

ROSS BOILERS



Process Heat Equipment



PROCESS HEAT EXPERTS

ABOUT US



For over 20 years we have been manufacturing high quality heating equipment. Our endeavour is to supply well-engineered products & systems to cater to the specific needs of our clients. Customer satisfaction is of paramount importance & forms the foundation of our business policy. We have an excellent reputation for the quality of our product range & after sales service.

We pioneered the development of shell type hot water generators for milk pasteurization in the dairy industry. From the basic hot water generator, we have expanded our product line to include steam boilers, thermic fluid heaters, hot air generators, waste heat recovery units, burners, water softeners & various other boiler accessories.

Our products are manufactured using state of the art machine tools & equipment. High quality of our products is achieved by following appropriate fabrication processes at all stages of manufacture. We offer a wide variety of boilers & heaters, manufactured by our team of highly experienced engineers & technicians.

Till date we have supplied more than 4000 units in industrial applications as diverse as,

- Chemical
- Packaging
- Dairy
- Plastics
- Pharmaceutical
- Textile
- Food
- Wood
- Rubber
- Engineering
- Petrochemical
- Electronics
- Hotel
- Laundry
- Automobile



3 Pass Reverse Flue Shell Type Hot Water Generators

We design & manufacture various types of hot water generators. ASTRA is a shell type, three pass, reverse flue design hot water generator, usually built in horizontal configuration.

The ASTRA has an internal water cooled furnace with low heat release rate. It can be supplied with the rugged ROSS make burner or compact imported monobloc burner. The reverse flue design achieves higher efficiency & saves precious fuel.



ASTRA 300



ASTRA 300 skid mounted with fuel and water tanks

Each ASTRA undergoes a complete firing test, including a thorough check up of all electrical components & adjustment of burner for efficient combustion.

The salient features of the ASTRA are

- Rugged design
- Hinged doors for simple cleaning & inspection
- Fully automatic operation
- Improved efficiency
- Easy to install & maintain

Model	Capacity (Kcals/hr)
ASTRA 100	1,00,000
ASTRA 150	1,50,000
ASTRA 200	2,00,000
ASTRA 250	2,50,000
ASTRA 300	3,00,000
ASTRA 400	4,00,000
ASTRA 500	5,00,000
ASTRA 600	6,00,000
ASTRA 800	8,00,000
ASTRA 1000	10,00,000
ASTRA 1500	15,00,000
ASTRA 2000	20,00,000
ASTRA 2500	25,00,000
ASTRA 3000	30,00,000

Fuel firing options include Light oil, Heavy oil & Gas. Heating capacities available are from 1,00,000 Kcals/hr to 30,00,000 Kcals/hr. The normal outlet hot water temperature available is up to 95°C. Higher capacities and higher temperature units can also be supplied against specific enquiries. High temperatures upto 130°C can be achieved in pressurised units.



ASTRA 600 with European burner

SIGMA



Solid Fuel Fired Hot Water Generators

Rising liquid fuel prices have led to the demand for solid fuel fired boilers.

We have developed the Sigma series of horizontal smoke tube boilers in capacities starting from 1,00,000Kcals/hr to 30,00,000Kcals/hr.

The Sigma units are normally designed for high water flows, with very less pressure drop on the water side. The outlet temperature is normally around 95Deg C, but can be offered upto 130Deg C in pressurized units.

These units are designed to run on multiple fuels like, coal, wood, agrowaste pellets. Fluidised bed combustion systems can be supplied for fuels such as rice husk and saw dust. These units can be easily converted to burn liquid or gaseous fuels.

The salient features of these units are

- Rugged construction
- Very low maintenance
- Large fuel feeding and ash collection doors
- Hinged doors for easy inspection and maintenance.



SIGMA 1000



SIGMA 400

Model	Capacity (Kcals/hr)
SIGMA 100	1,00,000
SIGMA 150	1,50,000
SIGMA 200	2,00,000
SIGMA 250	2,50,000
SIGMA 300	3,00,000
SIGMA 400	4,00,000
SIGMA 500	5,00,000
SIGMA 600	6,00,000
SIGMA 800	8,00,000
SIGMA 1000	10,00,000
SIGMA 1500	15,00,000
SIGMA 2000	20,00,000
SIGMA 2500	25,00,000
SIGMA 3000	30,00,000

RHBW

This is a vertical single pass shell type flue tube hot water generator. It is designed to burn solid fuels such as wood, coal and agrowaste. It has a water walled combustion chamber which absorbs the radiant heat and a shell and tube heat exchanger.

