

**MACROY<sup>®</sup>**

**SERIES OF  
METERING  
PUMPS**



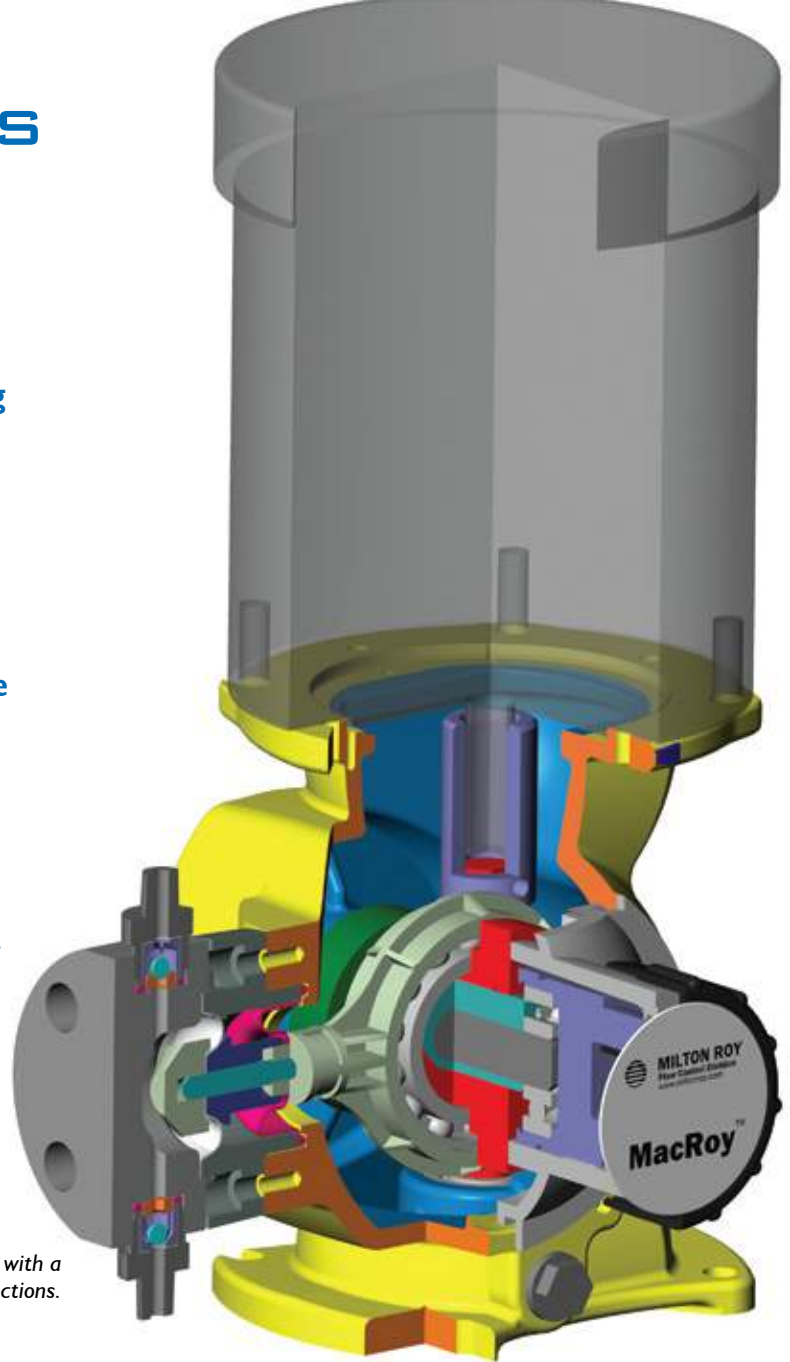
**MILTON ROY**

# MACROY® SERIES

The MacRoy® Series of metering pumps offer traditional Milton Roy reliability with outstanding value for applications up to 175 psi (12 Bar).

Milton Roy has combined its heavy-duty industrial drive technology with state of the art design and manufacturing processes in creating the MacRoy® Series metering pump. This family of Mechanically Actuated Diaphragm metering pumps is designed for durability and cost effectiveness.

*Illustrated to the right is a D4 with a PVC liquid end, featuring NPT connections.*

