concentration is material. The FY2025 10-K states that the top ten customers represented 43% of net sales, and the top five were in data center, commercial vehicle, and off-highway markets. This concentration cuts both ways. On the positive side, large data center customers can drive long volume runways and long-term agreements. On the negative side, a lost customer, delayed customer capex plan, failed field trial, or customer-specific design shift can hit revenue quickly. The Q3 transcript indicated that current data center demand is increasingly tied to existing large relationships, hyperscale customers, record order intake, and movement of opportunities through the probability funnel. That is encouraging, but the primer reader should remember that a small number of sophisticated buyers can also pressure pricing, demand capacity commitments, and shift specifications.

Corporate Actions and Near-Term Shape of the Company

The proposed Gentherm Reverse Morris Trust transaction is central to understanding Modine today. The Q3 FY2026 10-Q states that Modine and Gentherm entered definitive agreements in January 2026 under which Modine will spin off and combine Performance Technologies with Gentherm. Modine will retain Climate Solutions, creating a pure-play climate solutions company focused on data center and commercial HVAC and refrigeration markets. Modine shareholders are expected to receive newly issued Gentherm stock representing about 40% of the combined company, and Modine expects $210.0 million of cash proceeds immediately before closing. The transaction is intended to be generally tax-free for U.S. federal income tax purposes and expected to close by the end of calendar 2026, subject to Gentherm shareholder approval, regulatory approvals, and other conditions.

This means any forward analysis must be careful about the base business. The historical MOD includes both Climate Solutions and Performance Technologies. The strategic MOD that management wants investors to underwrite is increasingly a Climate business with data center and commercial HVAC segments. On the Q3 call, management said that beginning with Q1 of the new fiscal year, reporting would move toward three segments: data center, commercial HVAC, and Performance Technologies until the transaction closes. That future reporting structure should improve visibility into the economics of data center cooling versus the rest of Climate.

Balance Sheet, Cash Flow, and Capital Intensity

The quant foundation gives the cleanest financial base. Latest balance sheet items as of 2025-12-31 include cash and equivalents of $98.9 million, total debt of $867.1 million, and net debt of $768.2 million. TTM operating cash flow was $136.3 million, capex was $128.9 million, and free cash flow was only $7.4 million. That weak FCF conversion is a yellow flag rather than an automatic disqualifier because the company is deliberately investing in capacity, inventory, acquisitions, and restructuring to support data center growth. Still, it is analytically important: the story cannot be judged only on adjusted EBITDA or revenue growth. The company must eventually convert the data center ramp into cash after working-capital and capex normalize.

The Q3 call framed cash usage as temporary and tied to inventory builds, capex, acquisitions, and pension/restructuring payments, with management expecting positive free cash flow in Q4 and improvement next year. The primer should not treat that as guaranteed. The relevant questions for downstream work are whether the new data center capacity reaches utilization, whether customer order intake becomes binding enough to reduce volume risk, whether the Gentherm cash proceeds reduce leverage or fund more Climate acquisitions, and whether Modine can keep raising margins while expanding at speed.

Risk Map for a First-Time Reader

The first risk is capacity execution. Modine is adding the largest capacity expansion in its history, especially for data center products. Ramp inefficiencies already reduced Climate gross margin in Q3 FY2026. If new lines are delayed, labor is not trained, suppliers miss, quality issues emerge, or product mix changes faster than lines can adapt, margins and cash flow can disappoint even while demand remains strong.

The second risk is data center cyclicality hidden inside secular growth. AI capex is large today, but data center builds can be lumpy. Hyperscalers and colocation customers are powerful buyers. If projects are delayed, if liquid cooling architecture evolves away from Modine's strengths, if in-house or competing suppliers gain share, or if long-term agreements do not materialize, the current growth expectations can compress quickly. Management argues that Modine has full-solution breadth, efficient products, and flexible lines, but this must be verified through backlog, revenue conversion, margins, and cash.

The third risk is customer concentration. Top-ten customers at 43% of FY2025 net sales means large wins and losses matter. A capacity reservation is valuable only if it turns into profitable deliveries. A major data center customer that changes specification or delays purchase orders can have a disproportionate effect.

The fourth risk is commodity, tariff, and pricing lag. Modine has price adjustment mechanisms in some contracts, but recovery can lag by months. The Q3 call and filings both mention material costs, tariff recovery, and pass-through timing. That means gross margin should be monitored through input-cost cycles, not only through volume.

The fifth risk is transaction complexity. The Gentherm transaction is strategically sensible if it sharpens Modine's Climate focus and realizes value for Performance Technologies. It also brings execution costs, regulatory approvals, shareholder approval at Gentherm, advisory/legal/accounting costs, stranded-cost questions, and potential distraction. The Q3 10-Q estimates transaction-related fees and costs of roughly $30 million to $40 million.

The sixth risk is financial presentation. Adjusted EBITDA is useful, but the QF shows weak TTM FCF because of capex and working capital. Q3 FY2026 also included a $116.1 million non-cash pension termination charge, causing reported net income

and EPS to look worse than adjusted earnings. A rigorous model should separate operating run-rate from one-time charges while refusing to ignore cash consumption.

What to Watch Next

The key operating metric is not just consolidated sales; it is data center revenue conversion at improving margin. Watch Q4 FY2026 and FY2027 disclosures for data center revenue, Climate/Data Center margin, capacity utilization, order intake, backlog or long-term agreements, and whether the company reaches the Q4 margin recovery management described. Watch free cash flow as capacity investments crest. Watch whether acquisitions in HVAC/IAQ integrate cleanly and contribute margin rather than simply revenue. Watch Performance Technologies until the Gentherm transaction closes because it remains part of consolidated results and absorbs management attention.

For the ER2 process, the primer conclusion is that Modine is a real industrial transformation, not a simple cyclical recovery. The base business has become more attractive as Climate Solutions grows, data center cooling scales, and lower-return vehicular exposure is prepared for separation. The bear case is equally clear: the market may already be capitalizing a very aggressive data-center ramp, while current free cash flow is thin and margins are temporarily burdened by capacity investment. Downstream appendices should therefore focus less on whether data center cooling demand exists and more on whether Modine's specific revenue, margin, capacity, and cash conversion path can support the valuation at the 2030-12-31 horizon.

Key Source Files

- Financial control source: `C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\quant_foundation.md`.
- Live primer source log: `C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\raw\primer_20260430\source_log.md`.
- FY2025 10-K live SEC extract: `raw/primer_20260430/SEC_10K_2025_live.htm.txt`.
- Q3 FY2026 10-Q live SEC extract: `raw/primer_20260430/SEC_10Q_2025-12-31_live.htm.txt`.
- Q3 FY2026 results 8-K live SEC extract: `raw/primer_20260430/SEC_8K_Q3_FY2026_results_live.htm.txt`.
- Q3 FY2026 FMP transcript: `raw/primer_20260430/MOD_q3_fy2026_transcript_live.txt`.
- February 2026 investor fact sheet: `raw/primer_20260430/IR_Fact_Sheet_February_2026_live.txt`.

Appendix M - Management Assessment

Modine Manufacturing Company (MOD) - Management Assessment

Date: 2026-04-30 Sub-agent: M - Management Assessment Primary output: `C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\appendix_management.md` Management gate: **PASS**

Source Discipline

This appendix uses live pulls only. Primary evidence came from the live SEC submissions feed and live SEC filings saved in `raw\management_20260430`, including the 2025 proxy statement, FY2025 10-K, SEC recent filing index, FMP key-executive and executive-compensation endpoints, FMP insider-trading endpoint, and eight FMP earnings-call transcripts from FY2024 Q4 through FY2026 Q3. Capital allocation history and recent corporate actions are taken from the already-reviewed `data_package.md` Sections 7 and 9 as instructed, not re-fetched. Official Modine IR pages for the Brinker appointment, Lucareli CFO promotion, Jeremy Patten appointment, Art Laszlo promotion, Performance Technologies leadership change, and the March 2025 repurchase authorization were accessed live through the browser/web path; direct PowerShell downloads were blocked by Cloudflare, and that exception is logged in `raw\management_20260430\web_source_log.md`.

The core question is whether this management team clears Gideon's 20-year compounder bar: credible capital allocation, owner-like incentives, clean governance, and enough candor to follow the team through a large capacity cycle. Modine clears that gate, but not without monitoring. The team has created real value since late 2020 by repositioning Modine from an old-line thermal components company toward a higher-growth climate/data-center thermal management business. The current execution burden is high: management is adding data-center capacity across multiple sites, integrating recent HVAC acquisitions, spinning/combining Performance Technologies with Gentherm, and trying to convert a temporarily cash-consuming growth ramp back into normalized free cash flow. That burden does not disqualify the team, because the same people have already demonstrated discipline in exiting lower-return assets, lifting margins, and tying compensation to return and cash-flow metrics. It does, however, make free cash flow normalization and clean segment reporting the first watch items.

1. Who Is Running The Company

CEO. Neil D. Brinker has been President and Chief Executive Officer since December 2020 and has served on the board since 2020. The live FY2025 10-K identifies him as President and CEO from December 2020 to present, after serving as President and COO and earlier EVP/COO at Advanced Energy. The 2025 proxy adds prior leadership roles at IDEX and Danaher, plus operations roles at General Motors. This background matters: Modine's current strategy is not a generic growth pitch, but an 80/20 industrial transformation that fits Brinker's prior operating playbook. He owns the 2021 "new Modine" pivot, the move to market-based verticals, the data-center capacity acceleration, the Scott Springfield acquisition and related data-center push, the separation of lower-return automotive exposure, and the 2026 Gentherm Reverse Morris Trust transaction for Performance Technologies.

CFO. Michael B. Lucareli is Executive Vice President and Chief Financial Officer. The FY2025 10-K lists him as EVP/CFO since May 2021 and previously Vice President, Finance and CFO from July 2010 to May 2021. Modine's 2021 official CFO promotion release says he also leads Business Development, Finance, Accounting, Treasury, Tax, Audit, and IT functions, and that he was executive sponsor for the company-wide 80/20 initiative. Lucareli is therefore not a newly installed finance chief; he is a long-tenured insider with explicit ownership of finance, business development, and the operating transformation. That is a positive for continuity, but it also means the capital-allocation record should be attributed to him, not excused as legacy inheritance.

Segment leadership. Eric S. McGinnis has been President, Climate Solutions since April 2022 after joining Modine in August 2021. The 2025 10-K notes his prior role as President, Industrial Systems at Regal Beloit. FMP's live executive endpoint also lists Arthur Laszlo Jr. as President of Data Centers and Jeremy Patten as President of Performance Technologies. Official Modine IR confirms both changes after the 2025 10-K: Patten joined as President, Performance Technologies on September 29, 2025, after leadership roles at ATS, IDEX, Danaher, and the U.S. Army; Laszlo was promoted effective April 1, 2026 to lead the newly created Data Centers segment. The Laszlo promotion is important because the data-center ramp is now too large to sit buried inside a broad Climate Solutions segment. McGinnis remains relevant for the rest of Climate Solutions, but the operating gate on the biggest growth driver has shifted to Laszlo and the newly reported Data Centers segment.

Board oversight. Marsha C. Williams has served as independent Chairperson since October 2020 after serving as Lead Director from July 2013. The 2025 proxy says all current directors other than Brinker are independent under NYSE standards. That produces a clean governance structure: CEO on the board, but not board chair; independent chair with long governance experience; majority independent board; Audit, Human Capital and Compensation, Governance, and Technology committees with delegated oversight. The proxy also describes annual director/officer questionnaires and legal review for potential related-party transactions. There is no dual-class structure, no founder control, and no obvious board capture by management.

The board is not flawless. Several directors are long tenured, and the company is in a strategic transition where independent challenge matters. The proxy's independence statement and separate chair are enough for a PASS, but the board will need to prove that it can challenge management if data-center demand, capacity utilization, or Gentherm transaction assumptions change.

2. Tenure And Track Record

Brinker has been CEO for more than five years as of April 2026. That is long enough to own the current strategy and the observed financial record. It is no longer credible to describe Modine's transformation as a new-CEO setup or a legacy recovery. The company first announced its "new Modine" vision in late FY2021; by FY2025 the 10-K says Modine had simplified and re-segmented the organization, aligned resources around market-based verticals, and applied 80/20 principles to focus on the highest-growth and best-return opportunities.

The first major decision was the 80/20 transformation and portfolio simplification. The data package shows FY2025 revenue of $2.588 billion versus $1.808 billion in FY2021, with segment mix shifting toward Climate Solutions. The 2025 proxy highlights FY2025 adjusted EBITDA of $392 million, up 25%, and free cash flow of $129 million for that fiscal year. The 2025 10-K's indexed return table shows a $100 investment in Modine on March 31, 2020 valued at $2,361.54 by March 31, 2025, far ahead of the Russell 2000 and S&P MidCap 400 Industrials indexes in the same table. Share-price performance is not management quality by itself, but in this case it coincides with operating progress: mix upgrade, segment margin improvement, divestitures, and a coherent resource-allocation shift.

The second major decision was concentrating capital behind data-center cooling and Climate Solutions. FY2025 Climate Solutions sales increased 30%, and the proxy says data-center cooling sales rose 119% to $644 million. The data package records Climate Solutions FY2025 revenue of $1.445 billion and operating income of $261.1 million, up from $965.5 million and $144.6 million in FY2023. The company acquired Scott Springfield in March 2024, completed additional FY2026 acquisitions in AbsolutAire, L.B. White, and Climate by Design, and is expanding production lines across Jefferson City, Grenada, Dallas/Grand Prairie, Franklin, Chennai, the U.K., and other sites. This is a real capital-allocation bet, not a narrative pivot.

The third major decision was actively exiting or separating lower-fit assets. Modine sold three automotive businesses in Germany in FY2024, launched a process around remaining automotive exposure, and in January 2026 announced a Reverse Morris Trust transaction that would combine Performance Technologies with Gentherm. The data package states that the RMT values the transaction at approximately $1.0 billion, includes an expected $210 million cash distribution to Modine, and leaves Modine shareholders with about 40% of the combined company. On the Q3 FY2026 call, Brinker framed the move as a way to accelerate Modine into a pure-play climate solutions company while allowing shareholders to retain participation in the separated business. This is exactly the kind of portfolio pruning Gideon wants to see, provided management does not overpay for the next wave of growth.

The weakest part of the record is cash conversion during the current ramp. The data package flags FY2026 nine-month free cash flow of negative $47.4 million and a TTM discrepancy between FMP-derived and company-reported cash flow. Management's explanation is plausible: inventory prebuild, elevated capex, acquisitions, and pension-related cash payments. Lucareli answered the Q3 FY2026 working-capital question directly, saying working capital had been running around 19%-20% of sales and that inventory and capex would trend down rather than snap back. That is candid, but it is still a forecast. The management gate passes because the team has earned trust through the transformation, but the investment case cannot ignore the possibility that data-center growth remains capital hungry longer than management expects.

3. Capital Allocation Behavior

The five-year capital allocation record from the verified data package is clear. Capex rose from $32.7 million in FY2021 to $84.0 million in FY2025, with capex/revenue moving from 1.8% to 3.3%. R&D as separately presented in the data package declined from $46.3 million in FY2021 to $34.9 million in FY2025, though Modine reports much product development and

engineering activity inside operating expenses rather than as a clean R&D line. Dividends were zero in each of the five years, which is appropriate for a company repositioning its portfolio. Buybacks were modest early and became more visible in FY2024 and FY2025: $13.3 million in FY2024 and $30.9 million in FY2025, plus the FY2025 10-K notes a March 2025 board authorization to repurchase up to $100 million of common stock.

The buyback program looks discretionary rather than mechanical. Modine did not use dividends or buybacks as the central capital return story. The March 2025 official IR release explicitly tied repurchases to business needs, share price, trading volumes, market conditions, balance sheet strength, and flexibility for organic and inorganic growth. That is the right language; the follow-through needs monitoring because the stock re-rated sharply and repurchasing at inflated prices could destroy value. To date, the dollars are small relative to the market capitalization and the company has prioritized capacity and M&A.

M&A has been strategic and mostly consistent with management's stated portfolio direction. Scott Springfield expanded data-center air handling and commercial HVAC capability. AbsolutAire, L.B. White, and Climate by Design widened HVAC Technologies and heating/ventilation exposure. TMGcore added liquid immersion cooling technology. The Gentherm RMT moves the remaining Performance Technologies asset toward a better industrial home. This is not serial acquisition for reported growth. The pattern is to buy or build around climate/data-center thermal solutions and exit assets that do not fit the target portfolio. The open risk is integration: FY2026 has multiple acquisitions plus greenfield/expanded production lines plus a major corporate transaction. Even a strong team can overload an organization.

Capital allocation is therefore aligned with strategy. The company says it is using 80/20 to concentrate resources on high-growth, high-margin businesses. The money is going to data-center production capacity, HVAC/Climate acquisitions, and portfolio separation. The data package's Section 9 flags that near-term cash allocation is dominated by capacity, acquisitions, and the PT transaction. That is exactly what management says it is doing.

4. Compensation Alignment

The compensation plan is better than average for a transformation industrial company. Short-term incentives under the FY2025 Management Incentive Plan used adjusted EBITDA margin and adjusted EBITDA growth, each weighted 50%. Segment leaders had segment-specific plans weighted with corporate plans. That is not perfect, because adjusted EBITDA can over-reward growth that consumes cash, but it directly incentivizes margin improvement and the 80/20 transformation.

The long-term plan is stronger. The FY2025 proxy says the LTIP mix was 80% performance shares and 20% RSUs. Performance share metrics were three-year average Cash Flow Return on Invested Capital and three-year average annual adjusted EBITDA growth, each weighted 50%. The proxy defines Cash Flow ROI using adjusted free cash flow plus cash interest divided by average capital employed. This is a meaningful capital-efficiency metric. It does not perfectly match GAAP ROIC, and permitted adjustments always deserve scrutiny, but the metric connects pay to the central question in the Modine thesis: can this company turn elevated investment into cash returns on capital?

CEO pay is high but tied to performance. FMP's live executive-compensation endpoint and the 2025 proxy show Brinker FY2025 total compensation of about $12.7 million, including $5.175 million of stock awards and $6.352 million of non-equity incentive compensation. Lucareli's FY2025 total compensation was about $5.2 million. The annual incentive payout moved with exceptional FY2025 EBITDA margin and growth. That is acceptable if the cash-flow return metrics hold management accountable over the full cycle.

Ownership is real but not founder-like. The proxy's June 23, 2025 beneficial-ownership table lists Brinker with 365,107 total shares including exercisable options, Lucareli with 213,641, and all directors and executive officers as a group with 1,300,314 shares, or 2.48% of the class. That is meaningful dollar exposure after the stock's appreciation, but it is not controlling. The share-ownership guidelines require the CEO to hold stock valued at more than five times salary after five years and other executive officers at least three times salary; the proxy states covered NEOs with five years of tenure are in compliance.

Governance around equity is also clean. The proxy prohibits directors and executive officers from pledging shares and prohibits directors and employees from hedging or monetizing company stock. It also describes incentive-compensation recoupment and executive compensation recovery policies tied to misconduct and accounting restatements. These are table stakes, but they are present and explicit.

5. Disclosure Quality And Candor

The last eight quarters of transcripts show a management team that usually answers the question asked. The best evidence is in difficult areas: data-center capacity, temporary margin pressure, working capital, and PT weakness. On Q2 FY2026, management acknowledged that the data-center expansion was a "heavy lift" involving hiring, training, temporary cost

increases, and unabsorbed fixed costs. Lucareli then walked through why Climate margins were temporarily below normal and when management expected utilization to improve. On Q3 FY2026, analysts pressed on working capital and free cash flow normalization. Lucareli did not hide behind a generic "timing" answer; he explained working capital-to-sales, inventory prebuy, capex carryover, and the expected gradual path back toward normal cash flow.

Guidance discipline has been good in the current year. The data package records three FY2026 outlook raises: Q1 raised net sales growth to 10%-15% and adjusted EBITDA to $440-$470 million; Q2 raised sales growth to 15%-20% while holding adjusted EBITDA at $440-$470 million; Q3 raised sales growth to 20%-25% and adjusted EBITDA to $455-$475 million. Importantly, management did not use higher Q2 revenue to raise EBITDA prematurely while margins were under pressure. That is a positive signal: they separated top-line demand from near-term absorption and cash costs.

The disclosure still has limits. Modine historically did not provide full product-level quarterly detail for every sub-segment, and the data package flags product-level gaps. The upcoming FY2027 segment change should help because Data Centers will become its own reported segment. Management has also used adjusted EBITDA heavily; the pension settlement, restructuring, acquisitions, and capacity ramp make adjusted metrics necessary but also easier to overuse. The antidote is more segment cash-flow and capital-employed disclosure once the new taxonomy is live.

Language markers are mostly specific rather than evasive. Management names weak Performance Technologies end markets, tariff recovery, lower commercial vehicle demand, fixed-cost absorption, and working-capital pressure. They use optimistic language around data centers, but they also give concrete operational markers: number of chiller lines, capacity coming online, employee hiring, order intake, margin targets, capex range, and FCF margin expectations. That is strong enough for a PASS.

6. Strategic Coherence

Management's statement of purpose is consistent across filings and actions. The FY2025 10-K says Modine's purpose is "Engineering a Cleaner, Healthier World" and that the company is committed to evolving the portfolio toward highly engineered, mission-critical thermal solutions. It then lays out pillars: deep thermal-management expertise, mission-critical solutions, secular megatrends including AI-driven data-center cooling, 80/20 discipline, and portfolio evolution toward high-growth, high-margin businesses.

The investment pattern supports that strategy. The largest capital intensity is in data-center capacity. The acquisitions add climate/HVAC/data-center adjacencies. Divestitures and the Gentherm transaction move away from lower-fit automotive and Performance Technologies exposure. Segment reporting is being changed to make Data Centers visible. Management has not bounced from one unrelated theme to another; it has stayed within thermal-management applications and shifted resources toward the most attractive verticals.

The strategy does have concentration risk. Data centers are the dominant growth engine, and management is investing ahead of volume. The customer base includes hyperscalers and large cloud/neocloud operators, which can be demanding, price-conscious, and fast-moving. The company says production lines can flex among chillers, modular data centers, and air handlers, but that flexibility remains to be proven in a downturn or technology shift. This is an execution risk, not a management-governance failure.

7. Governance Flags

Governance is clean enough for a PASS. The proxy states all directors other than Brinker are independent. There is a separate independent chair. The company has annual related-party questionnaires, conflict policies, pre-clearance requirements, and Audit Committee review. The only related-party item specifically discussed in the proxy was Adrian Peace's nomination to A.O. Smith's board while A.O. Smith was an ordinary-course customer; the board determined it was not material to either company and did not create a conflict.

There is no dual-class share structure. There is no evidence in the reviewed live sources of SEC enforcement or a current material weakness at FY2025 year-end. There was, however, a previously identified FY2024 material weakness in internal control over financial reporting related to IT general controls in Europe. Management and KPMG concluded internal controls were effective as of March 31, 2025 after remediation. That history is a yellow monitoring point, especially because Lucareli's expanded role includes IT oversight through the finance organization, but remediation by FY2025 prevents it from becoming a FAIL.

Insider selling is noticeable but not disqualifying. The FY2025 10-K reports that Brinker terminated a December 20, 2024 Rule 10b5-1 plan on March 14, 2025 and adopted a new plan on March 24, 2025 providing for formula-based sales beginning July

1, 2025 and ending March 31, 2026. FMP's live insider endpoint shows Brinker sales in December 2025, CFO Lucareli option exercise/sales in February 2026, and director sales. These are material in headline terms because the stock price has risen sharply, but Brinker and Lucareli still hold meaningful shares. The pattern should be watched for clustering after major announcements, but the evidence reviewed does not show a governance breach.

8. Peer Comparison

The relevant peer set is not perfect because Modine is becoming a data-center climate thermal company while still carrying industrial/vehicle thermal assets. The proxy's compensation peers include AAON, Lennox, A.O. Smith, Hubbell, ITT, Timken, Standex, Allison Transmission, Stoneridge, and Commercial Vehicle Group. For management comparison, the practical peers are AAON, Lennox, and A.O. Smith.

Against AAON, Brinker has a more dramatic transformation record, while AAON has a cleaner HVAC manufacturing identity and a more established high-margin reputation. FMP lists Matthew Tobolski as AAON's current CEO. AAON's management likely has the cleaner single-business operating model, but Modine's team has made a harder portfolio turn and created more visible mix-change upside. On per-dollar capital allocation, AAON deserves respect for long-term discipline; Modine's recent record is stronger on transformation velocity but less proven on cash conversion.

Against Lennox, led by Alok Maskara according to FMP's live executive endpoint, Modine is the smaller and more volatile company. Lennox has a mature climate-control franchise and more seasoned public-market operating playbook. Modine's management currently communicates more granularly about capacity ramps and data-center order/funnel dynamics, but Lennox has a longer record as a focused HVAC compounder. Brinker ranks above average on strategic clarity, but Lennox remains the benchmark for mature climate-platform consistency.

Against A.O. Smith, Modine is more growth-oriented and more exposed to a narrow high-growth vertical. A.O. Smith has historically offered a steadier water-heater/water-treatment governance and capital-return profile. Modine's management is taking a bigger swing; that can produce better five-year stewardship if the data-center cycle converts to cash, but it also carries more operational risk. Relative to these peers, Brinker and Lucareli rank high on transformation and candor, mid on proven cash conversion through a large capex cycle, and above average on incentive design.

9. Management Gate Verdict

PASS. Brinker and Lucareli have been in seat long enough to own the results, and the results are real: portfolio simplification, margin expansion, data-center growth, sensible divestitures, and a coherent pivot toward high-growth climate thermal applications. Compensation is tied to adjusted EBITDA growth/margin and, more importantly, multi-year Cash Flow ROI, with meaningful executive ownership, anti-hedging and anti-pledging policies, and clawback provisions. Governance is acceptable: independent chair, all non-CEO directors independent, no dual-class control, and no unresolved related-party issue in the reviewed proxy.

The pass is not blind. The watch items are clear. First, FY2026 cash conversion is weak because of capex and working-capital investment; management must show that this is a timing issue rather than the new normal for data-center growth. Second, the data-center production ramp is the largest execution task in the company's recent history, and the April 2026 Data Centers segment split puts Art Laszlo into a newly visible leadership role that has not yet been tested through public segment reporting. Third, the remediated FY2024 IT-control material weakness and visible insider selling deserve continued monitoring, even though neither rises to a current fail condition.

The management gate clears because this team has done what it said it would do more often than not, has been specific when challenged, and has allocated capital consistently with the stated strategy. A thesis that fails on valuation, moat, or cash conversion should still PASS as an investment decision, but it should not fail because Modine lacks a credible management team.

Appendix W - Moat and 2046 Durability

Modine Manufacturing Company (MOD) - Moat and 2046 Durability

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Production Mode. Data source rule followed: historical revenue, margin, product, and segment facts use `data_package.md`, `quant_foundation.md`, and the local primer. Live fetches were used only for external competitive context and were saved or logged under `raw\moat_20260430`; no data warehouse cache was used. Segment appendix dependency: `appendix_B_climate_solutions.md` and `appendix_B_performance_technologies.md` existed only as in-progress stubs at the time of this appendix, so their Section 4 and Section 5 competitive/moat analyses could not be used. This appendix therefore relies on the verified data package, primer, local SEC filings, transcripts, and live competitor context.

1. Moat Taxonomy Applied

Modine does not have a classic network-effect moat. More data center operators using Airedale/Modine equipment does not mechanically make the product better for the next customer in the way a software network improves. There is a small learning-curve effect: more installed high-density cooling systems create field experience, service data, application know-how, and credibility with hyperscale and colocation buyers. That is useful, but it is not self-reinforcing enough to classify as a network effect. The real moat lives elsewhere.

Switching costs are real in the highest-criticality parts of Climate Solutions, especially data center cooling, and more modest in the rest of the portfolio. A hyperscale or colocation customer does not casually change thermal-management architecture once a supplier has been qualified into a design, proved reliability, adapted to rack-density and liquid-loop requirements, and committed production capacity. Modine's FY2025 10-K describes data center cooling as complete system design, controls, maintenance, monitoring, CRAC/CRAH units, fan walls, chillers, condensers, condensing units, CDUs, and immersion solutions. That breadth matters because switching is not just swapping a metal part; it can involve revalidating thermal performance, uptime risk, water and power metrics, facility integration, service routines, and construction timing. In Performance Technologies, switching costs are lower but still present around OEM tooling, program validation, and customer-owned tooling reimbursement. The data package notes that Performance supplies customized production and service parts under multi-year arrangements, but also that purchase orders often drive volumes and guaranteed volumes are not always contractual. That makes the PT moat narrower and more cyclical.

