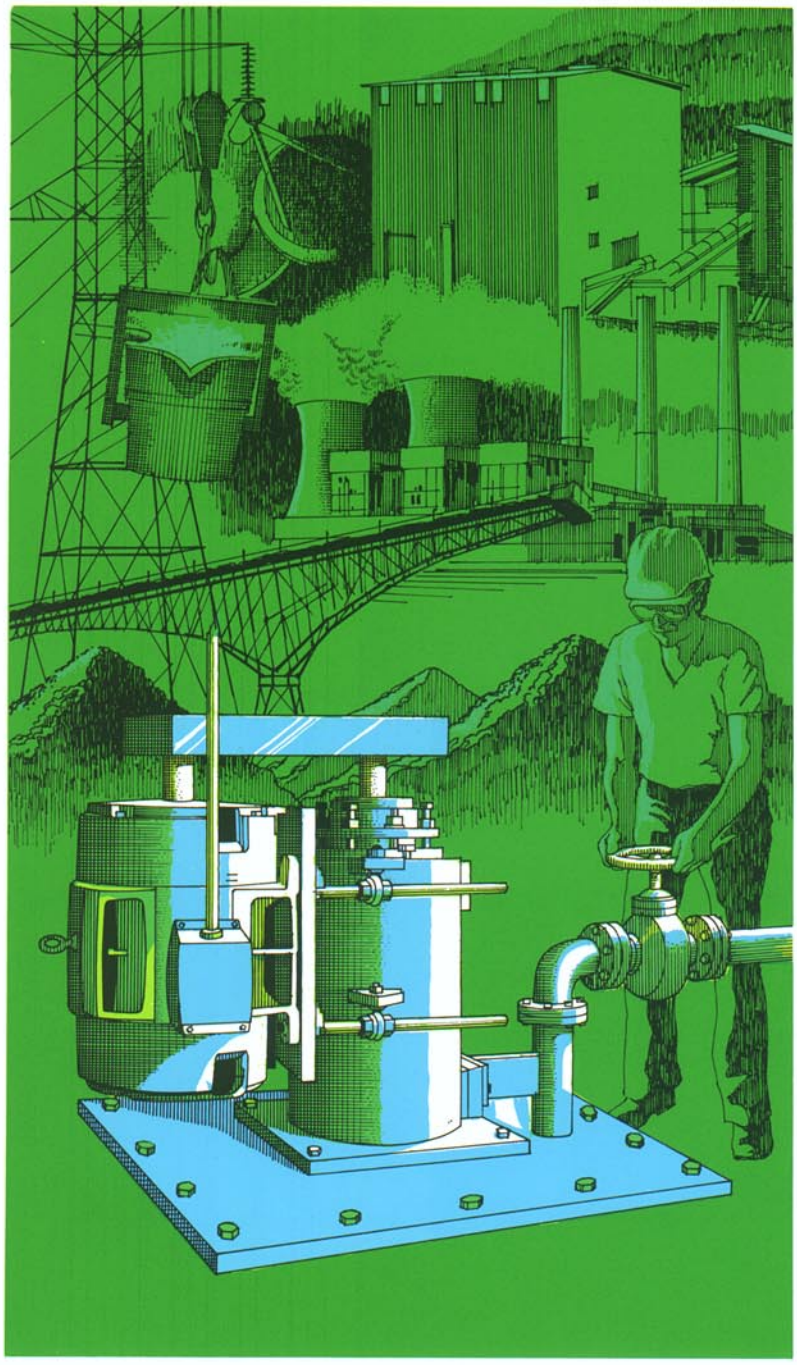
BULLETIN 223.1
April 1985

GOULDS PUMPS

Goulds Model 5100 Vertical Cantilever Top Suction Pumps



Goulds Model 5100

Vertical Cantilever Pumps Designed for Corrosive/ Extremely Abrasive Slurries

- Capacities to 7500 GPM (1703 m^3/h)
- Heads to 240 feet (73 m)
- Temperatures to 200° F (93° C)
- Pit Depths to 11 feet (3.4 m)*
- Solids to 3-3/8 in. (86 mm)

*Depths to 30 feet (9.2 m) with submerged bearing design (page 10).

Design Features

Cantilever Design No submerged bearings. (Submerged bearing design optional.)

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

Top Suction Eliminates air binding.

Ease of Maintenance Removal of rear head provides easy access to all wear parts.

