SD Series

Slurry Duty Pumps

Hydra-Cell Slurry Duty pumps are specifically designed for abrasive duty applications in order to:

- Increase flow
- Reduce and simplify maintenance
- Extend pump life
- Provide quiet operation, and repeatable, consistent positive displacement output

Hydra-Cell Slurry Duty Pumps are ideal for harsh abrasive slurries such as:

- Alumina
- Bentonite
- Carbon
- Clay
- Fly ash
- Ink
- Lime slurry
- Paint and pigments

Hydra-Cell®
SIMPLY BUILT TO LAST

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SD Series Slurry Duty

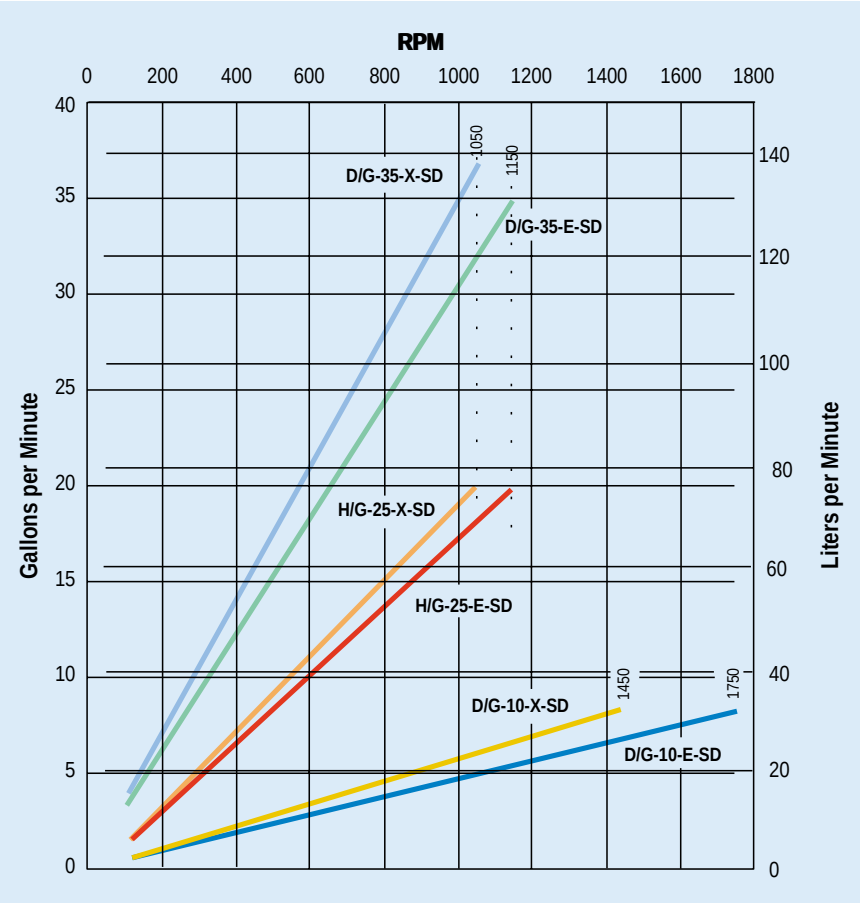
flow

model	max flow gpm	max flow l/min	max input rpm
D/G-10-X-SD	8	30.3	1450
D/G-10-E-SD	8	30.3	1750
H/G-25-X-SD	20	75.7	1050
H/G-25-E-SD	20	75.7	1150
D/G-35-X-SD	37	140	1050
D/G-35-E-SD	35	132	1150

pressure

Maximum Inlet Pressure:
50 psi (3.5 bar)

Pressure Variable To:
300 psi (21 bar)



Slurry Duty Case Study

A waste-to-energy incineration plant uses a 5% lime slurry concentration for flue-gas desulferization as well as for cooling the emissions of the stack scrubbers. In order to speed the cleaning process, they experimented with a 20% lime slurry concentration. The results were excellent, but the existing progressing-cavity pump could not handle the increased solids. With the high cost of replacing the mechanical seal, rotor and stator, they were forced to look at an alternative pump. The Hydra-Cell Slurry Duty pump was chosen for its seal-less design and because it can handle the harsh abrasives.

The results were astounding. Not only did the Hydra-Cell Slurry Duty Pump easily handle the increased lime concentration, but it also significantly reduced overall maintenance costs.

