GOULDS PUMPS

Goulds 5150/VJC

Vertical Cantilever Bottom Suction Pumps

ITT

ENGINEERED FOR LIFE

5150/VJC

Vertical Cantilever Pumps Designed to Handle Corrosive/ Extremely Abrasive Slurries

- Capacities to 1817 m^3/h | 8000 GPM
- Heads to 79 m | 260 ft
- Temperatures to 93° C | 200° F
- Pit Depths to 3.4 m | 11 ft
- Solids to 98 mm | 3 7/8 in

Design Features

- **Cantilever Design** - No submerged bearings.
- **External Impeller Adjustment** - Maintains pump efficiency and performance.
- **Dual Volute Casing** - Eliminates radial unbalance; reduces wear.
- **Materials of Construction** - Available in a wide range of corrosive/abrasive resistant alloys.
- **Heavy-Duty Bearings Bottom Suction** - Removes solids from sump floor.
- **Removable Suction Liner**
  Maximum Interchangeability

Services

- Steel Mills
- Power Plants
- Foundries
- Alumnia Refineries
- Cement Mills
- Phosphoric Acid Plants
- Coal Prep Plants
- Phosphate Mines
- Iron Ore Slurry
- Mine Slurry

Application Flexibility

Direct or Belt Drive

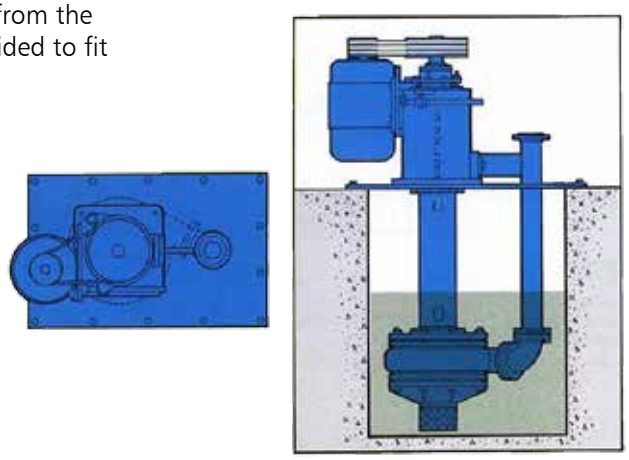
Goulds offers drive arrangements to meet specific user requirements.

Direct drive offers simplicity, ease of installation and minimum maintenance.

Belt drive allows use of standard speed motors with full diameter impellers. Adapts pump to meet any head or capacity. Extends wear life through low operating speeds.

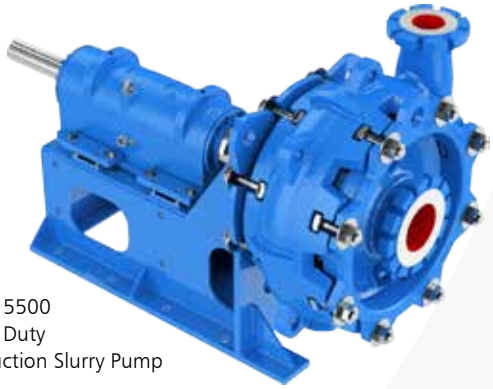
Optional Floor Plate

Optional floor plate enhances removal of pump from the sump. Custom designed floor plates can be provided to fit your sump.



Horizontal Pumps

Goulds makes a complete line of horizontal abrasive slurry pumps in sizes from 1" to 14" discharge with capacities to 3636 m^3/h | 16,000 GPM and heads to 120 m | 395 ft. Pumps are available in side suction or end suction configurations.



Model 5500
Severe Duty
End Suction Slurry Pump

Construction

Parts List and Malerials of Construction

Item No.	Part Name	Material		
		Standard		Optional*
		Cast Iron (VJC)	HC600	316SS
100	Casing	Cast Iron	HC600	316
100B	Suction Liner	Cast Iron	HC600	316
101	Impeller	Cast Iron	HC600	316
103	Casing Ring (5150)	–	HC600	316
109	Bearing End Cover	Cast Iron		
112	Thrust Bearing	Steel		
122	Shaft	1144 Steel		316
123	Deflector	Rubber		
126	Shaft Sleeve	416		
134	Thrust Bearing Housing	Cast Iron		
168	Radial Bearing	Steel		
178	Impeller Key (5150)	Steel		316
182	Suction Cover (5150)	–	HC600	316
182	Suction Cover (VJC)	Cast Iron		316
192	Pipe Column	Steel		316
195	Discharge Pipe	Steel		316
228A	Bearing Frame	Cast Iron		
304	Impeller Nut (5150)	316		
315	Discharge elbow	Steel	Cast iron-5150/Steel-VJC	316
333	Labyrinth Seal	Carbon Filled PTFE		
473	Throttle Busing (VJC)	Cast Iron	HC600	316

* For other materials, contact factory.

