Perfect Engineering India
(Total Water, Air, Gas and Oil Solution)

TOTAL MAINTAINCE SOLUTION

WATER, AIR, GAS & STEAM

- WTP (Water Treatment Plants)
- Chemical Treatment Plants
- Power Plants
- Cement Plant
- Thermal Power Plant
- Sugar Factory
- Steel Plant
- Ash Handing System & Coal Handling System
- Pharma
- Ship etc.

PERFECT ENGINEERING INDIA

(An ISO-9001-2015 & MSME Certified Company)

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ISO 9001:2015

MSME MICRO, SMALL & MEDIUM ENTERPRISES
सूक्ष्म, लघु एवं मध्यम उद्यम
OUR STRENGTH • हमारी शक्ति
Ministry of MSME, Govt. of India

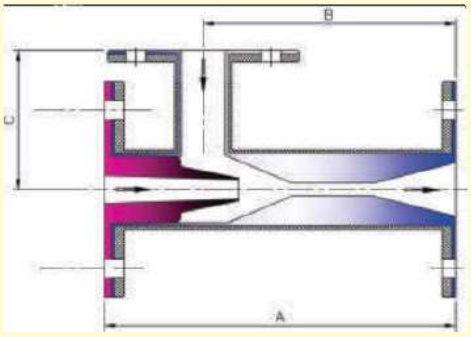
We are doing Design, Engineering, Manufacture & Supply of Water & Chemical Treatment Plants Equipments.

- DM Plant
- Softening Plant
- RO Plant
- ETP Plant
- Cooling Tower
- Sewage Treatment Plant
- Chemical Dosing System

Our Valuable Products:

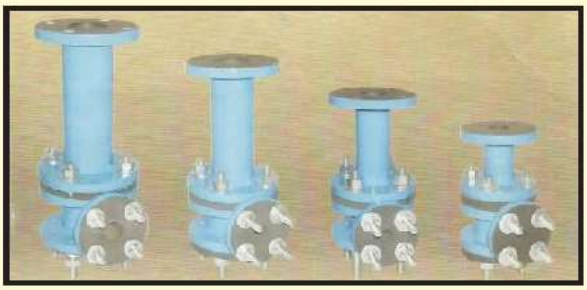
- Acid / Caustic / Brine Dosing Ejector
- Vaccum Ejectors for Liquid / Air / Steam
- Plastic Filter Nozzles / PP Strainers
- Conical Strainer / Resin Trap / Media Trap / Basket Type Strainer / Y Type Strainer / T Type Strainer etc.
- HCL Acid Fume Absorber / CO2 Absorber
- Inspection Window / Site Glass
- Tubular / Magnetic / Float & Board Level Gauges
- MSRL/MSPP/PTFE Lined Pipes & Equipments
- Vessel Internal Header / Lateral / Strainer etc.
- Industrial Valves / Diaphragm / Butterfly / Non Return Valve (Flap, Ball, Swing, Wafer Type)/ Gate / Globe / Ball Valves etc.
- Pressure Vessel & Tanks (MS/MSRL/ MSRC/FRP/PP/HDPE)
- Centrifugal Air Blower
- Cast Basalt Pipes & Equipment
- Rubber Lining / FRP Lining / Anticorrosive Tile Lining Services
- Blasting & Painting Services etc.
- Ion Exchange Resin / Filter Media
- Heat Exchanger / Cooling Coil

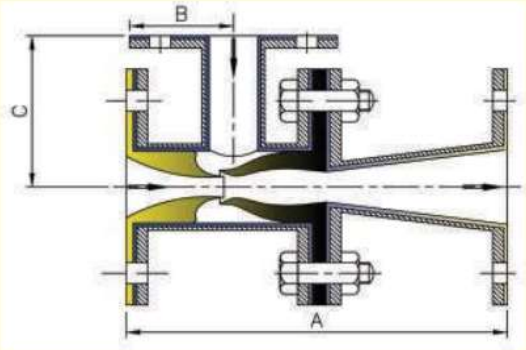
M. S. EBONITE LINED (RATIO - 1:1) VENTURY EJECTOR ASSEMBLY



Sr.No.	Ejector Model No	Nozzle Bore IN MM	Throat bore in MM	Connection in NB				A	B	C
				Power Water	Suction	Delivery	M^3/Hr			
1	PE 1126	4	10	20	20	20	1.7	103	61	63
2	PE 1136	5	12	20	25	25	2.45	163	94	87
3	PE 1146	6	16	20	33	33	4.36	208	118	89
4	PE 1156	8	20	25	40	40	6.81	262	172	89
5	PE 1166	10	23	33	40	50	9.81	293	190	102
6	PE 1176	12	33	40	50	50	17.45	319	208	111
7	PE 1186	16	40	50	80	80	27.27	366	244	127
8	PE 1196	20	48	65	80	100	39.27	394	266	127
9	PE 1107	25	64	80	100	100	69.82	450	303	127
10	PE 1127	40	95	125	150	200	157.1	773	559	152

