

RADIATORS





**accessories
designed for specific
engine application**

radiator support

Constructed of structural steel with all necessary attachments and hardware to mount to engine rails.

fluid connections

Consists of steel tubes formed, welded, and leak tested, along with required engine and radiator couplers.

drive components

Includes fan, idler and engine sheaves, high horsepower stub shaft and mounting hardware, belts and belt guard

fuel cooler assembly

Installed on the radiator with connections extended to outside of radiator.

low level switch

Mounted to the radiator or optional surge tank.



KASERA Heat Transfer Pvt. Ltd. was established in 1955. The high quality manufacture of Radiator products. In addition, repairs, services & upgrading now has been added to the product portfolio at the Bhilwara site.

With more than 57 years experience in the design and fabrication of all major process cooling components, including repair tubing, headers, plenum chambers, fans, fan, bundle frames & structure, we are able to offer customers an unparalleled guarantee on the thermal and mechanical performance of our equipment.

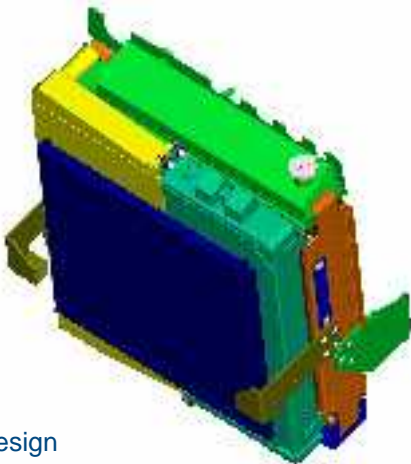
It is always our ambition to exceed our customers expectations.

DESIGNING RADIATOR

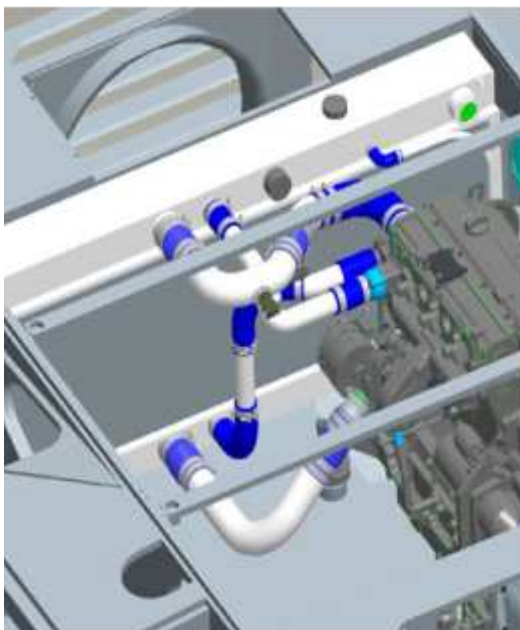
KASERA makes use of leading-HP computer equipment, including the latest computer Aided design systems, to ensure maximum efficiency in:

- Thermal design
- Mechanical design of headers and steel structure
- Noise level predictions
- Preparation of the specification sheet
- Preparation of the general outline drawings
- Preparation of proposals
- Price estimation