Materials of Construction

Material Specifications	
Cast iron	ASTM A48 – Classes 25 and 35
HC600	High Chrome Iron – Similar to ASTM A532 C 1.3 Type A
316SS	Stainless Steel – AISI 316 or ASTM A743, Grado CF8M

Construction Details

Model VJC		Pump Size					
		2x3-14	3x4-14	4x6-14	6x6-14	8x10-18	10x12-22
Impeller and Casing	Net Weight — Lbs. (kg)	2000 (907)	2080 (943)	2100(953)	2600(1179)	3500 (1588)	6200(2812)
	Min. Casing Thickness — in. (mm)	.56(14)	.62(16)		.75(19)		
	Max. Solids Size — in. (mm)	7/8 (22)	1-1/8(29)	1-3/8(35)	1-1/2(38)	2(51)	2-1/4(57)
	Workina Pressure — PRIG (kPa)	127 PRIG (875)					

Model 5150	Pump Size												
	3X3-12	4X4-14½	4X6-18	4X6-21½	6X6-21½	5X6-15	6X6-17½	6X8-17½	6X8-21	8X8-17½	8X10-17½	8X10-21	10X12-21	12X14-21¾
Min. Casing Thickness — In. (mm)	⅝ (16)		⅞ (22)	1 (25)	1-⅛ (28)	⅞ (22)			1-⅛ (28)	¾ (19)		1-⅛ (28)	1-⅜ (35)	
Max. Solids Size — In. (mm)	⅝ (16)	⅞ (22)	1-⅛ (29)	1-¼ (32)			2 (51)	1-¾ (44)	1-½ (38)	3-⅛ (98)	2-¾ (70)	2-¾ (70)	2-⅞ (73)	3-⅜ (86)
Working Pressure — PSIG (kPa)	150 (1034)													