M. S. EBONITE LINED (RATIO - 1:5) VENTURY EJECTOR ASSEMBLY





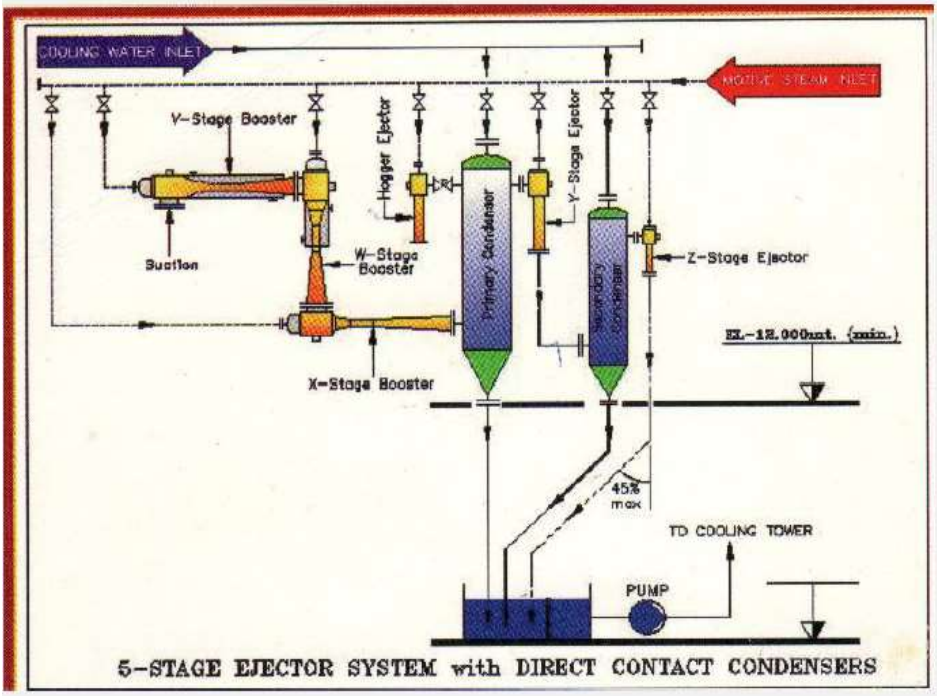
Sr.No.	Ejector Model No	Nozzle Bore IN MM	Throat bore in MM	Connection in NB				A	B	C
				Power Water	Suction	Delivery	M^3/Hr			
1	PE 1504	6	9.52	40	25	40	2.18	213	60	86
2	PE 1504	10	11.43	40	25	40	5.72	213	60	86
3	PE 1505	12	17.46	50	25	50	9.54	279	54	95
4	PE 1556	16	20	65	32	65	16.36	347	56	102
5	PE 1508	19	25.4	80	40	80	24.54	411	68	111
6	PE 15001	25	30.16	100	50	100	43.63	500	78	133
7	PE 15521	32	39.11	125	65	125	60	612	83	146
8	PE 15051	40	44.45	150	80	150	90	760	94	159

Body Material Mild steel with Ebonite Rubber Lined, Nozzle & Throat PP, (Optional HDPE, PP/FRP Lined, Stainless Steel also available)

