

## Infrastructure

### Assembly



Assembly of the units is done in our well-equipped assembly department by skilled fitters under direct supervision of qualified staff following the G.A. Drawings given to the customers.

### CNC Drilling



Since accurately drilled blocks are a key in making block type heat exchangers, in Graphicarb we carry this operation on a specially designed multi spindle CNC drilling machine.

### Raw Material Stock



Adequate inventory of graphite raw material is the strength of our company. We maintain carefully planned cycle stock and a generously decided safety stock to avoid loss of production arising due to external factors.

### Transportation



Transportation of the units is best if sent to the destination in a separate vehicle. We also have a team of transporters with the drivers trained to carry the Graphite products for a safe movement.

### Inspection



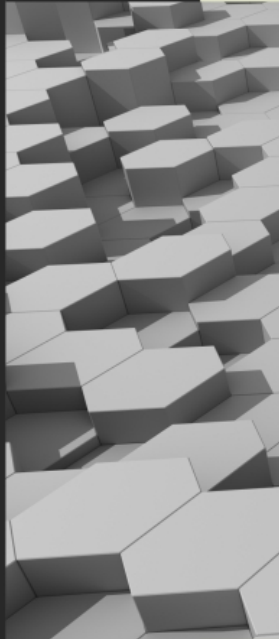
To Accomplish A Job That Meets The Quality Policy, We Carry Out Inspection At Every Stage With Suitable And Calibrated Instruments And Equipments By Skilled Employees.

### Packing



Proper packing is essential for safe transportation of unit to the destination and till commissioning. Our units are supplied all over India as well as abroad safely packed assuring shield of every critical preventing damage during loading, transportation and unloading. If required we also pack the units in wooden boxes for Exports or when ever necessary in India.

**GRAPHICARB  
PRODUCTS**  
AN ISO 9001-2008 COMPANY



## Product Range

- GRAPHITE BLOCK TYPE HEAT EXCHANGERS
- GRAPHITE CONDENSERS
- GRAPHITE FALLING FILM HCL ABSORBERS
- GRAPHITE SULPHURIC ACID DILUTION UNITS
- GRAPHITE VACUUM SYSTEM
- GRAPHITE EJECTORS
- GRAPHITE SPARES FOR HCL SYNTHESIS FURNACE
- GRAPHITE TILES
- GRAPHITE TUBES
- GRAPHITE WIPERS
- GRAPHITE RODS
- GRAPHITE PLATES
- CARBON-GRAPHITE RASCHIG RINGS

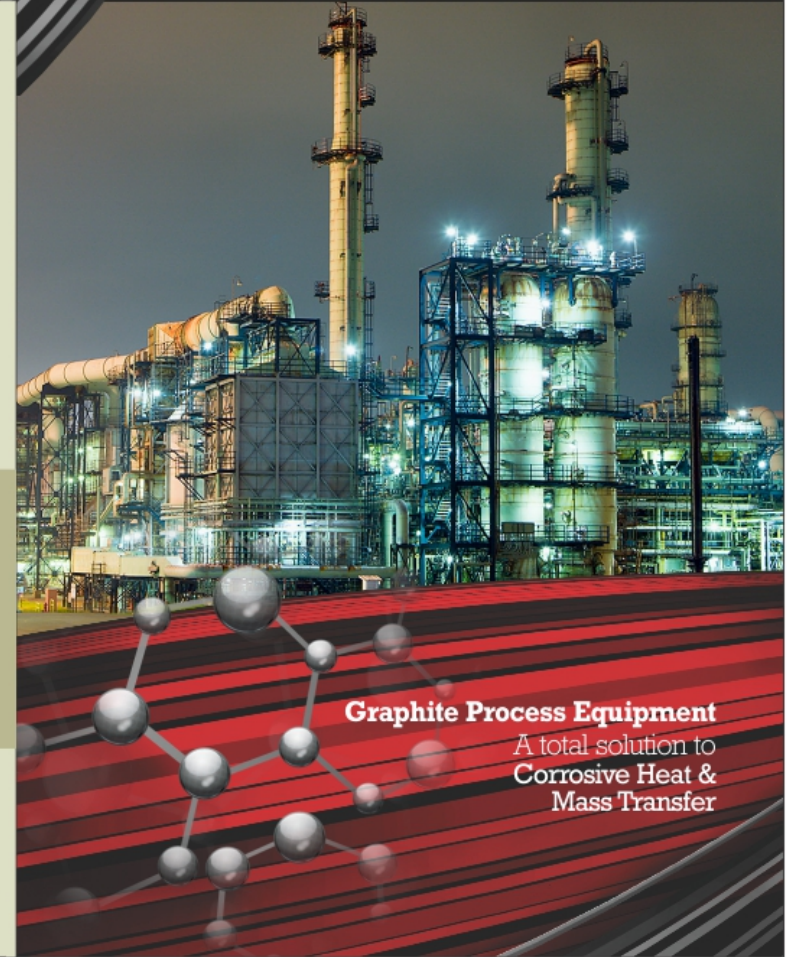
### Manufacturing Plant & Regd. Office



**GRAPHICARB  
PRODUCTS**  
AN ISO 9001-2008 COMPANY

49/50, Abad Ind. Estate, Opp. Kashiram Textile Mill,  
Narol, Ahmedabad-382 405 (Gujarat) India  
Tel. : +91-79-25390773, 25395880 Telefax : +91-79-25395880  
E-mail : gujcarbon@hotmail.com  
[www.graphicarb.com](http://www.graphicarb.com)

**GRAPHICARB  
PRODUCTS**  
AN ISO 9001-2008 COMPANY



**Graphite Process Equipment**  
A total solution to  
Corrosive Heat &  
Mass Transfer

**GRAPHICARB  
PRODUCTS**  
AN ISO 9001-2008 COMPANY

## About Us

Established in the year 1995, we, 'Graphicarb Products', are an ISO 9001:2008 certified manufacturer, exporter and supplier of a wide range of Graphite Process Equipment. The range offered by us includes Graphite Reboilers, Graphite Ejector, Graphite Vacuum System, Graphite Tubes, Graphite Coolers and Graphite Tiles, to name a few. Manufactured using superior quality raw material and advanced technology, these products are known for their corrosion thermal shock resistance, strong construction and low maintenance.

