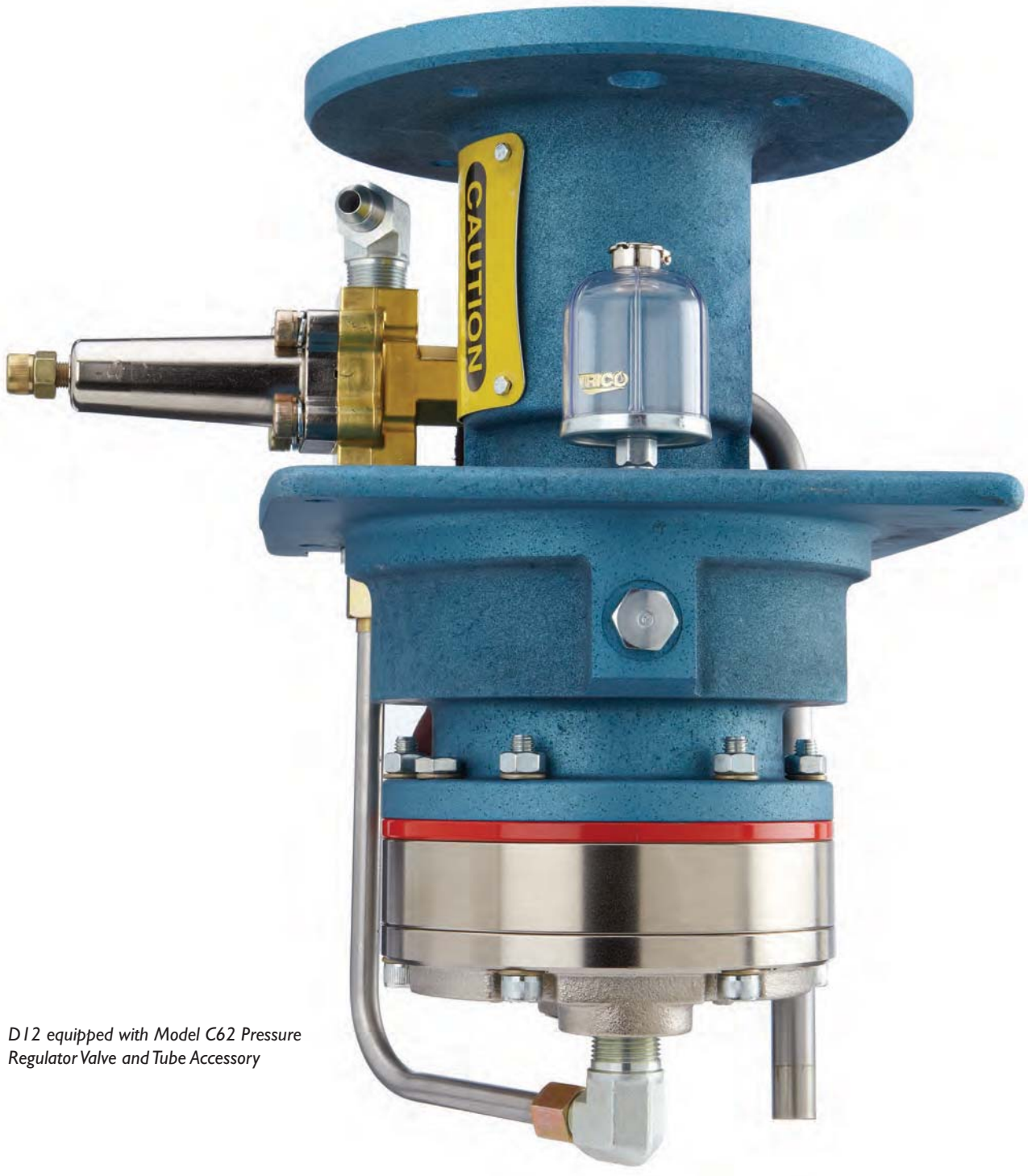
D12 Series

Maximum Flow Rate: 8.8 gpm (33.4 l/min)
Maximum Pressure: 1000 psi (69 bar) for Metallic Pump Heads



D12 equipped with Model C62 Pressure Regulator Valve and Tube Accessory

D12 Series Performance

Capacities

Flow

model	Max. Input rpm	Max. Flow @ 1000 psi (69 bar) gpm	l/min
D12-X	1450	8.1	30.6
D12-E	1750	8.8	33.4
D12-S	1750	6.0	22.7
D12-I	1750	4.0	15.0