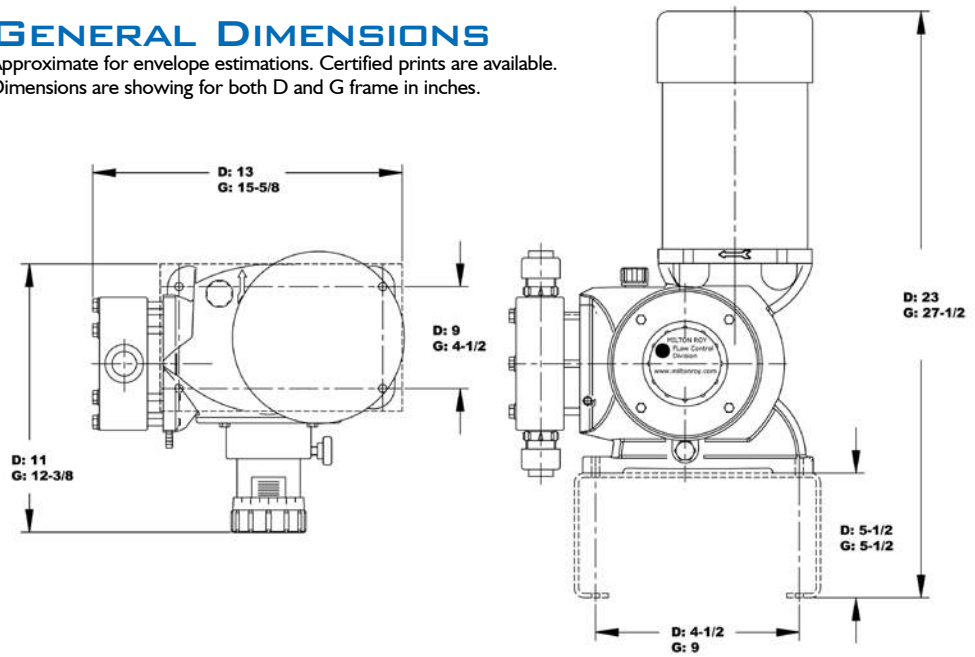


## MACROY FEATURES AND SPECIFICATIONS

- ▶ Flow Rates up to 312 GPH (1180 Liters/hr)
- ▶ Mechanically Actuated Diaphragm liquid end eliminates flow restrictions
- ▶ Durable, metallic housing designed to withstand tough environments
- ▶ High efficiency motors minimize heat buildup
- ▶ A robust, metallic, worm gear drive coupled with the industrial duty variable eccentric stroke adjustment mechanism yields a 10 to 1 turn down ratio with smooth velocity profiles as compared to the pulsating flows of solenoid pumps or lost motion designs
- ▶ Smooth running, low friction bronze gears
- ▶ The PTFE, high performance, diaphragm design increases diaphragm life by eliminating the stresses inherent in most designs
- ▶ Reliable low flow performance is a result of high performance check valves with machined seats
- ▶ All gear components operate in an oil bath for long life
- ▶ Precision stroke adjustment can be operated while the pump is running or stopped
- ▶ Steady State Accuracy –  $\pm 1\%$  of full capacity over the 10 to 1 turndown ratio
- ▶ Liquid Temperature Range – 14° to 122° F (-14° to 50° C)
- ▶ Coating – 2 part epoxy
- ▶ Average Weight with motor – Frame D: 45 lbs (20 kgs)  
Frame G: 105 lbs (48 kgs)

## GENERAL DIMENSIONS

Approximate for envelope estimations. Certified prints are available.  
Dimensions are showing for both D and G frame in inches.



## NPT CONNECTION SIZES

FRAME	LIQUID END SIZE	CONNECTION PORT SIZE FOR THE FOLLOWING MATERIALS			
		BLACK PP, PVC, PVDF & ACRYLIC	APPLICATIONS		316 SS
				H2SO4	
D	2	1/4" Male	1/4" Male	1/4" Male	1/4" Male
	4		1/2" Male		1/2" Male
	7 & 8				
G	5	1/2" Female			
	6 & 7		1" Male	1" Female	1" Male

## MATERIALS OF CONSTRUCTION

MATERIAL	FRAME	LIQUID END SIZE	HEAD	CHECK VALVE	SEALS	SEATS	BALLS	DIAPHRAGM	
Black Polypropylene	D	2	Black PP	PVDF	Aflas	Alloy C22	Ceramic	PTFE	
		4				PTFE			
		7 & 8							
	G	5		PP	Viton	PVC			
PVC	D	2	PVC	PVDF	Aflas	Alloy C22	Ceramic	PTFE	
		4				PTFE			
		7 & 8							
	G	5		PVC	Viton	PVC			
PVDF	D	2	PVDF	PVDF	Aflas	Alloy C22	Ceramic	PTFE	
		4				PTFE			
		7 & 8							
	G	All		PVC	Viton	PVC			
Acrylic	D	2	Acrylic	PVDF	Aflas	Alloy C22	Ceramic	PTFE	
		4				PTFE			
		7 & 8							
	G	5		PVC	Viton	PVC			
Polymer Applications	D & G	All	PVC	PVC	Viton	316 SS	316 SS	316 SS	
Slurry Applications	D & G	All		316 SS		CA 20			CA 20
H2SO4 Applications	D & G	All		PVDF		Aflas			CA 20
316 SS	D	2	316 SS	316 SS	PTFE	316 SS	316 SS	316 SS	
		4				PTFE			
		7 & 8							
	G	5				Viton			316 SS
	6 & 7					PTFE			

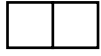
## PUMP SELECTION BY CAPACITY AND PRESSURE

