



United heat transfer pvt. ltd.

Transformation of energy with safe & efficient design



CHARGED AIR COOLER

COMPANY PROFILE

United Heat Transfer is ISO 9001:2015 Certified Design & manufacturing company with a wide range of products. UHTPL is authorised for ASME "U", designator "R", & "NB" certification. We also supply products as per CE 2014/68/EU (Old PED 97/23 /EC.) and shortly to be certified with module 'H'

UHTPL established in the year of 1995 extending its expertise and expanding with the growing national & multinational OEM industries.

The experience we have accumulated during last 22 years of serving process industries qualifies us to provide clients worldwide with the highest quality equipment.

CHARGED AIR COOLER (CAC)

Charged Air Cooler (CAC) are meant to cool compressed engine air after it has passed through a turbocharger, but before it enters the engine. The idea is to return the air to a lower temperature, for the optimum power for the combustion process within the engine. They are essential to meet engine manufacturers' design objectives for better horsepower, competitive fuel economy by increasing volumetric efficiency and reduced exhaust emissions.

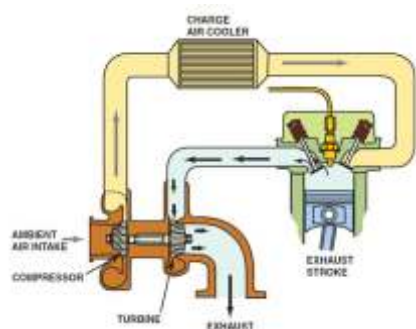
Now a day many of diesel engines depend on air to air & air to liquid heat exchangers to maximize fuel economy and performance.



CAC range in size depending on the engine. They vary in sizes from smallest one for trucks/tractors & larger one for Marine applications.

CAC cools the turbo's air charge before it is routed into the engine. It is an air-to-air or air-to-liquid heat exchange device used on turbocharged and supercharged IC engines to improve their volumetric efficiency by increasing intake air-charge density through isochoric cooling. A decrease in air intake temperature provides a denser intake charge to the engine and allows more air & fuel to be combusted per engine cycle, increasing the output of the engine.

Depending on the number of stages of turbocharging, there can be intermediate stage CAC (Intercooler) or After-cooler.



Schematic of Intake Air Handling system

UNIQUE FEATURES ASSOCIATED WITH UHTPL'S CHARGE AIR COOLER:

- ▣ Low weight housings reduces total weight of system to achieve better fuel consumption & lower noise level
- ▣ Effective combustion
- ▣ Improve the efficiency of whole engine
- ▣ Proper construction reduces pressure drop.
- ▣ Different material options to have choice for fluids
- ▣ Innovative fin geometry
- ▣ Lower space & Compact design Respect to Installation
- ▣ High performance: compact and cost-effective
- ▣ Compact and customized design as per requirement
- ▣ Sustaining of engine power
- ▣ Reduces Exhaust manifold failure
- ▣ Avoid pre-mature piston, ring and valve failure
- ▣ Assist to control elevated coolant temperatures
- ▣ Reduce risk of turbocharger failure
- ▣ Decrease particulate levels in emissions
- ▣ Stout & proven design
- ▣ Ideal for Heavy duty application
- ▣ Longer life span as well as Cost Saving Solution by applying Anti-corrosive coating on CS Parts

Entire Custom Design is Available

APPLICATIONS

- ▣ Railway Diesel Engine
- ▣ Heavy Haulages
- ▣ Maritime ships
- ▣ Cruise and cargo ships
- ▣ Ferries
- ▣ Mega-yachts
- ▣ Trawlers
- ▣ Large Engines
- ▣ Heavy Trucks
- ▣ Mining Trucks
- ▣ Marine Diesel Engines
- ▣ Freighters
- ▣ Power Generation Set
- ▣ Supertankers



Manufacturing CAC's with optional added advantage of Anti-Corrosive Coating.

Seawater in the world's oceans has a salinity of between 3.1% and 3.8% containing sodium (Na+) and chloride (Cl-) ions. It is an electrolyte with strong corrosiveness and with a amount of dissolved oxygen and marine organisms which decompose marine items.

Anti-corrosive coating can be applied on metallic and non-mettalic surface to protect and increase the life of equipment.

This technology is widely applicable in the following industries:

- ▣ Marine and offshore, oil & gas
- ▣ Ore & deep sea mining
- ▣ Water and wastewater treatment facilities.
- ▣ Anti-corrosive forms a monolithic joint with the principle surface without any air pocket.
- ▣ Automobile

STANDARD MATERIALS

Tubes	Tubes Sheet	Shell / Body	End Caps	Fins
Copper Cu:Ni 90:10 Cu:Ni 70:30 Admiralty Brass Titanium	Carbon Steel Naval Brass Cu:Ni 90:10 Cu:Ni 70:30	Aluminium Gun Metal Nickel Aluminium Bronze Cast Iron C. S (with Option of Anti-Corrosive coating)	Gun Metal Nickel Aluminium Bronze Cast Iron Naval Brass C. S (with Option of Anti-Corrosive coating)	Aluminium Copper (Plain & Enhanced)

Seals

The standard seal material is Nitrile. We can provide seals like Viton for temperature above 100 °C.

Technical Details

- ▣ Removable core/ Fixed Core
- ▣ Round Core Diameter 3", 4", 5", 6", 8" or as per customer requirement
- ▣ Square / Rectangle Core : As per customer requirement

Available Port Connections

- ▣ NPT
- ▣ BSP
- ▣ SAE Port
- ▣ Hose
- ▣ Customized Design Port
- ▣ ASME

Design to meet your expectations:

Offer design under most extreme operational conditions & Tropical Conditions of sea water. Our engineering team support the maximum functionality and reliability for diesel engines.

Engineering Capabilities includes performing thermal Rating, Design & Simulation on HTRI and mechanical designing of heat exchanger on Bentley Autopipe software with ASME Sec. VIII Div. 1,2, TEMA R-C-B, API 660, 661, CE 2014/68/EU (Old PED 97/23/EC.), CODAP, ASME, AD, BS, API, GOST, IS 2825 & IS 4503.





CAC to meet your requirements in following variants

- Air-to-Air
- Air-to-Liquid
- Suitable for Fresh Water / Sea Water / Ethylene Glycol
- Single Stage / Multi Stage
- Plate fin design
- Bar & Plate Design
- High Fin tube design
- Fixed or removable bundle
- Can be supplied with air ducts and all accessories

QUALITY CONTROL & ASSURANCE:

UHTPL has qualified & trained workforce which are committed to the quality requirements of the job. Frequent exposure to International codes, statutory requirements, customer requirements helps us to supply equipment with best quality. Our aim is to fulfil statutory as well as implied needs of the job.

Quality Management System is certified to ISO 9001:2015 by Lloyd's Register for Design, Develop, Manufacturing, Supply & Servicing, Erection & Commissioning of Intricate Type of Heat Exchangers, Pressure Vessels & Process Equipment's.

EXPOSURE TO THIRD PARTY INSPECTION AGENCIES

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|--------------------|------------------|-----------|----------------|--------|
| ▪ Lloyd's Register | ▪ Bureau Veritas | ▪ EIL | ▪ CEIL | ▪ RINA |
| ▪ Uhde | ▪ ABS | ▪ TUV SUD | ▪ DGQA, QAE WE | ▪ IRS |
| ▪ TUV Nord | ▪ Inter Tech | ▪ Technip | ▪ TPL | ▪ IBR |
| ▪ TOYO | ▪ Saipem | ▪ Jacob | ▪ VELOSI | ▪ HGS |
| ▪ ICS | | | | |



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