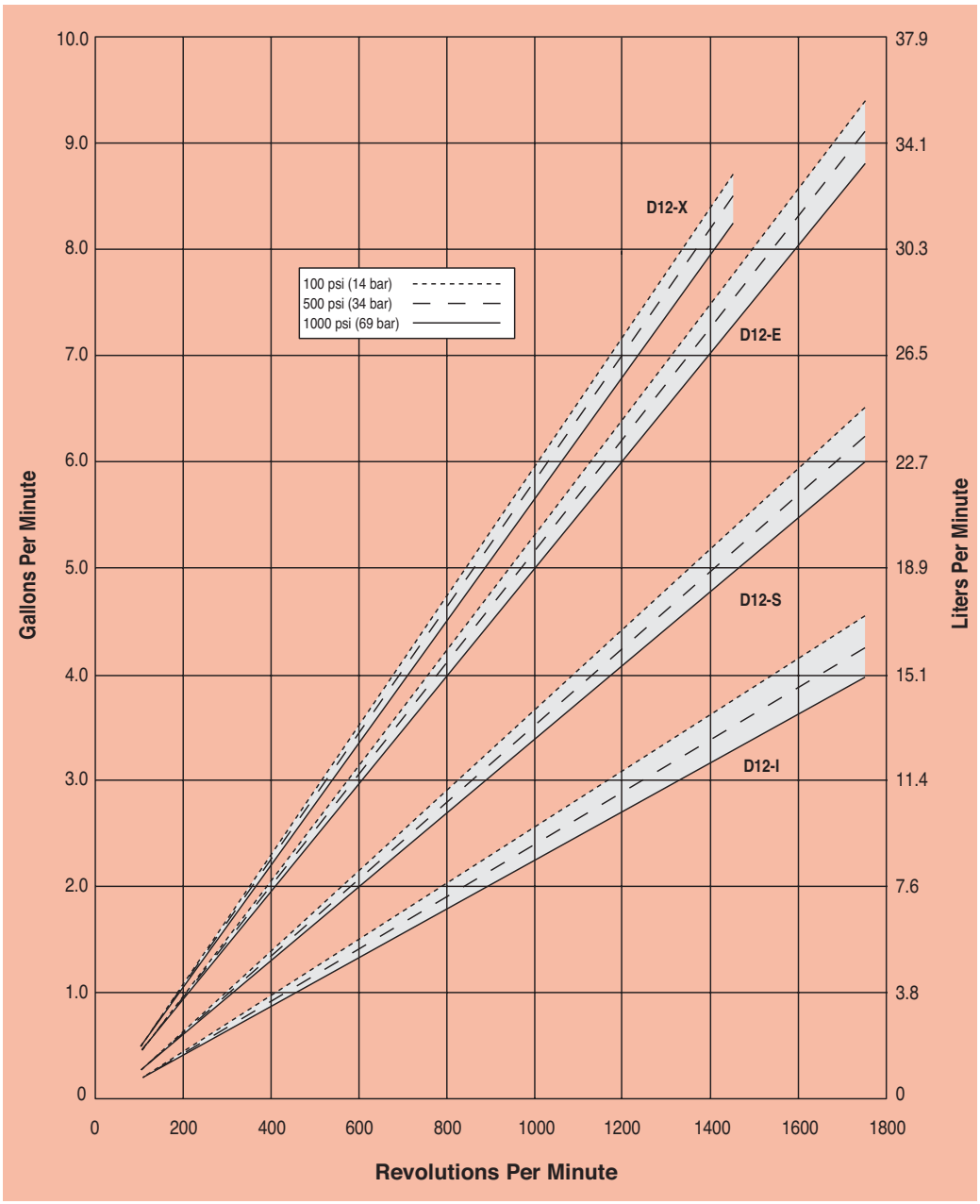
Pressure

Maximum Inlet Pressure
250 psi (17 bar)

Maximum Discharge Pressure
1000 psi (69 bar)

Performance and specification ratings apply to D12 configurations unless specifically noted otherwise.

