Prakash Industries

Manufacturers of : Chemicals & Pharmaceutical Plant Machinery

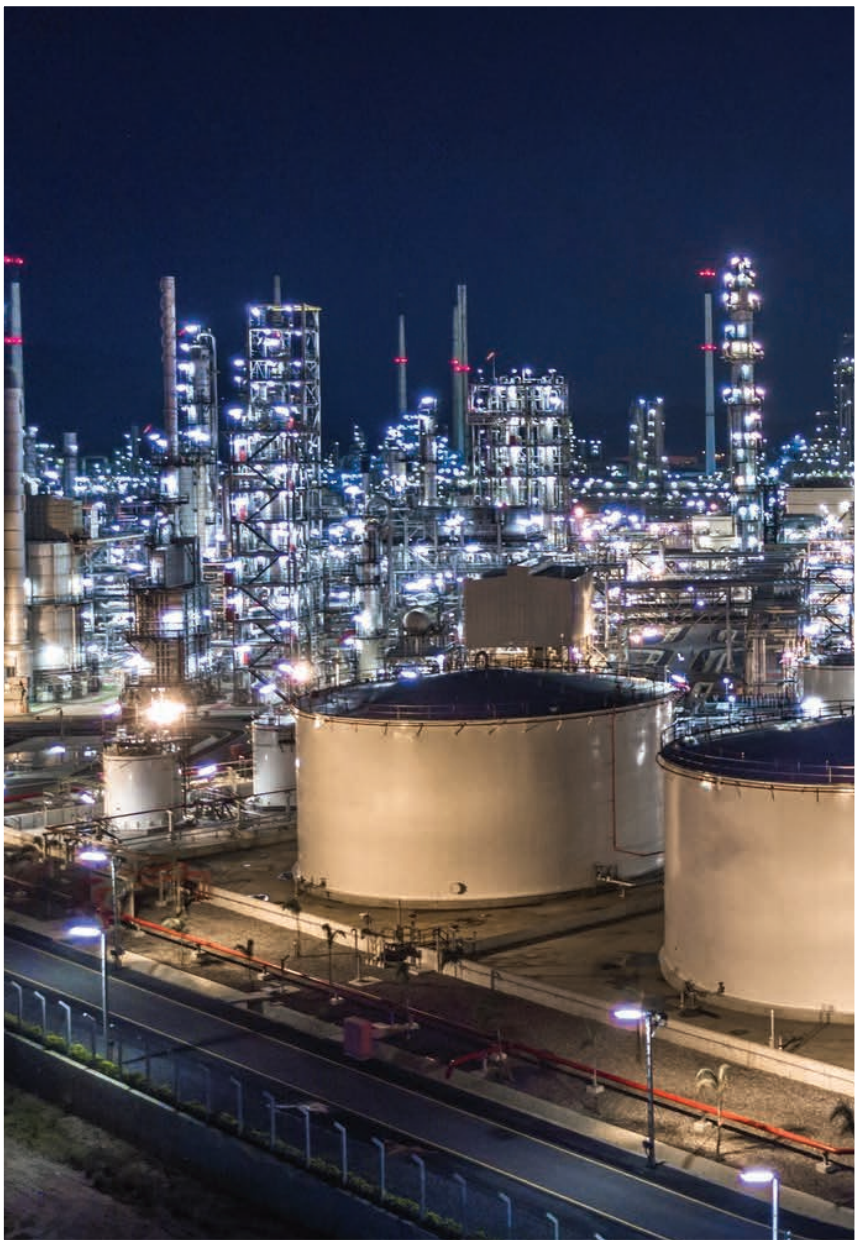
SINCE 2004

CERTIFIED ISO 9001-2015 COMPANY

Manufacturer & Exporter

of A Wide Range Of Industrial Machinery

INTRODUCTION



Prakash Industries is in the field of Manufacturing & Exporting of Chemical Processing equipments by providing innovative engineering with cost effective solutions to the Machinery & Equipment needed in various Chemicals, Plastics, Bulk Drugs, API Formulation, Polymers, Adhesive, Coating & Lubricant Industries.

Our Product range includes Reaction vessels (50 Liter To 40,000 Liter), Jacketed Vessels, Limpet coil Vessels, Condenser & Heat Exchanger (1sq meter to 200 sq. meters), Storage tank, Ribbon Blender, Plough Mixer, Crystallizer, Grease Plant, Resin plant and Lube Oil Blending Plant.