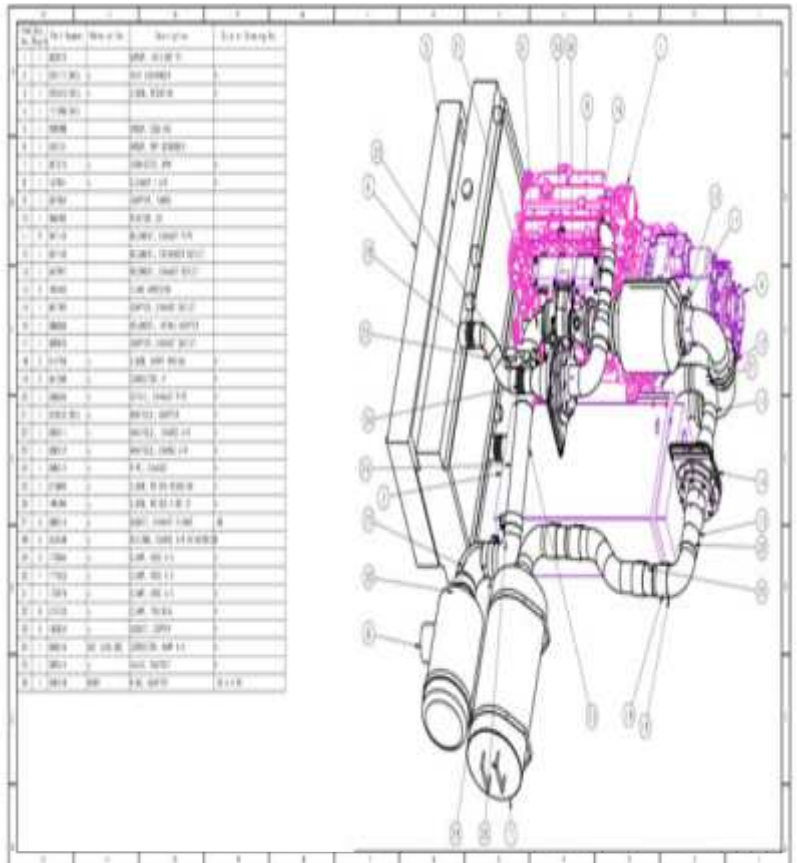
Typical Components of an Radiator



Design

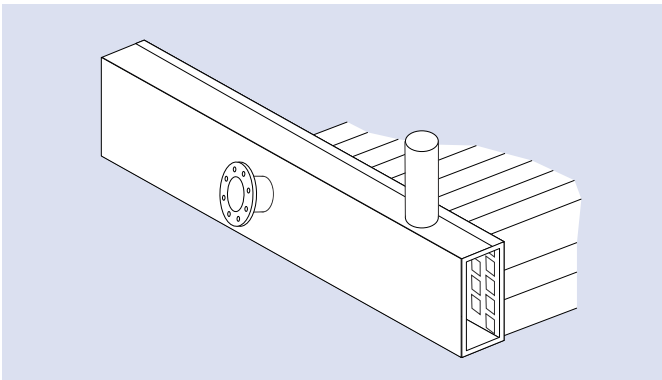


Engineering



CHOOSING THE HEADER

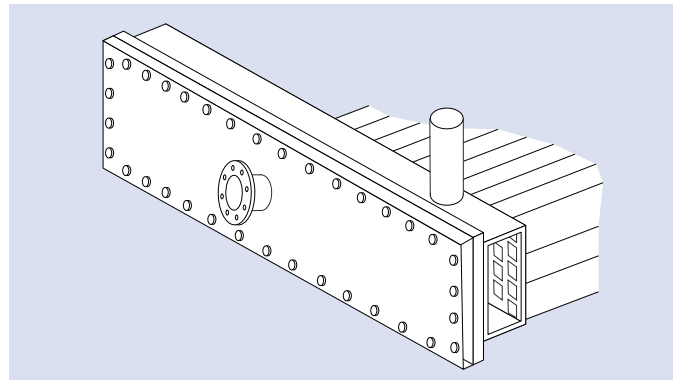
Soldered Header



The sold header is the most commonly used header type for working pressures up to 25 bar.

For hydrogen service at high pressure, seal welding or strength welding can be provided.

