

M-03 Series

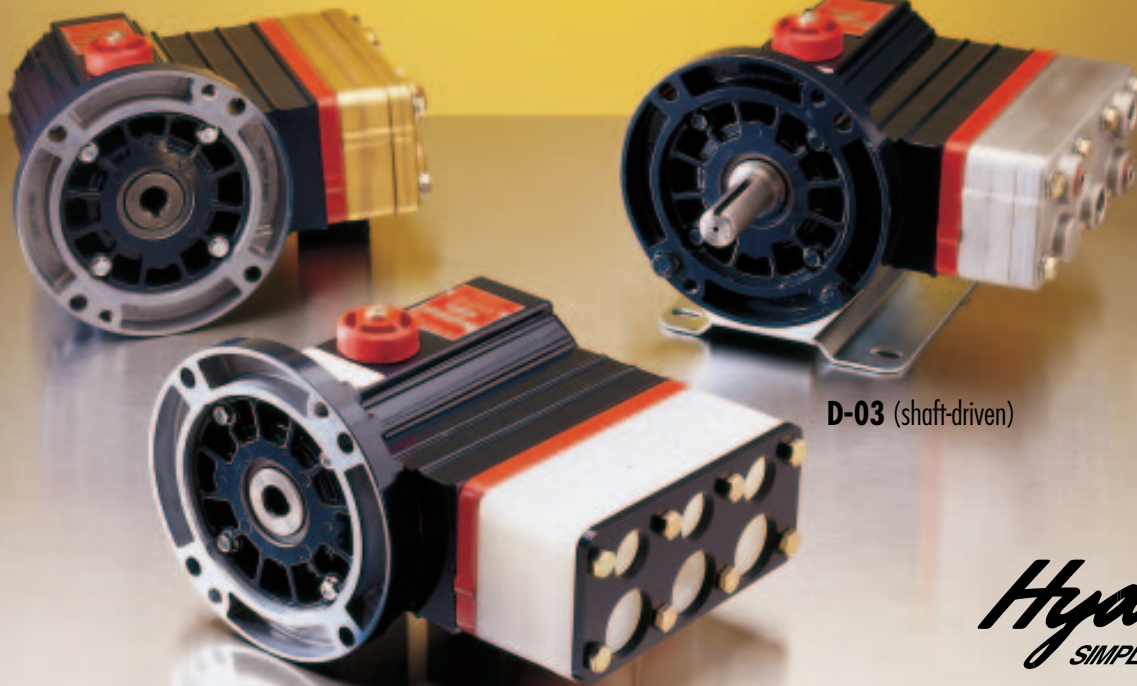
Up to 3 gpm (11.4 l/min)

M-23 Integral Gas Engine Powered System

The M-23 model is a direct drive system designed to be close coupled with a Honda engine (Model GX160K1LX2) 5.5 HP with 2:1 gearbox.



M-03 with brass pump head
(close coupled) for 56C frame motors



D-03 (shaft-driven)

M-03 with polypropylene pump head
(close coupled) for 56C frame motors

Hydra-Cell[®]
SIMPLY BUILT TO LAST

M-03 Series Performance

flow

model*	max flow		max input rpm
	gpm	l/min	
M-03-X	3.0	11.3	1750
M-03-E	2.2	8.3	1750
M-03-S	1.8	6.8	1750
M-03-B	1.1	4.2	1750
M-03-G	0.5	1.9	1750

pressure

Maximum Inlet Pressure:
250 psi (17.3 bar)