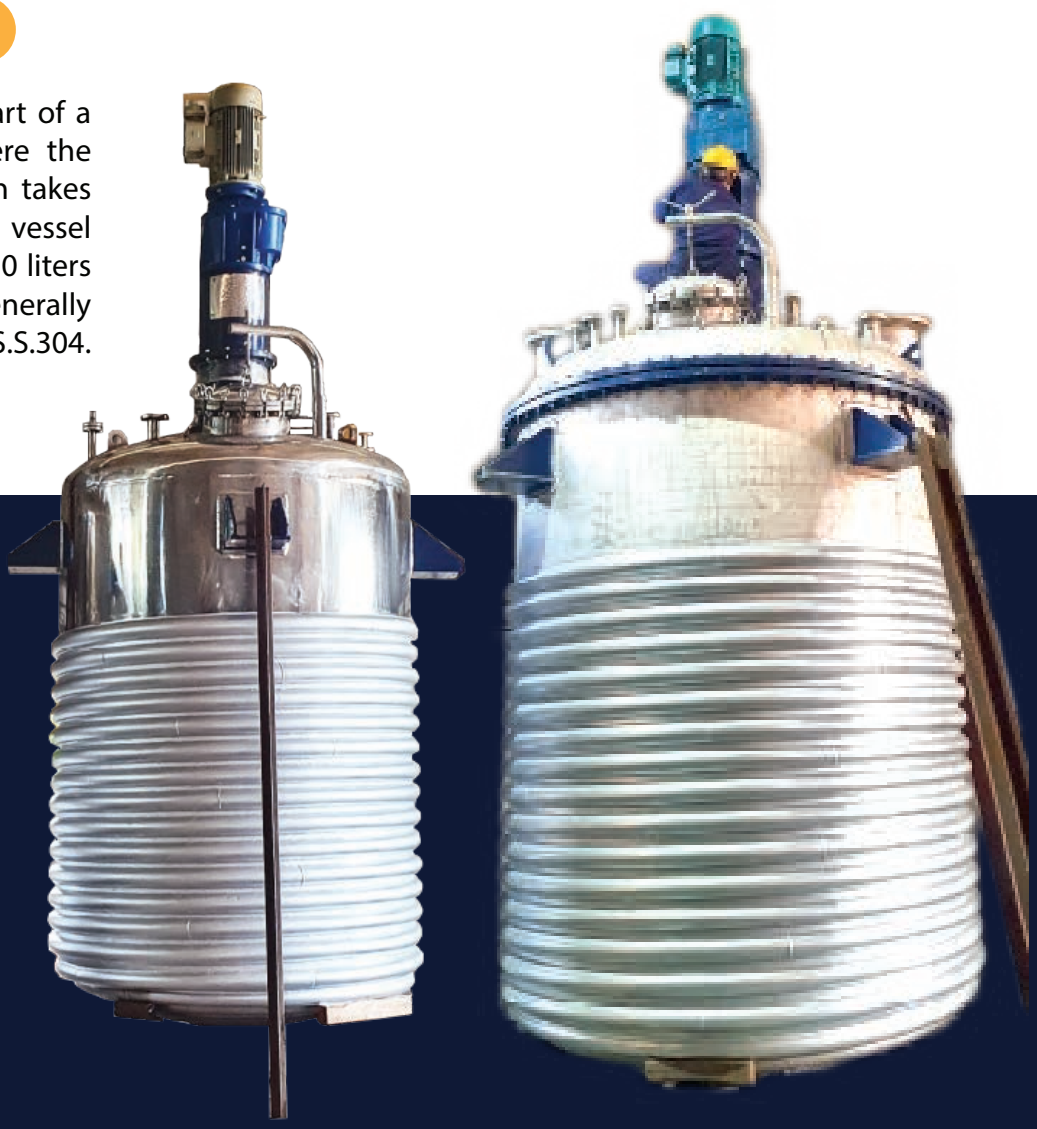
We undertake turnkey project for Alkyd Resin Plant, Polyester Resin Plant, Phenol Formaldehyde Resin Plant, PVA Emulsion Plant, Grease Plant & Lube Oil Blending Plant.

We also undertake development of various equipments as per Customers drawings, design and Specifications. We have full-fledged production set-up comprising of Plate & Pipe Bending machines, Coil forming Hydraulic Press, Center Lathes, Drill, Air Plasma, TIG/MIG Welding Rectifiers, and Hydraulic Testing Machine etc. We have a good team of qualified production personnel comprising of qualified X-ray welders, fitters, engineer, working under quality conscious skilled supervisor. We assure timely execution of work entrusted to us maintaining optimum quality of workmanship giving reliable and trouble free performance.

Our motto is "to offer you good workmanship at competitive rates with Early deliveries"

REACTION VESSELS

Reaction vessels are at the heart of a chemical plant. They are where the chemical changes and reaction takes place. The capacity of reaction vessel manufacture by us ranges for 50 liters to 40000 liters and they are generally made from stainless steels i.e. S.S.304. S.S.316 and Mild steel.



