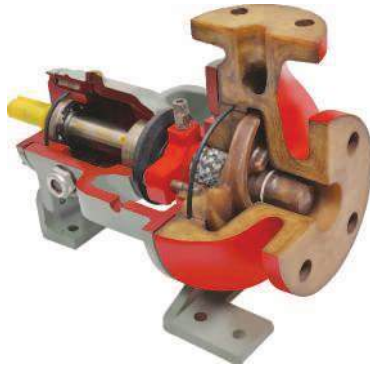


FRP MOULDED CENTRIFUGAL CHEMICAL PROCESS PUMPS

Fibre Glass Reinforced in Polyester
Resins of Vinyl ester Grades

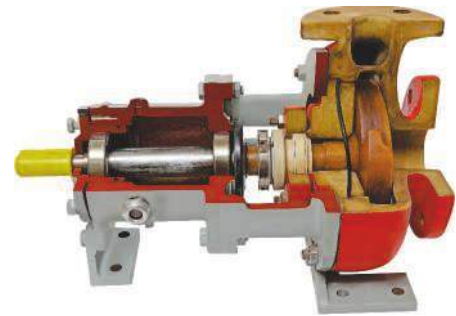


HORIZONTAL CENTRIFUGAL FRP PUMPS WITH MECHANICAL SEAL



CONSTRUCTION

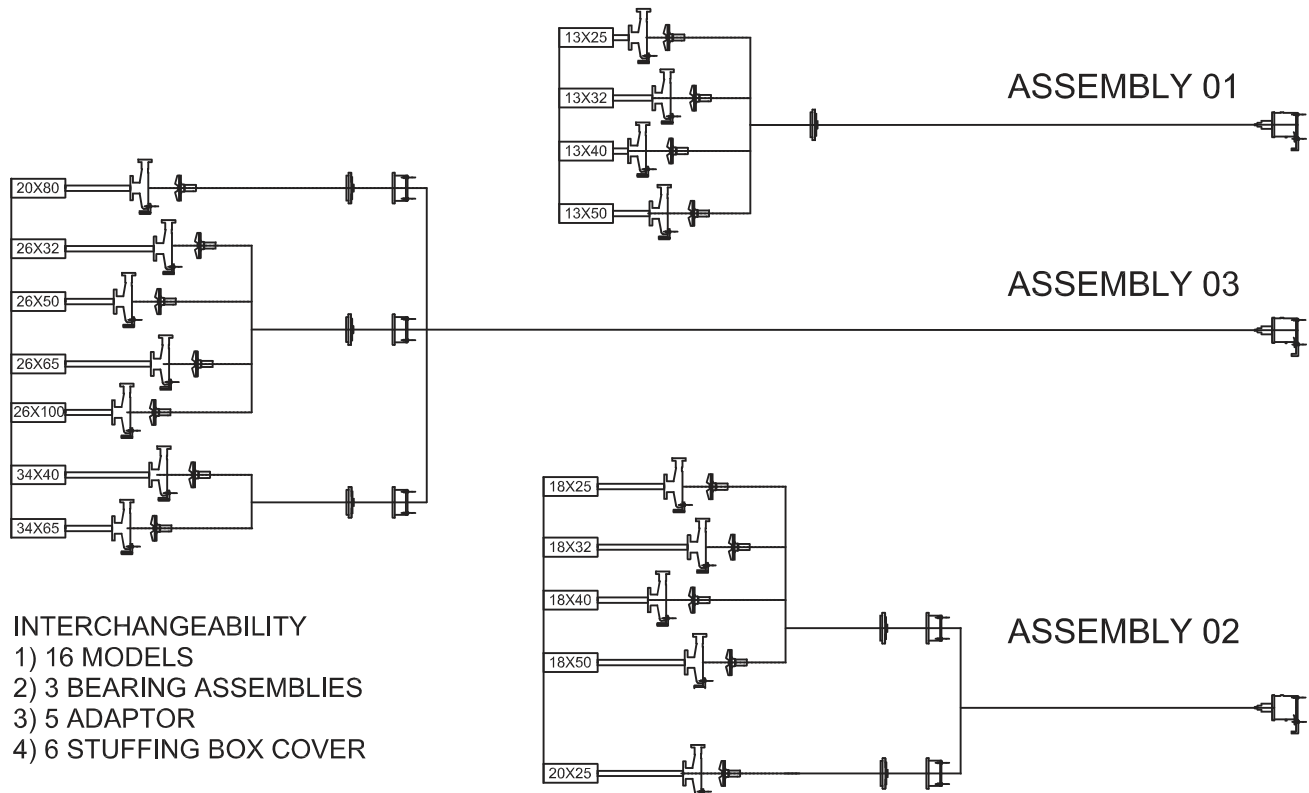
The wetted components - casing, impeller, back cover, gland Pusher, impeller nut etc. are solid moulded in Fibre-glass reinforced polyester resin through unique moulding process, with the hydraulic passages and contact surfaces smoothly contoured and rich in resin; ensuring excellent resistance to corrosion and abrasion. These FRP composites are particularly suited for applications with highly corrosive, contaminated and aggressive liquids and provide strength and superior impact resistance. This non-metallic construction eliminates galvanic corrosion.



