

MD1

Multi-Diaphragm Metering Pump



Features

- > Multi-diaphragm technology for smooth, nearly pulseless chemical feed.
- > Leak detection (DFD) senses diaphragm failure and shuts off the pump.
- > DiaFlex diaphragm offers zero breakdown, reducing maintenance.
- > Display shield protects pump controls in harsh environments.
- > Remote Start/Stop, non-powered dry contact closure.
- > 4-20mA SCADA input.
- > Relay outputs; one 250V/3A and one solid state.

Watch the video:



NEMA 4X



Highlights

Flow range

.0007 – 7.70 GPH
.0029 – 29.2 LPH

Pressures

150 PSI
(10.3 bar)

Turndown ratio

10,000 : 1

Suction lift

20 ft.
(at 0 PSI)

Motor

Brushless
DC

Warranty

3 Years

Control Methods

Control Methods	Manual Control	4-20mA Input	Remote Start/Stop	Alarm Output	FVS	Motor Status Output
Manual	•		•	•	•	•
Remote		•	•	•	•	•



Engineering Specifications

MD1

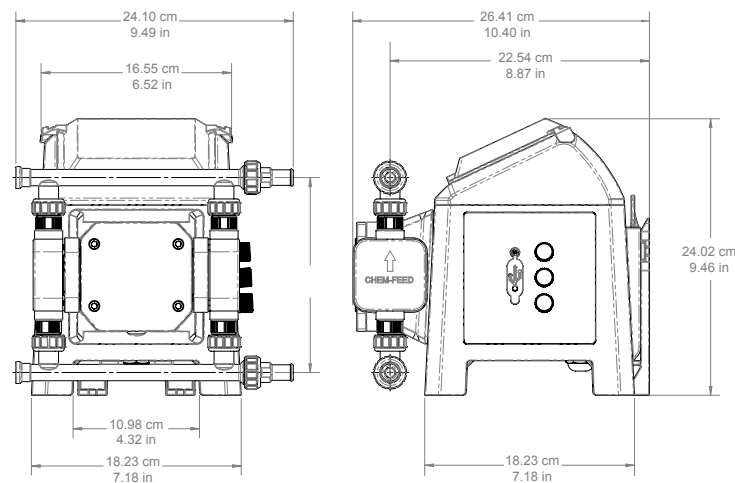
Maximum Working Pressure:	150 psig (10.3 bar)
Maximum Fluid Temperature:	185 °F (85 °C)
Maximum Ambient Temperature:	14 to 115 °F/ -10 to 42 °C
Maximum Viscosity:	1,000 Centipoise
Maximum Suction Lift:	20 ft. at 0 PSI
Operating Voltage Range:	100 to 240VAC-50/60Hz (0.6A - 0.3A max)
Power Cord Options:	115V/60Hz = NEMA 5/15 (USA)
	230V/60Hz = NEMA 6/15 (USA)
	220V/60Hz = CEE 7/VII (EU)
	240V/60Hz = AS 3112 (Australia/New Zealand)
	230V 50/60Hz = BS 1363/A (United Kingdom)
Motor:	Brushless DC, 50W
Duty Cycle:	Continuous
Turndown Ratio:	10,000:1 (0.01% – 100%)
Maximum Overall Dimensions:	7.25"W x 9"H x 10"D (18.5 W x 22.9 H x 25.2 D cm)
Product Weight:	8.5 lb. (3.8 Kg)
Approximate Shipping Dimensions:	10.5" W x 13.75" H x 11" D (26.7 W x 35 H x 28 D cm)
Approximate Shipping Weight:	15.5 lb. (7.0 Kg)
Enclosure:	NEMA 4X (IP66), Valox® (PBT) & PA12
RoHS Compliant:	Yes
Standard:	NSF/ANSI 61, cETLus, CE

Output Specifications

Flow Range	Max Speed	MD1 Model Numbers		
0.0007 - 7.70 GPH 0.0029 - 29.2 LPH	RPM	115V AC	230V AC	220V AC
	100	MD1V14	MD1V15	MD1V16

NOTE: For optimum diaphragm life, specify the pump to operate at the lowest possible RPM and pressure.

Dimensions



Materials of Construction

MD1

Non-wetted Components:

Enclosure: Valox® (PBT) & PA12

Drive Enclosure: PA12

Control Panel Cover: Polycarbonate

Pump Head Cover: Polycarbonate

Cover Screws: Stainless steel, polypropylene cap

DFD System Sensor Pins: Hastelloy C-276

Power Cord: 3 Conductor, SJTW-A water-resistant

Hardware: 316 Stainless steel screws

Mounting Brackets: Nylon

Wetted Components:

Pump Head Assembly:

Pump Head : PVDF

Adapter Connections : PVDF

Valve Cartridge : PVDF

Valve Balls : Ceramic

O-Ring Seals : TFE/P (optional EP)

Diaphragm : DiaFlex® (optional Flex-A-Prene®)

Injection/Back-Flow Check Valve:

Body & Insert : PVDF

Check Ball : Ceramic

Spring : Hastelloy C-276

Ball Seat O-Ring : TFE/P (optional EP)

