

Hydra-Cell®

Seal-less Pumps

Versatile, Reliable Pumps for a Wide Range of Applications



M03 Mono-Block Series

- Pumps the full spectrum of low-to-high viscosity fluids.
- Features a seal-less design and horizontal disk check valves that enable the pump to handle abrasives and particulates that might damage or destroy other types of pumps.
- Simple, compact design reduces initial investment and lowers maintenance costs.
- Operational efficiencies reduce energy costs.
- Able to run dry without damage (or additional maintenance) to the pump in case of accident or operator error.
- Tolerates non-ideal operating conditions.
- Minimizes maintenance and downtime because there are no mechanical or dynamic seals, packing, or cups to leak, wear, or replace.

M03 Mono-Block Series

Maximum Flow Rate: 3.1 gpm (11.7 l/min)

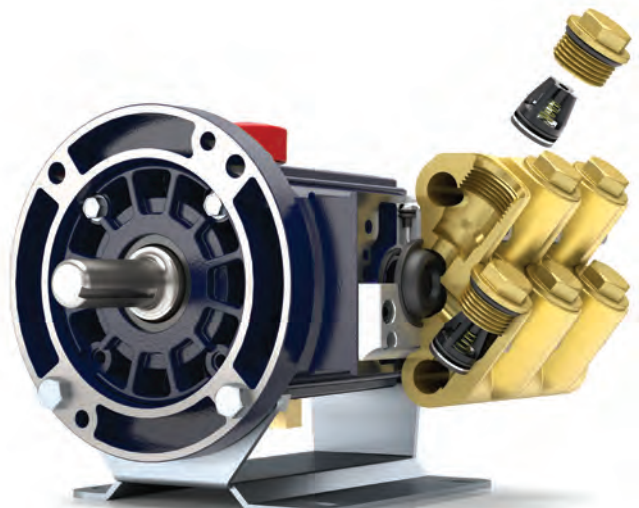
Maximum Pressure: 1000 psi (69 bar) for Metallic Pump Heads



Mono-Block (M03) close-coupled with 316L Stainless Steel pump head.



Mono-Block (D03) shaft-driven with Brass pump head.



The Mono-Block pump head combines the valve plate and manifold into one component for servicing without disassembly or removal of plumbing.

M03 Mono-Block Series Performance

Capacities

Flow

Model	Max. Input rpm	Max. Flow @ 1000 psi (69 bar)	
		gpm	l/min
M03-X	1750	3.1	11.7
M03-E	1750	2.2	8.3