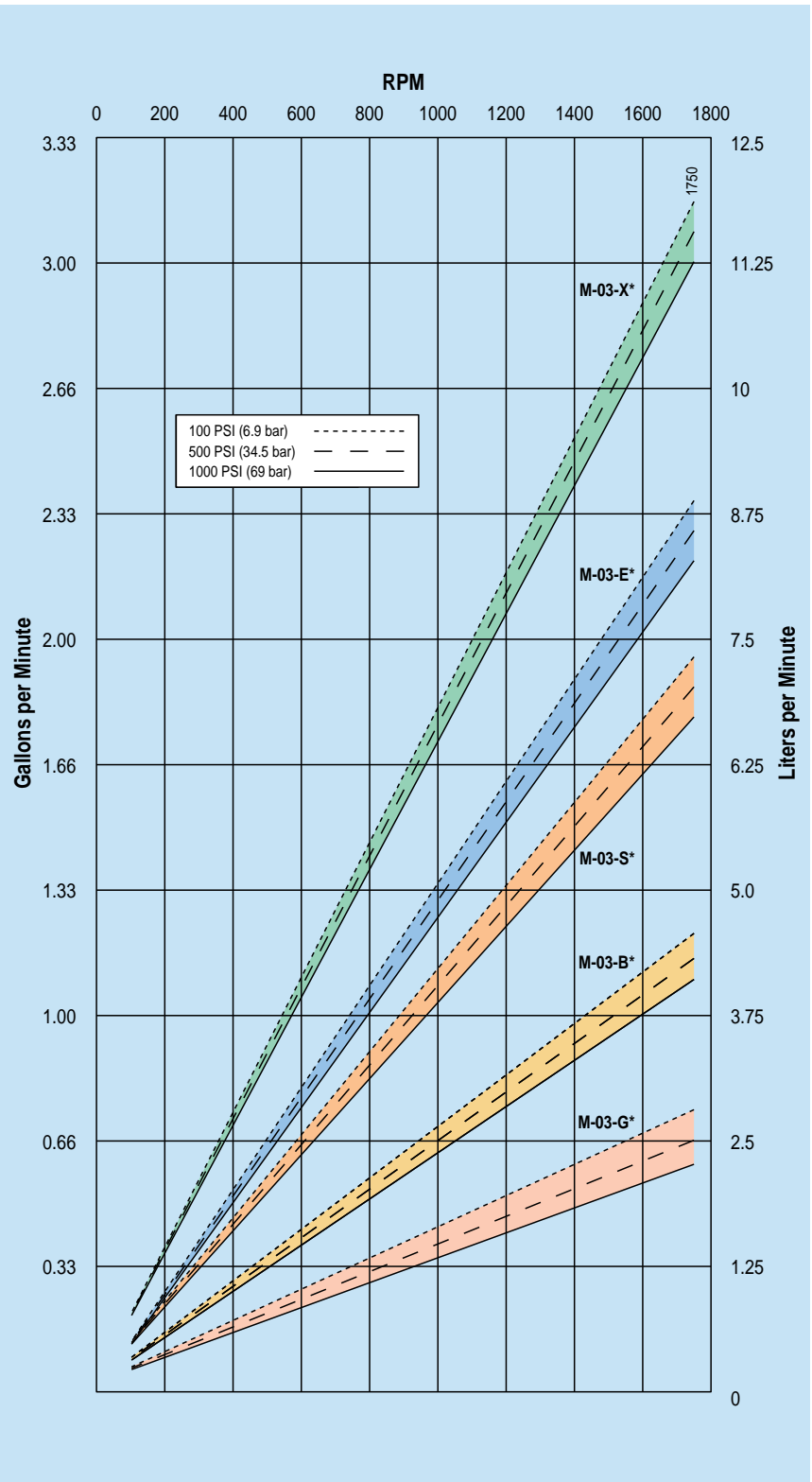
Pressure Variable To:

Metallic Heads:

- M-03-X: 1000 psi (69 bar)
- M-03-E: 1200 psi (83 bar)
- M-03-S: 1200 psi (83 bar)
- M-03-B: 1200 psi (83 bar)
- M-03-G: 1200 psi (83 bar)

Non-Metallic Heads:

- All Models: 250 psi (17.3 bar)



* Note

Performance and specification ratings apply to M-03, D-03 and M-23 configurations unless specifically noted otherwise.

M-03 Series Specifications

Maximum Capacity*

	rpm	gpm	l/min
M-03-X	1750	3.0	11.3
M-03-E	1750	2.2	8.3
M-03-S	1750	1.8	6.8
M-03-B	1750	1.1	4.2
M-03-G	1750	0.5	1.9

Delivery @ max Rated Pressure*

	revs/gal	revs/liter
M-03-X	584	155
M-03-E	795	211
M-03-S	972	258
M-03-B	1591	417
M-03-G	3500	921

Max Inlet Pressure 250 psi (17.3 bar)

Pressure Variable to

Metallic Heads	M-03-X: 1000 psi (69 bar) M-03-S, E, B, G: 1200 psi (83 bar)
Non-Metallic Heads	All models: 250 psi (17.3 bar)

Max Temperature

Metallic Heads:	250°F (121°C) – Consult factory for correct component selection for temperatures above 160°F (71°C)
Non-Metallic Heads:	140°F (60°C)

Inlet Port 1/2 inch NPT

Discharge Port 3/8 inch NPT

Shaft Diameter M-03: 5/8 inch hollow shaft
D-03: 7/8 inch
M-23: 20 mm hollow shaft

Shaft Rotation Bi-directional

Bearings Ball bearings

Oil Capacity 1 US quart (0.95 liters), see page 100 for oil selection and specification.