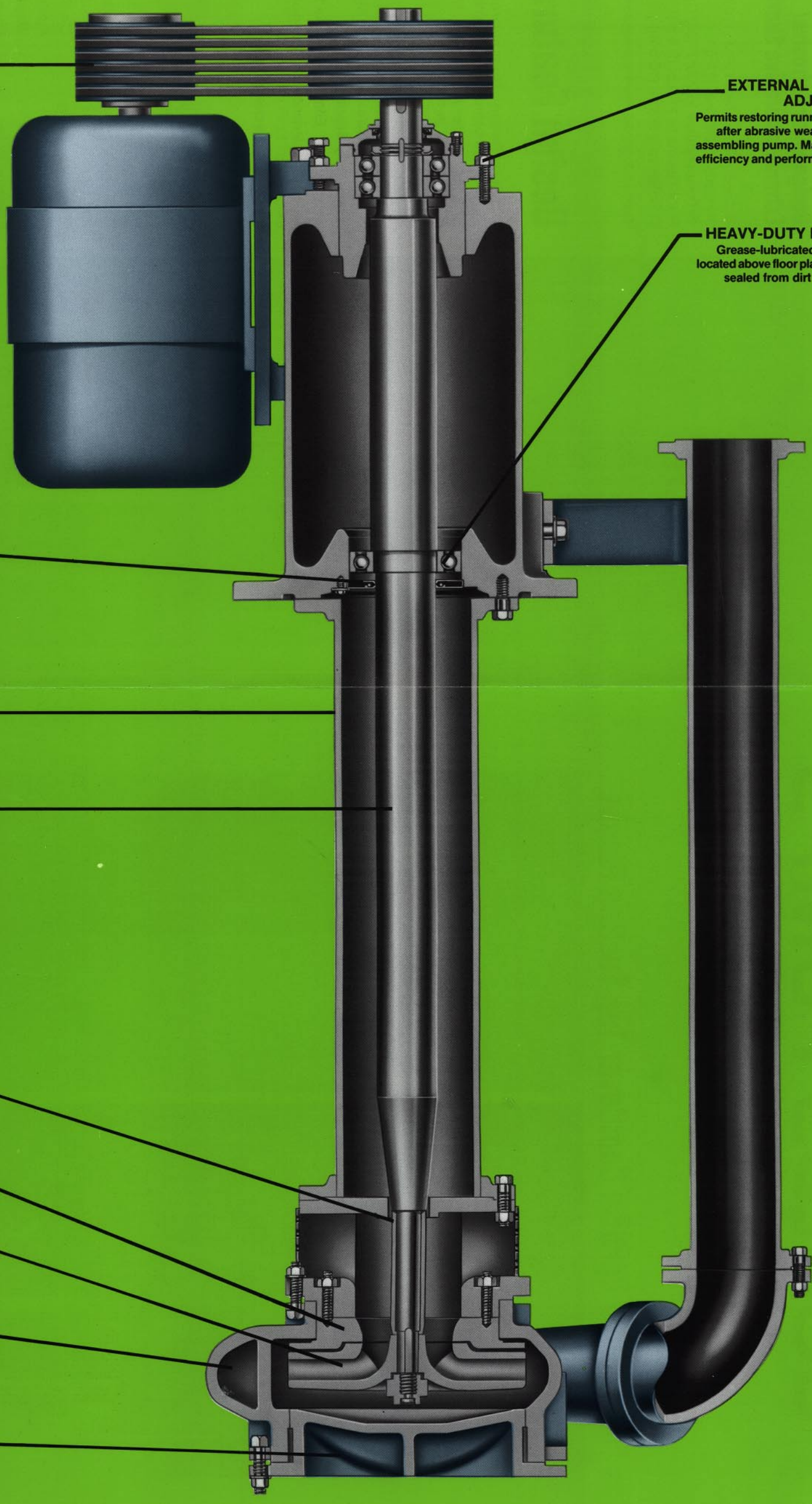
Maximum Interchangeability

Services

Coal Prep Plant	Fly Ash Sump
Mine Slurry	Storm Water Runoff
Iron Ore Slurry	Effluent Sludge
Phosphate Mining	Clarified Water
Lime Slurry	Froth Flotation
Ash Slurry	Waste Chemicals
Clean-up Sump	Foundry Sand
Heavy Media Separation	Clay Slurry
Coal Pile Runoff	Underflows

Model 5100 Vertical Cantilever Top Suction Pumps

Heavy-Duty Design Features for Wide Range of Severe Corrosive/Abrasive Slurry Services



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
Permits 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 above floor plate, completely sealed from dirt and moisture.

BEARING FRAME
Sealed to prevent contamination.

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

CANTILEVER SHAFT — NO BOTTOM BEARINGS
Tapered shaft design to operate safely below its first critical speed. Ideal for remote installations — no oil or water lines required to lubricate submerged bearings.