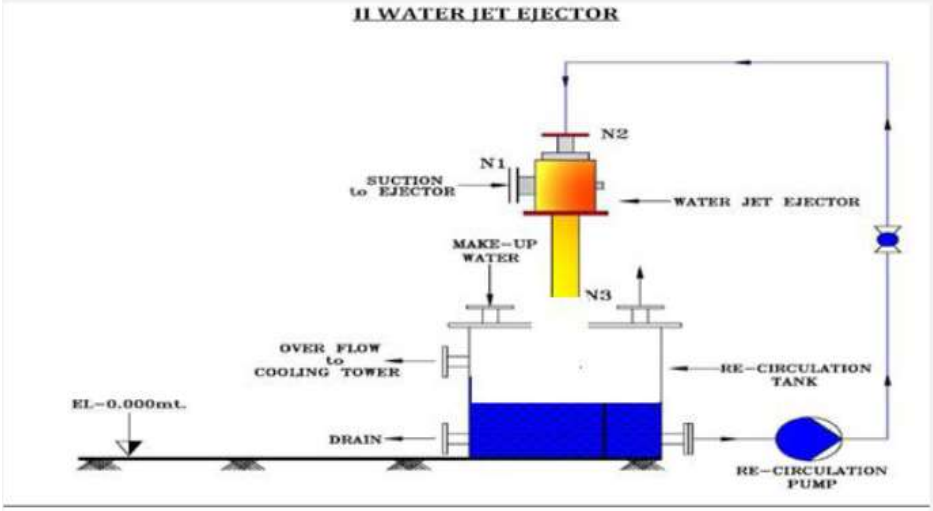
Vacuum Ejector Systems

PRINCIPLE OF STEAM JET EJECTORS: Steam jet ejectors offer a reliable & economical means for producing vacuum .In steam jet ejector ,pressure energy of motive fluid is converted into velocity energy .

The velocity energy entrains the suction fluid. This entrained mixture of motive fluid & suction fluid are discharged via convergent/divergent diffuser where its velocity energy is reconverted into pressure energy. This action makes the discharge pressure higher than suction pressure thus a steam jet ejector behaves like a compressor



WATER JET EJECTOR SYSTEMS



Installation of water jet ejector :These types of Ejector can be installed at Ground Level or at any higher elevation. They should be installed at water re-circulation tank to minimize pressure drop.

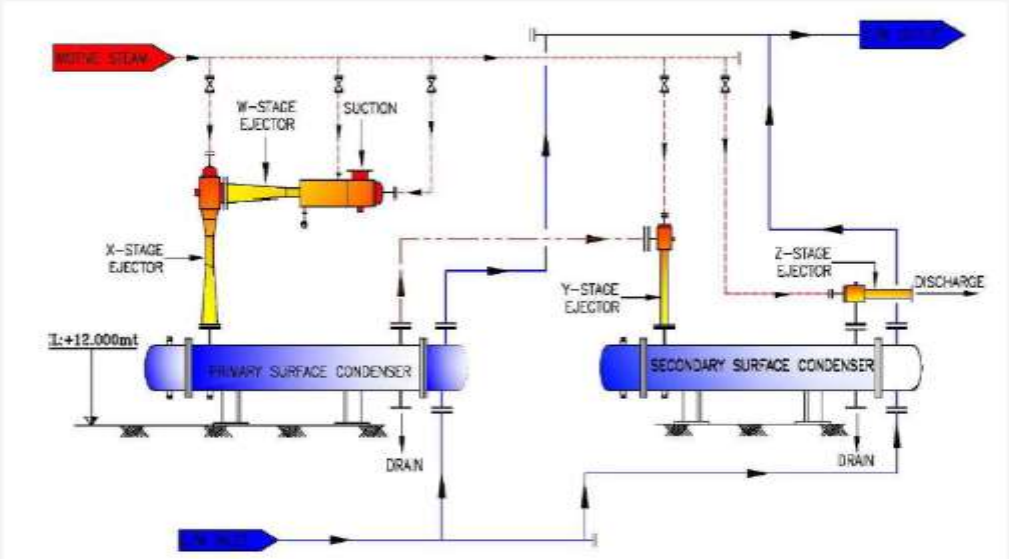
Advantages of water jet Ejector systems.

Simple Design	Reliable operation
moving parts	No lubrication
Minimal Maintenance	Self priming
Easily activity by simple turning on the flow the motive liquid	