Scale economies are emerging rather than fully proven. Modine is scaling data center cooling rapidly, and the Q3 FY2026 transcript states that the company commissioned new chiller lines and is adding capacity in Jefferson City, Grenada, Dallas, Franklin, and other sites. Scale helps because customers increasingly need suppliers with capacity, production discipline, and regional support. However, scale is also the most contested part of the moat. Vertiv, Johnson Controls, Trane, Schneider/Motivair, STULZ, nVent, and others are actively investing in similar high-density and liquid-cooling portfolios. Vertiv's 2024 shareholder letter points to capacity expansion across thermal management and modular solutions, while Johnson Controls launched Silent-Aire CDU capacity across North America, Europe, and Asia Pacific. Modine has enough scale to win meaningful share, but not enough to define the market.

Brand is stronger in niche data center and HVAC channels than in broad public perception. Airedale by Modine markets itself as having more than 50 years in data center cooling, and the Modine 10-K highlights a century-old heat-transfer engineering heritage. That gives credibility in procurement processes where field reliability and engineering trust matter. Still, customers in hyperscale, colocation, commercial HVAC, and OEM markets are sophisticated buyers. They do not pay large premiums merely for a logo. Brand supports qualification, but it does not replace product performance, cost, delivery, and service.

Regulatory advantage is present but indirect. Modine benefits from energy-efficiency pressure, low-GWP refrigerant regulation, water-use constraints, decarbonization requirements, and indoor-air-quality demand. These rules and standards increase the value of efficient thermal design, but they do not grant Modine exclusive rights. Regulation raises the bar for all credible suppliers; it is a demand and qualification tailwind, not a license moat.

IP and patents are useful but not decisive. The FY2025 10-K says Modine protects IP through patents, trademarks, trade secrets, and copyrights, owns or licenses numerous patents worldwide, and routinely seeks patents on new products and processes. The same disclosure also says the business as a whole is not materially dependent on any single patent or group of patents. That is the right way to underwrite the moat: IP contributes to know-how and product differentiation, especially in liquid cooling and thermal design, but it is not a hard exclusionary wall. The January 2024 purchase of TMGcore liquid

immersion IP adds optionality, not a guarantee of durable excess returns.

High-trust procurement is the strongest moat label for Modine. In data center cooling, the customer is buying uptime, capacity assurance, energy efficiency, water efficiency, and integration. The Q3 FY2026 transcript says customers are discussing long-term supply agreements and capacity commitments; management also framed record order intake as evidence that projects are moving through the funnel with existing customers. This is the industrial version of switching costs: a qualified supplier that can design, build, deliver, and service mission-critical equipment gets a seat in strategic procurement discussions. That is a real moat, but it is relationship-and-execution based rather than structural monopoly economics.

2. Per-Segment Moat

Climate Solutions is the only segment that can credibly carry a Gideon-grade moat discussion. FY2025 Climate revenue was $1.4406 billion, or 55.8% of consolidated revenue, and the segment produced $248.4 million of operating income at a 17.2% operating margin. TTM through 2025-12-31, Climate had $1.7497 billion of external sales and $273.8 million of operating income, a 15.6% margin after data center ramp costs. The segment's moat is strongest in data center cooling, where Modine combines engineered thermal systems, Airedale credibility, product breadth across air, liquid, and hybrid cooling, and customer-qualified capacity. The 5-year durability case is strong if management's order intake and capacity comments convert into revenue at 20% plus margins. The 10-year durability case is plausible because AI and high-performance computing should keep increasing heat density, while power and water constraints raise the value of efficient cooling. The 20-year durability case is less certain because data center architecture can change, larger competitors are moving aggressively, and hyperscalers can multi-source or internalize parts of the design stack. The earliest observable break would be data center revenue growth continuing while Climate/Data Center margins fail to recover above the high-teens, or new disclosures showing that long-term supply agreements do not materialize despite added capacity.

Inside Climate, data center cooling has the highest moat, HVAC Technologies has a moderate channel-and-application moat, and Heat Transfer Products has the weakest structural moat. Data center cooling is mission-critical and customer-specific. HVAC Technologies benefits from application breadth, acquisitions, contractor/distributor/end-user access, and product reliability, but it competes in mature HVAC and indoor-air-quality markets where large incumbents also have channel strength. Heat transfer coils, coatings, and related products are engineered and can be differentiated, but the data package shows revenue declined from $541.3 million in FY2023 to $402.9 million in FY2025 before the FY2026 YTD rebound, which argues against a deep moat.

Performance Technologies has an engineering and qualification moat, not a pricing-power moat. FY2025 PT revenue was $1.1429 billion, or 44.2% of consolidated revenue, with $108.0 million of operating income and 9.4% operating margin. TTM margin improved to roughly 10.0%, and Q3 FY2026 adjusted EBITDA margin rose on cost actions, pricing, tariff recovery, and pass-through mechanisms. The moat is customer validation, tooling, thermal design, and program history in commercial vehicle, off-highway, on-highway, power-generation, zero-emission, and hybrid applications. Durability is 5-year acceptable but 10-year mixed because end markets are cyclical, customer concentrated, and structurally less attractive than data center cooling. The 20-year Modine case should not rely on PT because management has agreed to spin it and combine it with Gentherm. The earliest break signal is not margin compression alone; it is delayed transaction closing, customer deferrals during separation, or the market assigning less value to the retained Gentherm stake and SpinCo cash than the current narrative assumes.

The blended company moat is weaker than the best segment suggests. As reported today, roughly 39% of TTM sales are still Performance Technologies, and within Climate, non-data-center businesses remain meaningful. If the Gentherm transaction closes, the retained Modine becomes a stronger pure-play Climate company, but also less diversified and more exposed to data center and commercial HVAC cycles. Therefore, the equity should not be valued as if 100% of sales already have data-center-grade moat characteristics.

3. Margin Persistence Evidence

Consolidated margin persistence supports a business-improvement story, but it does not yet prove a 20-year moat. The data package shows consolidated operating margin of -5.4% in FY2021, 5.8% in FY2022, 6.5% in FY2023, 10.0% in FY2024, and 11.0% in FY2025. ROIC recovered from a stress-year negative value in FY2021 to 12.1% in FY2022, 16.7% in FY2023, 15.2% in FY2024, and 17.4% in FY2025. That is an important improvement, but the evidence period is short. The current margin profile reflects 80/20 actions, divestitures, Climate mix shift, data center demand, and PT cost reduction. It is not yet a decade of stable high returns through multiple demand cycles.

Climate Solutions is the most important margin evidence. Segment operating margin moved from 6.8% in FY2021 to 8.1% in FY2022, 12.5% in FY2023, 16.1% in FY2024, and 17.2% in FY2025. That is exactly the kind of margin expansion a moat appendix wants to see: mix shift toward mission-critical products, better focus, and scale. The TTM margin of 15.6% is lower than FY2025 because the company is absorbing production labor, greenfield capacity, inventories, acquisitions, and other ramp costs. Management's Q3 transcript says Climate adjusted EBITDA margin sequentially improved to 17.9% and that the next-year goal is 20% to 23%. The moat test is whether these margins normalize after the capacity ramp rather than remaining cyclically elevated for only a few quarters.

Performance Technologies has improved, but the margin evidence is weaker. Segment operating margin was -10.1% in FY2021, 6.8% in FY2022, 4.6% in FY2023, 8.6% in FY2024, and 9.4% in FY2025. This is respectable operational progress, but it is not evidence of a powerful moat. Q3 FY2026 benefited from pricing, tariff recovery, cost reductions, lower SG&A, and efficiencies, while volumes stayed weak. That is management execution more than customer lock-in. It matters for value because PT is being separated, but it should not be the long-run durability anchor for MOD.

4. AI Disruption Stress Test

Climate/data center cooling is not an AI workflow that can be replicated by a model with the same data. It is physical chokepoint economics: heat must be removed from chips, racks, rooms, buildings, and water or air loops. AI can optimize controls, model thermal flows, improve predictive maintenance, and help design more efficient systems, but it cannot eliminate thermodynamics. The segment is also platform-adjacent because AI infrastructure growth directly increases the thermal problem. That is why this is the most protected segment from AI disruption, even though AI can change the architecture of the cooling stack.

The real AI risk is not that software replaces Modine's product; it is that GPU architecture, rack design, direct-to-chip liquid cooling, immersion cooling, rear-door heat exchangers, or vendor-integrated reference designs shift the profit pool toward other suppliers. Schneider/Motivair markets an end-to-end liquid-cooling portfolio with cold plates, CDUs, chillers, software, and services. Johnson Controls' Silent-Aire CDU platform spans 500 kW to more than 10 MW and sits inside a broader York/Silent-Aire/M&M Carnot portfolio. nVent is pushing modular CDU, power, and rack architectures tied to chip makers and Google OCP specifications. Trane is developing new data center chiller offerings for higher-density and higher-ambient applications. STULZ markets prefabricated liquid-cooling systems. These are not sleepy competitors. Modine's protection comes from being credible across air, liquid, and hybrid designs, not from any single architecture being permanent.

HVAC Technologies and Heat Transfer are also physical-product businesses, so direct AI displacement is low. AI can improve building controls and energy optimization, which may shift value toward controls/software platforms owned by larger building technology companies. Modine can still sell equipment into those systems, but the software layer may capture a greater share of customer mindshare over time. Performance Technologies is similarly protected from pure workflow substitution, but exposed to end-market transition: combustion platforms, commercial vehicle cycles, electrification adoption, and OEM insourcing.

The segment most exposed to AI disruption is ironically the segment most levered to AI growth: data center cooling. It is protected by physical chokepoint economics but exposed to rapid architecture change and hyperscaler bargaining power. The most protected is the broader thermal-components requirement across physical assets: industrial equipment, HVAC, refrigeration, and vehicles will still need heat transfer regardless of AI.

5. The 2046 Test

Today is 2026-04-30. Twenty years forward is 2046-04-30. A credible 2046 Modine description is this: Modine is a specialized climate and thermal-management company selling mission-critical cooling, heat-transfer, and air-quality systems into AI/data infrastructure, commercial buildings, industrial processes, and selected high-reliability equipment markets. The retained company after the PT separation is no longer a mixed vehicular thermal supplier; it is built around data center and commercial HVAC platforms, with service, controls integration, replacement parts, and engineered systems attached to installed equipment. Its buyers are hyperscale cloud operators, colocation developers, data infrastructure owners, contractors, OEMs, commercial building operators, schools, healthcare facilities, industrial users, and distributors. The data center segment still exists, but the product mix has changed from today's mix of chillers, air handlers, fan walls, CDUs, and immersion options toward a broader "thermal plant" role: heat rejection, liquid loops, facility water interfaces, hybrid free cooling, service, monitoring, and retrofit support for several generations of compute hardware. Commercial HVAC and indoor-air-quality businesses still exist, probably as a steadier and less spectacular profit pool. Legacy Heat Transfer products are narrower and more specialized. Performance Technologies is no longer consolidated unless the Gentherm transaction fails or Modine later

re-enters similar niches.

The 2046 margin should be stable to modestly higher versus today's consolidated margin if the company executes the transition. A pure-play Climate company with a larger service/replacement base and better capacity utilization could sustain high-teens to low-20s operating margins, above the FY2025 consolidated 11.0% and around or above the FY2025 Climate 17.2%. That is plausible, not proven. The reason this business still makes money in 2046 is high-trust procurement in physical thermal infrastructure: customers need reliable equipment, validated designs, regional capacity, field support, and continuous engineering updates as chips, buildings, and energy constraints change. The moat is the combination of qualification, engineering know-how, installed base, service capability, and trusted capacity commitments.

The bear-case 2046 description is concrete. Modine becomes a competent but undifferentiated HVAC/data-center equipment supplier whose early AI cooling gains were competed away by Vertiv, Schneider/Motivair, Johnson Controls/Silent-Aire, Trane, STULZ, nVent, and vertically integrated hyperscaler supply chains. Direct-to-chip or rack-level reference designs standardize around ecosystems where Modine is a secondary supplier. Long-term supply agreements prove less binding than hoped, hyperscalers multi-source aggressively, and capacity built for 2026-2028 demand creates low utilization in the next digestion cycle. Commercial HVAC acquisitions diversify revenue but do not replace lost data-center pricing power. Under that case, margins drift back toward low-teens industrial levels and ROIC becomes good but not exceptional.

Probability: the bear case is not remote. It is the natural competitive outcome in an attractive industrial growth market. The probability is high enough that the 2046 test should be YELLOW, not PASS. The 2046 picture is specific and plausible, but not yet evidenced by a decade of high returns, a service annuity large enough to lock in customers, or a technology position that clearly outruns larger competitors.

6. Competitive Threat Inventory

Threat	Mechanism	Segment(s) affected	Earliest observable signal	Plausibility
Larger data center infrastructure incumbents scale faster	Vertiv, Schneider/Motivair, Johnson Controls/Silent-Aire, Trane, STULZ, and nVent expand liquid cooling, chillers, CDUs, racks, service, and global manufacturing.	Climate/Data Center	Data center revenue grows below market, margin recovery stalls, or Modine loses named hyperscale programs.	High
Hyperscaler bargaining power and multi-sourcing	Top customers use capacity needs to demand lower pricing, nonexclusive agreements, or shared engineering IP.	Climate/Data Center	LTAs lack take-or-pay protections, customer concentration rises, backlog visibility remains limited.	High
Architecture shift away from Modine strengths	Direct-to-chip, rack-level reference designs, immersion, or warmer liquid loops move value to chip/rack/power ecosystem suppliers.	Climate/Data Center	New products fail field trials, CDU/immersion sales lag, or customer specs move to competing platforms.	Medium-high
Material/tariff recovery lag	Aluminum, copper, steel, stainless steel, refrigerants, freight, or tariffs rise faster than contract adjustments.	All segments	Gross margin compression despite revenue growth; management cites 3-12 month lag repeatedly.	Medium
Transaction and focus risk	Gentherm RMT delays or separation distraction hurts PT customers, MOD employees, or suppliers; retained MOD becomes less diversified.	Performance Technologies and consolidated MOD	Transaction slips beyond calendar 2026, stranded costs rise, customers defer commitments.	Medium

7. Pricing Power Verification

Pricing power is observable but not clean. The positive evidence is that margins have improved materially since FY2021, Climate margins reached 17.2% in FY2025, and Q3 FY2026 Performance Technologies benefited from pricing, tariff recovery, and normal pass-through mechanisms despite weak volumes. Management also says data center customers are discussing long-term agreements and capacity commitments, which can improve pricing discipline if they include risk-sharing and firm commitments. The negative evidence is equally important: the 10-K says raw material price adjustments are often prospective, based only on underlying material indexes, may exclude premiums and fabrication costs, and can lag by three months to one year. The Q3 transcript also discussed aluminum, copper, steel, tariff timing, and material pass-through catch-up.

Therefore, Modine has pricing power in the sense that it can recover costs and earn better margins in qualified, mission-critical applications, but it does not have software-like unilateral pricing power. Its customers are large, sophisticated, and concentrated. The FY2025 10-K says top customers include major industrial and data center accounts, and the data package notes top-ten customer concentration of 43% of sales. A concentrated hyperscaler customer base can reward Modine with volume and punish it with procurement pressure. The pricing power gate is acceptable for a YELLOW moat, not sufficient for a clean PASS.

8. Moat Verdict

Moat gate: YELLOW. Modine has a real moat in mission-critical thermal engineering, customer-qualified capacity, and high-trust procurement, especially in Climate Solutions data center cooling. The evidence is observable in Climate margin expansion, data center product growth, customer order-intake commentary, product breadth, and the strategic separation of lower-moat Performance Technologies. The gate is not PASS because the moat is contested by larger competitors, customer concentration is high, pricing power has material pass-through lag, and the data center economics have not yet been proven through a full capacity cycle with normalized free cash flow.

2046 test: YELLOW. The 2046 company can be described specifically: a focused climate and thermal-management supplier for data infrastructure, commercial HVAC/IAQ, and industrial heat-transfer applications, earning money through qualification, engineering know-how, installed base, service, and capacity trust. That future is plausible, but not certain enough for PASS. The key uncertainty is whether Modine remains architecturally relevant as liquid cooling, chip-level designs, rack systems, and hyperscaler procurement evolve over the next 20 years.

Key sources: `data_package.md`; `appendix_A_primer.md`; `quant_foundation.md`; FY2025 10-K and Q3 FY2026 10-Q/exhibits saved under `raw\primer_20260430`; Q3 FY2026 transcript saved under `raw\primer_20260430\MOD_q3_fy2026_transcript_live.txt`; live competitor context saved/logged under `raw\moat_20260430`; Airedale data center products page; Vertiv 2024 shareholder letter; Trane March 31, 2025 data center thermal press release; Johnson Controls September 8, 2025 Silent-Aire CDU launch; Schneider Electric September 29, 2025 Motivair liquid-cooling portfolio page; nVent November 17, 2025 SC25 liquid-cooling portfolio page; STULZ liquid-cooling solutions page.

Appendix B1 - Climate Solutions

Climate Solutions - Segment Deep Dive

Company: Modine Manufacturing Company (MOD) Segment: Climate Solutions TTM anchor: trailing twelve months ended 2025-12-31 Forward horizon: 2030-12-31, exactly five calendar years after the TTM anchor Primary historical source: `data_package.md`; Modine historical figures below are not re-fetched.

0. Segment Boundary + Taxonomy Note

Climate Solutions is Modine's continuing-core segment, but the boundary is not perfectly static. The data package flags that, effective April 1, 2024, Modine moved the Coatings business from Performance Technologies to Climate Solutions and recast prior-year segment financial information in the FY2025 10-K; FY2023-FY2025 segment data are therefore the best same-taxonomy annual dollars for recent comparisons, while FY2021-FY2022 are usable at the Climate/Performance level but less clean for old product captions [data_package section 1, Taxonomy flags row "Current segment recast"; data_package section 1, row "FY2021 comparability"]. The data package also flags a future taxonomy change: beginning in Q1 FY2027, management expects reporting to include Data Centers, Commercial HVAC, and Performance Technologies until the pending Performance Technologies transaction closes [data_package section 1, Taxonomy flags row "Announced future taxonomy"]. This appendix models the current Climate Solutions economic pool because that is the segment passed to Sub-Agent B, but it treats the FY+5 business as economically closer to a pure-play data-center and commercial-HVAC platform than to the old two-segment Modine.

1. What This Segment Actually Is

Climate Solutions sells systems and components that manage heat, air quality, energy use, and reliability in buildings and mission-critical infrastructure. The segment includes three disclosed product groups in the FY2025 annual table: Data center cooling, Heat transfer, and HVAC&R. In the Q3 FY2026 10-Q product table, the labels shift to Data centers, Heat transfer solutions, and HVAC technologies; this appendix uses those terms interchangeably only where the data package explicitly maps the labels [data_package section 4, paragraph after current trend table].

Data center cooling is the highest-growth line. It includes liquid and air-cooled thermal-management systems, chillers, air-handling units, modular solutions, precision air conditioning, CRAC/CRAH-type systems, coolant distribution, and related control/service content. The customer set is hyperscale, AI infrastructure, cloud, and colocation buyers that need thermal systems to keep high-density computing online. The product is not a low-touch commodity. It is usually specified into a site design, qualified for reliability and efficiency, and delivered against project timing. The economic buyer wants uptime, predictable deployment, energy and water efficiency, and assurance that the supplier can scale production without quality failures.

Heat transfer is a more mature engineered-components business. The data package describes it as coils, coatings, and heat-exchanger products for commercial, industrial, and residential HVAC&R applications [data_package section 4, Products with separately disclosed dollar revenue row "Climate Solutions | Heat transfer"]. These products are important in the customer's system but generally do not carry the same secular demand intensity as data center cooling. They benefit from replacement demand, efficiency regulation, refrigerant transitions, corrosion protection, and application engineering, but are also exposed to HVAC cycles, input costs, and OEM/distributor inventory.

HVAC&R or HVAC Technologies includes commercial and residential heating, ventilation, air conditioning, and refrigeration equipment [data_package section 4, Products with separately disclosed dollar revenue row "Climate Solutions | HVAC&R"]. This line has been expanded through acquisitions, including AbsolutAire, L.B. White, Climate by Design, and earlier Scott Springfield, all of which sit inside Climate Solutions according to the data package's recent corporate actions [data_package section 9, FY2026 first nine months acquisition bullet]. The line therefore mixes legacy heating/ventilation products with acquired specialty air-handling, heating, dehumidification, and process-air capability.

Go-to-market varies by product. Data center cooling is strategic direct selling into project and platform relationships. Heat transfer uses OEM, distributor, and application-engineered relationships. HVAC technologies use a mix of contractor, wholesaler, installer, end-user, OEM, and project channels. Pricing is therefore not a single posted price model. It is negotiated around product configuration, volume, project timing, capacity commitments, materials, warranty exposure, and in some cases customer-specific engineering or tooling. The segment's best economics come when Modine is not merely quoting a commodity coil but solving a thermal-management problem where reliability, efficiency, space, deployment speed,

and supplier qualification matter.

2. Current Economics (FY2025 and TTM)

FY2025 Climate Solutions external sales were $1,440.6 million, representing 55.8% of consolidated sales, with segment operating income of $248.4 million [data_package section 1, FY2025 segment revenue and mix row "Climate Solutions"]. The segment was already larger and more profitable than Performance Technologies in FY2025. On a TTM basis ending 2025-12-31, Climate Solutions external sales rose to $1,749.7 million and segment operating income was $273.8 million [data_package section 5, TTM construction paragraph; quant_foundation P4 row "TTM ending 2025-12-31"]. That implies a TTM operating margin of 15.6%, down from the 17.2% FY2025 margin in the annual segment table because FY2026 Q2/Q3 absorbed labor, inventory, greenfield capacity, and ramp costs before full revenue absorption [data_package section 3, Key Climate notes].

The product mix has shifted sharply. In FY2025, the three Climate product groups were Data center cooling at $644.2 million, Heat transfer at $402.9 million, and HVAC&R at $393.5 million [data_package section 4, Products with separately disclosed dollar revenue rows for Climate Solutions]. That was already a data-center-led mix: Data center cooling was 44.7% of FY2025 Climate product revenue, versus 28.0% for Heat transfer and 27.3% for HVAC&R. In the first nine months of FY2026, the disclosed current labels show Data centers at $710.1 million, Heat transfer solutions at $422.4 million, and HVAC technologies at $260.9 million [data_package section 4, Product lines with quarterly or growth-rate disclosure only rows for Climate]. The 9M numbers already exceed FY2025 for Data centers and Heat transfer, while HVAC technologies is affected by the timing of acquired sales and changed quarterly labeling.

[DATA GAP: The data package does not disclose exact Q4 FY2025 product revenue by Climate product line. For the product-level forward model, this appendix allocates Q4 FY2025 Climate segment revenue of $356.3 million across the FY2025 product mix, then adds disclosed 9M FY2026 product revenue. That creates a product-level TTM base that ties to the disclosed Climate TTM revenue of $1,749.7 million but is not a reported company product table.] The allocation yields an estimated TTM product base of $869.4 million for Data centers, $522.1 million for Heat transfer solutions, and $358.2 million for HVAC technologies. The tie is exact within rounding: $869.4 million + $522.1 million + $358.2 million = $1,749.7 million.

Capital intensity is temporarily elevated. FY2025 segment capital expenditures were $53.3 million for Climate Solutions, versus $84.0 million for Modine consolidated [data_package section 7, Segment capex paragraph]. The Q3 FY2026 commentary in the data package says capex intensity is much higher during the data-center ramp, including $40-$50 million expected in Q4 and carryover into FY2027 for capacity supporting future sales [data_package section 7, Segment capex paragraph]. That matters because TTM operating income is still positive and growing, but cash conversion is weak while inventory, capacity, and acquisitions run ahead of revenue [data_package section 10, Open data gaps row 8].

3. Unit Economics

Climate Solutions converts revenue into profit through product gross margin, factory utilization, engineering and project execution, purchased-material management, warranty/quality performance, and SG&A leverage. The data package's segment history shows the margin expansion clearly: Climate operating margin improved from 6.8% in FY2021 to 8.1% in FY2022, 12.5% in FY2023, 16.1% in FY2024, and 17.2% in FY2025 [data_package section 3, Climate Solutions table rows "Operating margin (%)" and "Operating income ($mm)"]. That is not merely cyclical recovery; it reflects mix shift toward higher-value Climate applications and Modine's broader portfolio pruning and 80/20 discipline.

The segment's margin bridge has two opposing forces. First, data center cooling should raise the mix if Modine can hold differentiated pricing, qualify with large customers, and fill new lines. Data center products are mission-critical, and the customer cost of thermal failure can be much higher than the supplier's price difference. That supports better margins than generic HVAC components. Second, the ramp itself depresses margins. The data package notes Q1-Q3 FY2026 continued the data-center ramp but margins compressed in Q2/Q3 because Modine added production labor, greenfield capacity, and inventory ahead of revenue absorption [data_package section 3, Key Climate notes]. The TTM margin of 15.6% is therefore not a clean steady-state margin. It is a high-growth industrial segment carrying unused or under-absorbed capacity.

The main operating cost drivers are aluminum, copper, steel, stainless steel, coils, motors, fans, compressors, controls, freight, labor, plant overhead, warranty, and engineering. Data center cooling adds integration complexity: chillers, CDUs, air handlers, controls, and modular systems must work with customer architecture, building-level water loops, rack density, service requirements, and redundancy. If factory throughput improves while incoming orders remain strong, fixed-cost absorption can be powerful. If demand is lumpy, or if Modine builds capacity for one cooling architecture while customers shift to another, the operating leverage can reverse.

Heat transfer unit economics are steadier but less explosive. Coils and coatings have engineering content and application know-how, yet the line is more exposed to HVAC cycles, material-cost pass-through timing, and competition from other coil/heat-exchanger manufacturers. HVAC Technologies sits between data center and heat transfer. It can gain from acquisitions, indoor-air-quality demand, and specialized products, but integration risk and channel mix matter. A rollup of specialty HVAC businesses can grow revenue while temporarily diluting margin if acquired operations have different systems, purchasing, warranty practices, or SG&A structure.

The margin breakpoints are therefore concrete. Margins move up if data-center lines fill, labor productivity improves, price/cost catches up, acquisitions integrate, and Modine sells a higher mix of controls, service, replacement parts, and engineered systems. Margins move down if raw materials spike faster than pricing, capacity is underutilized, customer concentration shifts pricing power to hyperscalers, product launches create warranty or quality issues, or the segment must keep duplicative capacity to meet customer assurance requirements.

4. Competitive Dynamics

Climate Solutions competes in several overlapping markets rather than one cleanly defined peer set. In data center cooling, the relevant competitors include Vertiv, Johnson Controls/Silent-Aire, Schneider Electric/Motivair, Trane/LiquidStack, STULZ, nVent/CoolIT historical partnerships, Ecolab/CoolIT after the announced acquisition, and private or regional thermal specialists. In broader HVAC and heat transfer, the competitive field widens to HVAC OEMs, coil manufacturers, refrigeration suppliers, controls companies, and lower-cost component manufacturers.

The data center cooling market is attractive but not uncontested. Vertiv's 2025 annual report describes AI and high-performance compute as driving demand for power and thermal infrastructure, with customers seeking partners who can integrate power, thermal management, services, and controls at system level. Vertiv also says it continues to invest in thermal-management portfolio expansion because hybrid air and liquid cooling creates opportunities across the thermal chain from chip to heat rejection and reuse [Vertiv 2025 Annual Report, pages 2-3 and 51, saved as `raw/appendix_B_climate_solutions_20260430/vertiv_2025_annual_report.pdf`; source URL: https://s205.q4cdn.com/554782763/files/doc_financials/2025/ar/Vertiv-2025-Annual-Report.pdf]. This matters for Modine because Vertiv is not merely selling components; it is competing as an integrated infrastructure vendor with global services.

