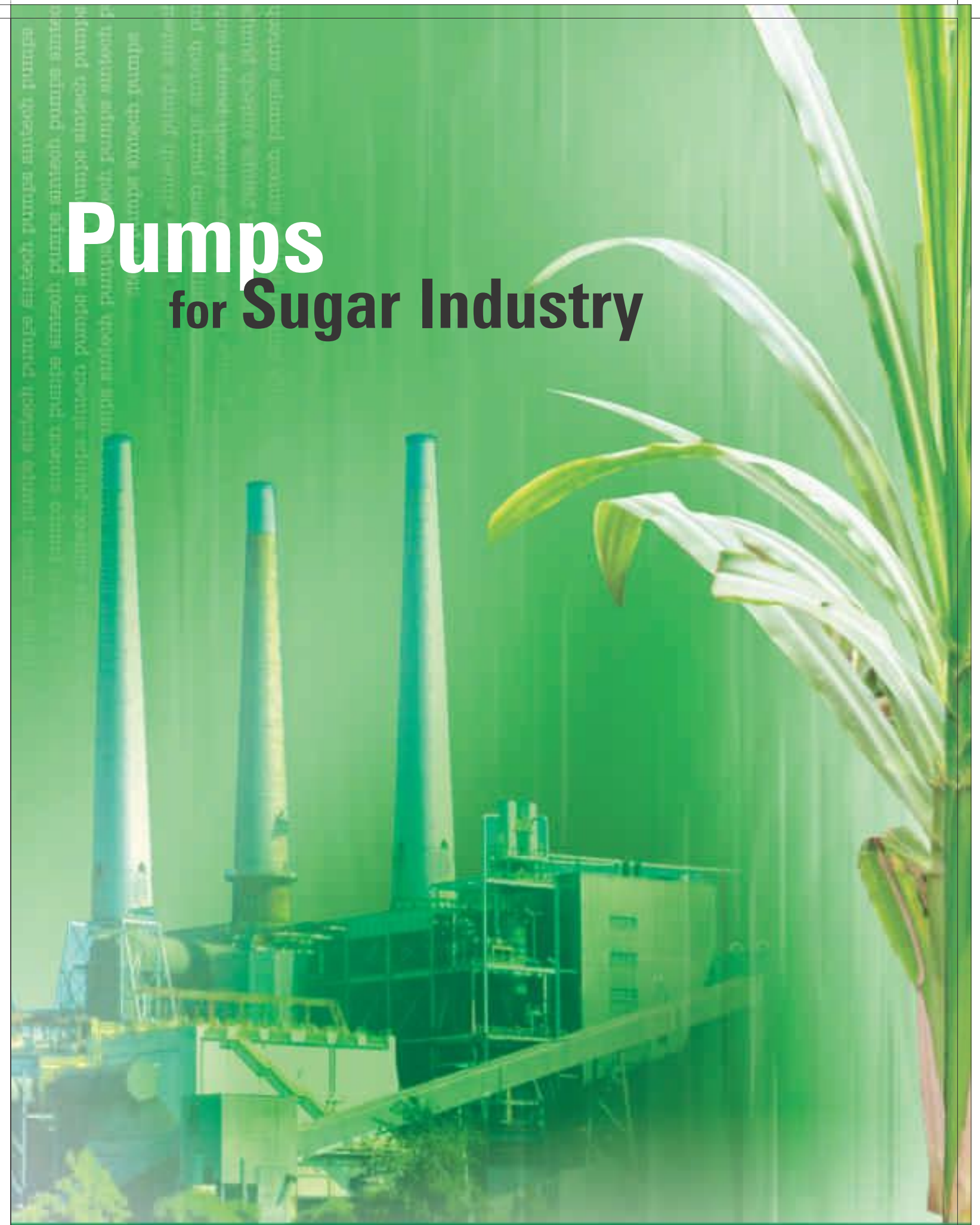
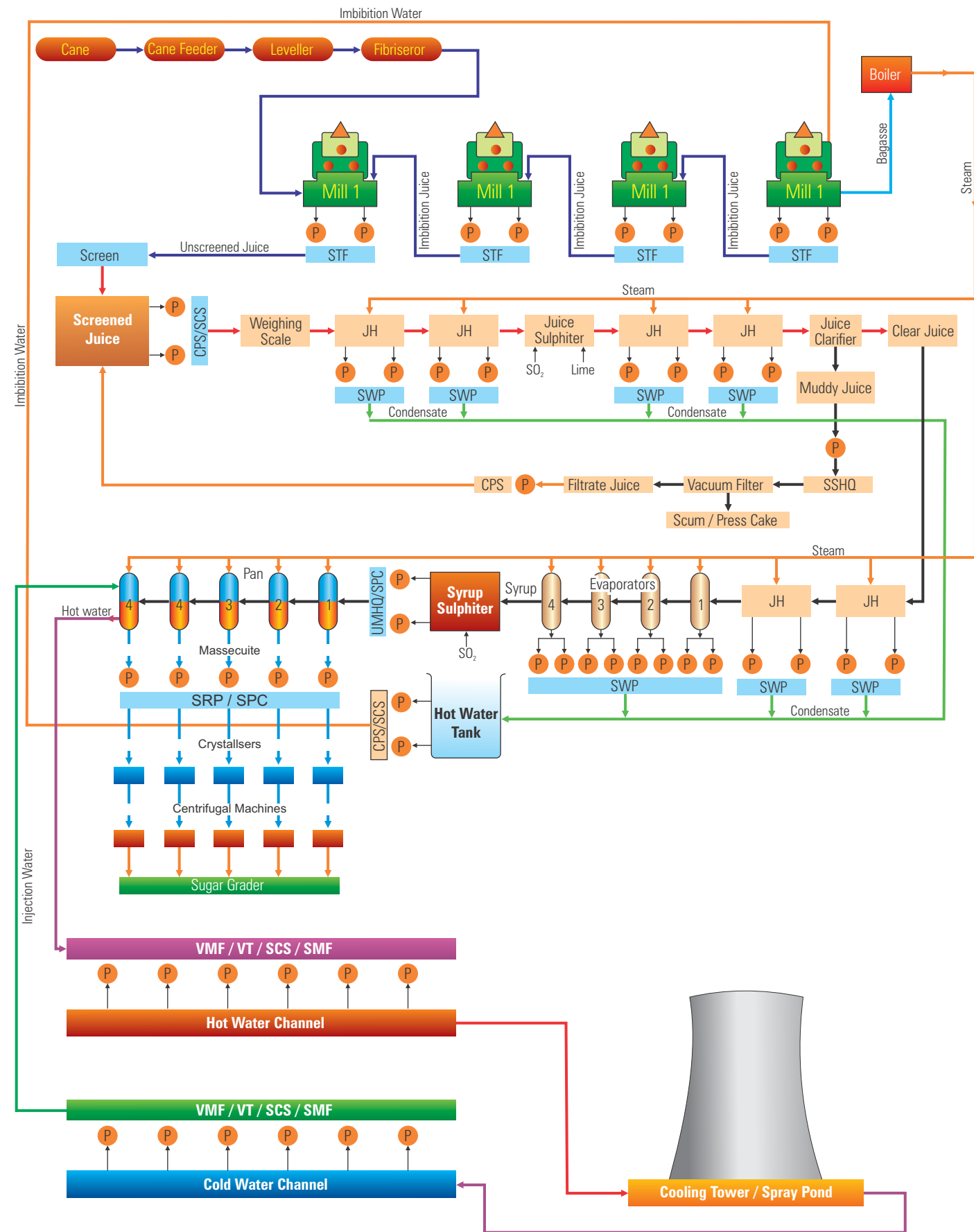


Pumps for Sugar Industry



Sintech Precision Products Limited

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www.sintech.in





About Sintech

Established in 1986 by an enterprising technocrat Mr. N.C.Dhingra – Sintech Precision Products Ltd. an ISO 9001 certified company is now a leading & respected pump manufacturer in India. Sintech Precision Products Ltd. has now expanded in all type of pumps suitable for diverse multifarious applications like clear water, process, slurry, liquid with suspended solids, sewage, acids, alkalies, sea water and many more applications. Till date "SINTECH" has supplied thousands of pumps for various critical and non critical applications, which are working quietly and efficiently to the entire customer satisfaction.



Why Sintech Pumps for Sugar?

Most experienced pump company in handling sugar sector with experience of more than three decade.

Number of Installation of complete sugar plants 1997-2016 : 180

Presence in more than 600 sugar factories worldwide

The only company which gives warranty of 5 years for specific applications.

Tailor made pumps for every application.

Being application specific pumps more energy efficient as compared to our competitors including biggest players.

Best sales & service commitments. Problem solved within 24 hours in domestic market and 72 hours worldwide.

Free consultancy and training to the end user regarding selection, installation & preventive maintenance.

Advantage Sintech

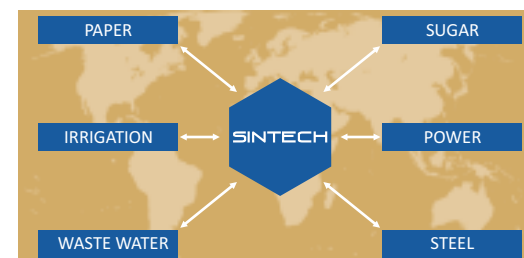
One of the few companies world wide offering widest range of centrifugal pumps, including boiler feed pumps, making it a one stop shop.

Fulfills the pump requirement of most diverse set of users like sugar, paper, mines, power, water treatment, food, steel, air conditioning and the most critical applications like desalination, boiler feed and fire fighting.

Most repeat orders

Our high quality products and understanding of the process generate reliable pumping solution to meet the needs of our esteemed customer.

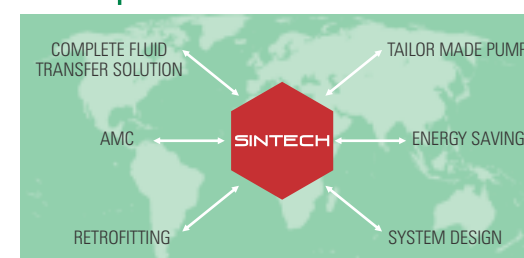
Sintech has a complete range supplier of all kinds of pumps for ..