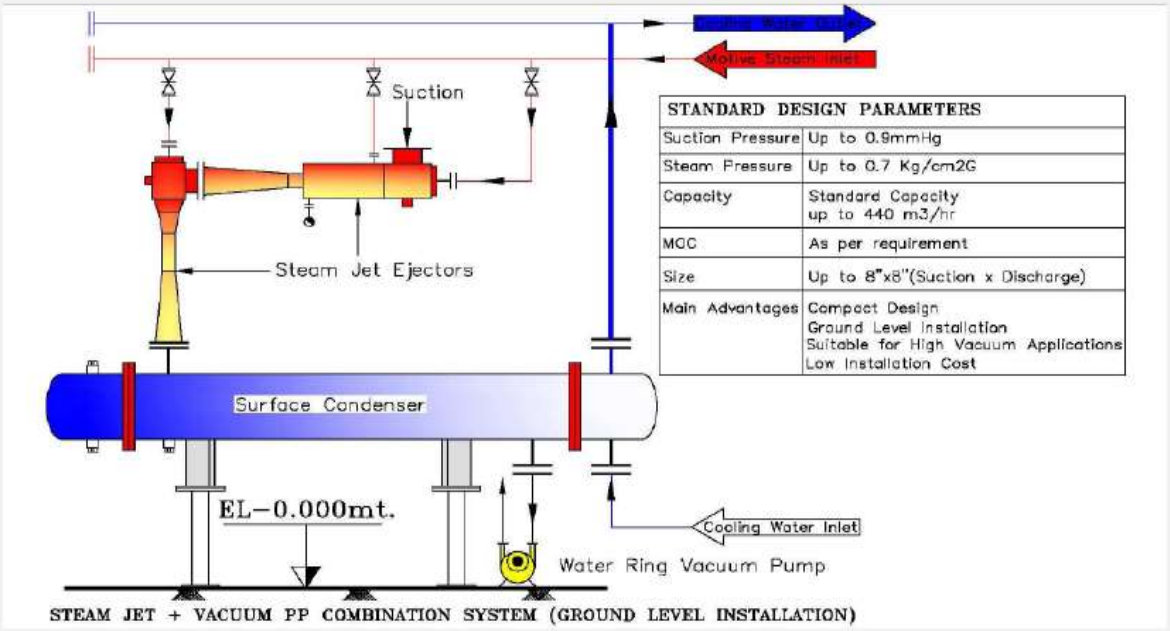
Combination Ejectors System : If these type of Ejector are combined with steam jet Ejector then it is called combination Ejector system.

- Single stage stems jet ejector followed by water jet Ejector can develop 5mm Hg of absolute suction pressure.
- Double stage steam jet Ejector followed by water can develop 1mm Hg of absolute suction pressure.This type arrangement is very cost effective as it does not require inter-condensers.

STEM JET EJECTOR WITH SURFACE CONDESER



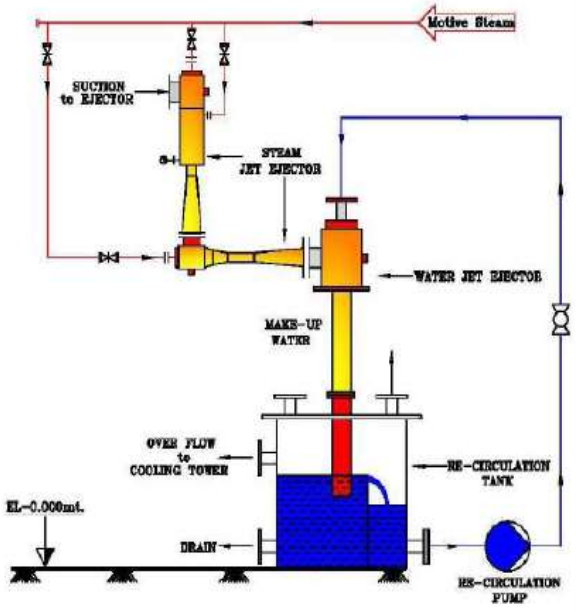
STEAM JET EJECTOR WITH WATER RING VACUUM PUMP



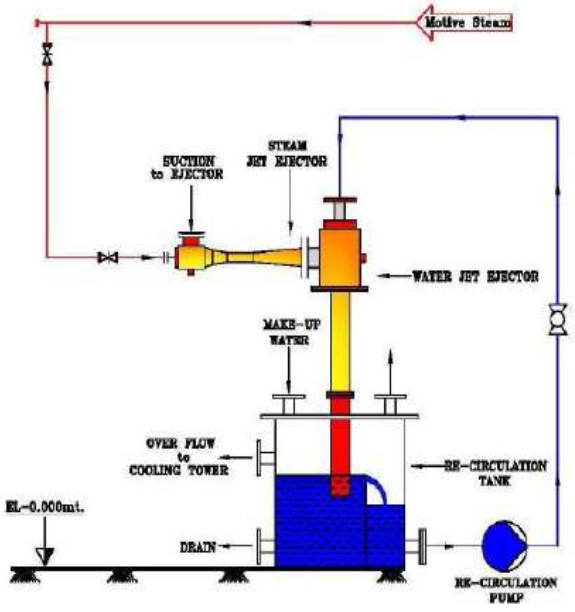
STANDARD DESIGN PARAMETERS	
Suction Pressure	Up to 0.9mmHg
Steam Pressure	Up to 0.7 Kg/cm2G
Capacity	Standard Capacity up to 440 m3/hr
MOC	As per requirement
Size	Up to 8"x8"(Suction x Discharge)
Main Advantages	Compact Design Ground Level Installation Suitable for High Vacuum Applications Low Installation Cost