The unit is very easy to install and maintain and is available in capacities upto 3,00,000Kcals/hr. It is supplied complete with panel box and water pump.

The salient features are

- Minimum space requirement
- Large fuel feed door and grate area
- Supplied with forced draft fan
- Can be easily cleaned and maintained

Model	Capacity (Kcals/hr)
RHBW 30	30,000
RHBW 50	50,000
RHBW 80	80,000
RHBW 100	1,00,000
RHBW 150	1,50,000
RHBW 200	2,00,000
RHBW 250	2,50,000
RHBW 300	3,00,000



RHBW 300 Vertical unit



RHB 80

Two Pass Shell Type Vertical Hot Water Generators

The RHB is a vertical shell type compact, two pass design hot water generator. The combustion chamber is enclosed by a water jacket. An air jacket encloses the water jacket. The air blower is attached at the bottom. Air is preheated before it enters the combustion chamber, thus increasing efficiency. Capacities available are from 30,000 Kcals/hr to 2,00,000 Kcals/hr. Standard models are available in

Model	Capacity (Kcals/hr)
RHB 30	30,000
RHB 50	50,000
RHB 80	80,000
RHB 100	1,00,000
RHB 150	1,50,000
RHB 200	2,00,000

Light oil firing with the rugged ROSS burner. Gas fired units are also available. Outlet temperature normally is 95°C. Due to the shell type design, unit is ideally suited for higher water flow rates.

Being very easy to run & maintain, it is one of the most popular designs in the market today.

Electrical Hot Water Generators

The RHBE series of electric hot water generators provide economical hot water supply for commercial & industrial applications. Since no separate boiler house or chimney is required, installation is fast & easy. No fuel storage & handling is required. Low watt density heaters are used to ensure longer life of electric heaters.

These units have high thermal efficiency & low maintenance. Units are easy to install & can be located close to the point of use. They are environment friendly & pollution free. Units are available in capacities from 9 Kw up to 1000 Kw. These units are ideal for commercial & residential buildings for generating hot water. All units are factory tested ready to use. ROSS Electric hot water generators have small physical size as compared to oil or gas fired units, hence require less floor space.



RHBE 60 with panel enclosure

The distinct advantages of the ROSS electric hot water generators are,

- High efficiency
- Low maintenance & years of trouble free operation
- Clean & quiet operation
- Easy to install & can be located close to the point of use
- Environmentally friendly & pollution free
- No separate boiler house or chimney required
- No fuel storage required



RHBE 360 with thyristor control

Coil Type Water Tube Hot Water Generators

For heating applications requiring low media temp of 160°C, heating system comprising of pressurized hot water circulated in closed loop is the cost effective, environment friendly option compared to steam or thermal oil heating. It is the most economical of the three options, as soft water is cheap compared to thermal oil & condensate losses are absent. To ensure constant liquid phase heating without formation of steam, circulating hot water is always kept under pressure higher than saturation pressure corresponding to hot water temperature. This is achieved with the help of a pressurized expansion tank, which also provides the necessary buffer zone for expansion & contraction of heating media during its operating cycle.

The salient features are

- Three-pass, once through, coil type HWG with efficient fuel combustion & compact construction for closed loop process heating at maximum 160°C temperature.
- Wide output capacity range from 100,000 kcal/hr to 3,000,000 kcal/hr.
- Space saving vertical configuration fitted with air pre-heat jacket & indigenous burners is standard for HWGs of capacity up-to 400,000 kCal/hr, Convenient, horizontal orientation with compact mono-bloc burners are manufactured for larger capacities up-to 3,000,000 kcal/hr output.
- Single or multi-start coils are designed to accommodate customer-specific larger hot water flows at lower pr drops to ensure low electric power demand for pumping water.
- Outside the purview of Indian Boiler Regulations as steam is not produced in the HWG.
- Process fluid being soft water, is non-hazardous, non-contaminating & non-polluting.
- Process fluid is re-cycled, unlike condensate wastages in steam heating, resulting in valuable resource & heat energy conservation.
- Low initial equipment cost, low operating & maintenance cost.
- Less corrosion or scaling of HWG coil as water remains in liquid phase even at 160°C.
- Choice of fuels : Light oil, Heavy oil, Natural gas, LPG or dual fuel options.