The reaction vessels are generally of following type

LIMPET COIL VESSEL

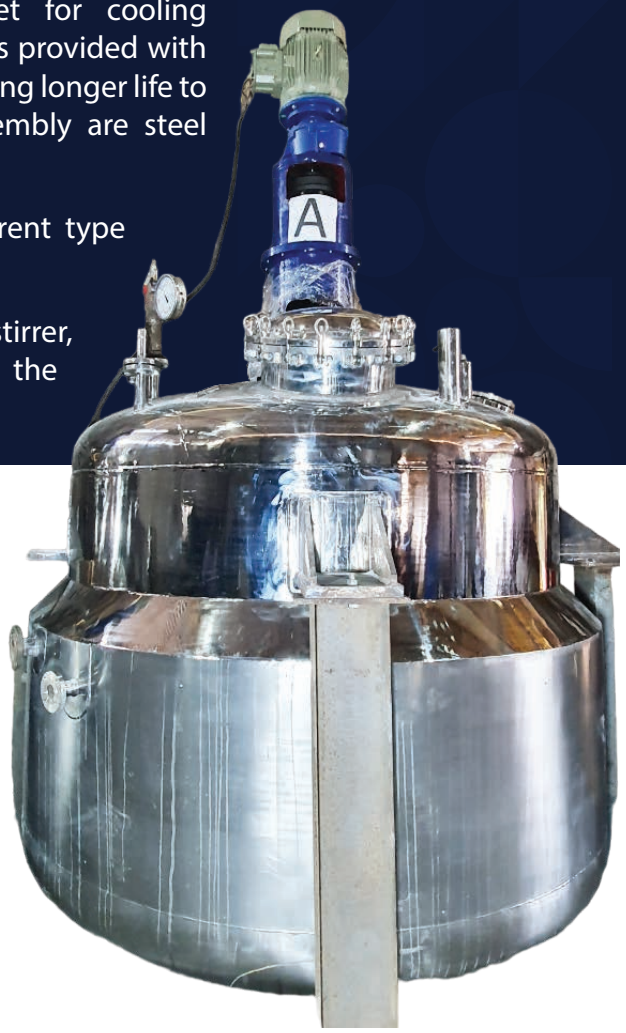
In limpet coil reactor, half pipe is welded on shell to provide steam, thermic fluid circulation etc. This limpet coil can be made of Mild steel or Stainless steel as per the application of the user. The design of Limpet coil can be of two type .i.e. Single Pass or Double Pass.

JACKETED REACTOR

In Jacketed reactor, a jacket is welded on the shell to provide steam, thermic fluid circulation etc. This jacket can be made of Mild steel or Stainless steel as per the application of the user. The design of jacket can be of two type i.e. Single stage or Double stage. A stiffener is welded on shell to withstand the pressure developed in the jacket and it also helps in proper distribution of steam and oil.

Reaction vessel drive is specially designed for Maintenance and Trouble Free Performance.

The drive consists of Bearing Housing with TOP Tapered Roller Bearing for High Accuracy and resistance to impact load & vibratory load and tapered roller Bearing at the bottom for smooth rotation. Stuffing Box is provided with Jacket for cooling arrangement to give long life to Gland rope. Gland pusher is provided with Gunmetal Bush Bearing thus ensuring Minimized Friction giving longer life to the Gunmetal Bearing. Bearing Housing and Lenten Assembly are steel Fabricated made from M.S. Plates of suitable strength.



Reaction vessel consist of stirrer, these stirrer are of different type depending upon the application.

Anchor type stirrer, paddle type stirrer, propeller type stirrer, turbine type stirrer, gate type stirrer depending on the application of use.

OPEN REACTION VESSEL

OPEN REACTION VESSEL are manufactured using mild steel or stainless steel as per the requirement of our customers. These products are available at competitive market prices. These product are fully tested hydraulically by our experts, to ensure high standards of quality. These products are known for their unique design and dimensional accuracy.

Drive:
Complete drive unit consist of tapered Roller Bearing, Bearing Housing with bearing, Flexible coupling Stuffing, Box with gland pulling arrangement, Lanturn Bottom tripod with teflon bush

Welding:
- Welding work is performed by Argon Arc process for S.S. Parts and rest electric are using suitable electrodes.

Limpet Coil Welding:
- Limpet welding work is performed by using high grade filler wire.
- Jacket Closure Ring Welding work is performed by using high grade filler wire to withstand closure ring tension.

Stiffener Ring:
- Stiffener ring is provided on Inner Shell of Jacket in between Inner Shell and Outer Jacket to Intensify main vessel and to provide uniform circulation and minimize stagnation of heating or cooling medium.

Finish:
- All weld joints will be finished from inside and outside, SS. Parts is cleaned from inside and outside. Two coates of primer/red oxide will be given on M.S. parts.

Testing:
- Equipments are tested Hydraulically as per design Pressure

Service:
- Complete after sales servicing is provide by our fully trained and competent engineers.

ALKYD RESIN PLANT

We offer a wide range of alkyd resin plant, long oil alkyd resin plant etc. that is used mainly in the manufacturing of the enamel paints. We can offer long oil, medium & short oil. We manufacture resin plant from 50 liters to 20 ton, batch on solid base. We also have the facility to offer multipurpose oil alkyd resin plant and long oil alkyd resin plant where in the plant can run on solvent process or by fusion process.

