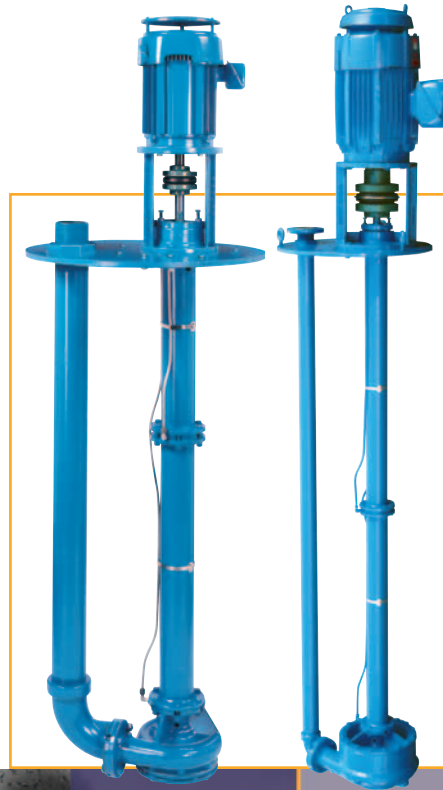




Goulds Pumps

# Goulds 3171 / CV3171

Vertical Sump and Process Pumps



*Engineered for life*



The “Veteran” vertical sump and process pump. Thousands of installations—industrial process, sump drainage, corrosive liquids, pollution control, molten salts—attest to the 3171’s remarkable performance. Simple mounting.

## Goulds Model 3171

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### Vertical Sump and Process Pumps Designed for the Total Range of Industry Services

- ◆ Capacities to 3180 GPM (722 m<sup>3</sup>/h)
- ◆ Heads to 344 feet (105 m)
- ◆ Temperatures to 450° F (232° C)
- ◆ Pit Depths to 20 feet (6 m)

#### Design Features

- ◆ Self-Priming
- ◆ Rugged Double Row Thrust Bearing
- ◆ Heavy Duty One-piece Shaft
- ◆ External Impeller Adjustment
- ◆ Available in a Wide Range of Alloys
- ◆ Open Impeller Design
- ◆ Vapor Proof Option: Choice of packing, or mechanical seal for containing sump vapors

#### Services

- ◆ Industrial Process
- ◆ Industrial Sump Wastes
- ◆ Molten Sulfur
- ◆ Tank Unloading
- ◆ Corrosive and Non-Corrosive Liquids

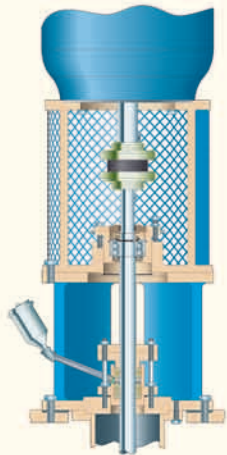


# Model 3171 Vertical Sump and Process Pumps

Heavy Duty Design Features for a Wide Range of Services

**LABYRINTH BEARING SEAL**

Prevents premature bearing failure due to lubricant contamination.



**OPTIONAL UPPER STUFFING BOX**

**HEAVY COLUMN PIPE**

Provides rigid support for pump and bearings.

**LINESHAFT STEADY BEARING**

Self-lubricating carbon/graphite bearing furnished as standard—best for handling water, corrosives, solvents and high temperature liquids.

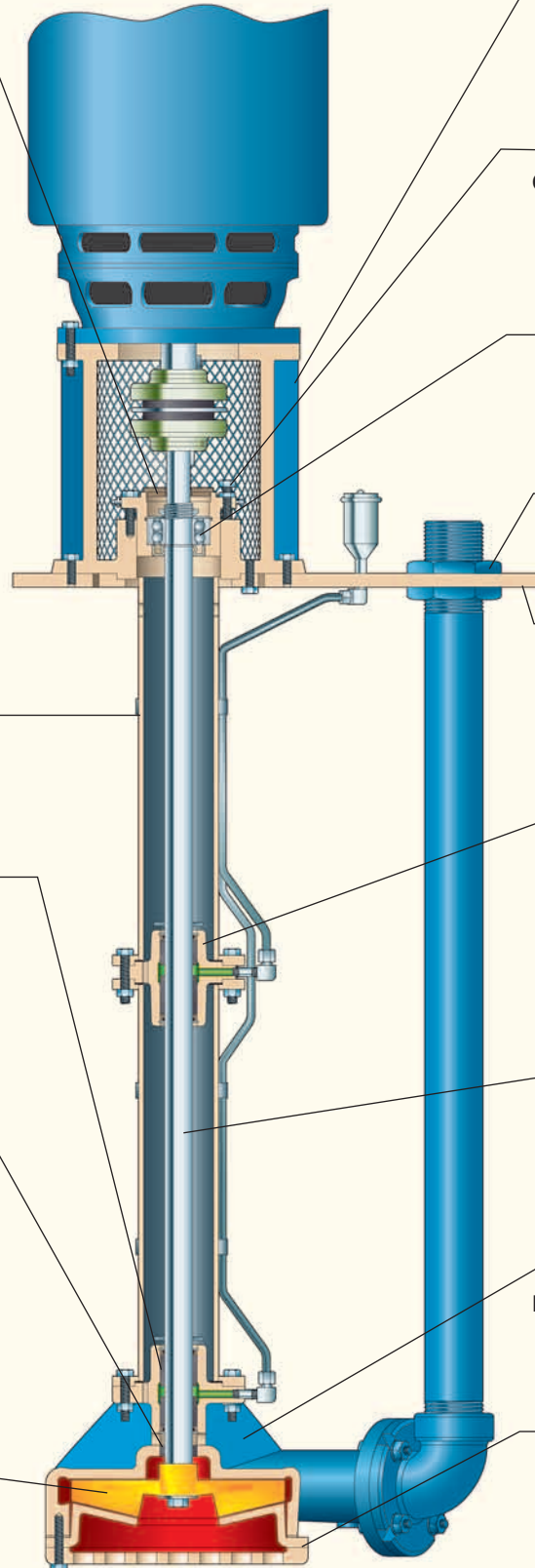
**RESTRICTOR BUSHING**

Close running bushing to prevent pressure loss from casing.



**FULLY OPEN IMPELLER WITH BACK PUMP-OUT VANES**

Acknowledged best design for process services—solids handling, stringy material, corrosives, abrasives.



**C-FACE MOTOR MOUNTING**

Accommodates readily available C-face motors. Also available for P-base and IEC motors.

**CONTINUOUS HIGH PERFORMANCE**

Original high efficiency maintained by simple external adjustment resulting in long-term energy savings.

**DOUBLE ROW THRUST BEARING**

Grease lubricated—carries pump thrust load; sealed for outdoor installation.

**DISCHARGE LOCKED TO PUMP SUPPORT PLATE FOR STRENGTH**

**ANY MOUNTING REQUIREMENTS**

Met by support plate and optional pit cover. Float switches, alternators and other control devices can be easily mounted.

**STEADY BEARING HOUSING**

Precision machined register fit of column, bearing housing and casing assures positive bearing and shaft alignment. Completely interchangeable with all lineshaft bearing options.

**HEAVY DUTY ONE-PIECE SHAFT**

With closely spaced steady bearings assures long life and low maintenance.

**HEAVY DUTY CASING**

Provides rigid support for shaft—closer to impeller load—resulting in longer steady bearing life.

**REMOVABLE SUCTION COVER**

Replaceable wear part for low operational costs.

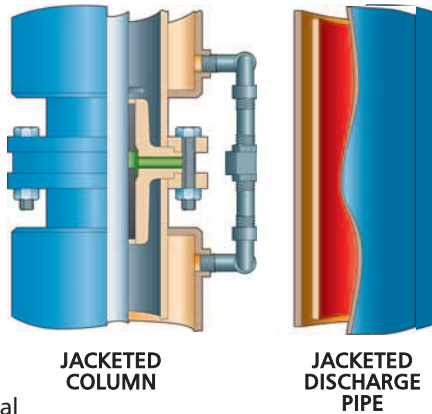
## Optional Features for Application Flexibility

Goulds offers a variety of options to meet users' specific plant and application requirements. Your Goulds representative will be glad to recommend the features

best suited to your particular service conditions to assure safe, efficient and reliable operation.

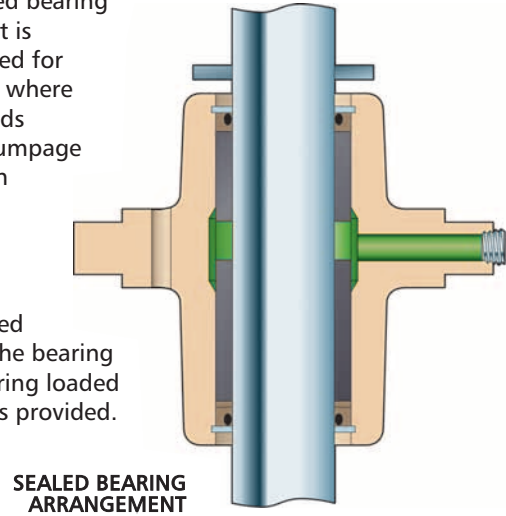
### Molten Sulfur Pumps

- Jacketed column and discharge pipes (tested to 150 PSIG [1034 kPa])
- Available in all principal alloys
- One-piece, self-lubricating, graphite impregnated steady bearing
- Vapor-proof construction to seal sump vapors
- Balanced, low NPSH, semi-open impeller for optimum performance
- Multiple intermediate bearings permit overall settings to 20 feet (6 m)



### Abrasive Liquids

Goulds sealed bearing arrangement is recommended for applications where abrasive solids are in the pumpage and no clean flush is available. A carbon bearing and lip seal is used for sealing the bearing housing. Spring loaded grease cup is provided.



