

MAHLE

Driven by performance

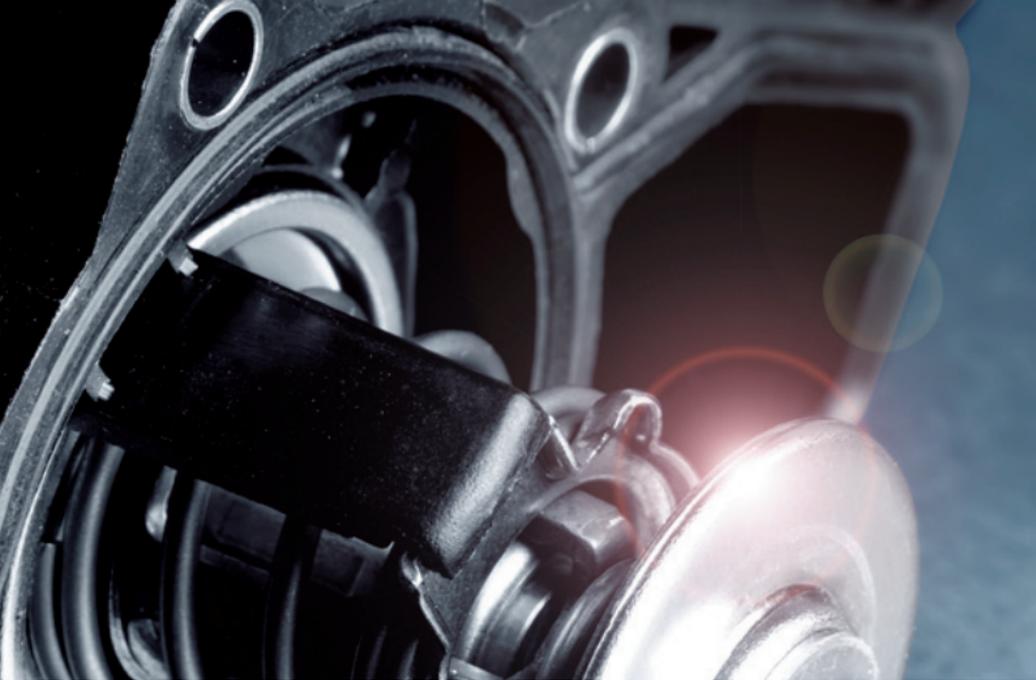
MAHLE AFTERMARKET
PRODUCT LAUNCH

MAHLE AFTERMARKET TECHNOLOGY OFFENSIVE:

THERMOSTATS, THE MANAGERS OF THE COOLING CIRCUIT

Innovative products for drive, safety and comfort – an initiative to secure the future of the independent aftermarket





To operate efficiently while minimising wear and emissions, a combustion engine requires the temperature to remain as constant as possible. Thermostats are used exactly for that purpose, as they regulate the engine temperature with coolant. In an effort to optimise the availability of these thermal managers in the automotive aftermarket, MAHLE Aftermarket has assumed responsibility for sales and distribution on the independent market from Behr Thermot-tronik GmbH (BTT). The subsidiary of Behr GmbH & Co. KG is a development partner and series supplier to the international automotive industry, and is one of the leading manufacturers of thermostats and temperature regulation systems for automotive and industrial applications.

The integration into the main logistics structure of MAHLE Aftermarket is providing repair shops and trading partners of both companies with new perspectives: the 15 highly efficient MAHLE Aftermarket logistic centres on 4 continents and the numerous sales branches will guarantee the comprehensive and on-time supply of all products.

In future, MAHLE Aftermarket will offer customers not only an extensive range of Behr Thermot-tronik thermostats, switches, and sensors in original equipment quality, but is also launching the range under the globally renowned MAHLE Original brand at the same time—and is thus creating the best pre-requisites for optimum market availability.

Temperature managers—new in the MAHLE Aftermarket product portfolio

A multitude of thermostats and other components for temperature regulation are added to complete the MAHLE Aftermarket product range:

■ Expansion elements

The core of the thermostat: when heated, the expansion element (wax) expands and thus moves the piston. If the temperature drops again, it reduces in size, and a spring pushes the piston back into its starting position. Expansion elements are maintenance-free and durable. Their range of use is very versatile: actuation forces from 30 N to 2,500 N, short or long strokes, and a diversity of control ranges within the temperature span of -20°C to $+130^{\circ}\text{C}$.