Cover Plate Header



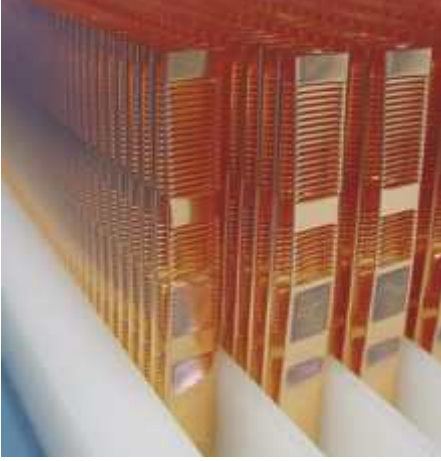
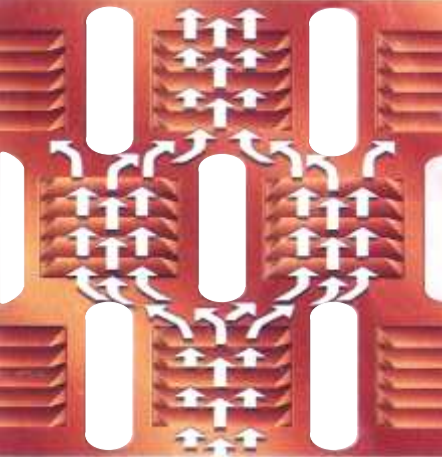
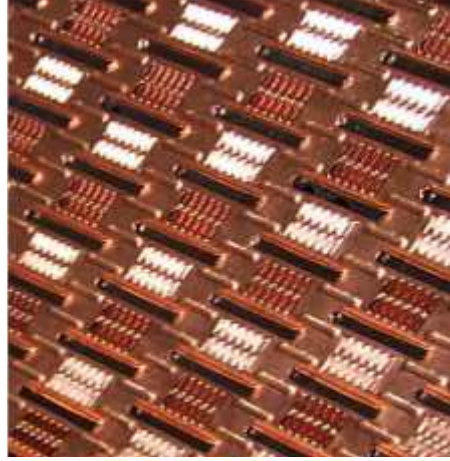
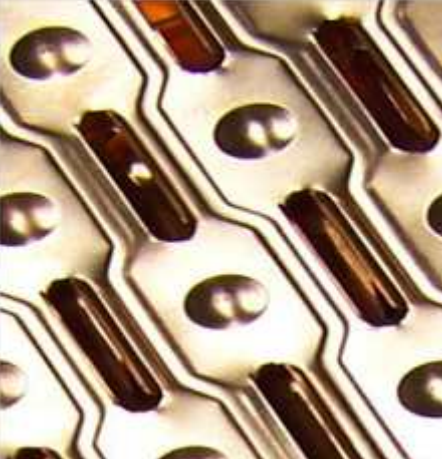
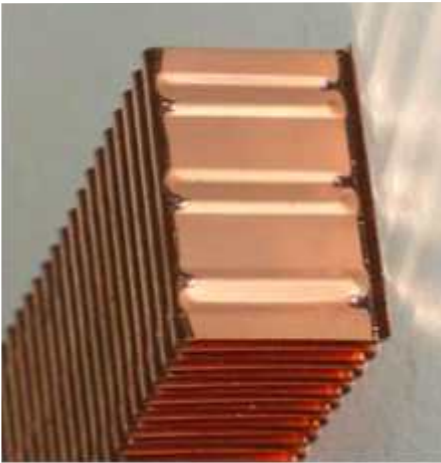
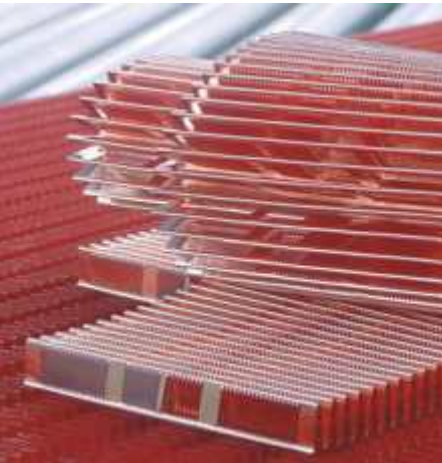
The cover plate header is used for fluids with high fouling factors up to 40 bar maximum where frequent mechanical cleaning is needed.

It is also used for highly corrosive process fluids to allow periodic checking of the corrosion allowance.