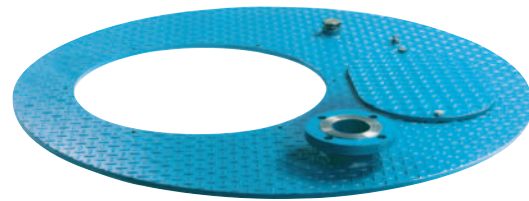
### Optional Bearings

Goulds offers the best choice of steady bearings to meet service requirements...optional fluted rubber with rigid shell, bronze, and (standard) carbon.



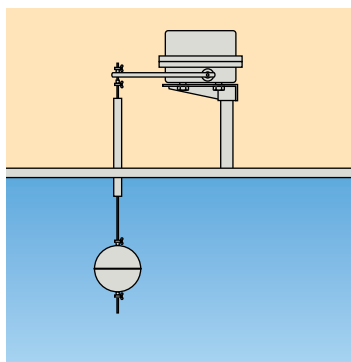
### Mounting Systems

Goulds can provide optional mounting systems to meet specific user requirements including pit covers fabricated with float control mounting points, man holes for access, vapor-proof designs, and lube line holes.

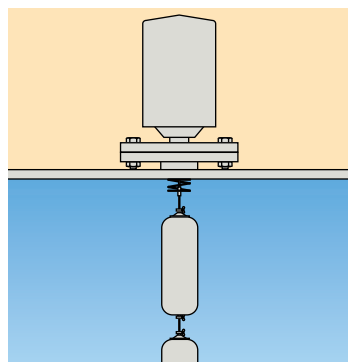


### Float Controls

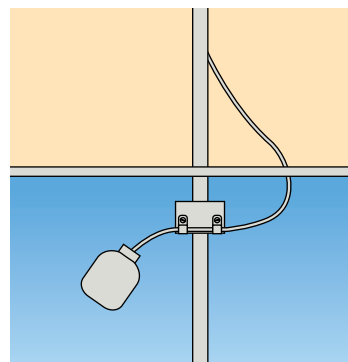
The widest range of float controls is offered to suit the individual requirements of every installation. Ask your Goulds representative for a complete list of options.



BALL-OPERATED  
FLOAT SWITCH



DISPLACER TYPE  
LIQUID LEVEL SWITCH

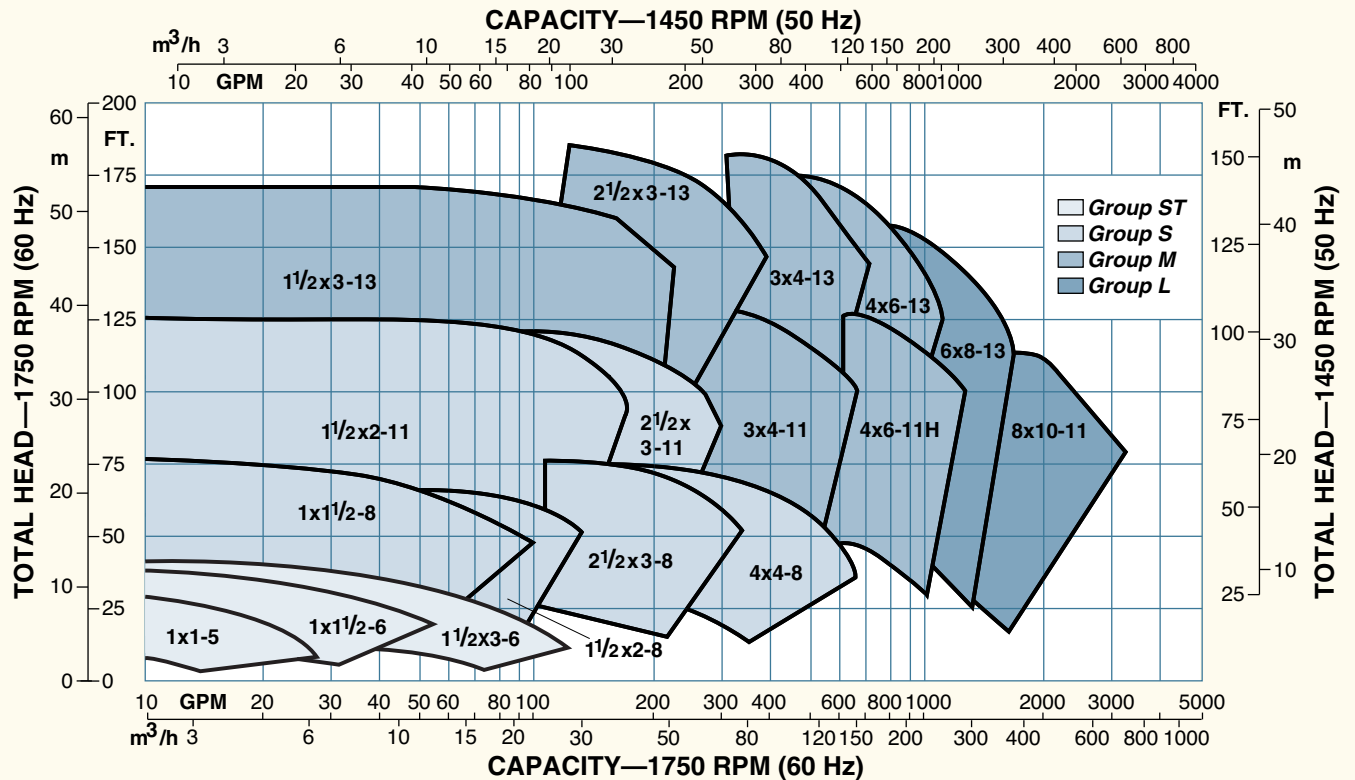
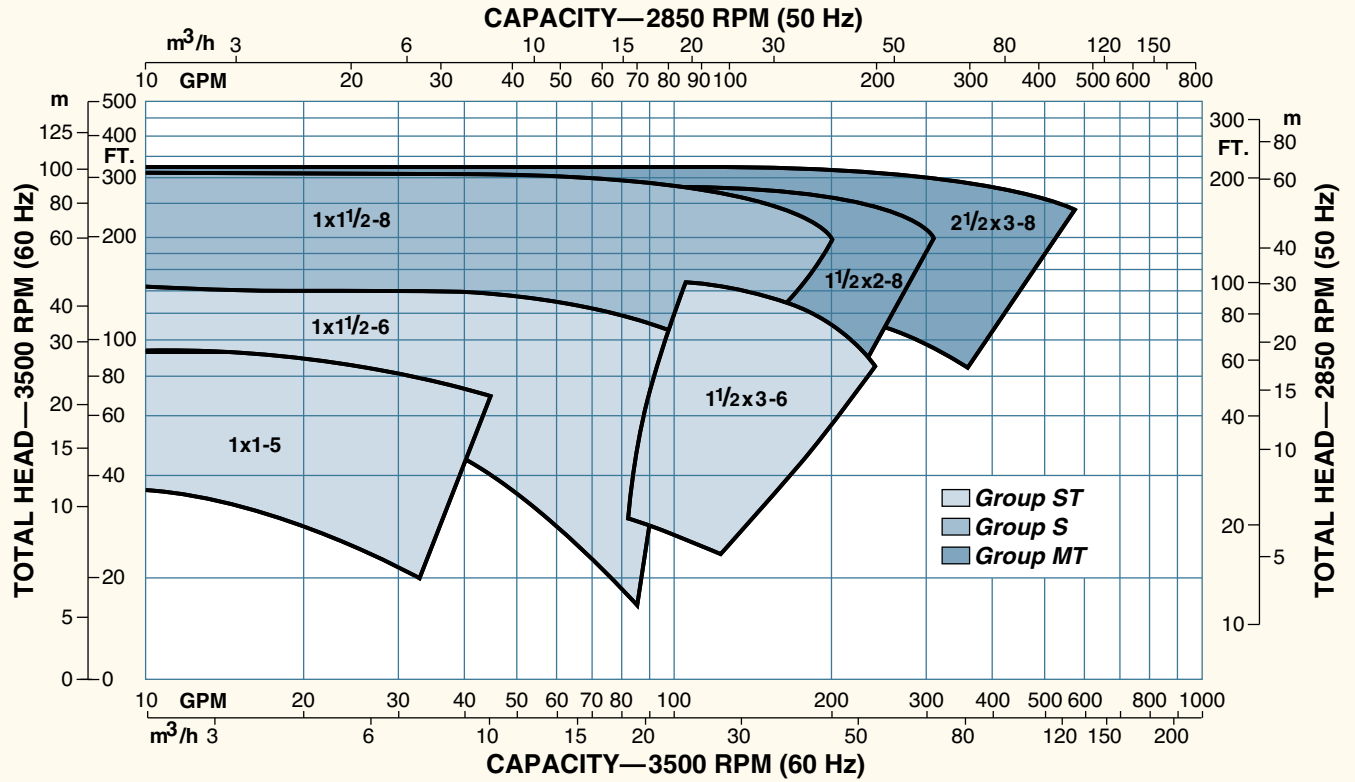