RHBC 100 with European burner

Model	Capacity (Kcals/hr)
RHBC100	100,000
RHBC 150	150,000
RHBC 200	200,000
RHBC 300	300,000
RHBC 400	400,000
RHBC 500	500,000
RHBC 600	600,000
RHBC 800	800,000
RHBC 1000	1,000,000
RHBC 1250	1,250,000
RHBC 1500	1,500,000
RHBC 2000	2,000,000
RHBC 2500	2,500,000
RHBC 3000	3,000,000



RHBC 400 with European burner



RSBE 65

Non IBR Models

Model	Capacity (kg/hr)
RSBE 10	15
RSBE 15	23
RSBE 20	30
RSBE 35	55
RSBE 50	78
RSBE 65	100

Electrical Steam Boilers

ROSS electric steam boilers are fully automatic units, which provide safe & convenient steam for industrial & commercial applications. Startup is fast because of the low water volume. Units are available up to pressures of 17.5 kgs/cm² & capacities up to 1000Kw. Custom built units can be manufactured as per customers specific requirements.



RSBE 130

The advantages of ROSS electric steam boilers are:

- Space saving designs.
- Fully automatic operation
- Clean & quiet operation.
- Fully packaged unit, minimizes site work.
- No fuel tank & chimney required

IBR Certified Models

Model	Capacity (kg/hr)
RSBE 130	200
RSBE 165	250
RSBE 200	300
RSBE 260	400
RSBE 320	500
RSBE 390	600
RSBE 450	700
RSBE 520	820
RSBE 640	1000



OMEGA 500 with ROSS burner

Tubeless 4 Pass Steam Boilers

Built to SIB or Class 1 IBR codes in capacities ranging from 300 to 1500 kg/hr steam output, these low cost steam boilers are designed on a revolutionary 4-flue pass tube-less concept. The conventional flue tubes of a shell boiler are replaced by fin-type flue passages around furnace shell in a vertical orientation. The resultant boiler thus combines the good features of vertical coil type boilers & liberal water/steam spaces of shell boilers.

- Space saving vertical configuration, four-pass, shell type steam boilers fitted with mono-bloc burners & standard boiler mountings.
- Choice of fuels : Light oil, Natural gas, LPG or dual fuel options (light oil/gas).
- Easy to maintain and operate as all parts are easily accessible.
- Unlike coil type boilers, boiler failure due to frequent choking of water tubes is absent here.
- Low initial equipment cost, low operating & maintenance cost.

Model	Capacity (kg/hr)
OMEGA 300	300
OMEGA 400	400
OMEGA 500	500
OMEGA 600	600
OMEGA 800	800
OMEGA 1000	1,000
OMEGA 1200	1,200
OMEGA 1500	1,500

Water Tube Coil Type Steam Boilers

The RSB series is a reverse flue, three pass, water tube design steam boiler. It gives quick steam output within 4 minutes from cold start. The combustion chamber & the smoke passages are accurately designed, which ensures that combustion occurs perfectly. It does not require any qualified boiler attendant. It is ideal for small & medium sized plants, where average steam pressure (10 Bar) is required. Units can also be designed for higher pressures.

The unbeatable features of the RSB series boilers are,

- Reverse flue design
- Single coil for easy maintenance
- Larger pipe diameters
- Improved efficiency
- Instant steam generation

The RSB series is also available in horizontal designs, with options of imported burners. Complete skid mounted units can also be offered. The feed water tank, water softener & fuel tank are mounted on one skid.



RSB 400 with ROSS burner

Units are manufactured in non-IBR designs upto 800 kgs/hr and in IBR certified models of 1000 kgs/hr and above. We also offer coil type steam boilers up to capacities of 3TPH with working pressures up to 32 kg/cm². Custom built designs can be offered for higher pressures.

Model	Capacity (kg/hr)
RSB 100	100
RSB 200	200
RSB 300	300
RSB 400	400
RSB 600	600
RSB 800	800
RSB 1000	1000
RSB 1200	1200
RSB 1500	1500



RSB 800 with monobloc European burner



RSB 1500 with European burner

For all steam producing boilers, softened & treated feed water must be used to prevent deposition of hard salts on the inner heat transfer surfaces. This is specially important for once-through coil type designs, where small internal surface of boiler tubes get choked up quickly, causing boiler outage. Ion-exchange type simplex or duplex softeners and chemical dozers are offered by us as standard accessories to ensure regular supply of treated feed water & longer boiler availability.