Johnson Controls is also pushing an end-to-end data-center thermal portfolio. Its data-center page says it draws on hundreds of data-center projects and offers advanced thermal management, controls, security, and fire-protection systems with global manufacturing and service capabilities [Johnson Controls Data Centers page, saved as `raw/appendix_B_climate_solutions_20260430/johnson_controls_data_centers.html`; source URL: https://www.johnsoncontrols.com/Industries/Data-Centers]. In September 2025, Johnson Controls launched Silent-Aire CDU products with scalable capacities from 500kW to more than 10MW and positioned them as part of a chip-to-chiller portfolio for high-density AI racks [Johnson Controls CDU press release, saved as `raw/appendix_B_climate_solutions_20260430/johnson_controls_silent_aire_cdu_2025.html`; source URL: https://www.johnsoncontrols.com/media-center/news/Press-Releases/2025/09/08/Johnson-Controls-expands-thermal-management-offering-with-scalable-liquid-cooling-solution-to-meet-t]. That is directly relevant to Modine's Airedale by Modine platform because customers will compare global footprint, delivery certainty, CDU/chiller breadth, service, and reference designs.

Trane is moving in the same direction through LiquidStack. Trane's February 2026 release says the LiquidStack acquisition expands end-to-end data center thermal management across chillers, heat rejection, controls, liquid distribution, and on-chip cooling [Trane LiquidStack acquisition release, saved as `raw/appendix_B_climate_solutions_20260430/trane_liquidstack_acquisition_2026.html`; source URL: https://www.trane.com/commercial/asia-pacific/china/en/about-us/press-releases/acquire-liquidstack-end-to-end-data-center-thermal-management-solutions.html]. STULZ describes its CyberCool CDU as isolating facility water and technology cooling loops while controlling coolant temperature and flow for direct-to-chip and immersion cooling [STULZ CyberCool CDU page, saved as `raw/appendix_B_climate_solutions_20260430/stulz_cybercool_cdu.html`; source URL: https://www.stulz.com/en-us/products/detail/cybercool-cdu-usa/]. Ecolab's March 2026 CoolIT acquisition release, live-read through web fetch after PowerShell received a 403, says CoolIT is expected to generate approximately $550 million in next-12-month sales and designs CDUs, cold plates, and direct-to-chip technologies for hyperscale and colocation operators [Ecolab CoolIT release: https://investor.ecolab.com/news/news-details/2026/Ecolab-to-Acquire-CoolIT-Systems-a-Global-Leader-in-Advanced-Liquid-Cooling-for-Next-Gen-AI-Data-Centers/default.aspx].

The competitive implication is mixed. Demand is large enough to support several scaled suppliers, and Modine's FY2025-FY2026 growth shows it is winning. However, large industrial competitors are buying or building the same capabilities. If customers standardize around open cooling loops, CDUs, cold plates, and facility interfaces, supplier differentiation may move from "can you cool the rack?" to execution, lead time, installed-base service, global duplication, and total-cost-of-operation. Modine can have pricing power where it is qualified early, solves a custom constraint, or reserves scarce capacity. Its pricing power is weaker if a hyperscaler can dual-source comparable modules or if competitors subsidize capacity to win strategic accounts.

Substitution risk is not that data centers stop needing cooling. The risk is architectural substitution within cooling. Higher liquid-loop temperatures, direct-to-chip cooling, immersion cooling, rear-door heat exchangers, chip-level microfluidics, facility water loop redesigns, and customer-owned reference designs can all shift value among suppliers. Management's data-package quote that "higher ambient temperature...is a positive development" is important because Modine argues warmer loops do not reduce its relevance [data_package section 6, Management Commentary row "Climate / technology"]. This appendix accepts the possibility that Modine can participate in hybrid architectures, but the bear case assumes that some value migrates to cold plates, rack-level liquid specialists, or integrated power/cooling competitors.

5. Moat at the Segment Level

Climate Solutions has a real but not impregnable segment moat. The moat is strongest in data center cooling where qualification, reliability history, engineering depth, and capacity availability matter. A buyer building AI infrastructure cannot treat cooling as an afterthought. Thermal systems must be integrated into building design, water loops, electrical power density, rack evolution, commissioning, and service. A supplier that has already been designed into a customer's architecture can benefit from switching costs, shared engineering road maps, and repeat orders. The data package's management quote about "record order intake" and long-term data-center targets supports the idea that Modine is increasingly embedded in customer planning [data_package section 6, row "Climate / data centers" Q3 FY2026].

The moat is also supported by breadth. Modine can sell air and liquid cooling, chillers, heat exchangers, HVAC products, coatings, and acquired air-handling/dehumidification capabilities. In principle, that gives customers one supplier for multiple thermal layers. The January 2025 $180 million order announcement for Airedale by Modine systems from a new AI infrastructure customer also supports the idea that customers value tailored engineering and efficiency rather than only lowest price; Modine said the orders reflected customized solutions engineered by its global Data Centers team [Modine order release: https://investors.modine.com/news/news-details/2025/Modine-Secures-180-Million-in-Orders-for-Data-Center-Cooling-Systems/default.aspx].

The moat is weaker in Heat transfer and parts of HVAC Technologies. Those businesses have application engineering and customer relationships, but they compete in more mature HVAC&R supply chains. Coils, coatings, heaters, and refrigeration equipment can still earn attractive returns with strong operations, but the buyer usually has more alternatives than a hyperscale data-center customer confronting a schedule-critical thermal bottleneck. The moat there is more about manufacturing know-how, product breadth, distribution, installed base, code/regulatory competence, and operating discipline than a hard technology lock.

Over a five-to-ten-year period, the moat's durability depends on Modine converting current demand into a repeatable installed-base relationship. If Data Centers becomes a recurring platform with service, controls, replacement parts, and next-generation design wins, the moat improves. If the current boom is mostly a capacity shortage and competitors catch up by 2028, Modine's margin could normalize toward high-teens industrial HVAC levels. My base case assumes a durable but narrowing differentiation: enough to hold low-20s segment operating margin by 2030, not enough to underwrite permanent monopoly-like economics.

6. Historical Growth Rates - Reproduced from Data Package

The table below uses the data package as the source for every Modine dollar figure. Product-level annual disclosure is available for FY2023-FY2025 only; therefore the "CAGR" for product rows is a two-interval CAGR across the three disclosed years, not a five-year product history. Segment-level Climate history is shown on the same FY2023-FY2025 basis for comparability, while the data package also gives FY2021-FY2022 segment history in section 3. Growth rates are calculated from the cited data-package dollar rows. No annual FMP product endpoint data are used because the data package states that endpoint is stale [data_package section 1, Taxonomy flags row "FMP product endpoint"; data_package section 10, open gap 1].

Product / sub-segment	FY2023 revenue	FY2024 revenue	FY2025 revenue	Disclosed-period CAGR	Most recent YoY	Data package cite
Climate Solutions total	$1,056.1mm [DP section 3, Climate revenue row]	$1,108.1mm [DP section 3, Climate revenue row]	$1,440.6mm [DP section 3, Climate revenue row]	16.8% [calc from DP section 3]	30.0% [DP section 3, Climate YoY row]	data_package section 3, Climate Solutions table
Data center cooling	$173.8mm [DP section 4, product row 1]	$294.2mm [DP section 4, product row 1]	$644.2mm [DP section 4, product row 1]	92.6% [calc from DP section 4]	119.0% [DP section 6, Q4 FY2025 quote "up 119% to $644 million"]	data_package section 4, row "Climate Solutions / Data center cooling"; section 6 row "Climate / data centers"
Heat transfer	$541.3mm [DP section 4, product row 2]	$473.4mm [DP section 4, product row 2]	$402.9mm [DP section 4, product row 2]	-13.7% [calc from DP section 4]	-14.9% [calc from DP section 4 dollars; data package does not separately disclose product YoY]	data_package section 4, row "Climate Solutions / Heat transfer"
HVAC&R	$341.0mm [DP section 4, product row 3]	$340.5mm [DP section 4, product row 3]	$393.5mm [DP section 4, product row 3]	7.4% [calc from DP section 4]	15.6% [calc from DP section 4 dollars; data package does not separately disclose annual product YoY]	data_package section 4, row "Climate Solutions / HVAC&R"
Data centers current 9M trend	n/a [not a FY annual row]	n/a [not a FY annual row]	9M FY2026 $710.1mm [DP section 4, current trend row]	n/a	Q3 +78%; Q2 +42% [DP section 4, current trend row]	data_package section 4, row "Climate / Data centers"
Heat transfer solutions current 9M trend	n/a [not a FY annual row]	n/a [not a FY annual row]	9M FY2026 $422.4mm [DP section 4, current trend row]	n/a	Q3 +14% [DP section 4, current trend row]	data_package section 4, row "Climate / Heat transfer solutions"
HVAC technologies current 9M trend	n/a [not a FY annual row]	n/a [not a FY annual row]	9M FY2026 $260.9mm [DP section 4, current trend row]	n/a	Q3 +48%, including $42.8mm acquired sales [DP section 4, current trend row]	data_package section 4, row "Climate / HVAC technologies"

Arithmetic tie-out checks:

Row	Check	Result
Climate total FY2024 to FY2025	$1,108.1mm x 1.300 = $1,440.5mm	Pass; ties to $1,440.6mm within rounding
Data center cooling FY2024 to FY2025	$294.2mm x 2.190 = $644.3mm	Pass; ties to $644.2mm within rounding
Heat transfer FY2024 to FY2025	$473.4mm x 0.851 = $402.9mm	Pass; ties to $402.9mm
HVAC&R FY2024 to FY2025	$340.5mm x 1.156 = $393.6mm	Pass; ties to $393.5mm within rounding
FY2026 Data centers current quarters	$186.9mm + $226.3mm + $296.9mm = $710.1mm	Pass; exactly matches data package statement

[DATA GAP: The data package does not disclose FY2026 quarterly product dollars for Heat transfer solutions or HVAC technologies by quarter, only 9M dollars and selected Q2/Q3 growth-rate disclosures. This appendix does not back-solve those missing quarters.]

7. Management Guidance - Quoted from Data Package Section 6

The following are the relevant Climate Solutions entries from data_package section 6. They are reproduced here as the management anchor for the forecast, with interpretation by this sub-agent.

Area	Source date / fiscal period	Speaker	Verbatim snippet	Interpretation
Climate / data centers	Q4 FY2025 call, 2025-05-21	Neil Brinker, CEO	"data centers, which were up 119% to $644 million"	This confirms FY2025 was not a modest cyclical recovery; it was a step-change in data center cooling. The forward model should start from high current momentum but not extrapolate 119% indefinitely.
Climate / data centers	Q1 FY2026 call, 2025-07-31	Neil Brinker, CEO	"approach $2 billion of data center revenues in fiscal '28"	This is the most important revenue anchor. A base case that never gets near $2 billion by FY2028 would contradict management unless it explicitly assumes execution failure or demand reversal.

Area	Source date / fiscal period	Speaker	Verbatim snippet	Interpretation
Climate / capacity	Q2 FY2026 call, 2025-10-29	Neil Brinker, CEO	"path to deliver more than 60% revenue growth"	The phrase supports near-term data-center growth but also highlights the operational burden of adding lines, labor, and inventory ahead of revenue.
Climate / data centers	Q3 FY2026 call, 2026-02-05	Neil Brinker, CEO	"record order intake"	Record orders reduce but do not eliminate volume risk. The quality question is whether orders convert at attractive margins and cash terms.
Climate / margin	Q3 FY2026 call, 2026-02-05	Michael Lucareli, CFO	"goal next year would be 20% to 23%"	This is the key margin anchor. The TTM margin is 15.6%, but management is pointing to a recovery as capacity absorption improves.
Climate / technology	Q3 FY2026 call, 2026-02-05	Neil Brinker, CEO	"higher ambient temperature...is a positive development"	Modine argues warmer liquid loops can improve rather than impair its role. The forecast should not automatically assume liquid-cooling architecture displaces Modine, but the bear case should still test architecture risk.
Corporate portfolio	Gentherm RMT release, 2026-01-29	Neil Brinker, CEO	"pure-play climate solutions company"	The strategic direction is clear: future Modine is a Climate-focused business if Performance Technologies closes. Segment-level economics matter more than legacy consolidated mix.

The data package's own Climate interpretation says data center revenue was on track for more than 70% FY2026 growth and 50%-70% annual growth for the next two years, while the margin story is two-stage: temporary cost absorption in FY2026 followed by a FY2027 Climate margin target around 20%-23% [data_package section 6, Additional modeling interpretation]. This appendix uses those statements as a near-term guide but decelerates growth by the 2030 horizon because the denominator becomes much larger and competitors are adding capacity.

8. Forward Growth Assumptions - Explicit, Per Product

The forward model starts from the disclosed Climate TTM segment total of $1,749.7 million [data_package section 5, TTM construction paragraph]. Because exact TTM product split is not disclosed, product bases are estimated as described in section 2 and tied to the segment total. This is the only product-base estimate in the file; every historical dollar input comes from the data package.

Estimated product TTM base:

Product	TTM base used	Construction
Data centers	$869.4mm	9M FY2026 Data centers $710.1mm plus estimated Q4 FY2025 allocation of $159.3mm
Heat transfer solutions	$522.1mm	9M FY2026 Heat transfer solutions $422.4mm plus estimated Q4 FY2025 allocation of $99.7mm
HVAC technologies	$358.2mm	9M FY2026 HVAC technologies $260.9mm plus estimated Q4 FY2025 allocation of $97.3mm
Climate Solutions total	$1,749.7mm	Ties to data_package section 5 TTM Climate external sales

Base Case Growth

Product	Historical CAGR	Latest YoY / current trend	Management anchor	Base CAGR TTM to TTM+5y	TTM+5y revenue	Justification
Data centers	92.6% FY2023-FY2025 [DP section 4]	Q3 FY2026 +78%; 9M $710.1mm [DP section 4]	Approach $2B data center revenue in fiscal 2028 [DP section 6]	26.0%	$2,759mm	Base assumes Modine substantially meets the FY2028 target, then decelerates as the revenue base passes $2B and competitors expand. A 26% five-year CAGR is far below the 92.6% disclosed-period CAGR but still aggressive enough to reflect AI infrastructure demand and capacity additions.
Heat transfer solutions	-13.7% FY2023-FY2025 [DP section 4]	Q3 FY2026 +14%; 9M $422.4mm [DP section 4]	No explicit multi-year guide [DATA GAP]	2.0%	$576mm	Base assumes the FY2025 decline stabilizes as HVAC/R demand, coatings, and price/cost recovery offset mature-market pressure. Growth remains low because the line lacks the data-center secular tailwind and has shown a negative disclosed-period CAGR.
HVAC technologies	7.4% FY2023-FY2025 [DP section 4]	Q3 FY2026 +48%, including $42.8mm acquired sales [DP section 4]	No explicit multi-year guide [DATA GAP]	8.0%	$526mm	Base assumes acquisitions and indoor-air-quality/specialty HVAC demand support above-GDP growth, but the Q3 rate is not treated as organic run-rate because the data package explicitly says acquired sales contributed.
Climate Solutions total	16.8% FY2023-FY2025 [DP section 3]	Q3 FY2026 Climate +51% [DP section 5]	FY2027 margin target and data-center growth comments [DP section 6]	17.1% implied	$3,861mm	The segment growth rate is a bottoms-up result, not a top-down plug. Data centers become about 71% of Climate revenue by 2030 in this case.

Base case year-by-year data-center deceleration: the estimated TTM base of $869.4 million grows to about $1.15 billion after year 1, $1.52 billion after year 2, $1.91 billion after year 3, $2.36 billion after year 4, and $2.76 billion by 2030. That path is consistent with management's "approach $2 billion" fiscal 2028 statement if the exact fiscal-year calendar and undisclosed Q4 product split are not treated as precise, and it then slows materially as the base scales.

Bull Case Growth

Product	Historical CAGR	Latest YoY / current trend	Management anchor	Bull CAGR TTM to TTM+5y	TTM+5y revenue	Justification
Data centers	92.6% FY2023-FY2025 [DP section 4]	Q3 FY2026 +78%; 9M $710.1mm [DP section 4]	Management cited 50%-70% annual growth for the next two years in the data-package interpretation [DP section 6]	34.0%	$3,760mm	Bull assumes Modine wins more long-term capacity commitments, keeps share in both air and liquid/hybrid architectures, and turns capacity additions into revenue without major quality or supply-chain slippage. Growth still decelerates sharply from the historical CAGR because the revenue base becomes much larger.
Heat transfer solutions	-13.7% FY2023-FY2025 [DP section 4]	Q3 FY2026 +14% [DP section 4]	No explicit guide [DATA GAP]	5.0%	$666mm	Bull assumes price/cost recovery, coatings demand, refrigerant-transition work, and selective data-center-adjacent heat-exchanger content restore moderate growth.

Product	Historical CAGR	Latest YoY / current trend	Management anchor	Bull CAGR TTM to TTM+5y	TTM+5y revenue	Justification
HVAC technologies	7.4% FY2023-FY2025 [DP section 4]	Q3 FY2026 +48%, including acquisitions [DP section 4]	No explicit guide [DATA GAP]	12.0%	$631mm	Bull assumes recent acquisitions integrate well, cross-selling improves, and specialty air-handling/IAQ demand grows faster than conventional HVAC.
Climate Solutions total	16.8% FY2023-FY2025 [DP section 3]	Q3 FY2026 Climate +51% [DP section 5]	Data-center revenue and margin anchors [DP section 6]	23.6% implied	$5,057mm	The bull case is essentially a scaled data-center platform with HVAC as a second leg, not a balanced legacy HVAC segment.

Bull case year-by-year data-center deceleration: $869.4 million grows to about $1.23 billion, $1.70 billion, $2.31 billion, $3.04 billion, and $3.76 billion. This is demanding but not a straight-line extrapolation of 78%-119% current growth. It requires the AI buildout to remain supply constrained and for Modine to avoid losing value share to larger integrated power/cooling vendors.

Bear Case Growth

Product	Historical CAGR	Latest YoY / current trend	Management anchor	Bear CAGR TTM to TTM+5y	TTM+5y revenue	Justification
Data centers	92.6% FY2023-FY2025 [DP section 4]	Q3 FY2026 +78%; 9M $710.1mm [DP section 4]	Approach $2B in fiscal 2028 [DP section 6]	15.0%	$1,749mm	Bear assumes Modine grows but misses the spirit of the FY2028 target because capacity ramps slower, hyperscale orders are lumpier, and some liquid-cooling value shifts to cold-plate/CDU specialists or integrated competitors.
Heat transfer solutions	-13.7% FY2023-FY2025 [DP section 4]	Q3 FY2026 +14% [DP section 4]	No explicit guide [DATA GAP]	-2.0%	$472mm	Bear assumes the Q3 recovery is temporary and mature HVAC/R and coil markets remain pressured by cycles, European heat-pump delays, and price competition.
HVAC technologies	7.4% FY2023-FY2025 [DP section 4]	Q3 FY2026 +48%, including acquisitions [DP section 4]	No explicit guide [DATA GAP]	3.0%	$415mm	Bear assumes acquired growth fades, integration absorbs management attention, and conventional HVAC channels normalize after the acquisition contribution.
Climate Solutions total	16.8% FY2023-FY2025 [DP section 3]	Q3 FY2026 Climate +51% [DP section 5]	Data-center and margin anchors [DP section 6]	8.5% implied	$2,636mm	The bear case still grows because the data-center backlog is real, but the segment fails to become a clearly dominant high-margin platform by 2030.

Bear case year-by-year data-center deceleration: $869.4 million grows to about $1.02 billion, $1.18 billion, $1.38 billion, $1.59 billion, and $1.75 billion. This is a clear miss versus management's current ambition, so it should be used only if the analyst believes order conversion, architecture fit, or capacity execution disappoints.

9. Forward Operating Margin Assumptions

Current segment operating margin is 15.6% on the TTM base: $273.8 million of Climate segment operating income on $1,749.7 million of Climate external sales [data_package section 5, TTM construction paragraph]. FY2025 margin was higher at 17.2% [data_package section 3, Climate Solutions table]. Management's forward anchor is the Q3 FY2026 CFO quote that the "goal next year would be 20% to 23%" [data_package section 6, Climate / margin row]. The model therefore does not treat the TTM margin as steady state; it treats it as a ramp-period margin.

The data package does not disclose product-level operating income. Product margins below are analytical assumptions, not reported Modine figures. They are chosen to reconcile to a plausible segment margin under each case and are justified by

mix, scale, capacity absorption, and competitive pressure.

Base Case Margin

Product	TTM+5y revenue	TTM+5y operating margin	TTM+5y operating income	Mechanism
Data centers	$2,759mm	24.0%	$662mm	Data center capacity fills, fixed-cost absorption improves, and engineered systems retain pricing power, but margin is capped below a software-like level because Modine must fund plants, labor, warranty, materials, and competition from Vertiv/JCI/Trane/STULZ.
Heat transfer solutions	$576mm	18.0%	$104mm	Mature line recovers from price/cost and volume pressure but remains more cyclical and competitive than Data centers.
HVAC technologies	$526mm	19.0%	$100mm	Acquisitions integrate and specialty HVAC/IAQ improves mix, partly offset by integration costs and channel margin limits.
Climate Solutions total	$3,861mm	22.4%	$866mm	Revenue-weighted result; above current TTM margin by roughly 675 bps, consistent with management's 20%-23% near-term target if scale absorption works.

The base case margin improvement greater than 100 bps is justified by three mechanisms: fixed-cost absorption from filled data-center lines, mix shift from Data centers rising from about half of estimated TTM Climate revenue to about 71% of 2030 revenue, and acquisition/80-20 discipline in HVAC. The offset is higher depreciation, skilled labor, warranty, and customer concentration. This is why the base margin stops at 22.4%, rather than assuming 25%+ immediately after management's FY2027 target.

Bull Case Margin

Product	TTM+5y revenue	TTM+5y operating margin	TTM+5y operating income	Mechanism
Data centers	$3,760mm	27.0%	$1,015mm	Modine gains strategic supplier status, long-term capacity agreements reduce utilization risk, and service/controls/replacement content lifts lifecycle profitability.
Heat transfer solutions	$666mm	20.0%	$133mm	Better mix, coatings, price/cost, and facility productivity lift a mature product line into high-teens/20% margin.
HVAC technologies	$631mm	21.0%	$133mm	Acquisitions create scale and cross-sell benefits without major integration leakage.
Climate Solutions total	$5,057mm	25.3%	$1,281mm	Revenue-weighted result; requires execution and sustained differentiation in data centers.

The bull case requires more than demand. It requires Modine to defend value share as competitors buy liquid-cooling capability, while also converting growth into cash. If the company must continually prebuild capacity without binding customer economics, bull-case operating margin is too high even if revenue is achievable.

Bear Case Margin

Product	TTM+5y revenue	TTM+5y operating margin	TTM+5y operating income	Mechanism
Data centers	$1,749mm	18.0%	$315mm	Growth continues, but underutilized capacity, pricing pressure, customer dual-sourcing, and architecture shifts prevent scale benefits from fully appearing.
Heat transfer solutions	$472mm	14.0%	$66mm	Mature HVAC/R weakness and raw-material lag pressure margins.
HVAC technologies	$415mm	15.0%	$62mm	Acquired businesses add complexity without enough scale leverage.
Climate Solutions total	$2,636mm	16.8%	$444mm	Revenue-weighted result; only modestly above TTM margin and below management's target range.

The bear case margin is not a collapse. It is a failure to monetize the data-center ramp at the margins currently implied by management's targets. That is the key downside scenario for a high-multiple industrial transformation: reported revenue grows, but cash and operating income do not compound fast enough.

10. Segment Rollup - Bottoms-Up Arithmetic

Case	Data centers revenue	Heat transfer revenue	HVAC technologies revenue	Segment TTM+5y revenue	Segment TTM+5y operating margin	Segment TTM+5y operating income
Bear	$1,749mm	$472mm	$415mm	$2,636mm	16.8%	$444mm
Base	$2,759mm	$576mm	$526mm	$3,861mm	22.4%	$866mm
Bull	$3,760mm	$666mm	$631mm	$5,057mm	25.3%	$1,281mm

Arithmetic tie-out:

Case	Revenue sum check	OI sum check
Bear	$1,749mm + $472mm + $415mm = $2,636mm	$315mm + $66mm + $62mm = $444mm, or 16.8% of revenue
Base	$2,759mm + $576mm + $526mm = $3,861mm	$662mm + $104mm + $100mm = $866mm, or 22.4% of revenue
Bull	$3,760mm + $666mm + $631mm = $5,057mm	$1,015mm + $133mm + $133mm = $1,281mm, or 25.3% of revenue

The rollup intentionally keeps Data centers as the swing factor. Heat transfer and HVAC Technologies matter, but the difference between bear and bull is mostly whether Data centers becomes a roughly $1.75 billion product line or a roughly $3.76 billion product line by 2030. The base case effectively says Modine becomes a data-center-led Climate platform with meaningful but secondary commercial HVAC and heat-transfer earnings. The bear case says it remains a good industrial Climate business but not the dominant AI thermal platform implied by the current growth narrative. The bull case says the company turns current scarcity and technical qualification into a scaled, high-margin thermal-management franchise.

11. Key Risks and Wildcards

- Bear - Capacity execution. The data package already notes Q2/Q3 margin compression from added labor, greenfield capacity, and inventory ahead of revenue absorption [data_package section 3, Key Climate notes]. If new lines in data-center products ramp slowly, the segment can miss margin even with strong orders.

- Bear - Cooling architecture migration. Direct-to-chip, immersion, rear-door heat exchangers, warmer loops, customer reference designs, and chip-level thermal innovation can shift where value accrues. Modine can participate, but competitors such as Vertiv, Johnson Controls, Trane/LiquidStack, STULZ, Schneider/Motivair, and CoolIT/Ecolab are actively building similar or adjacent portfolios.

- Bear/Base - Customer concentration and buyer power. Large hyperscale and colocation customers can support big growth, but they can also dual-source, demand capacity commitments, pressure price, and change specifications quickly. A single lost platform can matter.

- Base - Cash conversion. The data package flags weak FCF conversion during the ramp and a discrepancy between company-reported and FMP-derived TTM FCF [data_package section 10, open gap 8]. A quality-compounder conclusion needs proof that working capital and capex normalize after the capacity build.

- Base/Bull - Long-term agreements. If "record order intake" turns into binding multi-year commitments with good pricing and shared capacity risk, Modine's moat improves. If order intake remains nonbinding or project-based, revenue visibility is weaker.

- Bull - Service and lifecycle attachment. Vertiv's annual report emphasizes lifecycle services and system-level engagement in mission-critical infrastructure. If Modine builds a stronger service, controls, and replacement-parts layer around Airedale and data-center cooling, margins could exceed the base case.

- Base/Bear - Acquisition integration. AbsolutAire, L.B. White, Climate by Design, and Scott Springfield can broaden HVAC Technologies, but integration can also dilute management focus and near-term margin if systems, procurement, and go-to-market are not harmonized.

- Bear - Input costs and tariffs. Climate products use metals, components, compressors, controls, and freight. If aluminum, copper, steel, stainless, labor, or tariff costs rise faster than Modine can price, the 20%-23% margin target becomes harder.

- Bull/Bear - Performance Technologies separation. The appendix models Climate as a segment, but the 2030 company context depends on the Gentherm Reverse Morris Trust closing and on how proceeds, residual ownership, debt, stranded costs, and management focus are handled. Segment economics improve strategically if Modine becomes the intended pure-play Climate Solutions company, but stranded cost allocation could affect reported margins.

Summary Table

Case	Segment TTM+5y Revenue	Segment TTM+5y Op Margin	Segment TTM+5y Op Income	Probability
Bear	$2,636mm	16.8%	$444mm	30%
Base	$3,861mm	22.4%	$866mm	50%
Bull	$5,057mm	25.3%	$1,281mm	20%

The weighted scenario result is $3,733 million of 2030 Climate Solutions revenue, 22.0% operating margin, and about $822 million of segment operating income. The base case receives the highest weight because recent order and management commentary are strong, but the bear tail is weighted above the bull tail because cash conversion is weak during the ramp, capacity execution is not yet proven at the FY2028 scale target, and large competitors are adding liquid-cooling capability. The real analytical decision is whether the data-center revenue curve should be closer to the bear case, where architecture and capacity execution cap the platform near $1.75 billion, or the bull case, where Modine becomes one of the scaled winners in AI thermal infrastructure.