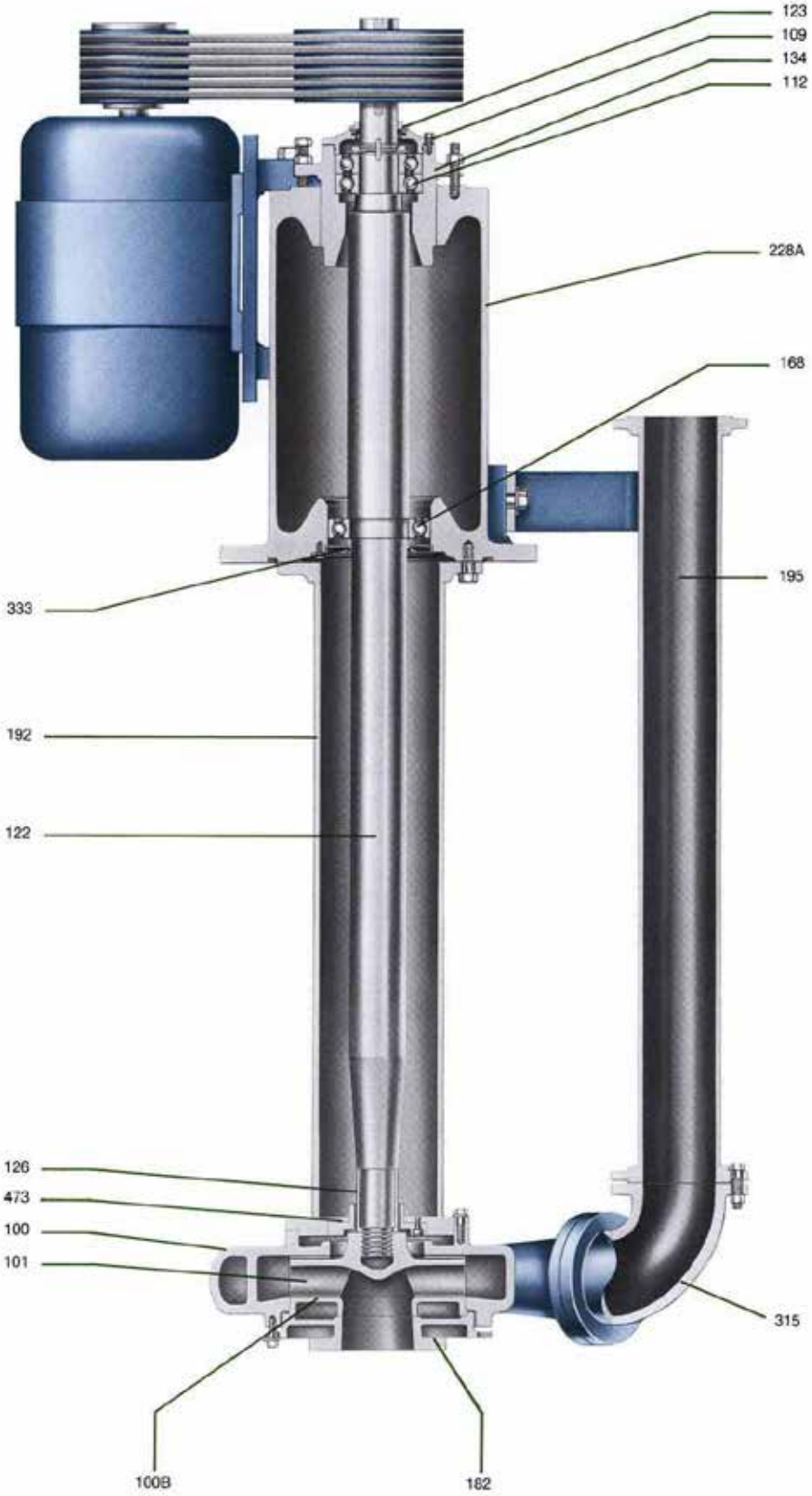
SHAFT AND BEARING DATA

		Bearing Frame						
		C2	C3	C4	C5A	C5	C6A	C6
Shaft	Diameter at Coupling (Size 6x6-12 and Larger)	2.875	2.875	2.875 (3.375)	2.875	2.875 (3.375)	2.875 (3.375)	2.875 (3.375)
	Dia. Between Bearings	4.0	5.0	5.75	7.0	7.0	8.125	8.125
	Dia. at Outboard Bearing	3.150	3.346	4.331	3.346	3.812	4.331	4.50
	Dia. at Inboard Bearing	3.543	4.724	5.512	6.692	6.692	7.784	7.784
	Bearing Span	24.63	29.25	33.0	29.6	31.75	33.0	34.38
Bearings	Outboard[1]	7216 Duplex	7317 Duplex	7322 Duplex	7317 Duplex	90381 90744	7322 Duplex	HM926740 HM926710D
	Inboard[2]	6218	6224	6228	61834	23034	61804	2394D

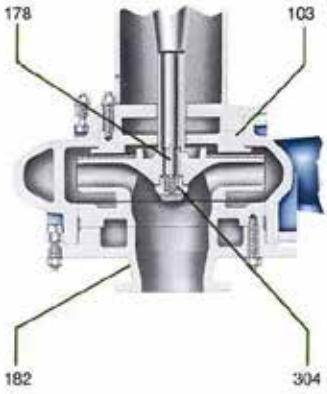
1) Outboard bearings are duplex angular contact bearings on frame sizes C2, C3, C4, C5A, & C6A; and are double row tapered roller bearings on the C5 and C6 frames.
2) Inboard bearings are single row deep groove ball bearings on frame sizes C2, C3, C4, C5A, & C6A; and are spherical roller bearings on the C5 and C6 frames.
3) All dimensions are in inches.