RSB 100

Another aspect of coil type once-through boilers is feeding of excess water (15 to 20%), necessary to avoid super-heating of steam & to help remove sediments. The output steam therefore carries higher moisture levels. In applications where near dry steam is needed, it is necessary to install steam separators & steam traps in the steam supply lines. A host of accessories, such as feed water tanks, fuel oil service tanks, heavy fuel oil ring mains, steam separators, steam pressure reducing stations etc are available from us to facilitate correct & cost effective boiler installation.



RSB 600 skid mounted with softener, fuel and water tanks



RSB 600 horizontal design

Shell Type 2 Pass IBR Certified Solid Fuel Fired Steam Boilers

Steam boilers in the output range of 200 to 600 kg/hr are manufactured in two-pass smoke-tube, dry back compact shell type configuration and designed in conformity with SIB/Class 1 IBR codes. These boilers are fitted with FD/ID combustion & hinged refractory doors for ease of operation & maintenance making them quite compact and efficient packaged machines.

The salient features are:

- 2 pass compact steam boiler built as per IBR
- Easy to operate and maintain with low power consumption
- Hinged doors for quick cleaning of smoke tubes
- Fitted with necessary controls and safeties for trouble-free operation
- Sufficient water/steam volume for steady steam output
- RSW 300, RSW 400 supplied with ID & FD fans
- RSW 500, RSW 600 supplied with ID fans



RSW 300

Model	Capacity (kg/hr)
RSW 300	300
RSW 400	400
RSW 500	500
RSW 600	600



RSW 80

RSW 80 is a vertical steam boiler with refractory lined combustion chamber. The unit volumetric capacity is less than 25 litres, hence it does not come under the purview of IBR.

Fuel feeding is manual and all other controls like water feed, level control are automatic. It is available normally with working pressure of 5Kgs/sqcm.

Unit is easy to use and maintain, with cheap spares.

Model	Capacity (kg/hr)
RSW 80	80

The advantages are:

- Vertical, forced draft combustion, single pass, compact construction.
- Outside the purview of IBR.
- Economical, safe design, delivers good quality dry steam.
- Fully shop-assembled, ready-to-use design.

Solid Fuel Fired Shell Type Flue Tube Steam Boilers



RSW 3000

The RSW series is a horizontal shell type integral furnace, flue tube, solid fuel fired steam boiler. Capacities available are from 500Kgs/hr upto 3 Tonnes/hr steam in single furnace design & upto 6 Tonnes/hr steam in double furnace design.

Units are designed as per Indian Boiler Regulations. It can be used on various fuels such as coal, lignite, wood & bagasse pellets. Fluidised bed combustion system is supplied to burn fuels such as rice husk and saw dust.

An induced draft fan is provided for proper combustion & balanced draft in the combustion chamber.

High Thermal efficiency is achieved by using: a large furnace, a very efficient burning system & correct heat release rate between radiant and convective sections.

Boilers are designed to ensure uniform distribution of thermal and mechanical stresses in heat transfer surfaces.

The advantages of the RSW series units are:

- Minimum space required due to compact design
- Fast startup, erection & commissioning
- Very easy to operate & maintain
- Low power consumption
- Hinged doors for easy inspection & maintenance of boiler

Model	Capacity (kg/hr)
RSW 1000	1000
RSW 1500	1500
RSW 2000	2000
RSW 3000	3000
RSW 4000	4000
RSW 5000	5000
RSW 6000	6000



RSW 1000

Shell Type Reverse Flue IBR Certified Steam Boilers

RSR series of steam boilers manufactured by us are compact, 3-pass, reverse flue shell type boilers designed & manufactured in conformance with IBR regulations. These boilers are available in steam output capacities ranging from 100 kg/hr to 3000 kg/hr. Standard boilers are designed for maximum working steam pressure of 10.5 kg/cm², whereas special executions are made against specific enquiries for steam working pressure of 12.5, 15 or 17.5 kg/cm².



RSR 1200

Model	Capacity (kg/hr)
RSR 100	100
RSR 200	200
RSR 300	300
RSR 400	400
RSR 500	500
RSR 600	600
RSR 800	800
RSR 1000	1000
RSR 1200	1200
RSR 1500	1500
RSR 2000	2000
RSR 2500	2500
RSR 3000	3000



RSR 500

RSR series boilers are quite compact, occupying less floor space as compared to conventional 3-pass boilers. These boilers are fitted with mono-bloc type European make burners, which are well suited to operate on conventional fuels such as light oil, heavy oil, natural gas, LPG or in dual-fuel options as per end user's requirement. Hinged front refractory doors facilitate maintenance & access to furnace & flue tubes. Fully automatic operation with field proven controls & safeties in RSR series steam boilers render them ideal for wide applications such as for pharmaceutical, chemical & food industries, laundries and hospitals.