Since establishment, we, 'Graphicarb Products', is one of the eminent manufacturers, exporters and suppliers of Graphite Process Equipments. Our organization is driven towards providing total solutions in areas like impervious graphite equipments, corrosive heat and mass transfer and graphite process equipments for chemical and mechanical engineers. These products are acknowledged for their quality and performance.

We have a team of experienced and technical professionals, under whose supervision our products are manufactured. These dedicated professionals helps us in manufacturing our range as per the client's requirements in order to attain maximum client's satisfaction. Further, we are facilitated with manufacturing unit which is spread over a wide area. Our manufacturing unit is equipped with technologically advanced machines which helps in producing quality products.

Under the able guidance of our mentor, we have become a leading manufacturer and supplier of graphite process equipments. His valuable experience and knowledge has made us to gain a good reputation in the market and also helped us in gaining a huge and strong client base.



## Quality Policy

We are committed to achieve customer satisfaction and confidence in our product and organization through: Product quality at competitive price, Timely supply and assurance for product quality, New product development. We are also committed to comply with requirements of ISO 9001-2008 and continually improve the effectiveness of its quality management systems.



## Graphite has Wide Application in Chemical Industries



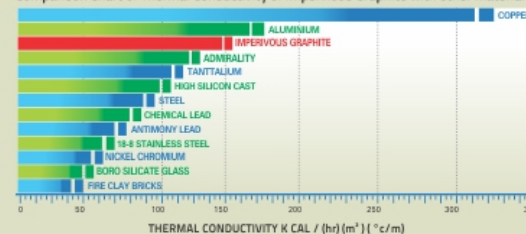
### In the Inorganic Industry

For the treatment of strong acids (phosphoric, sulphuric and hydrochloric acids) corrosive salts in treating minerals acid process.

### In the Organic Industry

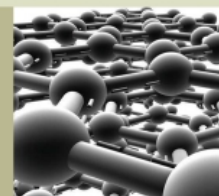
For Manufacturing of halogenated products, strong acids, pesticides, artificial and pharmaceutical products.

### Comparison Chart of Thermal Conductivity of Impervious Graphite with other material



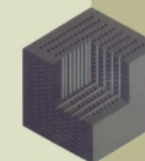
### Physical Properties of Impervious Graphite

Density (gm/cc)	1.8 - 1.9
Flexural Strength (kg/sq.cm²)	270-300
Compressive Strength (kg/sq.cm²)	800-1000
Thermal Conductivity (kcal/mhr°C)	100
Working Temperature (°C)	180



### Models Of Impervious Graphite Cubical Blocks

Models	Process Side		Service Side		Surface Area
	Hole (mm)	No. of Hole	Hole (mm)	No. of Hole	
GP-1	18	60	9	105	1
GP-2	18	104	9	162	2
GP-3	18	126	9	210	2.85



### Corrosion Resistance

Hydrochloric Acid

Sulphuric Acid

Hydrofluoric Acid

Phosphoric Acid

Hydrobromic Acid

Acetic Acid

(Mono-Di-Tri)

Chloroacetic Acid

Carbon Tetrachloride

Tri & Perchloro

Ethylene

Benzene &

Its Derivatives

Ethyl &

Methyl Chlorides

Sodium Chloride

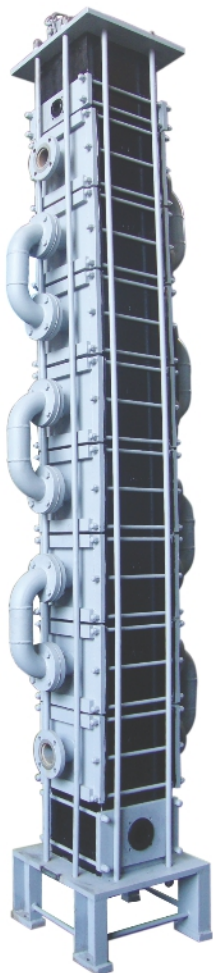
Ferric Chloride

Sulfuric Hydrochloride

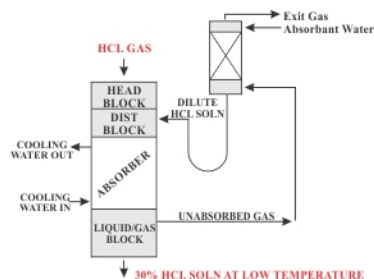
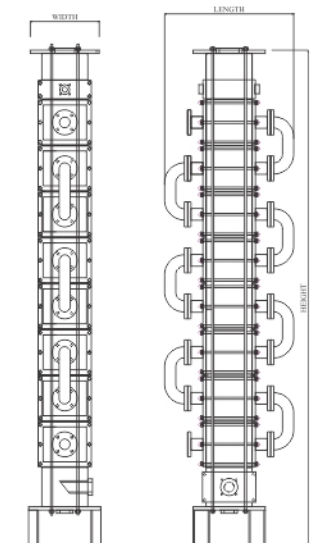
- The Corrosion Resistance Chart has been Condensed but it remains Unlimited.
- Tests Samples can be supplied Free of Charges on Demand



## Absorber



• A Typical Graphite Falling Film Absorber  
Surface Area 16m<sup>2</sup>



Chemical Reaction giving out HCL gas are common in chemical Industry. The absorbers of this gas and concentrating it to HCL solution gives benefits of meeting Environment Protection Standards and recovery benefits. But Solution of Hydrochloric Acid in water liberates important quantity of heat (approx. 450 Kcal/kg of heat generated for HCL gas).

## Absorber

We offer a wide range of graphite absorbers which are used in various chemical industries and are in compliance with various Environment Protection Standards and Recovery Benefits. It is manufactured using superior quality material and is durable, highly efficient, thermal shock resistant and corrosion resistant. Available in different models and specifications, it can also be custom designed as per the specifications provided by client.