Operational Strengths

- » Clear vision.
- » Professional approach.
- » Strong technical agreements & support.
- » Value addition in terms of manufacturing and testing.
- » Reliable Performance and unfailing services.
- » Strong local, foreign customer & project base.

Core Expertise



Special Pumps For Mill House / Diffuser

Range

Discharge Sizes	: N.D. 25 - 500 mm
Capacity	: Upto 1500m ³ /hr.
Head	: Upto 100 Mtrs.
Solid Handled	: Upto 250 mm



Special Features

- » Un-obstructed passage to the discharge size of the pump.
- » Handles large solids & long fibres.
- » Gentle pumping action, no flocs / crystal damage.
- » Low maintenance cost, no sealing rings on impeller, no small clearances to be maintained.
- » Handles abrasive slurries.
- » Handles vulnerable products like vegetables, fish, crystals etc.
- » Vibration free running due to hydraulically balanced construction.
- » Low leakage.

Constructional Features

Casing: Smooth extra heavy section designed for unobstructed flow. Abrasive or solids-laden flow goes directly into vortex of liquid and out the discharge. No close clearances between casing and impeller (as in conventional pumps) to generate wear. Nothing between suction and discharge to jam, clog, break or bind... a totally non-clog concept in pumping.

Impeller: Impeller, fully recessed out of flow path, is not subjected to wear by solids or abrasive particles churning in the flow when handling solids or slurries... greatly improving impeller life. Impellers may be threaded to shaft to provide shaft end protection.

Shaft: Heavy duty shafts are designed for maximum operational heads and low deflection and vibration.

Shaft Sleeve: Shaft sleeve is keyed to shaft and gasket sealed to stop leakage under sleeve.

Stuffing Box: Designed for gland packed arrangement fitted with neck bush and has been provided with external fluid sealing connections which enhances life of gland packing. Mechanical seals can also be provided.

Bearings: Angular contact ball thrust bearings carry radial and thrust loads. Thrust bearings are back to back mounted, locked with nuts and lock washers. Oil lubrication is standard. Constant level oiler maintains proper oil level. Bearings are well protected from dirt. Grease lubrication can also be provided.

Exclusive Advantages

Free Passage : The recessing of the T.F. Pump impeller permits unobstructed passage through the pump casing.

Non-clogging : Solids up to the full diameter size of the discharge connection can pass through the pump without danger of clogging. Also long fibrous materials will cause no problems.

Vibration-free Running : The extreme smooth running of the pump is a direct result of the hydraulic centering of the impeller in the casing recess; there is very little radial loading on the shaft and on the bearings. Therefore the T.F. Pump is ideally suited to be fitted with mechanical seals for process industry application. Even when wear on the impeller occurs this is concentric and does not affect the balance of T.F. Pump impeller.

Reliable : The T.F. Pumps are highly reliable because troublesome sealing rings have been eliminated.

Simple Design: The simple open and concentric design guarantees a trouble free service even under extreme conditions.

Wear Resistant : The new T.F. Pump casing (axiaspiral) ensures that the solids entered in the flow are quickly discharged from the pump and thereby reducing abrasion.

Low Maintenance : More than 20 years experience in production and application of T.F. Pumps has shown that the Torque Flow. Pumps needs less spares than any comparable solids handling pump.

Long Life : The robust and simple design as well as the correct materials for the job guarantee a long service life.

Standardized Program me : Because of a maximum interchangeability of parts in different pump-size and designs, spares can be reduced to the absolute minimum.



Material of Construction

Parts Name	All Cast Iron	02S Fitted	CF 8 Fitted	CF 8M Fitted	Bronze Fitted
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Bronze
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Shaft	EN 8	SS 410	SS 410	SS 316	SS 316
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 316
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys.

The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

Re Circulation with Dynamic Sealing Arrangement



Range

Capacity (Maximum)	: 1000 m ³ /hr.
Head (Maximum)	: 140 m
Temperature	: 160°C
Working Pressure	: 14 kg/cm ²

Special Features

- » Back pull out type bearing frame assembly.
- » Hydraulically balanced, closed impeller for long life and high efficiency performance.
- » One repeller, to reduce the pressure from Stuffing box area.
- » Heavy duty shaft with maximum deflection less than 0.05mm.
- » Jacketed convertible stuffing box utilizing gland packing or mechanical seal.
- » Special designed stainless steel impeller nut with helical spring insert to lock the impeller properly.
- » Heavy sections to withstand high pressure and temperature.
- » Standard bearings are designed for a minimum average life of 20000 hours.
- » Oil lubrication.

Design Features

Heavy Duty Shaft : Designed for toughest services. Maximum 0.05 mm deflection at stuffing box face at maximum load.

Hydraulically and Mechanically Balanced Impeller : Axial thrust balance achieved by front and back wearing rings with balancing hole / back vanes for operation over wide range of suction pressure.

Reduced operating cost : With optimized performance and maximum efficiencies.

Versatile shaft seal : By gland packing. Option to use standard unbalanced / balanced mechanical seal.

Robust deep groove ball bearings : High operating reliability, grease / oil packed.

High interchangeability : Ensures fast delivery and low inventory.

Environment friendly : Lower noise and vibration levels

Dynamic Sealing : Minimize the Leakage from stuffing box with Gland packing.



Constructional Features

Casing : Volute-type, end-suction, back pull out, centre line top discharge, self venting, integrally cast feet. (Also available option of external foot-mounted volute casing with support at shaft centre line to take care of uneven thermal expansion in respect of temperature exceeding 160°C). Sturdily and ruggedly built for reliability, high corrosion resistance and hydraulic efficiency.

Impeller : Closed Impeller for low NPSH and high mechanical and hydraulic efficiency, electro dynamically balanced for vibration free operation.

Dynamic Sealing Arrangement : One Repeller is used to avoid max. leakage and wasted of liquid from stuffing box . Repeller Reduce the pressure form stuffing box area and send back the liquid to suction line. Option of cooling and heating chambers wherever necessary.

Bearing Housing Drive Units : Available with standard and reinforced bearing assemblies for high temperature or high suction pressure applications. Designed for maximum deflection of 0.05mm, the drive units give prolonged bearing life. Bearing housing can be provided with a constant level oiler. It can also be provided with a cooling or heating arrangement as is required.

Throat Ring/ Bush : It is provided to further reduce the pressure on the stuffing box. Provision of impeller with back vane and a throat ring reduces pressure on the stuffing box considerably. It helps to prolong the life of packing or mechanical seal and also in economic selection of packing or seal.

Shaft : Shaft is of one-piece design. It is ground to less than 0.8 microns surface finish at critical surfaces. Maximum deflection at stuffing box face is 0.05mm. Thread insert is used to enhance surface finish thread life and prevent thread decay. Shaft is fully protected from the liquid handled by means of a shaft sleeve and Teflon gasket between impeller nut, impeller hut and shaft sleeve.

Shaft Sleeve : Easy replacement, compatible with the construction of wetted parts.

Wearing Rings : Easily replaceable and provided with hardness differences of 50 BHN (stationary wearing ring being harder).

Drip Tray : Meant to collect leakage from stuffing box to conserve costly liquids, made of suitable construction.



Material of Construction

Parts Name	All Cast Iron	O2S Fitted	CF 8 Fitted	CF 8M Fitted	Bronze Fitted
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Bronze
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Shaft	EN 8	SS 410	SS 410	SS 316	SS 316
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 316
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Casing Wearing Ring	Bronze	Bronze	Bronze	Bronze	Bronze

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys.

The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

Syrup / Melt with Dynamic Sealing Arrangement

Range

- Capacity (Maximum) : 600 m³/hr.
- Head (Maximum) : 60 m
- Temperature : 95°C
- Working Pressure : 6 kg/cm²



Application

Sugar Industry : The pump can be offered for viscous liquids, solids mixture upto a limit of viscosity 1000 ssu(68 Brix, Sp.Gr.1.338) at 20°C. These pumps are used for Sulphited or Unsulphited syrups and Melt application. Pump can handle liquids having temperature less than 90°C, Stuffing box cooling arrangement is provided with stuffing box, the temperature of liquid to be pumped should not exceed 150°C in case of standard fitted pumps.

Special Features

- » Semi-open impeller, hydraulically balanced.
- » One repeller, to reduce the pressure from Stuffing box area.
- » Oversized rugged shaft to minimize corrosion.
- » Stuffing box easily converted from gland packing to mechanical seal.
- » Heavy duty bearing for maximum life.
- » Stuffing box cooling arrangement is provided with stuffing box, the temperature of liquid to be pumped should not exceed 150° C in case of standard fitted pumps.
- » Oil lubrication.

Constructional Features

Total pump assembly may be divided into three sub-assemblies

1. **Frame assembly :** consisting of Bearing housing, Bearing cover (Inboard & Outboard), Shaft, Bearings, Internal circlips, Oil seals, Breather, Oil level window, Oil drain plug etc.
2. **Stuffing box assembly :** Consisting of Cover plate, Repeller, Gland plate, Gland bush, Lantern ring, Gland piece, Gland pickings, Shaft sleeve, O rings etc.



3. Volute casing assembly : consisting of Volute casing, Suction cover, Wear plate, Impeller, Impeller key, Impeller nut with helical spring, Impeller washer, Impeller lock bolt etc.

Casing : The casing is extra smooth designed to achieve best efficiency, casing is back pull out type with top centerline discharge. It is split perpendicular to the shaft with a removable suction cover. Foot support is provided to avoid misalignment and distortion under pipe loads. A corrosion allowance of 3mm is provided in the casing. Suction and delivery flanges are drilled as per DIN-2543, 2533 ND-16.

Impeller : Impeller is three or four vane, semi open type designed for high efficiency. It has large smooth passage for slurry and solid handling ability. Reliable fixing of impeller on shaft is achieved by using helical insert in impeller nut. Impellers are dynamically balanced.

Gland Plate : It encloses back of volute casing and has a stuffing box chamber with gland bush. External sealing fluid enhances life of gland packing and shaft sleeve. For temperatures higher than 90°C, stuffing box cooling provision can be made. For special applications mechanical seal can be provided on request.