The finished product of alkyd is double than the solid base 50% solution. If the plant is 5 ton capacity; the finished product will be 7.5 ton to 10 ton depending on percentage of solid base.

Raw Materials which are used Pthalic anhydride, Penta, Oil / DCO (dehydrated cast oil; sunflower or soya oil). Rosin, lithium hydroxide etc.

POLYESTER RESIN PLANT

(Saturated Polyester Resin Plant-Powder form)
(Un-Saturated Polyester Resin Plant-Liquid form)

The major operations involved in the manufacture of polyester resin are esterification and blending which are carried in their respective kettles. The most common raw materials used are polypropylene glycol, melic anhydride and styrene monomer. In addition small quantities of inhibitors and other additives are required for the process.

The process involved is poly condensation reaction and blending the polyester resin with the monomer. Due to the sensitivity of polyester resin to contamination; in the course of condensation reaction and during subsequent handling the material of construction must be carefully selected.

The esterfication reactor is changed through a manhole with required amount of glycol and the solid anhydride. The mass is heated up to 200°C under agitation and inert gas N2 is slowly applied. The partial condenser condenses the glycol but process the water to the total condenser. The esterification is continued until a predetermined acid value 10 to 15 is reached. After achieving the predetermined viscosity the heating is stopped and the batch is dropped in to the blending kettle. In the blending kettle the batch is cooled to 100-102°. Styrene is pumped in the blender and viscosity is adjusted until the batch attains room temperature. The batch is then pumped through filter in to the storage tanks.

PHENOL FORMALDEHYDE RESIN PLANT

The products manufactured at our end owes their high quality to manufacturing processes that are constantly upgraded so as to suit the precision requirements of the manufactured items. Phenol formaldehyde resins (PF) include synthetic thermosetting resins such as obtained by the reaction of phenols with formaldehyde. Sometimes the precursors include other aldehydes or other phenol. Phenolic resins are mainly used in the production of circuit boards. They are better known however for the production of molded products including pool balls, laboratory counter-tops, and as coatings and adhesives. In the form of Bakelite, they are the earliest commercial synthetic resin. Before the final product is released for shipping, it is also passed through all acceptance tests. Other than this, our facilities also have provision for carrying out Third party inspections to suit the requirements of the customers. We offer the Phenol Formaldehyde Plant. Further, our well-structured production methodology also ensures appropriate steps are taken at every stage of manufacturing to ensure flawless handling of the involved processes.

We manufacture cost-effective, safe and reliable Phenol Formaldehyde Resin Plant for high quality industrial use. Available in various technical specifications, these are highly demanded by our client's spread worldwide. We also offer customized specifications for our clients benefit. Our industrial formaldehyde resin plant includes phenol formaldehyde resin plant and power basin resin plant.

PVA EMULSION PLANT

(Synthetic Homo Polymer and Co-Polymer) Emulsion is the core element of any water based paint. All paints are combinations of pigments (colorant) emulsions and water. Along with three ingredients- several additives are used in small quantities. The additives perform several key functions. The additives are generally wetting agents, helping in dispersion, anti settling agent, body agent, flow and leveling additives, driers, gloss improvers and many others.

Whenever we manufacture emulsion we are involved in a long process of 9 to 10 hrs where a DM / DI (Deminerlised) water about 50% and remaining raw material Vinyl-acetate monomer about 35 to 40 % and other chemicals such as catalyst, initiators, surfactants, wetting agent are added. The reaction temperature is about 75 to 80°. As this process is exothermic a small initial heating will helps in enhancing reaction and completion of process, in intermediate sample testing and the controlling the temperature within desired limit is essential to get excellent product.

Raw Materials

- Emulsifier
- Monomer
- Catalyst
- Activators
- Acids
- Additives

CONTRA MIXER

Application

Contra Rotary Mixer is an ideal mixer for the product of high viscosity & density. It is suitable for thorough mixing blending of tooth paste, grease & other viscous compounds.

Working Principle

The mixer consists of two different blades rotating clockwise and anti-clock wise simultaneously, It consists of two different shafts, one being solid and the other hollow. The solid shaft is provided with multiple paddle blades, which rotate in clock wise direction while the hollow shaft with anchor scrapper blade assembly rotates in anti-clockwise direction. Intimate & homogeneous mixing of products is achieved by contra rotary motion of two different blades & high speed homogenizer. Vacuum jacketed mixers are provided with vacuum pump, heating arrangement etc.