Maximum Flow at Designated Pressure



D12 Series Specifications

Flow Capacities @1000 psi (69 bar)

Model	rpm	gpm	l/min
D12-X	1450	8.10	30.6
D12-E	1750	8.83	33.4
D12-S	1750	6.00	22.7
D12-I	1750	3.96	15.0

Delivery @1000 psi (69 bar)

Model	gal/rev	liters/rev
D12-X	0.0056	0.0211
D12-E	0.0051	0.0191
D12-S	0.0034	0.0130
D12-I	0.0023	0.0086

Maximum Discharge Pressure	
Metallic Heads:	1000 psi (69 bar)
Maximum Inlet Pressure	250 psi (17 bar)
Maximum Operating Temperature	
Metallic Heads:	250° F (121° C) - Consult factory for correct component selection for temperatures from 160° F (71° C) to 250° F (121° C).
Maximum Solids Size	500 microns
Inlet Port	1 inch NPT
Discharge Port	3/4 inch NPT
Shaft Diameter	7/8 inch (22.2 mm)
Shaft Rotation	Reverse (bi-directional)
Bearings	Tapered roller bearings
Oil Capacity	1.5 US quarts (1.4 liters) - See pages 104 and 105 for oil selection and specification.
Weight	
Metallic Heads:	63 lbs. (28.6 kg)

Calculating Required Power

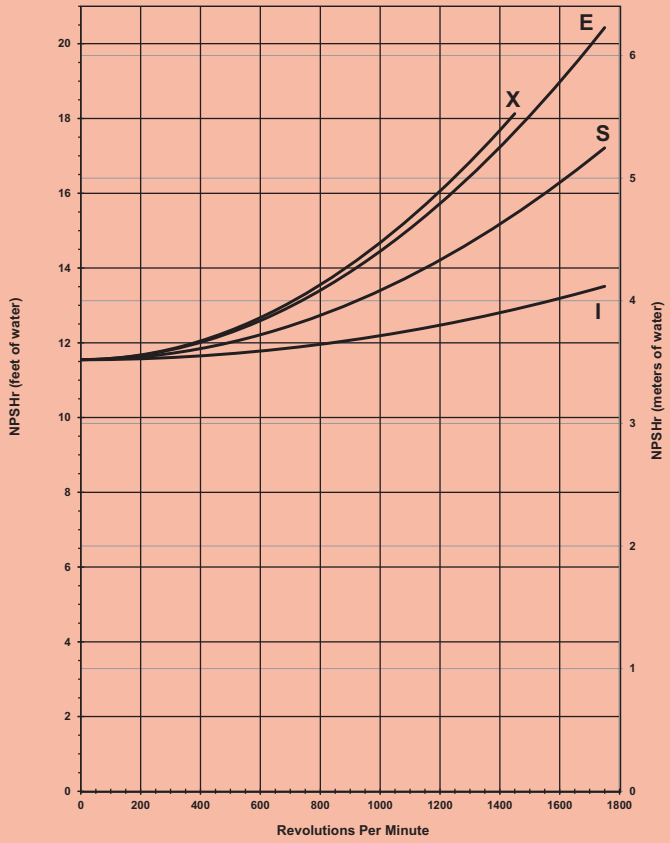
$$\frac{15 \times \text{rpm}}{63{,}000} + \frac{\text{gpm} \times \text{psi}}{1{,}460} = \text{electric motor hp}$$

$$\frac{15 \times \text{rpm}}{84{,}428} + \frac{\text{l/min} \times \text{bar}}{511} = \text{electric motor kW}$$

See page 168 for calculating pulley size.

When using a variable frequency controller (VFD) calculate the hp or kW at minimum and maximum pump speed to ensure the correct hp or kW motor is selected. Note that motor manufacturers typically de-rate the service factor to 1.0 when operating with a VFD.