Chemical reaction giving out HCL gas are common in chemical industry. Absorption of this gas and concentrating it to HCL solution gives benefits of meeting environment protection standards and recovery benefits. But solution of hydrochloric acid in water liberates important quantity of heat (approx 450 kcal / kg of gas absorbed)

**Efficiency of hydrochloric acid manufacture is therefore, a function of following three principal factors.**

### 1. Operation film wise distribution of absorbent

Water to be absorbed is uniformly distributed over the upper face of first process block by a special distributor block provided at the top of the column.

The absorbent descends as thin, absolutely uniform film down the passages of first block and collection the upper surface of the next block where it is again redistributed. This is repeated at every subsequent block, until the absorbent is discharged through the lower end of the column, this ensures perfect redistribution of the absorbent film at every block interface breaking up therefore breaking of the film (as happens in straight tubular passages) is impossible. This system ensures perfect distribution and correspondingly provides highest efficiency.

### 2. Gas turbulence

The gas to be absorbed is alternately compressed and expanded and so kept in a highly turbulent state. Consequently, the gas molecule impinge with great energy on the absorbent film, producing highest absorption efficiency.

### 3. Cooling

Taking full advantage of excellent thermal conductivity of graphite, highest heat exchange efficiency is obtained and reacting fluids in the process passages are maintained at lowest temperature.

### Result

By using falling film absorber one can get 30% HCL soln in single pass at low temperature. Achieving absorbed gas efficiency as high as 85% to 90% thus minimizing pumping cost, this system is more efficient as compared to H. D. P. E. Packed column.

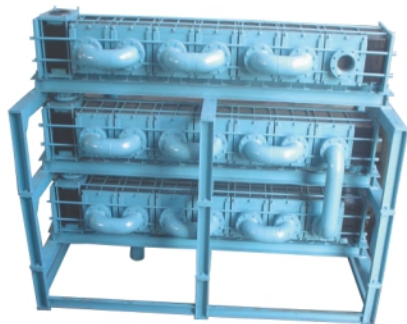
### Salient Features of Our HCL Absorbers

- Made of Impervious Graphite.
- Falling film type.
- Absorbs gas and converts it directly into 30% HCL Solution at low temperature.
- Multiple blocks mounted one on another makes it possible to increase surface area of the equipments up to 30 meter square.
- Consist of Entry Graphite Chamber, Distribution block, Multiple Process blocks and Exit Graphite Chamber.
- Simple robust and easy to install tough construction.
- Multiple passes can be provided on service sides.
- Graphite has high compressive strength so metal plate apply compressive load on graphite
- Simple design and easy dismantling as compared to circular blocks.
- Flexibility of adding more blocks to increase heat transfer area.
- Easy cleaning because of short channels.
- Short channel lengths increases turbulence as a result avoids frequent deposits or fouling as compared to shell & tube type heat exchanges of same dimensions, cubical block type heat exchanger provides 2 to 5 times more heat transfer.
- Working conditions: Upto 5kg / cm<sup>2</sup> pressure.
- Resistant to thermal shock.

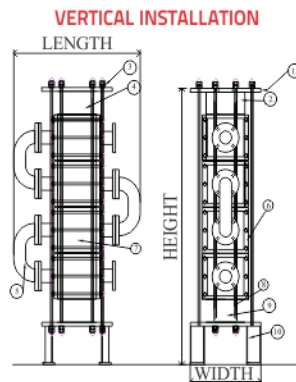
DETAILS OF STANDARD CUBICAL BLOCKS USED IN MAKING OF GRAPHITE HEAT EXCHANGERS, CONDENSERS, ABSORBERS, REBOILERS AND COOLERS

MODEL	SIZE (mm)	HOLE DIA ON PROCESS SIDE (MM)	NUMBER OF HOLES ON PROCESS SIDE	HOLE DIA ON SERVICE SIDE (mm)	NUMBER OF HOLES ON SERVICE SIDE	SURFACE AREA ON PROCESS SIDE (m <sup>2</sup> /BLOCK)	SURFACE AREA ON SERVICE SIDE (m <sup>2</sup> /BLOCK)
GP1	275 X 275 X 300	18	60	9	105	1	1
GP2	350 X 350 X 350	18	104	9	162	2	2
GP3	400 X 400 X 400	18	126	9	210	2.85	2.85

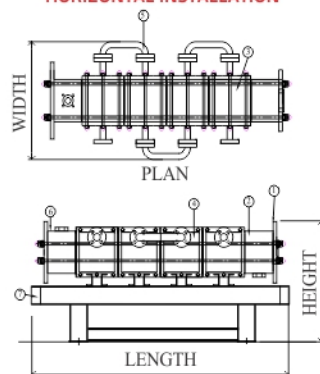
## Graphite Heat Exchanger



• A Typical Graphite Cooler of Surface Area 60m<sup>2</sup>



### HORIZONTAL INSTALLATION



• A Typical Graphite Condenser of Surface Area 11.4m<sup>2</sup>

## Graphite Heat Exchanger



• Graphite Reboilers

that can handle corrosive fluid on both service as well as process side. Available in different shapes and sizes, these reboilers are used in multiple effect evaporators. We also consider the specifications provided by client regarding the shapes and loading conditions.

Graphite coolers or heat exchangers consist of a blocks drilled on two sides. One side of these blocks contains the fluid that must be either heated or cooled. The second side contains coolant or the heating medium so that it can either provide the heat required or absorb the heat from the process media through high thermal conductive Graphite blocks. Block type heat exchangers are typically used for high-pressure This is because the block type heat exchangers are robust due to their shape and strength.

There are several thermal design features that are to be taken into account when selecting coolers or heat exchangers like:

- Horizontal designs
- Vertical designs
- Capable of handling heating utility medium as steam, heat transfer oil or other mediums.
- Capable of handling cooling medium as water or even brine.