Weight

Metallic Heads:	28 lbs (12.7 kg)
Non-Metallic Heads:	19 lbs (8.6 kg)

* Note

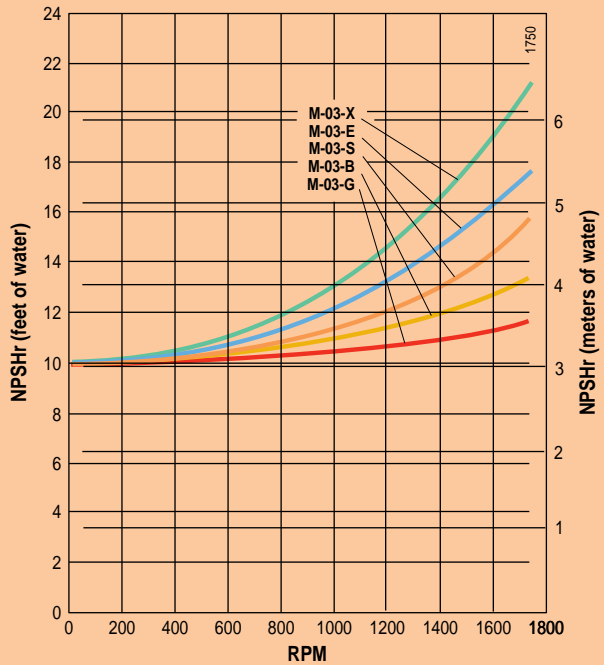
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Calculating Required Horsepower

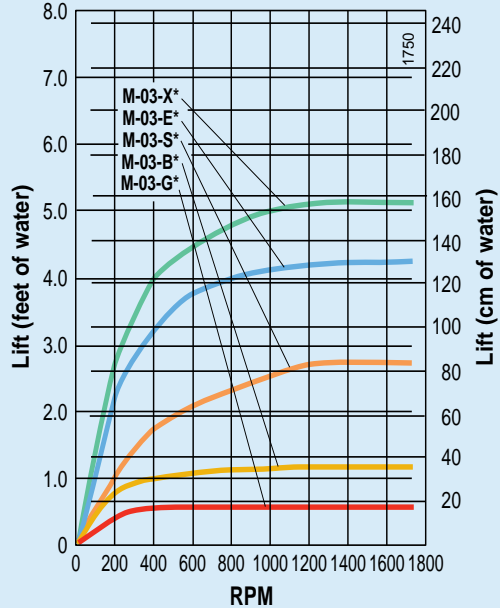
$$\frac{6 \times \text{rpm}}{63,000} + \frac{\text{gpm} \times \text{psi}}{1,460} = \text{electric motor HP}$$

For installation guidelines and other pump selection design considerations, refer to pages 107-111.

Net Positive Suction Head (NPSHr)