PIPE-MOUNTED,  
DIRECT ACTING FLOAT SWITCH

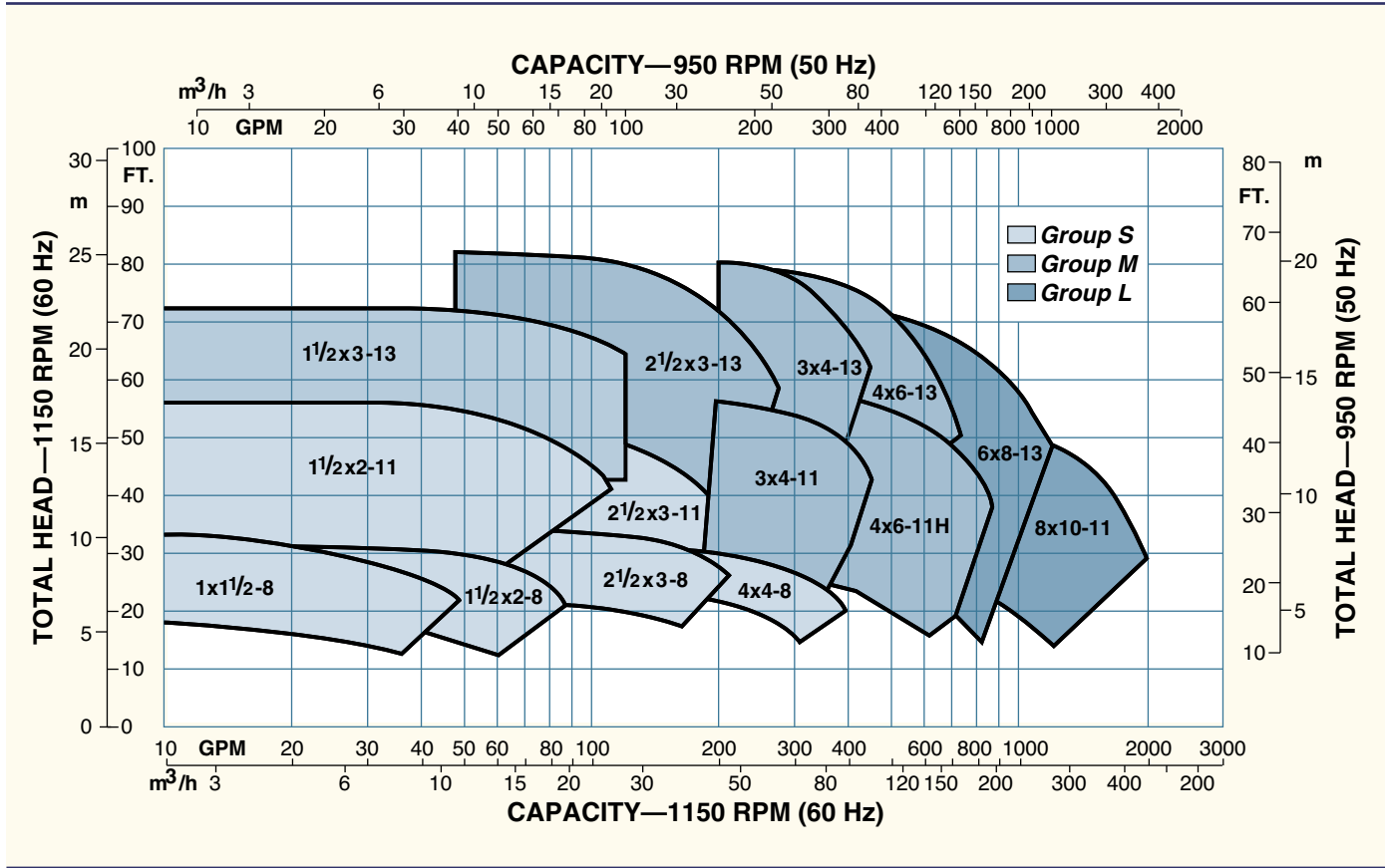
### Other Options

- Complete line of controls and starters
- Enclosed lineshaft
- Other types of float controls
- ANSI tank mounting
- Flanged discharge connections

# 3171 Hydraulic Coverage



# 3171 Hydraulic Coverage

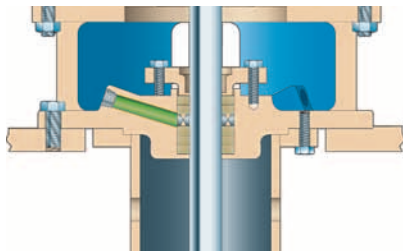


## Maximum Sealing Flexibility

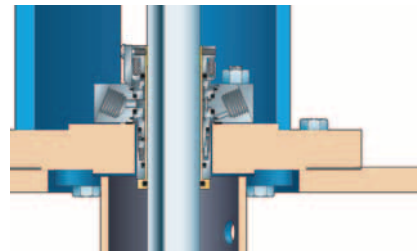
### Vapor-Proof Construction

Optional upper stuffing box allows use of wide range of sealing arrangements to meet specific user requirements for sealing toxic, hazardous, noxious or corrosive fumes. With this option, the discharge pipe and all fittings are sealed at the support plate.

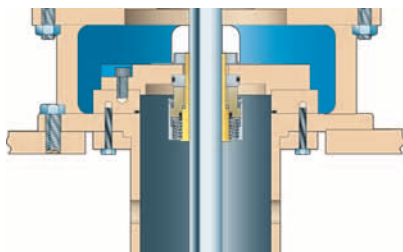
Your Goulds representative will gladly recommend the best sealing solution for your service, some of which are illustrated here.



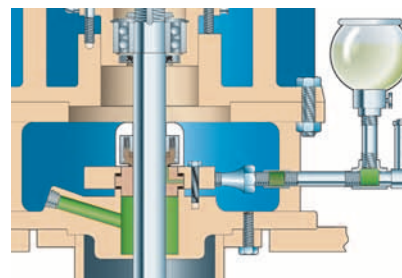
**PACKED BOX**  
Standard vapor-proof sealing option. Includes packing, lantern ring and grease lubricator (not illustrated).



**DOUBLE CARTRIDGE SEAL**  
Available in wet or dry versions to control emissions.



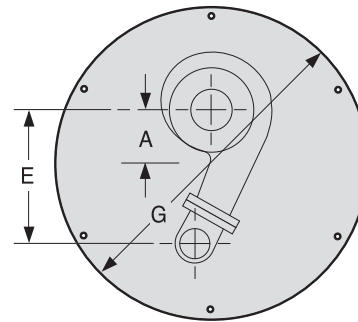
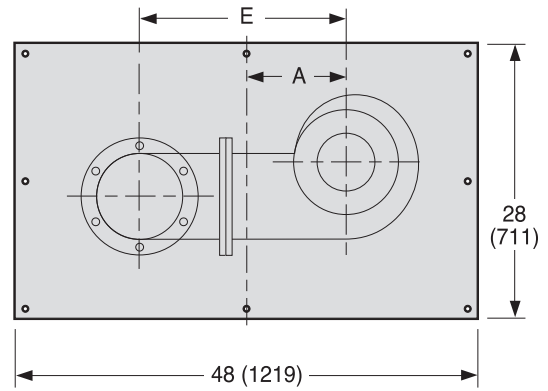
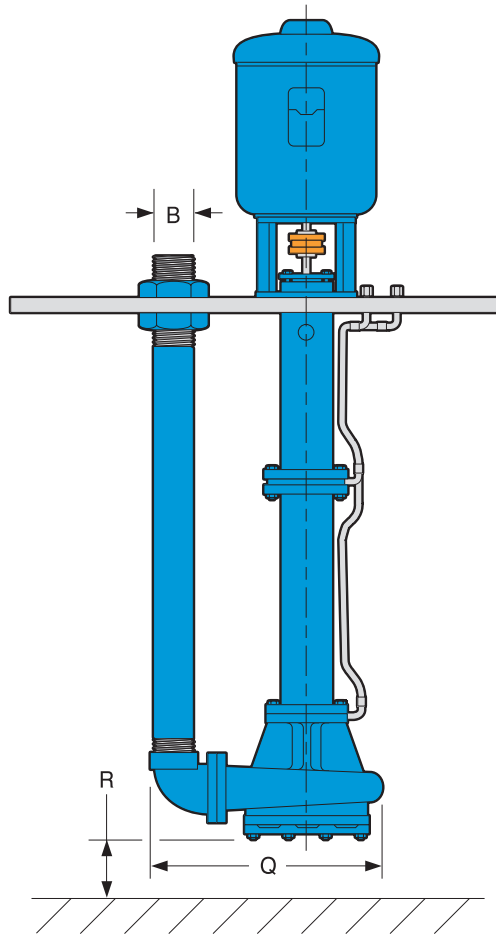
**DRY RUNNING SEAL**  
Dry running, non-contacting cartridge gas seal. Pressurized air barrier between seal faces prevents vapor leakage.