Appendix B2 - Performance Technologies

Performance Technologies - Segment Deep Dive

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Analyst role: Sub-Agent B for Modine Manufacturing Company (MOD), segment Performance Technologies. Production Mode. Data source rule followed: for Modine's own historical figures, `data_package.md` and `quant_foundation.md` are authoritative; external context was live fetched only and logged under `raw/performance_technologies_20260430/source_log.md`; no data warehouse cache was used.

Stage 0 anchor: company fiscal year ends March 31; most recently reported quarter is Q3 FY2026 ended 2025-12-31; TTM equals Q4 FY2025 plus Q1-Q3 FY2026 and ends 2025-12-31; forward horizon is 2030-12-31, exactly five calendar years from the TTM anchor.

0. Segment Boundary and Taxonomy Note

Performance Technologies is still a Modine reportable segment in the latest reported period, but it is explicitly not the intended long-term core of continuing MOD. The data package states that the current reportable segments are Climate Solutions and Performance Technologies, and that Performance Technologies designs and manufactures air- and liquid-cooled heat exchangers plus advanced thermal systems for vehicular, stationary power, industrial, zero-emission, and hybrid applications [data_package.md lines 30-40]. There was a taxonomy adjustment effective April 1, 2024: the Coatings business moved from Performance Technologies to Climate Solutions and prior-year segment data was recast [data_package.md lines 42-49]. Therefore, this appendix uses recast segment-level history for FY2021-FY2025, uses FY2023-FY2025 product-level annual rows where the data package provides them, and does not compare old pre-recast product captions to current dollars as if they were unchanged.

The second boundary issue is larger: in January 2026, Modine and Gentherm announced a Reverse Morris Trust transaction that would spin off and combine Modine Performance Technologies with Gentherm. The data package records the transaction value at approximately $1.0 billion, a $210 million expected cash distribution to Modine, and Modine shareholders' expected ownership of about 40% of the combined Gentherm/PT company [data_package.md lines 202-205]. The data package also states that the transaction is expected to close in Q4 calendar 2026 subject to approvals [data_package.md lines 162-168], and Gentherm's April 23, 2026 Q1 release says the transaction remains on track to close by year-end after announcement of the Modine/PT combination [Gentherm Q1 2026 release, 2026-04-23]. Consequently, this appendix models two views: a standalone Performance Technologies operating case and the continuing-MOD case in which PT is removed from MOD by the 2030-12-31 horizon.

1. What This Segment Actually Is

Performance Technologies is an engineered thermal-management segment, not a consumer HVAC or data-center cooling business. It sells heat exchangers, cooling modules, and thermal systems into customers that need reliable temperature control in physically demanding environments. The FY2025 product captions in the data package are air-cooled applications, liquid-cooled applications, and advanced solutions [data_package.md lines 105-117]. The FY2026 year-to-date captions have changed to heavy-duty equipment and on-highway applications [data_package.md lines 118-128]. That caption shift matters because the current 9M FY2026 product table should not be forced back into the FY2025 air/liquid/advanced labels. For the forward model, the segment total is the controlling figure. Product-level growth is shown with clear data-gap labels where Modine has not disclosed clean TTM product dollars.

The customer base is primarily OEM and Tier 1 industrial/vehicle customers rather than direct end users. The Modine investor release for the Gentherm transaction describes Performance Technologies as serving vehicular and power-generation end markets with both air-cooled and liquid-cooled technologies, and it says the business has long-standing blue-chip OEM and Tier 1 relationships, roughly 5,000 employees, and operations across 10 countries. Modine's public markets page provides qualitative support for the same footprint: commercial vehicles, agriculture/construction/mining equipment, e-mobility platforms, industrial process cooling, and stationary power generation all require durable heat-management solutions in high-load, high-vibration, high-temperature environments. I use that external context to describe customer applications, not to replace Modine historical revenue, because the historical figures below come only from the data package.

The pricing model is project and program based. Customers do not buy generic, interchangeable commodity radiators from Modine's PT segment in the way a consumer buys replacement parts. They specify performance, durability, packaging, service life, thermal load, and integration requirements into vehicle or equipment platforms. That creates some switching cost once Modine is designed into a program, but it also gives large OEM customers bargaining power before award and at renewal. The segment's economics therefore look like a mid-quality engineered component supplier: better than a commodity fabricator when programs are stable, less attractive than Climate Solutions data-center cooling when the end market grows rapidly and capacity is scarce.

The go-to-market model is global and engineering-led. Modine supplies customers where their platforms are built, so local manufacturing footprint, testing capability, launch quality, and program-management discipline are part of the product. That footprint is useful for global OEMs, but it also adds fixed cost and operating complexity. The pending Gentherm combination is strategically logical because Gentherm adds automotive thermal comfort, valves, pneumatic comfort, and related platforms while PT adds engine/powertrain, commercial vehicle, heavy-duty equipment, and power-generation cooling exposure. The combination may broaden the customer conversation, but it does not magically eliminate commercial-vehicle cyclicality or OEM pricing pressure.

2. Current Economics (FY2025 and TTM)

FY2025 Performance Technologies external sales were $1,142.9 million, equal to 44.2% of Modine consolidated sales, and segment operating income was $108.0 million, a 9.4% operating margin on external sales [data_package.md lines 34-40 and 94-103]. TTM external sales ending 2025-12-31 were $1,124.2 million, and TTM segment operating income was $111.9 million [data_package.md lines 130-143; quant_foundation.md lines 114-130]. The TTM margin is therefore 10.0% before corporate/eliminations, slightly above FY2025 because 9M FY2026 operating income improved despite revenue softness.

Recent quarterly trend is mixed. Q4 FY2025 Performance external sales were $290.9 million with $29.9 million of segment operating income; Q1 FY2026 sales were $285.5 million with $26.5 million of OI; Q2 FY2026 sales were $286.3 million with $29.7 million of OI; Q3 FY2026 sales were $266.0 million with $25.8 million of OI [data_package.md lines 130-141]. Revenue is not growing, but profit has held up better than revenue because pricing, cost recovery, and SG&A reductions offset weak volumes [data_package.md lines 103 and 157-158]. This is an important distinction for the segment forecast: the revenue algorithm should be conservative, while margin should not be mechanically crushed unless volume declines enough to overpower cost actions.

FY2025 product-level revenue, before the FY2026 caption shift, was $609.0 million for air-cooled applications, $404.5 million for liquid-cooled applications, and $129.4 million for advanced solutions [data_package.md lines 109-117]. These add to $1,142.9 million. In FY2026 year-to-date disclosure, the product labels are heavy-duty equipment at $300.9 million and on-highway applications at $532.4 million, which together equal the $833.3 million of 9M FY2026 Performance external sales [data_package.md lines 120-128; quant_foundation.md lines 69-71 and 117-121]. Because the company does not disclose Q4 FY2025 product dollars under the FY2026 labels, TTM product dollars are not cleanly disclosed. This appendix uses the 9M FY2026 product mix only as a forecast allocation bridge, not as a claimed historical TTM product table.

Capital intensity is moderate in steady state but not zero. FY2025 segment capex was $30.2 million for Performance Technologies versus FY2025 segment revenue of $1,142.9 million, or 2.6% of segment sales [data_package.md lines 170-182]. That is lower than the current data-center expansion burden in Climate Solutions. The segment still needs tooling, launch support, testing, plant upkeep, and working capital for program cycles, but it is not the main source of Modine's current capacity ramp. This makes PT useful as a cash-generating asset if retained, but it also explains why Modine wants to monetize/separate it: the better incremental capital opportunities appear to sit in Climate Solutions.

3. Unit Economics

Performance Technologies converts engineering relevance into profit through design-in wins, program duration, manufacturing quality, procurement discipline, and mix. The product is usually a system or module that must survive demanding duty cycles. That gives Modine an opportunity to earn above-fabrication margins when it solves a difficult thermal problem for a customer, but the customer is often a sophisticated OEM with procurement leverage. Unit economics improve when the segment can reuse proven heat-exchanger cores, fan/module designs, and testing know-how across multiple platforms. They weaken when the business must launch bespoke programs with low volumes, high engineering effort, tight customer pricing, or volatile commodity costs.

The segment's margin history shows both operational leverage and cyclical fragility. Reported operating margin was negative 10.1% in FY2021, rebounded to 6.8% in FY2022, fell to 4.6% in FY2023, recovered to 8.6% in FY2024, and reached 9.4% in

FY2025 [data_package.md lines 94-103]. The current TTM margin of roughly 10.0% comes despite sales pressure. That tells us the segment has real self-help and price/cost potential, but it also tells us that a double-digit margin is not structurally guaranteed. The margin can disappear quickly when volumes fall, launch costs rise, or cost recovery lags input inflation.

Gross margin detail by segment is available in the quarterly trend table rather than the annual segment history. Q4 FY2025 Performance gross margin was 20.4%; Q1 FY2026 was 18.2%; Q2 FY2026 was 18.9%; Q3 FY2026 was 18.9% [data_package.md lines 134-139]. Segment operating margin over the same quarters was roughly 10.3%, 9.3%, 10.4%, and 9.7%. That spread implies an SG&A/engineering burden around nine percentage points of revenue in the current run rate. If Gentherm captures synergies, the combined company may reduce duplicated public-company, regional, procurement, or support costs. If Modine retained PT alone, margin expansion would need to come from 80/20 program rationalization, pricing discipline, plant utilization, and mix toward power generation/e-mobility rather than from deal synergies.

The main unit-economic upside is mix. Advanced thermal solutions and power-generation applications should be more engineered and less price-transparent than mature on-highway heat exchangers. The main downside is customer concentration by program. When commercial vehicle or off-highway customers reduce builds, the supplier cannot immediately resize engineering and plant infrastructure without risking future awards. The FY2025 revenue decline after dispositions and softer off-highway/commercial-vehicle markets, paired with margin improvement, suggests Modine has already exited or deemphasized lower-quality business [data_package.md lines 103 and 157-158]. That improves unit economics but reduces near-term revenue scale.

4. Competitive Dynamics

Performance Technologies competes in a crowded but application-specific thermal-management ecosystem. Competitors and substitutes include large automotive and industrial thermal suppliers such as Denso, Valeo, Mahle, Hanon Systems, BorgWarner, Dana, and specialized module or heat-exchanger makers, plus in-house OEM engineering where customers choose to own more of the thermal stack. Gentherm itself is less of a direct legacy heat-exchanger competitor and more of a complementary thermal comfort and precision-flow platform. The transaction release frames the combination as cross-selling and portfolio expansion across thermal management, air moving devices, pneumatic solutions, and valves. That is plausible because the combined company can present a broader thermal and flow-management toolkit to OEM customers.

The competitive battlefield differs by submarket. In mature on-highway applications, the customer may be optimizing cost, supply reliability, launch quality, and global footprint. In heavy-duty equipment and off-highway, durability and packaging in harsh conditions matter more, and volumes can be lower but specifications are more demanding. In stationary power generation, reliability and uptime carry more weight because the cooling system protects critical equipment. In e-mobility and hybrid applications, thermal complexity rises because batteries, power electronics, motors, cabin comfort, and charging profiles all create thermal loads. Modine's external markets page specifically points to commercial vehicle, e-mobility, agriculture/construction/mining, and stationary power generation applications; I treat those as addressable contexts, not as disclosed revenue buckets.

Pricing power is moderate, not high. Design-in status and validation requirements protect a supplier for the life of a program, but many awards are competed before launch and can be repriced as platforms evolve. OEMs usually have alternatives if a component is not proprietary or if the thermal problem is well understood. Modine's advantage is strongest where customer downtime, warranty risk, thermal performance, and integration complexity are high enough to make the cheapest bid unattractive. It is weakest where the product is a mature metal heat exchanger with multiple qualified suppliers and low differentiation.

The Gentherm combination may improve competitive positioning in three ways. First, it creates more scale: Gentherm reported record 2025 revenue of about $1.5 billion and the transaction release framed the pro forma company as around $2.6 billion of revenue. Second, it diversifies end-market exposure by reducing Gentherm's light-vehicle concentration and adding commercial vehicle, heavy-duty equipment, and power-generation exposure. Third, it creates operational synergy potential: Gentherm and Modine cite $25 million of identified annual cost synergies excluding commercial opportunities. Those benefits are not standalone Modine PT benefits unless the transaction closes, so the standalone model below does not credit all of them.

5. Segment-Level Moat

Performance Technologies has a niche engineered-supplier moat, not a compounder-grade moat. The durable pieces are customer qualification, platform design-in, thermal engineering know-how, test capability, global manufacturing footprint, and long operating history in harsh-duty applications. These can make customer switching expensive during a program. They can

also earn repeat business if Modine executes well. The moat is stronger in mission-critical stationary power, heavy-duty equipment, and specialized thermal systems than in commoditized on-highway cooling modules.

The moat is not strong enough to underwrite a 20-year compounder by itself. The historical revenue record shows only modest growth: FY2022-FY2025 revenue was essentially flat despite a good FY2023-FY2024 period, and FY2025 revenue declined 12.1% [data_package.md lines 94-103]. Product-level history is also uneven: FY2025 air-cooled and liquid-cooled revenue declined, while advanced solutions grew modestly from FY2024 and strongly versus FY2023 [data_package.md lines 109-117]. A true moat segment would not need corporate-level portfolio pruning and external combination to unlock value. PT is better understood as a valuable, competent engineered industrial business that may be worth more inside a broader thermal platform than as the non-core half of Modine.

The best five-to-ten-year durability argument is that thermal complexity is rising, not falling. Electrification, power density, emissions rules, generator demand, and harsh-duty uptime requirements should make thermal systems more important. The worst durability argument is that OEM customers know this too and will push suppliers to absorb engineering cost while sharing less economics. A prudent base case therefore gives PT low-to-mid single-digit revenue growth and modest margin expansion, not data-center-style growth or high-teens margins.

6. Historical Growth Rates - Reproduced From Data Package

Segment-level history is fully disclosed for five years. Product-level history is disclosed for FY2023-FY2025 only under the FY2025 product captions. [DATA GAP: product-level FY2022 revenue by current PT product line is not disclosed in the data package.] The product table therefore reports the available FY2023-FY2025 CAGR and explicitly does not invent a three-year product CAGR. The FY2026 YTD product labels are different and are shown separately only for current mix context.

Product / sub-segment	FY2023 rev	FY2024 rev	FY2025 rev	Available CAGR	Most recent YoY	Data package cite
Performance Technologies segment total	$1,241.8mm	$1,299.7mm	$1,142.9mm	-4.1% FY2023-FY2025; +0.1% FY2022-FY2025	-12.1%	data_package.md lines 94-103
Air-cooled applications	$658.6mm	$681.2mm	$609.0mm	-3.8% FY2023-FY2025	-10.6%	data_package.md lines 109-115
Liquid-cooled applications	$483.9mm	$491.6mm	$404.5mm	-8.6% FY2023-FY2025	-17.7%	data_package.md lines 109-116
Advanced solutions	$99.3mm	$126.9mm	$129.4mm	+14.2% FY2023-FY2025	+2.0%	data_package.md lines 109-117
Heavy-duty equipment	n/d	n/d	n/d	n/d	Q3 -3% by transcript; 9M FY2026 revenue $300.9mm	data_package.md lines 120-126
On-highway applications	n/d	n/d	n/d	n/d	Q3 +6% by transcript; 9M FY2026 revenue $532.4mm	data_package.md lines 120-127

Internal arithmetic checks:

Row	Check	Result
Segment FY2025	$1,299.7mm x (1 - 12.1%) = $1,142.4mm versus disclosed $1,142.9mm	pass, rounding
Segment FY2024	$1,241.8mm x (1 + 4.7%) = $1,300.2mm versus disclosed $1,299.7mm	pass, rounding
Air-cooled FY2025	$681.2mm x (1 - 10.6%) = $609.0mm	pass
Liquid-cooled FY2025	$491.6mm x (1 - 17.7%) = $404.6mm	pass, rounding
Advanced solutions FY2025	$126.9mm x (1 + 2.0%) = $129.4mm	pass

The FY2026 current-product disclosure is useful but cannot be merged directly with the FY2025 product captions. The company disclosed 9M FY2026 heavy-duty equipment revenue of $300.9 million and on-highway applications revenue of $532.4 million; those two lines sum to the 9M FY2026 PT external sales of $833.3 million [data_package.md lines 120-128; quant_foundation.md lines 117-121]. [DATA GAP: no separately disclosed FY2026 YTD advanced-solutions line, and no clean Q4 FY2025 product dollars under FY2026 labels.] Therefore, the forward model uses two current disclosure lines, heavy-duty/power/off-highway and on-highway/vehicular, while preserving the FY2023-FY2025 air/liquid/advanced table as historical context only.

7. Management Guidance - Quoted From Data Package Section 6

The relevant management guidance is less about organic growth and more about portfolio treatment. Data package Section 6 includes every Performance Technologies-specific snippet available from the latest four calls and the transaction release.

Area	Data package row	Verbatim snippet	Interpretation
Performance Technologies separation	data_package.md line 157	"spinning off the Performance Technologies segment"	The segment should not be modeled as a permanent continuing-MOD operating line in the base synthesis case if the RMT closes.
Resource allocation	data_package.md line 158	"actively reallocating resources to the Climate Solutions segment"	PT margin improvement is partly a consequence of 80/20 resource allocation and cost discipline, not evidence of a new high-growth standalone platform inside Modine.
Corporate portfolio intent	data_package.md line 160	"pure-play climate solutions company"	Modine's stated strategic endpoint is Climate Solutions. PT is a monetized/separated asset, not the future operating core.

The data package interpretation is explicit: management is treating PT as a monetized/combined asset, the transaction is expected to close in Q4 calendar 2026 subject to approvals, and FY+5 MOD economics should be built around the remaining Climate portfolio and transaction proceeds rather than permanent PT ownership [data_package.md lines 162-168 and 213-222]. This is the key modeling constraint. A standalone PT model is still necessary because the transaction can fail or be delayed, and because Modine shareholders may receive direct value through the combined Gentherm/PT stock, but continuing MOD's operating revenue and OI should remove PT in the close case.

8. Forward Growth Assumptions - Explicit, Per Product

The forward model starts from the TTM segment total: Performance Technologies TTM external sales of $1,124.2 million ending 2025-12-31 [data_package.md lines 141 and 224-226; quant_foundation.md lines 117-121]. [DATA GAP: clean TTM product dollars are not disclosed for current FY2026 PT product labels.] I allocate the TTM base using the 9M FY2026 current-product mix: heavy-duty equipment at $300.9 million, or 36.1% of PT YTD revenue, and on-highway applications at $532.4 million, or 63.9% [data_package.md lines 120-128]. Applied to TTM PT sales, this creates a forecast allocation base of $405.9 million for heavy-duty/power/off-highway and $718.3 million for on-highway/vehicular. This is not a disclosed historical product table; it is a modeling allocation used only so the segment rollup is reconstructable.

Base Case Growth

Product / modeled line	Historical anchor	Latest YoY / current trend	Mgmt FY+1 guide	Base CAGR TTM to 2030-12-31	Justification
Heavy-duty / power / off-highway thermal systems	FY2023-FY2025 air-cooled CAGR -3.8%; current 9M heavy-duty $300.9mm	Q3 heavy-duty -3%	No explicit PT growth guide; management is reallocating resources away from PT	+4.0%	This line gets the better PT growth rate because power generation, off-highway durability, and higher-spec equipment cooling should recover from the FY2025/FY2026 trough. The +4.0% base is above recent air-cooled history but below a secular-growth assumption because the segment is still exposed to cyclical industrial equipment demand.
On-highway / vehicular thermal systems	FY2023-FY2025 liquid-cooled CAGR -8.6%; current 9M on-highway $532.4mm	Q3 on-highway +6%	No explicit PT growth guide; transaction expected to close by end of 2026	+3.0%	The current Q3 growth signal is positive, but the two-year liquid-cooled history is weak and commercial-vehicle demand is cyclical. A +3.0% base assumes normal recovery, price/cost discipline, and some electrification content, but not a sustained share gain.

Bull Case Growth

Product / modeled line	Historical anchor	Latest YoY / current trend	Mgmt FY+1 guide	Bull CAGR TTM to 2030-12-31	Justification
Heavy-duty / power / off-highway thermal systems	Air-cooled FY2025 down 10.6% after FY2024 growth	Q3 heavy-duty -3%	No PT organic guide	+7.5%	Bull case assumes power-generation demand, off-highway recovery, and Gentherm cross-selling lift attach rates. It does not assume data-center-type growth; the cap is set by customer program cycles and manufacturing footprint.
On-highway / vehicular thermal systems	Liquid-cooled FY2025 down 17.7%, but on-highway Q3 +6%	Q3 on-highway +6%	No PT organic guide	+4.5%	Bull case assumes commercial vehicle production improves and electrified/hybrid thermal content offsets legacy platform pressure. Growth remains below the advanced-solutions FY2023-FY2025 CAGR because disclosed advanced solutions is small and not separately reported in FY2026 YTD.

Bear Case Growth

Product / modeled line	Historical anchor	Latest YoY / current trend	Mgmt FY+1 guide	Bear CAGR TTM to 2030-12-31	Justification
Heavy-duty / power / off-highway thermal systems	Air-cooled FY2023-FY2025 CAGR -3.8%	Q3 heavy-duty -3%	No PT organic guide	0.0%	Bear case assumes stationary power and off-highway resilience prevent deep decline, but customer destocking and cyclical equipment demand offset content growth.
On-highway / vehicular thermal systems	Liquid-cooled FY2023-FY2025 CAGR -8.6%	Q3 on-highway +6%	No PT organic guide	-1.5%	Bear case assumes on-highway weakness resumes, EV/hybrid program wins are insufficient to offset legacy platform pressure, and OEM price-downs absorb much of the engineering value.

The deceleration check is straightforward because no PT line is currently disclosed at very high growth. The latest disclosed current trends are Q3 heavy-duty down 3% and on-highway up 6% [data_package.md lines 120-127]. Base-case CAGRs of 4.0% and 3.0% are not heroic relative to those latest data points; they represent trough recovery and modest content growth. The bull case requires a better external environment and execution of Gentherm cross-selling; the bear case resembles the FY2025/FY2026 softness continuing with only partial cost protection.

Transaction overlay: for continuing MOD, the base case assumes the RMT closes by the end of calendar 2026, so PT segment revenue at the 2030-12-31 horizon is $0 inside MOD. The operating value moves to Modine shareholders through direct Gentherm/PT ownership, and Modine receives the expected $210 million cash distribution subject to adjustment [data_package.md lines 202-205 and 213-218]. If the transaction fails, the standalone model above becomes relevant to MOD's consolidated revenue and operating income, but it is an alternative ownership scenario rather than an add-on to the close-case MOD model.

9. Forward Operating Margin Assumptions - Explicit and Justified

Current segment margin is 10.0% on a TTM basis: $111.9 million of segment OI on $1,124.2 million of external sales [data_package.md lines 141 and 224-226; quant_foundation.md lines 117-130]. FY2025 margin was 9.4%, and FY2026 quarterly margin has stayed near 9%-10% despite weak volumes [data_package.md lines 94-103 and 134-141]. That is the anchor. The model should not give PT a Climate-like margin simply because the parent is becoming more focused, but it also should not penalize the segment below recent run-rate margin unless revenue weakens.

Product / modeled line	Current margin anchor	Bear 2030 margin	Base 2030 margin	Bull 2030 margin	Mechanism
Heavy-duty / power / off-highway thermal systems	Segment TTM margin 10.0%; no product margin disclosed	9.5%	11.5%	13.0%	More engineered mix and power/off-highway applications can support above-segment margin, especially if volume recovery absorbs fixed cost. Bear case holds margin below base because lower volume and customer price pressure limit leverage.
On-highway / vehicular thermal systems	Segment TTM margin 10.0%; no product margin disclosed	6.5%	10.0%	11.0%	On-highway is modeled as more price-competitive and more exposed to OEM purchasing cycles. Base case assumes cost discipline preserves current margin; bull case adds modest launch/mix leverage; bear case reflects under-absorption and price-downs.

The blended margin outputs are 7.6% bear, 10.6% base, and 11.8% bull. The base-case expansion of roughly 60 basis points from the current TTM margin is driven by two mechanisms: resource transfer and 80/20 discipline already visible in management commentary, and mix shift toward heavier-duty/power applications where reliability matters more. The bull-case expansion of roughly 180 basis points requires synergy or scale leverage and therefore is more plausible for the Gentherm-combined entity than for standalone Modine ownership. The bear-case margin decline to 7.6% assumes revenue softness returns and on-highway price pressure overwhelms SG&A reductions.

I do not allocate the full $25 million of announced Gentherm cost synergies to standalone PT. The transaction release says identified annual cost synergies are associated with the combined Gentherm/PT company, excluding incremental commercial opportunities, and the SEC risk language warns that integration and synergy achievement may be delayed or fail. For standalone MOD-retained PT, a smaller portion of margin self-help is reasonable, but not the whole transaction synergy pool. For continuing MOD after close, PT margin is irrelevant to operating segment results because the segment is removed.

10. Segment Rollup - Bottoms-Up and Transaction Cases

Standalone Performance Technologies Rollup

Case	Heavy-duty / power / off-highway 2030 revenue	On-highway / vehicular 2030 revenue	Segment 2030 revenue	Segment 2030 op margin	Segment 2030 op income	Probability
Bear	$405.9mm	$666.0mm	$1,071.9mm	7.6%	$81.9mm	20%
Base	$493.9mm	$832.7mm	$1,326.5mm	10.6%	$140.1mm	55%
Bull	$582.8mm	$895.1mm	$1,477.9mm	11.8%	$174.2mm	25%

Arithmetic tie-out:

Case	Revenue tie	OI tie
Bear	$405.9mm + $666.0mm = $1,071.9mm	$405.9mm x 9.5% + $666.0mm x 6.5% = $81.9mm
Base	$493.9mm + $832.7mm = $1,326.5mm	$493.9mm x 11.5% + $832.7mm x 10.0% = $140.1mm
Bull	$582.8mm + $895.1mm = $1,477.9mm	$582.8mm x 13.0% + $895.1mm x 11.0% = $174.2mm

The standalone base case implies a 3.4% segment revenue CAGR from TTM to 2030-12-31 and a 4.6% operating-income CAGR, starting from $1,124.2 million of TTM revenue and $111.9 million of TTM OI. That is a reasonable industrial supplier case, but it is not enough to drive Modine's investment thesis at the current valuation. It is more important as a value-transfer asset: PT can be monetized into cash and direct Gentherm ownership for Modine shareholders while management focuses remaining MOD on Climate Solutions.

Continuing-MOD Case if the RMT Closes

Case	PT revenue inside continuing MOD at 2030-12-31	PT OI inside continuing MOD at 2030-12-31	Treatment
Deal-failure sensitivity, not close-case MOD	Use standalone PT only if the RMT fails and MOD retains PT	Use standalone PT only if the RMT fails and MOD retains PT	This is a separate ownership scenario, not an amount to add to close-case continuing MOD.
Base close	$0	$0	Continuing MOD becomes Climate Solutions plus cash/debt effects; Modine shareholders separately receive Gentherm/PT shares.
Bull close	$0	$0	Upside to PT belongs in value of distributed Gentherm/PT ownership, not in MOD operating revenue.

This is the most important handoff to the synthesis agent. Do not add the standalone PT base-case $1,326.5 million of revenue and $140.1 million of OI to continuing MOD's FY+5 operating model if the base case assumes the transaction closes. Doing so would double-count value: MOD shareholders receive the separate combined-company stock, while continuing MOD no longer owns the PT operating segment. The only continuing-MOD operating contribution from PT in the close case should be zero; the $210 million cash distribution can affect debt, interest, cash, or capital allocation, subject to transaction adjustments and fees.

11. Key Risks and Wildcards

Bear risk: the RMT fails or is materially delayed. The SEC Q3 10-Q risk factor says the transaction is subject to Gentherm shareholder approval, regulatory approvals, IRS ruling and tax opinions, separation difficulty, and other closing conditions; Modine also expects $30 million to $40 million of transaction-related fees [SEC Q3 10-Q live source lines 11633-11657 and 13191-13218]. If the deal fails, MOD keeps a slower-growth, lower-multiple industrial segment while the market may have already priced in pure-play Climate Solutions.

Bear risk: on-highway and commercial-vehicle end markets roll over. PT's historical liquid-cooled line declined 17.7% in FY2025, and the segment total declined 12.1% [data_package.md lines 94-117]. A new downturn would pressure plant utilization and customer pricing at the same time, making the bear margin plausible.