Static Seal O-Ring : TFE/P (optional EP)

Foot Valve / Strainer:

Body & Adapter : PVDF

Check Ball : Ceramic

Spring : Hastelloy C-276

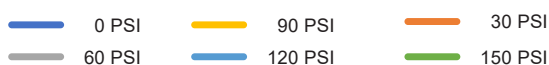
O-Ring Seal TFE/P (optional EP)

Filter Screen : PVDF

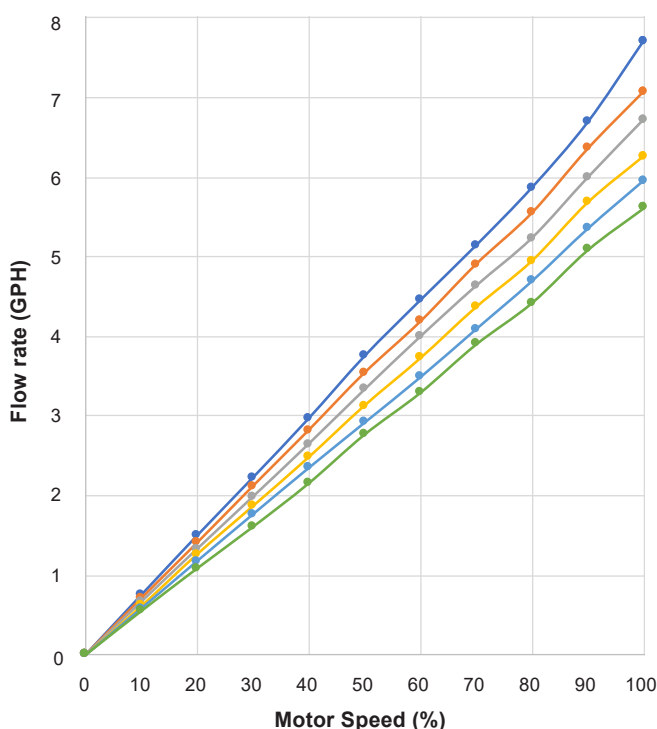
Performance

CHEM-FEED® MD1 Metering Pump

NOTE: All tests performed after approximately 30 minutes tube break-in period.



Flow rate vs Pressure



Motor Speed	Flow Rate GPH Pressure					
	0 PSI	30 PSI	60 PSI	90 PSI	120 PSI	150 PSI
0%	0	0	0	0	0	0
10%	0.75	0.71	0.67	0.61	0.58	0.55
20%	1.50	1.41	1.33	1.26	1.18	1.09
30%	2.22	2.12	1.98	1.87	1.76	1.61
40%	2.97	2.82	2.65	2.48	2.35	2.16
50%	3.75	3.54	3.33	3.13	2.91	2.77
60%	4.45	4.18	3.99	3.72	3.48	3.29
70%	5.14	4.90	4.63	4.37	4.09	3.90
80%	5.86	5.55	5.23	4.95	4.69	4.42
90%	6.68	6.35	5.99	5.68	5.35	5.08
100%	7.70	7.07	6.71	6.26	5.95	5.61

Model Number Matrix

MD1

CHEM-FEED® Model Number

MD1		CHEM-FEED® Multi-Diaphragm Metering Pump		
Diaphragm and O-Rings Material				
V		DiaFlex® Diaphragms and TFE/P O-Rings (For all chemicals excluding caustic soda and aqueous ammonia)		
E		Flex-A-Prene® Diaphragms and EP O-Rings (For caustic soda and aqueous ammonia)		
Power Cord (Operating voltage requirement 96VAC to 264VAC)				
4		115V 50/60Hz, power cord NEMA 5/15 plug (US)		
5		230V 50/60Hz, power cord NEMA 6/15 plug (US)		
6		220V 50/60Hz, power cord CEE 7/V11 plug (EU)		
8		240V 50/60Hz, power cord AS 3112 plug (Australia/New Zealand)		
9		230V 50/60Hz, power cord BS 1363/A plug (UK)		
MD1	V	1	4	Sample Model Number

Accessories



KIT-S07
STAR III 7 Gallon Tank



KIT-S15
STAR III 15 Gallon Tank



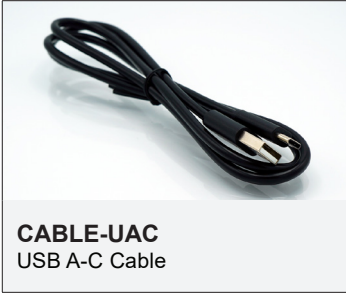
KIT-S30
STAR III 30 Gallon Tank



KIT-C5B
1/2" Hose Barb



KIT-MB
Floor Mounting Brackets



CABLE-UAC
USB A-C Cable



KIT-M12
Two M12 Cables



KIT-CQA
Quick Connect MD1 AFLAS

NOTE: Accessories sold separately.

*KIT-M12-3 THREE M12 CABLES

*KIT-CQE EP O-Rings

MD1 is sold and serviced exclusively by highly skilled, factory authorized technicians.
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USA