**SINGLE OUTSIDE SEAL**  
Mechanical seal with oil lubricator and sight glass. Outside mount has no metal parts in contact with vapors.

# Dimensions Model 3171

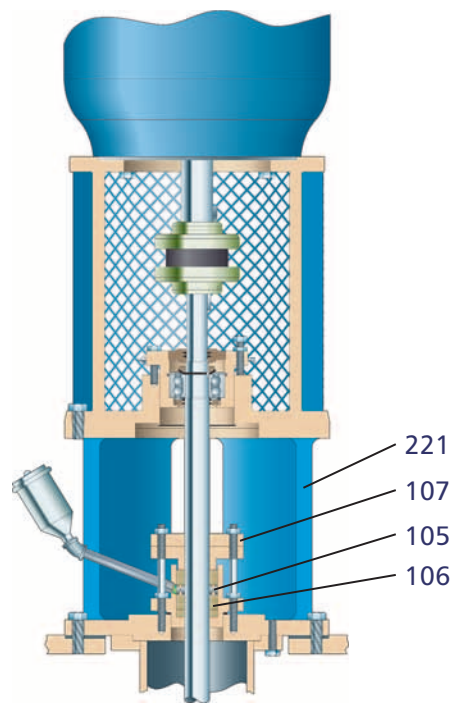
All dimensions in inches and (mm). Not to be used for construction.



DIMENSIONS																						
	ST			S						M					MT			L				
	1x1-5	1x1 1/2-6	1 1/2x3-6	1x1 1/2-8	1 1/2x2-8	2 1/2x3-8	4x4-8	1 1/2x2-11	2 1/2x3-11	3x4-11	4x6-11H	1 1/2x3-13	2 1/2x3-13	3x4-13	4x6-13	1 1/2x2-8	1 1/2x2-11	2 1/2x3-8	6x8-13	6x8-13	8x10-11	8x10-11
A	3.6 (92)	3.6 (92)	3.6 (92)	3.6 (92)	3.6 (92)	3.6 (92)	4 (102)	4 (102)	4 (102)	4.5 (114)	4.5 (114)	4.5 (114)	4.5 (114)	4.5 (114)	4.5 (114)	4 (102)	4 (102)	4.5 (114)	10.4 (264)	10.4 (264)	10.4 (264)	10.4 (264)
B	1.5 (38)	2 (51)	3 (76)	2 (51)	2 (51)	3 (76)	4 (102)	2 (51)	3 (76)	4 (102)	4 (102)	3 (76)	3 (76)	4 (102)	4 (102)	3 (76)	3 (76)	4 (102)	6 (152)	8 (203)	8 (203)	10 (254)
E	8.1 (205)	8.4 (213)	9.2 (232)	10.1 (256)	9.6 (244)	10.3 (262)	12.1 (306)	11.4 (289)	12.1 (306)	12.8 (325)	14.3 (362)	13.6 (346)	13.2 (335)	13.8 (351)	14.8 (375)	11.4 (289)	12.37 (314)	13.6 (346)	21.5 (546)	21.5 (546)	24.3 (616)	24.3 (616)
G	22 (559)	22 (559)	22 (559)	22 (559)	22 (559)	22 (559)	26.5 (673)	26.5 (673)	26.5 (673)	31 (787)	31 (787)	31 (787)	31 (787)	31 (787)	31 (787)	26.5 (673)	31 (787)	31 (787)	—	—	—	—
R	6 (152)	5.8 (148)	5.3 (132)	4.3 (108)	4.4 (111)	3.8 (97)	3.3 (84)	4.6 (116)	4.2 (106)	4 (102)	3.7 (94)	4.8 (121)	4.7 (119)	4.3 (109)	3.7 (94)	4.4 (111)	4.56 (116)	3.8 (97)	6.9 (174)	6.9 (174)	5.3 (133)	5.3 (133)
Q*	14.3 (362)	15.3 (387)	16.8 (425)	17 (432)	17 (432)	18.5 (467)	22.5 (572)	20.5 (521)	22.5 (572)	24 (610)	26.5 (673)	25 (635)	25 (635)	25.5 (648)	27.5 (699)	20 (508)	22 (559)	22.8 (578)	38.5 (978)	39.5 (1003)	42.5 (1080)	43.5 (1105)

\*Add 3 in. (76) for float mounted option.

# Sectional View Model 3171

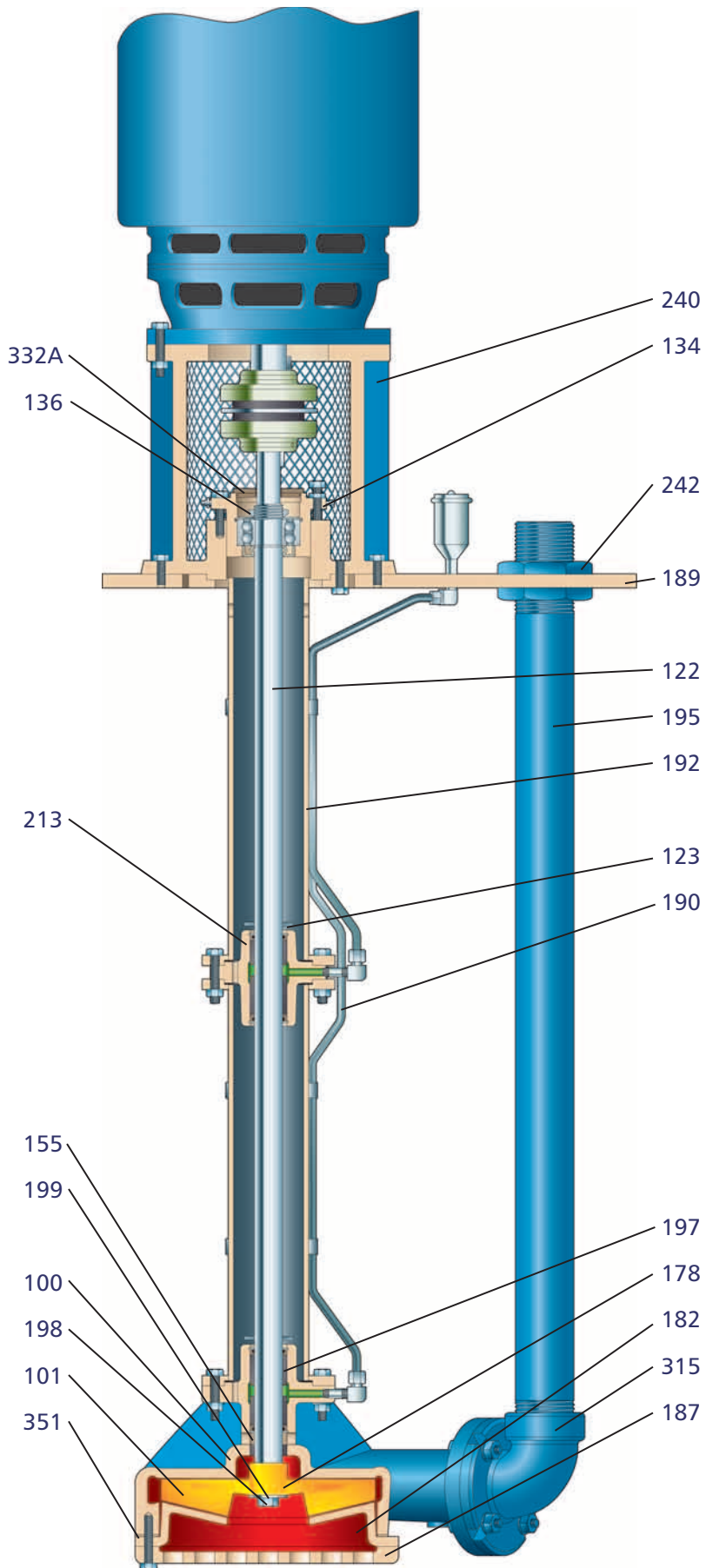


Optional Upper Stuffing Box



## Designed to Meet (or Exceed) Today's Tough Environmental Requirements

Installed in 1988 on hydrocarbon waste sump service, this 3171 was easily retrofitted with vapor-proof construction including a ferrofluidic seal (see page 7) to meet tougher EPA emission requirements. Readings were less than 30 ppm—*exceeding* EPA requirements