Sectional View

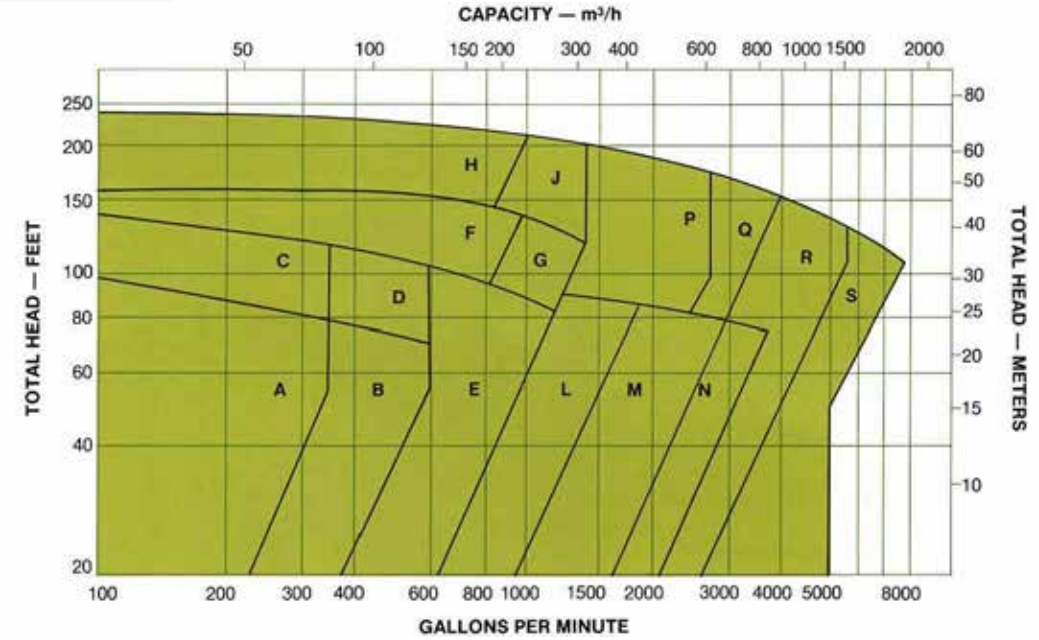
OPTIONAL TAILPIPE WITH STRAINER



Model 5150

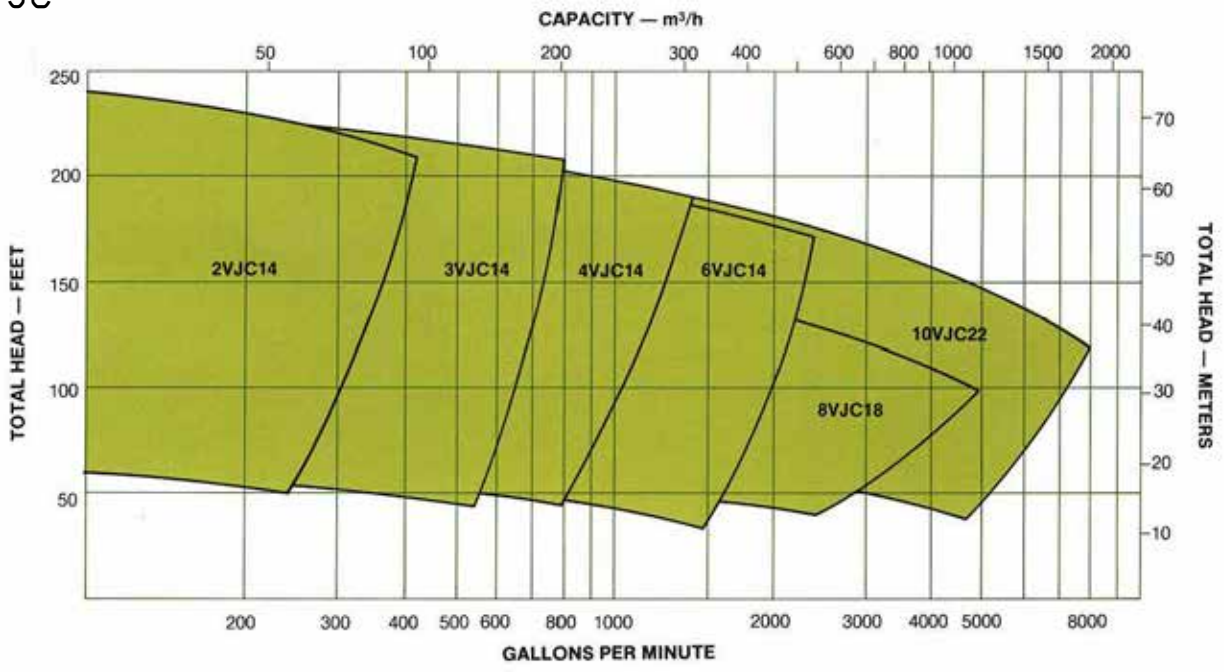


Hydraulic Coverage

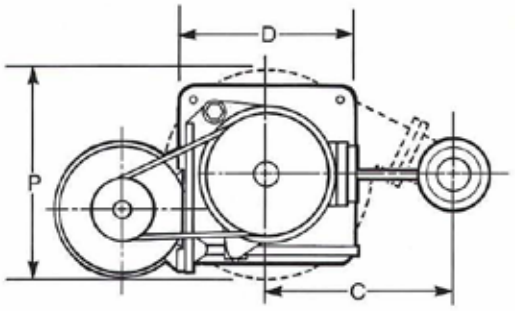


MODEL 5150 PUMP SELECTION CHART			
Code	**Pump Size**	**Code**	**Pump Size**
A	3 x 3 x 12, 3 x 4 x 12, 4 x 4 x 14½, 4 x 5 x 14½	J	6 x 8 x 21,6 x 6 x 21½
B	4 x 4 x 14½, 4 x 5 x 14½, 5 x 5 x 15	L	6 x 8 x 17½, 6 x 8 x 21, 8 x 10 x 21, 8 x 8 x 17½
C	4 x 4 x 14½, 4 x 5 x 14½, 4 x 6 x 21½	M	8 x 8 x 17½, 8 x 10 x 17½, 6 x 8 x 21, 8 x 10 x 21, 10x12 x 21
D	4 x 4 x 14½, 4 x 5 x 14½, 5 x 6 x 15, 4 x 6 x 18, 4 x 6 x 21½	N	8 x 10 x 17½, 10 x 12 x 21
E	5 x 6 x 15, 6 x 6 x 17½, 6 x 8 x 17½, 4 x 6 x 18, 6 x 8 x 21	P	6 x 8 x 21,8 x 10 x 21,10 x 12 x 21
F	4 x 6 x 18, 6 x 8 x 21, 4 x 6 x 21½, 6 x 6 x 21½	Q	8 x 10 x 21, 10 x12 x 21,12 x 14 x 21½
G	6 x 6 x 17½, 6 x 8 x 21, 8 x 10 x 21, 6 x 6 x 21½	R	10 x 12 x 21, 12 x 14 x 21½
H	4 x 6 x 21½	S	12 x 14 x 21½

