

Diaphragm Pumps

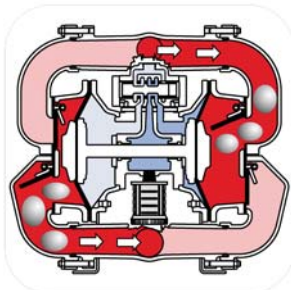
TOUGH TECHNOLOGY
GILKES

Marathon Series

Air Operated Double Diaphragm Pumps

Basic Design Features

MARATHON® diaphragm pumps are driven by compressed air. The directional air distribution valve and pilot valve, referred to as the “air end”, are located in the center section of the pump. Liquid moves through two manifolds and outer chambers of the pump, referred to as the “wet end”. Generally, check valves (ball-type or flap-type) are located at the top and bottom of each outer chamber or on a common manifold. The two outer chambers are connected by suction and discharge manifolds. The pumps are self-priming.



Flap Valve Model
(Bottom discharge)
Left chamber is on
a discharge stroke.
Right chamber is on
a suction stroke.

Lube-Free Air Distribution Valve

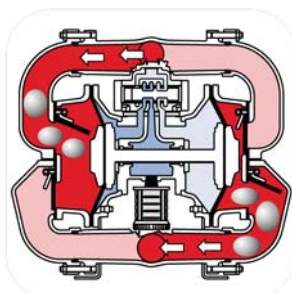
During operation, the air distribution valve controls alternate pressurizing of one diaphragm, then the other. The valve automatically transfers air pressure to the opposite chamber after each stroke. This provides alternating suction and discharge strokes, as the diaphragms move in parallel paths. MARATHON air valves require no lubrication. This is the preferred mode of operation. Clean, dry air will enhance pump performance.

Diaphragms

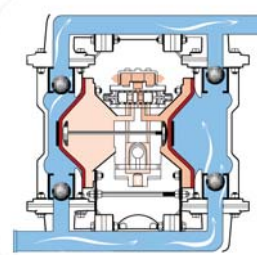
Flexible diaphragms are bolted at their outer perimeters, between the inner and outer chambers. The diaphragms are connected at their movable centers by a rod. Right chamber is on a discharge stroke. Left chamber is on a suction stroke.

Check Valves

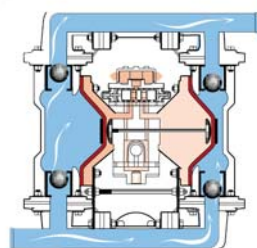
As fluid moves through the pump, check valves open and close. This allows each outer chamber to alternately fill and discharge. The check valves respond to differential pressures. Ball-type check valves can pass very small particles. Flap-type check valves will pass soft solids to nearly line size.



Right chamber is on
a discharge stroke.
Left chamber is on
a suction stroke.



Ball Valve Model
(Top discharge)
Left chamber is on
a discharge stroke.
Right chamber is on
a suction stroke.



Right chamber is on
a discharge stroke.
Left chamber is on
a suction stroke.

The Pumping Cycle

As the air distribution valve directs pressurized air to the left diaphragm, the diaphragm is pushed outward. This is a discharge stroke, which forces liquid from the left outer chamber. Discharged liquid moves from the chamber, through an open discharge check valve, and exits the pump at the discharge manifold. The position of the discharge port can be top, bottom or side. As the left diaphragm is pressurized outward, the connecting rod pulls the right diaphragm inward on a suction stroke, which fills the right chamber with fluid. Liquid enters the pump at the suction manifold, moves through an open suction check valve and fills the chamber. At the end of the cycle, the air distribution valve automatically shifts the air pressure to the opposite diaphragm, initiating another pumping cycle.

MARATHON Pumps are air-operated, double diaphragm pumps. The simple design and operation offers many advantages over other types of pumps.

Pumps abrasive and sheer-sensitive materials

Low internal velocities move abrasives easily, with no damage to the pump. The gentle pumping action does not sheer fragile materials.

Pumps viscous materials

Even heavy or solids-laden materials can be pumped. MARATHON Pumps move everything from water to peanut butter.

Sealless, with no motors

These air-operated pumps, with no motors, seals or packing to leak, are environmentally friendly.