Mechanical Seal : These pumps are designed with mechanical seal in mind. Good mechanical seal performance depends on good pump design and all such factors e.g. shaft deflection, endplay shaft run out are taken into consideration in designing the pump. Mechanical seals can be provided in the pump originally or as field application.

Bearing Housing : Pumps are designed with a very sturdy bearing housing a liberal bearing span to impeller overhang ratio. This ensures minimum shaft deflection and life of gland packing. It is in C.I. construction and has large oil reservoir for bearing lubrication. Oil seal on each side and oil breather at the top, protect oil contamination and allow expansion or contraction of air due to temperature changes.

Shaft : Shaft is in one piece, designed for the toughest service. The critical speed of the shaft is sufficiently above the operating speed. It is ground to less than 0.8 micron at critical surfaces. Thread insert is provided to lock and enhance thread life. Shaft is fully protected from the liquid handled by means of a shaft sleeve and a gasket between impeller nut, impeller hub and shaft sleeve.



Material of Construction

Parts Name	All Cast Iron	O2S Fitted	CF 8 Fitted	CF 8M Fitted	Bronze Fitted
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Bronze
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Shaft	EN 8	SS 410	SS 410	SS 316	SS 316
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 316
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron

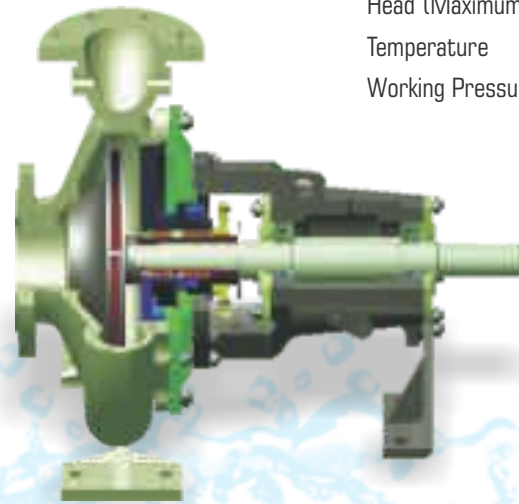
Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys.

The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

Horizontal End Suction Process Pumps

Range

- Capacity (Maximum) : 1000 m³/hr.
- Head (Maximum) : 140 m
- Temperature : 160°C
- Working Pressure : 14 kg/cm²



Special Features

- » Back pull out type bearing frame assembly.
- » Hydraulically balanced, closed impeller for long life and high efficiency performance.
- » Heavy duty shaft with maximum deflection less than 0.05mm.
- » Jacketed convertible stuffing box utilizing gland packing or mechanical seal.
- » Special designed stainless steel impeller nut with helical spring insert to lock the impeller properly.
- » Heavy sections to withstand high pressure and temperature.

Design Features

Heavy Duty Shaft : Designed for toughest services. Maximum 0.05 mm deflection at stuffing box face at maximum load.

Hydraulically and Mechanically Balanced Impeller : Axial thrust balance achieved by front and back wearing rings with balancing hole / back vanes for operation over wide range of suction pressure.

Reduced operating cost : With optimized performance and maximum efficiencies.

Versatile shaft seal : By gland packing. Option to use standard unbalanced / balanced mechanical seal.

Robust deep groove ball bearings : High operating reliability, grease / oil packed.

High interchangeability : Ensures fast delivery and low inventory.

Environment friendly : Lower noise and vibration levels

Mechanical Seals : Various mechanical seal configurations are available. A single mechanical seal is used for many applications with no circulation liquid, flushing with internal / external circulation liquid or with grease is available. For extremely demanding liquids and application, double mechanical seals can be selected. Sealing liquid from an external source is required.

Gland Packing : Gland packing with external flushing prevents the pumped liquid from penetrating into the seal housing. The pressurized flushing liquid causes it to flow into the pumped liquid. Alternatively the external flushing liquid can have a separate outlet connection.

Salient Features

This series is designed in accordance with ISO 5199 / ISO 2858, making it ideal for worldwide chemical or industrial process applications.

Low down-time and recurring costs : Back pull out design permits quick and easy access to rotating parts without disturbing suction and discharge pipes, electric motor, its connections and alignment.

Low maintenance, inventory and standardization because of module system.

The pump is designed to achieve a low NPSH requirement and high efficiency. It is rugged in construction and is versatile in application.



PT. DUS-INDONESIA

Application

- » Imbibition Water
- » Screened Juice
- » Clear Juice
- » Sulphited Juice
- » Raw Juice
- » Condensate
- » Screen Washing
- » Service Water
- » Injection / spray
- » DM Water Transfer

Material of Construction

Parts Name	All Cast Iron	O2S Fitted	CF 8 Fitted	CF 8M Fitted	Bronze Fitted
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Bronze
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Shaft	EN 8	SS 410	SS 410	SS 316	SS 316
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 316
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Casing Wearing Ring	Bronze	Bronze	Bronze	Bronze	Bronze



Akbarpur Sugar Mill

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys.

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Horizontal Split Casing Pumps

Range

- Capacity (Maximum) : 15,500 m³/hr.
- Head (Maximum) : 180 m
- Temperature : 110°C
- Working Pressure : 18 kg/cm²



This range provides a higher efficiency with lower maintenance. Development of this new range followed an extensive consultation with major users. This has produced an advanced pump which provides total reliability and reduced life cycle cost.

Sintech Pumps : Reliable and Innovative

Sintech deliver innovative products. Sintech pumps utilizes the well-proven "lean production system". This single flow, lean manufacturing process with dedicated production units means less wastage and greater efficiency, enabling us to provide the highest standard pumps and components.

Applications

- » Screened Juice
- » Clear Juice
- » Sulphited Juice
- » Raw Juice
- » Condensate
- » Cooling Tower
- » Service Water
- » Injection Spray
- » Fire Fighting

Salient Features

- » Compact design, easy to install
- » Extra heavy shaft
- » Both side bearing supported
- » Stable and robust design



Constructional Features

Casing : Axially split volute with suction and discharge branches located opposite inline in the lower half. This allows easy removal of the rotating element, without disturbing the pipe work. Pumps required for higher heads have double volute casing to minimum radial thrust.

Impeller : Single entry and double entry, closed type impellers are hydraulically and statically balanced.

Shaft : Machined from high quality steel. The shaft is sturdily proportioned to minimize deflection and provide long reliable service.

Sleeves : Sleeves are provided to protect the shaft and ensure longer shaft life.

Neck Ring : Designed with appropriate clearances and materials to minimize leakages while ensuring a long impeller life.

Improved Hydraulics

Unique hydraulic passage design for optimum performance.

Stiff Shaft Design

Large diameter shaft supported on a short bearing span minimizes shaft deflection, prolonging seal and bearing life.

Simple Maintenance

Standard pumps cartridge bearings and seals can be removed without displacing top half casing.

Increased Component Life

More corrosion allowance offers better corrosion protection and optimum lifetime operation.

Enhanced Performance

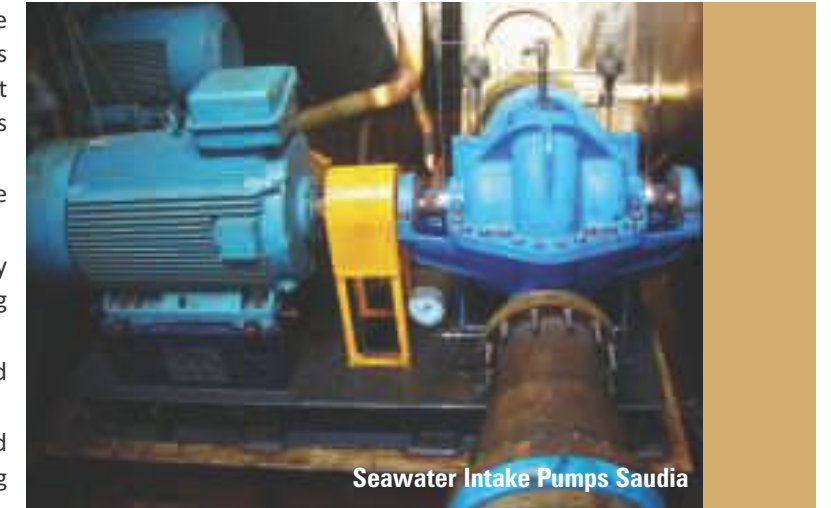
Replaceable wear ring and bush reduce leakage.

Increased Efficiency

Standard pumps coating on casing internals optimizes performance and prolongs "as new" efficiencies.

Low Hydraulic Loads

Diametrically opposed volute design reduces hydraulic loads extending seal and bearing life.



Seawater Intake Pumps Saudia

Material of Construction

Parts Name	All Cast Iron	O2S Fitted	CF 8 Fitted	CF 8M Fitted	Bronze Fitted
Lower/Upper Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Bronze
Shaft	EN 8	SS 410	SS 410	SS 316	SS 316
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 316
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Casing Wearing Ring	Bronze	Bronze	Bronze	Bronze	Bronze

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys.