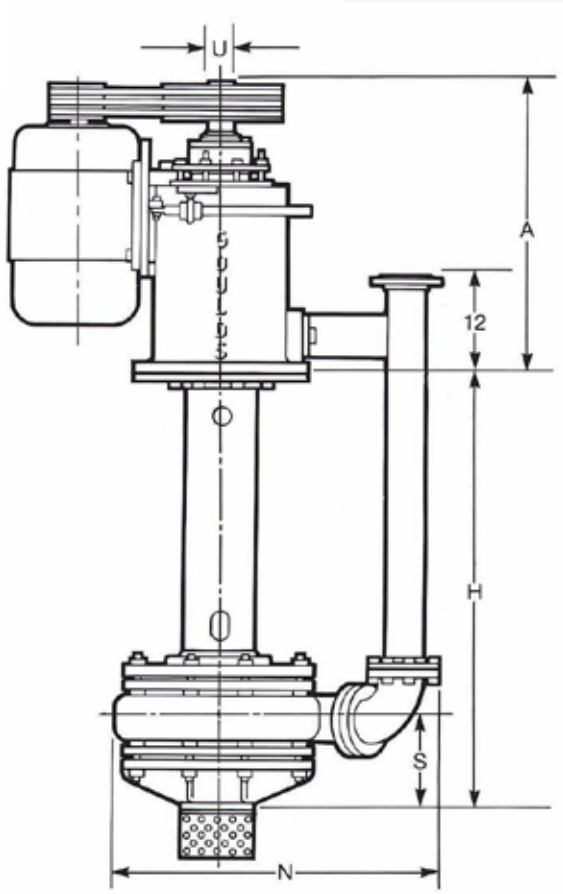
Model VJC



Dimensions and Weights



All dimensions in inches and (mm). Not to be used for construction.

