

MEET THE HIGH QUALITY NRF INTERCOOLER PRODUCT RANGE >

NRF manufactures high-end intercoolers for the automotive industry (OE and aftermarket). With own production and test facilities, worldwide delivery and excellent customer service, NRF is the number one intercooler (charge air coolers) specialist. The fastmovers of the intercooler product range are available as Easy Fit, so the fitting materials are included.

The intercooler >

Regardless what kind of turbocharger, supercharged engines need cooling of the hot, compressed air. The inlet temperature of intercoolers frequently reaches 150 degrees Celsius and on trucks as high as 220 degrees. The air pressure reaches 1.5 bars on automotive applications and well over 2 bars in trucks or industrial use.

Since the mid 80's, an intercooler is used to cool the hot compressed induction air, entering the intake manifold of the engine. The lower air temperature means volume reduction of the air supplied to the engine. Due to the increased density more air can enter the combustion chamber of the cylinders and more fuel can be injected, resulting in more power with the same cylinder dimensions. It increases the engines efficiency.

This is the so called "supercharging". This also affects a longer durability of the combustion parts. The lower the air temperature of the compressed air, the more efficient the engine burns the fuel. A positive side effect: If the supercharging is not used for more power, the engine will consume less fuel and produce less exhaust emissions.

The technology >

In the automotive sector, mainly the air-to-air cooled intercoolers are used. Intercoolers basically consist of three main components: Manifolds on each in- and outlet side and in between the core, that consist of air-tubes and fins. This design allows a large cooling surface. To maximize the internal cooling surface, the air-tubes have additional separation walls.

The cores are made of brazed aluminium. On heavy duty applications like trucks, the manifolds are also made of aluminium and welded to the cooler core. They are mainly manufactured in permanent mold castings. On passenger cars plastic manifolds of Polyamide material are most sufficient. They save cost and weight.

Failure mode / Source of failure >

A cooling system is only as good as the materials used. High temperatures and pressure wear out the materials. Hoses and connections get porous and leaky after a while. Frequent maintenance is always recommendable. But also stone collision, poor crash

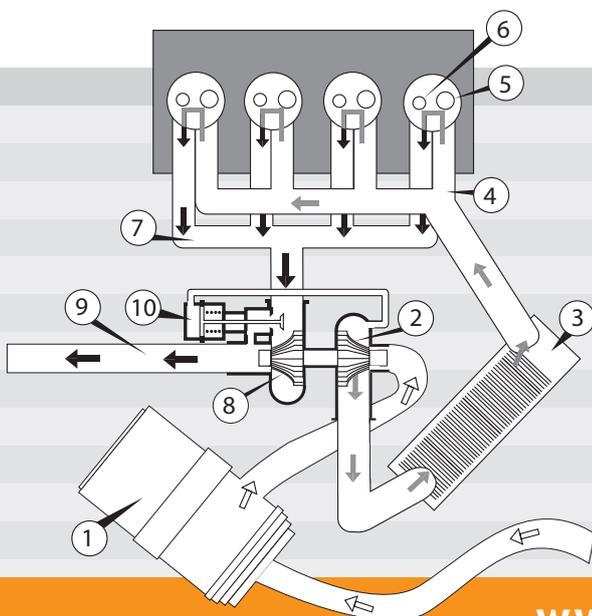


600 SKUs available!

repairs, too tight hose connections, dirt and salt residue can negatively affect the intercoolers' function. An incorrect function is one part, an engine defect the other worse case. To prevent engine damage you must always check/clean the engine air intake manifold for metal and dirt particles, before installing the new intercooler.

NRF intercooler product range >

- In-house testing and manufacturing
- Aluminium performance cores to meet necessary cooling capacity
- Fastmovers available as Easy Fit (including fitting materials)
- Available for cars, light commercial vehicles, trucks and buses.



The intercooler:

- 1 Air Filter
- 2 Compressor wheel Turbocharger
- 3 Charge Air Cooler
- 4 Intake manifold
- 5 Inlet Valve
- 6 Exhaust Valve
- 7 Exhaust manifold
- 8 Turbine wheel Turbocharger
- 9 Exhaust Pipe
- 10 Bypass Valve