Bear/base risk: product taxonomy changes obscure true product momentum. FY2025 product captions and FY2026 YTD product captions do not line up cleanly. This is a real data gap, not an analyst inconvenience. The model therefore uses segment totals as the controlling base and treats product allocations as forecast mechanics.

Base risk: value transfer is direct to shareholders, not fully captured in MOD operating EPS. If Modine shareholders receive Gentherm/PT shares directly, the value may not show up in continuing MOD's revenue or operating income. A synthesis that screens only continuing MOD EPS may understate total shareholder value; a synthesis that keeps PT revenue after close will overstate continuing MOD operations.

Bull wildcard: Gentherm realizes cross-selling and cost synergies faster than expected. The official transaction materials cite $25 million of identified annual cost synergies and commercial opportunities. If the combined company executes well, Modine shareholders' direct stake in the Gentherm/PT entity may be worth more than a static transaction multiple suggests.

Bull wildcard: power generation and electrified heavy-duty platforms accelerate. The segment serves stationary power, commercial vehicle, heavy-duty equipment, and advanced thermal applications. If grid constraints, backup generation, hybridization, and battery thermal management grow faster than expected, the heavy-duty/power/off-highway modeled line could look conservative.

Final Summary Table

Standalone PT Economics at 2030-12-31

Case	Segment TTM+5y Revenue	Segment TTM+5y Op Margin	Segment TTM+5y Op Income	Probability
Bear	$1,071.9mm	7.6%	$81.9mm	20%
Base	$1,326.5mm	10.6%	$140.1mm	55%
Bull	$1,477.9mm	11.8%	$174.2mm	25%

Continuing MOD if the Gentherm RMT Closes

Case	Segment TTM+5y Revenue in MOD	Segment TTM+5y Op Margin in MOD	Segment TTM+5y Op Income in MOD	Probability
Deal-failure sensitivity, not close-case MOD	Use standalone PT case only if retained	n/m if removed	Use standalone PT case only if retained	Separate scenario; do not add to close-case MOD
Base / deal closes	$0.0mm	n/m	$0.0mm	60%
Bull / deal closes with strong Gentherm value	$0.0mm	n/m	$0.0mm	20%

Bottom line: Performance Technologies is a real, cash-generating engineered thermal business with moderate margin durability and some recovery upside. It is not the core Modine compounding engine. For the MOD ER2 synthesis, the base operating model should remove PT from continuing MOD by the 2030-12-31 horizon, while separately recognizing the $210 million expected cash distribution and the direct shareholder value of the Gentherm/PT ownership received in the RMT.

Appendix S - Synthesis (Combined Earnings Model)

Modine Manufacturing Company (MOD) - Synthesis (Combined Earnings Model)

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Production Mode. This appendix builds the combined TTM+5y earnings model for Modine Manufacturing Company using the reviewed ER2 inputs in this folder. The model uses the orchestrator price and date anchors, the DR-cleared data package, the R-reviewed segment appendices, the management gate appendix, and the moat appendix. No market data was re-fetched for this synthesis.

The central modeling boundary is the Gentherm Reverse Morris Trust transaction. Performance Technologies remains a reported segment in the TTM anchor, but the R-reviewed Performance Technologies appendix instructs synthesis not to include standalone PT revenue or PT operating income in continuing MOD if the RMT closes. Therefore the close-case earnings model is a continuing-MOD model: Climate Solutions operating revenue and operating income, less retained corporate expense, then after interest, tax, and explicit share-count math. Standalone PT economics are preserved only as a failed-RMT sensitivity.

The result is a clear price failure under the ER2 P/E <= 15 test. The base case produces $3.861 billion of horizon revenue, $0.807 billion of operating income after retained corporate expense, $0.590 billion of net income, and $11.23 of EPS. At a current price of $233.39, the required TTM+5y EPS for a 15x P/E is $15.56. The base case EPS x 15 equals $168.5, leaving a negative 27.8% cushion. The bull case clears the price test, but ER2 uses the confident base case, not the bull case, as the underwriting case.

1. Anchors

Anchor	Value	Source / treatment
Today	2026-04-30	Orchestrator
Company fiscal year end	March 31	data_package.md section 5; quant_foundation.md Stage 0
TTM anchor end date	2025-12-31	Orchestrator and QF Stage 0
TTM quarters	Q4 FY2025 + Q1 FY2026 + Q2 FY2026 + Q3 FY2026	quant_foundation.md P4
Latest completed FY label	FY2025	data_package.md section 2
Horizon date	2030-12-31	Orchestrator
Compounding span	Exactly 5.0 calendar years	TTM end to horizon date
Current price	$233.39	Orchestrator
Required EPS at P/E 15	$15.56	$233.39 / 15
Latest diluted share count	52.8mm	Q3 FY2026 diluted weighted-average shares, quant_foundation.md P6

The TTM construction is the most recent four-quarter operating base: Q4 FY2025 consolidated revenue of $647.2mm plus Q1-Q3 FY2026 revenue of $2,226.7mm equals $2,873.9mm of TTM revenue. Segment TTM external sales are Climate Solutions $1,749.7mm and Performance Technologies $1,124.2mm. Segment TTM operating income is Climate $273.8mm and Performance $111.9mm. The TTM segment operating income subtotal of $385.7mm bridges to consolidated operating income of $313.0mm through a corporate/eliminations/other charge of negative $72.7mm. These are the QF-controlled anchor numbers.

Because the RMT materially changes the horizon company, this synthesis separates two concepts:

- Reported TTM MOD, which includes Climate Solutions and Performance Technologies.
- Continuing MOD at the horizon if the RMT closes, which includes Climate Solutions operating economics and excludes PT revenue and PT operating income.

That boundary matters. The segment appendices provide a standalone PT model, but the Performance Technologies appendix explicitly says not to add the standalone $1,326.5mm revenue and $140.1mm OI base case to continuing MOD if the RMT closes. Doing so would double count an asset expected to leave continuing MOD while still assigning MOD shareholders value through the separated combined company.

2. Segment-level forward assumptions

Segment	TTM revenue ($B)	Bear TTM+5y revenue	Base TTM+5y revenue	Bull TTM+5y revenue	Bear OI margin	Base OI margin	Bull OI margin	Source
Climate Solutions	1.750	2.636	3.861	5.057	16.8%	22.4%	25.3%	appendix_B_climate_solutions.md sections 8-10
Performance Technologies - continuing MOD close case	1.124 reported TTM; 0.000 modeled horizon	0.000	0.000	0.000	n/m	n/m	n/m	appendix_B_performance_technologies.md section 10 RMT treatment
Performance Technologies - failed-RMT sensitivity only	1.124	1.072	1.327	1.478	7.6%	10.6%	11.8%	appendix_B_performance_technologies.md sections 8-10

Climate Solutions is the continuing operating engine. The R-reviewed Climate appendix gives bear/base/bull horizon outputs of $2.636B / $3.861B / $5.057B revenue and $444mm / $866mm / $1,281mm operating income. The reviewer-weighted Climate output is $3.733B revenue, 22.0% margin, and $822mm OI. This synthesis uses the case outputs for the case table and uses the weighted output only as a cross-check, not as a substitute for the base case.

Performance Technologies is handled with a transaction switch. The standalone PT appendix gives a valid segment model: bear $1.0719B revenue and $81.9mm OI, base $1.3265B revenue and $140.1mm OI, and bull $1.4779B revenue and $174.2mm OI. However, the same appendix states that the continuing-MOD close case uses $0 PT revenue and $0 PT OI at the horizon. Therefore the close-case combined model includes no PT horizon operating contribution. The standalone PT case is useful for failed-RMT sensitivity, valuation-of-distributed-interest discussion, and risk framing, but not for continuing-MOD operating EPS.

3. Combined revenue build by case

Line	Bear	Base	Bull
Climate Solutions horizon revenue ($mm)	2,636	3,861	5,057
PT revenue in continuing MOD if RMT closes ($mm)	0	0	0
Corporate eliminations / other revenue ($mm)	0	0	0
Combined continuing-MOD TTM+5y revenue ($mm)	2,636	3,861	5,057
Combined continuing-MOD TTM+5y revenue ($B)	2.636	3.861	5.057
Implied CAGR vs reported MOD TTM revenue of $2,873.9mm	-1.7%	6.1%	12.0%
Implied CAGR vs Climate TTM revenue of $1,749.7mm	8.5%	17.2%	23.6%

The reported-consolidated CAGR line is mechanically negative in the bear case because reported TTM includes Performance Technologies while the continuing-MOD horizon model excludes it. That is not a demand-collapse assumption for the continuing company; it is a transaction-boundary effect. For operating underwriting, the more relevant growth measure is Climate TTM to Climate horizon. On that basis, the base case requires a 17.2% five-year Climate revenue CAGR, consistent with the R-reviewed Climate appendix and below the 1.2x historical-growth plausibility ceiling based on Climate's 16.8% FY2023-FY2025 segment CAGR.

No revenue eliminations are modeled at the continuing-MOD horizon because the forward model uses segment external sales and the retained continuing company is Climate-centered. If the RMT fails, the failed-RMT sensitivity later in this appendix adds standalone PT revenue and PT OI back into the model, with the larger historical corporate bridge retained.

4. Combined operating income build by case

Line	Bear	Base	Bull
Climate Solutions horizon OI ($mm)	444	866	1,281
PT OI in continuing MOD if RMT closes ($mm)	0	0	0
Retained corporate expense at horizon ($mm)	-59	-59	-59
Combined continuing-MOD TTM+5y OI ($mm)	385	807	1,222
Implied OI margin	14.6%	20.9%	24.2%

Corporate expense assumption: the TTM reported corporate/eliminations/other bridge is negative $72.7mm. That bridge currently supports both Climate and Performance Technologies. In the RMT close case, this appendix assumes 70% of that bridge remains with continuing MOD and 30% transfers with PT, is eliminated with separation, or is otherwise absorbed outside the continuing MOD operating model. The retained TTM corporate expense base is therefore $50.9mm. It is grown at 3.0% annually for five years, producing a horizon retained corporate expense of $59.0mm.

This retained-cost assumption is intentionally not aggressive. It gives MOD credit for some cost separation but not a full stranded-cost cure. If 100% of the current $72.7mm bridge remained and grew at 3%, horizon corporate expense would be about $84.2mm, reducing base OI by $25.2mm and base EPS by about $0.36 after tax. That downside does not change the price-test conclusion because the base case already fails with the more balanced retained-cost assumption.

The base operating margin of 20.9% is high compared with reported TTM consolidated OI margin of 10.9%, but the comparison is distorted by the transaction boundary. The base case is a Climate-led continuing-company margin after retained corporate cost. It is lower than Climate's segment-level base margin of 22.4% because public-company and residual corporate costs are deducted at the combined level.

5. Net income and EPS build by case

Line	Bear	Base	Bull
Combined continuing-MOD OI ($mm)	385	807	1,222
Net interest expense ($mm)	-25	-20	-10
Other income / expense ($mm)	0	0	0
Pre-tax income ($mm)	360	787	1,212
Tax rate assumed	25.0%	25.0%	25.0%
Tax expense ($mm)	-90	-197	-303
Net income ($mm)	270	590	909
Diluted share count at horizon (mm)	52.85	52.57	52.30
EPS at TTM+5y	$5.11	$11.23	$17.38

Net interest expense is modeled as a normalized forward line, not as the distorted Q3 FY2026 pretax result. The latest four quarters show about $28.3mm of interest expense and $2.2mm of interest income, or roughly $26.1mm of net interest expense. The RMT release in the data package says Modine expects a $210mm cash distribution from SpinCo. Applying part of that distribution to debt should lower run-rate interest expense, but the Climate ramp also requires capex, working capital, and acquisitions. This synthesis therefore uses $25mm in the bear case, $20mm in the base case, and $10mm in the bull case. The bull case assumes stronger conversion and balance-sheet repair; the bear case assumes separation costs and ramp investment offset most interest savings.

The tax rate is 25.0% in all cases. The data package's ROIC table used 27.0% for FY2025 and capped/floored tax rates to avoid one-off distortions. Q3 FY2026 pretax income is distorted by the pension termination charge, so this appendix does not use the TTM reported effective tax rate as a steady-state anchor. A 25% normalized tax rate is close to FY2024-FY2025 experience and avoids giving the model a tax windfall.

6. Share count path

The model does not use a flat share-count shortcut. Buybacks have been meaningful but not mechanical. The data package shows buybacks of $7.3mm in FY2023, $13.3mm in FY2024, and $30.9mm in FY2025, with zero dividends across the five-year period. FY2026 cash use has shifted toward capacity, acquisitions, and working capital, and the RMT may also change near-term capital allocation. The base case therefore assumes $30mm of annual buybacks, a continuation of FY2025 scale rather than a step-up. SBC is approximated from the already-saved cash-flow files: Q4 FY2025 through Q3 FY2026 stock-based compensation totals about $17.1mm. At the current share price of $233.39, that is roughly 0.073mm shares of annual issuance.

Base case share path:

Year	Starting share count (mm)	Buyback ($mm)	Avg price assumed	Shares retired (mm)	SBC issuance (mm)	Ending share count (mm)
1	52.800	30	$250	0.120	0.073	52.753
2	52.753	30	$250	0.120	0.073	52.707
3	52.707	30	$250	0.120	0.073	52.660
4	52.660	30	$250	0.120	0.073	52.613
5	52.613	30	$250	0.120	0.073	52.566

Case-specific horizon share counts:

Case	Annual buyback	Avg buyback price	Annual shares retired	Annual SBC issuance	Ending share count
Bear	$15mm	$200	0.075mm	0.085mm	52.85mm
Base	$30mm	$250	0.120mm	0.073mm	52.57mm
Bull	$50mm	$300	0.167mm	0.067mm	52.30mm

The share-count effect is modest. Even in the bull case, five years of $50mm annual repurchases at a $300 average price retire only about 0.83mm shares before SBC, and the ending diluted share count is still above 52mm. This is important because the price test cannot be rescued by buyback math alone. EPS has to come mostly from Climate revenue growth and operating margin, not from financial engineering.

7. P/E 15 test

Case	EPS at TTM+5y	EPS x 15	Current price	Cushion	Pass?
Bear	$5.11	$76.7	$233.39	-67.1%	FAIL
Base	$11.23	$168.5	$233.39	-27.8%	FAIL
Bull	$17.38	$260.7	$233.39	+11.7%	PASS

Cushion equals (EPS x 15 - current price) / current price. The required EPS is $15.56. The base case is the decisive case for ER2. Because base EPS x 15 is below the current price, the price gate fails even though the bull case clears. The bull case depends on $5.057B of Climate revenue, a 25.3% segment margin, retained corporate cost discipline, lower net interest expense, and modest share-count reduction. That is possible, but not the confident underwriting case.

The probability-weighted EPS is also below the bar. Using 30% bear, 50% base, and 20% bull gives probability-weighted EPS of $10.62. EPS x 15 on that weighted result is $159.4, or 31.7% below the current price. The weighting is deliberately skewed toward base and bear because the management gate passes but the moat gate is YELLOW, the 2046 test is YELLOW, and the stock price already capitalizes a strong Climate ramp.

8. Reflexivity check against reported financials

Reported-financial tie-out:

Check	Calculation	Result
TTM segment revenue sum vs consolidated TTM	$1,749.7mm + $1,124.2mm = $2,873.9mm vs $2,873.9mm	Pass, 0.0% gap
TTM segment OI subtotal vs consolidated OI before bridge	$273.8mm + $111.9mm = $385.7mm	Pass
TTM bridge to consolidated OI	$385.7mm - $72.7mm = $313.0mm	Pass

Check	Calculation	Result
Latest completed FY revenue reconstruction	FY2025 Climate $1,440.6mm + PT $1,142.9mm = $2,583.5mm	Pass, 0.0% gap
Latest completed FY OI bridge	Segment OI $248.4mm + $108.0mm = $356.4mm; bridge to consolidated OI $283.5mm implies -$72.9mm	Pass; bridge is consistent with TTM corporate/other scale

The forward build compounds from a reported TTM anchor that ties. The close-case horizon revenue does not tie back to reported consolidated TTM by simple segment addition because PT exits the continuing-MOD operating model. That is an explicit transaction adjustment, not an arithmetic gap. The failed-RMT sensitivity below shows how the model would look if PT stayed.

9. In-progress FY reconciliation

Stage 0 uses TTM through Q3 FY2026, so FY2026 is in progress. The data package reports Q1-Q3 FY2026 consolidated revenue of $2,226.7mm, Climate external sales of $1,393.4mm, Performance external sales of $833.3mm, Climate OI of $212.3mm, and Performance OI of $82.0mm. The Q3 FY2026 consolidated quarter was $805.0mm of revenue, with Climate $544.6mm and Performance $266.0mm.

The current annualized run-rate matters more for Climate than for reported consolidated MOD because the continuing-company model assumes PT exits. Q3 FY2026 Climate revenue annualized is $2.178B. The base model's first forward year, using the Climate base CAGR of about 17.2% from the $1.7497B TTM base, is roughly $2.051B. That is 5.9% below the Q3 annualized Climate run-rate and therefore inside the 10% recency guardrail. The base model does not start above the latest visible Climate demand signal.

For reported consolidated MOD, Q3 annualized revenue is $3.220B versus TTM revenue of $2.874B. The difference reflects acceleration in Climate. The base continuing-MOD revenue path is not directly comparable to reported consolidated annualized revenue because reported consolidated annualized revenue still includes Performance Technologies. After excluding PT, the recency check passes on a continuing-operation basis.

10. Sensitivity - which variable matters most

Base case before sensitivities: revenue $3.861B, OI $807mm, NI $590mm, shares 52.57mm, EPS $11.23.

Sensitivity	Downside EPS	Base EPS	Upside EPS	Approx EPS swing vs base
Climate revenue CAGR +/- 200 bps, margin held at 22.4%	$10.19	$11.23	$12.30	-$1.04 / +$1.07
Climate OI margin +/- 200 bps, revenue held at $3.861B	$10.11	$11.23	$12.31	-$1.12 / +$1.08
Share count +/- 5%, NI held at $590mm	$10.69	$11.23	$11.82	-$0.54 / +$0.59
Tax rate +/- 300 bps, pretax held at $787mm	$10.78	$11.23	$11.68	-$0.45 / +$0.45

The two variables that matter most are Climate revenue growth and Climate operating margin. Each 200 bps change in either variable moves horizon EPS by about one dollar. Share count and tax rate matter, but they are secondary. This lines up with the moat and management appendices: the investment case is not about buybacks or tax optimization; it is about whether Modine can turn data-center cooling demand into durable high-margin Climate operating income.

The trigger criteria that would most improve the verdict are concrete. First, binding backlog or revenue disclosure that makes $5B-plus Climate revenue more base-like rather than bull-like. Second, evidence that Climate segment margins can move into the low-to-mid 20s while capex and working capital normalize. The kill criteria are also concrete: order pushouts, gross margin compression from capacity additions, architecture shifts that weaken Modine's product fit, or hyperscaler pricing pressure that prevents the 22% segment margin base case.

11. Combined earnings summary table

Case	Revenue ($B)	OI ($B)	OI margin	NI ($B)	EPS	Probability	EPS x 15	vs. $233.39
Bear	2.636	0.385	14.6%	0.270	$5.11	30%	$76.7	-67.1%

Case	Revenue ($B)	OI ($B)	OI margin	NI ($B)	EPS	Probability	EPS x 15	vs. $233.39
Base	3.861	0.807	20.9%	0.590	$11.23	50%	$168.5	-27.8%
Bull	5.057	1.222	24.2%	0.909	$17.38	20%	$260.7	+11.7%
Probability-weighted EPS	n/m	n/m	n/m	n/m	$10.62	100%	$159.4	-31.7%

Probability weights: 30% bear, 50% base, 20% bull. The management gate is PASS and the Climate ramp is real, so base deserves the highest weight. The moat gate and 2046 test are both YELLOW, cash conversion is currently weak, and the current share price already embeds substantial success, so bear receives more weight than bull.

Failed-RMT sensitivity

This is not the close-case model, but it is the required guardrail against hiding PT economics. If the RMT fails and MOD retains Performance Technologies, the standalone PT appendix gives base horizon revenue of $1.3265B and OI of $140.1mm. In that case, the base revenue would be $3.861B Climate plus $1.3265B PT, or $5.1875B. Operating income before corporate cost would be $866mm Climate plus $140.1mm PT, or $1.006B.

If the full current corporate bridge stayed with MOD and grew at 3% annually, horizon corporate expense would be about $84.2mm. Failed-RMT base OI would then be roughly $921.9mm. Assuming $30mm of net interest expense, a 25% tax rate, and roughly 52.6mm shares, failed-RMT base EPS would be about $12.72. EPS x 15 would be $190.8, still below the current $233.39 price by about 18.3%. Therefore the price-test failure is not solely an artifact of excluding PT. Keeping PT improves EPS, but not enough to make the base case pass.

The transaction also creates a value-recognition issue that this appendix does not solve through operating EPS. Modine shareholders are expected to own about 40% of the combined Gentherm/PT company and Modine expects a $210mm cash distribution from SpinCo. Those items may have value, but they are not continuing-MOD operating income. ER2's P/E <= 15 test is applied to continuing operating EPS at the horizon. If the final research report wants to add a sum-of-the-parts credit for distributed Gentherm/PT ownership, it should do so explicitly and separately from the operating EPS gate.

Tie-out checks

- Reported-financial tie-out (TTM + latest completed FY): PASSED. TTM segment revenue sums to $2,873.9mm, matching consolidated TTM revenue. TTM segment OI of $385.7mm less the $72.7mm corporate/other bridge equals $313.0mm consolidated OI. FY2025 revenue ties exactly at $1,440.6mm Climate plus $1,142.9mm PT equals $2,583.5mm consolidated revenue. FY2025 OI requires a corporate/other bridge of about negative $72.9mm, consistent with the TTM bridge.

- NI / shares = EPS: PASSED. Bear $270mm / 52.85mm = $5.11. Base $590.2mm / 52.565mm = $11.23. Bull $909mm / 52.30mm = $17.38. Rounding accounts for small table differences.

- Segment sum tie-out at horizon: PASSED. In the close-case continuing-MOD model, Climate revenue plus PT continuing-MOD revenue plus eliminations equals combined revenue in every case: bear $2,636mm + $0 + $0 = $2,636mm; base $3,861mm + $0 + $0 = $3,861mm; bull $5,057mm + $0 + $0 = $5,057mm.

- Product-to-segment rollup: PASSED. The Climate appendix section 10 explicitly ties product revenue sums to segment revenue: bear $1,749mm + $472mm + $415mm = $2,636mm; base $2,759mm + $576mm + $526mm = $3,861mm; bull $3,760mm + $666mm + $631mm = $5,057mm. The PT appendix section 10 explicitly ties standalone PT revenue sums to segment revenue for the failed-RMT sensitivity.

- Weighted margin check: PASSED. Climate section 10 ties product OI to segment OI and segment margin in all cases. Base Climate OI is $662mm + $104mm + $100mm = $866mm, equal to 22.4% of $3,861mm after rounding. PT standalone base OI is $493.9mm x 11.5% plus $832.7mm x 10.0% = $140.1mm, equal to a 10.6% segment margin.

- Share count path: PASSED. The base path starts at 52.800mm and applies five years of 0.120mm annual buyback retirements and 0.073mm annual SBC issuance, ending at 52.566mm. This is an explicit five-year path, not an assumed flat share count and not a six-year path.

- Growth plausibility: PASSED. The base Climate CAGR is about 17.2%, below 1.2x the disclosed FY2023-FY2025 Climate historical CAGR of 16.8%, or about 20.2%. PT in the close-case continuing-MOD horizon is zero due to transaction treatment; standalone PT base CAGR is about 3.4%, not an aggressive growth assumption.

- Historical arithmetic: PASSED. Climate base arithmetic reconciles: $1,749.7mm x (1 + 17.2%)^5 is approximately $3,861mm. Standalone PT base arithmetic reconciles: $1,124.2mm x (1 + 3.4%)^5 is approximately $1,326.5mm. Segment appendix product rows include their own arithmetic tie-outs, and this synthesis did not alter those outputs.

- Recency anchor: PASSED. On a continuing Climate basis, Q3 FY2026 Climate revenue annualized is $2.178B. The base first-forward-year Climate run-rate implied by the five-year CAGR is about $2.051B, 5.9% below Q3 annualized and inside the 10% guardrail. Reported consolidated annualized revenue is not the right comparator after the PT transaction adjustment.

- Transaction boundary / no double-counting: PASSED. The close-case model uses $0 PT horizon revenue and $0 PT horizon OI inside continuing MOD, exactly as instructed by the R-reviewed PT appendix and the orchestrator. Standalone PT is shown only in a failed-RMT sensitivity.

- P/E, cushion, and probability-weighted math: PASSED. Required EPS is $233.39 / 15 = $15.56. Base EPS of $11.23 times 15 equals $168.5, producing a negative 27.8% cushion. Probability-weighted EPS is 30% x $5.11 + 50% x $11.23 + 20% x $17.38 = $10.62; $10.62 x 15 = $159.4, negative 31.7% versus the current price.

Tie-out status: 11/11 passed.

Key findings

The headline finding is that Modine's operating story can be good while the stock still fails the ER2 price gate. The base case assumes strong Climate execution: $3.861B of horizon Climate revenue, a 22.4% segment margin, and $866mm of segment OI before retained corporate expense. Those are not punitive assumptions. Yet after retained corporate cost, normalized interest, tax, and explicit share-count math, EPS is only $11.23. At the current price, the stock needs $15.56 of horizon EPS to clear the P/E 15 test.

The second finding is that the RMT boundary is decisive for model hygiene. Reported TTM includes PT, but continuing MOD at the horizon should not include PT revenue and PT OI if the Gentherm transaction closes. Adding standalone PT base revenue and OI to continuing MOD would double count the operating asset. A failed-RMT sensitivity is appropriate, and even that sensitivity does not rescue the base price gate.

The third finding is that the moat and management gates point in different directions. Management is a PASS because the team has reallocated capital toward Climate, simplified the portfolio, and produced real operating improvement. The moat gate is YELLOW because the data-center cooling opportunity is attractive enough to invite aggressive competition, buyer power, and architecture risk. The synthesis weights reflect that split: base gets the highest probability, but bear is not remote.

The fourth finding is that the model's real drivers are Climate revenue CAGR and Climate OI margin. Buybacks, tax, and interest matter, but none is large enough to bridge the base-case price gap. To change the verdict, the evidence must make the current bull case look like the new base case: higher durable Climate revenue, sustained low-to-mid-20s margins, and normalized cash conversion.

The final finding is that the current share price leaves little room for merely good execution. The bull case clears with $17.38 of EPS and an 11.7% cushion, but it requires a $5.057B Climate segment, 25.3% segment margin, lower interest, and modest buybacks. ER2 should not underwrite that as the central case without stronger evidence of durable backlog, pricing power, and post-ramp free cash flow.

Appendix CS - Compounder Score

Modine Manufacturing Company - Compounder Score

Analysis date: 2026-05-28. Diagnostic only; this score does not mechanically control the ER2 verdict.

1. Executive Verdict

Modine is a real business-quality improvement story, but the evidence does not support calling it a 20% compounder at the $233.39 price anchor used in the ER2 file set. The best evidence is the Climate Solutions pivot, data-center revenue growth, improving reported ROIC, and management's capital-allocation discipline. The score is capped because current free cash flow conversion is weak, acquisition/capacity spend is material, ROIIC cannot be cleanly proven from the local ER2 artifacts, the moat appendix is YELLOW, and the base-case valuation fails even under strong Climate execution.

Score-implied classification: **Reject under the CompounderScorer rubric**. This is not an ER2 gate; the existing ER2 narrative remains a valuation-driven PASS/watchlist-style conclusion.

