

M03 Series

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

Maximum Pressure: 1200 psi (83 bar) for Metallic Pump Heads
350 psi (24 bar) for Non-metallic Pump Heads



M03 Close-coupled with Brass pump head



M03 Close-coupled with Polypropylene pump head



D03 Shaft-driven with Stainless Steel pump head

M03 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
M03-S	1750	1.7	6.4
M03-B	1750	1.0	3.6
M03-G	1750	0.6	2.3

Model	Max. Input rpm	@ 1200 psi (83 bar)	
		gpm	l/min
M03-E	1750	2.1	8.1
M03-S	1750	1.6	6.3
M03-B	1750	0.9	3.5
M03-G	1750	0.6	2.2

Pressure

Maximum Inlet Pressure

250 psi (17 bar)

Maximum Discharge Pressure

Metallic Pump Heads:

M03-X to 1000 psi (69 bar)

M03-S, E, B, G to 1200 psi (83 bar)

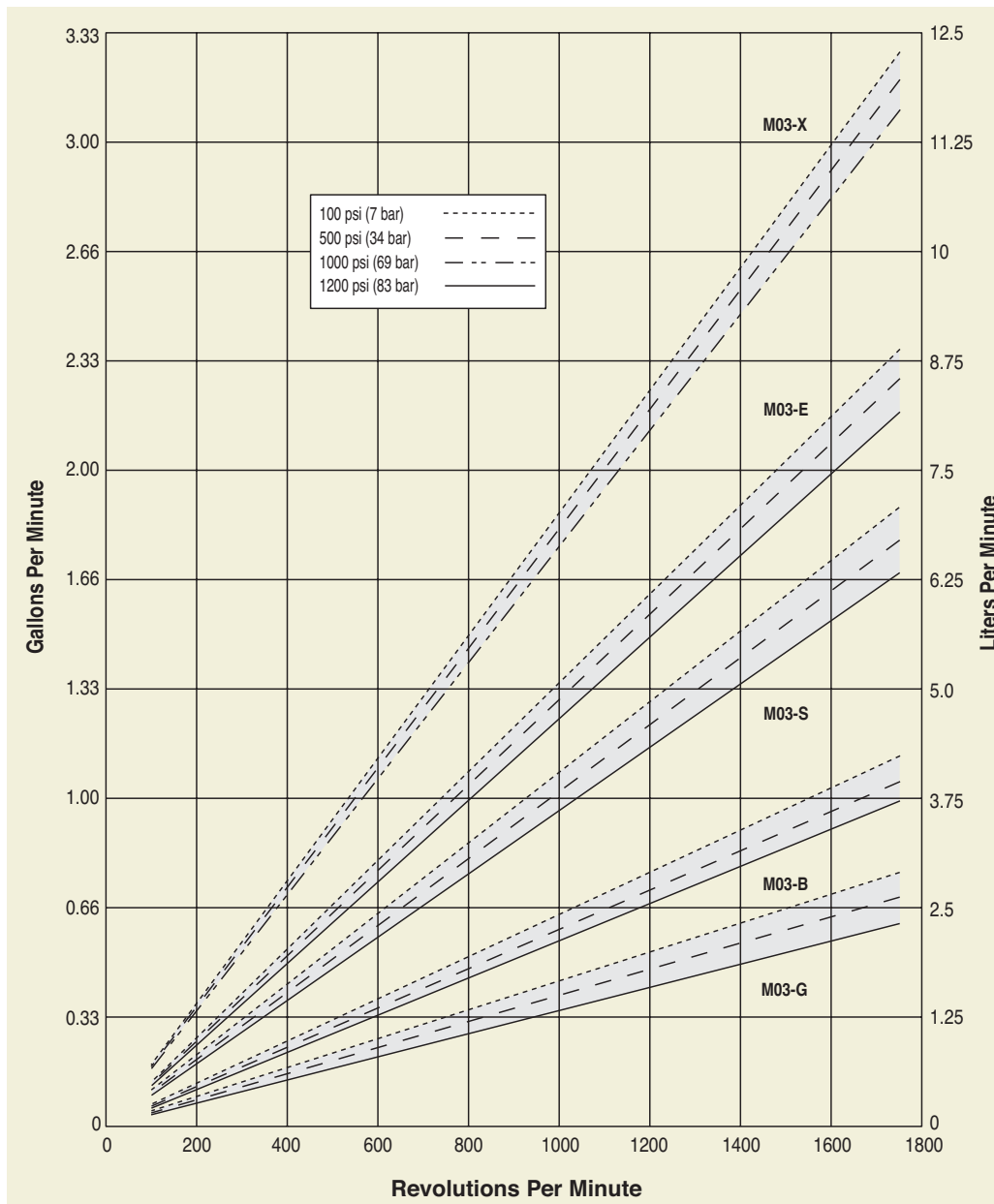
Non-metallic Pump Heads:

250 psi (17 bar) Polypropylene

350 psi (24 bar) PVDF

Performance and specification ratings apply to M03 Kel-Cell and D03 Shaft-driven configurations unless specifically noted otherwise.