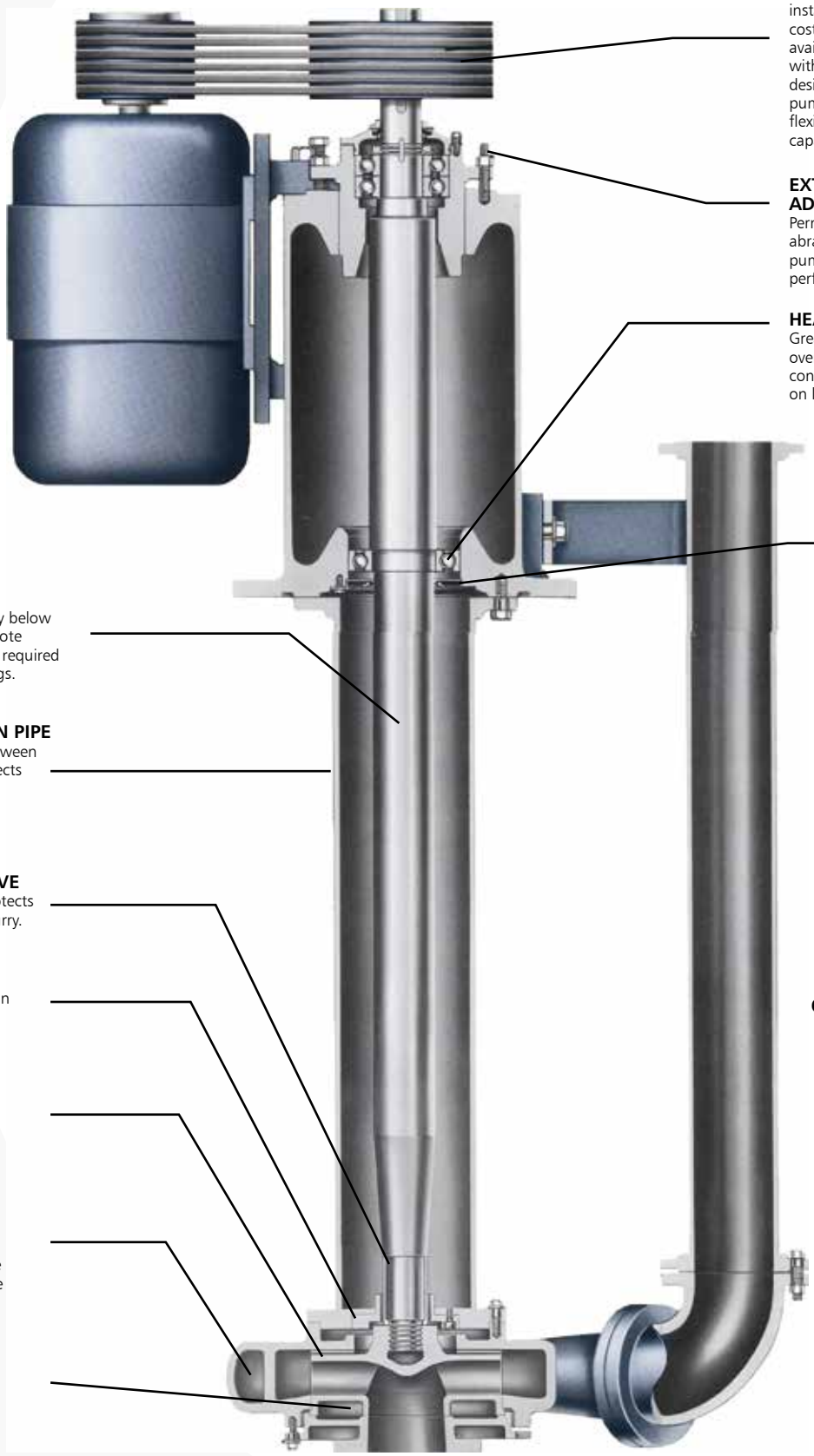


DIMENSIONS						
Model	**Pump Size**	**C**	**H**	**N**	**P**	**S**
VJC	2x3-11	16(406)	48 (1219) Standard. 42 (1067) thru 132 (3353) avail, in 3" (76) increments.	29 (737)	17(432)	4(102)
	2x3-14	17.5(444)		31 (787)	19 (483)	4 (102)
	3x4-11	17.8(452)		31 (787)	19 (483)	4.8 (122)
	3x4-14	19(483)		35 (889)	23 (584)	4.8(122)
	4x6-14	19.4 (493)		35 (889)	23 (584)	5.3 (135)
	6x6-14	22.6 (574)		41 (1041)	26 (660)	5.6 (142)
	8x10-18	28.7 (730)		53 (1346)	37 (940)	9.6 (244)
	10x12-22	35.4 (899)		65(1651)	41 (1041)	9.6 (244)
5150	3x3-12 3x4-12	17.3 (439)	Standard H Dimension is 48 (1219). 42 (1067) thru 132 (3353) is available in 3" (76) increments.	31 (787)	18 (457)	6.9(175)
	4x4-14½ 4x5-14½	18.5(470)		33 (838)	20 (508)	7.5 (190)
	4x6-18	23.3 (592)		42 (1067)	26 (660)	9.5(241)
	4x6-21½	25.1 (238)		46(1168)	30 (762)	
	6x6-21½	26.5 (673)		49(1245)		
	5x6-15	20.6 (523)		38 (965)	23 (584)	9.25 (235)
	6x6-17½ 6x8-17½	26.75 (679)		46(1168)	29 (737)	11 (279) 11.5(292)
	6x8-21 8x8-17½ 8x10-17½	26.4(671)		50 (1270)	33 (838)	11.25(286) 11.75 (298)
	8x10-21	30.8 (782)		58 (1473)	37 (940)	12 (305)
	10x12-21	32.6 (828)		63 (1600)	39(991)	12.5 (317)
	12x14-21½	33.5(851)		66 (1676)		14.25 (362)

DIMENSIONS – BEARING FRAMES			
Frame	**A**	**D**	**U**
C-2	38.9 (988)	22 (559)	2.38 (60.4)
C-3 & C5A	45.5(1153)	26 (660)	2.88(73.1)
C-4 & C6A	50.8(1290)	29 (737)	2.88(73.1)
C-5	50.8(1290)	29 (737)	3.38 (85.8)
C-6	53.4(1356)	30 (762)	3.38 (85.8)

FLANGE DIMENSIONS			
I.D.	**O.D.**	**B.C.**	**Holes**
2	6	4.75	4 – ⅝
3	7.5	6.0	4 – ⅝
4	9	7.5	8 – ⅝
5	10	8.5	8 – ¾
6	11	9.5	8 – ¾
8	13.5	11.75	8 – ¾
10	16	14.25	12 – ⅞
12	19	17	12 – 1
14	21	18.25	12 – 1

Model VJC Vertical Cantilever Bottom Suction Pumps



DIRECT OR BELT DRIVE
Direct drive offers simplicity, ease of installation and low maintenance costs. V-Belt drive allows use of readily available standard speed motors along with full diameter impellers to meet desired operating conditions with greater pump efficiency. Belt drive also provides flexibility to meet changes in head/ capacity requirements.

EXTERNAL IMPELLER ADJUSTMENT
Permit restoring running clearance after abrasive wear without disassembling pump. Maintains pump efficiency and performance over life of impeller.

HEAVY-DUTY BEARINGS
Grease-lubricated ball bearings located over floor plate, completely sealed from contamination. Roller bearings provided on larger frame sizes.

BEARING FRAME
Labyrinth seal to prevent contamination

CANTILEVER SHAFT – NO BOTTOM BEARINGS
Tapered design to operate safely below first critical speed. Ideal for remote locations – no oil or water lines required to lubricate sub-merged bearings.