### Salient Features

- Cubical Block type, Simple Robust And Easy To Install Tough Construction
- Consists of Entry chamber, Multiple process blocks and Exit chamber all made of Impervious Graphite.
- Simple Design And Easy Dismantling As Compared To Circular Blocks
- Resistant To Thermal Shock
- Multiple Passes Can Be Provided On Service As Well As Process Sides
- Flexibility Of Adding More Blocks To Increase Heat Transfer Area
- For connection nozzles, Metal Plate Apply Compressive Load On Graphite, As Graphite Has High Compressive Strength thus prevents connection nipples from easy breakages.
- Easy Cleaning Because Of Short Channels
- Short Channel Lengths Increases Turbulence As A Result Avoids Frequent Deposits or Fouling As Compared To Shell & Tube Type Heat Exchanges Of Same Dimensions, Cubical Block Type Heat Exchanger Provides 2 To 5 Times More Heat Transfer.
- Can Be Provided Vertically In Case Of Falling Film Absorbers And Horizontal When Reflux System Are To Be Provided In Condensers.
- Working Condition: Full Vacuum To 5kg / Cm<sup>2</sup> Pressure
- For client's benefit, we also offer erection and commissioning services.

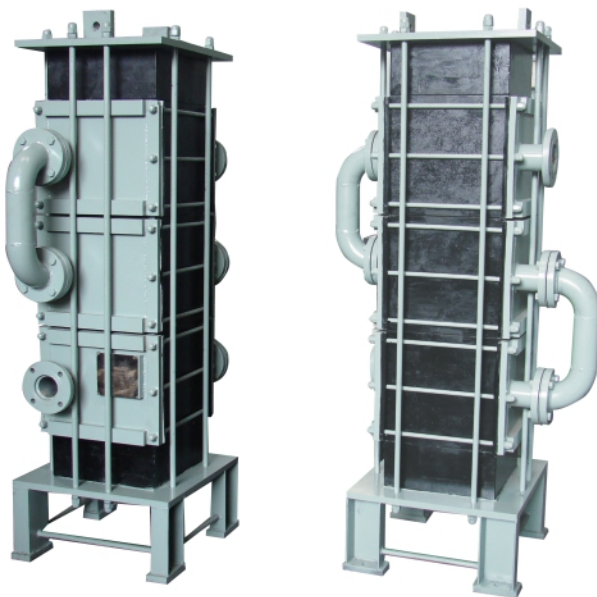
### Packaging Details :

Carat Packing, Box packing or loose supply in separate vehicle.

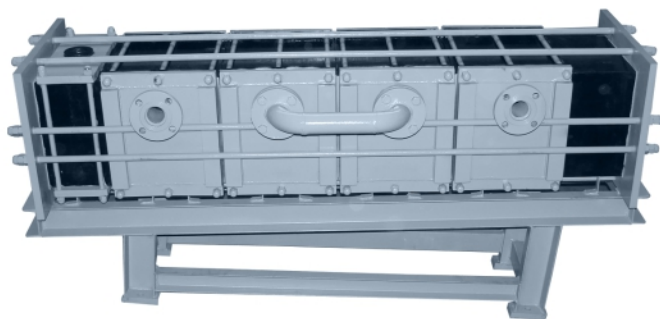
DETAILS OF STANDARD CUBICAL BLOCKS USED IN MAKING OF GRAPHITE HEAT EXCHANGERS, CONDENSERS, ABSORBERS, REBOILERS AND COOLERS						
MODEL	SIZE (mm)	HOLE DIA ON PROCESS SIDE (MM)	NUMBER OF HOLES ON PROCESS SIDE	HOLE DIA ON SERVICE SIDE (mm)	NUMBER OF HOLES ON SERVICE SIDE	SURFACE AREA ON PROCESS SIDE (m <sup>2</sup> /BLOCK)
GP1	275 X 275 X 300	18	60	9	105	1
GP2	350 X 350 X 350	18	104	9	162	2
GP3	400 X 400 X 400	18	126	9	210	2.85



## Graphite Condenser



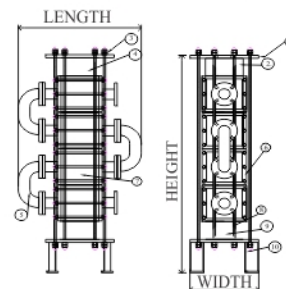
• A Typical Vertical Graphite Condenser



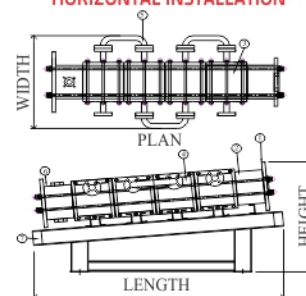
• A Typical Reflux Graphite Condenser Horizontally Inclined Surface Area 11.4 m<sup>2</sup>

## Graphite Condenser

### VERTICAL INSTALLATION



### HORIZONTAL INSTALLATION



A properly designed Graphite Condenser between the process and vacuum producing equipment will yield significant advantages. The use of a process vacuum condenser can permit significant reduction in the size of the vacuum producing equipment. A condenser can recover for reuse valuable product that's carried from the process with non-condensable gases. It can reduce the amount of wastes produced by the vacuum system and lower the process operating cost. Graphicarb Graphite Process Condensers can be designed for surface type, mounted horizontally or vertically, freeze condensation or conventional condensation type.

Matching the Process Vacuum Condenser with vacuum producing equipment is the best way to meet the process objectives. Graphicarb manufactures both the Process Condenser and the vacuum producing equipment.