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

CASING WEAR RING
Replaceable wear ring protects casing from abrasion.

FULLY SHROUDED IMPELLER
Provides superior wear life. Top suction design prevents air binding; ideal for thick, heavy slurries.

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

EASE OF MAINTENANCE
Removal of rear head provides easy access to all wear parts.

Application Flexibility

Direct or Belt Drive

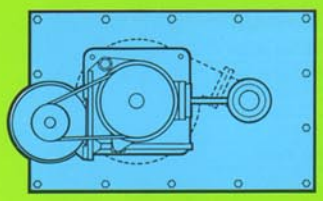
Goulds offers drive arrangements to meet specific user requirements.

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

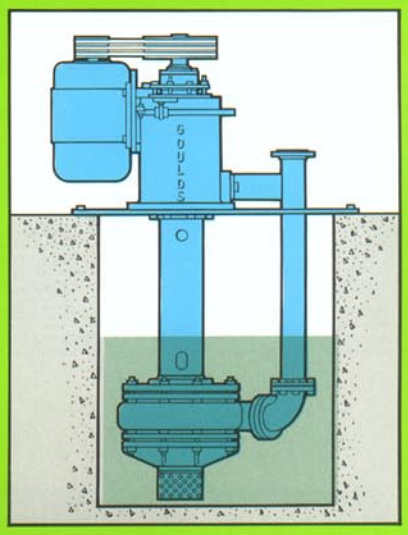
Belt drive allows use of standard speed motors with full diameter impellers. Adapts pump to meet any head or capacity. Extends wear life through low operating speeds.

Optional Floor Plate

Two standard floor plate configurations, circular and rectangular, are available. Custom designed floor plates can be provided.



Top View Rectangular Configuration



Horizontal Pumps

Goulds makes a complete line of horizontal abrasive slurry pumps in sizes from 2″ to 14″ discharge with capacities to 30,000 GPM (6813 m^3/h) and heads to 370 feet (113 m). Pumps are available in side suction or end suction configurations. The side suction design offers inherent advantages such as low sealing water requirements and ease of maintenance — pumps can be repaired without disturbing piping.

Model 5000 Side Suction Abrasive Slurry Pump

Parts List and Materials of Construction

Item No.	Part Name	Material			
		Standard		Optional*	
		HC500	HC600	PACE™	Goyne 316
100	Casing	HC500	HC600	PACE	316
100A	Rear Head	HC500	HC600	PACE	316
100B	Suction Liner	HC500	HC600	PACE	316
101	Impeller	HC500	HC600	PACE	316
109	Bearing End Cover	Cast Iron			
112	Thrust Bearing	Steel			
122	Shaft	Elastuf Penn		316	
123	Deflector	Rubber			
126	Shaft Sleeve	416		316	
134	Thrust Bearing Housing	Cast Iron			
168	Radial Bearing	Steel			
178	Impeller Key	Steel		316	
182	Suction Cover	HC500	HC600	PACE	316
192	Pipe Column	Steel		316	
195	Discharge Pipe	Steel		316	
228A	Bearing Frame	Cast Iron			
304	Impeller Nut	Bronze		316	
315	Discharge Elbow	Cast Iron		316	
333	Lip Seal	Rubber			

*For other materials, contact factory.
PACE is a registered trademark of Abex Corporation.