Self-priming

The pumps are able to dry prime under most suction lift conditions.

Variable flow

Simply regulate the inlet air supply to adjust the pump flow from zero to maximum capacity.

Optional porting

Many discharge porting options are available, including top, bottom and dual.

- Select top porting for thin liquids, or if entrained air could be a problem.
- Select bottom porting for thick or solids-laden materials.
- Select dual porting for specialized applications.

Runs dry without damage

MARATHON Pumps can run dry without damage, unlike other types of pumps.

Deadheads against closed discharge

Excessive back pressure stops pump without damage. No need for expensive bypass systems or pressure relief valves. Pump simply stops operation until discharge opens.

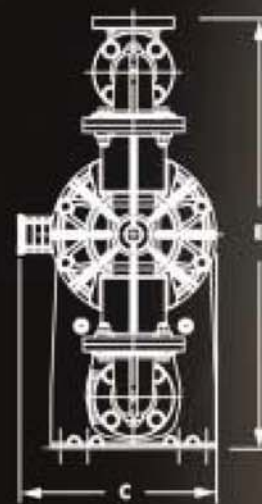
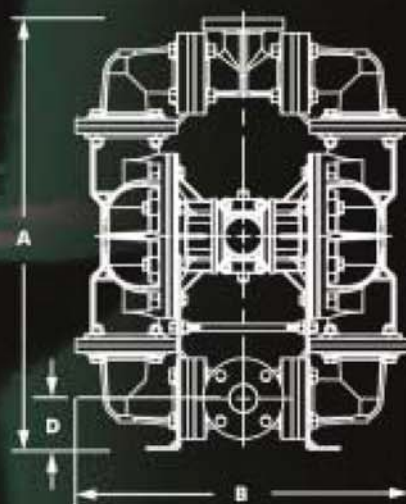
Groundable

Air-operation reduces sparking concerns associated with other electrical or rotating pumps.

MARATHON®

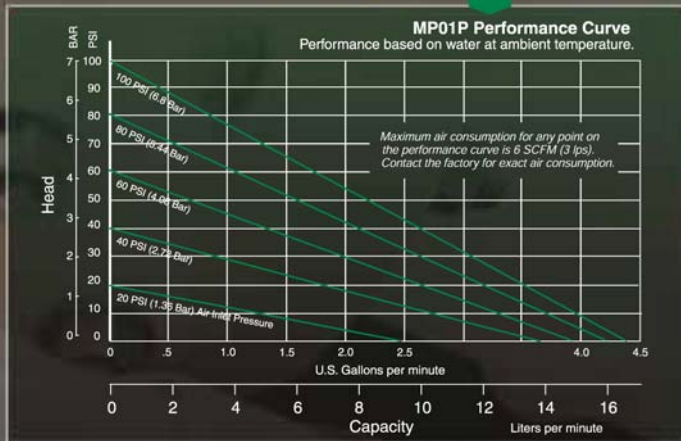
The MARATHON Non-Metallic Series passes the acid test. Rugged, bolted construction. Models in PVDF and Polypropylene. Specially-coated, chemically-resistant hardware.

Model	Pipe Size		Displacement per stroke		Max. Flow per min.		Max. Solids Handling		Max. Discharge Pressure	
	inches	mm	gal	liters	gal	liters	inches	mm	psi	bar
MP01P	.25	6	.01	.04	4	15	.03	1	100	6.9
M05	.5	15	.026	.098	14	52	.125	3	100	6.9
M07	.75	20	.026	.098	23	87	.15	4	100	6.9
M10	1	25	.026	.098	23	87	.15	4	100	6.9
M1F	1	25	.17	.64	45	170	.25	6	100	6.9
M15	1.5	40	.36	1.36	90	340	.47	12	100	6.9
M20	2	50	.36	1.36	150	568	.66	17	100	6.9
M30	3	80	.9	3.41	238	901	.71	18	100	6.9