RSR 100

Highlights :

- Compact space saving reverse flue, three-pass, shell type steam boilers fitted with mono-bloc burners & standard boiler mountings.
- Choice of fuels : Light oil, Natural gas, LPG or dual fuel options.
- Easy to maintain and operate as all parts are easily accessible due to hinged doors.
- Ideally suited for steady steam demands permitting larger steam pressure variation.
- RSR steam boilers are highly cost-effective substitution for old coil type boiler installations where conventional 3-pass shell boilers cannot be fitted.



RSR 2000

Oil/Gas Fired Thermic Fluid Heaters

High performance elevated temperature Hot Oil Heaters for process heating applications at low operating pressure. Designed with field-proven safety features, these heaters provide round the clock, trouble-free process heating in a wide variety of industrial application.

At high temperature, water and steam requires a corresponding high operating pressure. Establishing this with water and steam can be very difficult and expensive.

In thermic fluid heaters a thermal oil is used instead as the heat carrier, operating at low pressure to deliver 300°C temperature. In comparison water and steam, would require a pressure of 85 bar to obtain this temperature.

The ALFA thermic fluid heaters are thermodynamically optimized & are characterized by high efficiency & excellent heat transfer to the thermic fluid. The combustion chambers are generously dimensioned & are sufficiently long. The flame can thus burn fully & the emission values remain very low for all fuel types.

ALFA has the following distinct advantages:

- Large heating surface area hence higher efficiency
- Hinged front door for easy cleaning & inspection
- Rugged construction
- Maximum running reliability



ALFA 800 with European burner

Model	Capacity (kcal/hr)
ALFA 100	1,00,000
ALFA 200	2,00,000
ALFA 300	3,00,000
ALFA 400	4,00,000
ALFA 600	6,00,000
ALFA 800	8,00,000
ALFA 1000	10,00,000
ALFA 1500	15,00,000
ALFA 2000	20,00,000
ALFA 2500	25,00,000
ALFA 3000	30,00,000
ALFA 3500	35,00,000
ALFA 4000	40,00,000



ALFA 2000 being assembled

There are several advantages of using thermic fluid heaters compared to steam boilers. The most obvious are:

- High temperature up to 300°C at low pressure of 1 to 3 bar
- No equipment for pre-treatment of boiler feed water
- No heat loss due to hot condensate and flash steam discharge
- No risk of corrosion
- Low maintenance costs
- Easy to operate (does not require a steam boiler certified operator)



ALFA 1000 with standby thermic fluid pump and pipeline



ALFA 400 vertical with European burner

Optional features available with ALFA :

- Space-saving vertical configuration of heaters for output capacities 100 - 400 x 1000 kCal/hr.
- Horizontal configuration of heaters for convenience of operation & maintenance for output capacity range from 100 to 4000 x 1000 kCal/hr.
- Shop-assembled standby thermal oil pump with necessary isolation valves & piping for continuous operating plants.
- Skid-mounted Thermal oil heaters are available as custom-built equipment against specific enquiry & order. This option is very useful where compact pre-assembled heater & accessories are needed for quick installation & start-up.
- Multiple-start heat exchanger designs for low pressure drop to suit specific high thermal oil flow applications.



4 start coil for ALFA 2000



ALFA 200 skid mounted with deaerator tank and pipelines

Vertical Thermal Oil Heaters

RTH series heaters are compact, vertical, factory-assembled fired equipment for high temp, closed loop thermal oil process heat applications. Synthetic or mineral based thermal oils having stable properties over a wide temp range of 10 to 300 deg C are used as heating medium at comparatively low operating pressure of 3-4 kg/cm². RTH series TF Heaters are fitted with indigenous pre-heated air burners in three-pass combustion system to improve thermal efficiency. These heaters are fitted with standardized components & are quite simple to operate & maintain. A large number of options, such as choice of fuel, addition of standby TF pump, sizing of De-aerator tank etc are available to users to meet their process needs.