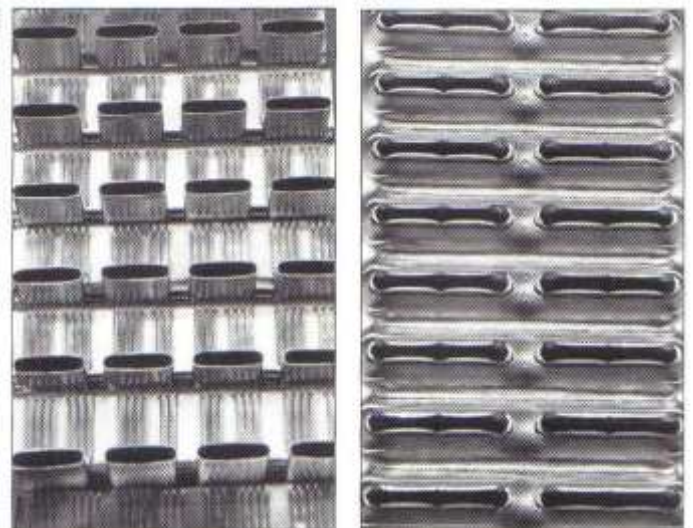
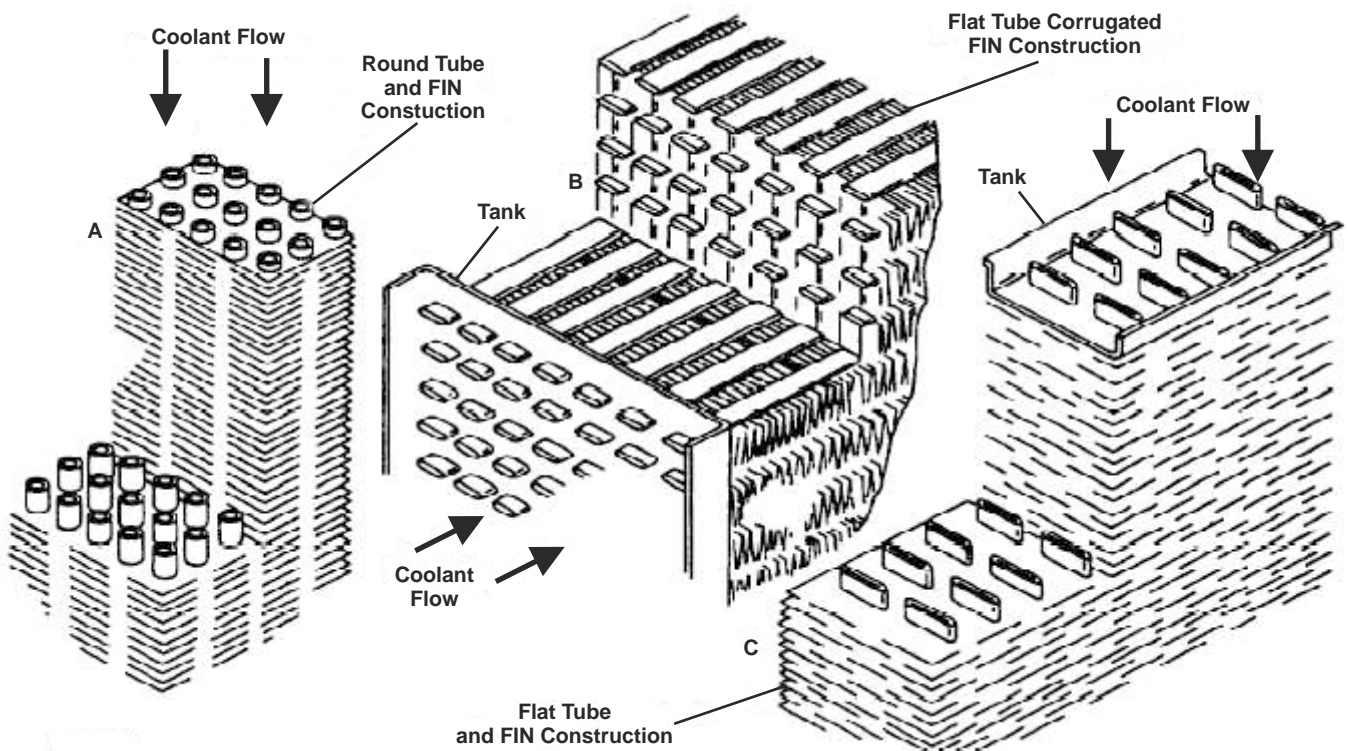
CHOOSING THE FINN

We have many types of fins, as well as the higher specification extruded fins, used for more demanding applications. Material, thickness and number per unit length will depend on the requirements of the application and standards needed by the client.



CHOOSING THE TUBE

We have many types of tubes, as well as the higher specification extruded tube, used for more demanding applications. Height, thickness and number per unit length will depend on the requirements of the application and standards needed by the client.



ATTRACTIVE OF TOTEL COST

EIGHT WAYS TO SAVE WITH

KASERA technology has many advantages that impact the bottom line.

1. KASERA can be automated. The use of semi-automated or automated assembly equipment can greatly reduce manufacturing costs compared to other labor-intensive manufacturing methods.
2. KASERA is simple. Compact and able to withstand elevated temperatures and vibrations, a KASERA core may allow for lighter mounting hardware and space-saving design layouts.
3. KASERA is forgiving. Brazing temperatures can be ramped up faster. Because it takes less energy to heat copper than it does to heat aluminum, it takes less energy to braze each unit.
4. KASERA allows for efficient economies of scale. Since the furnace and production line don't need to be dedicated to just one product, manufacturers can cater to the needs of the profitable niche and special orders markets.
5. KASERA is flexible. The continuous belt furnace allows for quick product changeovers — even at high throughput rates.