PUMP SELECTION			MAXIMUM RATINGS						
FRAME	MACROY		CAPACITY @ 60 HZ (1725 RPM)		CAPACITY @ 50 HZ (1425 RPM)		PRESSURE		
	LIQUID END	GEAR CODE	GPH	LITER/HR	GPH	LITER/HR	PSI	BAR	
D	2	1	0.18	0.7	0.15	0.6	175	12	Ratings based on 1/4 HP (.25 kW)
		2	0.35	1.3	0.29	1.1			
		6	0.48	1.8	0.40	1.5			
		3	0.7	2.6	0.58	2.2			
	4	1	3.0	11.4	2.5	9.5	150	10	
		2	6.6	25	5.5	21			
		6	10	38	6.9	26			
		3	14.4	45	12	45			
	7	1	13	99	10	39	100	7	
		2	25	95	21	79			
		6	34	129	28	106			
		3	50	189	42	159			
	8	1	31	117	26	98	75	5	
		2	57	216	47	178			
		6	87	329	72	273			
		3	127	481	106	401			
G	5	1	26	98.4	22	82	150	10	
		2	53	200.6	44	167			
		6	75	283.9	62	237			
		3	106	401.2	88	334			
		8	-	-	110	416			
	6	1	37	140.0	31	117	100	7	
		2	74	280.1	62	233			
		6	104	393.6	87	328			
		3	147	556.4	122	464			
		8	-	-	154	583			
	7	1	75	283.9	62	237	50	3.5	
		2	150	567.8	125	473			
		6	213	806.2	177	672			
		3	300	1135.5	250	946			
		8	-	-	312	1181			



*MacRoy G with PVC liquid end and manual micrometer stroke adjustment.*

# MACROY D & G PRODUCT CODE



Frame and  
Liquid End



Gear  
Ratio



Motor &/  
or Mount



Liquid  
End  
Material



Connections



Capacity  
Control



Double  
Diaphragm



Base



Stroke  
Counting

## Frame and Liquid End

### D Frame

D2

D4

D7

D8

### G Frame

G5

G6

G7

## Gear Ratio Code

1 = 43 SPM

2 = 86 SPM

6 = 120 SPM

3 = 173 SPM

8 = 180 SPM @

1450 RPM

## Motor &/or Mount

8 = 1 ph 60 Hz 115/230 VAC

1725 RPM TE

J = 3 ph 60 Hz 230/460 VAC

1725 RPM TE

9 = 1 ph 50 Hz 115/230 VAC

1450 RPM TE

L = 3 ph 50 Hz 220/380 VAC

1450 RPM TE

M = IEC 71, F130 V1 Flange  
Mount Less Motor

N = IEC 80, F165 V1 Flange

Mount Less Motor  
(G Frame only)

X = Nema 56C Mount

Less Motor

## Liquid End Material

2 = PVDF

4 = Black Polypropylene  
(UV Stable)

7 = 316 ss

8 = PVC

A = Acrylic

P = Polymer Service

L = Slurry Applications

N = H<sub>2</sub>SO<sub>4</sub> Applications

## Connections

P = NPT

T = Tubing

B = Bleed Valve NPT

C = Bleed Valve Tubing

## Capacity Control

M4 = Manual

E1 = 4-20, Nema 4, 115V

E2 = 4-20, Nema 4, 230V

EA = 4-20, Ex Prf, 115V

EB = 4-20, Ex Prf, 230V

## Double Diaphragm

N = None

D = Double Diaphragm

3 = Double Diaphragm w/  
Gauge

4 = Double Diaphragm  
w/Nema 4

Rupture Detection

7 = Double Diaphragm  
w/Nema 7

Rupture Detection

## Base Code

N = None

I = Simplex Optional Base

## Stroke Counting

N = None

I = Stroke Counting  
(20 to 250 VAC/DC)



The photograph to the right is a D4 with a PVC liquid end, featuring NPT style check valves.

## MACROY, DEPENDABLE AND VERSATILE

The MacRoy™ series of pumps has proven its exceptional value over years of solid performance in a wide range of applications and industries. Water treatment chemicals, process additives, acids, out-gassing fluids, slurries, and many more applications are all handled with ease by this robust metering pump design. Your local representative can assist you in applying the MacRoy™ metering pump to your process.



## ACCESSORIES



### Safety Valves

Protect pump and piping from overpressure.



### Back Pressure Valves

Provide smooth, artificial pressure in pump discharge line for atmospheric or low pressure systems to ensure pumping accuracy.

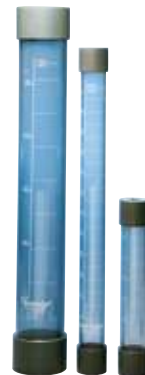
### Pulsation Dampeners

Minimize pressure and flow surges in the pump discharge. When applied to pump inlet, more favorable NPSH conditions result.



### Calibration Columns

Allow periodic verification of pump performance during routine checks or after system maintenance.



MILTON ROY COMPANY

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