Model	Capacity (kcal/hr)
RTH 100	100,000
RTH 200	200,000
RTH 300	300,000
RTH 400	400,000
RTH 600	600,000



RTH 200 with
ROSS Dual Bloc burner



RTH 400
Furnace Oil Fired with ROSS burner

Smaller capacity thermal oil heaters in output range 100 to 300 x 1000 kcal/hr require light fuel oil for combustion for ease of maintenance & operation. These heaters are fitted with single stage burners.

Larger capacity TF Heaters are available for operation with light or heavy fuel oil as per customer's choice. Being fully shop-assembled & tested, these heaters are supplied in ready-to-install condition to facilitate quick plant start-up.

Solid Fuel Fired Thermic Fluid Heaters

Industries requiring high temp heating, where agro-waste or other conventional solid fuels are available, our DELTA series thermal oil heaters form a low operating cost option to the customer. DELTA series TF Heaters are manufactured in capacity range of 100,000 to 40,000,000 kcal/hr. Smaller range of DELTA 100 to 600 is 3-pass compact, vertical design, in which the heat exchanger coil is installed above an integral furnace fitted with grate bars for manual firing of agro-waste fuels.

Larger, more efficient 4-pass designs are manufactured in capacity range of 400,000 to 4,000,000 kcal/hr, in which the heat exchanger is split in two vertical sections; the radiant section installed above the furnace & the convection section installed next to it & connected with a refractory lined flue duct. Although, this design takes up a large floor space, it is more efficient & well planned for thermal expansion.

DELTA 3 Pass Models:

Model	Capacity (kcal/hr)
DELTA 100	1,00,000
DELTA 200	2,00,000
DELTA 300	3,00,000
DELTA 400	4,00,000
DELTA 600	6,00,000



DELTA 400



DELTA 4 Pass indicative sketch

The vertical design with integral furnace assures rated output on any solid fuel like coal, wood & bagasse. The well-planned design of the DELTA ensures thermal expansion with low stress.

The basic advantages of the DELTA are:

- Low operating cost
- Reliable operation
- Safety against low thermic fluid flow
- Precise thermic fluid temperature Control

DELTA 4 Pass Models:

Model	Capacity (kcal/hr)
DELTA 400	4,00,000
DELTA 600	6,00,000
DELTA 800	8,00,000
DELTA 1000	10,00,000
DELTA 1500	15,00,000
DELTA 2000	20,00,000
DELTA 2500	25,00,000
DELTA 3000	30,00,000
DELTA 3500	35,00,000
DELTA 4000	40,00,000

Electric Operated Thermic Fluid Heaters

ROSS electric operated thermic fluid heaters are designed & manufactured using high quality heating elements, precise dimensions in a state of the art manufacturing facility. Our quality control guarantees highest safety and long life span.

Electrical energy offers various advantages in process heating. As the cleanest form of energy, it does not give out any emission. As there is no direct flame for heating, it can be used under difficult conditions e.g. in hazardous areas. Explosion proof units can also be supplied.



RTHE 150



RTHE 36



- Short installation time due to pre-assembled units
Depending on the overall dimensions, complete systems can be skid mounted on a base frame. Systems are factory tested for function, control and leakage. Installation and start-up time can therefore be greatly reduced.
- Low Watt density flanged electric heaters
Low watt density heaters maintain low heat flux densities. The surface area provided is generously sized to keep thermic fluid film temperatures low, which protects the thermic fluid from carbonizing.



RTHE 24 with enclosure

Oil/Gas Fired Hot Air Generators

The RAH series hot air generators are offered in vertical or horizontal designs, either as standard models or tailor-made models to match customer's specifications and applications. Designed in DIRECT and INDIRECT heating types, these systems are practically free from any maintenance and are highly efficient.

Salient features of the RAH series hot air generators are:

- Durable construction
- Easy operation and minimal maintenance
- High level of safety in operation, thus greater reliability
- Optional recirculation system to improve overall thermal efficiency
- Fully automatic burner control and temperature control



RAH 450

Units are available from capacities of 30,000 Kcal/hr to 30,00,000 Kcals/hr. Imported & indigenous burners can be supplied with various firing options like light oil, heavy oil & gas. Units can be manufactured in various materials of construction like SS. Units can be supplied with optional imported burners or ROSS burners.

Wood Fired Hot Air Generators

The RAHW series hot air generators are offered in vertical or horizontal designs, either as standard models or tailor-made models to match customer's specifications and applications.

Designed in DIRECT and INDIRECT heating types, these systems are practically free from any maintenance and are highly efficient. Units can be manufactured in SS for high temperature applications.