Net Positive Suction Head (NPSHr)



Positive inlet pressure required for:

A) All pumps with PTFE diaphragms

B) Pumps with I-cam (consult factory)

Self-priming:

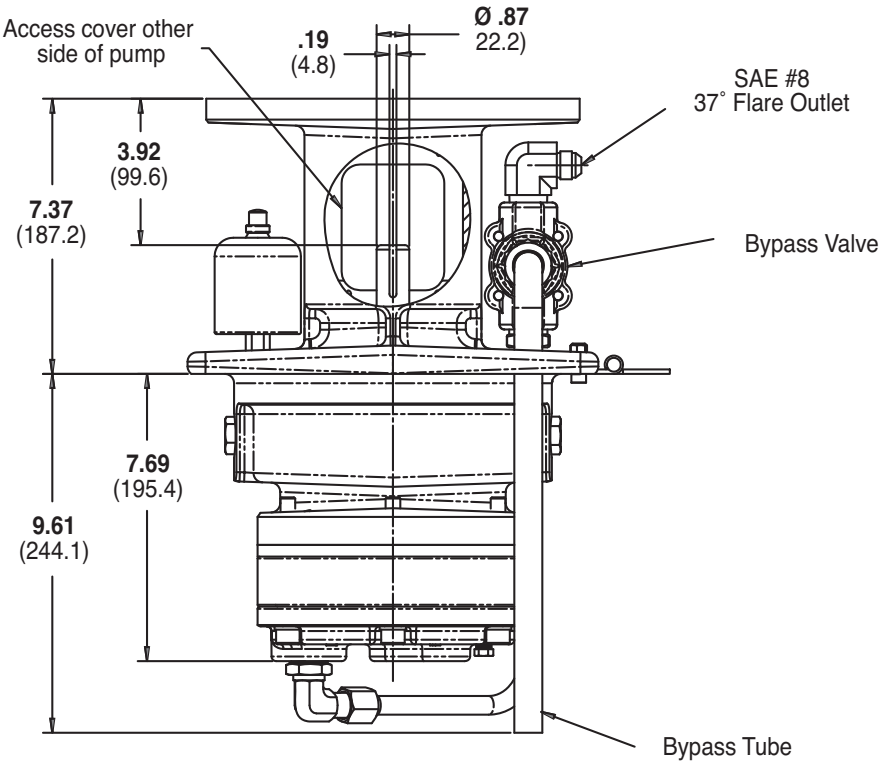
Each Hydra-Cell pump has different lift capability depending on model size, cam angle, speed, and fluid characteristics. To ensure that your specific lift characteristics are met, refer to the inlet calculations regarding friction, and acceleration head losses in your Hydra-Cell Installation & Service Manual. Compare those calculations to the NPSHr curves above.

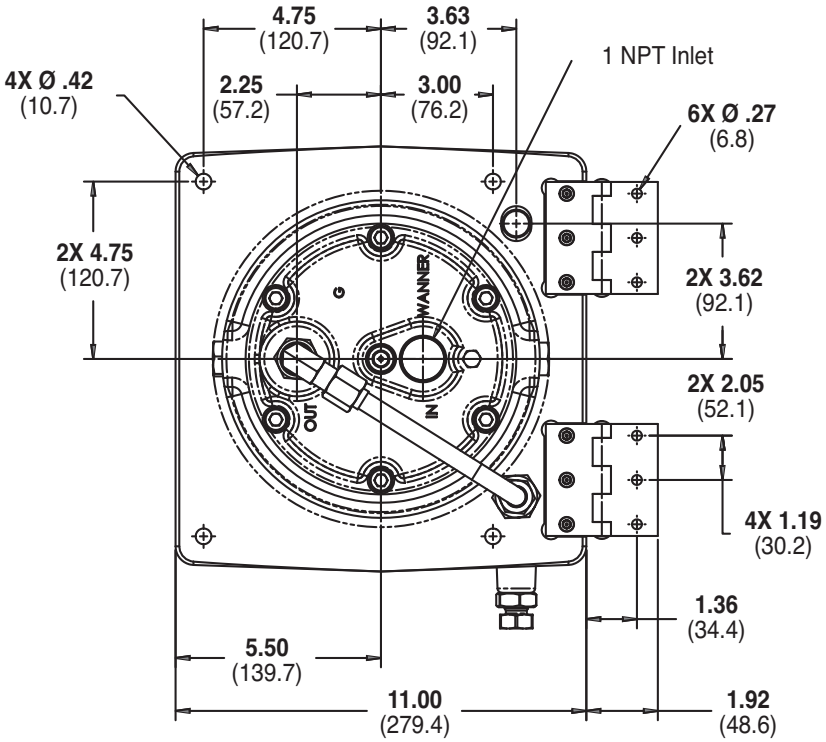
For technical assistance in pump selection, see Frequently Asked Questions on page 166, Design Considerations on page 167, and Installation Guidelines on pages 168-169.