Homogenizer

Inbuilt homogenizer with mechanical seal is provided with the bottom dished end for emulsification. It is a chopper type high shear emulsifier. The high shear action creates a forced product flow. The interchangeability of chopper blades is also possible to suit the mixing requirement of various viscous products. On-line homogenizer with specially designed filter can also be provided for re-circulation of the products

Advantages

- Uniform mixing & homogenizing of the viscous products is possible because of the contra rotary motion with homogenizer & anchor blades with scraper assembly
- No air contamination because of vacuum operation
- No product contamination because of the sanitary design
- Minimum residual product loss because of anchor scraper design & suitable sized bottom out!
- The shaft seals are mounted above the product, so there is no possibility of contamination

Salient Features

- All contact parts-AISI-304 or 316,304L or 316L Jacketed mixers are provided for heating of products during mixing
- Provision to mix/blend the viscous products under vacuum for de-aeration purpose
- High shearing action because of contra rotary motion & homogenizer
- Mechanical seal is provided instead of stuffing box for main shaft sealing for vacuum operation
- Anchor blade assembly with adjustable Teflon scrappers is provided to avoid localized heating & ensure uniform mixing
- Top drive & agitator assembly can be lifted & lowered by motorized as well as hydraulic operations if required
- Smaller version of Contra Rotary Mixers is provided with lifting arrangement for the bowl instead of top drive & agitator assembly
- Pneumatic system is also available for lifting & lowering top drive & agitator assembly for smaller version of Contra Mixer
- Available in STANDARD Model and GMPModels.

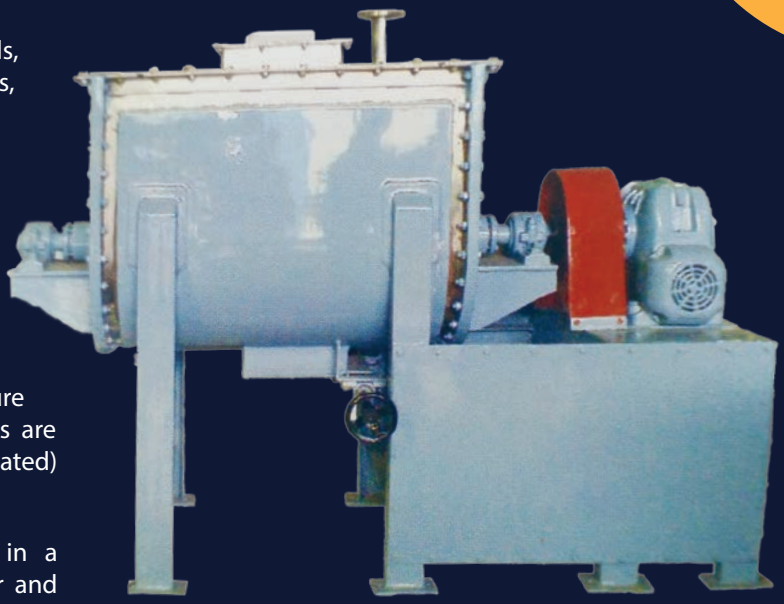
Capacity Available

500 to 10000 Ltrs.

RIBBON BLENDER

Application

Ribbon Blender is widely used to mix pharmaceuticals, foods, chemicals, fertilizers, plastics, pigments, cosmetics, etc powder materials



Working Principle of Ribbon Blender

Ribbon Blenders consist of a U-shaped horizontal trough and a specially fabricated ribbon agitator. A ribbon agitator consists of a set of inner and outer helical agitators. The outer ribbon moves materials in one direction and the inner ribbon moves the materials in the opposite direction. The ribbons rotate and moves materials both radially and laterally to insure thorough blends in short cycle times. Ribbon agitators are used for blends that will be between 40 and 70% of the rated) capacity of the blender.

The agitator rotates with minimum wall clearance in a U-shaped vessel. The mixing rotor consists of an inner and outer ribbon which effects a counter flow mass movement with random motion in radial and axial directions.

Ribbon blender can be used for mixing of:

1. Powders with powders
2. powders with liquids

The mixing action in the double ribbon blender mixer is created by the following 3 factors:

1. Conveying of product by one ribbon from left to right
2. Counter flow of product by the second ribbon
3. Exchange of product between the two ribbons

Main Features of the Ribbon Blender:

- **Mixing accuracy:** Materials are mixed to the highest level of accuracy, even if some of the components are only present in minor quantities
  The ribbon blender is suitable to prepare homogeneous blends with minor components.
- Mixer design: The horizontal ribbon blender mixer product line distinguishes itself by his compact and heavy duty design, making the ribbon blender mixer suitable for the most challenging applications.
- Fragile components: The mixing process is accomplished with a minimal energy input and without generation of heat and without damaging product structures.
- Mixing efficiency: A homogeneous mixture can be achieved in a short period of time due to the rotor configuration. The ribbon blenders are able to mix batches in a size from 100 to 10,000 liters.
- Fast and full discharge. The bottom outlet in combination with the small rotor wall clearances guarantees a fast and full discharge with a minimum of product remaining

