

# PHS & PVHS

## VERTICAL & HORIZONTAL SOLIDS HANDLING PUMP

### DESIGN OVERVIEW

Precision Pumps HS recessed impeller solids handling pump had the unique ability to handle large particles of fibrous solids. The full recessed impeller and extra wide casing allows any solid size entering the suction inlet to pass through the discharge nozzle.

Various materials of construction: 28% Chrome Iron, Cast Iron and Stainless Steel.

Also Available in Vertical cantilever arrangement.

Available in five sizes with up to 200mm discharge.

- CAPACITIES TO 1090M<sup>3</sup>/h
- HEADS TO 43 METERS
- TEMPERATURE TO 1100C
- SPHERICAL SOLIDS TO 200MM



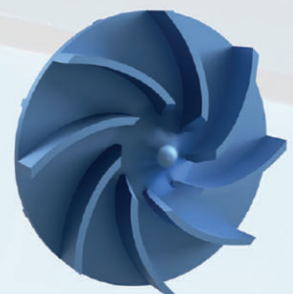
BEARING FRAME



HUB DISC



CASING



IMPELLER

# PHS & PVHS

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### CASING

Rugged one-piece casing is designed to facilitate the flow of all types of solids-hard, soft or fibrous. The back pull-out design permits service of rotating assembly without disturbing piping connections.

### IMPELLER

Recessed impeller permits any material entering the intake to be expelled through the pump's discharge. The impeller may be fastened to the shaft either by a key and nut or threaded-on.

### PUMP SIZE

Our PHS pumps are available with discharge sizes 2,3,4,5,6 and 8 inch with a variety of impeller diameters.

### BEARINGS & FRAME

Four bearing frames accommodate all PHS models. Bearings are mounted in single housings for accurate alignment. Available for either oil or grease lubrication.

### SHAFT & SHAFT SLEEVE

Rugged high carbon steel shaft - protected in stuffing box area by "hooked" shaft sleeve keyed to shaft.

### STUFFING BOX

Easy accessible for service, the Stuffing Box will accommodate conventional packaging, a mechanical seal, or the new Dry seal.

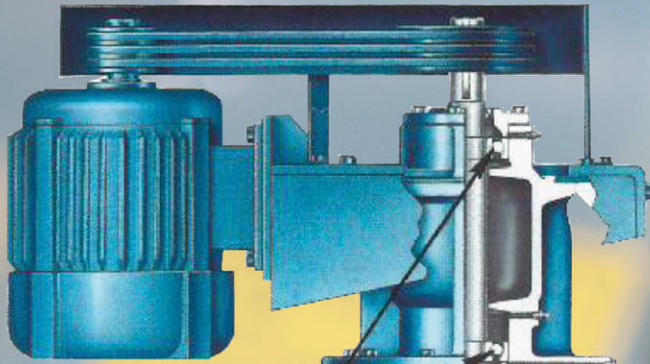
### NEW DRY SEAL (OPTIONAL)

Especially designed rotative and static seal requires no seal water, eliminating the possibility of product contamination and stuffing box leakage. The dry seal is suitable for use in pumping large particle solids or abrasive slurries.



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### BELT OR DIRECT DRIVES

Precision Pumps offers a full range of belt and direct drive motor bases for use with the PVHS Range of pumps. Belt drives allow new operating requirements to be met at low cost by changing belts and sheaves. Direct drives offer simplicity, ease of installation, and minimum maintenance. See illustration for typical belt drive arrangement.

### RUGGED BEARING ASSEMBLY

The PVHS range uses five bearing assemblies, two of which can be used on any given pump size. Precision Pumps chooses the most economical assembly consistent with long life in your application. Heavy duty grease lubricated ball bearings are sized for a minimum life of 25,000 hours.

### PIPE COLUMN

High-strength steel pipe column rigidly maintains alignment between bearing assembly and pump casing.

### SHAFT & SHAFT SLEEVE

High-strength alloy-steel pump shaft is fully machined and protected in the hub disc area by a replaceable "hook-type" stainless steel sleeve. Each shaft is engineered to best suit the pump setting, speed, and material to be handled.

### CASING

Rugged one-piece casing is dimensioned to allow all kinds of large solids to pass without clogging. Circular casing design enhances vortex pumping action.

### VERTICAL CANTILEVER DESIGN

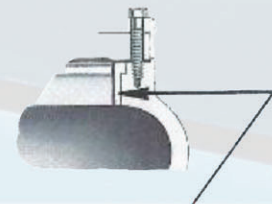
All pump bearings are located in a single housing above the pump floor plate-out of the sump and out of trouble. This means reduced installation, maintenance and downtime costs. Because no oil or water lines are required to lubricate submerged bearings, the VHS is ideal for remote installations.