FRP pumps can be supplied with mechanical seals of standard available makes for specific applications involving hazardous or expensive liquids or liquids where the necessary leakage from the stuffing box is objectionable. The pump with mechanical seal will have single composite structure of FRP components consisting of impeller, impeller nut and shaft sleeve.

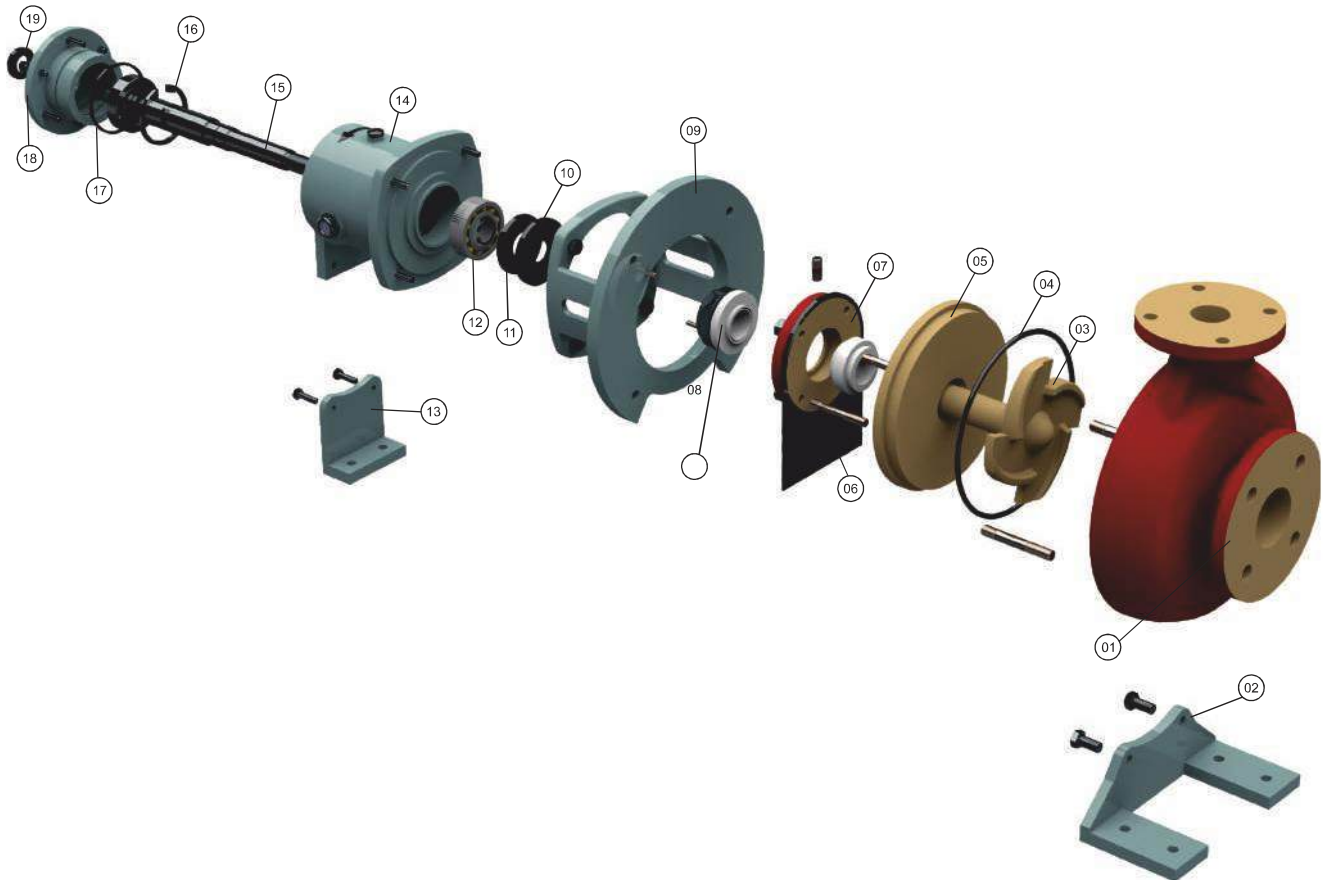
DIMENSIONAL INTERCHANGEABILITY

Conceptual approach to inventory control through maximum dimensional interchangeability has achieved optimum design standardization leading to a large number of permutations between various pump models and motor frames on a limited number of base frames, power and assemblies.





DIMENSIONAL INTERCHANGEABILITY



01. CASING : Single Composite structure of FRP (Fibre glass reinforced into Vinyl Ester resin) having single volute design with contour top center line discharge and end suction. Cross lamination of fiber glass mats, ensures multi-dimensional strength.

03. THREADED IMPELLER WITH EMBEDDED SHAFT SLEEVE : Single composite structure of FRP is axially balanced and accurately matched to casing profile. This semi open type impeller having partial shroud and glass finished smooth flow passages ensures high efficiency and low NPSH performance. Impeller is keyed on shaft with hydraulically contoured impeller nut ensuring positive locking. For centrifugal pump with mechanical seal, Incorporates single composite structure of threaded impeller with embedded shaft sleeve, to ensure zero penetration of fumes/ liquids towards shaft.

SHAFT SLEEVE: In Gland Pack Pump or Threaded Impeller renewable shaft sleeves available in wide range to suit service specifications. They are positively driven and leakage under sleeve is prevented by Teflon Gasket. Available in SS316, ALLOY-20, HASTLE ALLOY-C.