STEAM JET + VACUUM PP COMBINATION SYSTEM (GROUND LEVEL INSTALLATION)

II STEAM JET EJECTOR IN COMBINATION WITH WATER JET EJECTOR



2-STAGE STEAM JET EJECTOR + WATER JET EJECTOR SYSTEM



1-STAGE STEAM JET EJECTOR + WATER JET EJECTOR SYSTEM

Product Range

- ✓ Steam Jet Ejector Systems
- ✓ Combination vacuum system (Steam Jet Ejector + Water Jet Ejector)
- ✓ Combination vacuum system (Steam Jet Ejector + Water Ring vacuum Pump)

- ✓ Liquid Jet/Water jet Ejector system
- ✓ Thermo – Compressor
- ✓ Evaporation Plants (Single Effect/Multi Effect) Crystalliser
- ✓ Stem Jet Refrigeration Plants Scrubbers

MATERIAL OF CONSTRUCTION

Cast Iron	Carbon Steel
SS-304/SS-304L/SS-304Ti	SS-316/SS-316L/SS-316Ti
Impervious Graphite	Poly Propylene (PP)
Any other customized MOC	Teflon line & Teflon bar

Vessel Internals

We are manufacturing pressure vessels internal, PVC,PP,MSRL/RC, Stainless steel etc.

- Inlet Distributor / Belmouth
- Middle Collector Header / Lateral Distributor System.
- Bottom Collector Header / Lateral Distributor System
- PVC Lateral
- PP Strainer
- Rubber Grommet
- SS316/PVC Peg
- Air Seal Pot









Plastic Filter Nozzles / PP Strainers

- Single Decker Strainer
- Double Decker Strainer
- Ring Type Strainer
- Basket Strainer
- K1 /KR1 Strainer
- C1 /CR1 Strainer
- JUV Strainer
- Strainer Lateral
- Basket Strainer / Sand Filter Nozzle
- D20 Strainer etc.

Industrial Strainers

- Conical Strainer
- Resin Trap
- Media Trap
- Basket Type Strainer
- Y Type Strainer
- T Type Strainer
- Sinter Wire Resin Trap

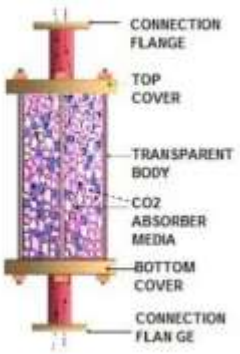
MOC: SS316 / CI / PP / PVC

HCL acid Fume Absorber / CO2 Absorber KOH Breather

We are passionately involved in offering a quality approved collection of "Perfect Engineering India" PP FRP, MSRL/RC, MSFRP HCL Acid Fume Absorber System in the market. These products are used in different places owing to their reliable performance, durable nature and long working life attributes. Our offered products are made by highly qualified professionals using advanced technology and the best quality of raw material that is procured from the most trustworthy suppliers of the market. These products are highly cherished among the patrons for its specific features and cost effectiveness.

- Features
- Reliable performance
- Low maintenance
- Long working life

CO2 absorbers contain strong bases (sodium hydroxide and potassium hydroxide) that can extract labile protons from anesthetic molecules, resulting in the production of CO. (There are new **CO2 absorbers** that do not contain KOH or NaOH, such as Absorb.



- **Tubular/Magnetic/Float & Board Level Gauges**

Level gauges are sensing and measuring instruments that are used to detect the **level** of a fluid or gas in a **tank** or similar storage container. These devices are widely used in industrial process applications and are employed to measure the fluid **levels** in drums, tanks, pressure vessels, or other similar applications.