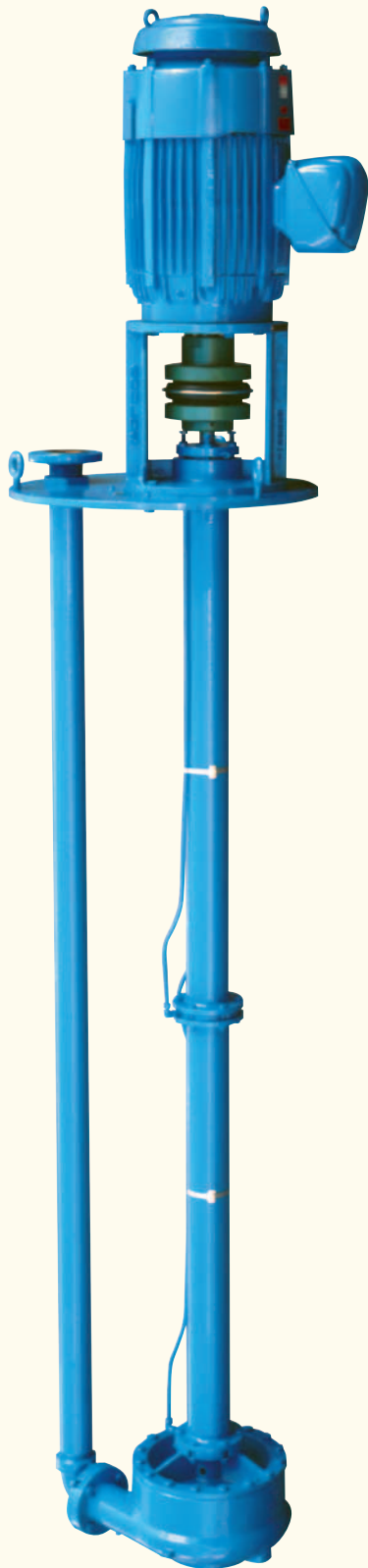
# 3171 Parts List and Materials of Construction

Item Number	Part Name	Material					
		Cast Iron	Bronze Fitted	Carbon Steel	316SS	Alloy 20	Hastelloy B & C
100	Casing	Cast Iron		Steel	316SS	Alloy 20	Hastelloy
101	Impeller	Ductile Iron	Bronze	Steel	316SS	Alloy 20	Hastelloy
105	Upper Stuffing Box Lantern Ring	Teflon					
106	Upper Stuffing Box Packing	Acrylic Graphite					
107	Upper Stuffing Box Gland	316SS					
112	Ball Bearing	Double Row Angular Contact					
122	Pump Shaft	Steel		316SS	Alloy 20	Hastelloy	
123	Deflector	EPDM					
134	Bearing Shell	Cast Iron					
136	Bearing Locknut	Steel					
178	Impeller Key	316SS			Alloy 20	Hastelloy	
155	Restrictor Bushing	Carbon-Filled Teflon®					
182	Suction Cover	Cast Iron	Steel	316SS	Alloy 20	Hastelloy	
187	Strainer	Cast Iron	316SS		Alloy 20	Hastelloy	
189	Pump Support Plate	Steel					
190	Lubrication or Flush Pipe	Steel	316SS		Alloy 20	Hastelloy	
192	Head Column	Steel		316SS	Alloy 20	Hastelloy	
195	Discharge Pipe	Steel		316SS	Alloy 20	Hastelloy	
197	Steady Bearings	Carbon					
198	Impeller Screw	316SS			Alloy 20	Hastelloy	
199	Impeller Washer	316SS			Alloy 20	Hastelloy	
213	Steady Bearing Housing	Cast Iron		316SS	Alloy 20	Hastelloy	
221	Upper Stuffing Box (When Used)	Cast Iron					
240	Motor Support	Cast Iron					
242	Pipe Collar (Discharge Pipe)	Steel		316SS	Alloy 20	Hastelloy	
306	Column Extension	Steel		316SS	Alloy 20	Hastelloy	
315	Discharge Elbow	Cast Iron	Steel	316SS	Alloy 20	Hastelloy	
332A	Labyrinth Seal	Carbon-Filled Teflon® with Viton O-ring					
351	Gasket—Suction Cover to Casing	Nitrile Acrylic					
369	Retaining Ring—Steady Bearing	Stainless			Alloy 20	Hastelloy	

## Construction Details All dimensions in inches and (mm).

		ST			S						M				MT			L			
		1x1-5	1x1 1/2-6	1 1/2x3-6	1x1 1/2-8	1 1/2x2-8	2 1/2x3-8	4x4-8	1 1/2x2-11	2 1/2x3-11	3x4-11	4x6-11H	1 1/2x3-13	2 1/2x3-13	3x4-13	4x6-13	1 1/2x2-8	1 1/2x2-11	2 1/2x3-8	6x8-13	8x10-11
Pump	Weight (2 Foot Depth) Less Motor Lb (kg)*	275 (125)	280 (127)	295 (134)	305 (139)	315 (143)	325 (148)	390 (177)	385 (175)	425 (193)	540 (245)	590 (268)	535 (243)	550 (250)	570 (259)	600 (273)	325 (148)	385 (175)	335 (152)	830 (377)	910 (414)
	Weight—Add to Each 6" of Length Lb (kg)*	13 (6)	14 (6)	15 (7)	14 (6)	14 (6)	15 (7)	17 (8)	14 (6)	15 (7)	20 (9)	20 (9)	19 (9)	19 (9)	20 (9)	20 (9)	14 (6)	15 (7)	15 (7)	35 (16)	40 (18)
	Maximum Diameter of Solids	0.188 (5)	0.250 (6)	0.500 (13)	0.281 (7)	0.281 (7)	0.938 (24)	0.938 (24)	0.344 (9)	0.594 (15)	0.594 (15)	1.125 (29)	0.250 (6)	0.594 (15)	0.594 (15)	0.594 (15)	0.281 (7)	0.344 (9)	0.938 (24)	0.594 (15)	1.188 (30)
Shaft	Diameter at Impeller	0.6875 (17)			Tapered 1.1118 (28) Large End						Tapered 1.585 (40) Large End				Tapered 2.222 (56) Large End						
	Diameter at Coupling End	0.875 (22)						1.375 (35)				1.875 (48)									
	Diameter at Steady Bearing	1.125 (29)						1.625 (41)				2.25 (57)									
Bearings	Ball Bearing	5305 or Equal						5308 or Equal				5311 or Equal									
	Steady Bearing (Sleeve Type)	1.125 I.D. x 1.625 O.D. (29x41)						1.625 I.D. x 2.125 O.D. (41x54)				2.25 I.D. x 3.0 O.D. (57x75)									
General	Maximum Total Working Pressure—Casing	150 PSI (1034 kPa)																			
	Max. Liquid Temp.—Without Upper Stuffing Box	210° F (99° C)																			
	Max. Liquid Temperature—Upper Stuffing Box	450° F (232° C)																			

\*L Group Pump Weights are based on a 3 ft (.9m) Setting



The CV 3171 is a recessed impeller, circular volute type sump pump. Ideal for large solids and shear sensitive fluids. It will pass any solid that will pass through the discharge pipe. Circular volute minimizes radial loads making this the ideal pump for low flow process applications.

## Goulds Model CV 3171

### Vertical Sump and Process Pumps Designed for the Total Range of Industry Services

- ◆ Capacities to 1300 GPM (295 m<sup>3</sup>/h)
- ◆ Heads to 230 feet (126 m)
- ◆ Temperatures to 450° F (232° C)
- ◆ Pit Depths to 20 feet (6 m)

#### Design Features

- ◆ Self-Priming
- ◆ Rugged Double Row Thrust Bearing
- ◆ Heavy Duty One-piece Shaft
- ◆ External Impeller Adjustment
- ◆ Available in a Wide Range of Alloys
- ◆ Recessed Impeller Design
- ◆ Sealless Design
- ◆ Optional Vapor Proof Construction

#### Services

- ◆ Fibrous Wastewater
- ◆ Industrial Process
- ◆ Industrial Sump Wastes
- ◆ Tank Unloading
- ◆ Corrosive and Non-Corrosive Liquids
- ◆ Food Processing
- ◆ Chemical Slurries

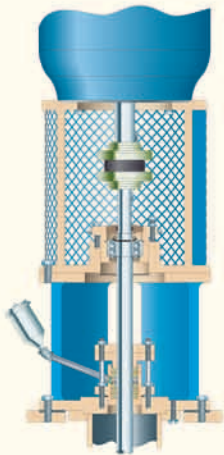


# Model CV 3171 Vertical Sump and Process Pumps

## Heavy Duty Design Features for a Wide Range of Services

### LABYRINTH BEARING SEAL

Prevents premature bearing failure due to lubricant contamination.



### OPTIONAL UPPER STUFFING BOX

### HEAVY COLUMN PIPE

Provides rigid support for pump and bearings.

### LINESHAFT STEADY BEARING

Grease lubricating sealed bearings furnished as standard—best for handling fluids with solids.

### RESTRICTOR BUSHING

Close running bushing to prevent pressure loss from casing.