D12 Series Representative Drawings

D12 Standard Configuration (Metallic Pump Heads)

Inches (mm)

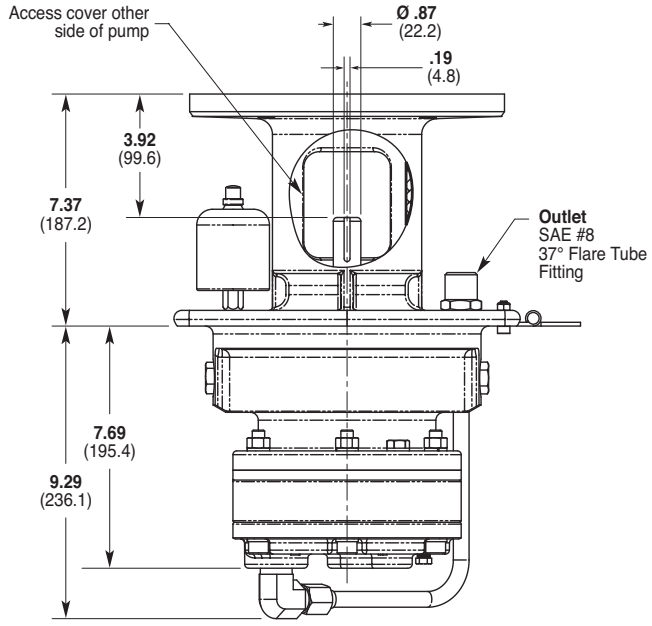




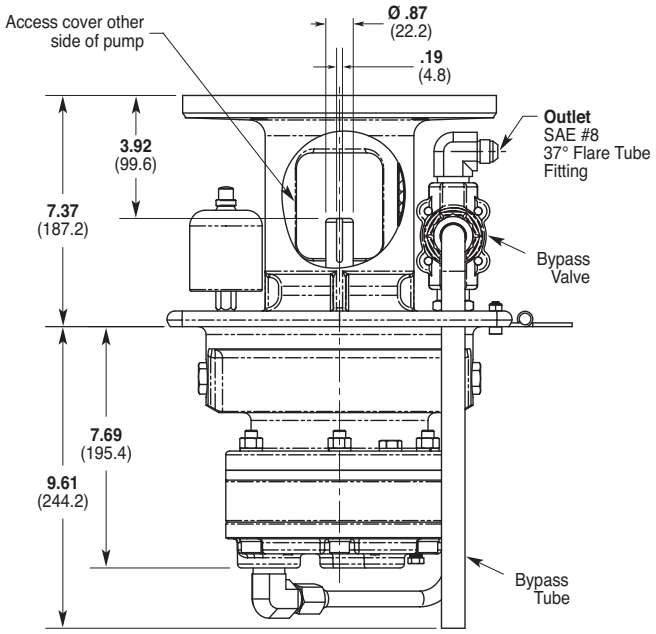
Note: *Contact factory for additional drawings of specific models and configurations.*