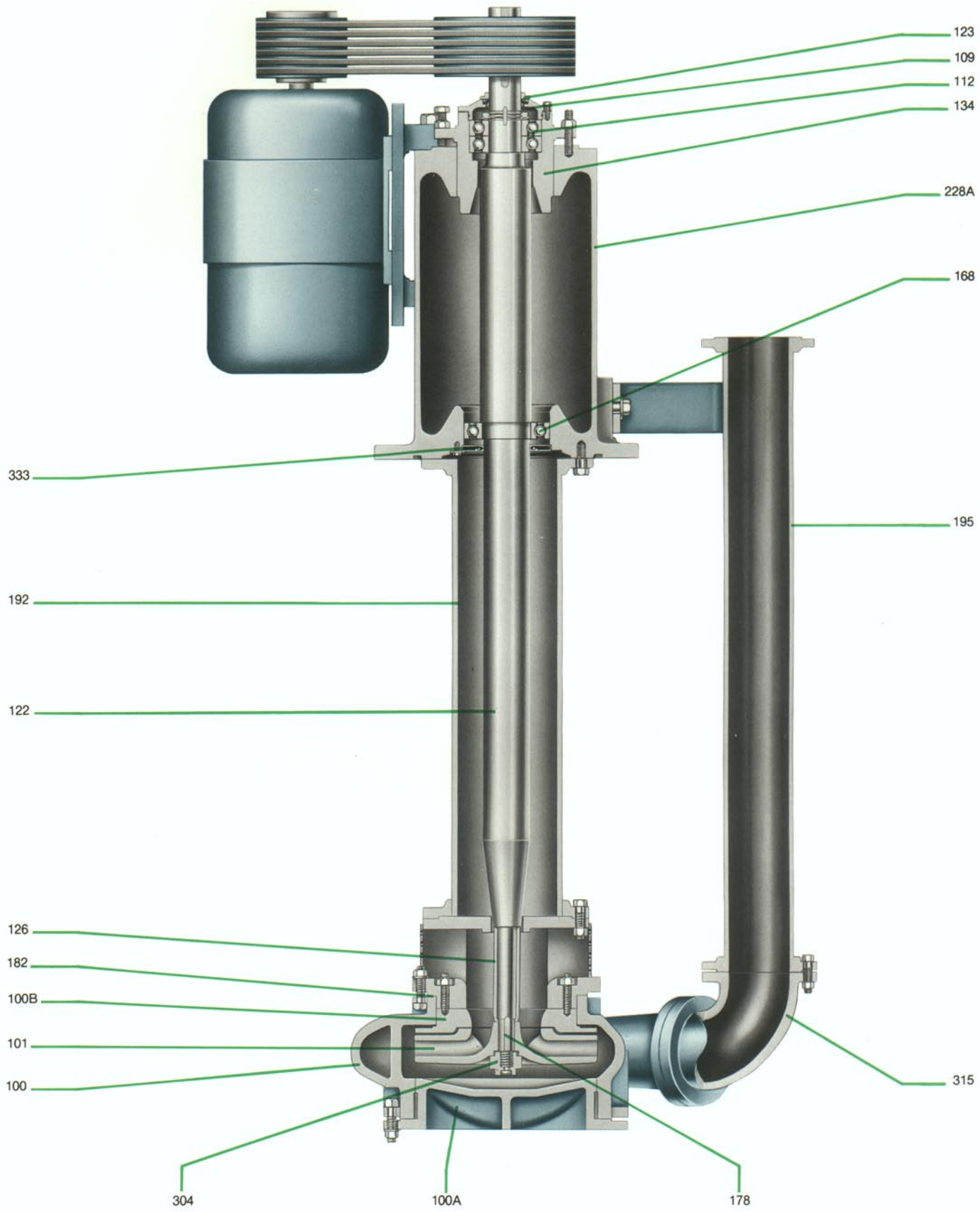
Materials of Construction

Material	Specification
HC500	High Chrome Iron — Similar to ASTM A532 C12 Type D
HC600	High Chrome Iron — Similar to ASTM A532 C13 Type A
PACE™	Proprietary — Abex Corporation
Goyne 316	Similar to AISI 316 or ACI CF8M (cast)
Elastuf Penn	Modified AISI 1144 free-machining steel