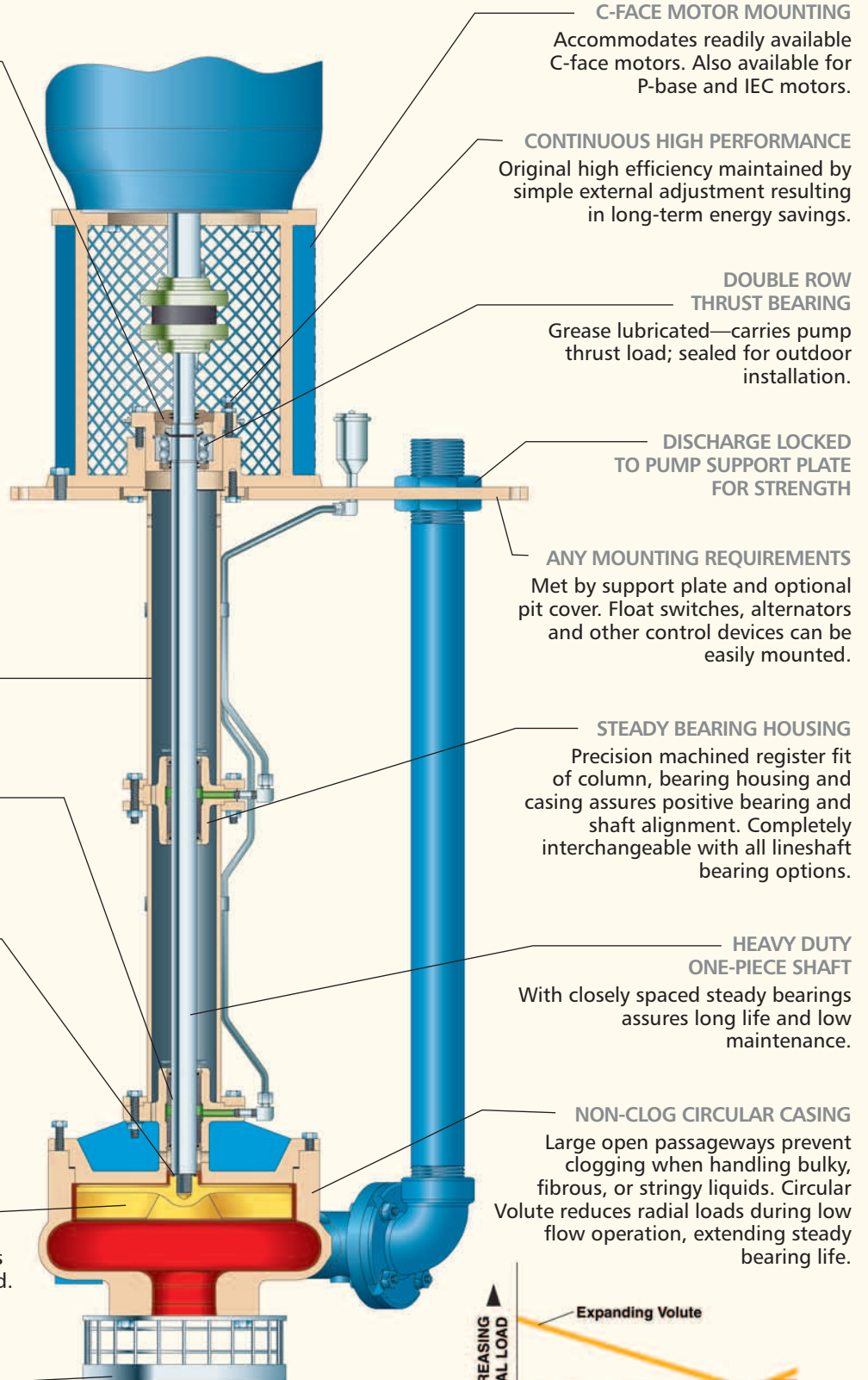


### RECESSED IMPELLER

Since impeller is recessed in the casing, velocities are low and solids contact with the casing are reduced. Wear rate, solids degradation, and shearing of liquids are minimized.

### OPTIONAL STRAINER

Recommended for services where solids larger than the discharge of the pump can potentially enter the casing.



### C-FACE MOTOR MOUNTING

Accommodates readily available C-face motors. Also available for P-base and IEC motors.

### CONTINUOUS HIGH PERFORMANCE

Original high efficiency maintained by simple external adjustment resulting in long-term energy savings.

### DOUBLE ROW THRUST BEARING

Grease lubricated—carries pump thrust load; sealed for outdoor installation.

### DISCHARGE LOCKED TO PUMP SUPPORT PLATE FOR STRENGTH

### ANY MOUNTING REQUIREMENTS

Met by support plate and optional pit cover. Float switches, alternators and other control devices can be easily mounted.

### STEADY BEARING HOUSING

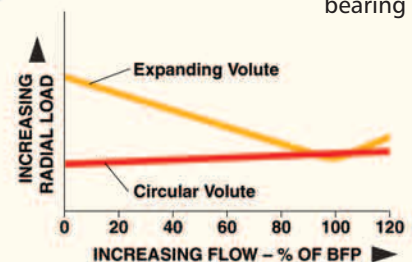
Precision machined register fit of column, bearing housing and casing assures positive bearing and shaft alignment. Completely interchangeable with all lineshaft bearing options.

### HEAVY DUTY ONE-PIECE SHAFT

With closely spaced steady bearings assures long life and low maintenance.

### NON-CLOG CIRCULAR CASING

Large open passageways prevent clogging when handling bulky, fibrous, or stringy liquids. Circular Volute reduces radial loads during low flow operation, extending steady bearing life.



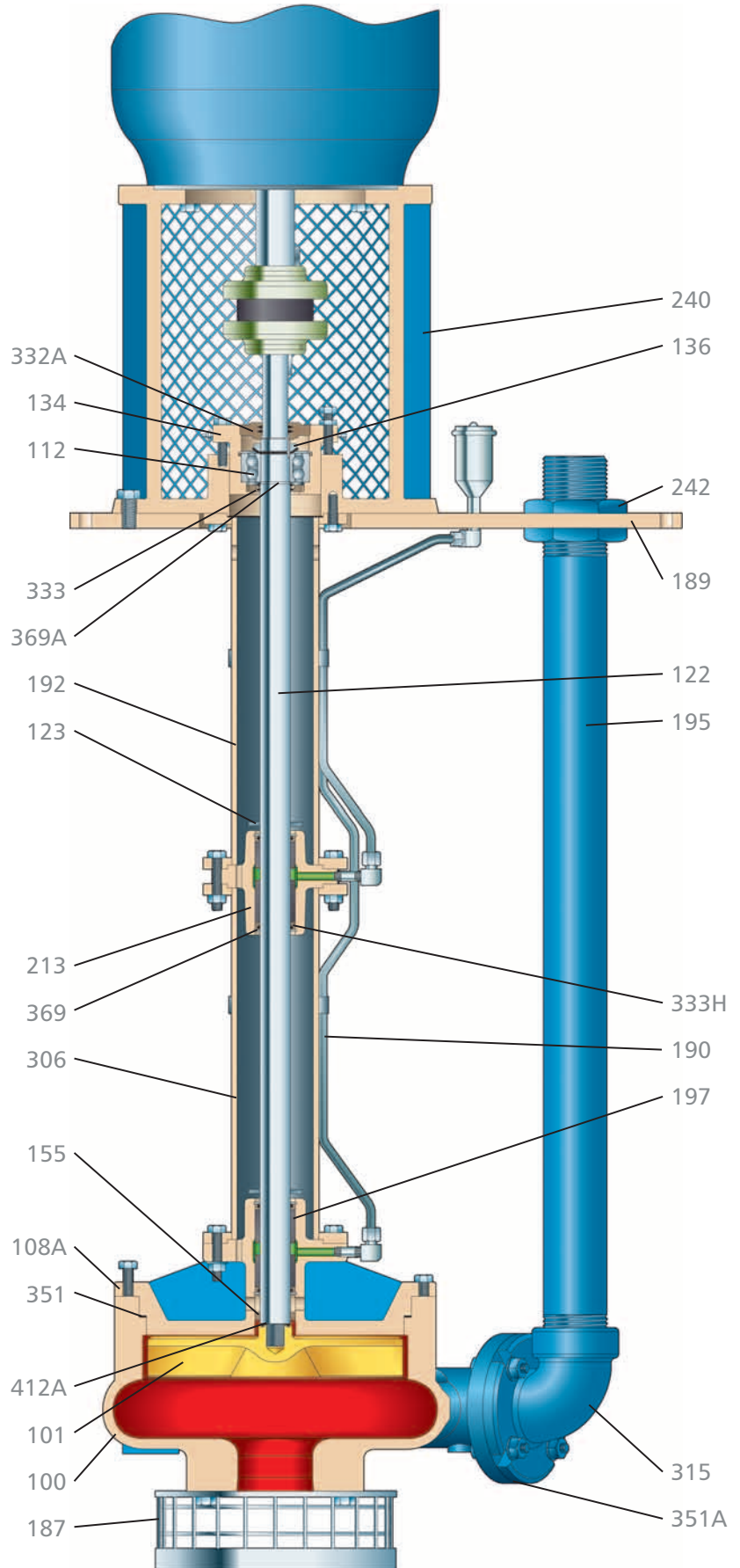
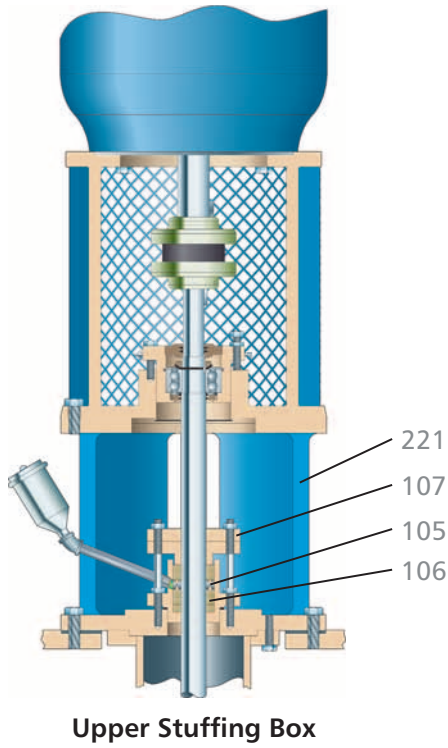
# CV 3171 Parts List and Materials of Construction

