

Vmac™ Metering Pump

Series Model D

Williams Vmac™ Series model D is an Electric Driven, Chemical Injection, positive displacement plunger pump utilizing double spring loaded lip seals and an integral worm gear drive. It is available in 2 different standard gear ratios and 3 plunger sizes with flow up to 45.4 gpd (171.7 lpd) and pressure up to 5,000 psi (344.7 bar). It is used for oil and gas production facilities, pipelines, process plants, and other applications where precise dosing is required.

Plunger sizes:

- 1/4", 3/8", and 1/2"

Gear Ratios:

- 43 SPM (20:1)
- 86 SPM (40:1)

Applications

Injection of chemicals such as corrosion inhibitors, H₂S scavengers, defoamers, biocides and many more areas.

Features and Benefits

- Durable metallic, powder coated, sealed housing designed to withstand tough environments and longer life
- Robust metallic, worm gear drive coupled with variable eccentric stroke adjustment mechanism yields a 10:1 turndown ratio with smoother flow
- Precision stroke adjustment can be operated while the pump is running or stopped
- All gear components move in an oil bath for long life
- Steady State Accuracy $\pm 1\%$ of full capacity over 10:1 turndown ratio
- Proven Williams double sealing arrangement yields longer reliable life when combined with ceramic plunger (standard offering)
- 316SS Liquid end body for corrosion resistance
- No packing to adjust
- Suction and discharge check valves with composite seats for long life and positive sealing
- C-face with direct motor mount for perfect shaft alignment



Material of Construction

Drive Material	Aluminum
Plunger Material	Ceramic (Std.), 17-4SS, 316SS
Wetted Parts	316SS
Stroke Adjustment	Manual Micrometer (Non-lost motion)
Seal Material	Mechanical (Spring Loaded), O-Ring

Vmac D Capacity / Pressure Table

Plunger		Gear Ratio	Strokes/ Min 60 Hz 1725 RPM	Capacity/ Pressure @ 60 HZ					
Diameter	Code			Ratings at 100 psi		Capacity at Max Pressue			
				GPD	LPD	GPD	LPD	PSI	BAR
1/4” 6.35mm	250	40:1	43	5.4	20.4	3.7	13.9	5000	344.7
		20:1	86	10.8	40.9	7.6	28.6	5000	344.7
3/8” 9.5mm	375	40:1	43	12.5	47.4	11.0	41.7	2250	155.1
		20:1	86	23.8	89.9	20.7	78.5	2250	155.1
1/2” 12.7mm	500	40:1	43	22.5	85.0	21.2	80.1	1250	86.2
		20:1	86	45.4	171.7	41.0	155.3	1250	86.2

Plunger		Gear Ratio	Strokes/ Min 50 Hz 1425 RPM	Capacity/ Pressure @ 50 HZ					
Diameter	Code			Ratings at 100 psi		Capacity at Max Pressue			
				GPD	LPD	GPD	LPD	PSI	BAR
1/4” 6.35mm	250	40:1	36	4.5	17.0	3.1	11.6	5000	344.7
		20:1	72	9.0	34.1	6.3	23.8	5000	344.7
3/8” 9.5mm	375	40:1	36	10.4	39.5	9.2	34.7	2250	155.1
		20:1	72	19.8	74.9	17.3	65.4	2250	155.1
1/2” 12.7mm	500	40:1	36	18.7	70.8	17.6	66.7	1250	86.2
		20:1	72	37.8	143	34.2	129.4	1250	86.2