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**Axial Flow /
Mixed Flow
Pumps**
(SVT, SVMF & SVAF)

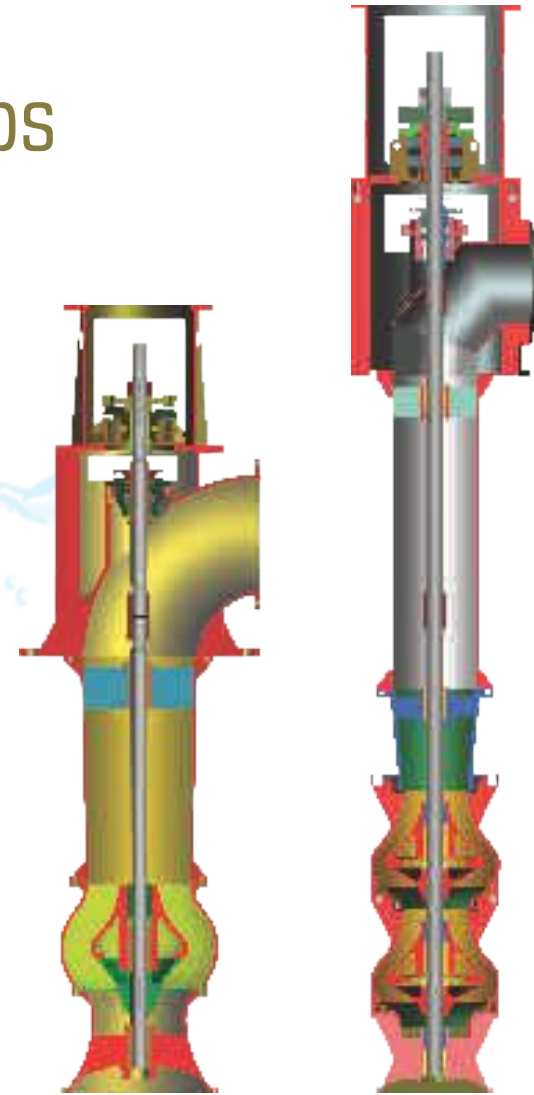
Vertical Pumps

Range
Capacity (Maximum) : 30,000 m³/hr.
Head (Maximum) : 300 m
Temperature : 95°C

SINTECH range of vertical pumps offer widest range of selection depending upon the pumping liquid from Clear Water to varying degrees of contamination.

Hydraulic design of these pumps are based on most valuable and up to date technologies and experience available in the field.

These pumps are designed to operate at 50Hz or 60 Hz, in single or more than one stage according to head required.



Pump Introduction

These pumps consisting of Bowl Assembly, Column Pipe Assembly, Bearing Housing Assembly along with N.R.R. (Non-Reverse Ratchet) Assembly & Motor Stool / Driving Unit Assembly.

Bowl Assembly: Bowl Assembly consists of suction bell, impellers, bowls, and pump shaft.

Suction Bell: Suction Bell designed for smooth & steady entrance of liquid with minimum losses.

Bowl: The Bowl is a casing with diffuser vanes cast integrally to reduce the velocity of the liquid coming from impeller & increasing the pressure.

Impeller: Impellers are of open (propeller), semi-open (mixed flow) & closed (vertical turbine) type depending upon the specific speed of pumps and are accurately machined, dynamically & hydraulically balanced.

Shaft: The shaft is of high tensile strength steel.

Column Pipe Assembly: It consists of column pipe, line shaft & line shaft couplings and bearings.

Column Pipe: Casted or fabricated, it houses line shaft bearing retainer.

Line Shaft Bearing: Line shaft bearing provided in leaded bronze shell with cutless rubber (natural / synthetic) bearing lubrication self or pressurized external water.

Thrust Bearing Assembly: Anti friction bearings are provided to take care of axial thrust & weight of rotor assembly as well as radial load. Lubrications with oil / grease. Non reverse ratchet is provided with thrust bearing housing assembly to avoid the rotation of impeller (pump) in opposite direction causing opening of the threaded coupling.

Discharge Head / Discharge Elbow: Either cast or fabricated designed to direct flow from column pipe to discharge pipe. It may be at ground level or below ground level.

Motor Stool: M.S. fabricated heavy duty to ensure vibration free operation.



Couplings: For line shaft, threaded barrel or muff type coupling as per requirement. For pump to motor, pin bush flexible coupling is provided.

Direction of Rotation: Counter clock wise when viewed from driving end.

Applications

- » General water pumping / conveying used for various industries.
- » Spray and injection water in sugar industry.
- » Cooling tower circulation.
- » Irrigation and drainage for agriculture.
- » Cooling water pumps, HP / LP Water pumps, condensate and misc. Services pumps in power plants.
- » Fire fighting.



Special Features

- » Vertical pumps take little space in plan since the liquid is led away to the axis of shaft.
- » The impeller is submerged, so pump does not require to be primed and is always ready for use.
- » The positive suction condition also prevents the cavitation in the pump and pitting in impeller & diffuser.
- » Due to positive head at suction the pump gives its rated performance as well as high overall efficiency, whereas in Horizontal Pumps due to losses in suction line, foot valve etc. the rated performance of the pumps is not achieved.



Material of Construction

Parts Name	All Cast Iron	O2S Fitted	CF 8 Fitted	CF 8M Fitted
Diffuser	Cast Iron	Cast Iron	CF 8	CF 8M
Impeller	Cast Iron	CF 8	CF 8	CF 8M
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M
Shaft	EN 8	SS 410	SS 410	SS 316
Sleeve	SS 410	SS 410	SS 410	SS 316
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys. The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

Range

Capacity (Maximum) : 7,000 m³/hr.
 Head (Maximum) : 45 m
 Temperature : 90°C
 Working Pressure : 4 kg/cm²

Applications

- » General Water Supply
- » Water treatment
- » Injection and Spray
- » Condensate
- » Water supply
- » Cooling tower
- » Power industry utilities
- » Storm water and drainage
- » Sewage Disposal



Salient Features

The SMF series are single-stage centrifugal pumps suitable for handling pure or contaminated liquids in large quantities. These pumps are of robust construction and have long working life. These pumps are also low in energy consumption due to very good efficiency.

The precision machined pump shaft is seated in amply oil/grease lubricated bearings and protected by a shaft sleeve in the stuffing box area. The integrally cast feet of the casing transmit any forces originating from the pipework directly to the foundation, this means that the rotor is not subjected to any bending stresses and thus optimal working life of the bearings is assured.

Electric motors can be used as the prime mover. With diesel engine as the prime-mover, the pump's direction of rotation is anticlockwise from the driven end.

Special Features

SMF Pumps are normally recommended for clear cold water having turbidity maximum 50 ppm (Silica Scale), chloride maximum 550 ppm. Total solids 3000 ppm. PH value between 6.5 and 8.5 and specific gravity around 1.0. SMF pumps can be offered for liquids having viscosity upto 1000 SSU.

Constructional Features

These are three / four vane impeller pumps specially designed to pass solid or stingy material. Hand holes are provided in the casing and near the throat of impeller. Pumps are available in Horizontal construction, vertical dry pit or wet pit construction with motor directly mounted on the pump or at an elevation and connected through intermediate shaft.

CASING :

Pump casing is high strength cast iron with ample section thickness to produce a large factor of safety over the maximum allowable working pressure. The casing is enclosed by a suction and stuffing box cover or head carefully machined to assure perfect alignment. Suction and discharge nozzles and the supporting feet are cast integral with the casing. All flange are drilled according to BS 10 table D.

IMPELLER :

The impeller of SMF pumps are made of SS 304. The impeller is semi-open type having wide passages into which passages into which the liquid flows direct and unimpeded. The impellers are provided with balancing holes for balancing the axial thrust. They are also dynamically balanced to counter the vibrations. Impellers in other materials such as close grained cast iron, Bronze, phosphors bronze Ni-cast iron, cast steel etc. are also available on request.

Bearing Housing Assembly :

The rotating assembly is supported on heavy duty bearings mounted in a precision bored frame. Bearing are carefully sealed to exclude moisture and contaminants and retain lubricant.

Stuffing Box :

Extra deep design and features a gland to simplify replacement of gland packing. Packed stuffing box with lantern ring is the standard arrangement. It is sealed internally. However, against special requirement, sealing by external fluid is also provided.

Shaft :

Machined form high quality steel, the shaft is sturdy design to minimize deflection and provides long and reliable service. Shaft is protected by sleeve from wear in stuffing box area.

DIRECTION OF ROTATION : Clockwise viewed from the drive end.



Shankar SSK Maharashtra

Material of Construction

Parts Name	All Cast Iron	O2S Fitted	CF 8 Fitted	CF 8M Fitted	Bronze Fitted
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Bronze
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Shaft	EN 8	SS 410	SS 410	SS 316	SS 316
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 316
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys.

The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

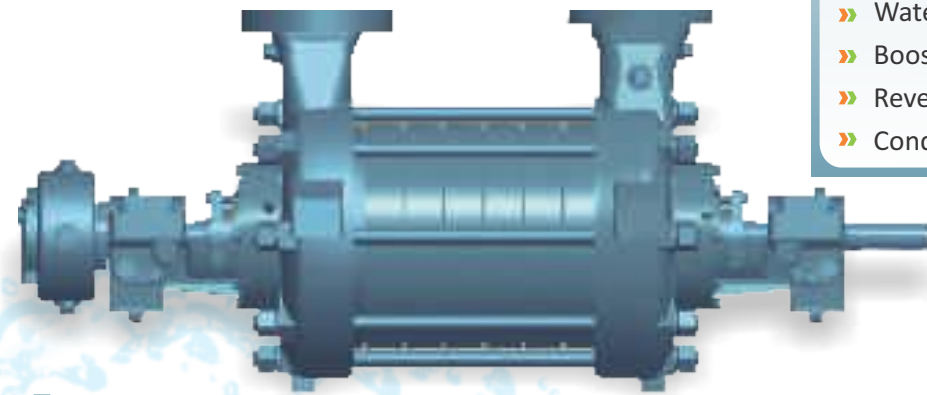
Multistage High Pressure Pumps

Range

Capacity (Maximum)	: 300 m ³ /hr.
Head (Maximum)	: 2,000 m
Temperature	: 90°C
Working Pressure	: 150 kg/cm ²

Applications

- » Fire Fighting
- » Boiler Feed
- » Hilly area water supply
- » Sprinkler System
- » Water works
- » Booster Service
- » Reverse Osmosis
- » Condensate Transfer



Salient Features

- » Suction and discharge have integrally cast centerline supports. Top suction and discharge connection are located in the same plane. Piping stressers are thereby transmitted directly to the baseplate, avoiding possible casing distortion.
- » Multi-vane diffusers maintain radial balance at all flows.
- » Balancing disc absorbs all hydraulic thrust. The faces of the disc cannot contact under any flow condition or at rest.
- » Enclosed impellers with extra long hubs are completely interchangeable. They are dynamically balanced and independently positioned on the shaft.
- » Interstage bushings for trouble free operation.
- » Separate extra deep stuffing boxes, subject to suction pressure only. Water jackets and mechanical seals are available.

Constructional Features

Suction & Delivery Casing:

Horizontal radially split multistage ring section pump manufactured as a compact design unit. The stage are sealed by O rings and clamped together by the tie rods.