COSTING

6. KASERA brazing is a fluxless process, eliminating the need for a separate rinse step to remove the flux from the brazed product. No rinsing operation means no expensive treatment of discharge water. Moreover, KASERA does not use lead and other toxic chemicals in the manufacturing process.
7. KASERA allows for one-shot brazing. The ARG process can make a complete radiator in the brazing furnace, thus eliminating separate operations for attaching components such as inlet and outlet fittings.
8. KASERA radiator are repairable with lead-free solder in the plant or in the field. Less scrap, fewer returns and more uptime in the field add up to savings for the manufacturer and the end user.



ELEVATED TEMPERATURE WITHOUT FAILURE

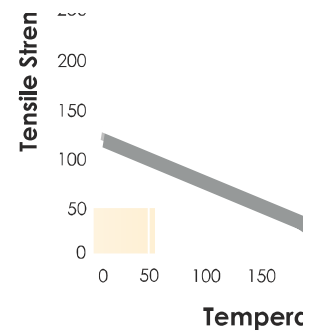
ELEVATED TEMPERATURES

The ability to withstand elevated temperatures is a crucial benefit. KASERA Heat Transfer Pvt. Ltd. is qualified for use at high temperatures.

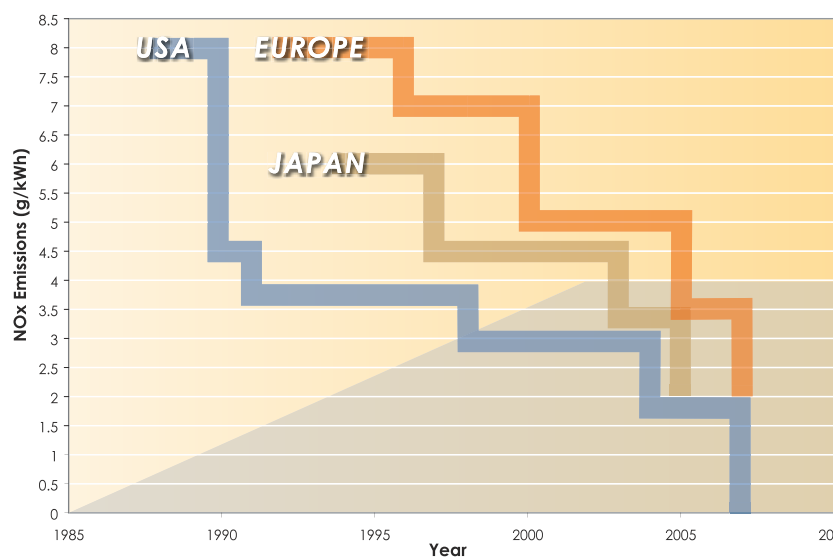
Aluminum radiator simply cannot withstand high temperatures without a total breakdown in their mechanical properties. Aluminum alloys are "temperature challenged" above 200 °C. This inherent property of aluminum is a consequence of its lowmelting point.

The yield strength of aluminum is severely compromised above 200 °C, and it is meaning-less to talk of the strength of aluminum above 250 °C. Problems with fatigue cracking are greatly exacerbated in aluminum at elevated temperatures.

On the other hand, copper and brass radiator can operate at temperatures well above 250 °C. Some cores can withstand temperatures of 290 °C and above, which are still well below the melting point of copper and brass.



SUPERIOR



Note: The heavy-duty truck emission levels represented here are only examples. Additional rules apply, including standards for particulate matter (PM), non-methane hydrocarbon (NMHC) and carbon monoxide (CO) emission levels. Refer to the original rules for details. More information can also be found at www.dieselnet.com/standards.html

PERFORMANCE ADVANTAGES

EFFICIENCY

Cores made from copper and brass can reject more heat per unit volume than any other material system. In other words, KASERA offers a lot of cooling capacity in a small size. The overall thermal efficiency of a radiator core depends on many factors such as

- Thermal conductivity of fins and tubes,
- Strength and weight of the fins and tubes,
- Spacing, size, thickness and shape of fins,
- Spacing, size, wall thickness and shape of tubes
- Velocity of the air passing through the core,
- And other factors.