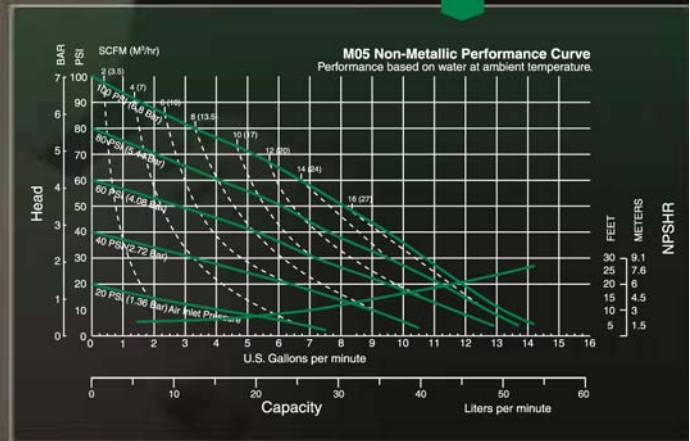


Pump	Height inches (mm)	Width inches (mm)	Depth inches (mm)	Bottom of Base to Center line of:		Connections
				Suction inches (mm)	Discharge inches (mm)	
MP01P	7 13/16" (198)	7" (178)	5" 1/2 (140)	3/4" (19)	7 13/16" (198)	1/2" MNPT & 1/4" FNPT
M05	11 5/16" (287)	10 1/8" (257)	8 3/4" (222)	1 3/8" (35)	11 5/16" (287)	1" MNPT & 1/2" FNPT or BSP
M07	13 11/32" (339)	11 13/16" (300)	8 3/4" (179)	1 13/16" (46)	13 11/32" (339)	1 1/2" MNPT - 3/4" FNPT or BSP
M10	13 13/16" (351)	11 13/16" (300)	9 1/4" (235)	2 1/2" (64)	11 11/16" (297)	1" 125# ANSI only
M1F	20 3/4" (527)	17" (433)	11 5/32" (283)	2 1/2" (64)	20 3/4" (527)	1" 125# ANSI and / or DIN
M15	28 11/16" (729)	23 7/8" (606)	14 15/16" (379)	3 1/2" (89)	28 11/16" (729)	1 1/2" 125# ANSI/40 mm DIN
M20	32 1/16" (814)	24 5/8" (625)	14 15/16" (379)	3 13/16" (97)	32 1/16" (814)	2" 125# ANSI/50 mm DIN
M30	40 5/8" (1032)	33 3/8" (848)	18 1/4" (464)	4 7/8" (124)	40 5/8" (1032)	3" 125# ANSI/80 mm DIN

