

Exhaust gas recirculation coolers



Thermal management expertise from MAHLE

Modern MAHLE exhaust gas recirculation (EGR) coolers offer one way of meeting the strict Euro 6 limits for the emission of nitrogen oxides (NO_x). They are part of the extensive MAHLE Aftermarket thermal management range. With MAHLE, you're supported by a strong partner that's an expert in everything relating to air conditioning and cooling and has the extensive know-how of an original equipment manufacturer. You can obtain all BEHR thermal management spare parts under the MAHLE umbrella brand as well as workshop equipment, diagnostics, and other services. Since precise thermal management is a prerequisite for the reliable operation not only of combustion engines but also of hybrid and electric drives as well as fuel cell technology, you are ideally equipped for the future.

Exhaust gas recirculation coolers: function

Exhaust gas recirculation coolers work according to the following operating principle: Some of the primary exhaust gas flow between the exhaust manifold and the turbocharger is guided to a special heat exchanger (the EGR cooler), where it's cooled down and then fed back into the intake air. This cooling decreases the combustion temperature in the engine, resulting in reduced emissions of nitrogen oxides.

Exhaust gas recirculation coolers: structure

The EGR cooler is made of either stainless steel or aluminum and installed close to the engine. Both hot exhaust gases and coolants can flow into the cooler via several connections. After the exhaust gases have been cooled down, they are discharged from the cooler in metered doses via the intake system back into the combustion chamber. This leads to a reduction in nitrogen oxide emissions, even before reaching the catalytic converter.

Pneumatic and/or electric actuators on the EGR cooler dose and control the rate of exhaust gas recirculation from the cooler to the combustion chamber.

Exhaust gas recirculation coolers: possible causes of failure

Background

The exhaust gas recirculation cooler isn't a classic wear part. Various defects and related failures, however, can still occur:

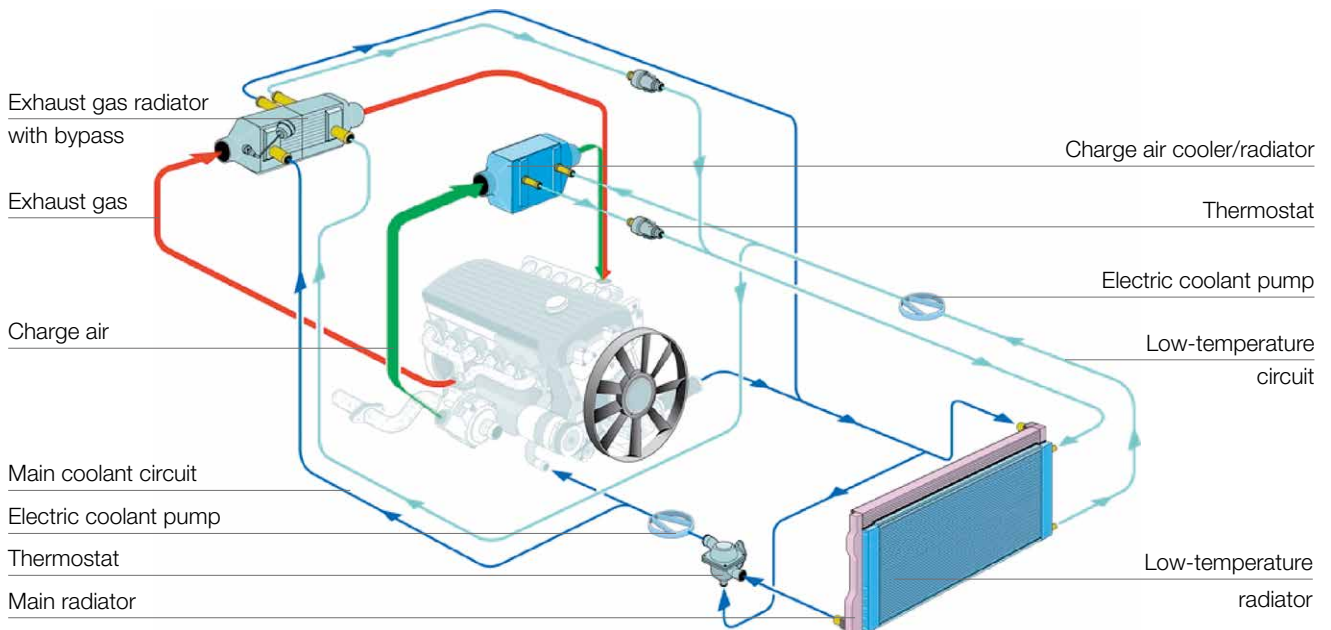
- Extreme temperature fluctuations and missing or aggressive coolant additives can lead to leaks (internal or external).
- Above all, a gradual coolant loss indicates a leaky EGR cooler— frequently in connection with increased engine temperature.

The danger

This loss may initially remain undetected due to the higher exhaust back pressure in comparison with the coolant pressure when the engine is running. Mechanical damage to the engine components can then occur as a result of coolant accumulation and "hydrolock" when the engine is restarted.

If there are cracks in the EGR cooler, the exhaust gas pressure can escape unchecked. This results in a drop in engine performance due to a lack of boost pressure.

Other causes of failure are leaks, torn membranes, and electrical or mechanical defects in the actuators used. Carbon buildup in the EGR cooler can also lead to failure. Many of the specified defects cause the engine lights to illuminate via the control unit.