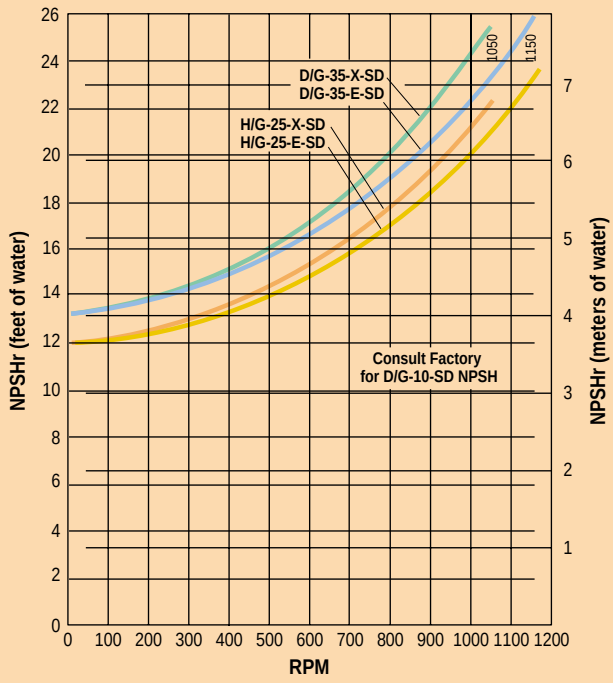
SD Series Slurry Duty

Capacity @ Max Pressure	rpm	gpm	l/min
D/G-10-X-SD	1450	8	30
D/G-10-E-SD	1750	8	30
H/G-25-X-SD	1050	20	76
H/G-25-E-SD	1150	20.2	77
D/G-35-X-SD	1050	37	140
D/G-35-E-SD	1150	35	132

Delivery @ Max Pressure	revs/gal	revs/liter
D/G-10-X-SD	185	50
D/G-10-E-SD	219	58
H/G-25-X-SD	52	14
H/G-25-E-SD	57	15
D/G-35-X-SD	29	7.7
D/G-35-E-SD	31	8.2

Max Inlet Pressure	50 psi (3.5 bar)
Discharge Pressure	
Maximum	300 psi (21 bar)
Max Temperature	
Pump Head	140°F (60°C)
Hydraulic End	180°F (82°C)
Inlet Port	
D-10-SD:	1 inch NPT
G-10-SD:	1 inch BSPT
H-25-SD:	1-1/2 inch NPT
G-25-SD:	1-1/2 inch BSPT
D-35-SD:	2 inch SAE
G-35-SD:	2 inch BSPT
Discharge Port	
D-10-SD:	3/4 inch NPT
G-10-SD:	3/4 inch BSPT
H-25-SD:	1 inch NPT
G-25-SD:	1 inch BSPT
D-35-SD:	1-1/4 inch SAE
G-35-SD:	1-1/4 inch BSPT
Shaft Diameter	
D/G-10-SD:	7/8 inch (22.22)
H/G-25-SD:	1-1/8 inch (28.58)
D/G-35-SD:	2 inch (50.8)
Shaft Rotation	Bi-directional
Bearings	Tapered roller
Oil Capacity (see Accessories Section for oil selection and specification)	
D/G-10-SD:	1.1 US quart (1.05 liters)
H/G-25-SD:	2-1/2 US quarts (2.4 liters)
D/G-35-SD:	5 US quarts (4.7 liters)
Weight	
D-10-SD:	35 lbs (16 kg)
H-25-SD:	90 lbs (41 kg)
D-35-SD:	195 lbs (89 kg)

Net Positive Suction Head (NPSHr)



Calculating Required Horsepower (kW)**

D/G-10-SD:

$$\frac{15 \times rpm}{63{,}000} + \frac{gpm \times psi}{1{,}460} = \text{electric motor HP}$$

$$\frac{15 \times rpm}{84{,}428} + \frac{gpm \times bar}{511} = \text{electric motor HP}$$

H/G-25-SD:

$$\frac{50 \times rpm}{63{,}000} + \frac{gpm \times psi}{1{,}460} = \text{electric motor HP}$$

$$\frac{50 \times rpm}{84{,}428} + \frac{gpm \times bar}{511} = \text{electric motor HP}$$

D/G-35-SD:

$$\frac{100 \times rpm}{63{,}000} + \frac{gpm \times psi}{1{,}460} = \text{electric motor HP}$$

$$\frac{100 \times rpm}{84{,}428} + \frac{gpm \times bar}{511} = \text{electric motor HP}$$

**rpm equals pump shaft rpm. HP/kW is required application power. Use caution when sizing motors with variable speed drives.