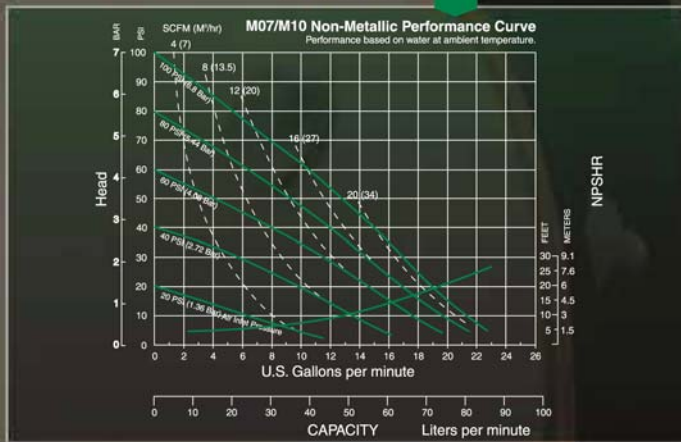
MP01P



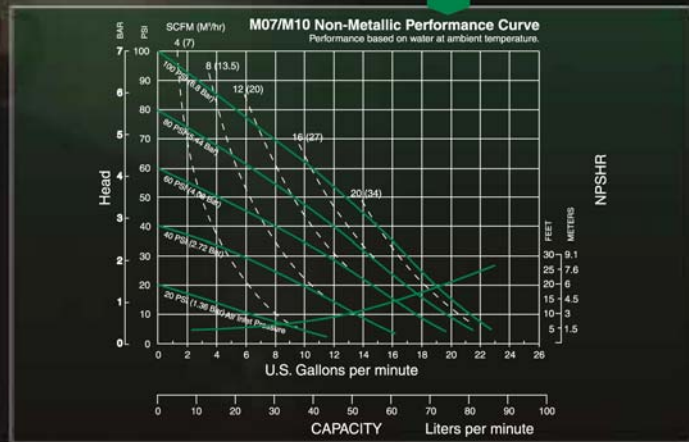
M05



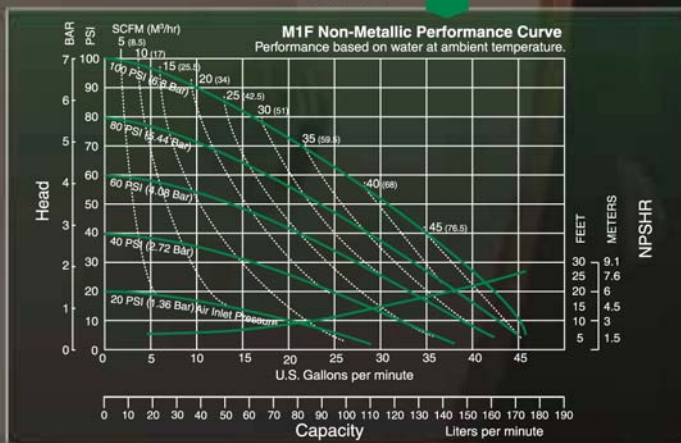
M07



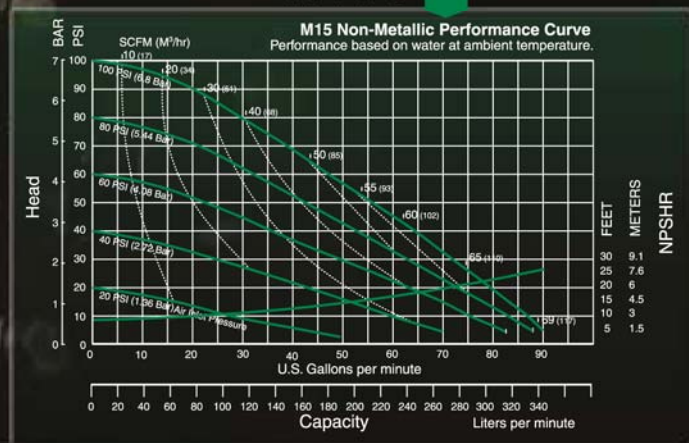
M10



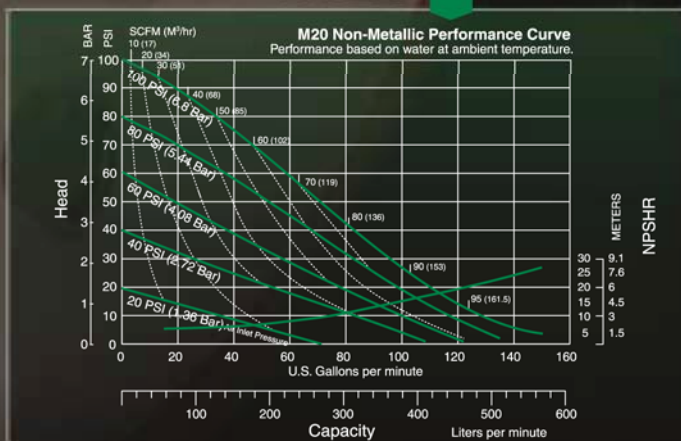
M1F



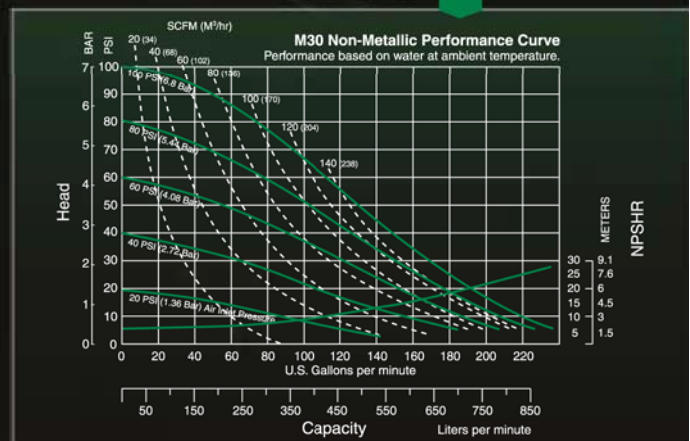
M15



M20



M30

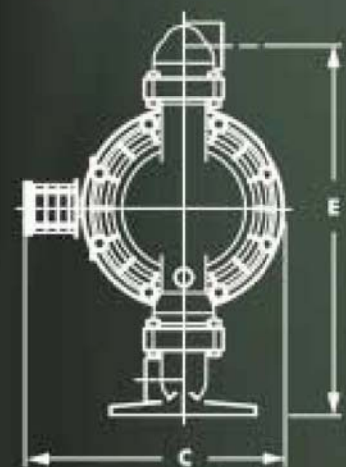