■ Thermostat inserts

Precision at work: thermostat inserts enable the precise regulation of coolant circuits to approximately 20 m³/h in passenger cars, commercial vehicles, stationary engines, agricultural and construction machinery.

■ Integral thermostats

The on-going development of thermostat inserts: all components such as the thermostat insert, cover, and gasket are already integrated in the integral thermostat. It can be flanged-mounted directly on to the engine block.

■ Housing thermostats

These can be fully connected with hoses or equipped with a flange and hose connectors. What sets them apart is that they consist of a combination of cover and housing, i.e. the mixing chamber is already integrated.

■ Map-controlled thermostats

The most effective managers in the thermal system: an electrical heating resistor is integrated in the operating element's expansion material. Consequently, these thermostats can be electrically activated, and thereby have a considerably faster effect on the engine temperature to keep the engine within the optimum range in various load and operating conditions. The result: more engine output with reduced consumption and emissions. An operating map stored in the engine control unit defines when and how heat is added.

■ **Sleeve valve thermostats**

The workhorses: they regulate the cooling circuits in large engines with flow volumes starting from approximately 20 m³/h, e.g. in large passenger cars, commercial vehicles, ships, and locomotives. The sleeve valve principle allows the axial relief of the thermal expansion element and thus enables precise regulation even under heavy hydraulic loads—with a consistently high level of functional safety.

■ **Thermal switches**

Provide reliable protection against engine overheating while the vehicle is stationary: thermal switches open or close the electrical circuit, e.g. on a cooling fan, at a defined coolant temperature. The thermal switches from MAHLE Aftermarket are designed for an operating voltage of up to 24 V.

■ **Thermocouples**

Extremely heat-sensitive: thermocouples supply data to the electronic control unit about the current temperature level at various points in the engine.

■ **Oil thermostats**

The oil temperature in automatic transmissions is regulated by transmission oil thermostats. This shortens the warm-up phase considerably and the transmission is subsequently kept at an ideal operating temperature. The result: reduced wear, improved gearshift comfort, and fuel savings of approximately 1% in conventional driving cycles.

■ **EGR thermostats**

These regulate the flow of coolant through the EGR cooler, thus differentiating themselves from the remaining thermostats of the MAHLE Aftermarket portfolio in terms of area of application.

No wear—yet important revenue mainstays in the aftermarket

Although thermostats are not standard wearing parts, there is considerable demand for spares. Whether due to an accident or as part of repair or maintenance work that requires access to the cooling system: these important temperature regulators should be replaced at that time to ensure continued functionality, because any loss of functionality or even complete failure can have severe conse-

quences. If the thermostat is always open, the engine will be cooled too much. If the thermostat is always closed, then the engine will not be cooled at all and will overheat.

Systematic thermal management

The system of sales identifier and derived product abbreviation is already established in the filter segment: the sales identifier symbol is followed by the sequential number, opening temperature, and, ultimately, information about any separately enclosed gasket—identifiable by the letter “D”. The sleeve valve thermostat with the serial number 159, an opening temperature of 87°C, and an enclosed gasket is identified as “THD 159 87 D”.

With MAHLE Aftermarket assuming responsibility for the sales activities for Behr Thermot-tronik thermostats, this easy-to-remember thermostat product identification system will be used across the brands. Thermostats already available in the Behr Thermot-tronik product range are given a corresponding sales identifier. During the transition phase, thermostats can be ordered using the existing Behr Thermot-tronik number, which will be reassigned with the new MAHLE Aftermarket number upon receipt of the order.

Sales identifiers and derived product abbreviations

ENGLISH SALES IDENTIFIER	INTERNATIONAL SALES IDENTIFIER	ABBREVIATION
Thermostat insert	Thermostat Insert	TX
Sleeve valve thermostat	Thermostat, Heavy Duty	THD
Housing thermostat	Thermostat, Housing	TH
Integral thermostat	Thermostat, Integral	TI
Characteristic map thermostat	Thermostat, Map-controlled	TM
Thermal switch	Temperature SW itch	TSW
Thermocouple	Temperature SE nsor	TSE
Operating element	Thermostat, Wax element	TWX
Oil thermostat	Thermostat, Oil	TO
EGR thermostat	Thermostat, EGR	TE

X = insert

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