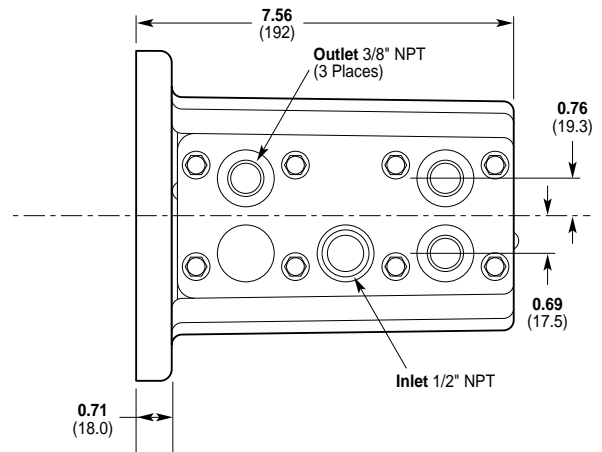
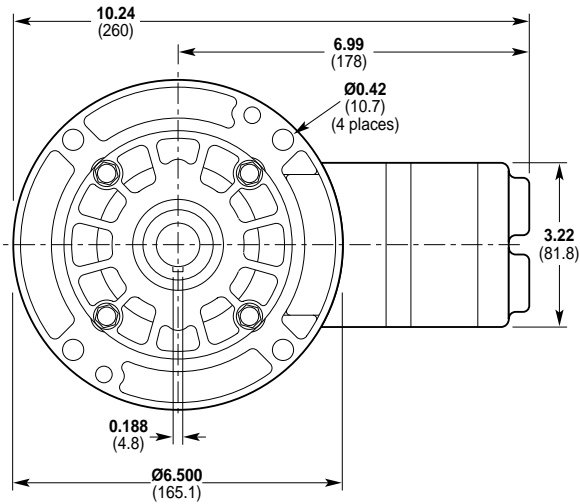
Dry Lift



M-03 Series Dimensions

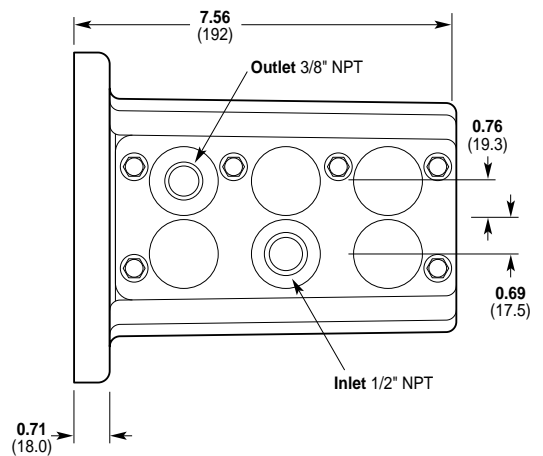
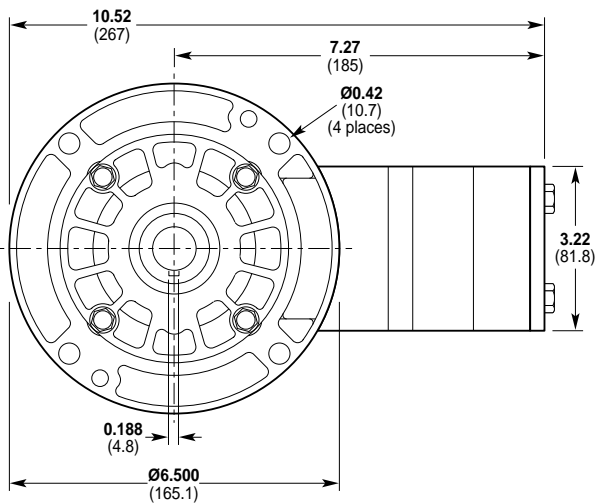
M-03 Models with Metallic Pumping Head

Brass
316 Stainless Steel
Nickel Alloy (C Series)



M-03 Models with Non-metallic Pump Head

Kynar[®]
Polypropylene

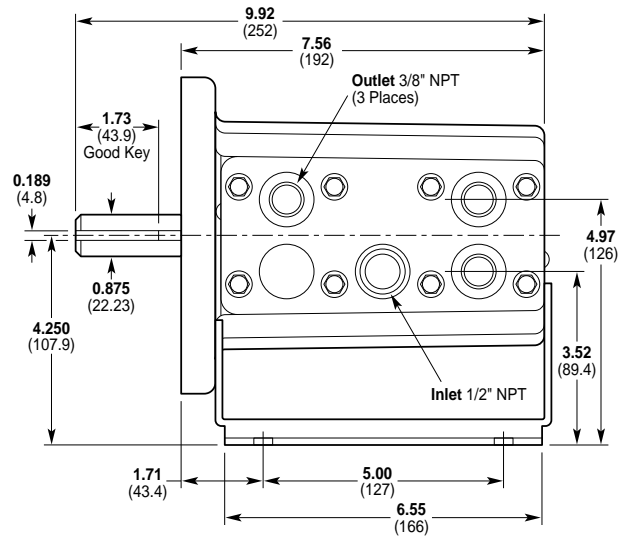
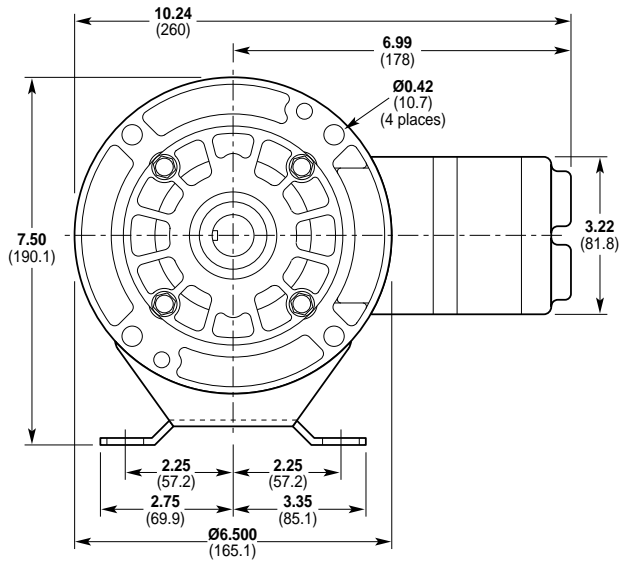


