



PIERBURG



SI 2203

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SERVICE INFORMATION

THERMAL DAMAGE TO EGR COOLERS

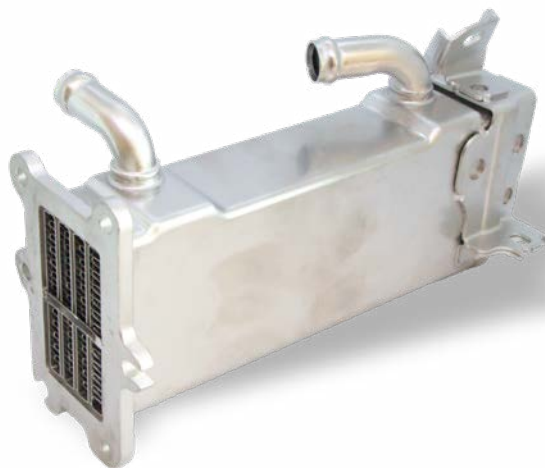


Bubble and crack formation (left) and significant discolourations (right) – typical damage symptoms of thermal overstressing

Motorservice often receives EGR coolers that show signs of thermal damage shortly after installation. This damage is directly or indirectly caused by thermal overload.

In principle, exhaust gas recirculation lowers the temperature in the combustion chamber. The EGR cooler lowers the combustion chamber temperature even further. The EGR coolers are therefore designed for high temperatures.

If problems arise however, e.g. in the coolant circuit, temperatures that damage the new EGR cooler can occur. This thermal damage occurs when the temperature (at certain points) is too high and cannot be dissipated, e.g. due to bubble formation in the coolant agent or insufficient coolant flow.



Example EGR cooler (7.09730.09.0)



RHEINMETALL



EGR coolers with thermal overstressing often show the following damage symptoms; others are also possible:

- EGR cooler starts to leak
- Foreign bodies in the coolant
- Discolouration of the material
- Crack formation (hair-line cracks in the cooling channels)
- Dry fire
- Bubble formation in the material
- Melted material

In addition, the following damage may also occur on the vehicle.

There are also various damage symptoms here:

- Leaks, e.g. coolant agent in the exhaust gas
- Damaged cylinder head gasket
- Increased engine temperature

AVOIDING THERMAL DAMAGE

To avoid thermal damage to the EGR cooler, the following should always be checked before installing a new cooler:

- Check the coolant circuit for leaks.
- Check that the water pump is functioning to ensure adequate coolant delivery.
- Check the flow rate of the coolant flow to prevent insufficient heat dissipation.
- Make sure that the correct coolant agent is used in the correct mixing ratio.

After installing the new EGR cooler, make sure that the coolant circuit is bled in accordance with the manufacturer's instructions. This prevents air bubbles, so-called hotspots.



CWA400 – a sample water pump



Further information on gradual loss of coolant can be found in our Service Information SI 1003.