### HUB DISC

Independent hub disc is sand winched between casing and pipe column. Minimizes liquid "blow-back" around shaft sleeve without actual sealing contact.

### IMPELLER

Keyed-on impeller is fully recessed to allow passage of solids equal in size to pump suction "O" rings behind impeller nut and impeller hub seal shaft end from corrosive liquids.

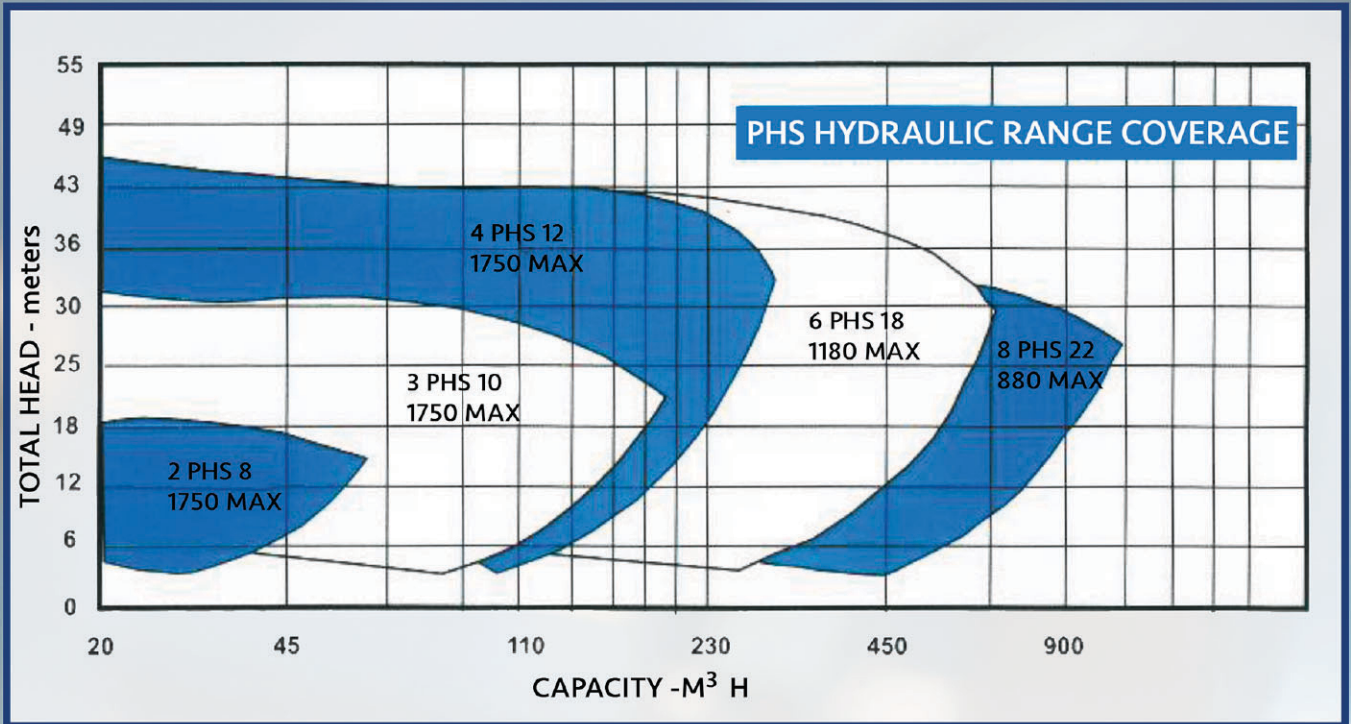


### WEAR RING (OPTIONAL)

Replaceable wear ring offers added casing protection against abrasives.