M-03 Series Dimensions

D-03 Models with Metallic Pumping Head

Brass
316 Stainless Steel
Nickel Alloy (C Series)

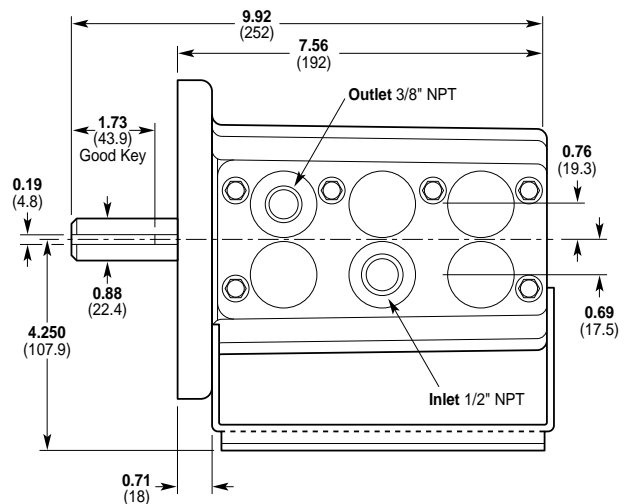
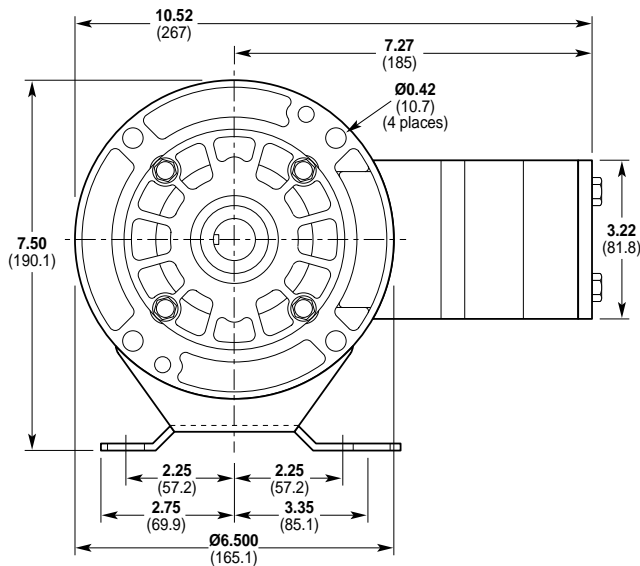
Note
D-03 Pump/Motor Adapter
flange ordered separately
(see accessories, page 38.)