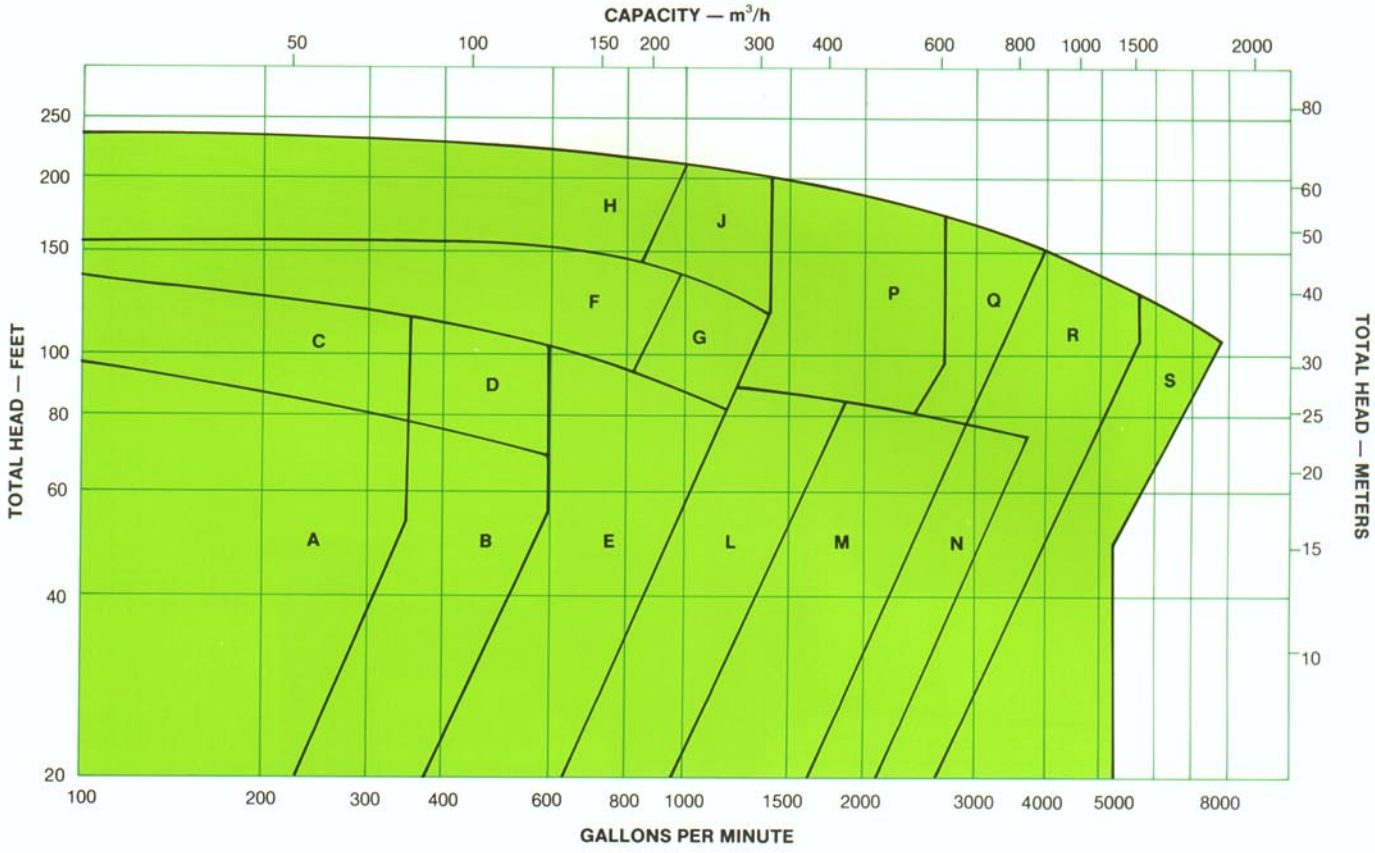
Construction Details

	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)	¾ (19)	⅞ (22)	1 (25)	1⅛ (29)	⅞ (22)	⅞ (22)	⅞ (22)	1⅛ (29)	¾ (19)	¾ (19)	1⅛ (29)	1⅜ (35)	1⅜ (35)
Max. Working Pressure	150 PSIG (1034 kPa)													
Max. Test Pressure	225 PSIG (1551 kPa)													