2. Data Source Map

Evidence area	Local source used	Notes
Price / market cap / EV	`quant_foundation.md`; `appendix_synthesis.md`	Price $233.39; market cap $12.31B; net debt $768.2mm; estimated EV $13.08B.
Income statement	`quant_foundation.md`; `data_package.md`	TTM revenue $2,873.9mm; TTM operating income $313.0mm; FY2021-FY2025 annual history.
Balance sheet	`quant_foundation.md`; `data_package.md`	Cash $98.9mm; total debt $867.1mm; stockholders' equity $1,121.8mm at 2025-12-31.
Cash flow	`quant_foundation.md`; `data_package.md`	FMP-derived TTM FCF $7.4mm conflicts with company-release framing of roughly negative $20.3mm; this appendix uses the more conservative cash-conversion view.
Segment and product data	`data_package.md`; `appendix_B_climate_solutions.md`; `appendix_B_performance_technologies.md`	Climate is the continuing operating engine if the Gentherm RMT closes; PT is excluded from continuing MOD horizon operations.
Management / governance	`appendix_management.md`	Management gate PASS, but cash conversion, ramp execution, prior remediated IT control weakness, and insider-selling optics remain watch items.
Moat / competitors	`appendix_moat.md`; segment appendices	Moat gate YELLOW; real mission-critical thermal engineering, but buyer power, competition, and architecture risk are material.
Valuation model	`appendix_synthesis.md`; `main_narrative.md`	Base EPS $11.23; 15x value $168.5; price test fails by 27.8%.

3. Key Financial and Quality Metrics

Metric	Evidence	Scorer interpretation
FY2021-FY2025 revenue CAGR	9.3%	Good, but mix shift and acquisitions matter.
FY2023-FY2025 NOPAT CAGR	17.3%	Strong improvement from transformation years.
FY2025 reported ROIC	17.4%	Good industrial return, not elite compounder level.
FY2022-FY2025 median ROIC	15.95%	Supports 3/5 for normalized ROIC.
Climate FY2021-FY2025 revenue CAGR	18.5%	Real runway evidence.
Climate TTM margin	15.6%	Temporarily depressed by ramp costs; base model assumes 22.4% by horizon.
FCF conversion	weak / disputed	FY2025 was good, but latest TTM is near zero to negative because of inventory, capex, and acquisitions.
Latest EV / normalized NOPAT	~55.7x	Very demanding.
Latest FCF yield	~0% to negative	No valuation support from current cash yield.

Metric	Evidence	Scorer interpretation
Share count CAGR FY2021-FY2025	+1.2%	Buybacks are not enough to offset the valuation problem.

4. Rubric Scorecard

Category	Score	Max	Reason
Incremental returns on capital	14	25	ROIC has improved to the mid/high-teens, but clean ROIIC is not available; acquisition-inclusive reinvestment and weak current FCF cap the score.
Reinvestment runway	16	20	Climate/data-center runway is real, with strong order and capacity evidence; Heat Transfer and HVAC are less exciting, and the runway depends on execution.
Durability of moat	9	15	Mission-critical thermal qualification and customer trust are real, but moat appendix is YELLOW due to large competitors, hyperscaler power, and architecture risk.
Accounting and financial quality	7	10	No current governance/accounting fail, but adjusted metrics, FCF discrepancy, ramp working capital, and remediated IT control issue reduce confidence.
Capital allocation discipline	8	10	Management has simplified the portfolio and invested behind Climate; acquisition integration and buyback discipline at a high stock price remain watch items.
Price and 20% underwriting	4	20	Base-case IRR is negative using the 15x horizon test; the 20% case needs a much lower price or the current bull case to become base.
Total	**58**	**100**	Diagnostic Reject: quality is promising, but not enough proven high-ROIIC evidence and no 20% underwriting support at the current price.

Stage 7 notes:

- Compounder Score note: 58/100; promising Climate-led transformation, but weak current cash conversion, unproven clean ROIIC, YELLOW moat, and valuation failure prevent a compounder classification.
- Business Quality Score note: 54/80; quality is improving and management is credible, but the evidence supports good industrial/business-improvement economics rather than a proven elite compounder.
- 20% Return UW Score note: 4/20; at $233.39, base-case horizon EPS of $11.23 capitalized at 15x implies roughly $168.5 value and about a -6% five-year annualized return before any separate PT value.

5. ROIIC and Reinvestment Analysis

Reported ROIC recovered from -10.2% in FY2021 to 17.4% in FY2025. That is meaningful and consistent with the portfolio transformation. The evidence does not support a high-confidence 3-year or 5-year ROIIC calculation because the local artifacts do not provide a clean reinvestment bridge with change in non-cash working capital, depreciation, acquisitions, divestitures, and growth opex separated in the required form. A rough acquisition-inclusive view would include at least FY2023-FY2025 capex of $223.2mm plus acquisitions of roughly $208.9mm against NOPAT growth from $101.3mm in FY2022 to $207.0mm in FY2025. That directionally supports adequate incremental returns, but it is not clean enough to award elite ROIIC points.

This score is capped because current growth is capital hungry. The data package flags 9M FY2026 FCF of negative $47.4mm and a conservative TTM FCF framing near negative $20.3mm, despite strong revenue growth. That can be timing, but a quality-compounder score requires proof that the data-center ramp converts into normalized free cash flow.

6. Runway Analysis

The evidence supports a substantial Climate runway. Climate Solutions revenue rose from $731.1mm in FY2021 to $1,440.6mm in FY2025, and TTM Climate external sales reached $1,749.7mm. Data center cooling rose from $173.8mm in FY2023 to $644.2mm in FY2025, with 9M FY2026 Data Centers already at $710.1mm. Management targets a large FY2028 data-center revenue step-up, and the Climate appendix's base case reaches $3.861B of 2030 revenue.

The runway score is not perfect because this is a contested high-growth industrial market. Larger competitors are investing in liquid cooling, chillers, CDUs, controls, services, and full data-center infrastructure. The Gentherm RMT also changes the continuing company and reduces diversification.

7. Moat Analysis

The moat is real but not impregnable. Modine has qualification, engineering know-how, customer-specific design, product breadth across air/liquid/hybrid cooling, and high-trust procurement in mission-critical thermal systems. The strongest moat is in Climate/data-center cooling; Heat Transfer and parts of HVAC Technologies are more mature and competitive. Performance Technologies has design-in switching costs but is not a compounder-grade moat and is expected to leave continuing MOD.

The moat is capped at 9/15 because customers are sophisticated and concentrated, pricing power includes pass-through lag, and architecture shifts can move value toward cold plates, rack-level systems, integrated power/cooling vendors, or competitors with larger global service platforms.

8. Accounting and Capital Allocation Analysis

Management quality is a positive. The Brinker/Lucareli team has simplified the portfolio, shifted capital toward higher-growth Climate assets, used a Reverse Morris Trust to separate PT, and tied long-term incentives partly to cash-flow return on invested capital. Governance is acceptable: independent chair, no dual-class control, anti-hedging/pledging policies, and clawback provisions.

The financial-quality score is not higher because the current ramp obscures normalized cash conversion. The local ER2 artifacts also flag an FMP/company-release TTM FCF discrepancy, heavy adjusted EBITDA usage, three FY2026 acquisitions, elevated capex, working-capital absorption, and a remediated FY2024 IT-control material weakness.

9. 20% Return Underwriting

Case	Horizon EPS	15x value	Approx 5y IRR vs $233.39	Scorer view
Bear	$5.11	$76.7	-20.0%	Not acceptable.
Base	$11.23	$168.5	-6.3%	Fails the 20% hurdle and the ER2 price test.
Bull	$17.38	$260.7	2.2%	Still far below 20% using 15x terminal P/E; upside depends on very strong Climate execution.

The 20% case does not work without either a much lower entry price, a materially higher terminal multiple, or making today's bull Climate revenue and margin case the new base case. The maximum buy price for a 20% five-year return using the base-case $168.5 horizon value is about $67.7, before separate PT value or dividends.

10. Hard Veto Checklist

Veto	Status	Evidence
ROIIC below cost of capital	Watch	Clean ROIIC is insufficient; ROIC is adequate but not elite.
ROIC is accounting artifact	Pass	Invested capital is positive and returns improved with operating performance.
Growth needs external financing	Watch	Debt rose during ramp; not existential, but cash conversion is weak.
Share count rises materially	Pass	Diluted shares rose modestly over FY2021-FY2025; buybacks are small versus market cap.

Veto	Status	Evidence
Undisciplined acquisitions	Watch	Strategy is coherent, but recent acquisitions plus capacity ramp increase integration risk.
FCF structurally lags earnings	Watch	Current FCF is weak; needs proof of normalization.
Customer/cyclicality/leverage risk	Watch	Hyperscaler buyer power, data-center architecture risk, and PT cyclicality matter.
20% case requires multiple expansion	Fail	Base case does not clear 20% even at a 15x terminal multiple.
Needs flawless execution	Fail	Current price capitalizes a strong Climate ramp.
Moat cannot be explained	Pass	High-trust mission-critical thermal engineering and qualification, strongest in Climate/data centers.
Accounting/governance red flags	Watch	No current fail, but prior control remediation and adjusted metrics warrant monitoring.
Balance sheet could wipe out equity	Pass	Leverage is manageable, though ramp debt is a watch item.

11. Final Decision

Compounder Score note: 58/100; promising Climate-led transformation, but weak current cash conversion, unproven clean ROIIC, YELLOW moat, and valuation failure prevent a compounder classification.

Business Quality Score note: 54/80; quality is improving and management is credible, but the evidence supports good industrial/business-improvement economics rather than a proven elite compounder.

20% Return UW Score note: 4/20; at $233.39, base-case horizon EPS of $11.23 capitalized at 15x implies roughly $168.5 value and about a -6% five-year annualized return before any separate PT value.

Key data gaps: clean ROIIC bridge with non-cash working capital and acquisition-inclusive reinvestment; normalized post-ramp FCF conversion; binding data-center backlog/LTA economics; post-RMT stranded costs, cash/debt use, and value treatment for the Gentherm/PT stake; FY2027 segment-level capital-employed and cash-flow disclosure.

12. Machine-Readable JSON

See `compounder_score.json`.

Appendix CSA - Scoring Audit

Modine Manufacturing Company - Scoring Audit

Analysis date: 2026-05-28. This audit reviews `appendix_compounder_score.md` and `compounder_score.json` against the local ER2 evidence base. It is diagnostic only and does not mechanically override the ER2 management, moat, or valuation gates.

1. Original vs Audited Scores

Item	Original	Audited	Notes
Business Quality Score / 80	54	48	Reduced for missing clean ROIIC, missing acquisition-inclusive ROIIC, weak current FCF conversion, and qualitative runway/moat reliance on still-unproven data-center execution.
Valuation / 20% Return UW Score / 20	4	3	Reduced because the base case is far below the 20% hurdle and the score should give only minimal credit for the existence of a lower-price buy zone.
Total Score / 100	58	51	Reject remains the correct score-implied classification.
Classification	Reject	Reject	Total score is below 70, Business Quality is below 65/80, Valuation UW is below 15/20, and base IRR fails.

Original JSON and markdown agree on the headline score: Business Quality 54/80, Valuation / 20% Return Underwriting 4/20, Total 58/100, classification Reject. The original case IRRs are bear -20.0%, base -6.3%, bull 2.2%, with a maximum buy price for a 20% five-year return of about $67.7 using the base-case $168.5 horizon value.

The scorer was not promotional. It already flagged weak cash conversion, unproven clean ROIIC, a YELLOW moat, and valuation failure. The audit does not find a fabricated bullish score. The issue is that the residual 54/80 Business Quality score still gives too much credit to categories that require calculated incremental returns and post-ramp cash proof.

2. Score Reductions and Reasons

Incremental returns on capital is reduced from 14/25 to 11/25. FY2025 reported ROIC of 17.4% and FY2022-FY2025 median ROIC near 15.95% are supported by `data_package.md`, but ROIIC is not calculated. The scorer states that a clean 3-year or 5-year ROIIC bridge is not available. Under the CSA cap, ROIIC points should not be awarded where the calculation is missing. This score is reduced because the business has improved reported ROIC, but the evidence does not yet prove elite incremental returns on the capital now being deployed.

Reinvestment runway is reduced from 16/20 to 14/20. Climate/data-center demand is real: Climate TTM sales were $1.7497 billion, and Data Centers had already reached $710.1 million for 9M FY2026. The issue is not whether there is demand. The issue is that the score leans on management's long-term customer, capacity, and margin comments before binding backlog/LTA economics and post-ramp capital intensity are proven. A high runway score can be preserved, but not a near-elite one.

Durability of moat is reduced from 9/15 to 8/15. The moat appendix is explicitly YELLOW. It supports switching costs, qualification, and mission-critical procurement in data-center cooling, but also flags large competitors, hyperscaler buyer power, rapid cooling architecture shifts, and the fact that the blended company still included Performance Technologies in the TTM base. A middle score is fair; the audited score trims one point because the 20-year durability evidence remains more plausible than proven.

Accounting and financial quality remains 7/10. The score is already capped for adjusted EBITDA usage, FCF discrepancy, ramp working capital, acquisitions, and a remediated IT-control material weakness. No new calculation error requires a further cut, but confidence remains medium rather than high.

Capital allocation is reduced from 8/10 to 8/10 after review, so no net change. The management appendix supports a coherent pivot toward Climate, portfolio exits, and a compensation metric tied to Cash Flow ROI. The risk is integration overload from three FY2026 acquisitions, capacity additions, and the Gentherm RMT. The original 8/10 is acceptable because

it was not a perfect score.

Price and 20% underwriting is reduced from 4/20 to 3/20. The math works, but the economic case does not. Base EPS of $11.23 at 15x gives $168.5 of horizon value versus a $233.39 starting price. The base IRR is about -6.3%, and even the bull case is only about 2.2% at 15x. The maximum buy price for a 20% return is about $67.7, so the current price is not close to an investable 20% setup.

3. Unsupported Claims

The evidence does not support a clean ROIIC claim. The scorer acknowledges this, but the category score still leaves too much residual credit for incremental-return quality. The most important unsupported item is not the existence of improved ROIC; it is the leap from improved ROIC to proven high ROIIC under the current growth investment cycle.

The evidence does not yet support normalized post-ramp FCF conversion. Historical annual FCF improved to $129.3 million in FY2025, but the Q3 FY2026 evidence shows nine-month FCF of negative $47.4 million and a TTM cash-flow discrepancy between FMP-derived positive $7.4 million and company-release framing near negative $20.3 million. Management's explanation is plausible, but a compounder score requires proof, not a plausible working-capital story.

The evidence does not support treating the current company as if nearly all sales have data-center-grade moat characteristics. The moat appendix says Climate is the real moat engine, while Performance Technologies and non-data-center Climate lines are weaker. The Gentherm RMT may improve the portfolio, but the transaction boundary also creates stranded-cost, debt/cash-use, and valuation-treatment uncertainty.

4. Calculation Errors

No material arithmetic error was found in the 20% underwriting table. $11.23 of base EPS times 15 equals about $168.5. The five-year IRR from $233.39 to $168.5 is about -6.3%. The 20% five-year buy price for $168.5 of horizon value is $168.5 / 1.2^5, or about $67.7. Bear and bull values also tie directionally: $5.11 times 15 is $76.7, and $17.38 times 15 is $260.7.

The audited calculation issue is omission, not miscalculation. Acquisition-inclusive ROIIC is missing despite material acquisition and capacity spend. Goodwill and intangibles were $496.8 million at 2025-12-31, FY2024 acquisition cash outflow was $198.2 million, FY2026 included three more acquisitions, and capex intensity increased materially. The score should not treat invested-capital returns as fully proven without that bridge.

SBC and dilution are handled directionally in the synthesis. The model does not use a flat share-count shortcut; it estimates about $17.1 million of TTM SBC and modest annual issuance, then offsets it against buybacks. That is acceptable for the valuation model, though more precision would be needed for a higher score.

5. Missing Data

The most important missing evidence is a clean ROIIC bridge separating maintenance capex, growth capex, working capital, depreciation, acquisitions, divestitures, growth opex, and corporate cost shifts. Without it, Category 1 should remain capped.

The second missing evidence item is normalized post-ramp cash conversion. The data-center ramp may eventually convert well, but current cash flow is weak, and FY2026 working capital and capex are central to the thesis.

The third missing item is binding Data Centers backlog or LTA economics. Management commentary on long-term supply discussions is useful, but the score should not treat it as the same thing as disclosed contractual economics, pricing durability, or customer capacity-risk sharing.

The fourth missing item is post-RMT economics: stranded costs, debt reduction from the expected $210 million cash distribution, value of the retained Gentherm/PT ownership, and the new pure-play reporting structure.

6. Hard-Veto and Threshold Test Audit

The diagnostic thresholds fail. Total score is below 80, Business Quality is below 65/80, Valuation UW is below 15/20, ROIIC plus runway is below 35/45 after audit, base-case IRR is below 20%, bear-case IRR is negative, and hard vetoes remain around valuation, execution, and cash conversion.

The original JSON marks "does_not_require_multiple_expansion" as true because the modeled cases use 15x. That is technically fair: the base case does not require multiple expansion because it fails even at 15x. Economically, any 20% case from today's price would require either a far better earnings case than base, a much higher terminal multiple, or a much lower

entry price.

7. Final 20% Hurdle Pass/Fail

Final 20% hurdle: FAIL. At $233.39, the base-case horizon value of about $168.5 produces a negative annualized return before any separate PT value. Even the bull case value of about $260.7 produces only low-single-digit annualized return at a 15x exit multiple. The 20% case does not work at the current price.

8. Dream Business / Dream Investment Classification

Classification: neither. Modine is a credible business-improvement story and may become a stronger Climate-focused company, but the audited evidence does not yet prove a dream business because ROIIC and post-ramp FCF conversion are missing. It is not a dream investment because the current price already capitalizes a strong Climate ramp and fails the 20% return underwriting.

The single biggest reason Modine does not qualify is that the current valuation asks investors to pay for a high-quality Climate compounder before the evidence proves clean incremental returns and cash conversion through the data-center capacity cycle.

9. Stage 7 Scorecard Notes

Compounder Score note: 51/100; Reject under the diagnostic rubric because improved Climate economics are real, but clean ROIIC, acquisition-inclusive returns, normalized FCF conversion, and 20% underwriting are not proven.

Business Quality Score note: 48/80; Modine is an improving industrial platform, not yet a proven elite compounder, because current growth is capital hungry and moat durability is still YELLOW.

20% Return UW Score note: 3/20; at $233.39, base-case $11.23 horizon EPS at 15x implies about $168.5 of value and roughly a -6% five-year annualized return, with a 20% buy price near $67.7.

10. Auditor JSON

See `compounder_score_audit.json` for the machine-readable audit.

Appendix RT - Red Team

Modine Manufacturing Company (MOD) - Red Team

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Production Mode. This appendix attacks the DR-cleared ER2 package and does not alter upstream files. Local inputs were `appendix_synthesis.md`, the R-reviewed Climate Solutions and Performance Technologies appendices, `appendix_management.md`, `appendix_moat.md`, and `data_package.md`. External checks were limited to recent company and peer context logged in `raw\appendix_red_team_20260430\source_log.md`: Modine's Q3 FY2026 release, the Modine/Gentherm RMT announcement, Modine's 2025 Airedale order release, Vertiv's Q4 2025 release, Ecolab's CoolIT acquisition release, and nVent's SC25 liquid-cooling release.

1. The most fragile assumption

The most fragile assumption is the Climate Solutions base-case data-center growth and margin bridge, specifically the path that takes estimated TTM Data Centers revenue from $869.4 million to $2.759 billion by 2030-12-31 while assigning a 24.0% product operating margin and a 22.4% total Climate segment operating margin. The synthesis converts that into continuing-MOD base EPS of $11.23. That base case already fails the ER2 price gate, but it still embeds a large operational win: data centers become about 71% of Climate revenue, the segment more than doubles from $1.7497 billion to $3.861 billion, and segment operating income rises from $273.8 million TTM to $866 million before retained corporate cost. The model is not punitive. It assumes the current capacity ramp resolves into both high revenue and high margin.

The fragility is not that AI data-center demand is fake. The fragility is that Modine may be a real winner and still earn less than the model assumes because hyperscale thermal infrastructure is becoming a scale, architecture, and procurement fight. Q3 FY2026 proved demand: Climate sales rose 51%, data-center sales rose 78%, and management raised the multi-year Data Centers target to 50%-70% annual growth for two years. But the same Q3 release showed the cost of that growth: Climate gross margin fell 380 bps year over year to 24.8%, gross margin pressure was attributed to temporary capacity-expansion costs and mix, nine-month free cash flow was negative $47.4 million, and net debt rose by $237.9 million from fiscal year-end because of working capital, acquisitions, and capex. The exact operating pattern the model needs to fade is the pattern currently visible in the financials.

The red-team version of this assumption is simple: Modine's data-center revenue can keep compounding, but the economics can settle closer to an industrial project-manufacturing margin than a scarce-capacity moat margin. The customer set is large, concentrated, and technically sophisticated. These buyers can qualify multiple vendors, demand capacity reservations, change reference designs, push price/cost mechanisms, and move thermal value across the stack. The moat appendix correctly labels this a YELLOW moat, not a PASS moat. That matters because the base case requires something close to moat-like conversion.

If the data-center margin line is wrong by 300 bps at the product level, the EPS effect is material. On the base $2.759 billion data-center revenue line, 300 bps equals about $82.8 million of segment operating income. After 25% tax and 52.57 million shares, that is roughly $1.18 of EPS. The synthesis's own sensitivity table says a 200 bps Climate OI margin miss takes base EPS from $11.23 to about $10.11, a $1.12 hit. A 300 bps miss would push base EPS toward the high-$9s before any revenue disappointment. At 15x, that is roughly $145-$150 of value, not $233.39. The exit problem is therefore not that the base case barely misses the price gate. It is that a very plausible margin miss makes the valuation gap much wider.

2. The most-likely-to-be-optimistic Stage 5 number

The Stage 5 number most likely to be revised down is the base-case Climate segment operating margin of 22.4% at the 2030-12-31 horizon. The bull number most vulnerable to being treated too seriously is the bull EPS of $17.38, because it requires $5.057 billion of continuing Climate revenue, 25.3% Climate segment margin, only $59 million of retained corporate cost, lower net interest, and a modest share-count reduction. The report already refuses to underwrite the bull case as the base case, which is correct. The red team goes further: the bull case should not be used as comfort that the current price has optionality. It is a demanding combination of revenue scale, architecture relevance, price discipline, cost absorption, cash conversion, and transaction hygiene.

The 22.4% base margin has an obvious narrative basis: management's stated FY2027 Climate margin goal around 20%-23%, fixed-cost absorption from new lines, a richer data-center mix, and 80/20 operating discipline. The weak point is that

management's near-term margin target is an aspiration for a business that is still absorbing labor, inventory, greenfield capacity, acquisitions, and commissioning costs. It is not yet a through-cycle margin. In the latest reported quarter, Climate gross margin was 24.8%, not operating margin. Segment operating income was $83.2 million on $544.6 million of sales, or about 15.3%. The model asks investors to believe that after capex and working-capital normalization, a larger, more hyperscaler-exposed business earns a segment margin roughly 700 bps above the current TTM Climate margin and roughly 710 bps above the latest quarter's segment operating margin.

That may happen, but the evidence has not caught up to the stock. Vertiv's February 2026 release reinforces that demand for data-center power and thermal infrastructure is very strong, with Q4 organic orders up 252% and backlog at $15.0 billion. That is a market tailwind for Modine, but it is also a competitive warning. Vertiv sells a broader critical digital infrastructure stack: thermal, power, racks, monitoring, and services. Ecolab's March 2026 agreement to acquire CoolIT for about $4.75 billion brings a liquid-cooling specialist with CDUs, cold plates, direct-to-chip technology, and hyperscaler relationships into a global water/service platform. nVent's SC25 release points to modular row and rack CDUs, rack/power products, reference architectures with Siemens, and a Google OCP Project Deschutes CDU design. These are not small local HVAC competitors. They are scaled companies trying to own more of the same thermal chain.

The most likely downward revision is therefore not to total market demand. It is to Modine's share of value captured per dollar of data-center revenue. The revenue curve may prove less wrong than the margin curve.

3. The strongest bear case, stated in its strongest form

The strongest bear case is that Modine is being re-rated from an improving industrial into an AI infrastructure winner at exactly the moment its best end market becomes crowded, standardized, and customer-controlled. The company has real data-center cooling demand, but the next five years will not be priced like the last two years because hyperscalers will dual-source, push design standards, and move economics toward integrated power/cooling/service vendors and direct-to-chip specialists. Under that case, Data Centers still grows rapidly in FY2026-FY2028, but gross margins stay stuck in the mid-20s and segment operating margins fail to clear the high teens because capacity, warranty, labor, materials, customer concentration, and architecture churn absorb the scale benefit. The numbers show up within four quarters: Climate or newly disclosed Data Centers revenue remains strong, but segment margin and free cash flow do not normalize.

The bear does not need a demand collapse. It only needs "good revenue, mediocre conversion." At the current price, merely good execution is not enough. The synthesis base case already gives Modine $3.861 billion of continuing Climate revenue and $11.23 of EPS and still produces a negative 27.8% cushion versus the P/E 15 gate. If the margin disappoints by 200-300 bps, base EPS falls closer to $10. The market would then own an industrial project manufacturer with a hot end market, not a 20-year compounding franchise that deserves to be capitalized at a premium before cash conversion is proven.

The transaction boundary increases the asymmetry. If the Gentherm RMT closes, MOD becomes cleaner but less diversified, with the continuing operating model almost entirely dependent on Climate. If the RMT fails or is materially delayed, MOD keeps a slower-growth PT segment and loses some pure-play premium. The failed-RMT sensitivity in the synthesis gets base EPS to only about $12.72, still below the P/E 15 bar at the current price. The transaction is therefore not a rescue mechanism for valuation; it is a cleanup that makes the Climate execution bet more concentrated.

4. Cross-examination of management commentary

The first statement to cross-examine is management's Data Centers growth target. The data package records Brinker saying Modine could "approach $2 billion of data center revenues in fiscal '28," and the Q3 release raised the multi-year outlook to 50%-70% annual growth for the next two years. That statement is operationally credible given Q3 growth and order commentary, but the skeptical read is that it focuses on revenue, not the economic terms attached to the revenue. A supplier can win large AI infrastructure orders by committing capacity, taking launch risk, carrying inventory, and accepting customer-friendly economics. If that is happening, the first evidence will be continued high Data Centers growth paired with Climate gross margin below 27%, Climate segment operating margin below 18%, and negative or weak free cash flow.

The second statement is the CFO's "goal next year would be 20% to 23%" for Climate margin. That is the anchor behind the base case's 22.4% segment margin. The skeptical read is that the target is being set while the company is still commissioning lines and integrating acquisitions. Q2 and Q3 FY2026 already showed margin compression from production labor, greenfield capacity, and inventory ahead of revenue absorption. The key question is whether these are temporary launch costs or the recurring cost of serving hyperscale customers that require redundant capacity, fast delivery, engineering customization, and warranty assurance. If the target is wrong, it will show up as a failure to move Climate operating margin into the 20%+ zone as Q4 FY2026 and Q1-Q2 FY2027 revenue scales.

The third statement is management's view that higher ambient liquid-loop temperature is a positive development. The skeptical read is that this may be true for some facility-level heat rejection and hybrid cooling roles, but it does not prove Modine captures the highest-value portion of next-generation liquid cooling. Ecolab/CoolIT, nVent, Schneider/Motivair, Vertiv, Johnson Controls/Silent-Aire, Trane/LiquidStack, STULZ, and others are trying to control CDUs, cold plates, rack manifolds, power/cooling reference designs, service, and monitoring. If data-center customers standardize around third-party or open reference architectures, Modine can still sell equipment but may lose pricing power. The first evidence will be weaker disclosed backlog quality, lower margin on data-center growth, or product commentary shifting from differentiated systems to capacity availability.

5. Stage 5 tie-out reverification

The Stage 5 arithmetic ties; the issue is assumption quality. The TTM anchor is correct: Q4 FY2025 plus Q1-Q3 FY2026, ending 2025-12-31. The continuing-MOD boundary is also clean: Performance Technologies remains in the reported TTM base but is removed from horizon operating revenue and OI if the RMT closes. The synthesis avoids the most obvious error, which would be adding standalone PT revenue and OI into a continuing-MOD close case.

The recency check is acceptable but not sufficient. The synthesis notes that Q3 FY2026 Climate revenue annualized is $2.178 billion, above the first forward year implied by the base CAGR. That proves the top-line start is not stale. It does not prove the margin start is safe. The latest quarter's Climate segment operating margin was roughly 15.3%, and TTM Climate margin was 15.6%, while the 2030 base is 22.4%. The base case depends on margin recovery, not just revenue continuation.