D-03 Models with Non-metallic Pump Head

Kynar®
Polypropylene

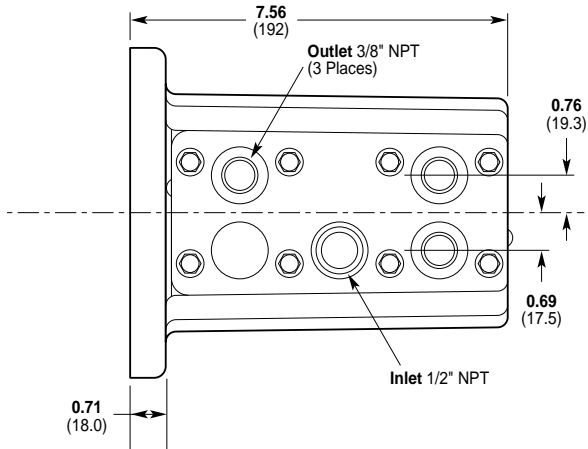
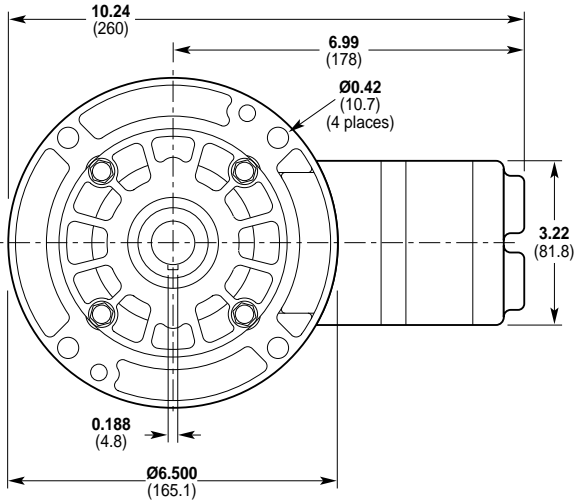
Note
D-03 Pump/Motor Adapter
flange ordered separately
(see accessories, page 38.)



M-03 Series Dimensions

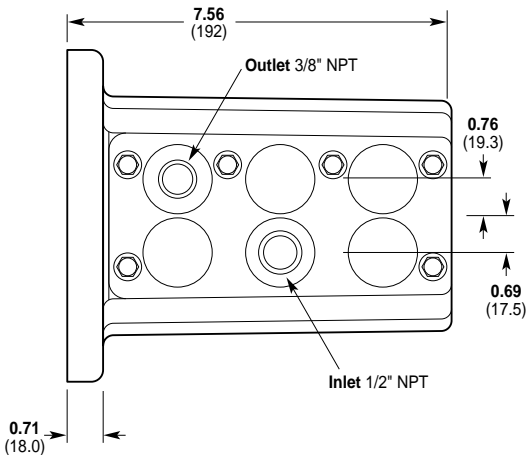
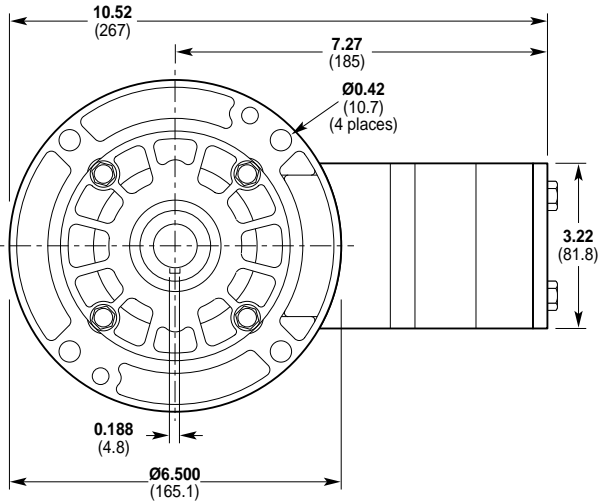
M-23 Models with Metallic Pumping Head

Brass
 316 Stainless Steel
 Nickel Alloy (C Series)



M-23 Models with Non-metallic Pump Head

Kynar®
 Polypropylene



M-03 Series Options

Materials of Construction

All M-03, D-03 and M-23 configurations of Hydra-Cell pumps are manufactured in a variety of heavy-duty materials to meet specific pumping needs. Refer to the design section for more information on appropriate material selection and chemical compatibility. Other customized materials are available by special order. Contact factory application engineering department for further information.