Note: Motor requirements: 1/4 HP or 0.25 Kw

Seal Code Selection

MATERIAL	SEAL TYPE	TEMP RANGE	SUGGESTED PRESSURE RANGE	COMMENTS
TG Teflon® Graphite	Mechanical (Spring Loaded)	-30 to 180°F -34 to 82°C	1,000 to 5,000 psi 207 to 345 bar (High Pressure)	Tough material with excellent wear resistance. Excellent chemical inertness. Good for all types of chemicals, acids, bases or solvents. Recommended for use with the harder ceramic plunger and higher pressures.
TC Teflon® Composite	Mechanical (Spring Loaded)	-30 to 180°F -34 to 82°C	750 to 5,000 psi 52 to 345 bar	Tough material with excellent wear resistance. Excellent chemical inertness. Good for all types of chemicals, acids, bases or solvents.
PE UHMW Polyethylene	Mechanical (Spring Loaded)	-30 to 180°F -34 to 82°C	100 to 3,000 psi 6.9 to 207 bar	Tough material with excellent wear resistance. It is good for water and alcohol-based chemicals. Not recommended for solvents.
VT Viton®	O-ring	-10 to 200°F -23 to 93°C	100 to 750 psi 6.9 to 52 bar	Soft material with fair wear resistance. Broad chemical compatibility but it's not to be used with ethyl or methyl alcohols. Suggested only for hard to seal fluids in low pressure applications when PE or TC will not seal.
BR Buna N	O-ring	-40 to 200°F -40 to 93°C	100 to 750 psi 6.9 to 52 bar	Soft material with fair wear resistance. Limited chemical compatibility. Used mainly in Methanol pumping at low pressure.
KL Kalrez®	O-ring	-32 to 200°F -0 to 93°C	100 to 750 psi 6.9 to 52 bar	Soft material with fair wear resistance. Excellent chemical compatibility. Used when Viton® is not compatible and PE or TC will not seal.
EP Ethylene Propylene	O-ring	-40 to 200°F -40 to 93°C	100 to 750 psi 6.9 to 52 bar	Material has very good abrasion resistance. Excellent chemical resistance to phosphate esters, good to excellent to mild acids, alkalis, silicone oils and greases, ketones and alcohols. Not recommended petroleum oils or di-esters.

Model Selection Guide

Example Code:

VMD 250 CR TG 1 8 N

Model

VMD

Plunger Diameter

250	1/4"
375	3/8"
500	1/2"

Plunger Material

CR	Ceramic
AA	17-4 ph
BB	316 SS

Seal Material

TG	Teflon® Graphite
TC	Teflon® Composite
PE	UHMW Polyethylene
VT	Viton®
BR	Buna N
KL	Kalrez®
EP	Ethylene Propylene