Item Number	Part Name	Material		
		Cast Iron	CD4	GA-20
100	Casing	D.I.	CD4	GA-20
101	Impeller	CD4	CD4	GA-20
105	Lantern Ring	Teflon	Teflon	Teflon
106	Packing	Acrylic Yarn	Acrylic Yarn	Acrylic Yarn
107	Gland	316SS or as Specified	316SS or as Specified	316SS or as Specified
108A	Adapter, Casing	D.I.	CD4	GA-20
112	Bearing, Ball	Steel	Steel	Steel
122	Shaft	Steel	316SS	C-20
123	Deflector	EPDM	EPDM	EPDM
134	Shell, Bearing	C.I.	C.I.	C.I.
136	Locknut, Bearing	Steel	Steel	Steel
155	Bushing (casing)	Carbon Teflon	Carbon Teflon	Carbon Teflon
187	Strainer (OPTIONAL)	Steel	316SS	C-20
189	Plate, Support	Steel or as Specified	Steel or as Specified	Steel or as Specified
190	Tubing, Lube Line	Steel	316SS	C-20
192	Column, Head	Steel	316SS	C-20
195	Pipe, Discharge	Steel	316SS	C-20
197	Steady Bearing	Carbon/Bronze/Rubber/Viton	Carbon/Bronze/Rubber/Viton	Carbon/Bronze/Rubber/Viton
213	Steady Bearing Housing	C.I.	316SS	GA-20
221	Upper Stuffing Box	Cast Iron or as Specified	Cast Iron or as Specified	Cast Iron or as Specified
240	Support, Motor	C.I.	C.I.	C.I.
242	Nut, Pipe	Steel	316SS	C-20
306	Extension, Column	Steel	316SS	C-20
315	Elbow, Discharge	D.I.	CD4	GA-20
332A	Seal, Labyrinth	Teflon/Viton	Teflon/Viton	Teflon/Viton
333	Seal, Housing	Steel/Nitrile	Steel/Nitrile	Steel/Nitrile
333H	Seal, Lip	Nitrile	Viton	Viton
351	Gasket, Casing	Nitrile/Acrylic	Nitrile/Acrylic	Nitrile/Acrylic
351A	Gasket, Elbow	Nitrile Acrylic	Nitrile/Acrylic	Nitrile/Acrylic
361A	Ring, Retaining Ball Bearing	Steel	Steel	Steel
369	Ring, Retaining Steady Bearing	316SS	316SS	C-20
369A	Ring, Retaining Shaft	Steel	Steel	Steel
382	Washer Lock Nut	Steel	Steel	Steel
412A	O-Ring, Impeller	Teflon	Teflon	Teflon

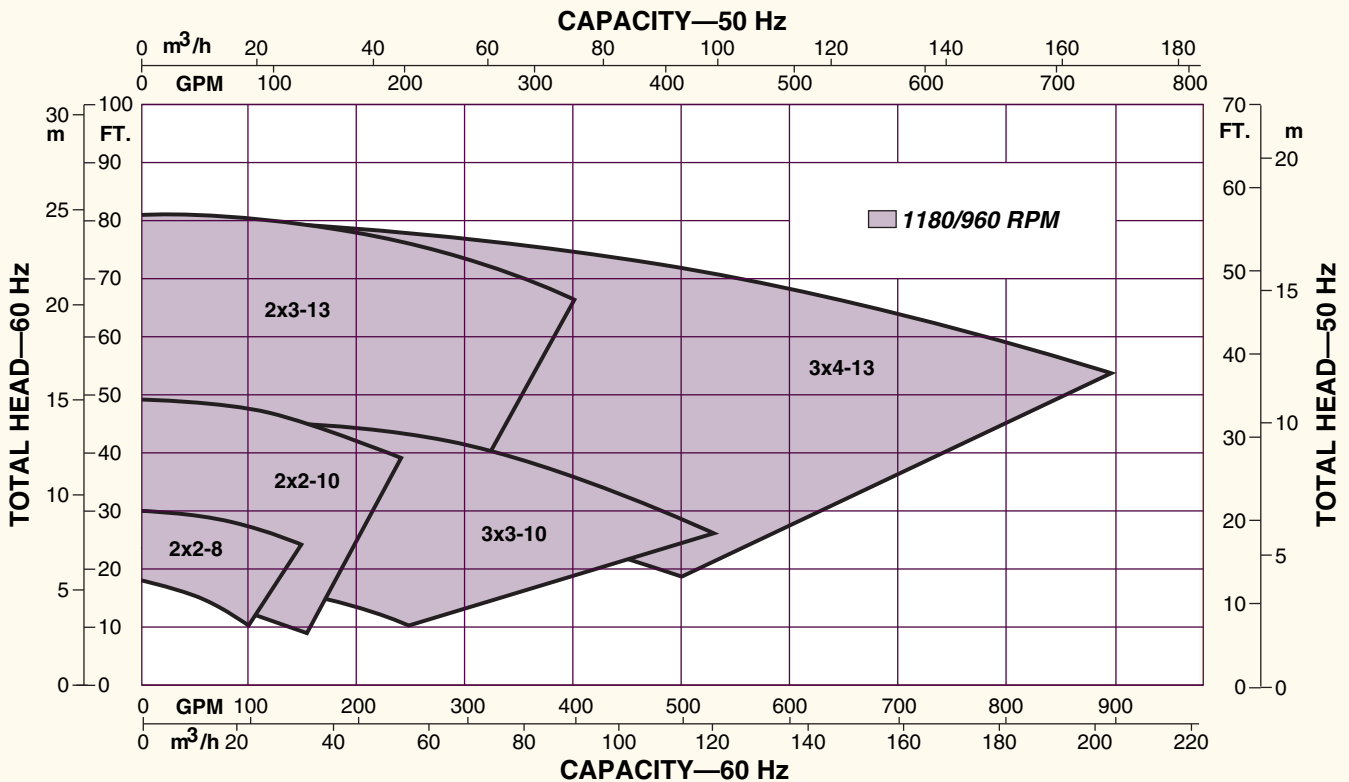
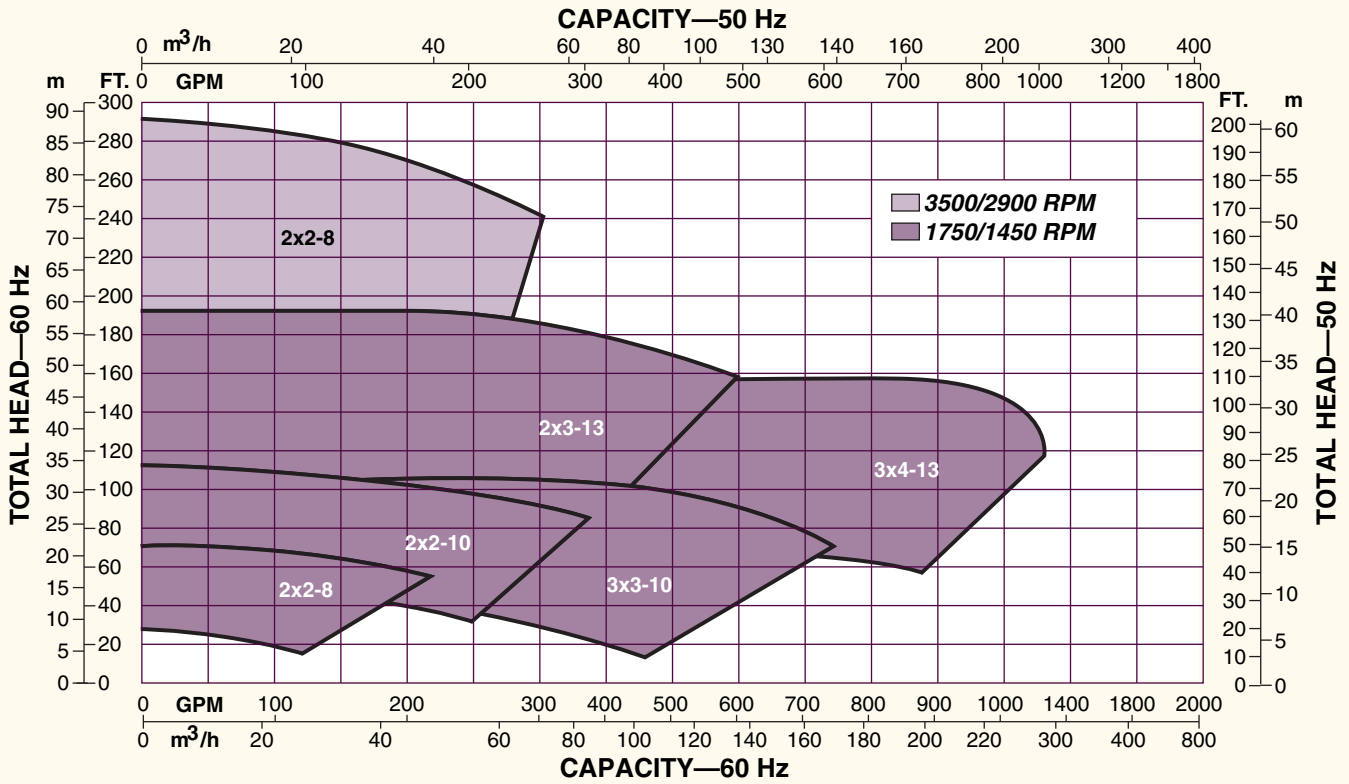
## Construction Details All dimensions in inches and (mm).