### Salient Features

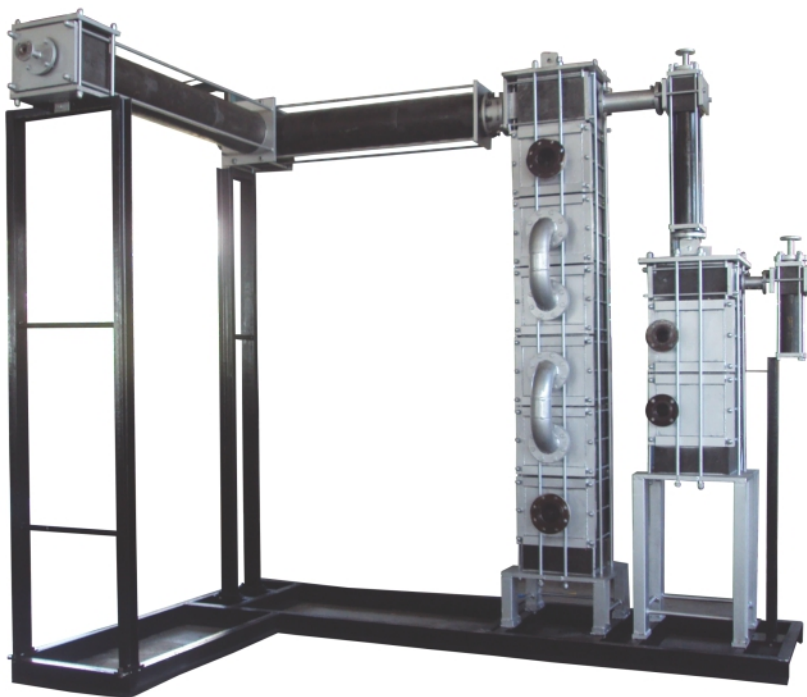
- Cubical block type, simple robust and easy to install tough construction
- Consists of entry chamber, multiple process blocks and exit chamber all made of impervious graphite.
- Simple design and easy dismantling as compared to circular blocks
- Resistant to thermal shock
- Multiple passes can be provided on service as well as process sides
- Flexibility of adding more blocks to increase heat transfer area
- For connection nozzles, metal plate apply compressive load on graphite, as graphite has high compressive strength thus prevents connection nipples from easy breakages.
- Easy cleaning because of short channels
- Short channel lengths increases turbulence as a result avoids frequent deposits or fouling as compared to shell & tube type heat exchanges of same dimensions, cubical block type heat exchanger provides 2 to 5 times more heat transfer.
- Can be provided vertically in case of falling film absorbers and horizontal when reflux system are to be provided in condensers.
- Working condition full vacuum to 5kg / cm<sup>2</sup> pressure.
- For client's benefit, we also offer erection and commissioning services.

### Packaging Details :

Carat Packing, Box packing or loose supply in separate vehicle.

DETAILS OF STANDARD CUBICAL BLOCKS USED IN MAKING OF GRAPHITE HEAT EXCHANGERS, CONDENSERS, ABSORBERS, REBOILERS AND COOLERS						
MODEL	SIZE (mm)	HOLE DIA ON PROCESS SIDE (mm)	NUMBER OF HOLES ON PROCESS SIDE	HOLE DIA ON SERVICE SIDE (mm)	NUMBER OF HOLES ON SERVICE SIDE	SURFACE AREA ON PROCESS SIDE (m <sup>2</sup> /BLOCK)
GP1	275 X 275 X 300	18	60	9	105	1
GP2	350 X 350 X 350	18	104	9	162	2
GP3	400 X 400 X 400	18	126	9	210	2.85

## Graphite Vacuum System



▪ A Typical Skid Mounted Four Stage Vacuum System Capacity : 1 Torr

## Graphite Vacuum System

### Single Stage Vacuum System

Complete skid mounted vacuum system is a combination of Steam Jet Ejector, Condenser and Internal piping all of Graphite. In Steam Jet Ejector which is based on the ejector-venturi principle, steam issuing through an expanding nozzle has its pressure energy converted to velocity energy. A vacuum is created and the high velocity of steam entrains air or gas and the mixture of gas and steam enters the converging end of the venturi, passes through the diffuser where its velocity energy is converted into pressure sufficient discharge against a predetermined back pressure. This combination is introduced in a Condenser made of Graphite and maximum vapor is condensed and is let out of the condenser unit through outlet connection provided. All the vapors are condensed into its liquid stage and what leaves the system is just Pure Air having vapors in PPM.

### Multiple stage vacuum system

Staging of ejectors becomes necessary for economical operation as the absolute suction pressure decreases. Based upon the use of auxiliary equipment, two and three-stage ejectors can either be condensing or non-condensing types.

### Two-Stage Steam Jet Ejector Principle of Operation

Two-Stage Steam Jet Ejectors have the same general field of application as the single stage units. They handle both condensable and non condensable gases or vapors, as well as mixtures of the two. The general operating range is between 5" Hg. abs. and 3 mm Hg. abs.

### Three-Stage Steam Jet Ejector Principle of Operation

Three-Stage Ejectors are recommended for applications where a two-Stage unit will not provide low enough suction pressure economically. Applicable range is from 26 mm Hg. abs. to 0.8 mm Hg. abs. Three-Stage Condensing Steam Jet Ejectors consist of a booster ejector, a condenser, and a Two-Stage Ejector consisting of a high-vacuum ejector, inter-condenser, and low vacuum ejector. In some applications another condenser (after-condenser) can be used at the low vacuum ejector discharge.

This way, through multiple stages vacuum system, All the vapors are condensed into its liquid stage and what leaves the system is just Pure Air having vapors in PPM.

### Salient Features

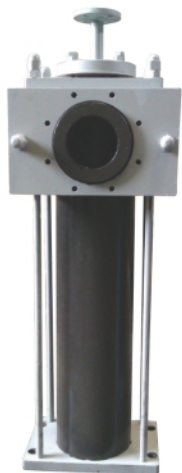
- Consist of Graphite Ejectors, Efficient Graphite condensers and Graphite inter-connecting piping.
- Low steam consumption
- Ejector Sizes range from 25NB to 300NB
- Capable of creating Vacuum upto 0.5 torr.
- Can be supplied as single stage, two stage and three stage.