Efficiency can be readily calculated and measured. Heat-transfer simulations and wind tunnel testing show that copper/brass cores hold the advantage.



SIZES

The KASERA advantage in efficiency is equivalent to a size advantage.

- The same heat rejection can be achieved with a smaller-sized core. A significant reduction in frontal area and volume is typical for KASERA designs.
- More airflow can be directed to other radiator in the same vehicle, e.g., for the radiator downstream from the charge air cooler in a heavy-duty truck.

DURABILITY

Brazing of copper and brass in a furnace at temperatures of 650 °C results in the formation of a strong joint. Special anneal-resistant alloys ensure that the radiator cores retain their strength despite exposure to these high brazing temperatures. Compared to other materials, KASERA provides stronger, tougher joints, allowing for more durable products.

Thanks to strong brazed joints and the reduction of galvanic corrosion at the joints, radiator made by KASERA process are extremely rugged. Their excellent resistance to fatigue and corrosion adds up to a long service life in many applications.

Ongoing laboratory tests and field experience, over a number of years on variety of product designs, already demonstrate long service lives for Radiators in real world application.



CHOOSING FANS, DRIVERS AND TRANSMISSIONS

Fan blades are made of either aluminium or G.R.P. The number of blades and tip speed depend on airflow and noise limitations. Fans are balanced according to code requirements.

Belt and pulley transmissions are used for up to 37kW. Pulleys are dynamically balanced. Belt types are:

- V belt
- Toothed belt (HTD)
- Chevron Belts

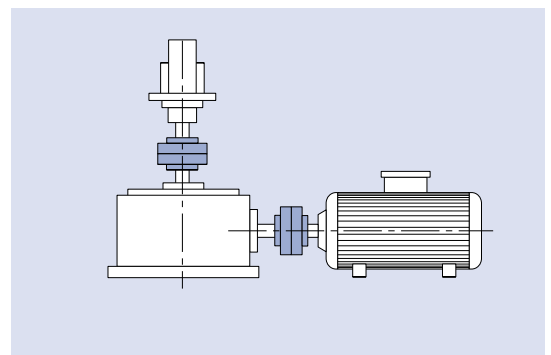
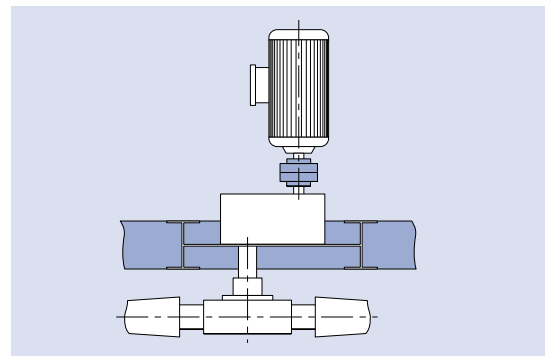
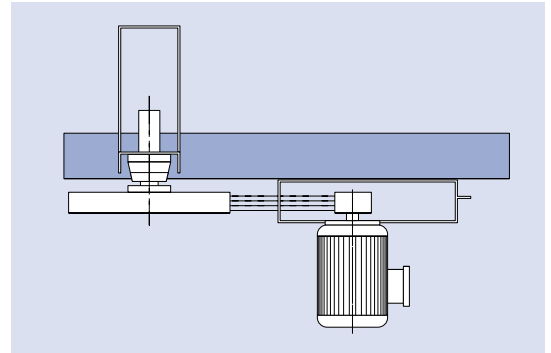
Gear drives are generally preferred for over 37kW and are:

- Parallel shaft
- Right-angle drive

Electric motors are generally used as drivers. However, steam turbines or hydraulic motors may also be used, as well as low-speed direct-drive electric motors.

Airflow can be controlled in one of the following ways:

- Louvres (manual or automatic)
- Two-speed electric motors
- Automatic variable pitch fan
- Variable-speed electric motors (variable frequency)
- Steam turbine drivers



DYNAMIC BALANCING

Boosting the Efficiency of Fan – Ensuring Long Life For Your Equipment

To avoid the serious hazards of shortened machine life – or even catastrophic failure – we can arrange dynamic balancing using state-of-the-art equipment.

This specialist service is one of the valuable ways we can help you anticipate problems before a breakdown actually occurs.