		2x2-8	2x2-10	3x3-10	2x3-13	3x4-13
Pump	Weight (3 Foot Depth) Less Motor Lb (kg)*	484 (220)	531 (241)	559 (254)	565 (257)	616 (280)
	Weight—Add fo Each 6" of Length Lb (kg)	20 (9)	20 (9)	20 (9)	20 (9)	20 (9)
	Maximum Diameter of Solids	1.75 (45)	1.75 (45)	2.75 (70)	1.75 (45)	2.75 (70)
Shaft	Diameter at Impeller	0.6309 (16)	0.9008 (23)	0.9008 (23)	0.9008 (23)	0.9008 (23)
	Diameter at Coupling End	1.375 (35)				
	Diameter at Steady Bearing of Solids	1.625 (41)				
Bearings	Ball Bearing	5308 or Equal				
	Steady Bearing (Sleeve Type)	1.625 I.D. x 2.125 O.D. (41 I.D. x 54 O.D.) 4.00 LG. (102 LG.)				
General	Maximum Total Working Pressure—Casing	285 PSIG (1965 kPa)				
	Max. Liquid Temp.— Without Upper Stuffing Box	180° F (82° C)				
	Max. Liquid Temp.— With Upper Stuffing Box	450° F (232° C)				

Sectional View Model CV 3171

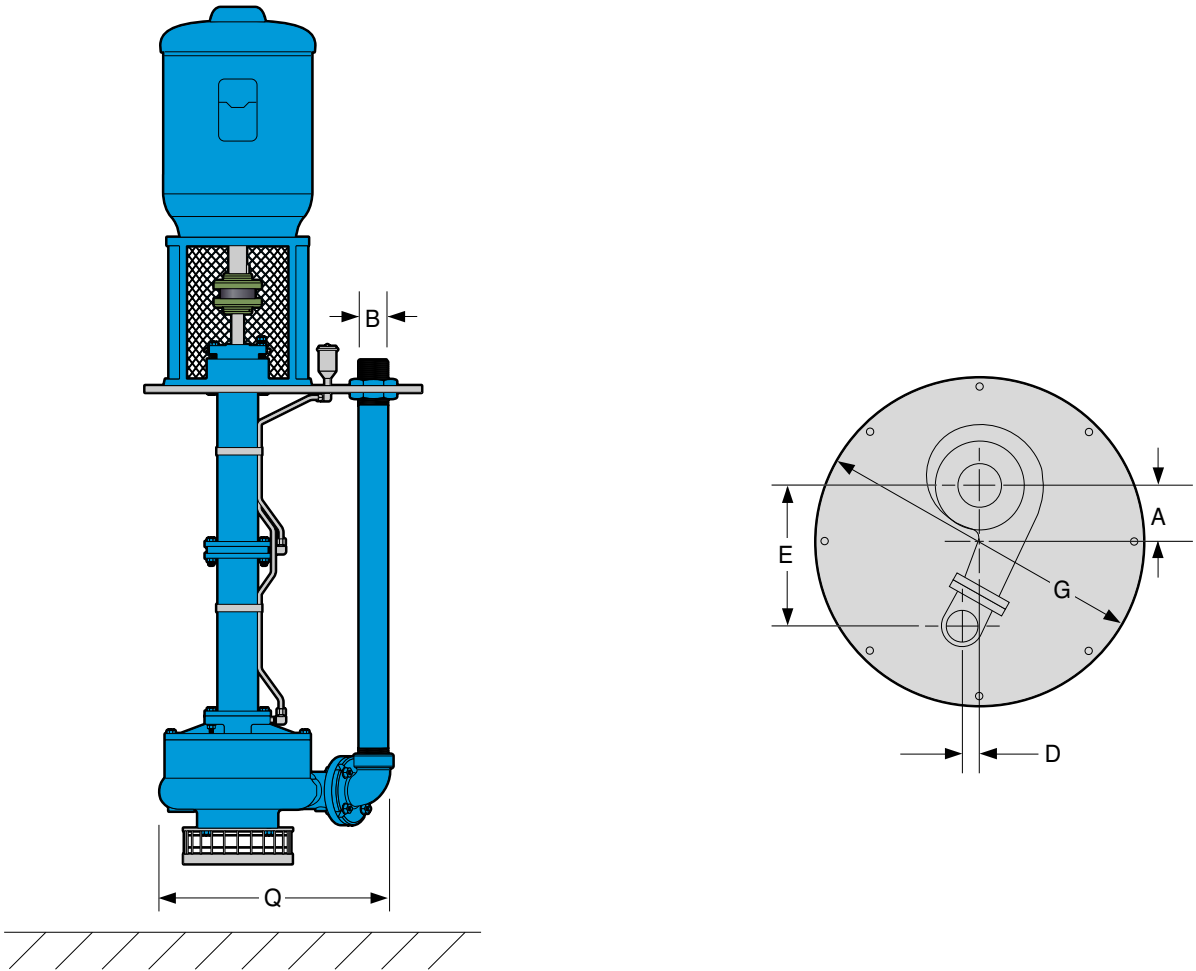


# CV 3171 Hydraulic Coverage



# Dimensions Model CV 3171

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



DIMENSIONS					
	2x2-8	2x2-10	3x3-10	2x3-13	3x4-13
A	4.00 (102)	4.50 (114)	4.50 (114)	4.50 (114)	4.50 (114)
B	2.00 (51)	2.00 (51)	3.00 (51)	2.00 (51)	3.00 (76)
D	1.32 (34)	1.45 (37)	1.69 (43)	1.27 (32)	1.14 (29)
G	26.50 (673)	31.00 (787)	31.00 (787)	31.00 (787)	31.00 (787)
E	10.79 (274)	13.01 (330)	13.17 (335)	15.44 (392)	15.22 (387)
Q*	18.11 (460)	21.47 (545)	22.97 (583)	25.24 (641)	26.32 (669)

\*Add 3 in. (76) for float mounted option.



**PRO Services®**  
**Extending**  
**Equipment Life...**

**Product Repair** (all types and brands of rotating equipment)

- Service Center Repair
- Field Service
- Parts Supply

**Reliability Improvement**

- Inventory Management
- Replacement/Exchange
- Turnkey Repair/Installation
- Training

**Optimization of Assets**

- Predictive Analysis/Condition Monitoring
- Root Cause Failure Analysis
- Pump & System Assessments
- Upgrades – Mechanical & Hydraulic
- Maintenance Management/Contract Maintenance

- 
- Technical Expertise
  - Fast Turnaround
  - Factory Trained Service Personnel
  - Emergency Service – 24 hours/day, 7 days/week
  - Quality
  - ISO and Safety Certified

# PROSMART

ProSmart® provides continuous machinery monitoring to identify little problems before they become big problems...like downtime. Using wireless technology, advanced signal processing capabilities, and easy-to-deploy sensors, ProSmart offers an affordable means to monitor all of your rotating equipment anywhere in the world. By identifying and alerting you to changes in operating conditions, ProSmart increases your time to respond to either correcting the upset condition, or properly plan its repair.



**Key Features include:**

- Continuous data acquisition and analysis – ProSmart collects vibration, temperature, and available process conditions every five seconds; saving you time from routine data collection.
- Automatic Notification and Accessibility – By alerting when a machine goes into distress, you are able to focus your resources on recovery activities. The ProNet web-hosted solution allows access to information anywhere in the world through a standard Internet browser connection.
- Advanced diagnostic tools – More than simple overall data, ProSmart provides advanced analysis capabilities such as time-waveform, spectral, and spectral windowing.
- Easy to deploy – Using plug and play sensors, wireless connectivity, and an industrially hardened enclosure, ProSmart can be easily deployed throughout your plant, including hazardous areas.

# PUMPSMART

PumpSmart® is the latest advancement in pump control and protection to reduce energy consumption, increase uptime and decrease maintenance cost. It allows the pump to be right-sized to the application by dialing in the speed and torque which increases flow economy, reduces heat and vibration, and improves overall system reliability.

- **Simplified Pump Control** – PumpSmart was designed specifically to optimize pumping applications and can be used to control a single pump or coordinate between multiple pumps without the need for an external controller.
- **Pump Protection** – PumpSmart guarantees to protect the pump from upset conditions with patented sensorless pump protection algorithms.
- **Smart Flow** – PumpSmart features a sensorless flow function for centrifugal pumps that can calculate the flow of the pump within ± 5% of the pump rated flow.
- **Drive for the DCS** – While most VFDs can only provide basic information, PumpSmart offers unparalleled insight to the pump operation which allows for smoother process control and efficiency.
- **Pump Experts** – PumpSmart is a variable speed drive with pump-specific algorithms imbedded into the drive. With over 150 years of pump knowledge, let the pump experts take responsibility of your pump system.



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