Impeller:

Closed type and accurately balanced dynamically.

Diffusers:

Diffusers comprise vanes which guide liquid from exit of one stage to entry of next stage. These are cast separate to middle body.

Middle Body:

Middle body houses the diffuser and provides pressure casing intermediate stages.

Stuffing Box:

Extra deep design and features a gland to simplify replacement of gland packing. All pumps have liquid sealed stuffing box and provision for an external supply of clean fluid. A choice of various mechanical seals is available to suit specific specifications.

Shaft:

Machined for high quality steel, the shaft is sturdily steel, the shaft is sturdily designed to minimize deflection and provide long reliable service. The shaft is supported by antifriction bearings. Shaft is protected by sleeve form wear in stuffing box area.

Body Bolts:

All the stage are held together by high tensile steel bolts between two end covers.

Automatic Balance Valve

The balancing valve is a simple device which counteracts hydraulic thrust and improves the overall efficiency of the pump at any flow by:

- Minimizing friction loss and wear caused by end thrust.
- Reducing wear at the shaft sleeves and gland packing by maintaining low pressure in both packing boxes.
- Eliminating the need for grease oil lubricated thrust bearing.

In the operation valve full delivery pressure from the final stage is applied to the pressure chamber easing the valve from the seating and allowing water pass into the chamber.

The valve runs on a film of water at all times and the hydraulic balancing is fully automatic and completely self adjusting

DRIVE

Suitable for coupling with an electric motor or an I.C. engine. These can be connected directly with a flexible coupling or with a belt drive.

OPTIONS

Mechanical seal in place of gland packing. any combination of materials of construction for various components are available.

DIRECTION OF ROTATION: CCW viewed from drive end.



Bajaj Sugar Mill (Pratappur)

Material of Construction

Casing	C.I.	C.I.	WCB	Cast Steel	CF-8M
Diffuser	C.I.	C.I.	WCB	Cast Steel	CF-8M
Impeller	C.I.	Bronze	WCB	Cast Steel	CF-8M
Wear ring	C.I.	Bronze	Ph. Bronze	SS-304	CF-8M
Shaft	EN-8	SS-304	SS-304	SS-304	SS-316
Shaft Sleeve	SS-304	SS-304	SS-304	SS-304	SS-316



Other than above state materials pumps are available in Cast Steel, CA 15, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys.

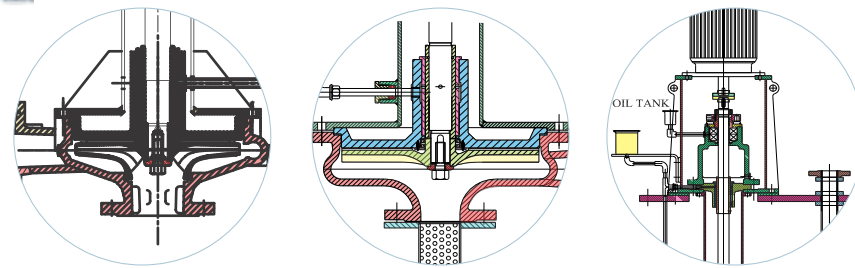
The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

Wet Pit Pumps (STFV, CPSV)

Vertical Sump Pumps

Range

Capacity (Maximum)	: 600 m ³ /hr.
Head (Maximum)	: 100 m
Temperature	: 80°C
Working Pressure	: 10 kg/cm ²



Applications

- » Dewatering applications where water is contaminated with solid particles.
- » Raw sewage, slurry.
- » Effluent, industrial waste transfer in industries. Waste water.
- » Drainage of basements, tunnels, boiler rooms.
- » Storm water.
- » Filtrate Juice

Salient Features

- » Compact design, easy to install
- » Extra heavy shaft
- » Screen less, chockless and glandless design.
- » Also available in dry pit designs
- » The impeller is submerged, so pump does not require to be primed and is always ready for use.
- » The positive suction condition also prevents the cavitation in the pump and pitting impeller and diffuser.

Special Features

- » Vertical pumps take little space in plan since the liquid is led away to the axis of shaft.
- » The impeller is submerged, so pump does not require to be primed and is always ready for use.
- » The positive suction condition also prevents the cavitation in the pump and pitting in impeller and diffuser.
- » Due to positive head at suction the pump gives its rated performance as well as high overall efficiency whereas in horizontal pumps due to losses in suction line, foot valve etc. the rated performance of the pumps is not achieved.

Design Features

Closed type and semi-open type impeller designs are offered to handle a variety of liquids. Impeller and casing are designed for maximum hydraulic efficiency and minimum thrust on rotating assembly. Unique space-saving design due to vertical mounting of pump. Impeller and casing are totally submerged in liquid so no priming or air venting is required. Inside tank and outside tank mounting designs available for respective applications.

Glandless type and / or vapour sealing type execution available. In vapour sealing design, the gland and acid resistant asbestos packing prevents the leakage of vapours of hazardous liquids from coming out. Thus the environment is kept free from pollution and dangers of inflammable obnoxious liquids. Very rigid construction with extra wall-thickness provided for corrosive applications. It is virtually maintenance free.

Vertical pumps are best suited for wet pit applications where fluctuations in liquid levels are considerable. The pump unit is suspended by a column pipe which also protects the transmission shaft and is submerged in the liquid to be pumped. These pumps require small floor area and can be started without priming.

Discharge / Suction flanges conforms to ASA / DIN / BS standards.

Constructional Features

Delivery Casing : The delivery casing has an area sufficient enough to ensure easy passage of liquid with optimum efficiency.

Impeller: Impellers are enclosed / semi-open / open with large passage ways and thickened vanes at the inlet. All impellers are dynamically balanced.

Pump Shaft : The pump shafts are of high tensile carbon steel and designed for high torque transmission. Stainless steel shafts can be provided against requirement. The bearing areas are protected by stainless steel sleeves. Intermediate, line and head shafts are of ample strength and rigidity. Minimum bearing span is adopted to keep deflection and vibration to a minimum.

Line Shaft / Intermediate Shaft : Line shafts / intermediate shaft of high tensile carbon steel designed for high power transmission are connected by intermediate couplings and run in closely spaced bearings for vibration-free operation..

Motor Stool : The heavy duty cast iron / mild steel motor stool is capable of taking the motor and rotor assembly weights as well as the axial thrust. It also houses the thrust bearings.

Thrust Bearing Assembly : An anti-friction thrust bearing located in the motor stool and lubricated by grease is capable of taking the dead weight of the rotor and axial thrust. A sleeve bearing is fitted below the thrust bearing and is also grease lubricated. The bearing nut and bearing lock nut are easily accessible and serve to adjust the axial position of the rotor unit such that the clearance between impeller and casing can be adjusted.

Intermediate Bearings : The transmission bearings may be lubricated by one of the following methods:

1. External supply of clear cold water.
2. By liquid being pumped.
3. Grease

External clear water lubrication is recommended when it is available at a pressure higher than the discharge pressure of the pump.

If the pumped liquid has a turbidity of less than 50 ppm (silica scale) or 500 ppm (chloride scale) and total solids less than 3000 ppm with pH value between 6.5 and 8.5, then it may be used as the lubricating liquid.

Grease lubricated bearings are recommended when external or self lubrication is not possible. Grease is supplied by a grease pump driven either through the pump coupling or by a separate motor.

Angular contact ball bearing at the top to take residual axial thrust and the weight of rotating parts.

Delivery Pipe : Heavy duty delivery pipe upto the motor stool floor level with one bend is standard supply with all.

Accessories : The following accessories are recommended.

1. Screens at inlet of the sump to prevent solids of sizes larger than that recommended from entering the pump.
2. Liquid level controllers to guard against dry running of the pump.
3. Power operated positive displacement grease lubricator for grease lubricated pumps.
4. Delivery pipes and bend upto the motor stool.

Material of Construction

Parts Name	All Cast Iron	O2S Fitted	CF 8 Fitted	CF 8M Fitted	Bronze Fitted
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Bronze
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Shaft	EN 8	SS 410	SS 410	SS 316	SS 316

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys.

The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.



Tanzania Sugar Mill

Self Priming Pumps

Range

- Capacity (Maximum) : 350 m³/hr.
- Head (Maximum) : 50 m
- Temperature : 80°C
- Working Pressure : 5 kg/cm²



Operating Principal

The self priming operation of the SINTECH is based on the injection principle.

On start up the air in the suction pipe is drawn into the pump, with the air and liquid mixture being compressed in the pump. This mixture flows to the top of the pump casing where the air separates from the liquid and is removed through the discharge pipe. The liquid recirculates in the pump casing until all air is evacuated from the suction pipe. The pump functions thereafter as a conventional centrifugal pump.

Before first start up, the pump casing must be filled once with liquid. The special design prevents the pump emptying after it has stopped pumping. In that way there is enough liquid in the pump for the next start up.

Salient Features

- » Casing has large priming chamber, air separator and volute.
- » Can be conveniently located at high locations or at ground level where installation is simple and indigance more easily and more economically performed.
- » Costing less to buy, install and maintain than submersible pumps, the self priming pump is designed to draw from liquid sources below ground level (Static suction lift upto 6m) or from sources which have no positive pressure to naturally prime the pump.

Its compact design enables it to fit in tight clearance location.

It can be easily mounted on a trailer for movement to various pumping locations such as wastewater lagoon service.

Special Features

- » Efficiency at par with internationally available pumps.
- » Replaceable wearing parts and hence longer life.
- » Quick automatic self priming action, designed for automatic air release during priming.
- » Non clogging impeller to handle suspended solids.
- » Repairs possible without disturbing the pipe connection due to back pullout design.
- » Portable, when fitted on trolley.
- » No need for foot valve.
- » Long life due to replaceable wearing parts.
- » Dynamically balanced rotating parts ensure minimum vibrations.
- » Easy maintenance and spares availability.
- » Suitable for motor / engine.



Constructional Features

Casing : The volute casing is extra smooth designed to achieve best efficiency, casing is back pull out type. Extra thick casing for handle abrasive liquid. It has large priming chamber, air separator.

