MTE-THOMSON

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THERMOSTAT

TECHNICAL INFORMATION

Function
Valves that direct the engine's liquid flow to the radiator.

Application
Used in the cooling systems (sealed or not) of engines cooled by liquid or air.

Operation Principle
The Thermostat uses a petroleum-refined thermo-expansive wax that is calibrated according to specification. With the increase of temperature, the wax expands inside the thermo-element, causing the displacement of the stainless steel pin, compressing the spring and opening the valve, which allows the passage of the liquid to the radiator. ***(Fig.1)***.

Location
Generally near the engine and the upper hose that exits from the radiator.

Use
Used to:
- *Allowed a fast heating of the engine (the Thermostat remains closed while the engine is cool).*
- *Keep the engine operating between the designed temperature limits. (after the thermostat opened).*

Advantages:
- *Reduce friction and extend the engine's life.*
- *Reach the maximum torque and power.*
- *Avoid excessive fuel consumption.*
- *Avoid high level of emissions.*

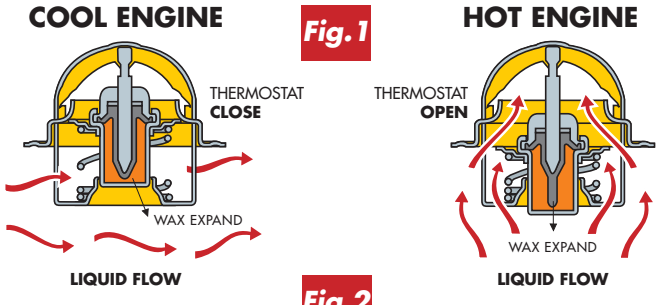
Operating Temperature
All types of Thermostats have in its code the initial opening temperature.
Ex: 288.80.
The thermostat starts to open between 78°C and 82°C, and should be completely opened at 95°C, with a course of at least 8 mm. ***(Fig.2)***.

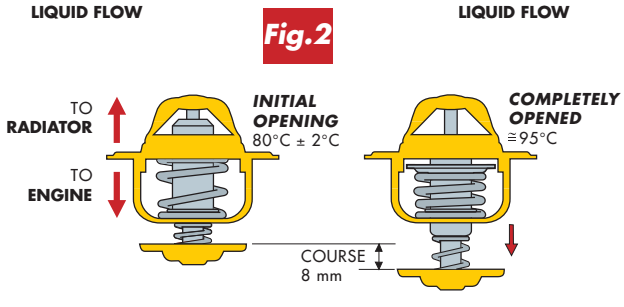
When it does not work:
- ***Opened:*** *High fuel consumption and pollutant emission, low power and torque.*
- ***Closed:*** *Causes the engine to overheat, burning the cylinder's head gasket, warping the cylinder's head and etc.*

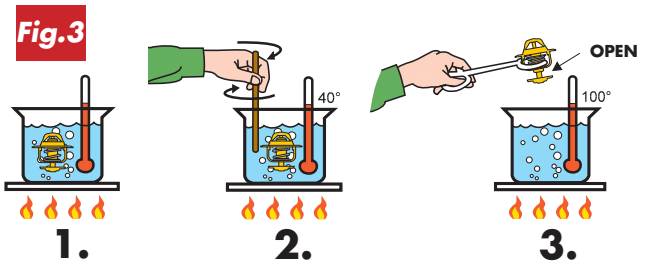
Diagnostic
Valve's test: (Fig. 3).
1. *Place the thermostat into a container with ethylene glycol based liquid and leave in low fire. (do not allow the thermostat to touch the bottom of the container).*
2. *Observe the thermostat operation, while using a thermometer and stirring the liquid for better temperature uniformity.*
3. *After 15 minutes (>100°C), remove the thermostat and note if it is completely opened.*

Important: *This test verifies only the valve's operation. A more detailed study, such as the assessment of the opening temperature, should be accomplished with specific equipments in the factory.*

Maintenance
Important actions when changing the Thermostat:
- *Always use a new gasket or seal ring.*
- *Bleed the air (remove air bubbles) from the cooling system.*
- *Check for leaking after the repair.*
- *Do not leave the vehicle without a thermostat, because the engine will always operate, causing failures, excessive fuel consumption and increased emissions.*







Cares
- *Always check the correct Thermostat for each vehicle model.*
- *Never perform a maintenance repair while the cooling system is hot. There is a great risk of burning traumas.*
- *At any symptom of excessive temperature, park the vehicle in a safe place and turn off the engine immediately.*
- *Check the cooling fluid level weekly, with the engine cold.*
- *Always use the specified cooling fluid and the correct rate.*
- *Do not complete the cooling system with pure water, because this will dilute the ethylene glycol concentration.*
- *Any reduction in the cooling fluid level indicates a leaking in the cooling system.*
- *Perform the preventive maintenance of the Thermostats every 30.000 Km.*

Warranty
- The MTE-THOMSON products are warranted by 01 year against manufacture or material defects, starting from the purchase date, by the final user.

- The warranty is not valid for parts damaged due to installation errors, wrong application or accident.

- The replacement will occur in the purchase place, by means of the presentation of the purchase bill, according to the description on the Warranty Procedures.

- This warranty is valid only for MTE-THOMSON products.