

## Charge Air Coolers



### Our Premium Quality

**A superior quality range, guaranteed by direct control of the entire process.**

Design and production are supervised by the Group's engineers, in compliance with the original equipment specifications. Subsequently, each component undergoes end-of-line validation testing by the Quality team, with the aim of offering a product that always stands out for its quality, reliability, and durability.



Design



Fleet Coverage



Testing



After-Sales Support

### What is it?

The charge air cooler is a **heat exchanger** used in forced-induction engines (turbocharged or supercharged).

Its function is **to cool the compressed air** coming from the turbocharger before it enters the intake manifold.



By cooling the air:

Air density increases

Power and efficiency increase

Oxygen content increases

Cylinder filling improves

The risk of detonation is reduced

Result: **more power, better efficiency, and less stress on the engine.**



How does it work?

- 1** The turbocharger compresses the air.
- 2** Compression causes an increase in temperature.
- 3** The hot air enters the intercooler.
- 4** The heat exchanger dissipates heat to:
  - **Outside air** (air-to-air air change cooler)
  - **Coolant** (air-to-water air change cooler)
- 5** Cooler, denser air enters the engine.

Main types

**Air-to-air**

(most common, simpler)

- Cooled by outside air
- Simpler and more reliable
- Widely used in production vehicles

**Air-to-water**

(more efficient and complex)

- Uses a water circuit
- More compact and efficient
- More expensive and complex

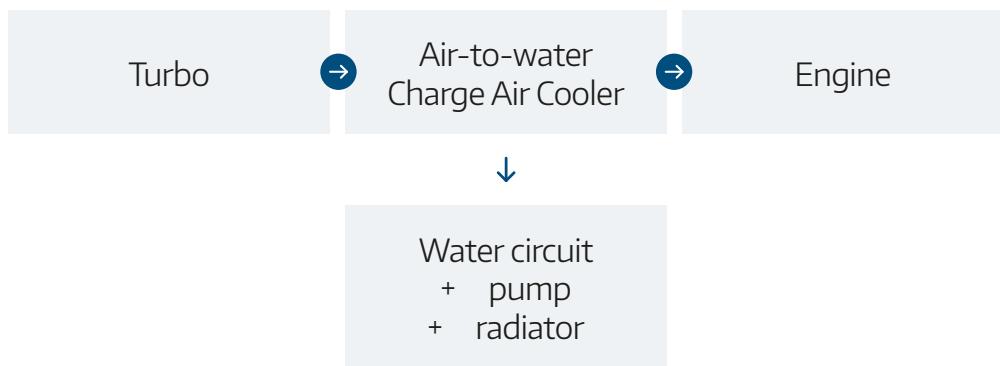
In the vehicle (simplified system)

**Air-to-air** Charge Air Coolers



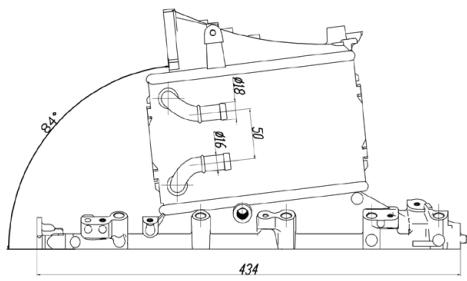


## Air-to-water Charge Air Coolers

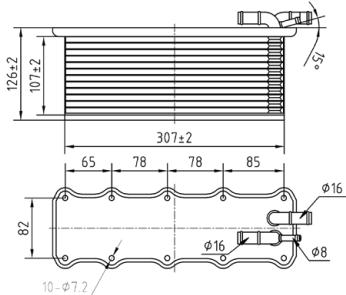


### Main components

Finned core	Inlet/outlet ducts
Hoses	Temperature/pressure sensors



Meat&Doria **995082**  
Hoffer Products **995082**



Meat&Doria **995084**  
Hoffer Products **995084**

### Maintenance and recommended checks

The air change cooler does not require scheduled maintenance, but periodic checks are recommended, such as:

Checking for <b>air leaks</b> from hoses	Check for <b>oil</b> inside
Visual inspection for <b>cracks</b> , <b>dents</b> , or <b>fins</b> clogged by mud or insects	

**Cleaning** can be **external** - using compressed air or specific detergents; or **internal** (if the charge air cooler is heavily contaminated) - by removing the component and washing it with dedicated products.



## Error codes (most common OBD)

Codes vary by manufacturer, but the most frequent are:

Code	Description
<b>P0299</b>	Insufficient turbo pressure
<b>P0234</b>	Turbo overboost
<b>P0101/P0102</b>	Abnormal air flow (MAF)
<b>P0110/P0113</b>	Intake air temperature sensor
<b>P2263</b>	Turbo system performance

## Related products

<p><b>Turbocharger</b></p> <p>Meat&amp;Doria <b>65001</b> Hoffer Products <b>6900001</b></p>	<p><b>Air hoses and pipes</b></p> <p>Meat&amp;Doria <b>96007</b> Hoffer Products <b>96007</b></p>	<p><b>Wastegate valve</b></p> <p>Meat&amp;Doria <b>64052</b> Hoffer Products <b>6700052</b></p>	<p><b>Pop-off / bypass valve</b></p> <p>Meat&amp;Doria <b>9287</b> Hoffer Products <b>8029287</b></p>
<p><b>MAP sensor</b></p> <p>Meat&amp;Doria <b>82394</b> Hoffer Products <b>7472394</b></p>	<p><b>IAT sensor</b></p> <p>Meat&amp;Doria <b>82458</b> Hoffer Products <b>7472458</b></p>	<p><b>Air filter</b></p> <p>Meat&amp;Doria <b>18675</b> Hoffer Products <b>18675</b></p>	<p><b>EGR (direct influence)</b></p> <p>Meat&amp;Doria <b>88416</b> Hoffer Products <b>7518416</b></p>
<p><b>Heat exchangers</b></p> <p>Meat&amp;Doria <b>88301</b> Hoffer Products <b>7518301</b></p>	<p><b>Auxiliary water pumps</b></p> <p>Meat&amp;Doria <b>20280</b> Hoffer Products <b>7500280</b></p>	<p><b>Applications</b></p> <ul style="list-style-type: none"> <li>• Turbo diesel and gasoline engines</li> <li>• Motorsport</li> <li>• Industrial vehicles</li> <li>• Tuning and performance builds</li> </ul>	