Maximum Flow at Designated Pressure



M03 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
M03-S	1750	1.69	6.40
M03-B	1750	0.96	3.63
M03-G	1750	0.62	2.35

Delivery @1200 psi (83 bar)

Model	gal/rev	liters/rev
M03-E	0.0012	0.0046
M03-S	0.0009	0.0036
M03-B	0.0005	0.0020
M03-G	0.0003	0.0013

Delivery @1000 psi (69 bar)

Model	gal/rev	liters/rev
M03-X	0.0018	0.0067
M03-E	0.0013	0.0047
M03-S	0.0010	0.0037
M03-B	0.0005	0.0021
M03-G	0.0004	0.0013

Maximum Discharge Pressure

Metallic Heads:	M03-X to 1000 psi (69 bar)
	M03-S, E, B to 1200 psi (83 bar)
Non-metallic Heads:	250 psi (17 bar) Polypropylene
	350 psi (24 bar) PVDF

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).
Non-metallic Heads:	140 °F (60 °C)

Maximum Solids Size 200 microns

Inlet Port

Primary:	1/2 inch NPT
Secondary:	3/8 inch NPT (plugged from factory)

Discharge Port 3/8 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) - See pages 104 and 105 for oil selection and specification.

Weight

Metallic Heads: 28 lbs. (12.7 kg)

Non-metallic Heads: 19 lbs. (8.6 kg)

Calculating Required Power

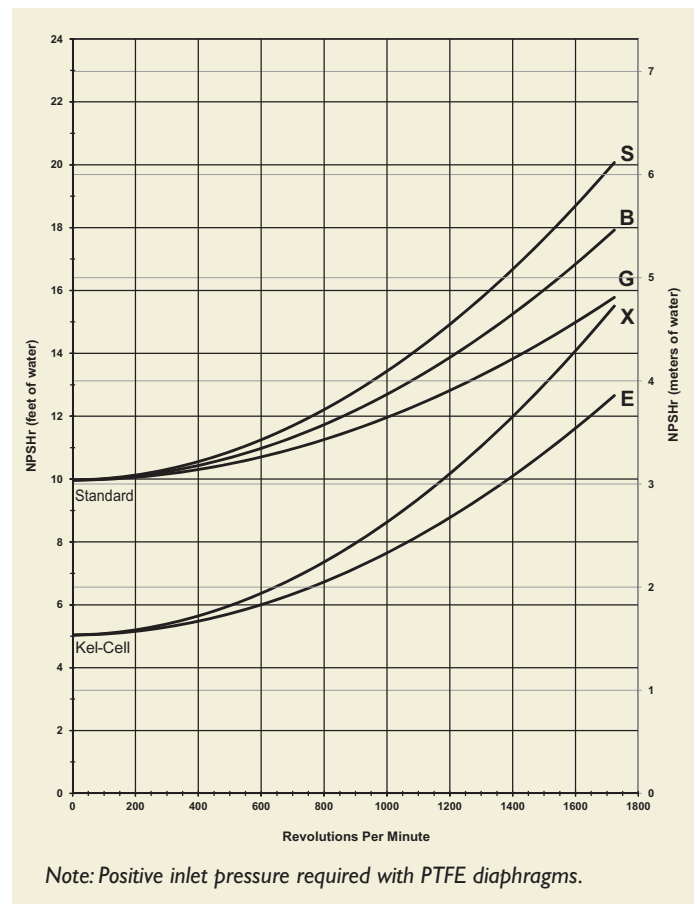
$$\frac{6 \times \text{rpm}}{63,000} + \frac{\text{gpm} \times \text{psi}}{1,460} = \text{electric motor hp}$$

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

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)