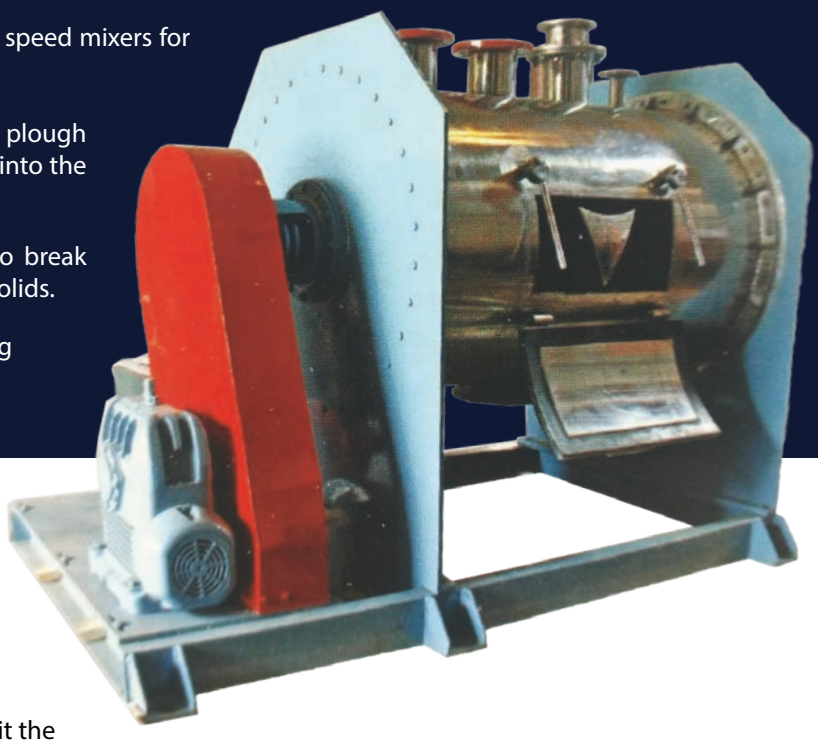
PLOUGH MIXER

Plough Mixers are high energy, high-shear and high speed mixers for powders, granules and pastes.

These horizontal batch mixers utilize a high-shear plough agitator which imparts a high-energy mixing action into the materials, resulting in extremely short mixing time.

In addition, the high-shear action has the ability to break lumps and agglomerates and cut-in waxy and fatty solids.

Additional shear and impact energy is gained 6 fitting side Intensifiers or choppers into the side of the mixing trough.



Features:
- High Shear Plough Agitator
- Short Aspect Ratio Mixing Trough
- Optional Side Choppers
- Large bomb-door discharge

Custom Design
Plough Mixers can be customized and adapted to suit the varying demands of individual applications.

These typically include:
- Increased shear energy from side intensifier or chopper
- External jackets of the mixer trough for heating or cooling the mixer contents
- Pressure and vacuum capable vessels for drying, heating, cooling and sterilizing processes
- Liquid addition facilities, including pressure spraying, atomizing and gravity sparge pipes
- Range of various materials of construction

Applications
Plough Mixers are best used where a process requires high levels of mix energy to achieve fast and efficient blends of materials.

Typical applications include:
- Extending and dispersion of pigments and dyes in carrier bulk powders
- Cutting of oils and solid fat into dry bakery mixes
- Liquid addition to powders, especially where agglomerates may form
- Granulation of powders
- Glycerin soap mixing

Plough Mixers can be used in the Food, Chemical and Pharmaceutical Industries.

LUBE OIL BLENDING PLANT

(Automotive Lubricants, Industrial Lubricants, Marine Lubricants, Synthetic Lubricants)
We are specialized in providing complete solutions and services right from concept to commissioning of Lube Oil Blending plants. Our team of engineers and lube technologist are highly experienced in this field. The services offered by us include plant design, Detailed engineering services, Tank farm design, Equipment manufacture and supply, Erection and Commissioning, Lab set up and Training.
The lube oil blending process consists of process engineering P&ID and feeds engineering. rest are same as oil & gas industry, basically lube oil blending plant design are bit simple and easy because only thing is involved are heating and cooling after adding the additive which defines the different grade of lube oil like engine oil, gear oil, brake oil, hydraulic oil, and others, it's basically depends upon the lube oil blending plant manufacturers or operator. The lubricant oil blending plant is easy to install because of the easy and systematic process.

Key Features:

- High level of blend flexibility
- Products can be tailor made to customer orders
- Negligible wastage and bottom slop
- Quick switchover of batches
- Easy and safe operations
- Optimized Design
- Reduces manpower requirement

GREASE PLANT

(Lithium, Calcium and Mixed soap)
Prakash Industries offers complete plants on turnkey basis and provides highly functional and durable system which is widely used in petroleum industry, refineries and power plants. The services offered by us include Plant Design. Detailed Engineering services, Tank farm design, Equipment manufacture and supply, Erection and Commissioning. Lab set up and Training. Plants are tailor made to meet the project cost and local market conditions.
Properties essential for performance of grease are structural stability, lubricating quality, low and high temperature performance (which are provided by the selected lube oil base stock), whereas properties such as water resistance, high temperature quality, resistance to break down through continuous use and ability of grease to stay in place are provided by the soap.