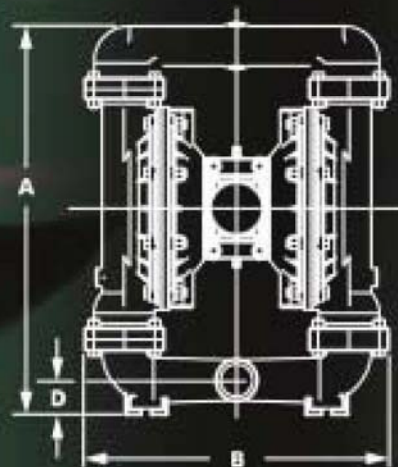


Metallic Ball Valve



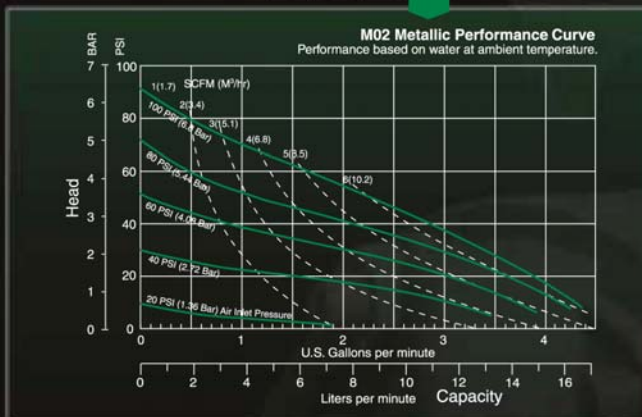
MARATHON®

These metallic MARATHON pumps have wetted components in Aluminum, Cast Iron, Stainless Steel, and Hastelloy-C. They provide exceptional suction lift capacity for small solid materials from low to high viscosity. These pumps are ATEX Compliant.