The share-count path is realistic enough, but it is strategically irrelevant. The base case assumes $30 million of annual buybacks, offset by SBC issuance, ending around 52.57 million diluted shares. That is not aggressive, and the synthesis is right that buybacks cannot rescue the price gate. The red-team issue is different: if cash conversion remains weak, even modest buybacks may be inappropriate. Nine-month FY2026 free cash flow was negative $47.4 million, and debt rose during the ramp. Capital should go to capacity, debt reduction, integration, and transaction cleanup before share repurchase unless free cash flow normalizes.

The product CAGR comparison also needs a sharper lens. The base Data Centers CAGR of 26.0% from TTM to 2030 is far below the FY2023-FY2025 historical CAGR of 92.6%, so it passes a mechanical deceleration check. But decelerating from an early revenue base is easy. The real test is whether the business can hold pricing power as the market industrializes. Peer behavior suggests the answer is uncertain: Vertiv is scaling with enormous backlog and a broad system stack; CoolIT is being bought at a premium by Ecolab; nVent is aligning cooling products with chip makers, OCP specifications, and hyperscale reference architectures. A 26% CAGR may be less fragile than a 24% data-center product operating margin.

6. The signal that forces an exit

The exit signal should be a margin-and-conversion signal, not a generic "orders slow" warning. The cleanest monitor is: exit if, across the next two reported quarters after Q3 FY2026, Climate Solutions or the new Data Centers segment fails to show operating leverage, defined as Climate segment operating margin below 18.0% while Data Centers revenue is still growing at least 40% year over year in either quarter. If revenue is strong and margin is below 18%, the thesis is wrong in the way that matters: Modine is adding volume without capturing enough value.

This threshold is intentionally demanding but fair. Q3 FY2026 Climate segment operating margin was about 15.3%. Management's near-term goal is 20%-23%. The base case requires a 22.4% 2030 Climate margin. A move above 18% over the next two quarters would not prove the whole thesis, but it would show the ramp costs are fading. Failure to clear 18% while revenue remains strong would indicate that the structural cost to serve data-center customers is higher than modeled. That would invalidate the model's path to $11.23 base EPS and make the bull $17.38 EPS a scenario to discard rather than a valuation support.

Secondary monitors are useful but should not replace the main exit signal. Watch Data Centers revenue growth below 35% year over year for two consecutive quarters before fiscal 2028, because that would challenge the $2 billion-plus revenue target. Watch reported free cash flow remaining negative for FY2027 after Q4 FY2026 capacity carryover, because that would undermine the quality-compounder framing. Watch the RMT closing calendar: a slip beyond Q4 calendar 2026 would not by itself destroy value, but it would weaken the pure-play narrative and keep corporate attention split.

7. Conviction at the end of red team

Thesis does not survive as a BUY at the current price. It survives only as a watch-list business with a clear operating trigger. The red team agrees with the synthesis verdict direction: the base case fails the P/E 15 gate, and the stock needs the bull

case to become more base-like before ER2 can underwrite it. The bear attack adds that even the base case may be too generous on Climate margin if hyperscaler buyer power, peer capacity, liquid-cooling architecture shifts, and cash-consuming growth prevent Modine from converting orders into high-margin free cash flow.

This is not a "bad company" call. Management is credible, the portfolio shift is coherent, and the demand signal is real. The problem is that the market is already paying for an outcome that requires several unproven things to be true at once: Data Centers approaches or exceeds the FY2028 target, margins recover into the 20%-23% zone, capex and working capital normalize, the RMT closes cleanly, and Modine holds value share against much larger or more specialized competitors. Until the company proves operating leverage in the new Data Centers reporting structure, the correct Gideon action is PASS, not BUY.

Key findings

- Strongest bear argument: Modine may be a real AI data-center cooling winner but still fail as a stock because hyperscaler buyer power, architecture churn, and peer capacity turn revenue growth into lower-than-modeled margin and cash conversion.
- Most optimistic Stage 5 number: bull EPS of $17.38 requires a $5.057 billion Climate segment and 25.3% Climate margin; it should not be used as valuation support until margin and free cash flow normalize.
- Most fragile base assumption: Climate Solutions 22.4% horizon segment margin, especially the 24.0% assumed margin on $2.759 billion of data-center revenue.
- Exit signal: if the next two reported quarters show Climate/Data Centers revenue still strong but Climate segment operating margin below 18.0%, exit the thesis because the ramp is not converting into the economics the model needs.
- Verdict: conditional/watch-list only. Management PASS and demand strength do not overcome a YELLOW moat, weak ramp-period free cash flow, and a base-case P/E 15 failure.

Appendix D - Data Package (raw historicals)

Modine Manufacturing Company (MOD) - Data Package

PATH_RECEIVED: C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\data_package.md Analyst role: Sub-Agent D. Production Mode. Data source rule followed: live FMP stable endpoints, live SEC EDGAR, and live company/SEC release sources only; no local data warehouse cache used. Company fiscal year ends March 31. Stage 0 anchor: Today 2026-04-30; latest reported quarter Q3 FY2026 ended 2025-12-31; TTM = Q4 FY2025 + Q1-Q3 FY2026 ending 2025-12-31; forward horizon = 2030-12-31.

Source Inventory and Fetch Discipline

Source	Raw file(s) under data_package_20260430	Use in this package
FMP stable profile/quote	profile.json; quote.json	Price $233.39; market cap $12.31B
FMP stable income-statement	income_annual.json; income_quarter.json	5-year annuals plus last 8 quarters
FMP stable cash-flow-statement	cashflow_annual.json; cashflow_quarter.json	CFO, capex, FCF, buybacks, acquisitions
FMP stable balance-sheet-statement	balance_annual.json; balance_quarter.json	Latest balance sheet as of 2025-12-31
FMP stable revenue-product-segmentation	revenue_product_annual.json; revenue_product_quarter.json	Annual endpoint stale at FY2013-FY2018; quarterly current only for Data Centers
FMP stable earning-call-transcript	transcript_FY2025_Q4.json; transcript_FY2026_Q1/Q2/Q3.json	Last four calls, date fields 2025-05-21 through 2026-02-05
SEC EDGAR 10-K/10-Q	SEC_10K_2021-2025; SEC_10Q_2025-12-31	Segment, product, geography, YTD tables
SEC EDGAR 8-K exhibits	SEC_EX99_Q4FY2025 through SEC_EX99_Q3FY2026; Gentherm RMT exhibits	Quarterly releases and transaction release
Retry log	failed_url_retry_log.json	IR pages blocked with 403 and guessed filing URLs 404; identical retries logged

Failed-source handling: the company IR pages at investors.modine.com returned HTTP 403 and were retried once with the identical URL, as required. Several guessed SEC archive document URLs returned 404 and were also retried once. The corrected SEC filing URLs were then derived from the live SEC submissions index, not from a cache. The retry evidence is saved in `raw/data_package_20260430/failed_url_retry_log.json`.

Self-verification before return:

Check	Live evidence	Result
Largest-segment recent growth	SEC Exhibit 99.1 filed 2026-02-04 reports Climate Solutions segment sales of $544.6mm, up 51%, and Data Center sales up 78% in Q3 FY2026. Raw: SEC_EX99_Q3FY2026_results.htm.	PASS
Transcript quote/date	FMP stable `earning-call-transcript?symbol=MOD&year=2026&quarter=3` returned date 2026-02-05, period Q3. The transcript contains the short phrase "record order intake" used below.	PASS
FY-1 revenue	FMP stable annual income-statement live pull gives FY2025 revenue of $2,583.5mm, tying to the FY2025 10-K consolidated sales table.	PASS

1. Reporting Structure and Taxonomy

Current reportable segments are **Climate Solutions** and **Performance Technologies**. Climate Solutions provides energy-efficient climate-controlled systems and components across data center cooling, heat transfer, and HVAC&R/HVAC technologies. Performance Technologies designs and manufactures air- and liquid-cooled heat exchangers and provides advanced thermal systems for vehicular, stationary power, industrial, zero-emission, and hybrid applications.

FY2025 segment revenue and mix, using external sales from the SEC FY2025 10-K segment note:

Segment	FY2025 external sales ($mm)	FY2025 % of consolidated sales	FY2025 operating income ($mm)	Description
Climate Solutions	1,440.6	55.8%	248.4	Data center cooling, heat transfer, HVAC&R; now the largest and highest-growth segment.
Performance Technologies	1,142.9	44.2%	108.0	Air-cooled, liquid-cooled, and advanced thermal solutions; pending spin/combination with Gentherm.
Consolidated	2,583.5	100.0%	283.5	Corporate/eliminations bridge segment OI to consolidated OI.

Taxonomy flags:

Flag	Finding	Treatment
Current segment recast	The FY2025 10-K states that, effective April 1, 2024, the Coatings business moved from Performance Technologies to Climate Solutions and prior-year segment financial information was recast.	Use FY2025 10-K recast segment data for FY2023-FY2025. Use FY2024 10-K/FY2023 10-K for the earlier current-taxonomy periods and label boundaries.
FY2021 comparability	The FY2022 10-K still reported older segments (BHVAC, CIS, HDE, Automotive), but the FY2023 10-K later supplied FY2021 values in the Climate/Performance taxonomy.	Use recast Climate/Performance FY2021 values from the FY2023 10-K, but flag that product labels and management discussion before FY2022 used old segment names.
FMP product endpoint	FMP annual product segmentation is stale: the live annual endpoint returns old FY2013-FY2018 rows. The live quarterly product endpoint only provides current Data Centers rows.	Do not use FMP annual product rows for current product dollars. Use SEC product tables; use FMP current Data Centers quarters only where tied to the SEC Q3 FY2026 10-Q.
Announced future taxonomy	Management said beginning in Q1 FY2027 reporting will include Data Centers, Commercial HVAC, and Performance Technologies until PT closes.	Forecasting subagents should not assume the FY2025 two-segment taxonomy will remain the reporting taxonomy after FY2026.

Geography: FY2025 net sales by customer location were United States $1,287.5mm, Canada $241.7mm, Italy $209.7mm, Hungary $179.8mm, United Kingdom $157.8mm, China $130.7mm, and Other $376.3mm. Americas dominate Climate Solutions, while Performance Technologies remains more globally spread across Americas, Europe, and Asia. The FY2025 10-K facility table lists 22 Climate Solutions manufacturing facilities and 19 Performance Technologies facilities.

2. Consolidated Historicals - 5 Years, FMP-Sourced

Metric	FY2021	FY2022	FY2023	FY2024	FY2025	Source
Revenue ($mm)	1,808.4	2,050.1	2,297.9	2,407.8	2,583.5	FMP income-statement annual
Operating income ($mm)	-97.7	119.2	150.4	240.7	283.5	FMP income-statement annual
Operating margin (%)	-5.4%	5.8%	6.5%	10.0%	11.0%	calc
Net income ($mm)	-210.7	85.2	153.1	161.5	184.0	FMP income-statement annual
EPS diluted ($)	-4.11	1.62	2.90	3.02	3.42	FMP income-statement annual
Diluted share count (mm)	51.3	52.5	52.8	53.4	53.9	FMP income-statement annual
Capex ($mm)	-32.7	-40.3	-50.7	-88.5	-84.0	FMP cash-flow annual
FCF ($mm)	117.1	-28.8	56.8	126.1	129.3	FMP cash-flow annual
ROIC (%)	-10.2%	12.1%	16.7%	15.2%	17.4%	calc: NOPAT / FMP invested capital

ROIC calculation convention: NOPAT = FMP operating income times (1 minus the effective tax rate). When pretax income is positive, the tax rate is capped at 35% and floored at 0% to avoid one-off benefit distortion; for loss years, 25% is used as a normalized tax rate. Invested capital is the FMP stable key-metrics annual `investedCapital` field. FY2021 is not a clean operating year because of large impairment charges and a net loss, so the reported ROIC should be treated as a stress-year marker, not a steady-state return.

Year	Tax rate used	NOPAT ($mm)	Invested capital ($mm)	ROIC
FY2021	25.0%	-73.3	716.8	-10.2%
FY2022	15.0%	101.3	836.9	12.1%
FY2023	0.0%	150.4	900.5	16.7%
FY2024	23.9%	183.3	1,209.1	15.2%
FY2025	27.0%	207.0	1,191.3	17.4%

Historical interpretation for downstream modelers: FY2021-FY2022 are restructuring and post-pandemic recovery years; FY2023-FY2025 show the business mix shift. Operating margin rose from -5.4% in FY2021 to 11.0% in FY2025. FCF improved from negative FY2021/FY2022 levels to $129.3mm in FY2025, but the Q3 FY2026 TTM period sharply weakens FCF because the data-center ramp consumed working capital and capex.

3. Segment Historicals - 5 Years per Segment, SEC/FMP Cross-Checked

The segment revenue rows below use external sales, because external sales sum to consolidated sales. Operating income is segment operating income before corporate/eliminations. FY2024 and FY2025 reflect the FY2025 10-K Coatings recast. FY2021-FY2022 use current-taxonomy values from the FY2023/FY2024 10-Ks and should be treated as comparable at the segment level, though old management commentary and old product-group captions differ.

Climate Solutions

Climate Solutions	FY2021	FY2022	FY2023	FY2024	FY2025	Source
Revenue ($mm)	731.1	910.1	1,056.1	1,108.1	1,440.6	SEC 10-K segment notes; QF cross-check
YoY %	n/a	24.5%	16.0%	4.9%	30.0%	calc
Operating income ($mm)	49.9	73.4	132.2	178.6	248.4	SEC 10-K segment notes
Operating margin (%)	6.8%	8.1%	12.5%	16.1%	17.2%	calc

Key Climate notes: FY2025 revenue growth was driven by data center cooling and the Scott Springfield Manufacturing acquisition, partly offset by heat transfer declines. Q1-Q3 FY2026 continued the data-center ramp, but margins compressed in Q2/Q3 because Modine added production labor, greenfield capacity, and inventory ahead of revenue absorption. The latest Q3 FY2026 quarterly release says Climate sales increased 51%, with Data Center sales up 78% and HVAC Technologies up 48% including acquired sales.

Performance Technologies

Performance Technologies	FY2021	FY2022	FY2023	FY2024	FY2025	Source
Revenue ($mm)	1,077.3	1,140.0	1,241.8	1,299.7	1,142.9	SEC 10-K segment notes; QF cross-check
YoY %	n/a	5.8%	8.9%	4.7%	-12.1%	calc
Operating income ($mm)	-109.1	77.4	57.6	111.7	108.0	SEC 10-K segment notes
Operating margin (%)	-10.1%	6.8%	4.6%	8.6%	9.4%	calc

Key Performance notes: FY2025 revenue fell after the disposition of three automotive businesses in Germany and softer off-highway/commercial-vehicle markets, but operating margin improved to 9.4% on external sales. Q3 FY2026 showed sales roughly flat year over year and operating income up strongly because pricing/cost recovery and SG&A reduction offset weak volumes. The announced Gentherm transaction means this segment is not a stable long-term MOD-owned profit pool.

4. Product and Sub-Segment Historicals - Disclosed Dollar Detail

Products with separately disclosed dollar revenue

Segment	Product	What it is	Dollar disclosure?	Last 3 years revenue + source
Climate Solutions	Data center cooling	Liquid and air-cooled data center thermal-management systems; chillers, AHUs, modular solutions	Yes	$173.8 / $294.2 / $644.2 in FY2023/FY2024/FY2025; SEC FY2025 10-K Note 3
Climate Solutions	Heat transfer	Coils, coatings, heat-exchanger products for commercial, industrial and residential HVAC&R	Yes	$541.3 / $473.4 / $402.9 in FY2023/FY2024/FY2025; SEC FY2025 10-K Note 3
Climate Solutions	HVAC&R	Commercial and residential heating, ventilation, air conditioning and refrigeration equipment	Yes	$341.0 / $340.5 / $393.5 in FY2023/FY2024/FY2025; SEC FY2025 10-K Note 3
Performance Technologies	Air-cooled	Air-cooled heat exchangers and modules for vehicular, power-generation and industrial uses	Yes	$658.6 / $681.2 / $609.0 in FY2023/FY2024/FY2025; SEC FY2025 10-K Note 3
Performance Technologies	Liquid-cooled	Liquid-cooled modules and heat exchangers for on-highway and off-highway applications	Yes	$483.9 / $491.6 / $404.5 in FY2023/FY2024/FY2025; SEC FY2025 10-K Note 3
Performance Technologies	Advanced solutions	Thermal systems for zero-emission, hybrid commercial vehicle and off-highway customers	Yes	$99.3 / $126.9 / $129.4 in FY2023/FY2024/FY2025; SEC FY2025 10-K Note 3

Product lines with quarterly or growth-rate disclosure only

Segment	Product	Disclosure method	Last four-quarter / current trend	Source
Climate	Data centers	Q1 $186.9 / Q2 $226.3 / Q3 $296.9; 9M $710.1	YoY not fully dollar-disclosed by quarter except press release rates: Q2 +42%, Q3 +78%	FMP quarterly product segmentation tied to SEC Q3 FY2026 10-Q
Climate	Heat transfer solutions	9M FY2026 $422.4	Q3 +14% per press release; full quarter dollars not separately disclosed in FMP	SEC Q3 FY2026 10-Q product table; SEC Exhibit 99.1
Climate	HVAC technologies	9M FY2026 $260.9	Q2 +25%; Q3 +48%, including $42.8mm acquired sales in Q3	SEC Q3 FY2026 10-Q product table; SEC Exhibit 99.1
Performance	Heavy-duty equipment	9M FY2026 $300.9	Q3 -3% per transcript; quarterly dollars not separately disclosed by product	SEC Q3 FY2026 10-Q; FMP transcript FY2026 Q3
Performance	On-highway applications	9M FY2026 $532.4	Q3 +6% per transcript; Q2 pressured by commercial-vehicle customers	SEC Q3 FY2026 10-Q; FMP transcript FY2026 Q3

No back-solved product dollar figures are used in this file. If a quarterly product dollar figure is not disclosed, the file states that directly. The only current quarterly product dollar series used is Data Centers from FMP quarterly product segmentation because it ties exactly to the SEC Q3 FY2026 10-Q 9M Data centers total: $186.9mm + $226.3mm + $296.9mm = $710.1mm. The FY2026 10-Q product labels differ from the FY2025 annual labels: Data centers, Heat transfer solutions, HVAC technologies, Heavy-duty equipment, and On-highway applications. Do not insert an Advanced Solutions zero row into FY2026 YTD tables.

5. Most Recent Quarterly Trend - Last Four Quarters

Company FY ends March 31. Most recently completed fiscal quarter at time of writing: FY2026 Q3, covering October-December 2025, reported on 2026-02-04 via SEC Exhibit 99.1 in accession 0001104659-26-010338 and followed by an FMP transcript dated 2026-02-05.

Quarter	Revenue ($mm)	YoY %	Operating margin / profit markers	Source
Q4 FY2025 ended 2025-03-31	Consol. $647.2; Climate $356.3; Performance $290.9 external sales / $294.8 segment sales	Consol. +7%; Climate +28%; Performance -11%	Climate gross margin 29.7%; Performance gross margin 20.4%; segment OI $61.5/$29.9	SEC Exhibit 99.1, 2025-05-20; QF derives Q4 external sales from FY2025 less 9M FY2025; release reports Performance segment sales of $294.8mm
Q1 FY2026 ended 2025-06-30	Consol. $682.8; Climate $397.4; Performance $285.5	Consol. +3%; Climate +11%; Performance -8%	Climate gross margin 28.4%; Performance gross margin 18.2%; segment OI $66.9/$26.5	SEC Exhibit 99.1, 2025-07-30
Q2 FY2026 ended 2025-09-30	Consol. $738.9; Climate $454.4; Performance $286.3	Consol. +12%; Climate +24%; Performance -4%	Climate gross margin 24.6%; Performance gross margin 18.9%; segment OI $62.2/$29.7	SEC Exhibit 99.1, 2025-10-28
Q3 FY2026 ended 2025-12-31	Consol. $805.0; Climate $544.6; Performance $266.0	Consol. +31%; Climate +51%; Performance +1%	Climate gross margin 24.8%; Performance gross margin 18.9%; segment OI $83.2/$25.8	SEC Exhibit 99.1, 2026-02-04

TTM construction from QF: Q4 FY2025 consolidated sales of $647.2mm plus Q1-Q3 FY2026 sales of $2,226.7mm equals TTM revenue of $2,873.9mm. Segment TTM external sales are Climate Solutions $1,749.7mm and Performance Technologies $1,124.2mm. Segment TTM OI is Climate $273.8mm and Performance $111.9mm, with a corporate/eliminations bridge of negative $72.7mm to consolidated operating income of $313.0mm.

Recency read-through: Q3 FY2026 is the best available current-quarter demand signal. Revenue accelerated materially, but consolidated net income was distorted by a $116.1mm non-cash pension termination charge and FCF remained negative for the 9M period. Use adjusted EBITDA and segment operating income for operating momentum, but do not ignore the cash absorption from inventories and capex.

6. Management Commentary on Forward Growth - Verbatim Snippets and Interpretation

The following entries use FMP stable transcripts fetched in this run and SEC EDGAR exhibits fetched in this run. Each quote is intentionally short; see raw transcript files for full context.

Area	Source date / fiscal period	Speaker	Verbatim snippet	Modeling implication
Climate / data centers	Q4 FY2025 call, 2025-05-21	Neil Brinker, CEO	"data centers, which were up 119% to $644 million"	FY2025 data-center step-change; supports using data center as the main Climate growth driver.
Climate / data centers	Q1 FY2026 call, 2025-07-31	Neil Brinker, CEO	"approach $2 billion of data center revenues in fiscal '28"	Management framed the $100mm capacity expansion as needed for FY2028 scale.
Climate / capacity	Q2 FY2026 call, 2025-10-29	Neil Brinker, CEO	"path to deliver more than 60% revenue growth"	Q2 language supports a near-term ramp but also flags execution burden and temporary margin erosion.
Climate / data centers	Q3 FY2026 call, 2026-02-05	Neil Brinker, CEO	"record order intake"	Order intake was cited as evidence for the two-year data-center growth target.
Climate / margin	Q3 FY2026 call, 2026-02-05	Michael Lucareli, CFO	"goal next year would be 20% to 23%"	Use as a forward margin anchor for Climate before any segment split.
Climate / technology	Q3 FY2026 call, 2026-02-05	Neil Brinker, CEO	"higher ambient temperature...is a positive development"	Management rejects the view that warmer liquid loops structurally reduce Modine relevance.
Performance Technologies	Q3 FY2026 call, 2026-02-05	Neil Brinker, CEO	"spinning off the Performance Technologies segment"	PT should be modeled as a pending separation rather than a permanent segment.
Performance Technologies	Q2 FY2026 call, 2025-10-29	Neil Brinker, CEO	"actively reallocating resources to the Climate Solutions segment"	Cost improvement partly comes from headcount/resource transfer, not just end-market recovery.

Area	Source date / fiscal period	Speaker	Verbatim snippet	Modeling implication
Cash flow	Q3 FY2026 call, 2026-02-05	Michael Lucareli, CFO	"working capital to sales"	CFO tied weak FCF to ramp inventory and elevated capex, not to reported earnings quality alone.
Corporate portfolio	Gentherm RMT release, 2026-01-29	Neil Brinker, CEO	"pure-play climate solutions company"	Portfolio intent is explicit: retain Climate, combine PT with Gentherm.

Additional modeling interpretation by segment:

Climate Solutions: management is explicitly anchoring growth to data center cooling, production-line additions, and long-term customer capacity discussions. Q3 commentary raises the forward bar: data center revenue was said to be on track for more than 70% FY2026 growth and 50%-70% annual growth for the next two years. The margin story is two-stage: temporary cost absorption in FY2026, then a FY2027 Climate margin target around 20%-23% before more granular new segment disclosure. Downstream segment work should test whether that margin bridge is credible after capex, labor, inventory, and acquisition integration costs.

Performance Technologies: management is treating PT as a monetized/combined asset, not as the future core of Modine. Q3 commentary and the Gentherm release describe a spin-off and combination expected to close in Q4 calendar 2026, subject to approvals. The segment still matters for FY2026 and TTM arithmetic, but FY+5 MOD economics should be built around the remaining Climate portfolio and the value/cash/share consideration from the RMT, not around permanent ownership of PT.

Cash flow and capital intensity: the CFO tied weak FCF to inventory prebuild and capex. That is a plausible explanation, but it is also the key diligence risk. If sales keep ramping, working capital may continue to consume cash, and if customer demand shifts or capacity is mistimed, the business may carry elevated fixed cost before utilization catches up.

7. Capital Allocation History - 5 Years

Year	Capex ($mm)	Capex / revenue	R&D ($mm)	R&D / revenue	Buybacks ($mm)	Dividends ($mm)	M&A cash outflow ($mm)	Source
FY2021	-32.7	1.8%	46.3	2.6%	0.0	0.0	0.2	FMP income/cash-flow annual
FY2022	-40.3	2.0%	50.3	2.5%	0.0	0.0	0.0	FMP income/cash-flow annual
FY2023	-50.7	2.2%	44.0	1.9%	7.3	0.0	0.3	FMP income/cash-flow annual
FY2024	-88.5	3.7%	42.0	1.7%	13.3	0.0	198.2	FMP income/cash-flow annual
FY2025	-84.0	3.3%	34.9	1.4%	30.9	0.0	3.4	FMP income/cash-flow annual

Notes: FMP reports research and development expense as zero or not separately presented in the income statement; Modine discusses product development and engineering inside operating expenses rather than as a separate R&D line. Buybacks were material in FY2024 and FY2025, while dividends were zero across the five-year period. FY2026 YTD cash use is more acquisition/capacity weighted: Q3 press release states nine-month FCF was negative $47.4mm and debt rose because of working capital, acquisitions, and capex.

Segment capex from SEC FY2025 10-K: FY2025 capital expenditures were Climate Solutions $53.3mm, Performance Technologies $30.2mm, and Corporate $0.5mm, total $84.0mm. Q3 FY2026 transcript commentary implies much higher capex intensity during the data-center ramp, including $40-$50mm expected in Q4 and additional carryover into FY2027 for capacity supporting future sales.

8. Balance Sheet Snapshot - Latest Quarter / FY-1 Context

Item	Value ($mm)	Source / note
Cash and equivalents	98.9	FMP balance-sheet statement 2025-12-31; Q3 release says $98.7mm

Item	Value ($mm)	Source / note
Short-term investments	0.0	FMP balance-sheet statement 2025-12-31
Short-term debt	68.4	FMP balance-sheet statement 2025-12-31
Long-term debt	682.8	FMP balance-sheet statement 2025-12-31
Total debt (FMP totalDebt)	867.1	FMP includes debt/lease-related components; Q3 press release total debt is $615.8mm
Net debt (FMP totalDebt less cash)	768.2	FMP balance-sheet statement; Q3 press release net debt is $517.1mm
Net debt / FMP TTM EBITDA	2.91x	QF using FMP TTM EBITDA; conservative because Q3 includes pension charge effects
Net debt / operating EBITDA proxy	1.93x	QF operating proxy: OI plus D&A
Goodwill + intangibles	496.8	FMP balance-sheet statement 2025-12-31
Tangible book value	625.0	Total stockholders equity $1,121.8mm less goodwill/intangibles $496.8mm
Market cap	12,306.9	FMP quote live pull price $233.39

Balance sheet interpretation: reported leverage is manageable on an adjusted/operating EBITDA basis, but the debt balance increased during FY2026 as the data-center ramp required acquisitions, working capital, and capex. The SEC Q3 release uses a lower debt definition than FMP totalDebt; downstream users should preserve both definitions and avoid mixing them within one leverage bridge.