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## HYDRAULIC RANGE



## SERVICES

### PULP AND PAPER

- Paper Stock
- Black Liquor
- Filtrate
- Plant Effluent

### MINING

- Carbon Slurry
- Coal Slurry
- Iron Oxide Slurry

### WASTE TREATMENT

- Raw Sewage
- Sewage Sludge

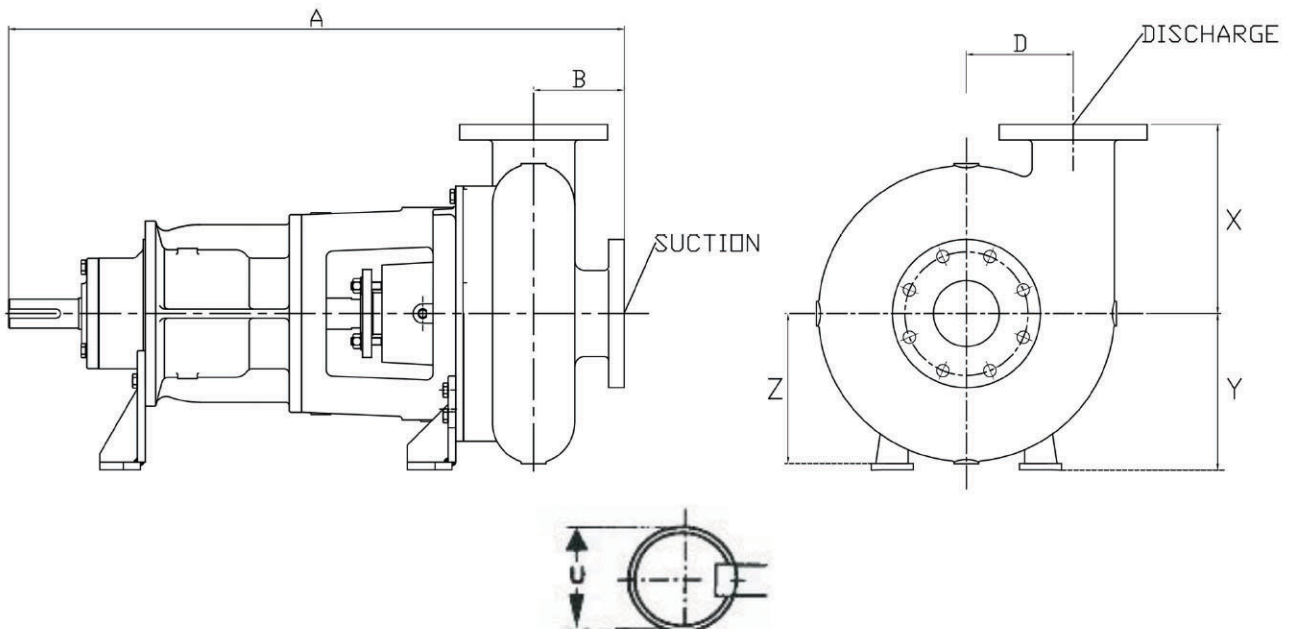
### FOUNDRIES AND STEEL MILLS

- Mill Scale
- Water and Slag
- Grit

# PHS

## HORIZONTAL PUMP GENERAL ARRANGEMENT

ALL DIMENSIONS IN MILLIMETERS. NOT TO BE USE FOR CONSTRUCTION.



### D I M E N S I O N S

PUMP SIZE	FRAME	A	B	D	X	Y	Z	U	WEIGHT (Kg)
2 PHS 8	3H	751	76	111	197	200	146	45	130
3 PHS 10		819	114	140	244	200	189	45	160
4 PHS 12		949	140	165	292	250	203	45	195
6 PHS 18	5H	1064	191	244	406	250	337	45	320
8 PHS 22		1276	229	305	521	430	425	90	465



# PHS

## VERTICAL MATERIAL

### PIPE COLUMNS

The pipe column is available in 5 different material of construction including the following:

- Mild Steel
- Stainless Steel 304
- Stainless Steel 316
- 3Cr12
- Epoxy Coated Mild Steel

The purpose of having these configurations is to both suit the application and also the budget of the client. The columns are designed with a purpose to last and are equipped with gussets to sustain the full range of the wet ends. There are two standard pipe sizes for the complete pump range namely the 6 inch diameter and the 8 inch diameter.

### COLUMN LENGTH

The column length depends entirely on the sump depth and constant water depth of the sump. The standard unit does not normally exceed 3 meters but longer units are available on request. We have a number of standard lengths and any other size is manufactured according to the clients requirements. The size of the standard unit is as follows:

- 1 mtr • 1.2 mtrs • 1.5 mtrs
- 1.8 mtrs • 2.0 mtrs • 2.5 mtrs • 3.0 mtrs

Any of the above lengths are applicable to the entire vertical series and are fully adaptable to each situation. We recommend that they are kept to the standard lengths to enable us to supply the spares with the shortest possible lead time due to the fact that units manufactured to clients specifications are not kept as stock items.



# PHS

## DIRECT DRIVE VERTICAL MOTOR MOUNT

The PHS and PVHS are also available in a belt drive configuration as displayed on the right.



The direct drive motor bracket is used for a fixed speed drive or VSD equipped pump set. The stool is designed to be fitted directly to the pump bearing housing and the motor secured directly to the flange mounted motor bracket, as can be seen in the image to the left.