Dynamic balancing can be provided at your site for a wide range of rotating machinery – in particular fans, pumps, blowers and similar equipment. Our specially trained field staff are experts in the use of the latest portable microprocessor analyser-balancer machines.

Dangers of Imbalance

Imbalance has been found to be one of the commonest causes of vibration, generating powerful forces which may prove dangerous for the lifespan of the equipment. Imbalance can be defined as the unequal distribution of the weight or mass of a rotor about its rotating centreline. Although analysis of vibration data can highlight the presence of rotor mass imbalance, the problem can only be corrected through the specialised technique of dynamic balancing.

What is the Cause?

Assuming a good state of balance has been achieved during manufacture, the likeliest causes of imbalance developing during service are:

- Build-up of material deposits on rotor blades
- Erosion of rotor due to abrasive dust burden
- Uneven wear due to corrosion
- Distortion due to excessive heat
- Impact damage from a foreign body
- Bent shaft
- On-site repairs to any – or all – of these problems

If You Think You Have a Problem...

If you have any doubts about your equipment, please call us – we can offer rapid, expert diagnosis.

It is dangerous to ignore the warning signs!

Remember that the centrifugal force created by imbalance actually increases by the square of the rotor rpm. This means that, at speed, a small amount of unbalanced mass can be transformed into a huge – and potentially disastrous – weight.

UPGRADING

KASERA offers valuable expertise to operators who are considering an upgrade. This can often be the solution when process demands have outstripped the original specification and the space or funds are not available for a new installation.

Our thermal and mechanical assessment will establish the best and most cost-effective upgrade within the limitations of your budget – our vast experience with fans, drives and other aspects of radiator technology Can make this a surprisingly successful option.

Existing fans are often old, noisy or obsolete. By applying the correct engineering solution and using an updated drive with increased power electric motors, an outdated cooler can be modified to cope with a higher heat load while still meeting the ever more stringent industry standards for noise and vibration levels.



SERVICE

- ? **Chemical Cleaning**
- ? **Mechanical Brush Cleaning (Straight Thru design)**
- ? **Steam Pressure Washing**
- ? **Individual Tube Pressure Testing**
- ? **Onsite Cleaning Available**
- ? **Can repair or provide new Radiators**



Standard turnaround time 3 days or less! Contact us at +91-9680808888

KASERA also has door to door service facilities across India.

KASERA's Goal is to be customer's one stop Center for all Radiator needs offering complete service on all types of Radiator, (Plate & Frame, Brazed Radiators). KASERA also offers a complete range of replacement plates and Frame for all Type of Radiator.

Your order is custom-designed by our team of professional engineers. Using advanced computer applications, we provide detailed drawings and supporting data sheets that will exactly, and economically, fit your application. In addition, a comprehensive quality control manual accompanies every shipment.

We offer you these services:

Brazing, From a single tube up to a 100% tube bundle rebuild & Component replacement.

Very often, tube-to-tube sheet joint leaks can be eliminated by brazing the tubes.

Component repair, leaks in top & bottom can be repaired by weld repair.

Ultrasonic thickness testing of Radiator components.

We can supply new Engel, Frame, top and bottom.

Hydro testing of Radiator.



COOLING SYSTEMS

KASERA has a wealth of experience in designing and manufacturing radiator for a multitude of cooling applications. Our extensive experience includes, but is not limited to, Water process, power genitor cooling and many more.

Our Radiator Design and construction incorporate materials that ensure long and trouble-free service with a minimum of maintenance. The heat transfer surfaces are selected from ARG' extensive range of fin and tube systems and are optimised to suit the application in the most cost-effective manner.

We employ a team of thermal engineers with extensive experience in solving the kind of problems likely to arise in this area of operations.

Quality Control

We have achieved full qualification to ISO 9001: 2000 in all stages of design and manufacture.

Rigorous Testing

We ensure all Radiators are subject to through hydraulic tests appropriate to the cooling medium employed. We also have individual test for transformer oil, turbine lubricating oil and water.

Every fan supplied as an integral part of our equipment is tested to ensure there are no inherent vibration problems, and that it complies with the appropriate specifications. In addition, noise levels can be measured if required.





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Monday to Saturday 10.00am to 6:00pm (Indian Time)

Also use our telephone support center to contact a service representative during regular business hours.
Sunday is holiday please leave a message. A customer representative will contact you within 1 hour of your call in working days.