Key Features of Grease plant by us:

- Purity
- Uniformity
- Stability
- Single Source responsibility for complete plant design right from Civil-Mechanical-Electrical to Chemical process.
- Client's scope of work limited to bare minimum.
- Reduces manpower requirement
- Easy to install and high durability

HIGH SPEED STIRRER

High Speed Stirrers are used for various mixing needs of Chemicals, Pharmaceutical, Foods, Dairy, Paints, Coatings, Pigments, Varnish, Adhesives industries. We manufacture High speed Stirrers in Mild steel.

Stainless Steel 304 or 316 With different types of Blades for different types of function viz. Saw Tooth Blade, Impeller Blade, Propeller Blade, Stator Rotor type Blade, Turbine Blade, Pitch Blade etc. Different types of function of Mixing, Dispersion, Shearing, Emulsifying etc. can be achieved by using different kinds of Blades.

Saw Tooth Blade | Stator Rotor Impeller | Propeler Blade | Patch Blade | Folding Propeller Blade | Turbine Blade

FLUSH BOTTOM VALVE

Flush bottom valves are used to discharge Liquids & Slurry from the bottom of Reactors, Receivers & huge Tanks "Flush Bottom valves are available in design of Disc opening into the Tank (vessel opening design) & Disc lowering (inside valve opening design) into the valve body

Flush bottom valves with disc opening into the tank or opening upwards is the most commonly used. It is used where enough space is available between boctor pad and the stirrer of the tank. The mass load inside the tank helps closing & tight shut off the flush bottom valve.

Key Features and Benefits

- Unique design of flush bottom valves assure "Zero-Hold Up" in the bottom pad of the tank. And facilitate the free flow and quick discharge of the liquid or slurry through the valves.
- Casted and fabricated in all available metallurgy, Carbon Steel, S.S 304, S.S316, S.S 304L, S.S316L, as per special specifications.
- Valves available in the size range of 15 NB to 250 NB in BS, ANSI & DIN standards.
- Available in the design of jacketed, Actuated & Lined.
- Offered for Sanitary aseptic application.
- Outlet discharge angle available in 45degree and can also be tailored made to 60 degree.
- Bolted Stuffing Box (Gland), easily adjustable & with Replaceable service.

CONDENSER/HEAT EXCHANGERS

Condenser is a device or unit used to condense a substance from its gaseous to its liquid state, typically by cooling it. In so doing, the latent heat is given up by the substance, and will transfer to the condenser coolant. Condensers are typically heat exchangers which have various designs

We strategically design and manufacture a wide range of heat exchanger and condenser. The capacity ranges from Isq meter to 200 sq. meter.

Types of Heat Exchangers & Condenser

1. Shell and Tube Type Condenser
2. Removable tube sheet condenser
3. Spiral condenser
4. U-Bundle type condenser

The material of construction Stainless steel and Mild steel

A shell and tube heat exchanger is the most common type of heat exchanger in oil refineries and other large chemical processes, and is suited for higher-pressure applications. As its name implies, this type of heat exchanger consists of a shell (a large pressure vessel) with a bundle of tubes inside it. One fluid runs through the tubes, and another fluid flows over the tubes (through the shell) to transfer heat between the two fluids.

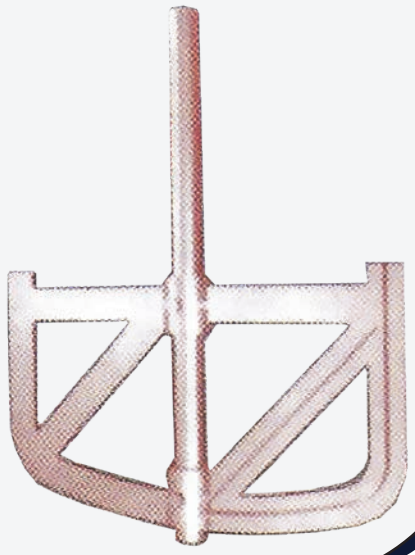
It can be design in Two, Three, Four and Six Passes.

STORAGE TANK

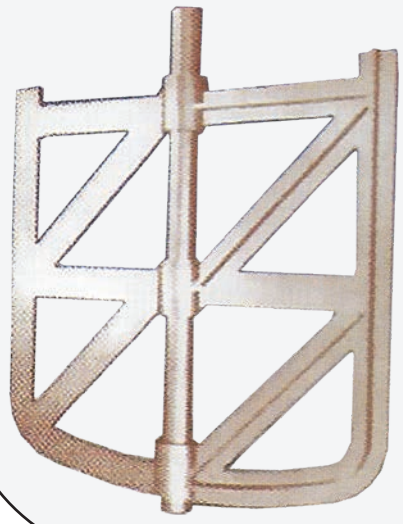
We fabricate Storage Tank from 500 Liter to 75,000 Liter.
Storage Tank can be made of Mild Steel or
Stainless Steel as per application of the user.