Refer to installation guidelines and design considerations section for additional information.

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SD Series Design Advantages

In abrasive slurry mixtures, all valve assembly components are critical to valve reliability. The Hydra-Cell Slurry Duty design is intended for improved abrasion resistance over standard "abrasive duty" pumps which have a ceramic valve and valve seat.

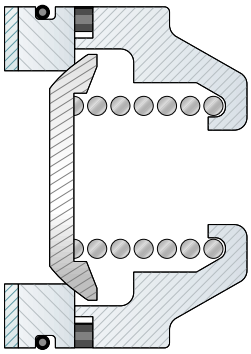
The unique Hydra-Cell Slurry Duty valve design eliminates relative movement between the valve assembly components.

- Crush seal preloads valve assembly
- Ground, balanced spring design
- Valve seat O-ring groove is 100% filled
- Polyurethane wear washers at spring ends

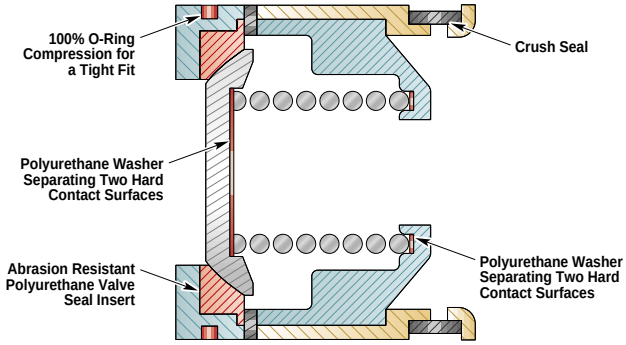
The hard valve "poppet" seals to relatively soft, elastic valve seat to resist abrasion

- The seat absorbs and releases abrasive particles
- Large sealing surface ensures reliability and minimizes stresses