### Applications

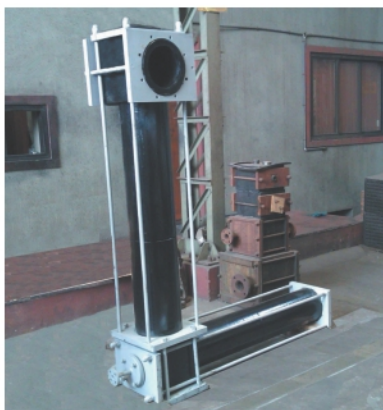
- De-carbonating brewery water.
- Creating chemical process vacuums.
- Water treating by degasifying.
- Perfume concentration.
- Distillation.
- Impervious Graphite is the material which can handle highly corrosive vapors received from the reactors.

DETAILS OF STANDARD CUBICAL BLOCKS USED IN MAKING OF GRAPHITE HEAT EXCHANGERS, CONDENSERS, ABSORBERS, REBOILERS AND COOLERS						
MODEL	SIZE (mm)	HOLE DIA ON PROCESS SIDE (MM)	NUMBER OF HOLES ON PROCESS SIDE	HOLE DIA ON SERVICE SIDE (mm)	NUMBER OF HOLES ON SERVICE SIDE	SURFACE AREA ON PROCESS SIDE (m <sup>2</sup> /BLOCK)
GP1	275 X 275 X 300	18	60	9	105	1
GP2	350 X 350 X 350	18	104	9	162	2
GP3	400 X 400 X 400	18	126	9	210	2.85

## Graphite Ejectors

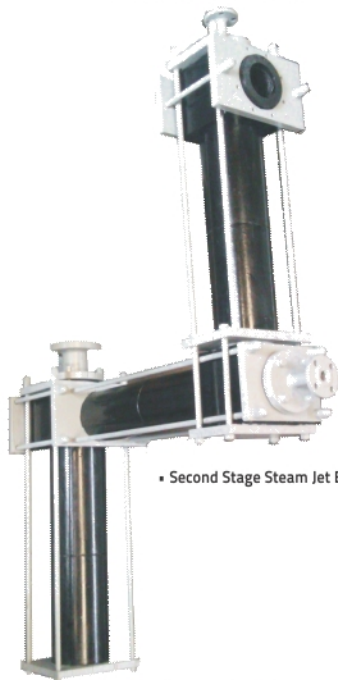


• Graphite Ejector Single Stage



• Graphite Ejector Two Stage

• First Stage Steam Jet Ejector



• Second Stage Steam Jet Ejector

• Third Stage Liquid Jet Ejector

• Graphite Ejector Three Stage

## Graphite Ejectors

### Graphite Ejector Single Stage

A wide range of graphite ejector offered by us is the combination of water jet ejector and steam jet ejector. These ejectors are acknowledged for handling highly corrosive vapors and fluids and saves energy. These precision engineered ejectors are high in quality, maintenance free and thermal shock resistant. These find their applications in bulk drugs, agrochemicals and allied industries and can also be customized as per the requirements of clients.

### Multi-Stage Steam Jet Ejectors

Staging of ejectors becomes necessary for economical operation as the absolute suction pressure decreases. Based upon the use of auxiliary equipment, two and three-stage ejectors can either be condensing or non-condensing types. Single-Stage Steam Jet Ejectors are based on the ejector-venturi principle. In operation, steam issuing through an expanding nozzle has its pressure energy converted to velocity energy. A vacuum is created and the high velocity of steam entrains air or gas and the mixture of gas and steam enters the converging end of the venturi, passes through the diffuser where its velocity energy is converted into pressure sufficient to discharge against a predetermined back pressure.

### Liquid Ejectors (Exhausters) - Vacuum and Scrubbing

For batch plant applications requiring coarse vacuum, low level installation and inline scrubbing. With the liquid recirculating pump being the only moving part the Liquid Jet Exhauster System is simple to maintain and reliable to operate.

The ability to produce vacuum and simultaneously scrub entrained gases before discharge to atmosphere, makes the system ideal for contaminated and/or corrosive applications.

### Advantages

- Reliable operation
- Scrubs outlet gases
- Handles liquids/particles without damage
- Low level operation
- Simplicity
- Low noise levels
- Custom designed Materials to suit process fluid
- Motive pump only moving part

### Construction

Three basic parts of typical ejector are nozzle, mixing chamber and diffuser. High pressure motivating fluid enters nozzle, 1, expands through the converging/diverging nozzle, 2, where pressure energy is converted to velocity (kinetic energy). Suction fluid enters at 3, mixes with the motivating fluid in the mixing chamber, 4, and passes on through venturi throat. Both fluids are re-compressed through the diffuser to discharge. Pressure profile (b) and velocity profile (c) of the fluids are identified by points described above.

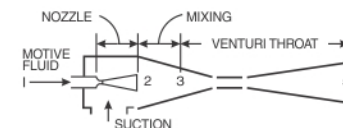
In the typical ejector configurations shown, stages are identified by letters assigned in reverse alphabetical order. As a result the final stage discharging to essentially atmospheric pressure is Z; the penultimate stage is Y.

### Salient Features

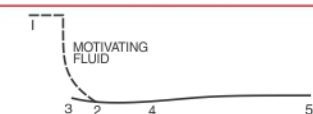
- Steam Jet/Water Jet ejectors.
- Custom-built Design.
- All contact Parts are of Graphite
- Maintenance Free.
- Low steam consumption
- Machined from solid Graphite.
- Size range from 25NB to 300NB
- Capable of creating Vacuum upto 0.5 torr.
- Can be supplied as single stage, two stage and three stage.

### Applications

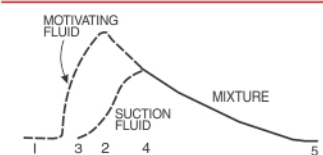
- De-carbonating brewery water.
- Creating chemical process vacuums.
- Water treating by degasifying.
- Perfume concentration.
- Distillation.