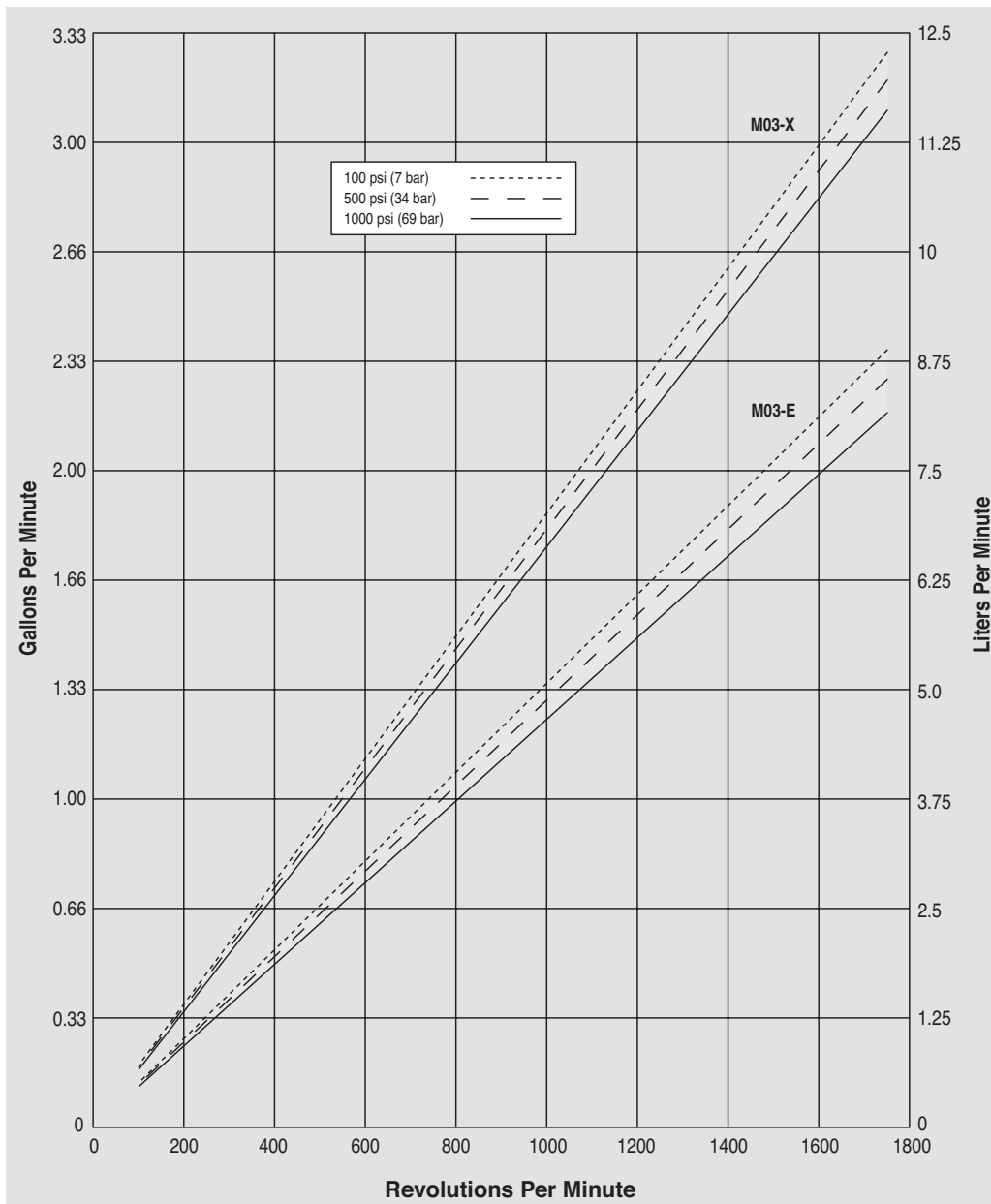
Pressure

Maximum Inlet Pressure
250 psi (17 bar)

Maximum Discharge Pressure
1000 psi (69 bar)

Performance and specification ratings apply to M03 and D03 Mono-Block configurations unless specifically noted otherwise.

Maximum Flow at Designated Pressure



M03 Mono-Block Series Specifications

Flow Capacities @1000 psi (69 bar)

Model	rpm	gpm	l/min
M03-X	1750	3.10	11.73
M03-E	1750	2.18	8.25

Delivery @1000 psi (69 bar)

Model	gal/rev	liters/rev
M03-X	0.0018	0.0067
M03-E	0.0013	0.0047

Maximum Discharge Pressure

Metallic Heads: M/D03-X, E to 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 200 microns

Inlet Port 1/2 inch NPT

Discharge Port 1/2 inch NPT

Shaft Diameter

M03: 5/8 inch hollow shaft
D03: 7/8 inch (22.2 mm)

Shaft Rotation Reverse (bi-directional)

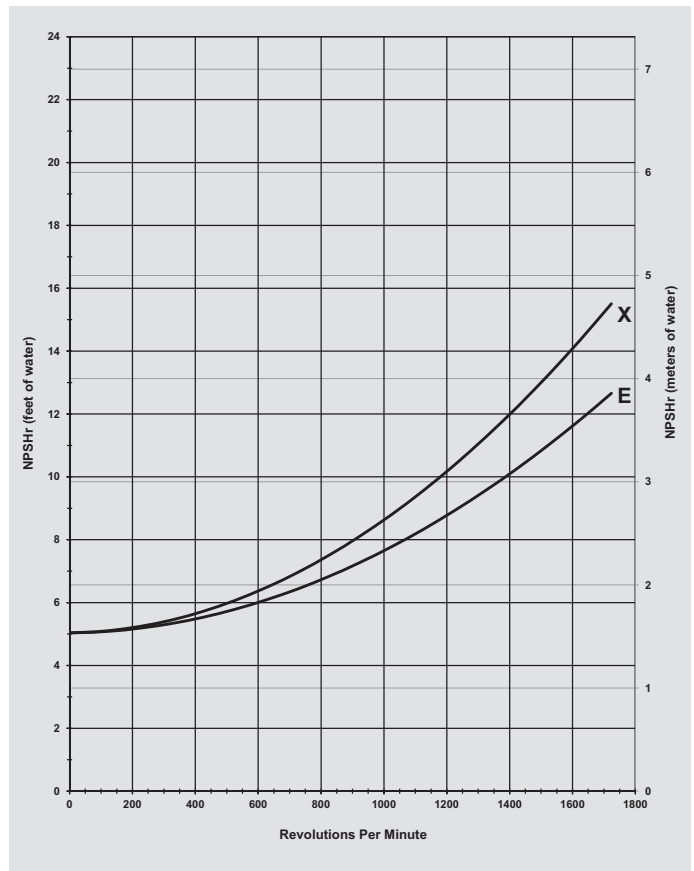
Bearings Precision ball bearings

Oil Capacity 1.0 US quart (0.95 liters)