Standard Valve

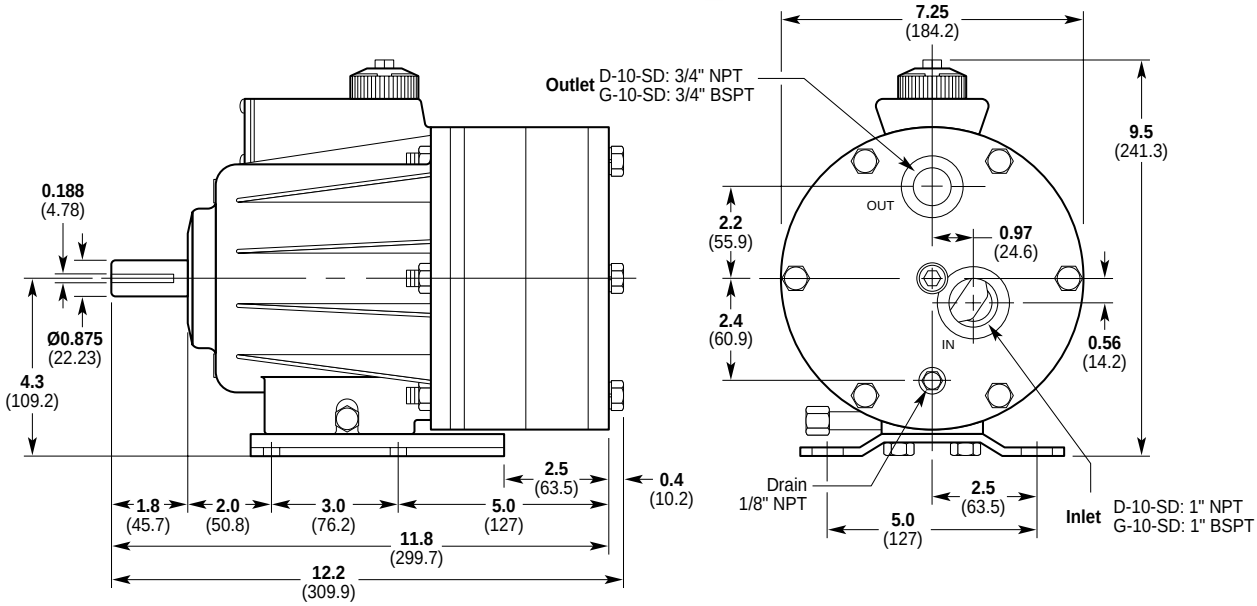


Slurry Valve*



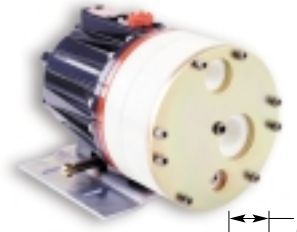
*Patent Pending

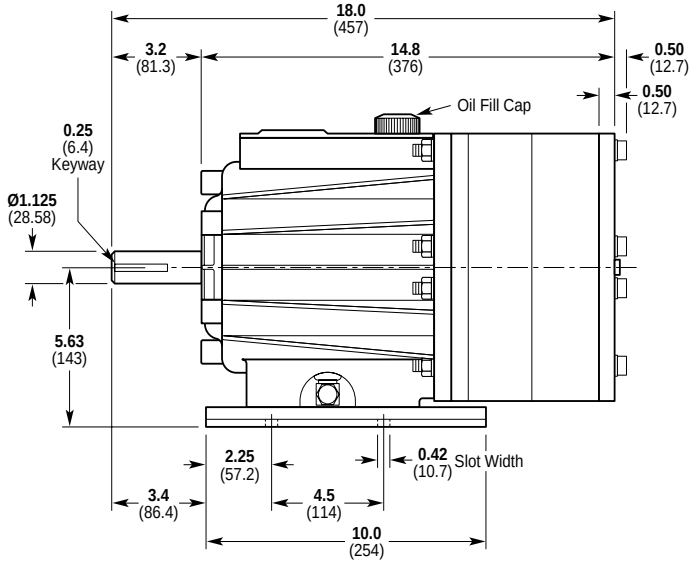
D/G-10-SD 8 gpm (30 l/min)

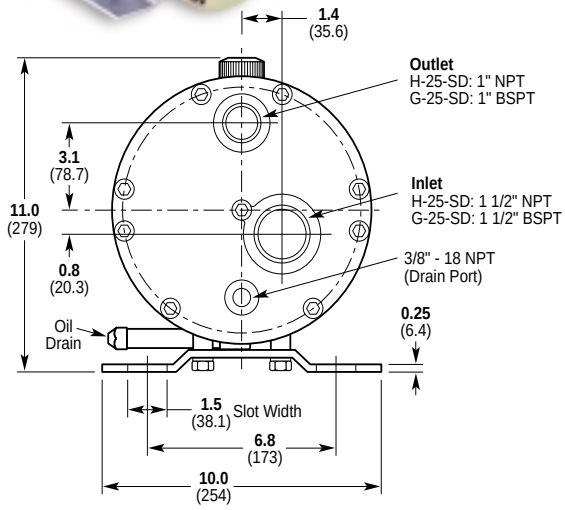


SD Series Slurry Duty

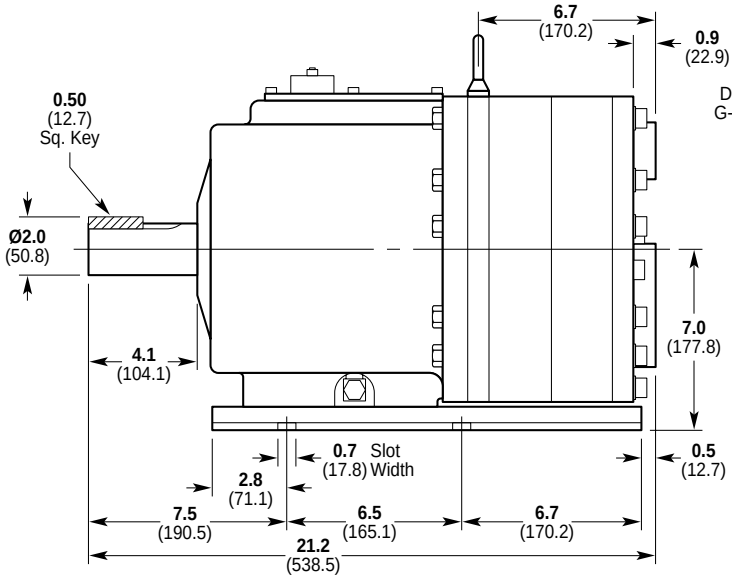
H-25-SD 20 gpm (76 l/min)

