RAAL manufactures heat exchangers in brazed plates constructive solution for: automobiles, motorcycles, ATV's, water scooters, aircrafts, etc.

RAAL Brazed Plates heat exchangers have been designed to increase the thermal performances in the fluid-to-fluid cooling applications. This type of heat exchangers are entirely made of aluminium alloys using controlled atmosphere brazing technology. Different working fluids can be used: water, oil, air, refrigerant, etc. The Brazed Plates design can be used for the various types of heat exchangers.

• Water Cooled Oil Coolers (WCOC):
  Transmission Oil Coolers (TOC), Engine Oil Coolers (EOC), Clutch Oil Coolers (COC), Retarder coolers
• Water Cooled Charge Air Coolers (WCAC)
• Evaporators
• Fuel Heaters for eco-diesel

RAAL has recently opened a new production hall dedicated to the production of heat exchangers designed for cooling of electronic circuits and batteries for hybrid and electric vehicle applications.

RAAL manufactures HEAT SINKS, COLD PLATES, BATTERY COOLERS for hybrid and electric cars.

RAAL has a dedicated manufacturing hall for the production of heat exchangers in brazed plates constructive solution.
RAAL manufactures cooling systems and individual heat exchangers for applications in automotive industry: radiators, oil coolers, air coolers, fuel coolers, heaters, condensers, evaporators.

**Applications:** cars, motorcycles, karts, ATV’s, water scooters, snowmobile, aircrafts.

**Features of RAAL cooling systems for automotive**
- high cooling performance
- various available constructive solutions & configurations
- high resistance to dynamic thermal loads
- compact construction
- low maintenance costs
- reliability

- **TUBE&FIN RADIATORS**
- **TUBE&FIN INTERCOOLERS**
- **SHELL TYPE OIL COOLERS**
- **PLATE&BAR OIL COOLERS**
- **IN-TANK PLATE OIL COOLERS**
- **BRAZED PLATES OIL COOLERS**
- **CONDENSERS (parallel flow)**
- **HEATERS**
RAAL is an integrated company, all activities (manufacturing, design, testing, etc.) being carried out in-house. This competitive advantage provides both a very short development and assimilation cycle in production of new products as well as short term manufacturing and supply of series production.

- Design, calculation and simulation
  RAAL uses its own dimensioning software for heat exchangers, software developed in-house based on theoretical studies and thousands of tests performed. RAAL uses FEA (Finite Element Analysis) to simulate the structural, flow and vibration stress conditions.

- Product design
  RAAL has vast experience in designing heat exchangers and cooling systems. Starting from the specifications, dimensions or CAD data of the application, RAAL designers are able to find the best solutions for the most efficient use of the available space. RAAL designers have the ability to continuously optimize the products, so as to fully meet the requirements of the application.

- Testing and validation
  RAAL Testing Center is the facility where the validation of new products is performed. Based on technical specifications or on the parameters obtained by means of DAQ performed on customer equipment, the heat exchangers are tested for performance and strength.
  RAAL Testing Center capabilities:
  - thermal and fluid dynamic performance tests on the wind tunnel
  - durability tests: thermal cycle, pressure cycle, burst pressure, performed at ambient or at high temperatures in the climate chamber
  - durability tests: shock and vibration
  - internal cleanliness tests
  - chemical and accelerated corrosion tests
  - metallographic studies

- Tools and equipment
  RAAL engineers have a vast experience in tool and die design, and in designing the specific equipment necessary for the manufacturing process. RAAL places special importance on the design, manufacturing and optimization of the new generation of fin forming machines, which provide a wide range of fins and turbulators.

QUALITY

All RAAL products are manufactured in compliance with the following standards:

EN ISO 14001:2004 - Environmental Management System
OHSAT 18001:2007 - Occupational Health and Safety Management System