Moc: PP/MS/CS/SS

Industrial Valves

- Diaphragm Valve
- Butterfly Valve
- Gate Valve
- Globe Valve
- Ball Valve
- Non Return Valve / Check Valve
- Rotary Airlock Valve
- PTFE Laminated Rubber Diaphragms

Moc: CI/CIRL/PTFE Lined/PP/SS304/SS316

Rubber Lining Pipes & Equipment

The process of rubber lining is divided in to the following steps.
Preparation of the base surface.
Preparation of rubber sheets.
Application of the rubber sheets on the metal surface.
VULCANIZATION
Testing & Inspection
Surface Preparation :
This is very important process for rubber lining. The surface of the METAL MUST BE FREE FROM OIL, PAINT, SCALES, RUST ETC. THIS IS GENERALLY REMOVED WITH THE HELP sand blasting/ shot blasting. After the surface is cleaned, adhesive or bonding agent is applied to surface. Two or three coats are applied, as adhesion is an important process for rubber lining.
Preparation of rubber sheets :
The rubber compound is manufactured as per the requirements after looking in to the chemical and other conditions of the process. Rubber sheets are made on calendar machine in different plies. Lining up to 6 mm thickness can be applied in single layer. If the thickness is more, it is applied in 2 or more layers. For Pipes & fittings Extruded rubber tubes are inserted in the Pipes.
Application of rubber sheets :
Un vulcanized rubber sheets, which are prepared on the machine are applied on to the adhesive coated, half dried surface under slight pressure of hand or with a metallic roll as well as with the help of various lining tools. We have to ensure that no air gets trapped between the metal surface and rubber sheet. Joints are made levels and joind with help of knurling tools.
Vulcanization :
By and large vulcanization is carried out in an auto clave. This is the process by which rubber changes from plastic state to elastic state. The temperature and pressure depend upon the rubber compound and thickness of lining. Large size equipments, which are rubber lined at site, are vulcanized BY OPEN STEAM AS WELL AS BY HOT WATER CURING, THE TEMPERATURE IS MAINTAINED TO GET THE RUBBER CURED AND FOR THIS METHOD SPECIAL COMPOUND OF RUBBER IS TO BE MANUFACTURED FOR THIS PROCESS.
Testing and Inspection :
All the rubber-lined items must be tested before and after vulcanization. This is to ensure that they are free from faults, Which might cause failure of the equipment. Visual inspection in good light is carried out to check mechanical damages blisters and poor joints. There after spark test with a high voltage is carried out to check mechanical damages, pin holes, blisters and poor joints. Hardness test is MUST for rubber lining. Knocking test is also carried out by an experienced hand with the help of Wooden hammer to check whether there is any poor bonding.
Protection of rubber lining equipments :
The vessel should be stored away from sunlight or it should BE covered by tarpaulin or some, other device. This will avoid direct sunlight, which may affect the surface due to the presence of ozone. The vessel should be filled up with water when not in use for longer period.



FRP Lined Pipes & Equipment

Fibreglass or glass-reinforced plastic is used to manufacture composites, which are widely used in the market today to replace steel, aluminium and other lower strength plastics. Composite materials find their uses in various industries, such as aerospace, automobiles, transportation, energy, infrastructure, construction, electrical insulation, telecommunication, medical equipment, and sports due to its low cost, ready availability, excellent strength, and durability.






PTFE/PFA LINED PIPES & FITTINGS

The PTFE lined pipes or the PFA lined piping and the PTFE fitting are recognized as the ideal solutions for conveying or processing highly corrosive fluids under severe conditions. The PTFE lining or the PFA liner is chemically inert and resists the majority of corrosive fluids up to 230°C.

Since 2014, Perfect Engineering India has supplied an extensive range of PTFE piping or PFA pipes and PTFE fittings to in excess of a thousand chemicals producers world wide.

Manufacturing expert in the 7 lining technologies:

Extrusion of PTFE fine powders

PFA injection

PTFE is a moulding

PP / HDPE Lining

Rubber Lining

Cast Basalt Lining

Ceramic Lining

Advantages:

High resistance to thermal shock

PTFE / PFA seamless linings

Easy installation, as no gasket required

Low natural permeability rate

Possibility for custom made pieces with complex geometry.

PP/HDPE LINED STEEL PIPES & FITTINGS

Pipe materials for pipe spools shall conform to one of the material specifications described below in accordance with the customer's piping specifications :

• Mild Steel Pipes as per IS 1239 Medium/ Heavy duty up to 150 NB & above 150 NB as per IS 3589, 5.00 MM Thick KS D3507 SPP or D3562 SPPS, ERW pipe.