HIGH STRENGTH COLUMN PIPE
Rigidly maintains alignment between bearing frame and casing. Protects pump shaft, reduces wear.

RENEWABLE SHAFT SLEEVE
Full length hook-type sleeve protects shaft from traces of abrasive slurry.

THROTTLE BUSHING
Minimizes leakage, helps contain pressure in casing.

SEMI-OPEN IMPELLER
Designed to provide optimum combination of solids handling capability, wear resistance, and pump efficiency.

DUAL VOLUTE CASING
Virtually eliminates radial shaft loading – extends bearing life. Extra thick wall sections provide longer life under severe abrasive conditions.

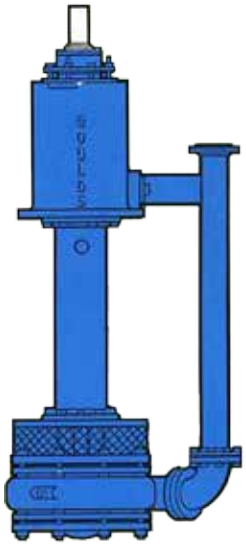
SUCTION COVER LINER
Renewable liner protects casing from abrasive wear.

OPTIONAL TAILPIPE WITH STRAINER

One Cantilever Design - Four Pump Models

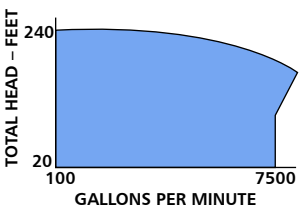
Model 5100

Vertical Cantilever Top Suction Pump



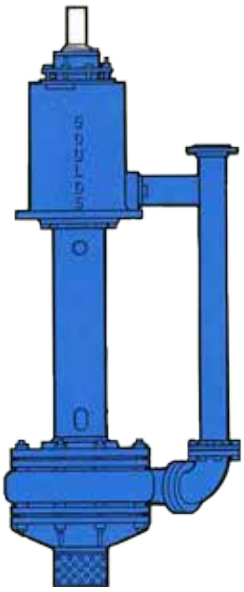
Designed for wide range of corrosive and severe abrasive slurry services. Top suction design eliminates air binding, provides ease of maintenance. Handles abrasive solids to 3-3/8 in. (86 mm).

Hydraulic Coverage



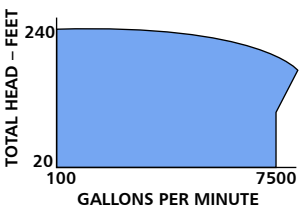
Model 5150

Vertical Cantilever Bottom Suction Pump



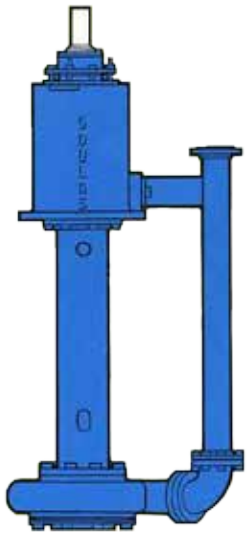
For corrosive and extremely abrasive slurry services. Bottom suction removes sollids from sump floor. Handles solids to 3-7/8 in. (98 mm).

Hydraulic Coverage



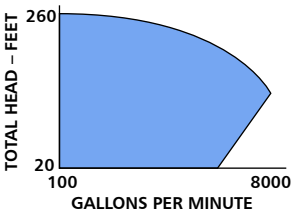
Model VJC

Vertical Cantilever Bottom Suction Pump



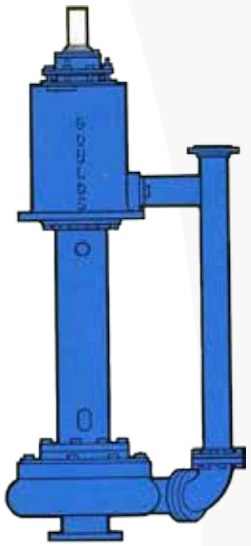
Similar to model 5150, the Model VJC is ideal for corrosives and extremely abrasive slurries.

Hydraulic Coverage



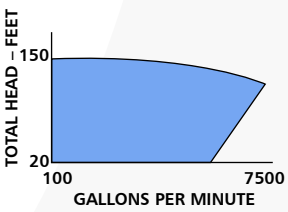
Model VHS

Vertical Cantilever Recessed Impeller Pump



Designed to handle large or fibrous solids. Recessed, non-clog impeller – maximum solid size is equal to pump suction. Solids to 10 in. (254 mm).