RAHW 200

Salient features of the RAHW series hot air generators are:

- Durable construction
- Easy operation and minimal maintenance
- High level of safety in operation, thus greater reliability
- Optional recirculation system to improve overall thermal efficiency

Edible Oil Heaters

Food processing machineries in "Fryer" category requires high temp heating of edible oil. This is usually achieved through combination of thermal oil heaters & heat exchangers. An alternative, cost-effective method is to use fully automated re-circulation type, direct edible oil heaters fitted with fuel oil or gas firing burners. These are custom-built

heaters manufactured with food grade quality stainless steel materials, pumps & other equipment. Higher thermal efficiency, better utilization of cooking oil & freedom from thermal oil contamination are some of the winning features of ROSS make edible oil heaters.

The salient features are:

- Low heat release rate
- Models available in oil / gas / solid fuel fired
- Easy to operate and maintain
- Rugged construction



REOH 100



REOH 200

Thermal Oil Heated Steam Boilers

These are custom-built media heated steam boilers, ideally suited to utilize spare heating capacity of existing thermal oil heaters, to supply or augment plant steam. Being unfired pressure vessels, these are silent, stationery boilers, easy to operate & maintain. Essentially, these are horizontal shell & tube type heat exchangers built to SIB or Class 1 IBR steam boiler codes, with the addition of feed water pump, three-way thermal oil pneumatic valve & related controls used in shell boilers. Due to large boiling water & steam storage capacity of the shell, steady dry steam generation is achieved. These are made as completely factory assembled packaged boilers, ready to install & operate with minimum efforts. RTS steam boilers are easy to maintain and operate, as fuel burning hassels are absent.



RTS 300

Calorifiers

These are conventional shell & tube heat exchangers, custom-built as per specific enquiries. In industrial & commercial applications where direct steam or hot water from boilers cannot be used, these calorifiers provide efficient & safe heat exchange to supply hot water at required temp & pressure. We also fabricate calorifiers as per designs supplied by customers.



Copper heat exchanger



8000 ltr calorifier

Fuel Oil Ring Mains & OPH Stations

These are preparatory units for combustion of heavy fuel oil in fired heaters & boilers. One of the prerequisites of efficient combustion of heavy oil is fine atomization, for which heavy oil needs to be heated & pumped at specified temp & pressure. This is achieved through the use of fuel oil ring mains & OPH stations designed & built for various firing capacities. Fuel pumps are internal gear type positive displacement pumps & pre-heaters are mostly electric.



OPH Station for 18TPH Boiler



OPH Station for 10TPH Boiler

Heat Recovery Units

Custom built economizers, steam generators, hot water generators, thermic fluid heaters & air preheaters can be offered to work on exhaust flame gases generated by diesel engines, furnaces, boilers and other fired units to meet customers specific requirement. Innovative energy efficient units

like thermosyphon, flash steam generator, evaporator & superheater can be designed to replace existing traditional systems.



Exhaust Gas Hot Air Generator



Radiators



Steam & hot water radiators are commonly used in the industry to produce clean hot air for drying applications. These heat exchangers are made compact by the use of finned tubes for enhance air-side heat transfer area. Steam or hot water is passed through the tubes & clean ambient air is passed over the fins to deliver air at required pressure and temperature. These radiator assemblies are tailor-made to meet specific process parameters.

Heating capacity, process parameters, material of construction etc. are all considered in design & fabrication of these heat exchangers to cater customer's specific requirements.

Multi-cyclone Dust Collectors



Flue gases from combustion of solid & agro-waste fuels in boiler furnaces invariably contain high level of particulate emission, depending upon fuel composition & combustion controls. The primary emission control equipment in such boilers is the Multi-cyclone dust collector. Flue gases exiting from boiler are made to pass through vertical annular space between tubes with tangential entry. Heavier soot & ash particles separate & fall down due to centrifugal action & clean flue gas are discharged from MDC exit. Ash collected at MDC bottom is discharged through manual gates or rotary air valves. Various MDC sizes are standardized as per boiler output capacities & readily available as boiler accessories.



Air & Water Pre-heaters

To improve thermal efficiency of medium to large capacity solid fuel fired boilers, the forced draft combustion air is pre-heated by the hot flue gases from boiler in large tubular heat exchangers known as air pre-heaters. This is available as a standard accessory & has to be finalized prior to order. Although additional investment & larger floor space is required for APH, the resultant fuel savings soon offset the higher cost.

