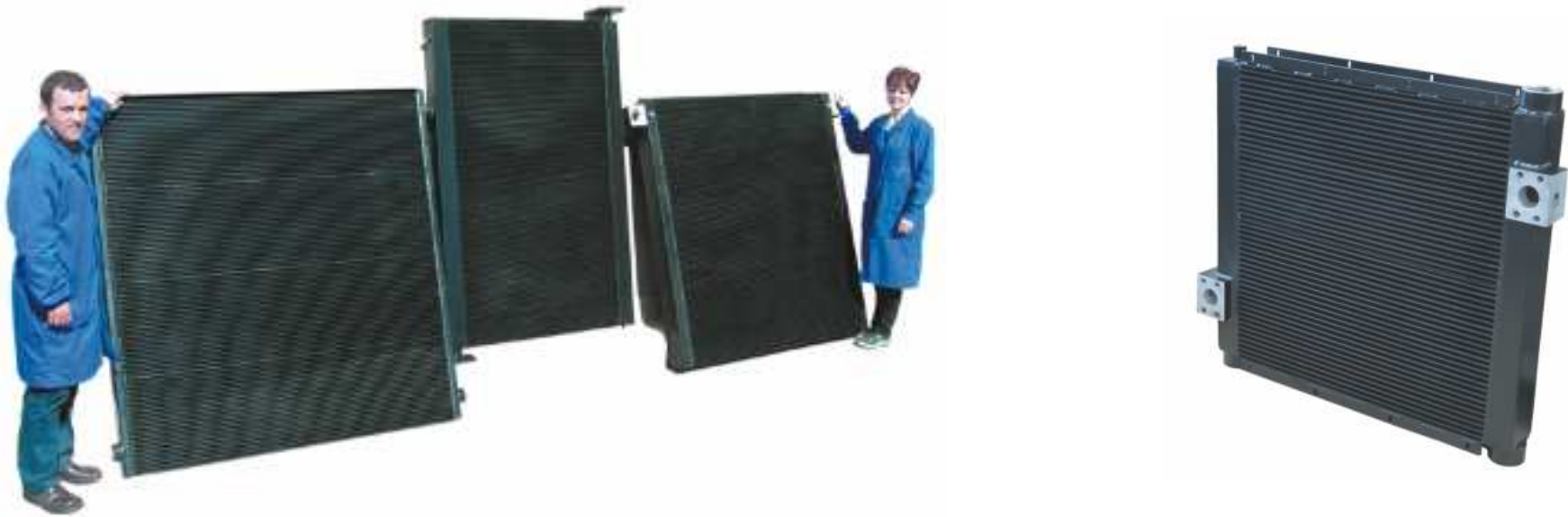




- Plate-and-bar type oil coolers (oil-air)
- Shell type oil coolers (oil-air)
- Counter flow plate-and-bar type oil coolers (oil - water)
- Counter flow brazed plates type oil coolers
- In-tank plate type oil coolers (oil - water)
- Welded tubes type oil coolers (oil - air)



- Coolers for high temperatures and/or sudden temperature variations, used on air compressors
- Coolers for high pressures and mechanical and thermal stresses for applications in the off-road fields: agricultural machines and tractors, equipment for constructions, forestry, mining, etc.
- Coolers for medium and low pressures and high mechanical and thermal stresses
- Applications for the customers requiring short developing and manufacturing times.