Pumping Head
 316 Stainless Steel
 Brass
 Kynar®
 Nickel Alloy (Hastelloy Remelt, CMW12D)
 Polypropylene



Valves
 17-4 PH Stainless Steel
 17-7 PH Stainless Steel
 316 Stainless Steel
 Ceramic
 Hastelloy® C
 Nitronic 50
 Tungsten Carbide



Diaphragms & O-rings
 Buna-N-XS
 EPDM
 Neoprene
 Teflon®
 Viton®-XT



Valve Springs
 316 Stainless Steel
 Elgiloy®
 Hastelloy® C



Valve Seats
 17-4 PH Stainless Steel
 316 Stainless Steel
 Ceramic
 Hastelloy® C
 Tungsten Carbide



Valve Spring Retainers
 Celcon®
 Kynar®
 Nylon
 Polypropylene
 17-7 PH Stainless Steel

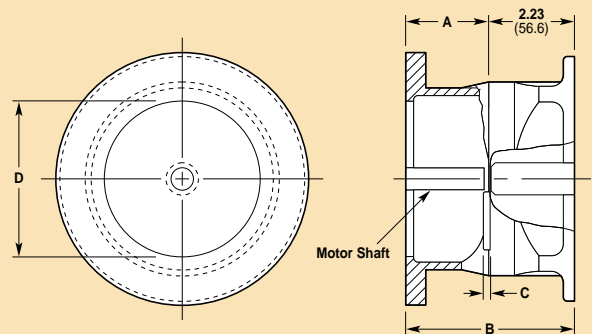
M-03 Series Accessories

Options, Accessories and Custom Designs

- Valves, page 84
- Couplings, page 95
- Hose Connectors, page 99
- Hydra-Oil, page 100
- Oil Cooler and Filtering System, page 102
- oil Reservoir, page 104
- Tool Kits, page 105



Pump/Motor Adapter



Part Number: A04-001-1202

Must be ordered separately for D-03 models for use with 56C, 143TC and 145TC frame motors.

Part Number: A04-002-1202

Must be ordered separately for D-03 models for use with 182TC, 184TC, 213TC and 215TC frame motors.

M-03 Series How To Order

Ordering Information

A complete M-03 Series Model Number contains 12 digits of customer-specified design options: for example M03XABTHHECA.



Digit	Order Code	Description
1-3		Pump Configuration
	M03	Direct drive
	D03	Shaft-driven*
	M23	For use with 5.5 HP Honda Engine (Model GX160K1LX2 engine not included)
4		Hydraulic End Cam
	X	Max 3.0 gpm (11.3 lpm) @ 1750 rpm
	E	Max 2.2 gpm (8.3 lpm) @ 1750 rpm
	S	Max 1.8 gpm (6.8 lpm) @ 1750 rpm
	B	Max 1.1 gpm (4.2 lpm) @ 1750 rpm
	G	Max 0.5 gpm (1.9 lpm) @ 1750 rpm
5		Pump Head Version
	A	Version A Pump Head
6		Pump Head Material
	B	Brass
	M	Kynar®
	P	Polypropylene
	S	316 Stainless Steel
	T	Nickel Alloy (Hastelloy® Remelt, CMW12D)
7		Diaphragm & O-ring Material
	E	EPDM (requires EPDM-compatible oil – Digit 12 oil code J)
	G	Viton®-XT
	J	Teflon® (available with X and E cams only; cannot be used with non-metallic heads)
	P	Neoprene
	T	Buna-N-XS
8		Valve Seat Material
	C	Ceramic
	D	Tungsten Carbide
	H	17-4 PH Stainless Steel
	S	316 Stainless Steel
	T	Hastelloy® C

*Pump/motor adapters ordered separately. See page 38 for ordering information.

Digit	Order Code	Description
9		Valve Material
	C	Ceramic
	D	Tungsten Carbide
	F	17-4 PH Stainless Steel – Machined
	H	17-7 PH Stainless Steel
	N	Nitronic 50
	S	316 Stainless Steel
	T	Hastelloy® C
10		Valve Springs
	E	Elgiloy®
	S	316 Stainless Steel
	T	Hastelloy® C
11		Valve Spring Retainers
	C	Celcon
	H	17-7 PH Stainless Steel
	M	Kynar®
	P	Polypropylene
	Y	Nylon
12		Hydra-Oil
	A	10W30 standard duty oil
	G	5W30 standard & cold-temp severe duty oil
	J	20-wt EPDM-compatible oil
	K	20-wt food-contact oil

Replacement Hydraulic End Assembly

Complete M-03 Hydraulic End Assemblies are available as replacement items. 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*

D03 4* **XX** 7* **XXXX** 12*

M03 4* **XX** 7* **XXXX** 12*

M23 4* **XX** 7* **XXXX** 12*

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