• Carbon steel pipe, ASTM 53 Gr.B or ASTM A106 Gr.B ERW and seamless pipe, size from 1 to 16.

Other required pipe materials such as API pipe, stainless steel or alloy steel pipes would be available to meet service conditions and should be referred to us.

Flange Specifications : Flanges confirming to ANSI / BS10 / DIN or any other international standard will be supplied in Mild steel, Carbon steel, Stainless Steel. Standard flanges are Slip-on type and Lap-joint type flanges and will be provided if requested at the time of making an offer.

PP Liner Specifications : The polymer resin shall meet the STM Standard Specifications and our standard PP liners are un pigmented and natural white color. The colored liners are available if specially requested.

Fitting Availability : Standard fittings include 90°C Elbow, 45°C Elbow, Reducing 90°C Elbow, Equal Tees, Reducing Tees, Instrument Tees, Concentric Reducers, Eccentric Reducers, Laterals and Cross for 1" (25mm NB) through 8"(200 mm NB) diameter.

Non - standard fittings such as double and triple branch tees, other special shapes are available per the customer's requirements.

Testing and Inspection : • All lined pipe and fittings are subjected to 10-15 KV (SPARK TESTING) non-destructive electrostatic test which is carried out to detect any defects in the liner such as pin holes, porosity, cracks, etc. • According to the customer's request, hydrostatic testing will be carried out at room temperature using clean water. • All lined pipe and fittings are subjected to the visual inspection to detect any defects such as liner surface cracks, deformation, outside paint coating, etc.

Storage and Handling Requirements : • PP lined fittings shall be stored in a shaded area on wooden supports. • Wooden or plastic end protectors are used to protect the PP lined sealing faces of flanged fittings. End protectors should stay in place until immediately prior to installation. • Flange sealing surfaces shall be protected carefully and free from defects to eliminate any leakages when the lined pipe and fittings are assembled at site • Avoid dropping or impacting lined pipe and fittings with heavy objects or storing near high traffic areas.

Cast Basalt Lined Pipes & Equipment

What is Cast Basalt

Cast Basalt is a mineral of exceptionally high abrasion resistance, unlimted resistance to moisture, high compressive strength and resistance to virtually all acids and alkalis and is completely corrosion free.Cast basalt is produced by melting selected natural basalt broken into sizes of 20-50 mm in shaft furnaces at tempreatures around 1,300C, following by casting at which the metled basalt forms uniforms pherolithic crystals hence producing its typical physical propertics, in particular its exceptional hardness and wear-resitance.

Cast basalt reaches a value of hardness of 8(min) on the Moh's hardness scale. for comparision : the highest value10is only attained by dimonds. by virtue of these properties,the silicate cast basalt provides outstanding protection against abrasion and scrubbing.

however, it is marked by asertain sensitivity ti impacts.Under Normal services conditions, cast basalt withstands tempratures up to approx.+ 350C or-40C. However Cast basalt sholud not be subjected ti temprature shocks.

Sizes : Cast basalt produces are manufactured as tiles, from pieces and segments. straight pipes are spun-cast, available for nominal bores of 32 to 600 mm with the wall thickness ranging from 20 to 30mm and a standard lenght of 500mm.samller nominal bores of straight pipes, pipe segment for radill of 40 to 3,000mm of vatrious angles, as well as special formpiece linings are pre dominately sand-cast. The standard wall-thickness is 20mm. depending on the respective quantity, steel moulds can also be used, the wall thickness in those cases usually being 30 to 40mm.

- **Ceramic Lined Pipes & Equipment**

Hard & Compact Smooth & Inner Withstands High-Abrasion & Corrosion In any of the process industries especially Sled and Cement corrosion and abrasion lead to ignificant downtime of the plant. Further, the useful life or the equipment itself may get impaired because of the high abrasive nature of the materials being used. Thus, 'wear mechanism' results in hutdown, replacement, etc., which is costly, resulting in loss to tilt: tunc of mi llions of rupees.

Characteristics :

- High resistance to all types of chemicals.
- High resistant to sliding abrasion.
- Non weltnhility & smooth surface results ill easy How of materials.
- Can With standard temperature up to 200 C.
- Smooth Surface and resistant to abrasion & corrosion.