Weight

Metallic Heads: 28 lbs. (12.7 kg)

Net Positive Suction Head (NPSHr)



Calculating Required Power

$$\frac{6 \times \text{rpm}}{63,000} + \frac{\text{gpm} \times \text{psi}}{1,460} = \text{electric motor hp}$$

$$\frac{6 \times \text{rpm}}{84,428} + \frac{\text{l/min} \times \text{bar}}{511} = \text{electric motor kW}$$

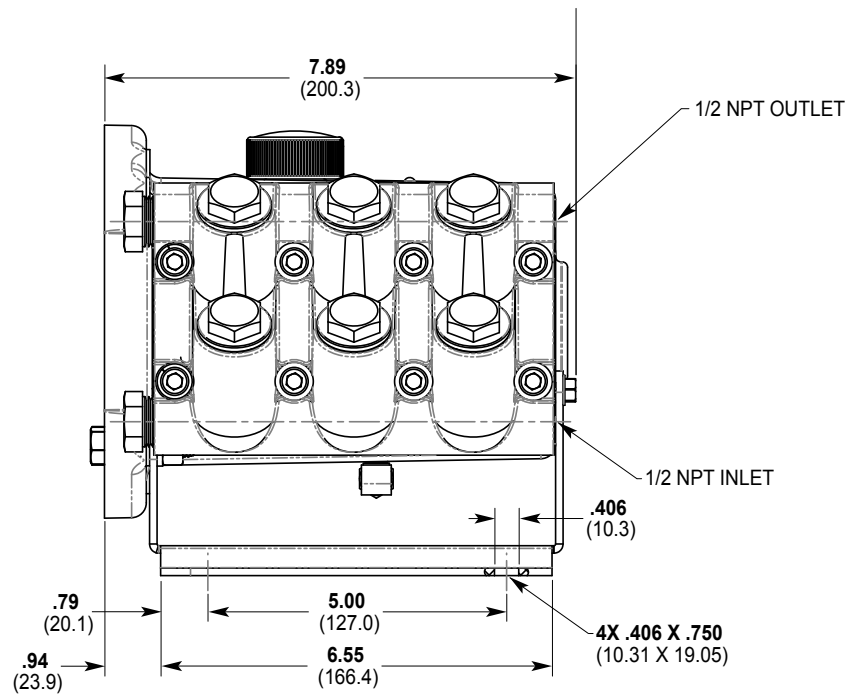
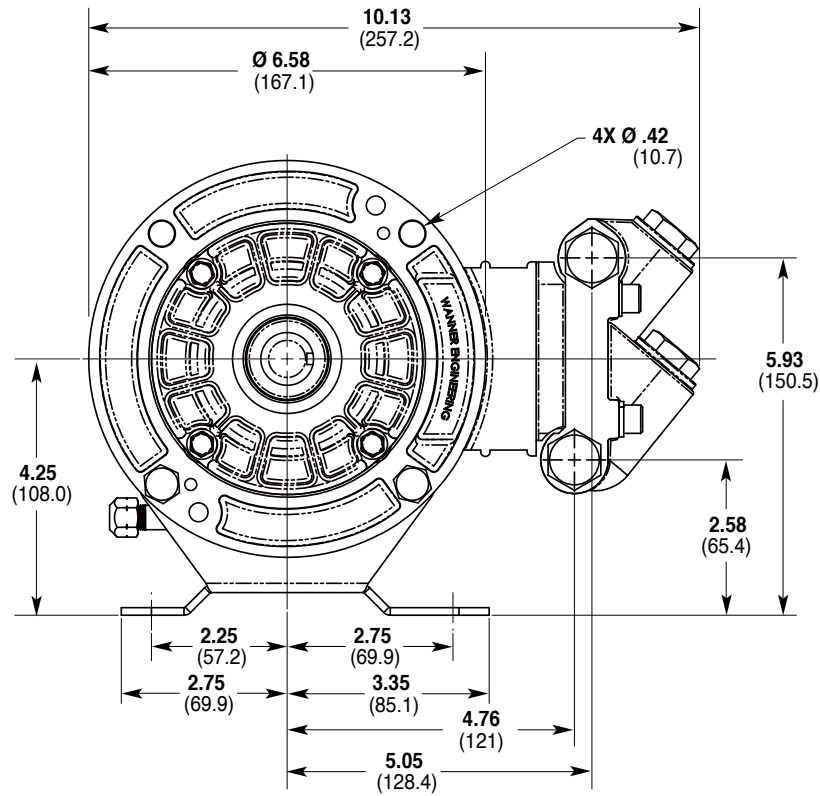
When using a variable frequency drive (VFD) controller, calculate the hp or kW at minimum and maximum pump speed to ensure the correct hp or kW motor is selected. Note that motor manufacturers typically de-rate the service factor to 1.0 when operating with a VFD.

