

# **PULSAFEEDER®**

The BLACKLINE Series MD is a motor driven, spring return mechanical diaphragm metering pump for precise and accurate metering control. With many standard features, the Series MD includes oil lubricated ball bearings in a anodized aluminum housing, long life reinforced PTFE diaphragm, micrometer style stroke length adjuster and many liquid end material options to suit any application.

Nine distinct models are available, having flow capabilities to 132 GPH (500 LPH) and pressures to 150 PSI (10 BAR), with a standard turndown ratio of 10:1 or up to 100:1 with the optional VFD Vector Drive. Metering performance is reproducible to within  $\pm 2\%$  of maximum capacity.

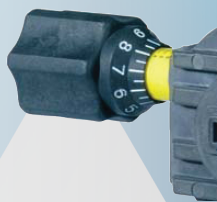
## Standard Features

- Liquid End Materials – GFPPL, 316 SS & PVDF.
- Rugged double-sided PTFE faced, long life diaphragm.
- Oil lubricated ball bearings in anodized aluminum housing.
- Oil sight glass for quick and easy oil level check.
- Large, easy to access oil drain port.
- Manual micrometer style stroke adjustment; 10:1 turndown, up to 100:1 with VFD Vector.
- Standard NEMA 56C or IEC71 motor frames available.

## Optional Features

- Variable Frequency Drive for Automatic Control.
  - ❖ Fully Scalable 4-20mA, 0-10VDC signals.
  - ❖ NEMA 4X Enclosure.
- ATEX Group II, Category 3 – Zone 2/22 for non-flammable liquids with proper motor selection.

## Controls



### Manual or Automatic Stroke Length

- Turn-Down Ratio 10:1



### VFD Stroke Rate

- Turn-Down Ratio 10:1
- 4-20mA or 0-10VDC Input

## Operating Benefits

- Reliable metering performance.
- Highly efficient operation.
- High viscosity capability.
  - ❖ Up to 1000 CPS
- Leak-free, seal-less, liquid end.



## Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers- MicroVision



**BLACK**  
**LINE** Series MD  
**Mechanical Diaphragm Pumps**

# BLACK LINE Series MD

## Specifications and Model Selection

MODEL		MD1A	MD1B	MD1C	MD1D	MD1E	MD2F	MD2J	MD2K	MD3G
Capacity nominal (max.)	GPH	7	14	22	29	35	59	79	98	132
	LPH	26	53	83	110	132	223	299	371	500
Pressure (max.)	PSIG	150	150	150	150	150	90	90	75	75
	BAR	10	10	10	10	10	6	6	5	5
Strokes/Minute	SPM	84	60	84	116	138	84	118	138	118
Viscosity	CPS	1000			500		1000	500		
Connections:	FNPT	1/2"					3/4"			1"
	BSPT-F	1/2"					3/4"			1"

### Engineering Data

#### Liquid End Materials Available:

GFPPL Head & Valves  
PVDF Head & Valves  
316 SS Head & valves

#### Valve Seat Materials:

PVC on GFPPL Liquid End  
PTFE on PVDF Liquid End  
316 SS on 316 SS Liquid End  
Incoloy (Optional Construction)

#### Valve Check Ball Materials:

Pyrex on GFPPL and PVDF Liquid End  
316 SS on 316SS Liquid End  
Hastelloy C-276 (Optional Construction)

Important: Material Code - GFPPL=Glass-filled Polypropylene, PVDF=Polyvinylidene Fluoride.

### Engineering Data

#### Reproducibility:

+/- 2% at maximum capacity up to 1000 CPS

#### Viscosity Max CPS:

60 to 138 Strokes Per Minute max. (Depending on model selection)

#### Stroke Frequency Max SPM:

10:1

#### Stroke Length Turn-Down Ratio:

115 VAC/60 Hz/1 ph

#### Power Input:

230 VAC/50-60 Hz/1 ph or 3 ph

#### Max Ambient Temperature:

104°F (40°C)

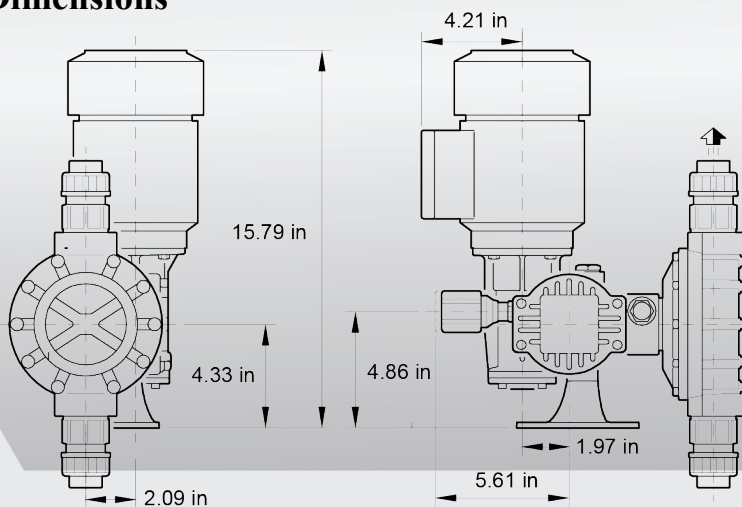
#### Max Fluid Temperature:

104°F (40°C)

#### Oil Capacity:

16.9 oz (0.5 L)

### Dimensions



Series MD Dimensions (inches)		
Model	Weight Plastic (lbs)	Weight Stainless Steel (lbs)
MD1A (NO MOTOR)	21.5	26.0
MD1B (NO MOTOR)	21.5	26.0
MD1C (NO MOTOR)	21.5	26.0
MD1D (NO MOTOR)	21.5	26.0
MD1E (NO MOTOR)	21.5	26.0
MD2F (NO MOTOR)	26.0	37.0
MD2J (NO MOTOR)	26.0	37.0
MD2K (NO MOTOR)	26.0	37.0
MD3G (NO MOTOR)	29.0	46.0
MD1A W/VFD & MOTOR	67.0	71.5
MD1B W/VFD & MOTOR	67.0	71.5
MD1C W/VFD & MOTOR	67.0	71.5
MD1D W/VFD & MOTOR	67.0	71.5
MD1E W/VFD & MOTOR	67.0	71.5
MD2F W/VFD & MOTOR	71.5	82.5
MD2J W/VFD & MOTOR	72.5	83.5
MD2K W/VFD & MOTOR	73.5	84.5
MD3G W/VFD & MOTOR	74.5	91.5



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