Impeller : Impeller is three or four vane, semi open type designed for high efficiency. It has large smooth passage for slurry and solid handling ability. Reliable fixing of impeller on shaft is achieved by using helical insert in impeller nut. Impellers are dynamically balanced.

Stuffing Box : It encloses back of volute casing and has a stuffing box chamber with gland bush. External sealing fluid enhances life of gland packing and shaft sleeve. For special applications mechanical seal can be provided on request.

Bearing Housing : Pumps are designed with a very sturdy bearing housing a liberal bearing span to impeller overhang ratio. This ensures minimum shaft deflection and life of gland packing. It is in C.I. construction and has large oil reservoir for bearing lubrication. Oil seal on each side and oil breather at the top, protect oil contamination and allow expansion or contraction of air due to temperature changes.

Shaft : Shaft is in one piece, designed for the toughest service. The critical speed of the shaft is sufficiently above the operating speed. It is ground to less than 0.8 micron at critical surfaces. Shaft is fully protected from the liquid handled by means of a shaft sleeve and a gasket between impeller nut, impeller hub and shaft sleeve.

Shaft Sleeve : Shaft sleeve is provided under stuffing box and is well ground all over its length. It is hardened to increase its wear resistance. Shaft sleeve is positive driven with one end free to expand with temperature variations. Teflon gasket prevents leakage under the sleeve.

Bearings : Inboard bearing is pressed on shaft and is free to float axially in the housing. It carries radial load only. Outboard bearing is shouldered and locked on shaft with chuck nut and lock washer. It carries radial and unbalanced thrust load.

Lubrication: Oil lubrication is standard. Bearing housing designed for either oil or grease lubrication using same components. Easy to read oil level window affords positive visual check on oil supply. Oil seals are provided to prevent ingress of liquid or dust into the housing.

Direction of Rotation : Anticlockwise, when viewed from suction side



Portable Engine Driven

Material of Construction

Parts Name	All Cast Iron	02S Fitted	CF 8 Fitted	CF 8M Fitted	Highchrome Steel
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Highchrome Steel
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Highchrome Steel
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M	Highchrome Steel
Shaft	EN 8	SS 410	SS 410	SS 316	SS 304
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 304
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Haste alloy and other special stainless steel alloys.

The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

Specially Designed Pumps for Milk of Lime



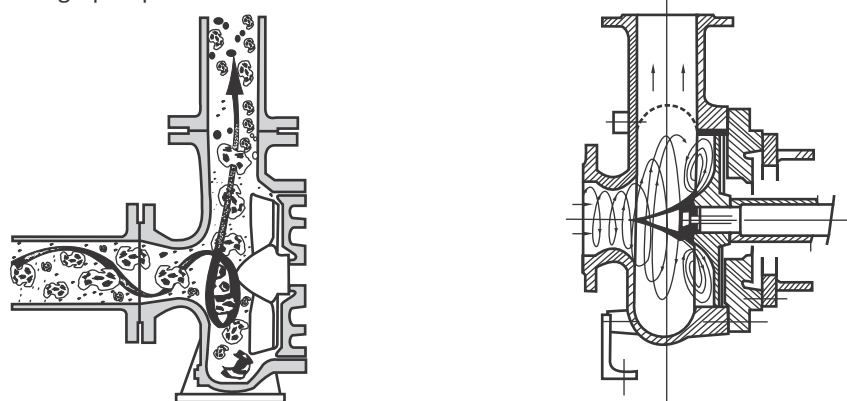
Range

Capacity (Maximum)	: 300 m ³ /hr.
Head (Maximum)	: 50 m
Temperature	: 90°C
Working Pressure	: 6 kg/cm ²

Sinterch Torque Flow Pumps are manufactured in Nickel Chrome steel having 500 - 550 BHN hardness to withstand the abrasive action of liquid being handled. It can handle solids upto full diameter size of discharge connection without danger of clogging. The principle of the hydro-dynamic liquid coupling is used for the energy transfer to the pumped liquid. The impeller generates a whirlpool in the casing and the whirlpool now acts as a pumping element (impeller) in the casing. It is a totally non-clog concept in pumping.

The one side open impeller is located deep in the pump casing, so the flow cross-section is free. The outer rim of the impeller does not allow water to flow out in the radial direction. After putting the pump into operation, potential vortex (Whirlpool) is generated inside the pump casing and inlet stub. In the inter blade canals of the impeller, the conversion of kinetic energy into the pressure energy occurs, owing to liquid circulation. The liquid velocity is equal on the impeller outer rim, as well as in the potential vortex region, so the liquid mass is forced to flow into the direction of low pressure region, i.e. in the direction of the pump axis.

In consequence to the above, the stream of pumped liquid is hydrodynamically combined with potential vortex, and with the liquid circulating in the impeller. The liquid stream flowing out and in the impeller region has on its return the direction opposite to that of the potential vortex, so the combined liquid is slightly slowed down. Owing to this fact, the impeller runs faster than the liquid whose particles come in contact with consecutive impeller blades and receive a new energy impulse each time. Therefore the increase in pressure energy in the Torque Flow Pumps is higher than that in conventional centrifugal pumps.



The necked inlet of the pump boosts the circulation of the liquid. As a consequence, the contained solid bodies are immediately thrown in the radial direction without touching the impeller. In this way both solid bodies and the impeller are prevented from damage.

As proved by investigation, the acceleration of liquid and relative velocity are slower in the Torque Flow Pumps. This feature of the Torque Flow Pumps makes them applicable for delivery of paper pulp of density up to 12%, viscous liquid and gas containing liquids and mixtures of water and solid bodies along with numerous other applications. Sinterch Self Priming Pumps are made of Nickel Chrome Steel having a hardness of 500 to 550 BHN for the following parts viz pump casing, impeller and gland plate. This gives the pumps a very long life owing to the high rate of abrasion resistance. The pumps are compatible for pumping all abrasive liquids.



Material of Construction

CASING : Nickel Chrome steel having a hardness of 500 to 550 BHN. Casing with slotted flanges throughout, is smooth and of extra heavy section designed for unobstructed flow. Abrasive or solids-laden flow goes directly into vortex of liquid and out to the discharge. There are no close clearances between casing and impeller (as in conventional pumps) to generate wear and nothing is between suction and discharge to jam, clog, break or bend.

IMPELLER : Nickel Chrome steel having a hardness of 500 to 550 BHN. Impeller is fully recessed out of flow path and is not subjected to wear by solids or abrasive particles churning in the flow when handling solids or slurries thus greatly improving impeller life.

STUFFING BOX : Nickel Chrome steel having a hardness of 500 to 550 BHN. It accommodates Gland Packing to control leakage of liquid being pumped.

SHAFT: Heavy duty shafts are designed for maximum operational heads and low deflection and vibration.

SHAFT SLEEVE: Shaft sleeve is keyed to shaft and gasket sealed to stop leakage under sleeve.

BEARINGS: Angular contact ball thrust bearings carry radial and thrust loads. Thrust bearings are back to back mounted, locked with nuts and lock washers. Oil lubrication is standard. Constant level oiler maintains proper oil level. Bearings are well protected from dirt. Grease lubrication can also be provided.

Material of Construction for both Models

Parts Name	Hi-Crome Fitted
Volute Casing	Hi-Crome
Impeller	Hi-Crome
Stuffing Box	Hi-Crome
Shaft	SS 410
Sleeve	SS 410
Bearing Housing	Cast Iron

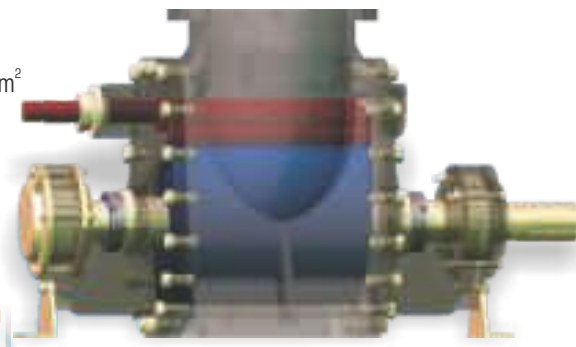
Sinterch give 5 years guarantee against abrasion for Milk of lime application

Rota Pumps (SRP)

Specially Designed Pumps for Magma / Masecuite



Range
Capacity (Maximum) : 100 m³/hr.
Head (Maximum) : 60 m
Temperature : 50°C
Working Pressure : 6 kg/cm²



Standard Material of Construction

Casing	Close Grained C.I.
Rotor	C.S.
Sealing Arm	C.S.
Bushes	Ph.: Bronze
Shaft	EN-8

Recognizing our customer's needs today in combating skyrocketing maintenance and plant operations costs, we have succeeded through applied research technology to drastically improve our pump performance. Our leadership position will keep us abreast of competition, in way of quality, durability and savings.

Advantages

- » Improved suction branch preventing starvation and allowing easy flow of material into the pump.
- » Considerably reduced leakage.
- » Trouble free and unskilled operation.
- » Available with mechanical seal and bearing mounting arrangement.

Rota Pumps with zero leakage

There is the only way to satisfy the customers are to provide a pump, which is absolutely leakage free. In our Rota pumps we paid special attention to avoid leakage and for that reason we designed a very special stuffing box fitted with mechanical seals. Our test results showed and proved that we mastered this leakage problem. To convince our customers we guarantee our pumps for one year.

Principle of operation

The pumping principle is very simple. An elliptical shaped rotor rotates in a cylindrical housing. The pumped medium is trapped in the cavities formed between the rotor and the housing, and is carried round from suction to delivery side. A hinged sealing arm, which follows the surface of rotor, scrapes off the pumped medium and directs it up into the delivery side. The sealing arm is spring loaded to maintain contact with the rotor. As the rotor returns to the suction side the fluid flowing through the inlet refills it. There is enough space for fluid to move towards discharge side as the fluid flows through the sealing arm.

