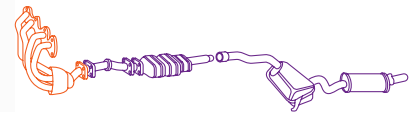
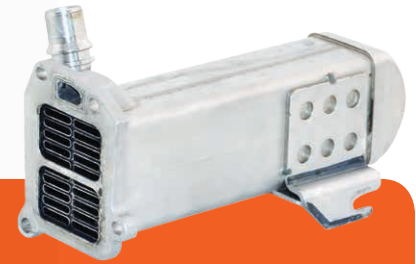


Exhaust Gas Recirculation (EGR)

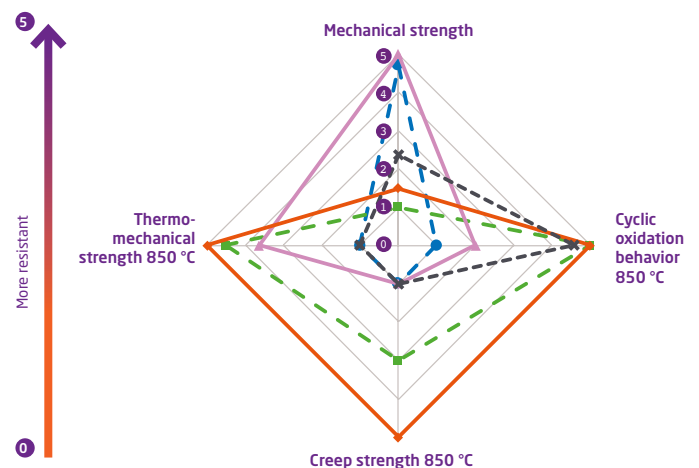
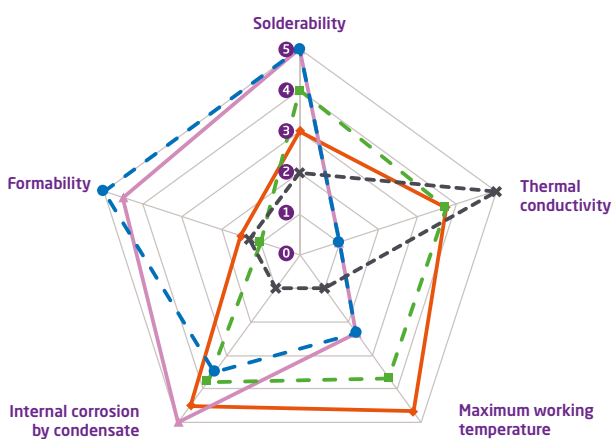
The Exhaust Gas Recirculation (EGR) Cooler is an air-to-liquid heat exchanger device that uses engine coolant to reduce exhaust gas temperatures prior to recirculating them through the engine's intake system. EGR reduces the engine combustion temperature, which prevents the formation of NOx. The material used for this type of application must be able to tolerate high temperatures and corrosive conditions.



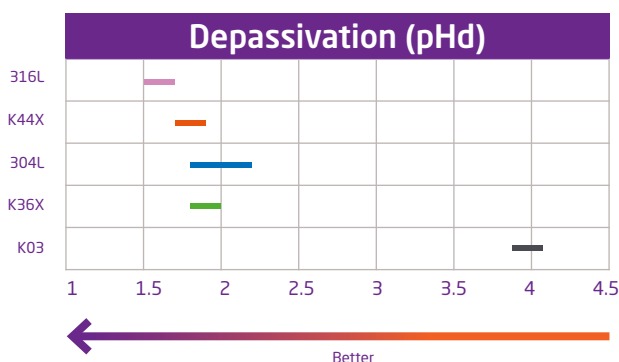
Our offer

		Standards		
Commercial designations		ASTM	UNS	EN
Ferritic stainless steels 	K44X	444	S44400	1.4521
	K36X	436	S43600	1.4526
	K03	—	S41003	1.4003
Austenitic stainless steels	316L	316/316L	S31600/S31603	1.4401/1.4404
	304L	304/304L	S30400/S30403	1.4301/1.4307

Technical information



■ K03 — ■ K36X — ■ K44X — ■ 304L — ■ 316L



Thicknesses		
Global	from 0.10 to 8 mm	
Aperam Stainless Services & Solutions Precision	from 0.10 to 0.40 mm	
Aperam Stainless Europe	from 0.40 to 4 mm	
Aperam Stainless Services & Solutions Luxembourg	from 4 to 8 mm	

Which grade is best for which usage?

The main material properties of EGR applications are:

- Thermo-mechanical strength
- Corrosion resistance (presence of condensates)
- Suitability for manufacturing by forming, welding or brazing

Our offer responds to these requirements:

- **K44X**: a ferritic solution developed for high temperatures up to 1 025 °C and recommended for HP EGR gasoline engines (maximum temperature of inlet gas is 800 °C). Its monostabilisation with Niobium allows the material to be used at high temperatures (creep resistance) and to be assembled with brazing (no Titanium). Its very high corrosion resistance is ensured by its Molybdenum content (1.9%) and its 19% Chromium content. It's the best alternative to 316L material.
- **K36X**: a ferritic solution with monostabilisation by Niobium, it could be used in a brazing process. This grade has a good resistance to corrosion with a 17% Chromium and 1.2% Molybdenum content. It could be used for HP - EGR diesel and diesel engines with less severe conditions than HP EGR gasoline engines.
- **304L**: an austenitic solution that could be used for LP EGR diesel engines with a functioning temperature of around 200 °C - 300 °C. It's the basic solution for working with the least severe conditions.
- For the brackets part that does not require high corrosion resistance, our common grade is K03, which is a 11% Cr grade with 0.4% Ni. It can be used up to 800 °C (creep resistance) and can be supplied in high thickness up to 8 mm.

Contact

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