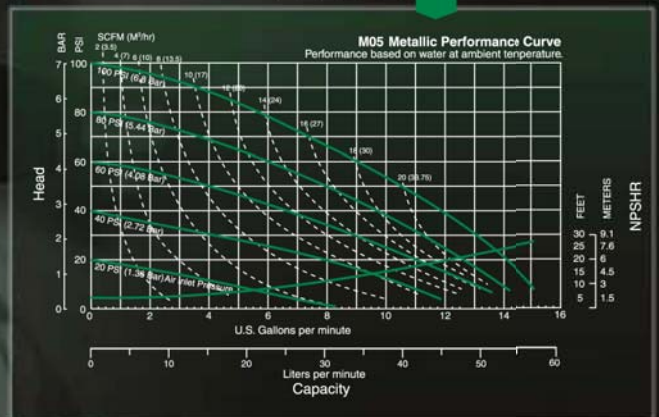


Pump	Height inches (mm)	Width inches (mm)	Depth inches (mm)	Bottom of Base to Center line of:		Connections
				Suction inches (mm)	Discharge inches (mm)	
M02	5 13/16" (148)	7 7/16" (189)	4 3/8" (111)	5/8" (16)	4 13/16" (122)	1/4" FNPT
M05 AL	11 1/2" (292)	10 1/4" (260)	8 3/4" (222)	1 5/16" (33)	11 1/2" (292)	1" MNPT - 1/2" FNPT
M05 SS	10 15/32" (278)	10 1/4" (260)	8 23/32" (203)	1 13/32" (36)	9 13/16" (249)	1" MNPT - 1/2" FNPT
M1F AL/CI	12 47/64" (323)	12 17/64" (312)	12 1/2" (318)	1 7/64" (28)	11 37/64" (294)	1" FNPT or BSP
M1F SS	12 37/32" (326)	12 17/64" (312)	12 1/2" (318)	1 7/32" (31)	11 31/32" (304)	1" FNPT or BSP
M15	21 15/32" (545)	19 21/64" (491)	13 53/64" (351)	1 29/32" (49)	20 5/16" (516)	1 1/2" FNPT or BSP
M20	26 5/16" (668)	19 29/32" (506)	14 5/64" (358)	1 7/8" (48)	24 3/4" (629)	2" FNPT or BSP
M30	31 61/64" (812)	25 13/16" (656)	16 1/8" (409)	2 7/32" (56)	29 27/32" (758)	3" FNPT or BSP