Sectional View Model 5100



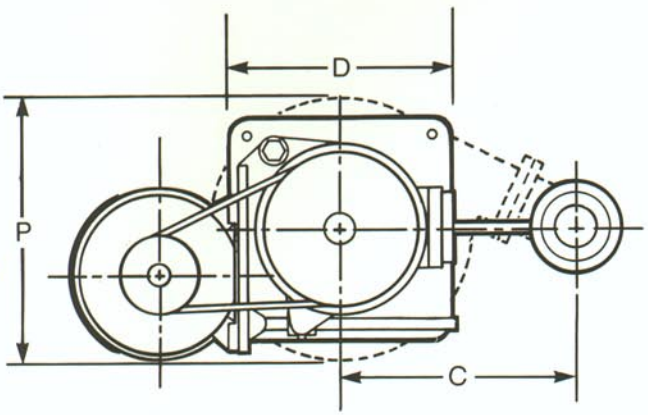
Hydraulic Coverage Model 5100

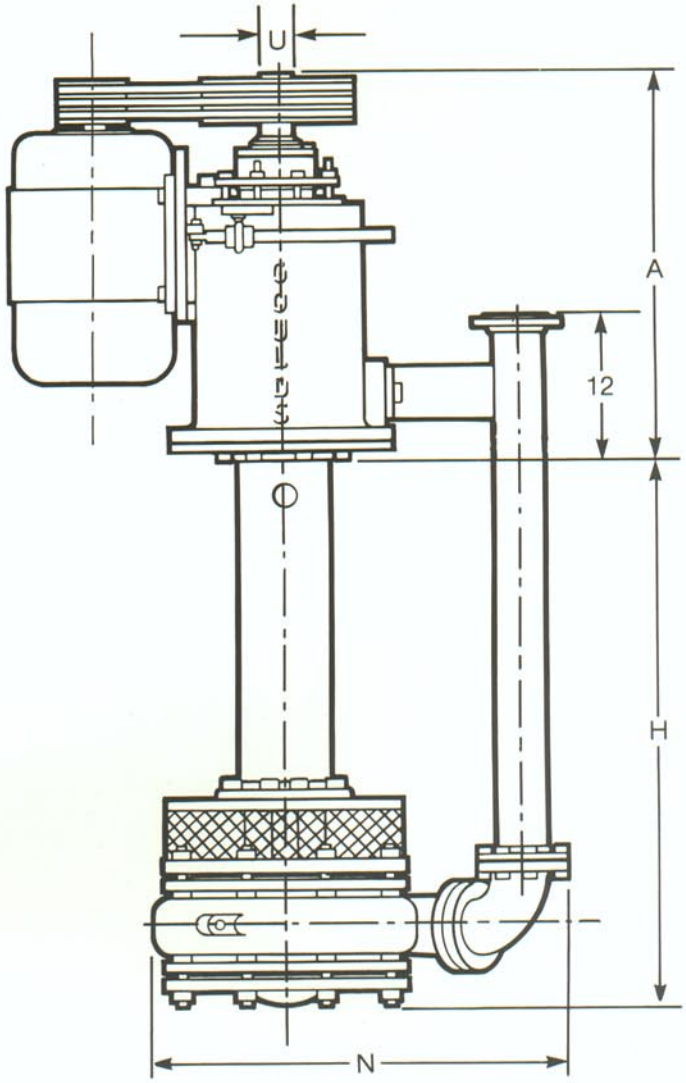


MODEL 5100 PUMP SELECTION CHART			
Code	**Pump Size**	**Code**	**Pump Size**
A	3 x 3 x 12, 4 x 4 x 14½	J	6 x 8 x 21, 6 x 6 x 21½
B	4 x 4 x 14½, 5 x 6 x 15	L	6 x 8 x 17½, 6 x 8 x 21, 8 x 10 x 21, 8 x 8 x 17½
C	4 x 4 x 14½, 4 x 6 x 21½	M	8 x 8 x 17½, 8 x 10 x 17½, 6 x 8 x 21, 8 x 10 x 21, 10 x 12 x 21
D	4 x 4 x 14½, 5 x 6 x 15, 4 x 6 x 18, 4 x 6 x 21½		
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	N	8 x 10 x 17½, 10 x 12 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 x 12 x 21, 12 x 14 x 21¾
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 21¾
H	4 x 6 x 21½	S	12 x 14 x 21¾

Dimensions Model 5100

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





PUMP DIMENSIONS

Pump Size	C	H	N	P
3x3-12	17.3 (439)	Standard dimension is 48 (1219). 42 (1067) thru 43 (3353) available in 3 in. (76 mm) increments.	31 (787)	18 (457)
4x4-14	18.5 (470)		33 (838)	20 (508)
4x4-18 **4x6-18**	23.3 (592)		42 (1069)	26 (660)
4x6-21½	25.1 (638)		46 (1168)	30 (762)
6x6-21½	26.5 (650)		49 (1245)	30 (762)
5x6-15	20.6 (523)		38 (965)	23 (584)
6x6-17½ **6x8-17½**	24.75 (629)		46 (1168)	29 (737)
6x8-21 **8x8-17½** **8x10-17½**	26.4 (671)		50 (1270)	33 (838)
8x10-21	30.8 (782)		58 (1473)	37 (940)
10x12-21	32.6 (828)		63 (1600)	39 (991)
12x14-21¾	33.5 (851)		66 (1676)	

FLANGE DIMENSIONS

Discharge	I.D.	O.D.	B.C.	Holes
3	3	7.5	6	Four — ⅝"
4	4	9	7.5	Eight — ⅝"
6	6	11	9.5	Eight — ¾"
8	8	13.5	11.75	Eight — ¾"
10	10	16	14.25	Twelve — ⅞"
12	12	19	17	Twelve — 1"