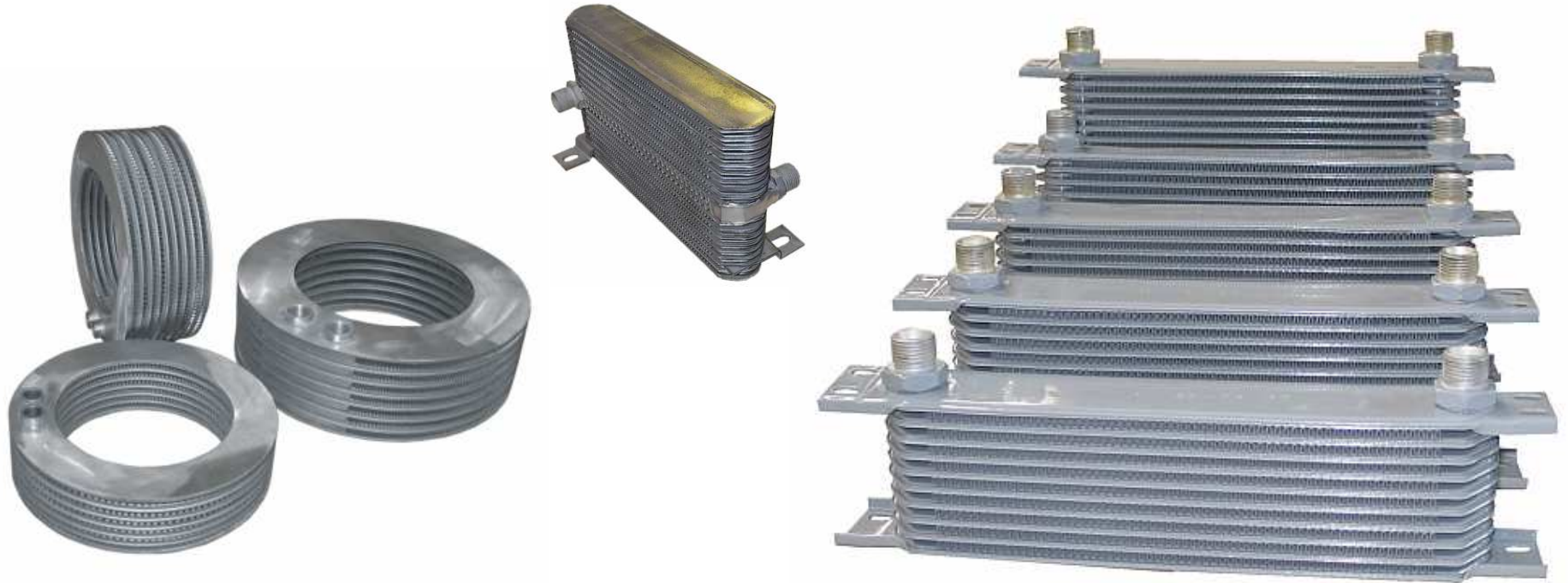






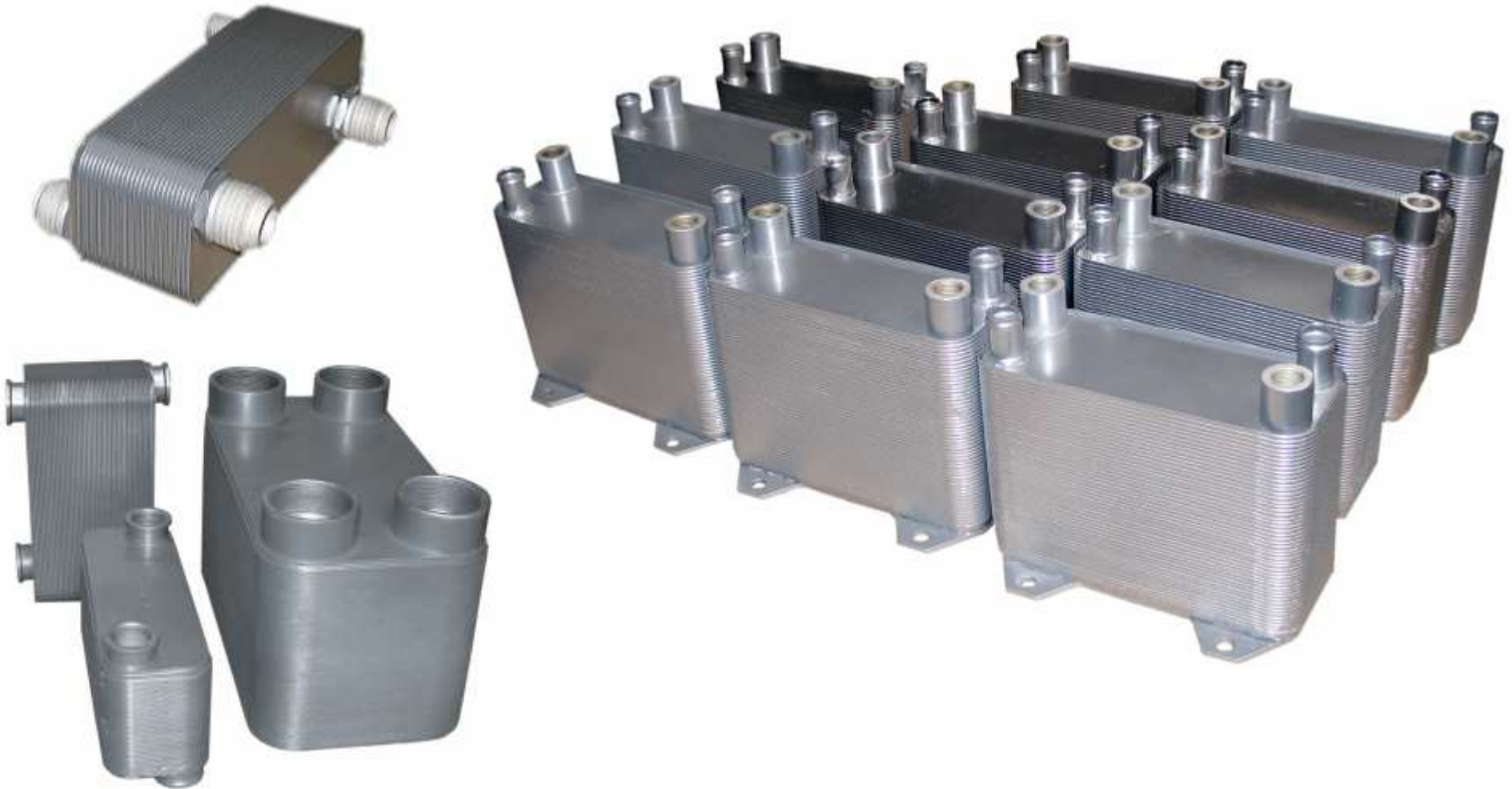
RAAL pays special attention to these products, in the way that they are developed in order to be as close as possible to the mechanical resistance characteristics of the plate-and-bar coolers.

The reduced weight, the excellent behaviour at thermal stresses and their attractive design make the RAAL shell type coolers being used for in more and more applications





The use of counter flow circulation leads to much higher thermal efficiencies than in the case of using the cross flow circulation. It's recommended for off-road and industrial applications, which require a high heat transfer with low oil to water pressure drops and heavy working conditions: high pressures and mechanical stresses. For vehicles, the advantage is that the cooler can be mounted in any other area than the frontal one.