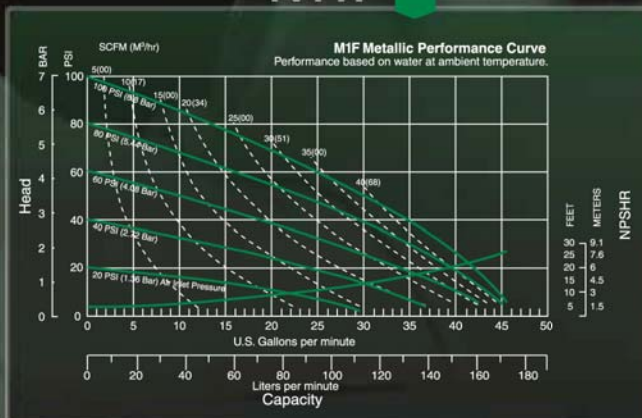
M02



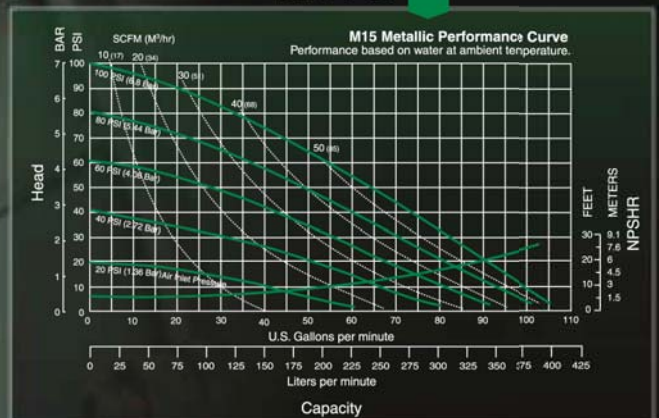
M05



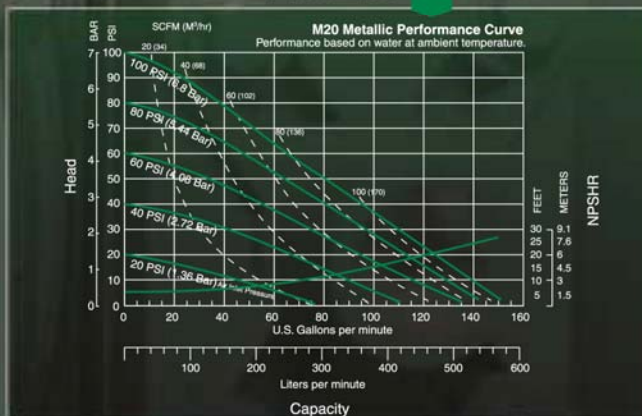
M1F



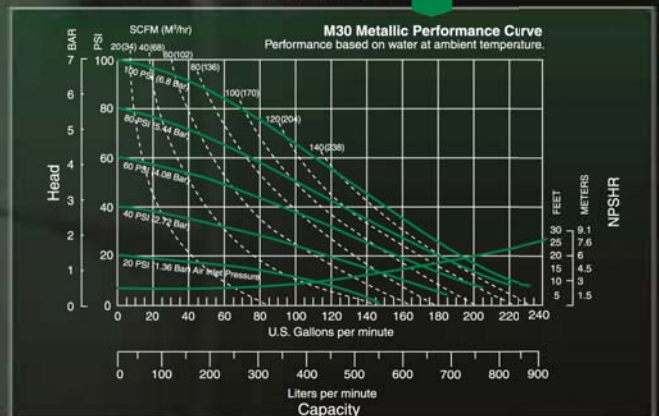
M15



M20



M30



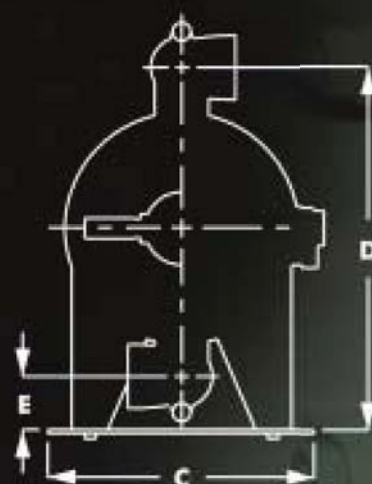
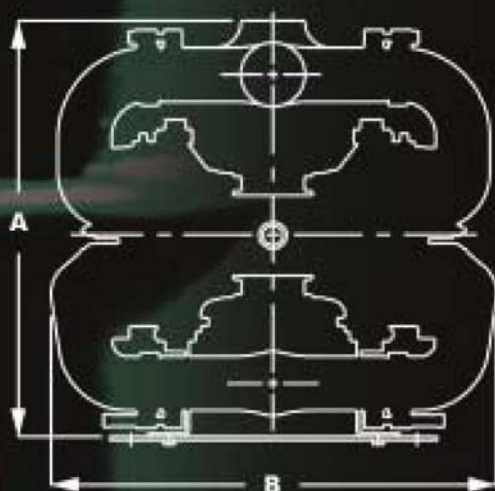
Model	Pipe Size inches mm	Displacement per stroke gal liters	Max. Flow per min. gal liters	Max. Solids Handling inches mm	Max. Discharge Pressure psi bar
M02 Metallic	.25 6	.003 .01	4.4 16.6	.079 2	125 8.6
M05 Metallic	.5 12	.026 .098	15 57	.125 3	125 8.6
M1F Metallic	1 25	.11 .42	45 170	.25 6	125 8.6
M15 Metallic	1.5 40	.41 1.55	106 401	.25 6	125 8.6
M20 Metallic	2 50	.42 1.59	150 567	.25 6	125 8.6
M30 Metallic	3 80	.94 3.56	235 889	.38 9.5	125 8.6

Metallic Flap Valve



MARATHON

Flap valve MARATHON pumps are especially recommended for liquids which are viscous or solids-laden. Flap valves allow passage of larger suspended solids than most ball valve units without damage. Various discharge porting options available. These pumps are ATEX Compliant.



Pump	A Height inches (mm)	B Width inches (mm)	C Depth inches (mm)	D Bottom of Base to Center line of:		F Connections
				Suction inches (mm)	Discharge inches (mm)	
MP04F	14 7/16" (367)	11 3/4" (298)	10 13/16" (275)	3 3/16" (81)	3 3/16" (81)	1" FNPT only
MP10M	19 9/16" (497)	21 3/4" (552)	13 5/8" (346)	17 11/16" (449)	2 9/16" (65)	2" FNPT only
MP14F (3")	29 1/2" (749)	36 9/16" (929)	16 1/4" (413)	25 3/4" (654)	4 1/4" (108)	3" 125# ANSI only
MP14F (4")	30 15/16" (786)	36 9/16" (929)	21 1/4" (540)	26 1/2" (673)	5" (127)	4" 125# ANSI only

Industrial Pump Sales

Wilf Curwen
(office based)

t: 01539 790093
e: w.curwen@gilkes.com

Stuart Bold
(Key Account Manager)

m: 07967 461619
e: s.bold@gilkes.com

Alan Cooper
(Key Account Manager)
m: 07967 461621
e: a.cooper@gilkes.com

Adrian Slack
(Key Account Manager)
e: a.slack@gilkes.com

Gilbert Gilkes & Gordon Ltd

Canal Head North
Kendal
Cumbria
LA9 7BZ

t 01539 720028
f 01539 732110
e pumps@gilkes.com
w www.gilkes.com