Base Option

N	No
Y	Yes

Motor Option

Motor Mounts only

X	Flange Mount, NEMA C Frame
M	Flange Mount, IEC Frame

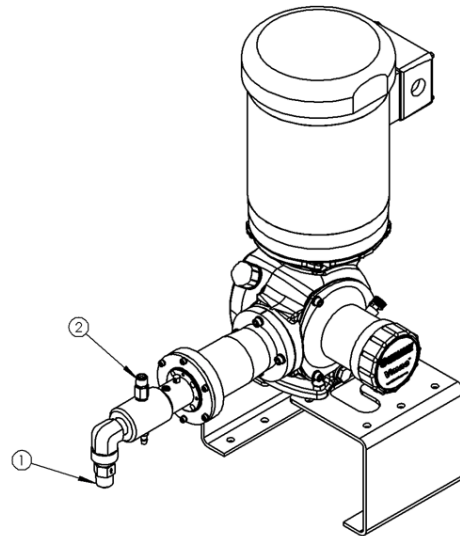
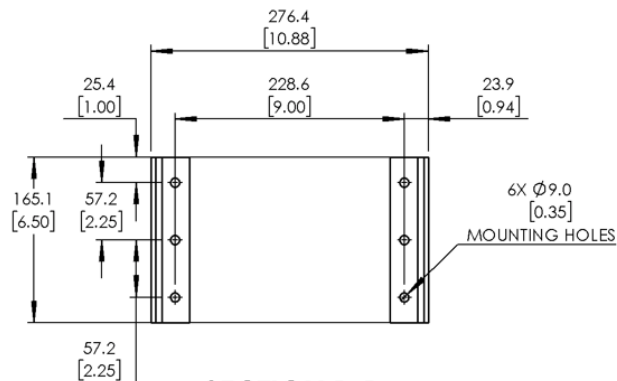
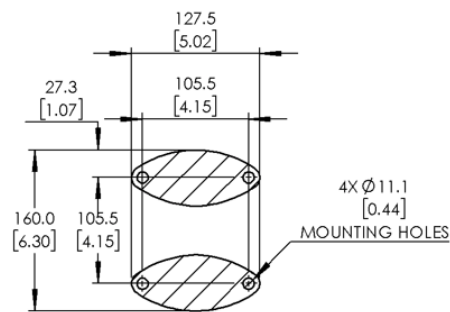
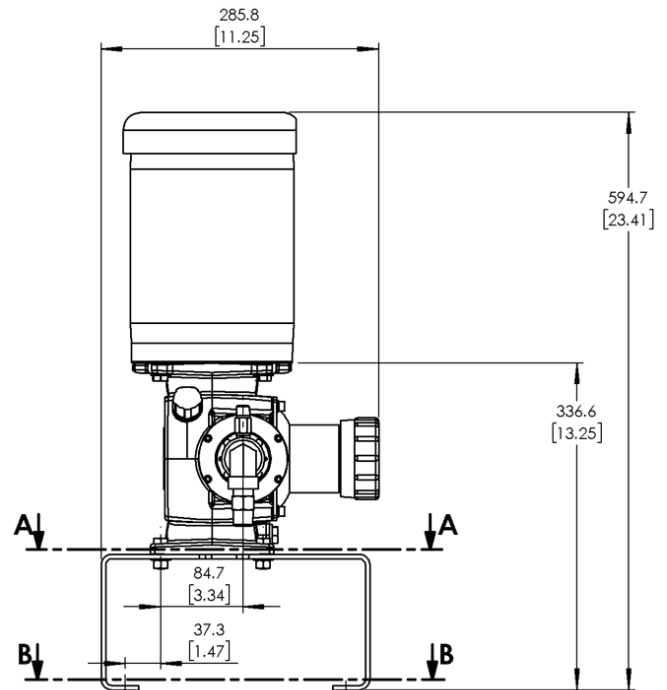
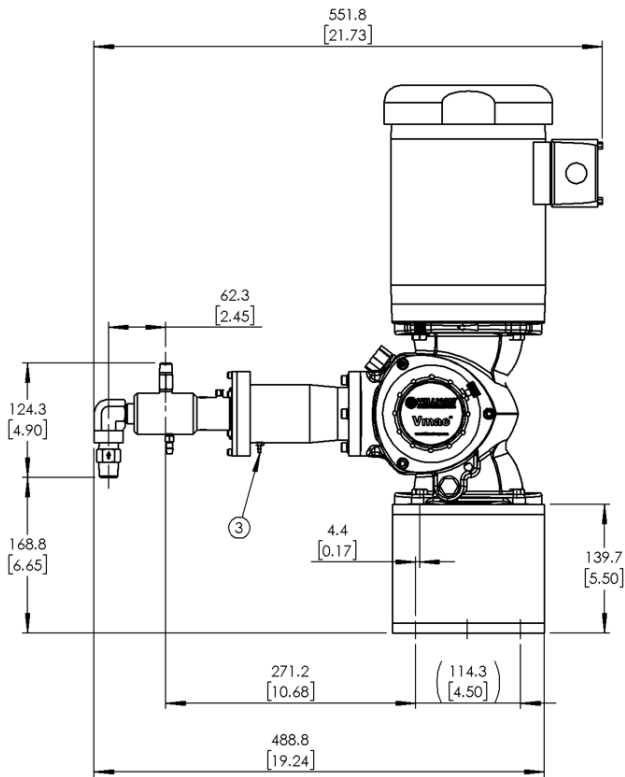
Flange Mount

8	1/4 hp, 1725 rpm, 1 Phase, 60 Hertz, 115/230 Volt, TEFC, NEMA 56C
9	1/3 hp, 1425 rpm, 1 Phase, 50 Hertz, 115/230 Volt, TEFC, NEMA 56C
J	1/4 hp, 1725 rpm, 3 Phase, 60 Hertz, 230/460 Volt, TEFC, NEMA 56C
L	1/3 hp, 1450 rpm, 3 Phase, 50 Hertz, 220/380 Volt, TEFC, NEMA 56C
T	1/3 hp, 1750 rpm, 1 Phase, 60 Hertz, 115/230 Volt, TEFC, NEMA 56C
1	1/4 hp, 1725 rpm, 1 Phase, 60 Hertz, 115/230 Volt, TEFC, Exp proof, NEMA 56C
3	1/4 hp, 1725 rpm, 3 Phase, 60 Hertz, 230/460 Volt, TEFC, Exp proof, NEMA 56C
2	1/3 hp, 1725 rpm, 1 Phase, 60 Hertz, 115/230 Volt, TEFC, NEMA 56C, Washdown/Chem
4	1/3 hp, 1725 rpm, 3 Phase, 60 Hertz, 230/460 Volt, TEFC, NEMA 56C, Washdown/Chem

Gear Speed

1	43 SPM
2	86 SPM

Dimensions



1. SUCTION CONNECTION - 1/4" & 3/8" PLUNGERS: 1/4" MNPT
 2. SUCTION CONNECTION - 1/2" PLUNGER (SHOWN): 1/2" MNPT
 3. DISCHARGE CONNECTION: 1/4" MNPT
- LEAK INDICATOR PORT: 1/8" BARB

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