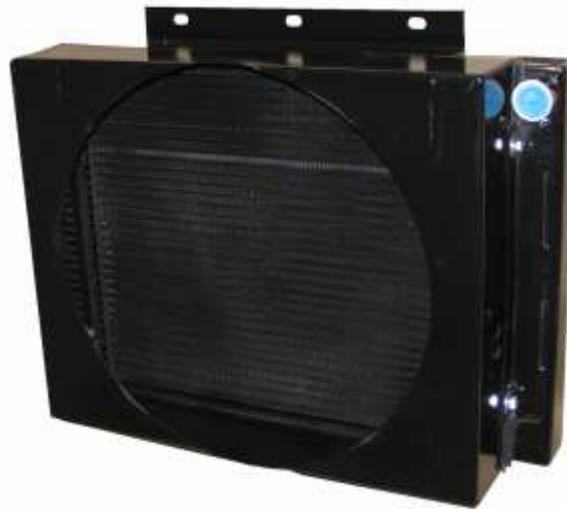


RAAL has developed lately a wide range of products in this constructive solution, managing to achieve mechanical resistance characteristics close to the ones of plate-and-bar type oil/water coolers, but with advantages referring to the weight / heat transfer ratio.

RAAL manufactures in the same constructive solution also fuel heaters used for off-road and automotive applications using eco-diesel (bio-diesel).



This type is used mainly to cool down the engine oil or transmission oil for automotive or off-road applications. The RAAL constructive solution ensures the following: high working pressures, good resistance at static and dynamic stresses, and a good weight/heat transfer ratio.



Mainly used for applications that require high heat transfer with low weighted equipment.