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.

M03 Mono-Block Series Representative Drawings

M03 Models with Metallic Pump Head Inches (mm)



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

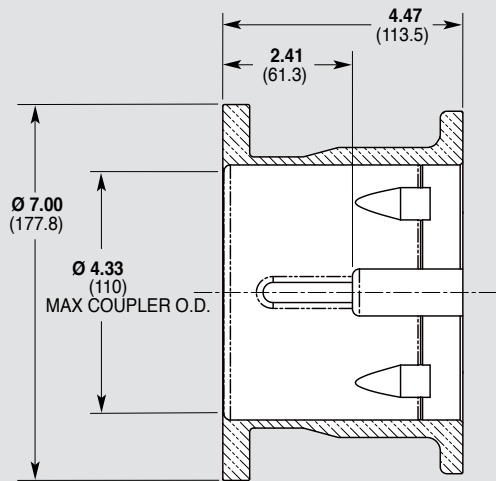
M03 Mono-Block Series Adapters/Valves

Pump/Motor Adapter Inches (mm)

Part Number: A04-001-I202

Must be ordered separately for M03 Mono-Block models for use with 56C, 143TC and 145TC frame motors.

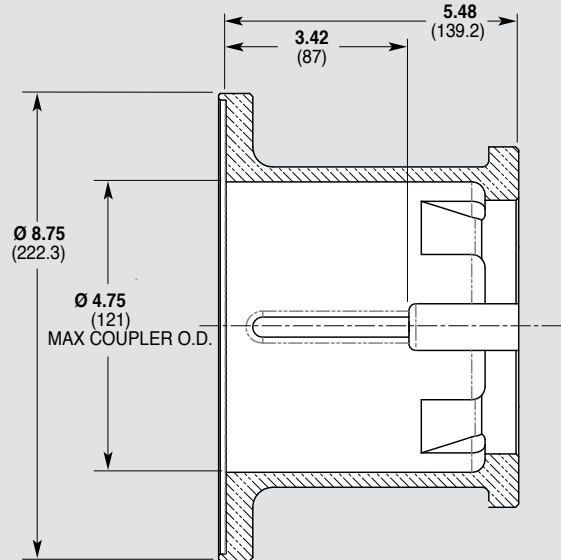
Metric adapter available - consult factory.



Part Number: A04-002-I202

Must be ordered separately for M03 Mono-Block models for use with 182TC, 184TC, 213TC and 215TC frame motors.

Metric adapter available - consult factory.



Valve Selection

A Hydra-Cell M03 Mono-Block Series pumping system uses a C46 Pressure Regulating Valve.



For complete specifications and ordering information, consult the Hydra-Cell Master Catalog.

M03 Mono-Block Series How to Order

Ordering Information

1	2	3	4	5	6	7	8	9	10	11	12
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A complete M03 Mono-Block Series Model Number contains 12 digits including 9 customer-specified design and materials options, for example: M03EMBPSFEPG.

Digit	Order Code	Description
1-3		Pump Configuration
	D03	Shaft-driven (NPT Ports)*
	M03	Close-coupled to NEMA 56C footed motor (NPT Ports) *Pump/motor adapters ordered separately. See previous page.
4	X	Hydraulic End Cam Max 3.1 gpm (11.7 l/min) @ 1750 rpm
	E	Max 2.2 gpm (8.3 l/min) @ 1750 rpm
5		Pump Head Version
	M	Mono-Block, Kel-Cell NPT Ports
6		Pump Head Material
	B	Brass
	S	316L Stainless Steel
7		Diaphragm & O-ring Material
	E	EPDM (requires EPDM-compatible oil - Digit 12 oil code J)
	G	FKM
	P	Neoprene
	T	Buna-N
8		Valve Seat Material
	H	17-4 Stainless Steel
	S	316L Stainless Steel
9		Valve Material
	F	17-4 Stainless Steel
	N	Nitronic 50
10		Valve Springs
	E	Elgiloy
	S	316L Stainless Steel
11		Valve Spring Retainers
	M	PVDF
	P	Polypropylene

Digit	Order Code	Description
12		Hydra-Oil
	A	10W30 standard-duty oil
	G	5W30 cold-temp severe-duty synthetic oil
	J	EPDM-compatible oil
	K	Food-contact oil

Consult the Hydra-Cell Master Catalog for:

- Motors, bases, couplings and other pump accessories
- Hydra-Oil selection and specification information
- Design considerations, installation guidelines, and other technical assistance in pump selection

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