BEARING FRAME

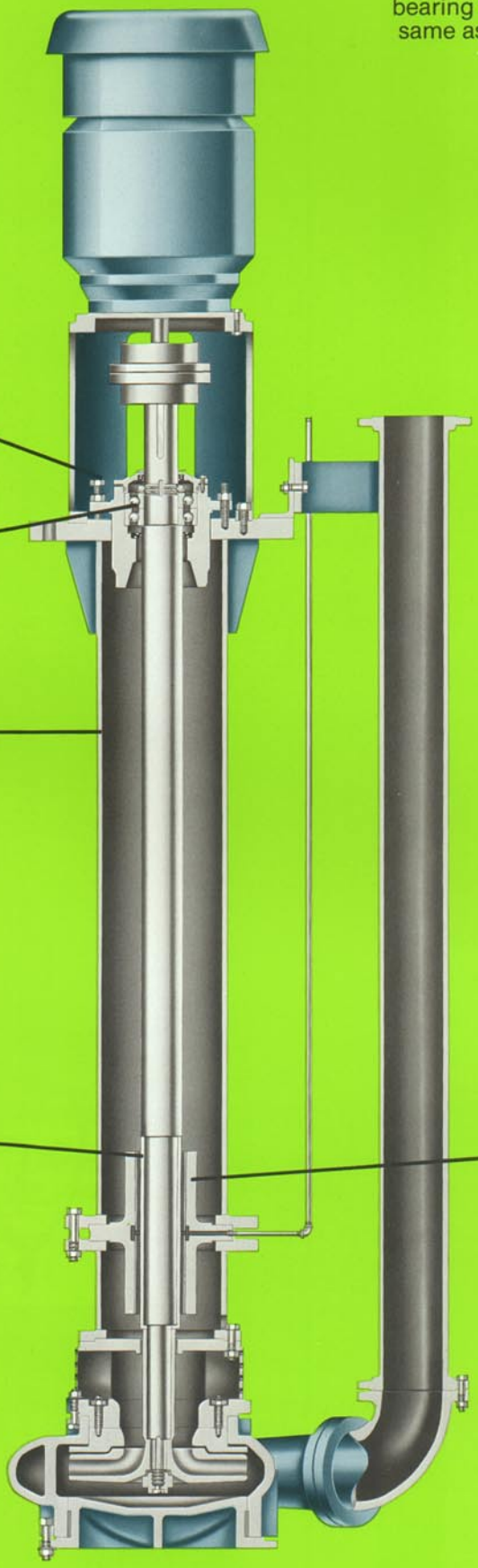
	Dimensions		
Frame	A	D	U
C2	38.9 (988)	22 (559)	2.38 (60.4)
C3	45.5 (1156)	26 (660)	2.88 (73.1)
C4 C5	50.8 (1290)	29 (737)	3.38 (85.8)
C6	53.4 (1356)	30 (762)	

Submerged Bearing Design For Deeper Sumps

For settings greater than 11 feet (3.4 m), Goulds offers a submerged bearing design. Hydraulic coverage is same as cantilever design since both use same wet end parts.

Model 5100

Submerged Bearing, Top Suction Pump



EXTERNAL IMPELLER ADJUSTMENT
Maintains original performance.

DUPLEX THRUST BEARINGS
High thrust capability extends mechanical life and overall reliability. Grease-lubricated, sealed for outdoor installation.

HEAVY COLUMN PIPE
Provides rigid support for pump and bearings.

REPLACEABLE SHAFT SLEEVE
Under bearing to protect shaft.

STEADY BEARING HOUSING
Accurate machined register fit of column and bearing housing assures bearing and shaft alignment. Cutless rubber or bronze bearings available for water or grease lube.

Specialists in Slurry Pumping...Backed by Service

State-of-the Art Design

Goulds Slurry Pump Division (formerly Morris Pumps, Inc. and Goyne Pump Company) utilizes a combination of experience and state-of-the-art techniques such as computer-aided design (CAD) to assure that all products, both old and new, meet the highest standards of performance.

Metallurgical Expertise

Goulds own state-of-the-art foundry with heat treat capability is unsurpassed in the industry. Many special alloys have been developed for particular slurry pump applications.

Unsurpassed Quality

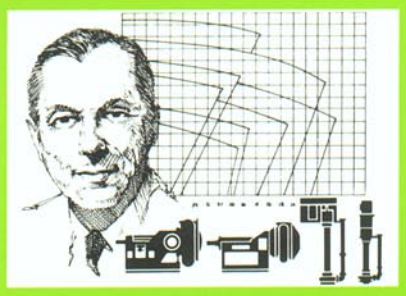
The most rigid quality standards are imposed on all parts and pumps. Samples of all alloys are checked by spectrometer at Goulds foundry to assure the metallurgy and hardness are right. Other tests from hydrostatic to vibration and performance provide the user with confidence that the pump will perform as intended.

Parts Service

Goulds has the finest parts program in the industry. Ready availability of parts is assured by Goulds network of warehouses and distributors. Availability, Service, Quality and Value of pump parts is Goulds commitment.

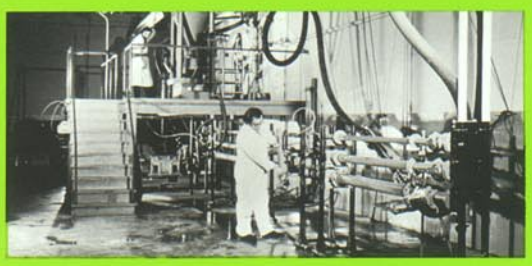
Engineering Know-how and Support

Since Goulds makes pumps and nothing but, every salesman is a pump specialist. He can tell you which pump is best for the job, oversee delivery, advise proper installation, and assure the customer of service ... right down the line. Plus engineering support from the division ... experienced engineers who are committed to service.