BLADE & STIRRERS

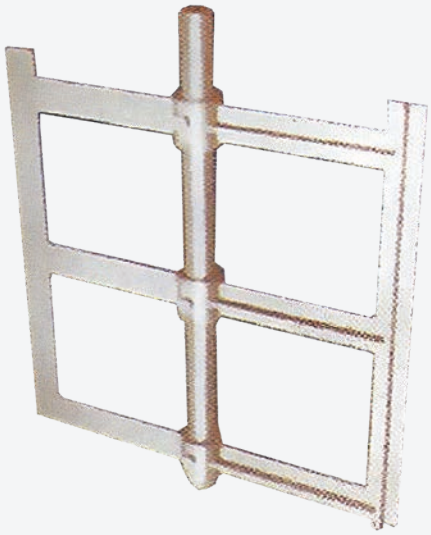
SINGLE ANCHOR



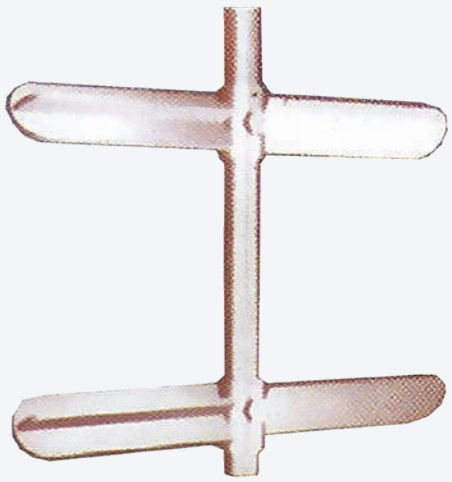
DOUBLE ANCHOR



GATE



PADDLE



FLAT BLADE TURBINE

CURVED BLADE TURBINE

MARINE PROPELLER

TURNKEY PROJECTS

ALKYD RESIN PLANT

GREASE PLANT

PHENOL FORMALDEHYDE RESIN PLANT

PILOT PVA EMULSION PLANT

PVA EMULSION PLANT

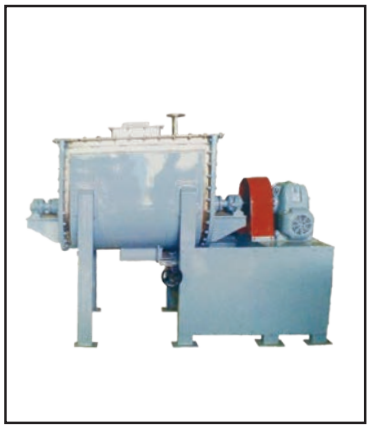
UNSATURATED POLYESTER RESIN PLANT

OVERVIEW

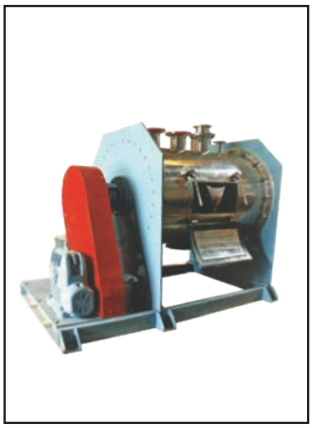
LIMPET COIL REACTION VESSEL

JACKETED REACTION VESSEL

RIBBON BLENDER



PLOUGH MIXER



RESIN PLANTS

PVA EMULSION PLANT

CONTRA MIXER

OPEN REACTION VESSELS

CONDENSER / HEAT EXCHANGERS

LUBE OIL BLENDING PLANT

CERTIFICATE

Management system as per

ISO 9001 : 2015

The Certification Body TÜV INDIA hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

PRAKASH INDUSTRIES
Plot No. 69, Diwan and Sons Indl Estate,
Bitco Near Welspun, Palghar West - 401 404,
Palghar District,
Maharashtra,
India

operates a management system in accordance with the requirements of ISO 9001:2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope -

Manufacture and Supply of Reaction Vessel, Condenser, Heat Exchanger, Storage Tank, Grease Plant, Lube Oil Blending Plant and Resin Plant.

Certificate Registration No. **QM 01 00998**
Audit Report No. **Q 11135/2021**

Valid from **08.01.2022**
Valid until **07.01.2025**
Initial certification **2022**

Certification Body
at TÜV INDIA PVT. LTD.

Mumbai, **08.01.2022**

TUV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India cert.helpdesk@tuvindia.co.in

CERTIFIED ISO 9001-2015 COMPANY

Prakash Industries

Manufacturers of : Chemicals & Pharmaceutical Plant Machinery

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