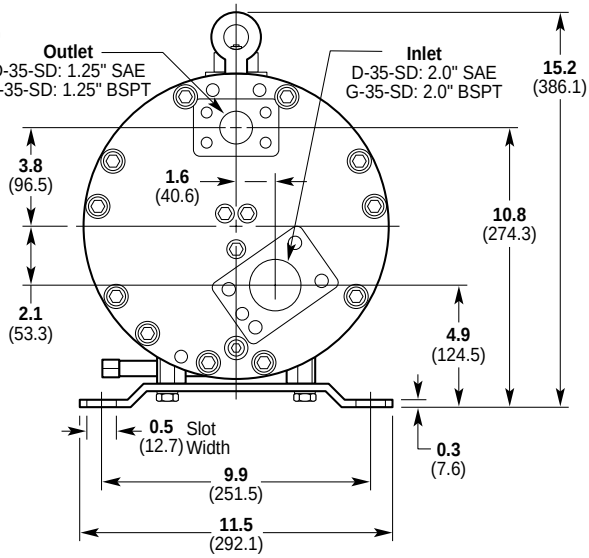






D-35-SD 35 gpm (132 l/min)





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SD Series How To Order

Ordering Information

A complete Slurry Duty Series Model Number contains 12 digits of customer-specified design options: for example D10XSKTRCECA

1	2	3	4	5	6	7	8	9	10	11	12

Digit	Order Code	Description
1-3		**Pump Configuration**
	D10	Shaft-driven (NPT ports)
	G10	Shaft-driven (BSPT ports)
	H25	Shaft-driven (NPT ports)
	G25	Shaft-driven (BSPT ports)
	D35	Shaft-driven (SAE ports)*
	G35	Shaft-driven (BSPT ports)
4		**Hydraulic End Cam**
	X	Refer to performance charts for flow rates
	E	Refer to performance charts for flow rates
5-6		**Pump Head Version**
	KD	Kel-Cell Slurry Duty Version Pump Head
7		**Diaphragm & O-ring Material**
	E	EPDM (requires order code C-30 wt EPDM-compatible oil)
	G	Viton®-XT
	P	Neoprene
	T	Buna-N-XS
8		**Valve Seat Material**
	R	Urethane and Stainless Steel
9-11		**SD Materials**
	CEC	Slurry Duty rated materials
12		**Hydra-Oil**
	A	10W30 standard duty oil
	B	40-wt for standard duty oil
	C	30-wt EPDM-compatible oil
	E	30-wt food-contact oil
	G	5W30 synthetic oil

* D35 available with NPT ports as a custom order. Consult factory.

Materials of Construction

Pump Head	Delrin
Valve Seat	Urethane and stainless steel
Valves	Ceramic
Valve Springs	Elgiloy®
Valve Spring Retainer	Celcon®

Replacement Hydraulic End Assembly

Complete Hydraulic End Assemblies are available as replacement items for D/G-10-SD, H/G-25-SD and D/G-35-SD Slurry Duty Pumps. The Hydraulic End contains all drive end components from the drive shaft up to and including the diaphragms. All Hydraulic Ends are factory tested and shipped with oil. To order a Replacement Hydraulic End, specify the desired Cam (Digit 4), the Diaphragm and O-ring Material (Digit 7), and the Hydra-Oil (Digit 12).

Part Number*

D10 4* **XX** 7* **XXXX** 12*	**G10** 4* **XX** 7* **XXXX** 12*
H25 4* **XX** 7* **XXXX** 12*	**G25** 4* **XX** 7* **XXXX** 12*
D35 4* **XX** 7* **XXXX** 12*	**G35** 4* **XX** 7* **XXXX** 12*

* Order Code Digits 4, 7 and 12 must be filled in when ordering.

Options, Accessories and Custom Designs

- Valves
- Baseplates
- Guards
- Couplings
- Hose Connectors
- Hydra-Oil
- Oil Cooler and Filtering System
- Oil Level Monitoring Kit
- Oil Reservoir
- Tool Kits