Steam Pressure Reducing Stations



Standard steam boilers are usually designed & operated at 7 or 10 bar steam pressure, whereas process heating by & large requires low steam pressure of 1 to 3 bar. Economic & technical considerations necessitate operation of steam boilers at high pressure.

Low steam pressure for utility is therefore obtained through Pressure reducing stations, consisting of pressure reducing valve, isolation & bypass valves, filters & steam traps. These are available as standard boiler accessories in various sizes & both non-IBR & IBR approved versions.

Feed Water & Fuel Oil Service Tanks



Liquid fuel fired boilers require make-up & feed water tanks for normal operation. These are open-to-atmosphere tanks fitted with level indicators and various nozzles and are manufactured in standard capacities for various boiler sizes. For quick installation at site, these tanks are also available with pre-fabricated mounting structures.

De-aeration Tanks

Heating & cooling cycles require provision for expansion & contraction of heating oil, which also needs to be shielded from atmospheric oxidation & de-gradation. Vapours arising from hot oil surface being hazardous, need to be let out to atmosphere in a safe manner.

All this is achieved in a unique DE tank comprising of three functional sections - de-aeration section to remove trapped vapours from hot oil; a buffer zone to isolate hot circulating oil from the stored tank oil & the main tank body to accommodate expansion/contraction of thermal oil in circulation.



This tank also carries nozzles for topping up of thermal oil over an extended operating period, over-flow, drain nozzles & level indicator. Hot oil piping is thus simplified to a great extent by using this combination tank.



Expansion Tanks For Hot Water Generators

In pressurized hot water heating systems, circulating hot water is maintained under hydraulic pressure higher than saturation point to avoid steam formation. Further, provision has to be made to account for expansion & contraction of water mass under circulation. Both these are achieved through the use of a pressurized expansion tank, fitted with necessary valves & instruments. Expansion tank is pressurized with the help of compressed air or nitrogen at pressure corresponding to hot water outlet temperature from boiler. These tanks are made in various sizes & are available as standard accessories for Hot water generators.



Water Softeners, Filters, RO & DM Plant

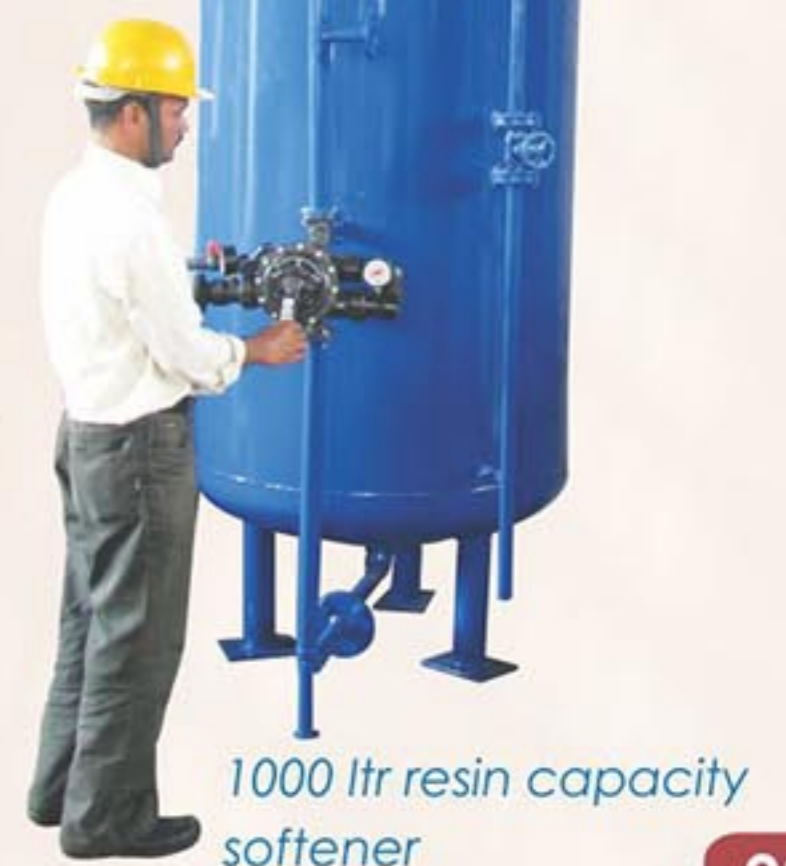
Water treatment units are manufactured as per customers specific requirements.



Softeners



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