Centrifugal Air Blower/Root Air Blower

Centrifugal Blower:

Centrifugal Blowers, are used for numerous industrial applications including: aeration, air bars/formers, air bearings, air conveying, air injection, air knives, air scrubbers, air tables, combustion air, cooling, environmental test chambers, exhaust emission testing, flow benches, fluidized beds, gas boosting, gas exhausting, inflation air, vacuum collection, vacuum hold-down and vacuum pick-up.

Root Lobe Air Blower:

To serve the requisite requirements of our precious customers, we are engaged in providing a qualitative range of **Lobe Roots Blower**. Other details alloy steel hardened and ground timing gears anti-friction bearings Rotary oil sealing rigid one piece CI casing and side plates easy rotor timing setting alloy steel toughened shafts ground to close tolerances.

Heat Exchanger / Transformer Radiator

Shell & Tube Heat Exchanger:

Our shell and tube heat exchangers are used in many comfort and industry applications for heating and cooling fluids. They consist of a shell with traditional plain tubes or enhanced surface tubes for high thermal performance. The fluids can be liquids or gases, one of which flows inside the tubes while the other flows outside the tubes within the shell. There are single-phase or two-phase heat exchangers, and the latter is used to either boil or condense fluids.

Fin Tube Type Radiators:

The obvious advantage of Air cooled fluid cooler is that it does not require any water after its first charge. This is completely a closed circuit system. The hot fluid (water) from the source is made to pass through finned surface heat transfer coils & using the heat is rejected to ambient air passing through coils using axial fans.

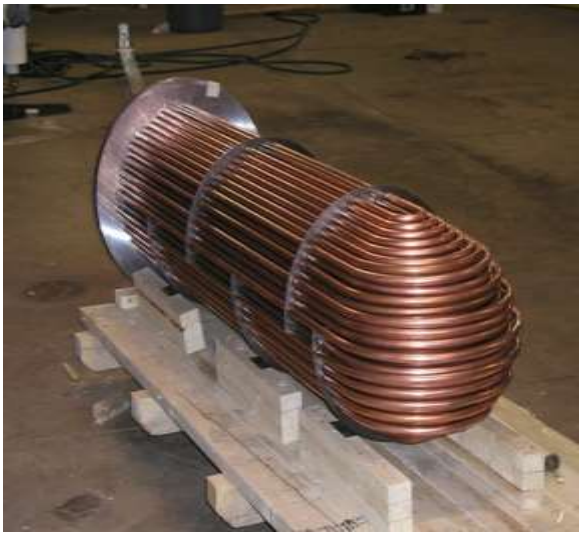
Advantages :

Cooling media is only free air.
100 % water saving-Does not require water after its first charge.
Water treatment plants and chemicals not required.
Does not require any tube well boring.
No problem of scale formation.
No dreation of DG set due to scale formation.
Cooling Tower and Shell & Tube Heat Exchangers are not required.
Raw water pump is not required.
Substantial energy saving during mild weather conditions.
No fear of air contamination or pollution.
Total Maintenance free system.
No Engine downtime for maintenance.

Transformer Radiator:

A transformer is a static machine used for transforming power from one circuit to another without changing frequency.

Radiators are used in a transformer to cool the transformer oil through natural air or forced air flowing in these radiator fins. As the transformer oil temperature goes down due to cooling it goes to the transformer tank from bottom ,cool the windings and gets heated, and then returns to the radiator for next cooling .This cycle repeats as the oil flow is also natural due difference in temperature of oil on bottom and top.In big power transformers this oil circulation is forced by oil pumps for effective cooling.



Ion Exchange Resin

We are the leading Manufacturer & Supply of an excellent quality range of Ion Exchange Resin.

What are ion exchange resins?

IX resins are materials that facilitate IX reactions. They are composed of polymer matrices to which ionic "functional groups" of either positively-charged ions (cations) or negatively-charged ions (anions) are permanently bound. Some specialty resins have both types of functionality. These functional groups have a net negative or positive charge that allows them to readily attract counter ions, or ions of an opposing charge. As a liquid stream flows through the IX resin, the counter ions can be replaced by ions of a similar charge.

Broadly speaking, **resins are named for the type of ions they exchange,** meaning that cationic resins exchange positively charged ions, while anionic resins exchange negatively charged ions and include:

- Strong acid cation resins
- Weak acid cation resins
- Strong base anion resins
- Weak base anion resins
- Specialty resins