BASIC COMPONENTS



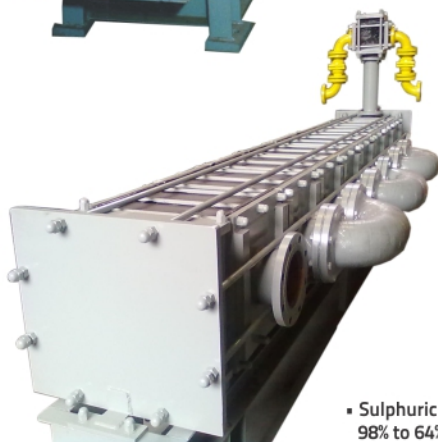
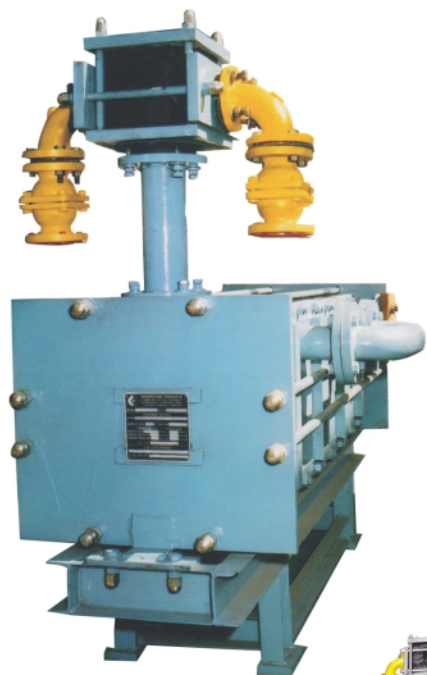
PRESSURE PROFILE



VELOCITY PROFILE

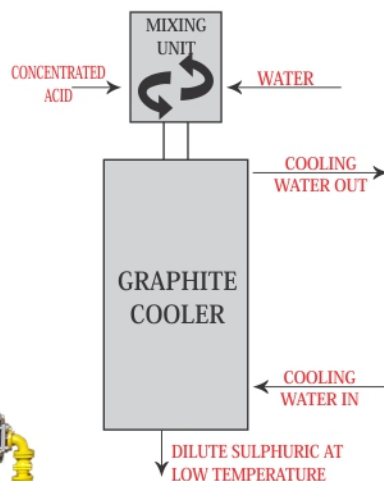


## Sulphuric Acid Dilution Unit



- Sulphuric Acid Dilution Unit  
98% to 64% Strength

### Flow Diagram



## Sulphuric Acid Dilution Unit

Our clients can avail from us the precision engineered graphite sulphuric acid dilution unit that is design and developed using superior quality raw material and advanced manufacturing technologies. It is simultaneously beneficial for both dilution as well as cooling of acid. The unit is high in performance and can withstand various adverse working conditions.

Diluting concentrated sulphuric acid releases, considerable quantities of heat with mixing temperature up to 170°c and above, it is therefore beneficial to dilute and cool acid simultaneously.

This can be accomplished in a single operation with graphite block type dilution cum cooling unit, unit consists of mixing head, which provides separate feed for concentrated sulphuric acid and dilution water. Block type cooling unit provided along with it serves to carry off the heat produced in the course of dilution.

The water and acid are combined only in mixing -chamber, from here dilute acid flows through " process channels of the process blocks. These process channels comes indirectly in contact with the service channels through impermeable graphite and using its high thermal conductivity. Looses It's Latent Heat And What Cover Out Of The Unit Is Dilute Sulphuric Acid At Disered Low Temperature.

### Salient Features

- Skid mounted unit consists of graphite mixing unit, graphite after cooler, graphite inter connecting pipes, teflon lined NRV and bends
- Simple robust and easy to install tough construction.
- Multiple passes can be provided on service sides..
- Graphite has high compressive strength so metal plate apply compressive load on graphite
- Simple design and easy dismantling as compared to circular blocks.
- Flexibility of adding more blocks to increase heat transfer area.
- Easy cleaning because of short channels.
- Short channel lengths increases turbulence as a result avoids frequent deposits or fouling as compared to shell & tube type heat exchanges of same dimensions, cubical block type heat exchanger provides 2 to 5 times more heat transfer.
- Working conditions : Upto 5kg / cm2 pressure.
- Resistant to thermal shock.

MODEL	SIZE (mm)	HOLDE DIA ON PROCESS SIDE (MM)	NUMBER OF HOLES ON PROCESS SIDE	HOLE DIA ON SERVICE SIDE (mm)	NUMBER OF HOLES ON SERVICE SIDE	SURFACE AREA ON PROCESS SIDE (m <sup>2</sup> /BLOCK)
GP1	275 X 275 X 300	18	60	9	105	1
GP2	350 X 350 X 350	18	104	9	162	2
GP3	400 X 400 X 400	18	126	9	210	2.85



## Graphite Spare For HCL Furnace



Facilitated with various manufacturing facilities, we are involved in manufacturing a broad range of graphite spare for HCL furnace that includes Graphite Shells, Weirs, Burner Caps, Tubes, Bursting Discs, Packed Tower, Raschig Rings, Bubble Caps, Down Corner, etc. The range is designed and developed using superior quality material as per the set industrial standards and can also be custom designed as per the requirements of our clients

We are engaged in manufacturing and supplying a wide range of HCL furnace spares. Synthetic HCL are produced by Caustic Chlorine Industries by using Chlorine Gas And Hydrogen Gas with the help of graphite furnace. These furnace spares are available in a wide variety which includes

### Salient Features

- Graphite Shells
- Weirs
- Burner Caps
- Tubes
- Bursting Discs
- Raschig Rings
- Bubble Caps
- Down Corner, etc.

## Graphite Tiles



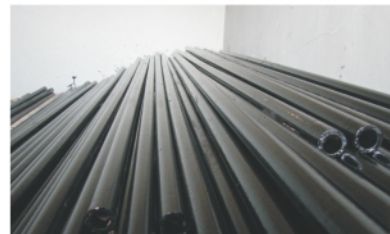
We are engaged in offering graphite tiles that are used for the internal lining of metal reactors. These are easy to maintain as compared to glass lined reactors and are excellent for heat transferring from jacketed to vessel. These tiles are manufactured using high grade material and are used for both heating and cooling facilities. The biggest benefit of graphite lined reactor over glass lined reactor is that even if some damage has occurred on lining, it is possible to do mend the damage by applying a small patch of lining work over the damaged area.