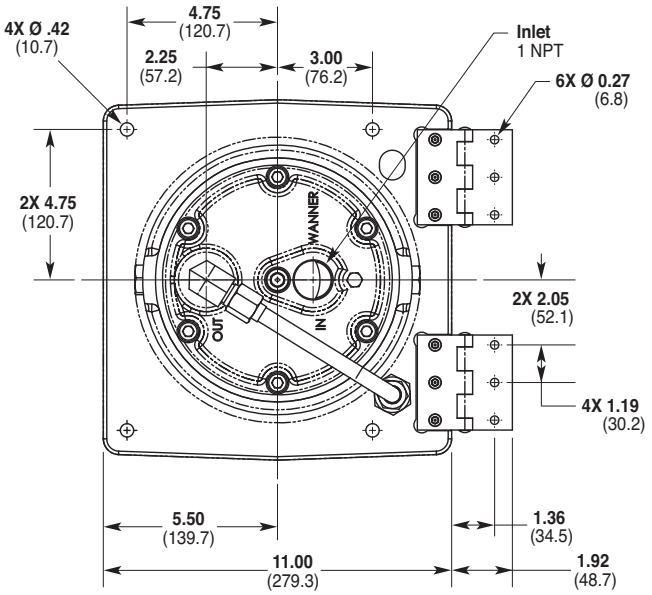
D12 Series Representative Drawings

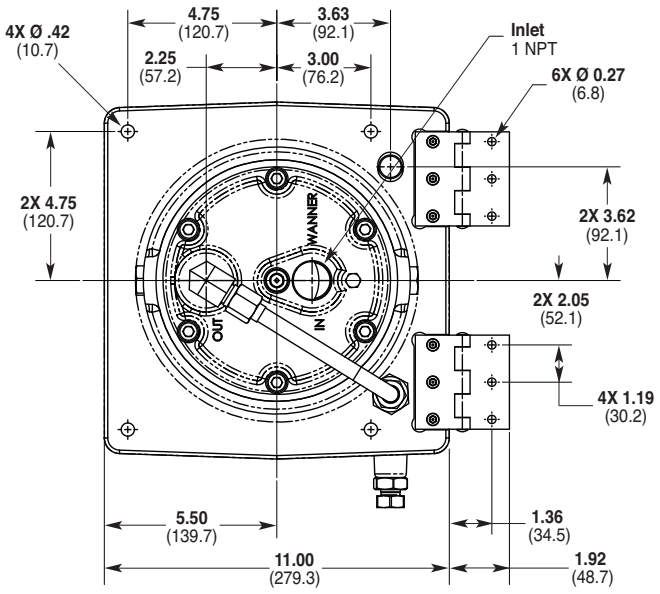
D12 with Tube Accessory
Inches (mm)



D12 with Valve/Tube Accessory Inches (mm)