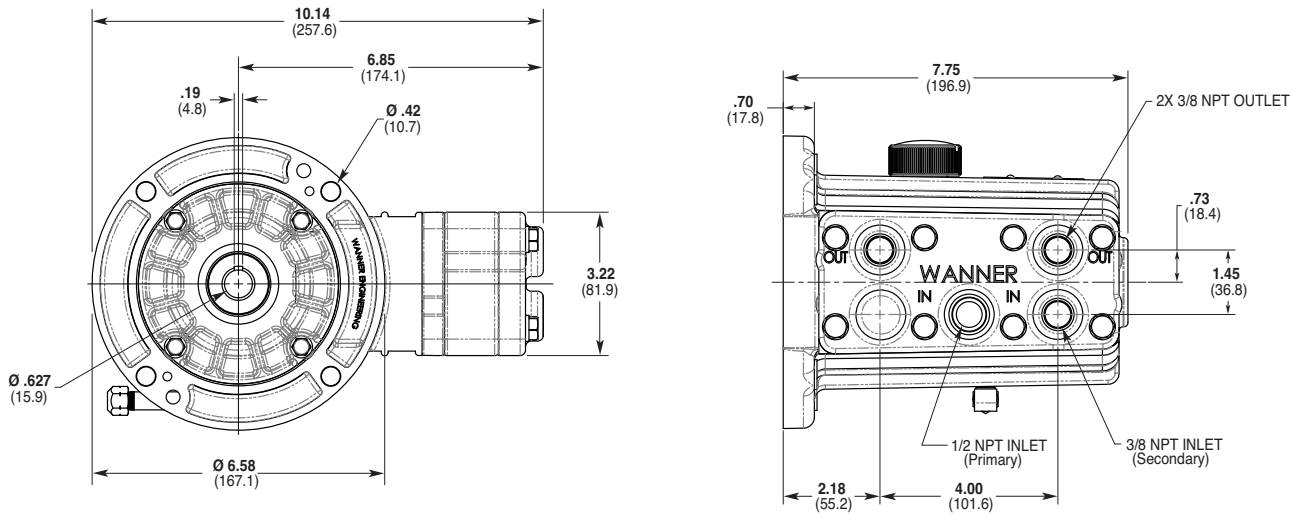
Self-priming:

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.

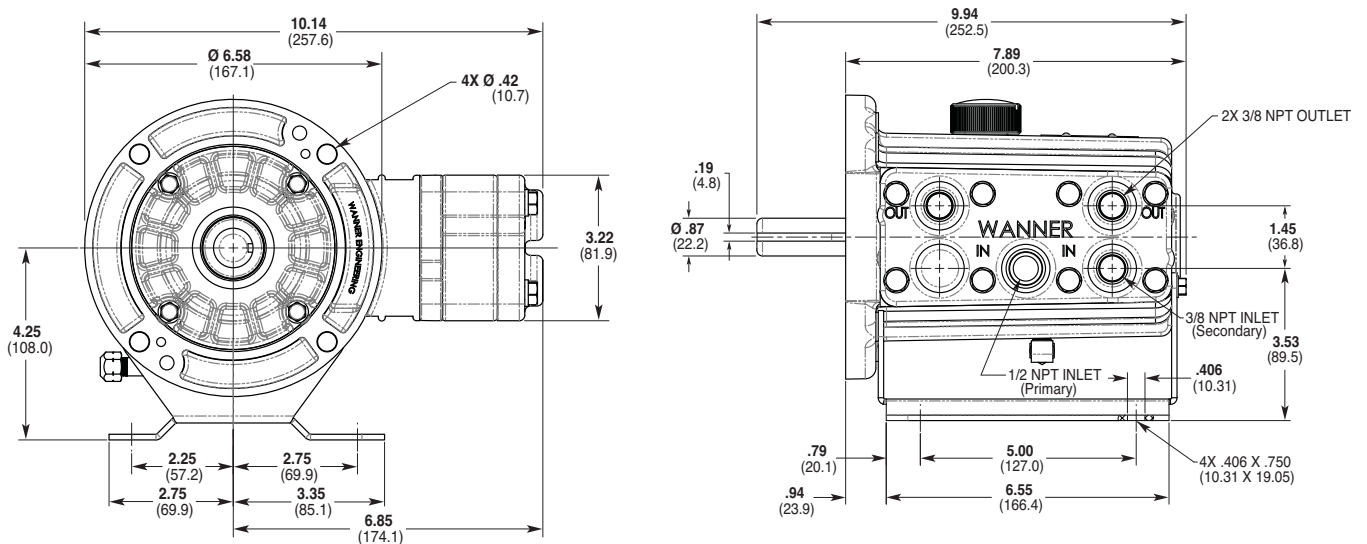
M03 Series Representative Drawings

M03 Models with Metallic Pump Head Inches (mm)



* Add 0.38" (9.65 mm) overall length where shown for manifold cover plate on non-metallic models and 0.20" (5.08 mm) for bolt heads attaching the plate.

D03 Models with Metallic Pump Head Inches (mm)



* Add 0.38" (9.65 mm) overall length where shown for manifold cover plate on non-metallic models and 0.20" (5.08 mm) for bolt heads attaching the plate.