05. CASING BACK COVER : Casing back cover/stuffing box for installation of external as well as internal, single or double mechanical seal.



SR NO.	DESCRIPTION	MOC
2.	Casing Foot	Cast Iron
4.	Casing Gasket	Rubber
6.	Drip Guard	Rubber
7.	Gland Plate	FRP
8.	Mechanical Seal	Variable with liquid applications
9.	Casing Adaptor	Cast Iron
10.	Deflector	Rubber

SR NO.	DESCRIPTION	MOC
11.	Oil Seal inboard	Rubber
12.	Shaft Bearings	En-31(Ball Bearings)
13.	Bearing Frame Foot	Cast Iron
14.	Bearing Frame	Cast Iron
15.	Shaft	EN-9, SS316
16.	Bearing Circlip	Spring Steel
17.	"O" Ring	Rubber
18.	Bearing Housing	Cast Iron
19.	Oil Seal outboard	Rubber



VERTICAL GLANDLESS (VGL) CENTRIFUGAL FRP PUMPS

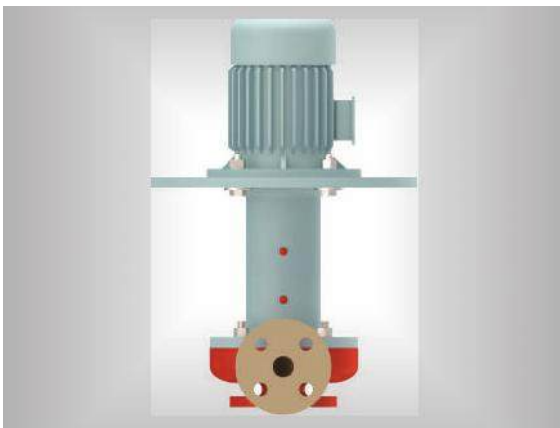
VGL series features a VERTICAL GLAND LESS PUMP without gland packing & Mechanical seal for trouble free, leak proof and maintenance free operation for handling corrosive and reactive service conditions.

A Vertical gland less pump similar in hydraulic design to any conventional centrifugal pump differs, as the liquid entering suction flows around Impeller casing and moves to the discharge under pressure. Between the gap of pump casing, Keyway Impeller with Shaft sleeve and a casing back cover; some liquid escapes to over flow chamber (Rear Casing). The rear Impeller (Expeller) with sleeve prevents the liquid going further up and canalizes in through an outlet in the overflow chamber (Rear Casing). For easy maintenance pump is coupled with motor, So motor can be dismantle easily.

All wetted components of this series pumps are joint less single composite structure of FRP (Fiber glass Reinforced in Polyester Resin of Vinyl ester Grade).