Slurry Lab

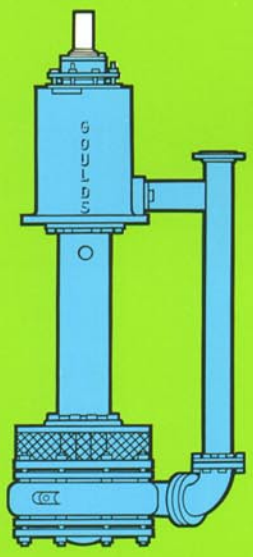
Goulds has a fully equipped slurry lab designed to test customers' slurries for pump performance and pipeline characteristics. This added service allows the best pump for the service to be specified.



One Cantilever Design—Four Pump Models

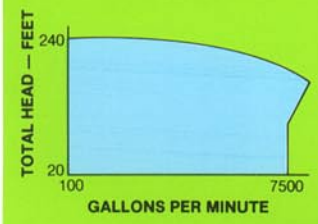
Model 5100

Vertical Cantilever Top Suction Pump



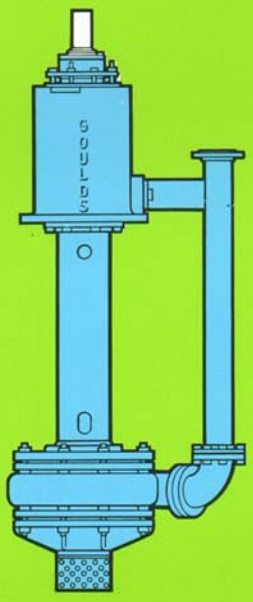
Designed for wide range of corrosive and severe abrasive slurry services. Top suction design eliminates air binding, provides ease of maintenance. Handles abrasive solids to 3-3/8 in. (86 mm). Also available in submerged bearing design for deeper settings.

Hydraulic Coverage



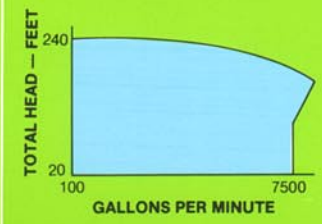
Model 5150

Vertical Cantilever Bottom Suction Pump



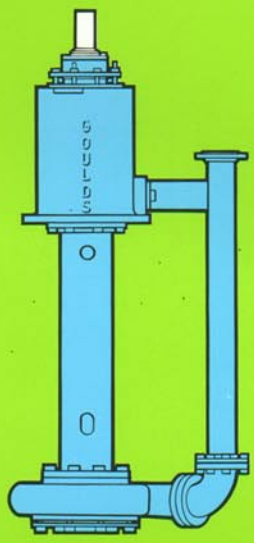
For corrosive and extremely abrasive slurry services. Bottom suction removes solids from sump floor. Handles solids to 3-7/8 in. (98 mm). Submerged bearing design available for deeper settings.

Hydraulic Coverage



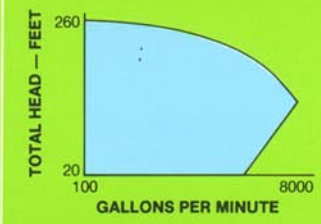
Model VJC

Vertical Cantilever Bottom Suction Pump



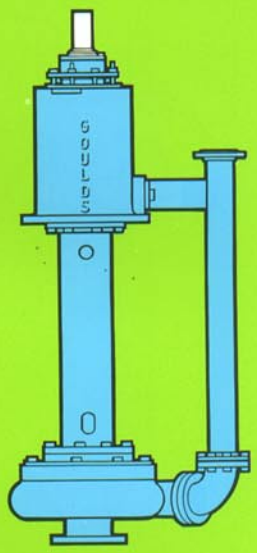
Similar to Model 5150, VJC is ideal for corrosives, extremely abrasive slurries. Submerged bearing design also available.

Hydraulic Coverage



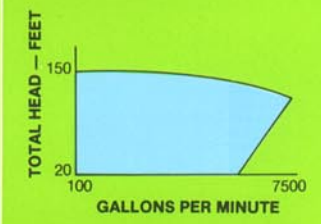
Model VHS

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). Also available in submerged bearing design.

Hydraulic Coverage



For more information about Goulds Vertical Cantilever Pumps, call your nearest Goulds sales office or representative.

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SENECA FALLS, NEW YORK 13148

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