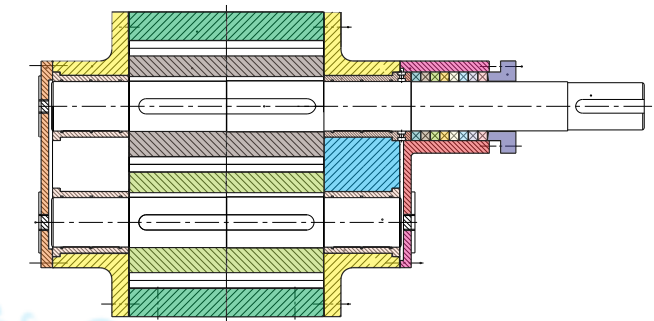
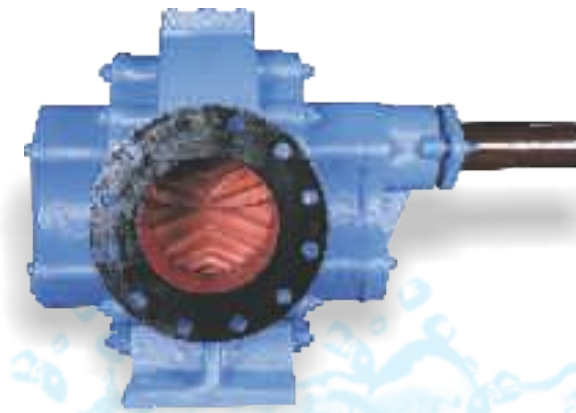
Outstanding Features

- » Anti Friction bearings reduces wear and tear of rotary parts.
- » Face sealed zero leak pumps.
- » Same pump for right or left hand drive.
- » Unique construction minimize internal leakage.
- » Power saving with improved casing design.
- » Full proof and easy assembling method.



Gear Pumps (SGP)

Specially Designed Pumps for Molasses



Working of The Pump

SINTECH Rotary gear pump consists of a casing in which two rotary gears revolve around fixed centers at uniform speed. Gears may be spur or helical type. The fluid entrapped between gear teeth and casing is pressurized and is transferred from suction side to delivery side during its rotation.

Capacity (Maximum) m³/hr. : 150
Head (Maximum) m : 100
Temperature 0C : 80
Working Pressure kg/cm² : 10

Simple & Sturdy Construction

There are only two moving parts. The pump is made of best material of construction.

All components are accurately machined, carefully assembled and tested.

In addition to the above, it can handle various types of other liquids. However, these liquids should not contain abrasives or corrosive chemicals which attack the metallic portion of the pump.

Drive

Directly coupled to electric motor through flexible coupling. May be driven through reduction gear or pedestal and counter shaft 'V' belt drive arrangement in case of reduced speed of pump. Its direction of rotation is clockwise when viewed from the power end.

Material of Construction

Cast Iron, Cast Steel or special material on request.

Applications

- » Molasses
- » Petroleum Products
- » Turpentine
- » Oils of all kinds
- » Dyes

Constructional Features

Case & Cover : Made of closed grained cast iron. Can also be made of special materials to meet specific requirements. Accurately machined, bolted and dowelled together.

Rotor : Consist of a pair of gears, shaft and gear can be made of stainless steel or Nickel chrome to meet specific requirements.

Stuffing Box and Gland : Stuffing box is extra deep. It is fitted with graphite packings. Wherever necessary, it can be fitted with Teflon parking. Gland is bolted type and is made of Cast Iron.

Salient Features

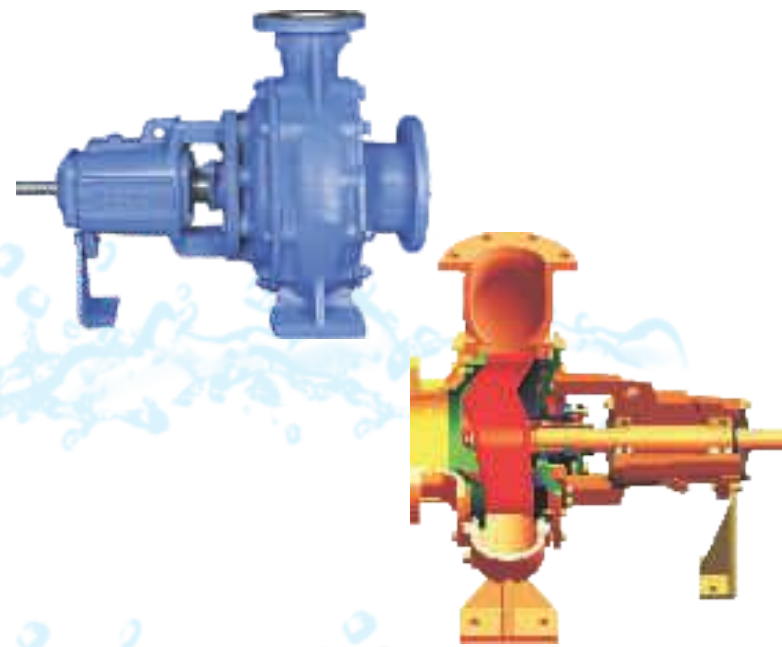
SINTECH has a wide range of rotary gear pumps. These pumps can handle viscous liquids upto 10000 SSU. Thus it covers a wide range of liquids normally required by different industries.

Special Features

- » Power saving combination of antifricition bearings.
- » Replaceable wear plates ensure lasting performance.
- » Improved suction design reduces cavitation and allows higher speed.
- » Modified profile for higher tooth life and lower moment of inertia.
- » Extra thick shaft for higher bearing life.
- » Equal-rating flanges allow pumping in either direction.

**Non Clog
Pumps**
(SSHQ SERIES)

Non Clog Pumps



Range
Capacity (Maximum) : 600 m³/hr.
Head (Maximum) : 60 m
Temperature : 95°C
Working Pressure : 6 kg/cm²

Applications

- » Muddy Juice
- » Caustic Soda
- » Syrup
- » Raw Sewage
- » Waste water
- » Sludge & Scum
- » Unscreened Juice
- » Scale water
- » Coke & Coal water mixture

Salient Features

- » Semi-open impeller, hydraulically balanced
- » Oversized rugged shaft to minimize corrosion.
- » Stuffing box easily converted from gland packing to mechanical seal.
- » Back pull out frame assembly.
- » Heavy-duty bearing for maximum life.
- » Oil lubrication.

Material of Construction

Parts Name	All Cast Iron	02S Fitted	CF 8 Fitted	CF 8M Fitted	Bronze Fitted
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Bronze
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Shaft	EN 8	SS 410	SS 410	SS 316	SS 316
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 316
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Hastelloy and other special stainless steel alloys.

The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

**Liquid - Ring
Vacuum
Pumps**
(SVM)

Specially Designed Pumps for
Rotary Vacuum Filter



Free Air Capacity : 5,200 m³/hr.
Vacuum : 685 mmHg

Applications

- » For removal of non-condensable gases and vapours.
- » For de-watering
- » For conveying fly ash in ash handling system
- » For recovery of chemicals

Salient Features

- » These Pumps can handle excess liquid carryover without any difficulty, even if it arrives as massive slugs.
- » Ease in maintenance as bearing bracket is externally mounted.
- » Power efficient.
- » Due to twin inlets available the pump can be operated as two independent Vacuum Pumps of half the capacity at different vacuum levels.
- » Large ports ensure liquid particulate matter carried over from the process can be handled without disruption.
- » The rotor design improves efficiency : Maximises capacity / speed range and reduces noise levels.

Principle of Operation

Sintech Water Ring Vacuum Pumps/Compressors, a dynamically balanced rotor with fixed curved blades and a hollow hub rotates in a cylindrical casing, containing the liquid. The axis of the rotor is offset with the axis of casing. During operation, the liquid rotates with the rotor and due to centrifugal force, it always remains in contact with the casing thus forming a hollow liquid ring. The revolving of rotor results in the alternate enlarging and diminishing of the volume of these chambers. These chambers are connected with specially designed inlet and outlet ported openings in the stationary inner cones. Thus during every revolution air is sucked from inlet branch and is discharged from outlet branch. Part of the rotating liquid also flows out of the pump along with the discharged air, therefore has to be replenished by supplying fresh liquid to the pumps. This continuous flow of liquid takes away the heat of compression of the air/gas handled, resulting in the cooling of pumps.

PERFORMANCE OF SINTECH WATER RING VACUUM PUMP
HANDLING ATMOSPHERIC AIR (R 50.5 RELATIVE HUMIDITY) AT BAROMETRIC PRESSURE 760 mm Hg. (SEA LEVEL)
SUCTION VOLUME OF AIR IN M³/HR. POWER INPUT IN HP & SUCTION VACUUM IN mm Hg.

VACUUM PUMP	SIZE	SPEED R.P.M	100mm Hg		200mm Hg		300mm Hg		400mm Hg		500mm Hg		600mm Hg		685mm Hg		SEAL WATER REQUIREMENT	MOTOR INPUT
			m ³ /Hr	H.P.	m ³ /Hr	H.P.	m ³ /Hr	H.P.	m ³ /Hr	H.P.	m ³ /Hr	H.P.	m ³ /Hr	H.P.	m ³ /Hr	H.P.		
SVM100	960	550	10	550	11	525	12.7	500	14	500	14	450	14	250	12.7		0.7-1.7	20
	1150	650	14	650	15	625	17	600	18	600	18	550	18	300	16.7	0.3	1.2-2.2	24.7
SVM200	1350	775	18.7	775	19	750	22.7	700	24	700	24	650	24	350	21		1.7-2.7	29
	890	1025	17	1025	20	1000	21	950	24	950	25	800	25	500	21		1.1-2.6	40
SVM300	980	1125	22.8	1125	23	1100	25	1050	28	1050	29	900	29	550	25	0.4	1.6-3.1	40
	1070	1200	26.8	1200	30	1175	30.8	1150	32	1150	35	1000	35	600	30		2.1-3.6	49
SVM600	690	1500	26.8	1500	30	1500	32.8	1450	37	1375	38.8	1275	38.8	800	34.8		2.0-3.5	49
	770	1700	34.8	1700	37	1650	40	1600	44	1550	46.9	1425	46.9	950	40.8	0.5	2.5-4.0	60
SVM600	820	1800	40	1800	42.8	1775	44	1700	48	1650	52	1525	52	1025	45		3.0-4.5	73
	500	3000	53.6	3000	58.9	2900	65.6	2800	71	2700	71	2400	75	1625	65.6		3.0-7.0	100
SVM600	550	3300	63	3300	69.7	3200	75	3100	80	3000	80	2700	84	1800	72	1	3.5-3.0	100
	600	3600	75	3600	79	3500	85.7	3400	92	3300	92	3000	95	2000	85.7		4.0-9.0	120
SVM600	420	4200	67	4200	80	4125	93.8	4075	107	4000	107	3500	109.9	2100	100		3.8-3.8	147
	470	4700	80	4700	93.4	4625	107	4575	126	4475	126	3900	128.6	2500	115	1.2	4.3-9.8	176.9
	520	5200	133	5200	127	5100	140.7	5100	144.7	4975	144.7	4450	150	3000	136.7		4.8-10.8	176.9