VERTICAL SUBMERGED CENTRIFUGAL FRP PUMP



VSP series pumps features a cantilevered FRP sleeved SS316 shaft with key-way in corporate with positive locked Impeller by nut, boxed with single stage volute casing. The unique characteristic of VSP series pumps are that the casing can be rotated for the choice of discharge directions, which adds to the flexibility of installation. Also the suction length flexibility of 300mm & 450mm are available options.

Further the impeller with positive lock nut and embedded shaft sleeve does not allow liquid vapors to penetrate towards shaft since; the impeller nut encapsules the impeller by a step incorporated with PTFE (Teflon) Gasket.

A support FRP moulded adaptor with flange and a robust mounting plate having a thickness of 25 MM acting as a support column to the IP-55 chemical duty flange mounted motor. Further, this support FRP mould adaptor has enough outlet passages which prevents liquid to come in contact with motor shaft by reducing the back pressure through Overflow arrangement.

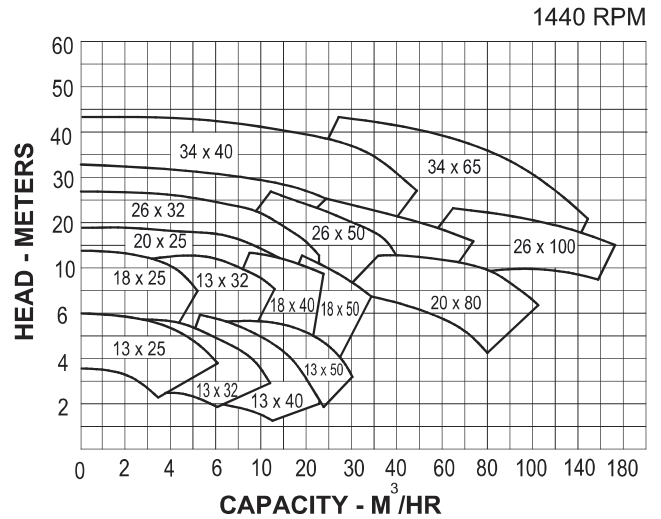
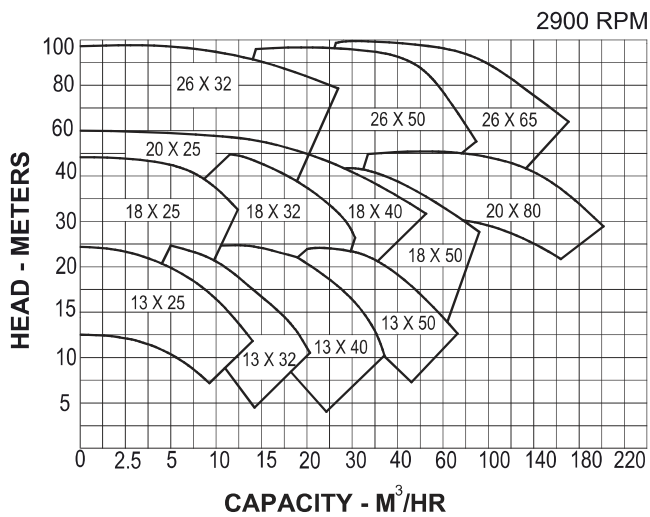
The cantilevered FRP sleeved shaft and Impeller nut do not require bearing or conventional stuffing box seals. This facilitates dry running of pump without damage.

The semi open impeller with volute type casing having contoured discharge facilitates VSP series pumps with better efficiency and low energy consumption.

These all above made our VSP series pumps with proven performance in the field.



COMPOSITE PERFORMANCE CURVE



FRP PUMP APPLICATIONS

- ❖ Sulfuric Acid (Concentration up to 75%) Applications
- ❖ Hydrochloric Acid Applications
- ❖ Sea Water and Brine Solutions
- ❖ Caustic Applications
- ❖ Mother liquor Applications
- ❖ Bleach liquors & Chlorinated water mills
- ❖ For scrubbing of corrosive gases.
- ❖ In Water and Effluent Treatment Plants
 - RO Cleaning
 - Colour Removal
 - Corrosive Effluent
 - DM Water
- ❖ Metal Processing chemicals in steel plants
- ❖ De-scaling in various equipments
- ❖ Dye stuff Industries

Fiber glass reinforced in vinyl ester resin (FRP) pumps is compatible with more than, 600+ applications.