We provide Impervious graphite tiles along with the Graphite-based cement for fixing the tiles on reactor/tank wall.

### Salient Features

- Impervious Graphite tiles of Standard size of 210 x 75 x 10mm.
- Can be supplied by Graphite Based cement for fixing on Reactor/tank wall.
- Corrosive Resistance.
- Capable of being used in lining of Both, Heating and Cooling functions.
- Reasonable Prices
- Easily possible to cut different sizes on site.
- Repairable

## Graphite Tubes



We offer a wide range of high quality graphite tubes which can be used for making equipments as well as can be used for piping work. Graphite tubes can be used for handling corrosive vapors and fluids.

### Salient Features

- Impervious, Hydro-tested upto 5kg/cm<sup>2</sup> pressure.
- Excellent corrosion resistance.
- Excellent heat transfer.
- Repairable as compare to glass.
- Can be joined with other graphite tubes with graphite based cement for continuous piping work.

## Graphite Wipers



The graphite wipers available with us represents a unique combination of physical and chemical properties. These are available in different sizes and specifications and have good mechanical and sliding properties.

A Thin Film Evaporator consists of a jacketed cylindrical heating section, a top vapor section with an entrainment separator, a top cover with mechanical seal housing and roller bearings, and a bottom conical section housing the lower bearing.

We make wipers for all type of rotor designs example rotor with radially moving wipers.

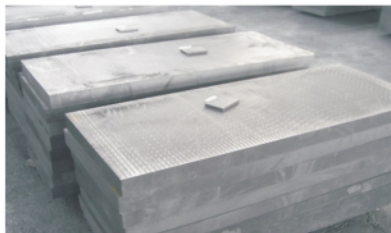
In a wiped film evaporator, internally revolving rotor equipped with our wipers or blades provides best internal distribution and rapid transport of the product film over the heated area. This causes fast evaporation.

Furthermore, certain physical characteristics can be matched to given specifications by varying the raw materials and the manufacturing processes. We can supply a wide range of graphite WIPERS with following features.

### Salient Features

- Wipers can be supplied upto 400mm length.
- Temperature resistance upto 1200 deg cent.
- Best lubricating and sliding properties to prevent wear of evaporator's cylinder.
- Chemical resistance.
- Prompt deliveries.
- Huge quantities can be supplied.

## Graphite Plate



We offer precisely manufactured graphite plates. These plates are good conductors of electricity and heat. Graphite materials are available as round rods and rectangular blocks, with relatively fine grain size, and have good mechanical, electrical and thermal properties, with low ash content. A preferential grain orientation is their prominent property. Density, mechanical strength and oxidation resistance can be improved by means of further impregnation.

The unique combination of physical and chemical properties has made graphite a most remarkable and attractive material for many modern industries and technologies as follows:

- Chemical Industry
- Aerospace Industry
- Aluminum Industry
- Electronic Industry
- Foundry Industry
- Metallurgical Industry
- Quartz Industry
- Vacuum Furnace Industry
- Mechanical Industry
- Energy Industry
- Solar Technology
- Semiconductor Technology
- Measuring Technology
- Other Industries and Technologies

Furthermore, certain physical characteristics can be matched to given specifications by varying the raw materials and the manufacturing processes. We can supply a wide range of graphite Rods, Blocks and cut-off Plates below:

- Iso-Graphite
- Molded Graphite
- Extruded Graphite
- Vibration Molded Graphite
- Further Processing Graphite, such as Impregnated Graphite, Oxidation Resistant Graphite, etc.

## Graphite Rods



We offer a huge assortment of Graphite Round Rods. Graphite materials are available as round rods and rectangular blocks, with relatively fine grain size, and have good mechanical, electrical and thermal properties, with low ash content. A preferential grain orientation is their prominent property. Density, mechanical strength and oxidation resistance can be improved by means of further impregnation. Can be used mostly as electrodes or even for raw material for manufacturing various graphite components.

The unique combination of physical and chemical properties has made graphite a most remarkable and attractive

material for many modern industries and technologies as follows:

- Chemical Industry
- Aerospace Industry
- Aluminum Industry
- Electronic Industry
- Foundry Industry
- Metallurgical Industry
- Quartz Industry
- Vacuum Furnace Industry
- Mechanical Industry
- Energy Industry
- Solar Technology
- Semiconductor Technology
- Measuring Technology
- Other Industries and Technologies

Furthermore, certain physical characteristics can be matched to given specifications by varying the raw materials and the manufacturing processes. We can supply a wide range of graphite Rods, Blocks and cut-off Plates below:

- Isostatic Graphite
- Extruded Graphite
- Further Processing Graphite, such as Impregnated Graphite, Oxidation Resistant Graphite, etc.

## Carbon Raschig Ring



Carbon Raschig Rings Find Application In Industrial Projects Like Absorption Tower, Distribution Towers, Distribution Columns scrubbers etc. because of Following Salient Features. We can supply huge quantity of raschig rings in less time to fulfill customer's requirements. We prominently manufactured a wide range of carbon graphite raschig ring that are acknowledged for high quality and durability. Available in various sizes and specifications, these raschig rings are non-reactive to a wide range of chemicals and temperature, resistance to thermal shock and have high thermal conductivity. Our range of carbon graphite raschig ring support various heavy duty operations and can also be customized as per the specifications provided by client.

We are a prominent manufacturer and supplier of rings. These raschig rings are acknowledged for its high quality and durability. Our raschig rings find application in various industrial projects like Absorption Tower, Distribution Towers, Distribution Columns, scrubbers and many more.

### Salient Features

- Made of Carbon-Graphite.
- Non Reactive to most known chemicals.
- Resistance to Corrosive Chemicals Over a Wide range of Temperature.
- Resistance to Thermal Shock.
- High Thermal Conductivity



Packing of Carbon Raschig Ring