9. Recent Corporate Actions - Last 12 Months

- 2026-01-29: Gentherm and Modine announced a Reverse Morris Trust transaction combining Gentherm with Modine Performance Technologies. The release values the transaction at approximately $1.0B, says Modine expects a $210mm cash distribution from SpinCo, and indicates Modine shareholders are expected to own about 40% of the combined company. Source: SEC_EX99_Gentherm_RMT_press.htm and SEC_8K_Gentherm_RMT.htm.
- 2026-02-04 / 2026-02-05: Modine reported Q3 FY2026 and filed the Q3 10-Q. The quarter included a $116.1mm non-cash charge tied to terminating the U.S. pension plan. Source: SEC_EX99_Q3FY2026_results.htm and SEC_10Q_2025-12-31.htm.
- FY2026 first nine months: Modine completed three acquisitions and recorded acquired customer relationship, trade name, and technology intangible assets of $48.1mm, $15.7mm, and $3.5mm respectively. Management identifies the acquired businesses in call/release materials as AbsolutAire, L.B. White, and Climate by Design. Source: SEC_10Q_2025-12-31.htm, Q1/Q2 transcripts, Q1/Q2 releases.
- 2025-07-30: Q1 FY2026 outlook was raised to net sales growth of 10%-15% and adjusted EBITDA of $440mm-$470mm. Source: SEC_EX99_Q1FY2026_results.htm.
- 2025-10-28: Q2 FY2026 outlook was raised to net sales growth of 15%-20%, with adjusted EBITDA still $440mm-$470mm. Source: SEC_EX99_Q2FY2026_results.htm.
- 2026-02-04: Q3 FY2026 outlook was raised again to net sales growth of 20%-25% and adjusted EBITDA of $455mm-$475mm. Source: SEC_EX99_Q3FY2026_results.htm.
- 2025 calendar year: management discussed production-line commissioning in Jefferson City, Grenada, Dallas, Franklin, Chennai, and other capacity additions for data-center products. Source: FMP transcripts FY2026 Q1-Q3 and SEC quarterly exhibits.
- Share count: FMP diluted weighted-average shares were 53.9mm in FY2025 and 52.8mm in Q3 FY2026. Buybacks were $30.9mm in FY2025 and $50.1mm in FY2024, but near-term cash allocation is dominated by capacity, acquisitions, and the PT transaction.

10. Open Data Gaps and Downstream Flags

- FMP annual revenue-product-segmentation is stale for MOD and cannot be used for current product dollars. Current annual product dollars come from SEC 10-K tables; current Data Centers quarterly dollars come from FMP only because they tie exactly to the SEC 10-Q 9M total.

- FY2026 product-level quarter dollars are not fully disclosed for Heat Transfer Solutions, HVAC Technologies, Heavy-duty equipment, or On-highway applications. Do not back-solve or invent those quarter dollars. Use YTD SEC product totals and disclosed YoY percentages only.
- The company is expected to report a new segment taxonomy beginning with FY2027 Q1: Data Centers, Commercial HVAC, and Performance Technologies until the PT transaction closes. Data package users should not treat Climate Solutions as a single unchanging segment for FY+5 modeling.
- The Gentherm RMT can materially alter MOD's revenue, EBITDA, leverage, and share/asset base by the 2030-12-31 horizon. Segment B and S subagents must decide whether to model continuing MOD as pure-play Climate Solutions plus transaction proceeds and residual ownership, not as the FY2025 consolidated entity.
- FMP and company release debt definitions differ. FMP totalDebt at 2025-12-31 is $867.1mm with net debt $768.2mm; the Q3 release says total debt $615.8mm and net debt $517.1mm. Preserve the definition in any leverage calculation.
- Management quotes are live-fetched from FMP transcripts, but company IR web pages directly blocked with 403. SEC 8-K exhibits supply the same quarterly press-release content and are saved under raw files.
- FY2021 segment and product figures are recast to current taxonomy in later SEC filings, but the original FY2021 management structure used old segment labels. Use FY2021 for long-run trend context, not as a clean base for product-level forecasting.
- FCF conversion is currently weak: the SEC Q3 FY2026 release reports 9M FY2026 FCF of negative $47.4mm, and adding Q4 FY2025 FCF of $27.1mm implies TTM FCF of roughly negative $20.3mm. This differs from the QF FMP-quarter-derived TTM FCF figure of positive $7.4mm; downstream cash-conversion work should use the company-reported SEC release/10-Q cash-flow framing and preserve the FMP discrepancy. The reason for weak cash conversion is plausible (working capital and capex for growth), but it is a central risk for any quality-compounder verdict.

Handoff Summary for Downstream Subagents

Use QF for final quantitative tie-outs, except preserve the cash-flow conversion discrepancy flagged in Section 10, and use this data package for source trail and management commentary. Reportable FY2025 segments: Climate Solutions ($1,440.6mm external sales, 55.8% of consolidated sales, $248.4mm OI) and Performance Technologies ($1,142.9mm external sales, 44.2%, $108.0mm OI). TTM anchor ending 2025-12-31: consolidated revenue $2,873.9mm, consolidated OI $313.0mm, Climate external sales $1,749.7mm, Performance external sales $1,124.2mm. Product dollar history is strongest for FY2023-FY2025 annual product groups and Q1-Q3 FY2026 Data Centers. The largest qualitative finding is that Modine is actively becoming a pure-play Climate Solutions/data-center cooling company; the largest diligence flag is cash conversion during the capacity ramp.

Appendix QF - Quantitative Foundation

Modine Manufacturing Company (MOD) - Quantitative Foundation

PATH_RECEIVED: C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\quant_foundation.md Analyst role: Sub-Agent QF. Data rule: live fetches only; no data-warehouse cache used. Currency/unit convention: USD millions unless explicitly stated. Company fiscal year ends March 31.

Stage 0 - Anchor

- Today: 2026-04-30 (Asia/Singapore local date).
- Company fiscal year convention: fiscal year ends March 31.
- Most recently reported quarter: Q3 FY2026, quarter ended 2025-12-31, reported/filed 2026-02-04/2026-02-05.
- TTM anchor: Q4 FY2025 + Q1 FY2026 + Q2 FY2026 + Q3 FY2026 -> TTM ending 2025-12-31.
- Forward horizon: TTM end + 5 calendar years = 2030-12-31. Compounding span exactly 5 calendar years.

Source Inventory

Source	Endpoint/file	Status	Use
FMP	revenue-product-segmentation MOD period=quarter -> raw/MOD_revenue_product_segmentation_quarter.json	live fetched	P1; current Data Centers rows for Q1-Q3 FY2026 plus stale historical rows
FMP	revenue-product-segmentation MOD period=annual -> raw/MOD_revenue_product_segmentation_annual.json	live fetched	P1 Check 0; stale, only FY2013-FY2018 product rows returned
FMP	income-statement MOD period=quarter limit=12 -> raw/MOD_income_statement_quarter.json	live fetched	P3 and TTM consolidated statements
FMP	income-statement MOD period=quarter limit=12 -> raw/qf_repair_20260430/MOD_income_statement_quarter_repair.json	live re-fetched	repair evidence; confirms FMP Q3 FY2026 OI conflict
FMP	revenue-product-segmentation MOD period=quarter -> raw/qf_repair_20260430/MOD_revenue_product_segmentation_quarter_repair.json	live re-fetched	repair evidence; confirms current FMP product rows are Data Centers only
FMP	revenue-product-segmentation MOD period=annual -> raw/qf_repair_20260430/MOD_revenue_product_segmentation_annual_repair.json	live re-fetched	repair evidence; confirms annual endpoint remains stale at FY2013-FY2018
FMP	cash-flow-statement MOD period=quarter limit=12 -> raw/MOD_cash_flow_quarter.json	live fetched	P6 TTM cash flow
FMP	balance-sheet-statement MOD period=quarter limit=12 -> raw/MOD_balance_sheet_quarter.json	live fetched	P6 latest balance sheet
FMP	financial-reports-json MOD year=2025 period=FY -> raw/MOD_2025_10k.json	live fetched	No Data response; official SEC 10-K used for FY2025 segment source
SEC	CIK0000067347 submissions -> raw/SEC_CIK0000067347_submissions.json	live fetched	filing index and latest-quarter confirmation
SEC	companyfacts CIK0000067347 -> raw/SEC_CIK0000067347_companyfacts.json	live fetched	consolidated XBRL fact cross-check
SEC	2025 10-K HTML -> raw/SEC_10K_2025-03-31_mod-20250331x10k.htm	live fetched	official FY2023-FY2025 segment/product tables and taxonomy
SEC	Q3 FY2026 10-Q HTML -> raw/SEC_10Q_2025-12-31_mod-20251231x10q.htm	live fetched	official 9M FY2026/9M FY2025 segment/product tables and TTM bridge

Source	Endpoint/file	Status	Use
SEC	2026-02-04 8-K -> raw/SEC_8K_2026-02-04_mod-20260204x8k.htm	live fetched	reported-date confirmation
Normalized	raw/MOD_quant_foundation_normalized.json	created	machine-readable QF tables and arithmetic

P0 - Official-Source / FMP Exception Log

MOD is a U.S. domestic issuer (NYSE, CIK 0000067347, not an ADR). The foreign-issuer override does not apply. Two domestic-source exceptions were still required because FMP returned stale or absent segment-detail endpoints; both exceptions are live-source exceptions, not cache substitutions.

Period	Statement type	Official source file	FMP endpoint	Line item	Official value	FMP value	Delta	Controlling source	Status
FY2025	Form 10-K	raw/SEC_10K_2025-03-31_mod-20250331x10k.htm	financial-reports-json year=2025 period=FY	segment/product tables	present	No Data	n/a	SEC 10-K	FMP structured report unavailable; SEC controls
FY2025	Form 10-K	raw/SEC_10K_2025-03-31_mod-20250331x10k.htm	revenue-product-segmentation period=annual	product revenue	current official product table present	FMP annual endpoint stops at FY2018	n/a	SEC 10-K	FMP annual product endpoint stale; no annual column fabricated
9M FY2026	Form 10-Q	raw/SEC_10Q_2025-12-31_mod-20251231x10q.htm	revenue-product-segmentation period=quarter	Data centers	710.1 YTD official	710.1 from Q1-Q3 FMP `Data Centers` quarters	0.0	SEC 10-Q + FMP current quarters	Tied
Q3 FY2026	Form 10-Q	raw/SEC_10Q_2025-12-31_mod-20251231x10q.htm	income-statement period=quarter	operating income	89.3	96.8	-7.5	SEC 10-Q	Official statement controls; FMP overstates Q3 OI
9M FY2026	Form 10-Q	raw/SEC_10Q_2025-12-31_mod-20251231x10q.htm	revenue-product-segmentation period=quarter	product / vertical labels	Data centers 710.1; Heat transfer solutions 422.4; HVAC technologies 260.9; Heavy-duty equipment 300.9; On-highway applications 532.4	Data Centers only for current rows	n/a	SEC 10-Q	SEC labels control; no Advanced Solutions zero inserted

P1 - Product / Vertical Revenue

FMP current product segmentation only exposes `Data Centers` for Q1-Q3 FY2026 and old pre-FY2019 product rows. The official SEC 10-K/10-Q product/vertical tables therefore control the current product foundation. The FMP current `Data Centers` rows tie exactly to the official 9M FY2026 `Data centers` line: 186.9 + 226.3 + 296.9 = 710.1.

P1a - FMP Product Segmentation Pulls

Endpoint	Current rows observed	Annual/current usability	Reconciliation treatment
period=quarter	22 rows; current rows are Q1-Q3 FY2026 Data Centers only	partial	use only rows with current official tie-out; old rows retained in raw file
period=annual	6 rows; FY2013-FY2018 only	stale for current QF	do not use for current annual product figures; Check 0 documents exception

FMP quarter	Data Centers	Source	Official tie-out
Q3 FY2026 (2025-12-31)	296.9	FMP quarter endpoint	Included in SEC 10-Q 9M FY2026 `Data centers` total
Q2 FY2026 (2025-09-30)	226.3	FMP quarter endpoint	Included in SEC 10-Q 9M FY2026 `Data centers` total
Q1 FY2026 (2025-06-30)	186.9	FMP quarter endpoint	Included in SEC 10-Q 9M FY2026 `Data centers` total

FMP quarter	Data Centers	Source	Official tie-out
Q1-Q3 FY2026 sum	710.1	arithmetic	equals SEC 10-Q 9M FY2026 `Data centers` revenue

P1b - Official Product / Vertical Revenue

FY2023-FY2025 labels are from the FY2025 10-K annual product table. The 9M FY2026 labels are from the Q3 FY2026 10-Q and are preserved exactly as disclosed; Heavy-duty equipment is not relabeled as Air-cooled, On-highway applications is not relabeled as Liquid-cooled, and no Advanced Solutions zero line is inserted for FY2026 YTD.

Annual period	Data center cooling	Heat transfer	HVAC&R	Air-cooled	Liquid-cooled	Advanced solutions	Product sum	Consolidated sales	Tie-out note
FY2023	173.8	541.3	341.0	658.6	483.9	99.3	2,297.9	2,297.9	product sum ties to external segment sales; intersegment eliminated separately
FY2024	294.2	473.4	340.5	681.2	491.6	126.9	2,407.8	2,407.8	product sum ties to external segment sales; intersegment eliminated separately
FY2025	644.2	402.9	393.5	609.0	404.5	129.4	2,583.5	2,583.5	product sum ties to external segment sales; intersegment eliminated separately

YTD period	Data centers	Heat transfer solutions	HVAC technologies	Heavy-duty equipment	On-highway applications	Product sum	Consolidated sales	Tie-out note
9M FY2026	710.1	422.4	260.9	300.9	532.4	2,226.7	2,226.7	Q3 FY2026 10-Q product labels and values tie to external segment sales; intersegment eliminated separately

P-Taxonomy - Primary-Source Mapping

Product / vertical	Segment	Source citation	Primary-source quote
Data Centers / Data Center Cooling	Climate Solutions	FY2025 10-K, Business Segments and Segment Information	`The Climate Solutions segment sells data center cooling solutions, heat transfer products, and HVAC&R products.` The 10-K also states the segment is aligned around `Data Center Cooling`, `Heat Transfer Products`, and `HVAC&R`.
Heat Transfer / Heat Transfer Solutions	Climate Solutions	FY2025 10-K, Business Segments and Segment Information	`Heat transfer products include heat exchanger coils used in commercial, industrial, and residential HVAC&R applications and coating products and application services...`
HVAC&R / HVAC Technologies	Climate Solutions	FY2025 10-K, Business Segments and Segment Information	`HVAC&R products include commercial and residential unit heaters, vertical and horizontal unit ventilators, air conditioning chillers...`
Air-Cooled Applications	Performance Technologies	FY2025 10-K, Business Segments	`The Air-Cooled Applications business provides air-cooled heat exchangers and modules for vehicular, mission critical stationary power, and industrial applications.`

Product / vertical	Segment	Source citation	Primary-source quote
Liquid-Cooled Applications	Performance Technologies	FY2025 10-K, Business Segments	The Performance Technologies segment designs and manufactures products and solutions using air-cooled and liquid-cooled technology for vehicular, stationary power, and industrial applications.
Advanced Solutions	Performance Technologies	FY2025 10-K, Business Segments	The Performance Technologies segment provides advanced thermal solutions to zero-emission and hybrid commercial vehicle and off-highway customers.
Heavy-duty equipment	Performance Technologies	Q3 FY2026 10-Q product table	SEC 10-Q current YTD product label preserved exactly for the 300.9 line; not relabeled to Air-cooled.
On-highway applications	Performance Technologies	Q3 FY2026 10-Q product table	SEC 10-Q current YTD product label preserved exactly for the 532.4 line; not relabeled to Liquid-cooled.

P2 - Segment Revenue and Operating Metrics from Primary Sources

External sales are used for revenue modeling because they sum to consolidated revenue. Operating segment sales are shown separately because the company discloses intersegment eliminations in the segment note.

Period	Climate external sales	Climate operating segment sales	Climate OI	Climate OI margin on external sales	Performance external sales	Performance operating segment sales	Performance OI	Performance OI margin on external sales	Eliminations	Consolidated sales	Segment external-sales tie
FY2023	1,056.1	1,056.7	132.2	12.5%	1,241.8	1,267.5	57.6	4.6%	26.3	2,297.9	-0.0
FY2024	1,108.1	1,108.1	178.6	16.1%	1,299.7	1,321.3	111.7	8.6%	21.6	2,407.8	0.0
FY2025	1,440.6	1,440.8	248.4	17.2%	1,142.9	1,163.5	108.0	9.4%	20.8	2,583.5	0.0
9M FY2025	1,084.3	1,084.5	186.9	17.2%	852.0	868.7	78.1	9.2%	16.9	1,936.3	0.0
9M FY2026	1,393.4	1,396.4	212.3	15.2%	833.3	837.8	82.0	9.8%	7.5	2,226.7	0.0

P2a - Q4 FY2025 Derivation

Item	FY2025	9M FY2025	Q4 FY2025 derived
Consolidated sales	2,583.5	1,936.3	647.2
Climate external sales	1,440.6	1,084.3	356.3
Performance external sales	1,142.9	852.0	290.9
Climate OI	248.4	186.9	61.5
Performance OI	108.0	78.1	29.9

P3 - Consolidated Income Statement by Quarter

Quarter	Revenue	Gross profit	Operating income	Pretax income	Net income	Diluted EPS	Diluted shares (mm)	Source tie
Q4 FY2025 (2025-03-31)	647.2	167.6	74.5	66.8	49.6	0.92	53.9	FMP income statement; revenue matches SEC XBRL period fact
Q1 FY2026 (2025-06-30)	682.8	165.4	75.7	65.7	51.2	0.95	53.7	FMP income statement; revenue matches SEC XBRL period fact
Q2 FY2026 (2025-09-30)	738.9	164.9	73.5	63.7	44.4	0.83	53.8	FMP income statement; revenue matches SEC XBRL period fact

Quarter	Revenue	Gross profit	Operating income	Pretax income	Net income	Diluted EPS	Diluted shares (mm)	Source tie
Q3 FY2026 (2025-12-31)	805.0	186.1	89.3	-38.5	-47.4	-0.90	52.8	SEC 10-Q controls operating income; FMP revenue matches SEC XBRL period fact but FMP OI is 96.8 and is overridden
TTM ending 2025-12-31	2,873.9	684.0	313.0	157.7	97.8	1.85*	52.8	Q4 FY2025 74.5 + 9M FY2026 SEC OI 238.5; EPS* uses latest diluted shares

P4 - TTM Construction

TTM is Q4 FY2025 plus 9M FY2026. For segment revenue, Q4 FY2025 is derived from FY2025 10-K less the 9M FY2025 comparative table in the Q3 FY2026 10-Q; 9M FY2026 is taken directly from the Q3 FY2026 10-Q.

TTM component	Consolidated sales	Climate external sales	Performance external sales	Climate OI	Performance OI
Q4 FY2025	647.2	356.3	290.9	61.5	29.9
Q1-Q3 FY2026	2,226.7	1,393.4	833.3	212.3	82.0
TTM ending 2025-12-31	2,873.9	1,749.7	1,124.2	273.8	111.9

P4a - Segment to Consolidated TTM OI Bridge

Item	TTM OI
Climate Solutions OI	273.8
Performance Technologies OI	111.9
Segment OI subtotal	385.7
Corporate / eliminations / other bridge to SEC consolidated OI	-72.7
Consolidated operating income	313.0

P5 - Reconciliation Checklist

Check	Test	Result	Evidence
0	Mandatory product endpoint dual pull	PASSED	Both FMP quarter and annual endpoints were live-called and re-fetched for repair. Annual endpoint is stale for MOD; no annual_fmp_reported current column was fabricated. Official SEC annual and YTD product tables are used and tied to consolidated sales.
1	Consolidated revenue and OI tie-out	PASSED	FMP revenue for Q4 FY2025, Q1 FY2026, Q2 FY2026, Q3 FY2026 equals SEC XBRL/company filing revenue: 647.2, 682.8, 738.9, 805.0. SEC Q3 FY2026 operating income of 89.3 and 9M FY2026 OI of 238.5 control over FMP Q3 OI of 96.8.
2	Segment external revenue sums to consolidated	PASSED	FY2025: 1,440.6 + 1,142.9 = 2,583.5; 9M FY2026: 1,393.4 + 833.3 = 2,226.7; TTM: 1,749.7 + 1,124.2 = 2,873.9.
3	Product-to-segment taxonomy from primary source	PASSED	Annual product labels are mapped using FY2025 10-K Business Segments / Segment Information quotes. FY2026 YTD product labels are preserved exactly from the Q3 FY2026 10-Q: Data centers, Heat transfer solutions, HVAC technologies, Heavy-duty equipment, and On-highway applications.

Check	Test	Result	Evidence
4	TTM anchor arithmetic	PASSED	Q4 FY2025 consolidated sales 647.2 + 9M FY2026 2,226.7 = TTM revenue 2,873.9; Q4 FY2025 OI 74.5 + 9M FY2026 SEC OI 238.5 = TTM OI 313.0; horizon remains 2030-12-31.
5	Segment OI bridge to consolidated OI	PASSED	Segment OI subtotal 385.7 less corporate/eliminations/other 72.7 = consolidated OI 313.0.
6	Cash-flow and balance-sheet freshness	PASSED	TTM CFO 136.3, capex -128.9, FCF 7.4; latest balance sheet is 2025-12-31 with net debt 768.2.
7	TTM-per-segment provenance	PASSED	Q4 FY2025 segment data derives from FY2025 10-K less 9M FY2025 comparative 10-Q data; Q1-Q3 FY2026 segment data and product labels are from the Q3 FY2026 10-Q. No uncited segment inference used.

RECONCILIATION: 8/8 checks PASSED

P6 - Cash Flow, Balance Sheet, Share Count, and Liquidity

Quarter	CFO	Capex	FCF	Net income	FCF / net income
Q4 FY2025 (2025-03-31)	54.8	-27.7	27.1	49.6	54.6%
Q1 FY2026 (2025-06-30)	27.7	-27.5	0.2	51.2	0.4%
Q2 FY2026 (2025-09-30)	29.1	-31.9	-2.8	44.4	-6.3%
Q3 FY2026 (2025-12-31)	24.7	-41.8	-17.1	-47.4	36.1%
TTM ending 2025-12-31	136.3	-128.9	7.4	97.8	7.6%

Latest balance sheet item	2025-12-31 value	Source
Cash and equivalents	98.9	FMP balance-sheet statement; period accepted/filed with Q3 FY2026 10-Q
Total debt	867.1	FMP balance-sheet statement; period accepted/filed with Q3 FY2026 10-Q
Net debt	768.2	FMP balance-sheet statement; period accepted/filed with Q3 FY2026 10-Q
Short-term debt	68.4	FMP balance-sheet statement; period accepted/filed with Q3 FY2026 10-Q
Long-term debt	682.8	FMP balance-sheet statement; period accepted/filed with Q3 FY2026 10-Q
Total assets	2,482.9	FMP balance-sheet statement; period accepted/filed with Q3 FY2026 10-Q
Stockholders equity	1,121.8	FMP balance-sheet statement; period accepted/filed with Q3 FY2026 10-Q
Accounts receivable	569.1	FMP balance-sheet statement; period accepted/filed with Q3 FY2026 10-Q
Inventory	542.9	FMP balance-sheet statement; period accepted/filed with Q3 FY2026 10-Q

Leverage / share count item	Value	Note
FMP TTM EBITDA	264.3	FMP EBITDA includes Q3 FY2026 non-operating impairment effect; use cautiously
Operating-income plus D&A TTM proxy	398.8	OI + D&A across the four TTM quarters
Net debt / FMP TTM EBITDA	2.91x	conservative because EBITDA depressed by Q3 charge
Net debt / operating EBITDA proxy	1.93x	operating view
Latest diluted shares	52.8	FMP Q3 FY2026 diluted weighted-average shares
Quote price / market cap from FMP profile/quote	$233.39 / $12.31B	live FMP quote/profile pull during QF run

Gate Blockers

None. FMP staleness/absence for current annual product and FY2025 financial-report JSON is explicitly logged in P0. The Q3 FY2026 FMP operating-income mismatch is also logged in P0 and overridden with the controlling SEC 10-Q value. Controlling SEC sources tie arithmetically for P1-P6.

Downstream Use Notes

Use external segment sales for revenue modeling: Climate Solutions TTM external sales = 1,749.7 and Performance Technologies TTM external sales = 1,124.2. Use consolidated TTM revenue = 2,873.9, consolidated operating income = 313.0, and consolidated TTM net income = 97.8 as the base-rate anchor. Treat TTM free cash flow conversion as temporarily weak because FCF was only 7.4 versus 97.8 of net income, with large working-capital and capex demands in Q1-Q3 FY2026.

Appendix QFR - Quantitative Foundation Review

Quant Foundation Review - Modine Manufacturing Company (MOD)

PATH_RECEIVED: C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\quant_foundation.md Review role: Sub-Agent QFR rerun after QF repair. Data rule: live FMP and SEC fetches only; no data warehouse cache used. Run time: 2026-04-30 05:24:26 Asia/Singapore

Source URLs / Files

- FMP annual product: C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\raw\qfr_rerun_20260430_052426\MOD_revenue_product_segmentation_annual_qfr_rerun.json
- FMP quarterly product: C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\raw\qfr_rerun_20260430_052426\MOD_revenue_product_segmentation_quarter_qfr_rerun.json
- FMP quarterly income: C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\raw\qfr_rerun_20260430_052426\MOD_income_statement_quarter_qfr_rerun.json
- SEC submissions: https://data.sec.gov/submissions/CIK0000067347.json
- SEC Q3 FY2026 10-Q: https://www.sec.gov/Archives/edgar/data/67347/000110465926010790/mod-20251231x10q.htm
- SEC FY2025 10-K: https://www.sec.gov/Archives/edgar/data/67347/000155837025008058/mod-20250331x10k.htm
- Extracted SEC table evidence: C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\raw\qfr_rerun_20260430_052426\qfr_rerun_extracted_sec_tables.json
- Review calculation summary: C:\Users\Admin\OneDrive\GPT\ER 2.0\Modine Manufacturing Company\raw\qfr_rerun_20260430_052426\qfr_rerun_summary.json

Per-Check Results

Check	Result	Dollar gap	Review finding
File - QF file exists and well formed	PASS	0.0	size=18556 bytes; P0-P6/reconciliation present=True
A - FMP annual endpoint re-pull	PASS	0.0	annual endpoint returned fiscal years 2013-2018 only; QF logs stale annual endpoint and uses SEC annual product table
B - FMP quarterly endpoint re-pull	PASS	0.0	current quarter rows are Data Centers only; Q1-Q3 sum 710.1 vs SEC Data centers 710.1
C - Official latest-quarter tie-out	PASS	7.5	SEC Q3 revenue/OI/pretax/net/EPS/shares = 805.0/89.3/-38.5/-47.4/-0.90/52.8; FMP OI=96.8; official override gap -7.5
D - Annual filing / segment extraction	PASS	0.0	FY2025 product sum 2583.5; segment external sales/OI Climate 1440.6/248.4, Performance 1142.9/108.0; corporate bridge -72.9
E - TTM construction	PASS	0.0	Q4 FY2025 + 9M FY2026 gives revenue 2873.9, consolidated OI 313.0, segment OI 273.8/111.9, bridge -72.7
F - Consolidated financial statement tie-outs	PASS	0.0	TTM CFO/capex/FCF 136.3/-128.9/7.4; latest assets 2482.9; BS equation gap 0.0
G - Product/segment provenance	PASS	0.0	FY2026 YTD labels preserved: Data centers, Heat transfer solutions, HVAC technologies, Heavy-duty equipment, On-highway applications; the YTD table has no Advanced Solutions zero line.

Check	Result	Dollar gap	Review finding
H - Final gate integrity	PASS	0.0	Prior blockers present and arithmetically tied; max FMP-vs-official dollar gap is Q3 OI 7.5m and is visible in P0/P3.

Prior Blocker Recheck

- Q3 FY2026 operating income: PASS. SEC 10-Q = 89.3m; FMP live income statement = 96.8m; QF visibly overrides the 7.5m FMP overstatement.
- TTM consolidated operating income: PASS. Q4 FY2025 official-derived OI 74.5m + 9M FY2026 SEC OI 238.5m = 313.0m.
- Segment OI bridge: PASS. Climate 273.8m + Performance 111.9m = 385.7m; bridge to consolidated OI = -72.7m.
- FY2026 YTD product labels: PASS. Preserved labels are Data centers, Heat transfer solutions, HVAC technologies, Heavy-duty equipment, On-highway applications; no invented Advanced Solutions zero line in the YTD table.

Summary

Checks passed: 9/9. Max FMP-vs-official dollar gap: 7.5m on Q3 FY2026 operating income; official SEC override used and disclosed. Segment/product taxonomy completeness: 11/11 product labels and 2/2 reportable segments tied to primary-source tables.

QUANT FOUNDATION VERIFIED - CLEARED FOR WAVE 1