Reference no.	Description	Additional information	Vehicle application	Version	PREMIUM LINE	OE no.*
CE 1 000P	EGR cooler	with EGR valve	VAG A1, Fabia, Rapid, Polo		✓	04B 131 512 C 04B 131 512 D 04B131512C 04B131512D 6C0 122 157 Q 6C0 122 157 R 6C0122157Q 6C0122157R N 90687001 N90687001
CE 2 000P	EGR cooler	with vacuum actuator/ EGR valve	BMW X5 (E70 diesel, USA version)	Produced by MAHLE	✓	11 71 8 576 450 8 576 450
CE 4 000P	EGR cooler	with vacuum actuator/ EGR valve	Ford Mondeo	Produced by MAHLE	✓	1 861 749 2 267 338 98 075 930 80 DS7Q 9D475DA DS7Q9D475DB
CE 5 000P	EGR cooler	with EGR valve	VW Passat	Produced by MAHLE	✓	04L 131 512 BH 04L 131 512 BQ 04L 131 512 D 04L131512BH 04L131512BQ 04L131512D
CE 7 000P	EGR cooler	with vacuum actuator/ EGR valve	BMW 1, 3 (E90)	Produced by MAHLE	✓	11 71 7 797 371 7 797 371
CE 8 000P	EGR cooler	with EGR valve	BMW 1, 3 (E90), 5 (E60)	Produced by MAHLE	✓	11 71 7 800 653 7 800 653
CE 9 000P	EGR cooler	with EGR valve	BMW 1, 3 (E90), 5 (E60)	Produced by MAHLE	✓	11 71 7 805 189 7 805 189
CE 10 000P	EGR cooler	with vacuum actuator/ EGR valve	BMW 3 LCI (E90)	Produced by MAHLE	✓	11 71 7 805 446 7 805 446
CE 11 000P	EGR cooler	with vacuum actuator/ EGR valve	BMW 3 (E90)	Produced by MAHLE	✓	11 71 7 810 166 7 810 166
CE 12 000P	EGR cooler	with vacuum actuator/ EGR valve	BMW X3 (E83)	Produced by MAHLE	✓	11 71 7 805 717 7 805 717
CE 13 000P	EGR cooler	without EGR valve	Mercedes Actros MP4	Produced by MAHLE	✓	471 140 51 75 471 140 51 75 80 A 471 140 51 75 A 471 140 51 75 80
CE 14 000P	EGR cooler	with EGR valve	VW Beetle, Caddy	Produced by MAHLE	✓	04L 131 512 G 04L131512G
CE 15 000P	EGR cooler	with EGR valve	VW Passat, Beetle	Produced by MAHLE	✓	04L 131 512 L 04L131512L
CE 16 001P	EGR cooler	with vacuum actuator/ EGR valve	BMW 3, X3	Produced by MAHLE	✓	11 71 7 796 519 7 796 519
CE 17 000P	EGR cooler	without EGR valve	BMW 1, 3, 5, 6	Produced by MAHLE	✓	11 71 7 790 065 7 790 065
CE 18 000P	EGR cooler	with EGR valve	VW Golf VI	Produced by MAHLE	✓	04L 131 512 AA 04L131512AA
CE 19 000P	EGR cooler	with vacuum actuator/ EGR valve	Renault Master	Produced by MAHLE	✓	147350782R 82 00 910 446
CE 20 000P	EGR cooler	with EGR valve	Audi A1	Produced by MAHLE	✓	04L131512AG 4L131512AG
CE 21 000P	EGR cooler	without EGR valve	BMW X3	Produced by MAHLE	✓	11 71 7 794 245 7 794 245
CE 22 000P	EGR cooler	with vacuum actuator/ EGR valve	Iveco Daily, Fiat Ducato		✓	0000504178568 504178568
CE 23 000P	EGR cooler	without EGR valve	Iveco Daily	Produced by MAHLE	✓	50431 7815
CE 24 000P	EGR cooler	without EGR valve	BMW X5	Produced by MAHLE	✓	11 71 7 807 927 7 807 927
CE 34 000P	EGR cooler	without EGR valve	Ford C-Max, Focus, Mondeo		✓	1 233 381 1618.35 3M5Q9F464AA 8653691
CE 35 000P	EGR cooler	without EGR valve	MAN TGX	Produced by MAHLE	✓	51081525011
CE 36 000P	EGR cooler	with vacuum actuator/ EGR valve	Renault Master III	Produced by MAHLE	✓	147350236R 147351186R 147353981R
CE 37 000P	EGR cooler	without EGR valve	Actros MP4	Produced by MAHLE	✓	4711404775 4711404875 A4711404775 A4711404875

For more information on the differences, please consult TecDoc and the manufacturer specifications. This list is not necessarily exhaustive or correct.

* OE numbers are provided for comparative purposes only.

Further information and troubleshooting tips are available here:

Technical brochures on air conditioning and cooling

- Over 75 pages each of comprehensive air conditioning and cooling know-how for education, training, and workshop support.



TechTool

- Combined expertise and photo-realistic representation
- Explanation of how air conditioning and cooling circuits work, including all relevant components
- Active support during troubleshooting
- Repairs supported by technical background knowledge
- Optimized for all devices



Our tip: When performing an A/C service, offer customers our innovative CareMetix® cabin filter—for maximum performance and the highest standards of clean air in the vehicle.