Hydraulic Coverage



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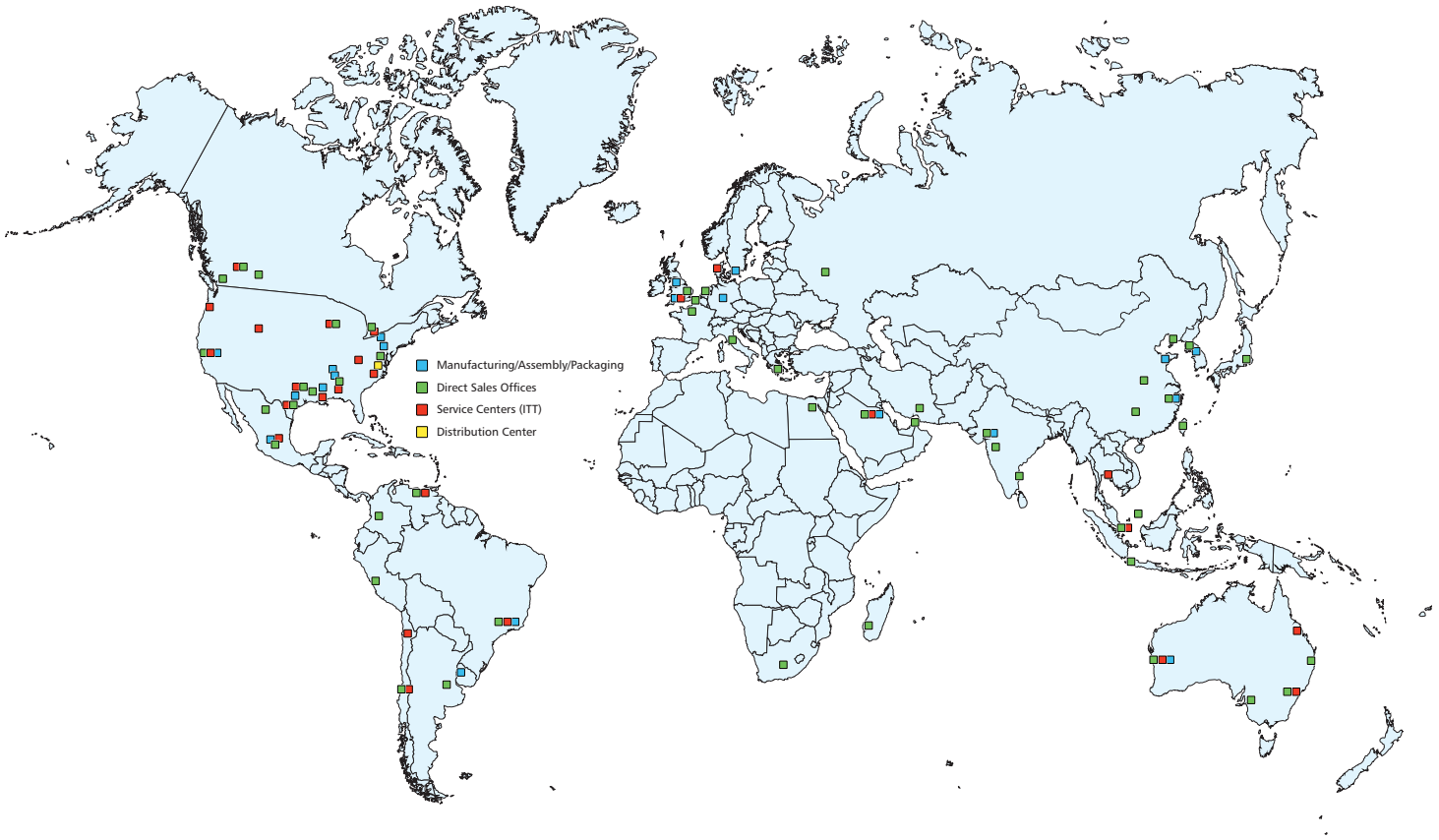
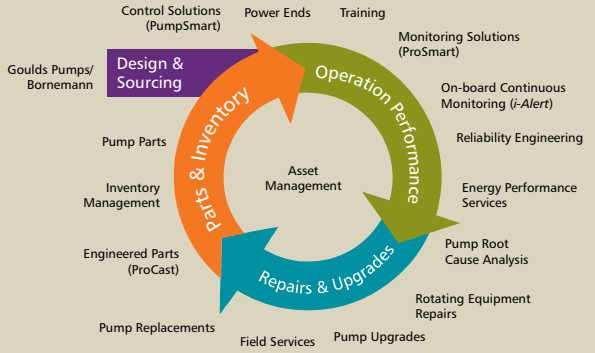


PRO services

Reliability has no quitting time.

Building on over 160 years of Goulds Pumps experience, PRO Services provides an array of services focused on reducing equipment total cost of ownership (TCO) and increasing plant output, including predictive monitoring, maintenance contracts, field service, engineered upgrades, inventory management, and overhauls for pumps and other rotating equipment.

Your Total Solution For Equipment Life Cycle Optimization



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