Process (ANSI) Pumps



Range

Size upto	: 200 mm
Capacity	: 600 m ³ /hr.
Head	: 180 m
Temperature	: 150°C

Applications

- Child Water
- Syrup
- Caustic soda
- Sprit
- Alcohol
- Chemicals

Salient Features

- Meet ANSI B73.1 standards.
- Optional inducer available.
- Back pull out design.
- Closed or open impeller.
- Jacketed convertible stuffing box utilizing packing or mechanical seal.
- Open impeller with renewable wear plate.
- Optional induce (available with open or closed impeller)

Material of Construction

Parts Name	All Cast Iron	O2S Fitted	CF 8 Fitted	CF 8M Fitted	Bronze Fitted
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Bronze
Stuffing Box	Cast Iron	Cast Iron	CF 8	CF 8M	Bronze
Shaft	EN 8	SS 410	SS 410	SS 316	SS 316
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 316
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron

Other than above state materials pumps are available in Cast Steel, CA 15, Ni-Resist, Super Duplex, CN7M, Haste alloy and other special stainless steel alloys.

The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

Castings

- » Castings are procured from reliable vendors together with relevant material test Certificate.
- » Shot blasted castings are visually inspected.
- » Surf collected during the machining is tested for correct chemical composition.
- » Hydro test on pressure castings at 1.5 times the design pressure or twice the working pressure, whichever is more is conducted.
- » Impellers are statically and dynamically balance.
- » Wherever specified dye-penetration tests are conducted on machined surfaces of castings.
- » Physical testing of all the relevant castings for their physical dimensions.



Shafts

- » Standard shaft material is SS-410 (H&G)
- » Shaft bar material is procured from reliable sources together with relevant certificates.
- » Shaft is tested to ensure correct chemical composition.
- » Wherever required, tensile tests are conducted on test bars.
- » Wherever required, ultrasonic tests are conducted on shaft materials.
- » Any other specific quality norms accepted for the particular contract are also compiled with.



EXPORT CLIENTS

SUGAR INDUSTRY

Performance Testing

- » A well equipped test field exists at our works for the performance tests of pumps up to 10000 CuM/Hr at full speed.
- » A new test bed of 35,000 m³ under construction.
- » Capacities are measured by magnetic induction type flow meters as well as orifice plate method for Zero defect measurement.
- » Pressure is measured by accurately calibrated Test Pressure Gauges having accuracy of 0.025%.
- » The supply voltage, current and power taken by the pump is measured with the help of control panel which consists of ammeters, voltmeters, CT's and two Wattmeter.
- » Performance tests are carried out with cold water.
- » Simultaneously three pumps can be test at a time.
- » Modern Test bed ensure 100% testing of pumps with human error totally excluded, resulting in reliable and authentic test results.
- » VFD used to cover all the design range at different frequencies.
- » After performance test is over the pump is to be dismantled to check the wear/tear between parts in close contact and having relative motion.
- » Testing upto 500KW at full load.



- » Petro Green Co. Limited : Thailand
- » Mitr Phol Groups : Thailand
- » Fives Cail KCP : Vietnam [2500 TCD]
- » Galoya Plantation : Sri Lanka [2500 TCD]
- » White Nile Sugar : Sudan[25000 TCD]
- » Kinyara Sugar Ltd. : Uganda [4000 TCD]
- » NAT & L Sugar Co. Ltd. : Vietnam [8000 TCD]
- » Tendao Sugar : Ethiopia [25000 TCD]
- » PT. Gunniny Madu Plantations : Indonesia
- » Pelwatte : Sri Lanka [3000 TCD]
- » PT. Dus : Indonesia [Raw Sugar 6000 TCD]
- » Kakira Sugar : Uganda
- » HOIMA SUGAR : Uganda
- » Finchha : Ethiopia [12500 TCD]
- » Alam Sugar : Uganda
- » Kibos : Kenya
- » Kwale : Kenya



Date: 17/04/2010

TO WHOMSOEVER IT MAY CONCERN

This is to certify that we have the following details of Sprays installed in our Plant:

Application	Model	Unit	Capacity (M ³ /hr)	Head (mtr)	Motor Size (KW/HP)	Year of Commissioning
Acid Pump	SP-12542	Java	200	40	75/100	2008
Dilution Pump	SP-12542	Java	200	30	75/100	2008
Sugar Pump	SP-12542	Java	80	30	15/20	2008
Trinitrate Pump	SP-12542	Java	250	30	20/25	2009
Structural Pump	SP-12542	Java	200	30	15/20	2009
Feed Pump	SP-12542	Java	100	30	11/15	2009
Filtration Pump	SP-12542	Java	1000	30	100/140	2010

The above pumps are working satisfactorily since their commissioning.

Prastidibly Sweet

KINYARA SUGAR LIMITED, UGANDA



DALRAMPUR CHINI MILLS LIMITED
ESTD. 1958

TO WHOMSOEVER IT MAY CONCERN

This is to certify that we have the following details of Sprays installed in our Plant:

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This is to certify that we have the following details of Sprays installed in our Plant:

TO WHOMSOEVER IT MAY CONCERN

BALRAMPUR CHINI MILLS LIMITED



TO WHOMSOEVER IT MAY CONCERN

This is to certify that we have the following details of Sprays installed in our Plant:

TO WHOMSOEVER IT MAY CONCERN

This is to certify that we have the following details of Sprays installed in our Plant:

TO WHOMSOEVER IT MAY CONCERN

This is to certify that we have the following details of Sprays installed in our Plant:

TO WHOMSOEVER IT MAY CONCERN

SPRAY ENGINEERING DEVICES LIMITED

PRESTIGIOUS PROJECT ORDERS



Party Name	Project Name
Bajaj Hindusthan Limited	Kinauni Project, Bilai Project, Thanabhawan Project, Pratappur Sugar & Industries Ltd.
Balrampur Chini Mills	Khumbi Project, Gularia Project, Akbarpur Project, Mankapur Project
Dalmia Sugar Limited	Ramnagar Chini Mills - Jawaharpur Project, Nigohi & Datta Sugar Kolhapur
Hi Tech	Aryan Sugar, Sitaram Sugar, Saubhagya Lakshmi, Audumbar Sugar, Gyanba Sugar, Hindustan Sugar & Bhasaweswara Sugar
ISGEC	White Nile Project in Sudan, Core Green Sugar, Daund Sugar Project, NSL Sugar, Sancarlos Bio Energy Ltd. - Philippines, Balrampur Akbarpur Unit, BHL [Saharanpur], BHL [Vikramjote], Dwarikesh Sugars, Shree Someshwar SSK, HPCL Sugauli, SAIL, Kisan Veer, Gobind Sugar, SUNTI, Butali, Salima Sugar Malawi, Zanzibar, Rana Sugar Bilari, Peru, PT SMIP, Cavite
Mawana Sugar Mills Limited	Naglamal Project, Titawi Sugar, Mawana Sugar
NHEC	Tandhao Ethiopia Project, Chhattisgarh Project, Beet Sugar Project, Bhagauli Sugar, Nalwade Sugar Project, Oudh Sugar
Shrijee Engineering Works	Bannari Amman Sugars Limited, Chadha Sugar - Raw Sugar Boiling House
Spray Engineering Devices Ltd.	Birla Sugar - Hatta Project, Shahabad Project, FIJI Project, Kovur / Kinauni Project, Jay Mahesh Sugar Project, Madhi Vibhag Project, Madina Sugar Project, God Ganga Project, Sharavasthy Kissan Mills, Pooni, GMR, Shree Ambika Sugar, Rana Sugar, Brother.Pakistan, Al-Abbas, Mirpurkhas.Pakistan, S.M.S.M.P.S.S.K Limited, Malaprabha
S.S. Engineers	Dwarkadish, BHL Thanabhawan Project, Sonai Krushi Project, Kanoria Sugar, Rai Bahadur, Vitthalrao Shinde SSK Ltd., L.H. Sugar, Nirani Sugars, Khalilabad Sugar, Mills Pvt. Ltd., Oudh Sugar - Hata Project, HARYANA Co-Operative Sugar Mills Ltd., Rohtak, Haryana, Bhuramdev Sugar Chhattisgarh
Triveni Engg. Ind. Ltd.	Milk Narainpur Tehsil, Rampur, Chandpur Project, Sabitgarh Project, Khatauli - Unit, Ram Garh, Deoband - Unit, Ramkola - Unit
Uttam Industrial Engg. Ltd	Lakhimpur Kheri Project, Mankapur Project, Uttam Shermau, Uttam Khaikheri, Kundarki Project, Gularia Chini Mills - Lakhimpur, Maa Mahamaya SSK Maryadit, Ambikapur - Chattisgarh Project
Walchandnagar Industries Ltd.	Bhairavnath Sugar Co-Gen, BHL [Pratappur Sugar], Godavari Sugar Project
	Chadha Sugar & Industries Ltd., Wahid Sandhar Sugar Ltd., Batala Sugar Co-op.
Meru Industries	SMBT, GOKUL Sugar
Saisidha Sugar Equ. & Engg. Co. Pvt. Ltd	Hoima Sugar, VNSSL, Modern Distillers, Uganda, Mylar Sugars Ltd.
Uttam Sucrotech Internation Pvt. Ltd.	KAKAMEGA, AGROLMOS PERU, Horyal, Wonji Shoa Sugar
Chemical System	PTSMIP, Kibos Sugar
SEFTECH INDIA LTD	KOMENDA- GHANA