



Ultra•Seal[®]

Heavy Duty Charge Air Coolers

- Groundbreaking design eliminates premature failures of charge air coolers
- Unique silicone grommet system provides leak free operation and extended service life
- Cuts vehicle-operating costs by significantly reducing down time
- Exceeds original equipment cooler performance

Heavy Duty Charge Air Coolers

Conventional brazed charge air coolers are prone to a relatively short service life as a result of failures in tubes, tube to header joints, headers and manifolds.

These premature failures are usually the result of excessive stresses, caused by the effects of thermal expansion, cyclic internal pressures and mechanical loads such as racking, twisting and vibration, which is often associated with on-highway vehicles such as trucks and buses.



Exploded view of Ultra•Seal® Charge Air Cooler

The Solution

To address the deficiencies of conventional (brazed) charge air coolers the Ultra•Seal® design has been specifically developed to cater with the high in-service stresses.

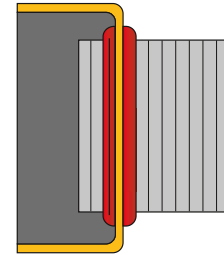
Ultra•Seal® overcomes the effects of these operating stresses by utilizing a unique resilient tube to header system (grommets) that isolates the core from the manifolds, virtually eliminating areas of high stress.



Perspective view of grommet.

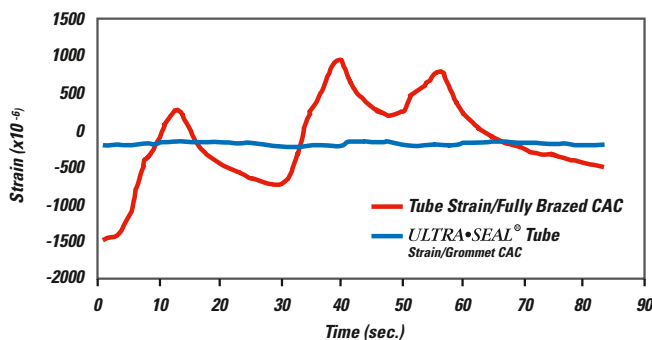


Side view of grommet in relaxed state before installation.



Profile view of grommet installed into the manifold/header oversize tube opening, with core tube inserted. **Note:** the grommet lip on the inside of the manifold/header has been expanded by the insertion of the tube, to create inner seal.

Air-to-Air Charge Air Cooler Strain Activity Comparison Graph



Strain Activity Comparison

The graph on left shows strain level (unit deflection of charge air cooler tubes) at the tube-to-header joints of two different Charge Air Coolers in a heavy duty cement mixer truck as a result of job site starts, stops, and accelerations. The jagged curve indicates widely varying strains in a fully brazed Charge Air Cooler. The steady (non varying) curve shows the lack of strain response of the grommeted Charge Air Cooler during similar events.

This lack of strain response activity indicates a theoretically infinite life for the charge air cooler.



Victoria - Australia
45 Heales Road, PO Box 243
Lara, Victoria, Australia 3212
T +61 3 5275 6644
E customerservice@airrads.com.au

Western Australia
13 Walters Way
Forrestfield, Western Australia,
Australia 6058
T +61 8 9454 2496

South Australia
20-21 Aruma Street
PO Box 2421 Regency Park,
South Australia 5942
T +61 8 8340 7225

Thailand
Air Radiators (Thailand) Ltd.
7/284 Moo 6 Amata City Industrial Estate
Mabyangporn, Pluakdaeng, Rayong 21140
T +66 38 650 815