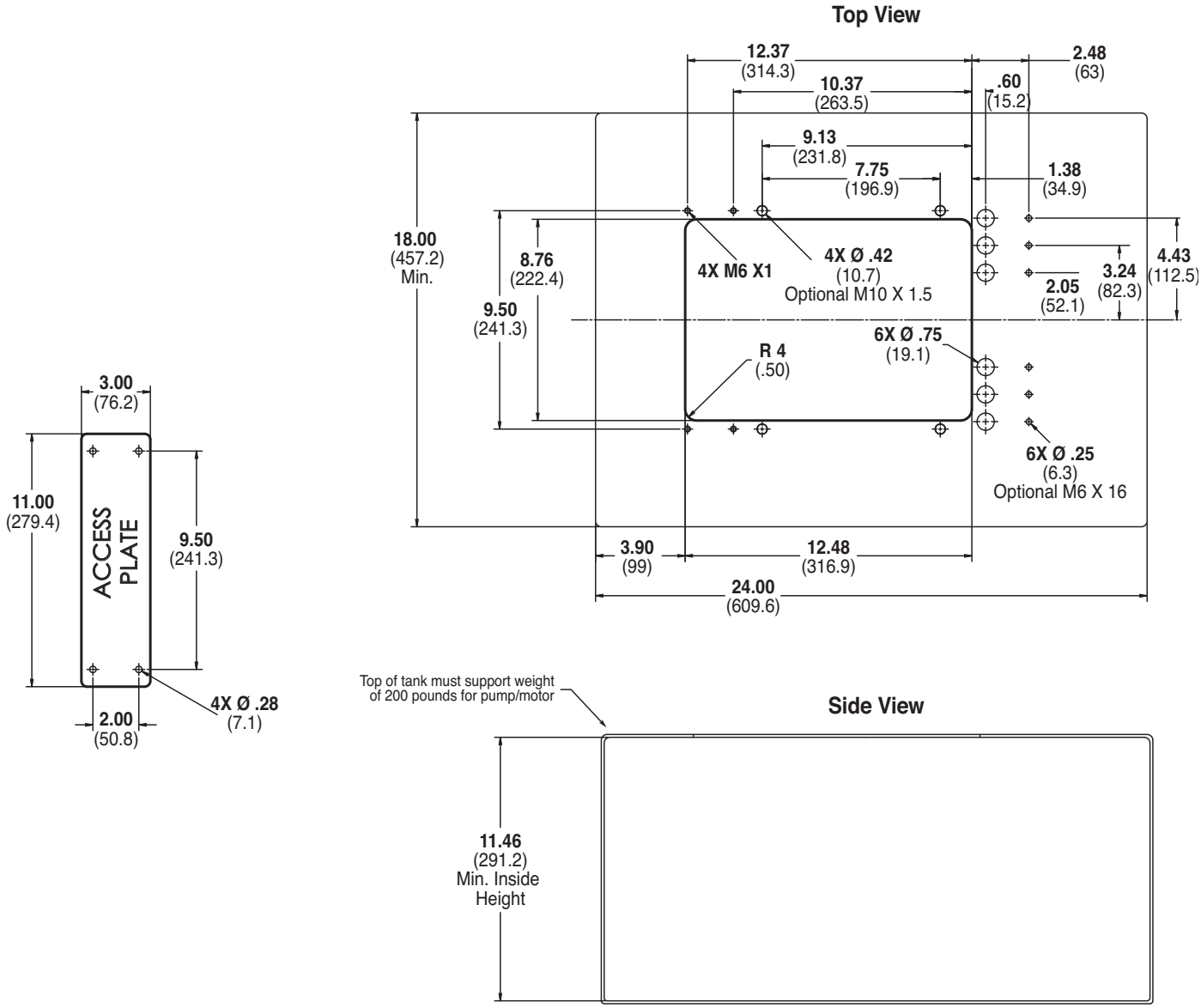




Note: *Contact factory for additional drawings of specific models and configurations.*

D12 Series Representative Drawings

D12 Models with Minimum Tank Size and Critical Installation Dimensions Inches (mm)



Note: *Contact factory for additional drawings of specific models and configurations.*

D12 Series Valve/Tube Accessories

The Hydra-Cell D12 Tube and Valve/Tube Accessories provide a pre-fabricated plumbing package for simplified installation. (See page 54 for dimensions.)

Ordering Information

Tube Accessory Part Number: **A04-007-1200**

Valve/Tube Accessory Part Number: **A04-008-1200**

Valve Selection

A seal-less C62 Pressure Regulating Valve is recommended for Hydra-Cell D12 pumping systems, especially for high-pressure requirements or when handling dirty fluids.

See page 88 for more information.

A C22 Pressure Regulating Valve provides a capable, lower-cost alternative to C62 valves for Hydra-Cell D12 pumping systems.

See page 84 for more information.

D12 Series How to Order

Ordering Information

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

A complete D12 Series Model Number contains 12 digits including 9 customer-specified design and materials options, for example: D12XKCGHFECA.

Digit	Order Code	Description
1-3		**Pump Configuration**
	D12	Flanged for NEMA 182/184TC, 213/215TC (NPT Ports)*
		*Tube Accessory Kits ordered separately. See previous page.
4		**Hydraulic End Cam**
	X	Max 8.1 gpm (30.6 l/min) @ 1450 rpm
	E	Max 8.8 gpm (33.4 l/min) @ 1750 rpm
	S	Max 6.0 gpm (22.7 l/min) @ 1750 rpm
	I	Max 4.0 gpm (15.0 l/min) @ 1750 rpm
5		**Pump Head Version**
	K	Kel-Cell NPT Ports
	R	Kel-Cell Reduced Pocket
6		**Pump Head Material**
	B	Brass
	C	Cast Iron (Nickel-plated)
	S	316L Stainless Steel
7		**Diaphragm & O-ring Material**
	E	EPDM (requires EPDM-compatible oil - Digit 12 oil code C)
	G	FKM
	J	PTFE (available with E and S cams only; 1200 rpm max.)
	P	Neoprene
	T	Buna-N
8		**Valve Seat Material**
	C	Ceramic
	D	Tungsten Carbide
	H	17-4 Stainless Steel
	S	316L Stainless Steel
9		**Valve Material**
	C	Ceramic
	D	Tungsten Carbide
	F	17-4 Stainless Steel
	N	Nitronic 50
10		**Valve Springs**
	E	Elgiloy

Digit	Order Code	Description
11		**Valve Spring Retainers**
	C	Celcon
	H	17-7 Stainless Steel
	M	PVDF
	P	Polypropylene
	Y	Nylon (Zytel)
12		**Hydra-Oil**
	A	10W30 standard-duty oil
	B	40-wt for continuous-duty (use with 316L SST pump head - standard)
	C	EPDM-compatible oil
	E	Food-contact oil
	G	5W30 cold-temp severe-duty synthetic oil

Note: *For motors, bases, couplings and other pump accessories, refer to the Accessories section beginning on page 92.*