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

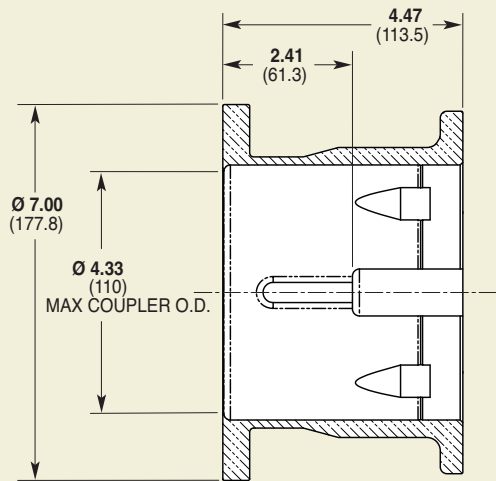
M03 Series **Adapters/Valves**

Pump/Motor Adapter Inches (mm)

Part Number: A04-001-I202

Must be ordered separately for D03 models for use with 56C, I43TC and I45TC frame motors.

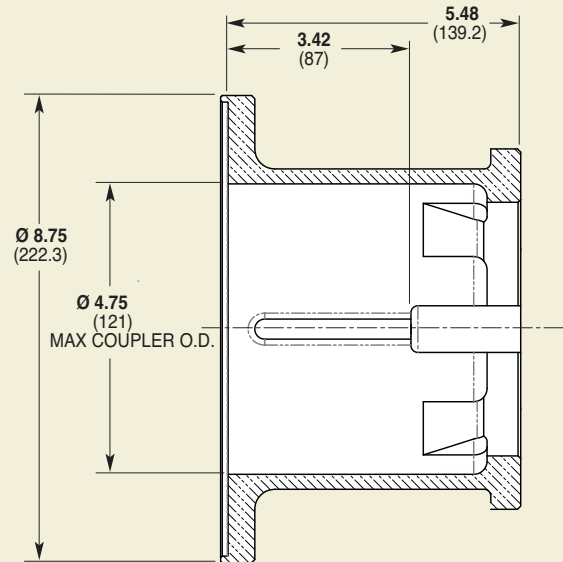
Metric adapter available - consult factory.



Part Number: A04-002-I202

Must be ordered separately for D03 models for use with I82TC, I84TC, 2I3TC and 2I5TC frame motors.

Metric adapter available - consult factory.



Valve Selection

A Hydra-Cell M03/D03 pumping system uses a C46 Pressure Regulating Valve.

See page 86 for more information.



M03 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 Series Model Number contains 12 digits including 9 customer-specified design and materials options, for example: M03XKSTHFECA.

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		Hydraulic End Cam
	X	Max 3.1 gpm (11.7 l/min) @ 1750 rpm
	E	Max 2.2 gpm (8.3 l/min) @ 1750 rpm
	S	Max 1.7 gpm (6.4 l/min) @ 1750 rpm
	B	Max 1.0 gpm (3.6 l/min) @ 1750 rpm
	G	Max 0.6 gpm (2.3 l/min) @ 1750 rpm
5		Pump Head Version
	A	Standard NPT Ports (S, B & G cams)
	K	Kel-Cell NPT Ports (X & E cams)
6		Pump Head Material
	B	Brass
	M	PVDF
	P	Polypropylene
	S	316L Stainless Steel
	T	Hastelloy CW12MW
7		Diaphragm & O-ring Material
	A	Aflas diaphragm/PTFE o-ring
	E	EPDM (requires EPDM-compatible oil - Digit 12 oil code J)
	G	FKM
	J	PTFE (available with X and E cams and standard A version only; cannot be used with Kel-Cell pumps)
	P	Neoprene
	T	Buna-N
8		Valve Seat Material
	C	Ceramic
	D	Tungsten Carbide
	H	17-4 Stainless Steel
	S	316L Stainless Steel
	T	Hastelloy C

Digit	Order Code	Description
9		Valve Material
	C	Ceramic
	D	Tungsten Carbide
	F	17-4 Stainless Steel
	N	Nitronic 50
	T	Hastelloy C
10		Valve Springs
	E	Elgiloy
	S	316L Stainless Steel
	T	Hastelloy C
11		Valve Spring Retainers
	C	Celcon
	H	17-7 Stainless Steel
	M	PVDF
	P	Polypropylene
	T	Hastelloy C
	Y	Nylon
12		Hydra-Oil
	A	10W30 standard-duty oil
	G	5W30 cold-temp severe-duty synthetic oil
	J	EPDM-compatible oil
	K	Food-contact oil

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

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