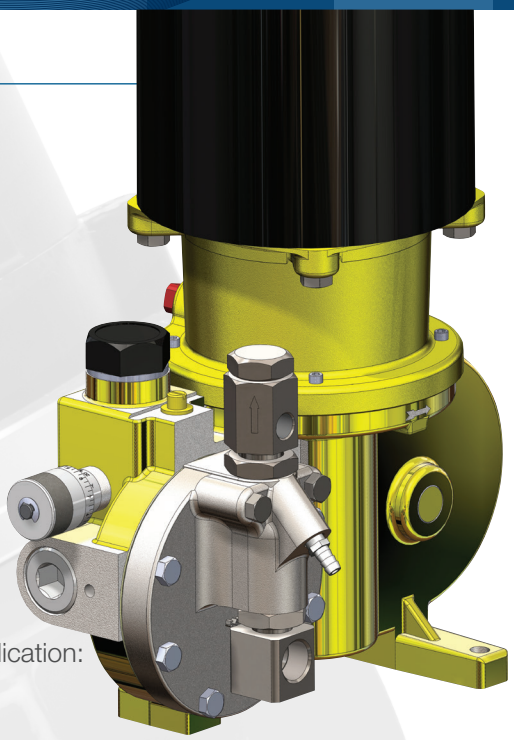
mRoy®
Metering Pumps

Models A & B

mROY® series models A and B metering pumps are controlled-volume, hydraulically-actuated diaphragm pumps that are designed for consistent chemical delivery. Its compact design contains a plunger that reciprocates at a fixed stroke, displacing a fixed volume of hydraulic fluid and thereby actuating a flexible, chemically inert PTFE diaphragm to create the pumping action. This field-proven design enables metering with repetitive steady-state accuracy at a ±1% range. Designed to meet global industry standards, models A and B provide accurate dosing of a broad spectrum of fluids. Like all mROY® metering pumps, models A and B are built to run continually all year long with preventative maintenance, leading to decades of consistent performance.



Applications

Injection of chemicals such as coagulants, biocides, disinfectants, polymers, softening agents, acids and bases for pH control, scale and corrosion inhibitors, oxygen scavengers, process additives, and many more for the following areas of application:

- Chemical and petrochemical processing
- Cooling towers and boilers
- Drinking water treatment
- Oil and gas production
- Food and beverages industry
- Industrial water and wastewater treatment
- Pharmaceuticals production
- Power generation
- Agriculture

Maximum Capacity Ratings (@ 100 psi / 7 bar)		
Motor	gph	l/hr
50 hz - 1425 RPM	0.30 to 87.36	1.1 to 330.6
60 hz - 1725 RPM	0.36 to 85	1.4 to 321.7

Features and Benefits

- Hydraulically-balanced PTFE diaphragm, designed for 96,000 hours operating life, does not use seals and eliminates plunger packing maintenance.
- Liquid end bleed system makes it easier to commission a new or a newly maintained pump.
- Worm and pinion drive operating in an oil bath lubrication produces a smooth mechanical motion that eliminates wear and tear of mechanical lost motion designs and assures long gear and bearing life.
- Dust-tight cast iron housing provides a rugged enclosure for operation in the harshest plant and field environments.
- Micrometer capacity adjustment enables accurate output flow control.
- Internal hydraulic pressure relief valve automatically protects the pump's hydraulic system from over pressure conditions.
- High-performance, adjustable, cartridge-type check valves provide positive, repeatable sealing on every pump stroke.
- Metallic and non-metallic liquid end materials, available for corrosion resistance in any chemical application.
- The pump is capable of withstanding a wide range of fluid and ambient temperatures with options for extreme low and high temperature requirements.
- Simplex and duplex versions available.
- The pump meets standards for CE, ATEX, and API 675.
- Extensive motor mount and pipe connection options are available for process compatibility and simple integration into chemical injection systems.
- Process compatibility options are easily selected such as heating/cooling liquid end jackets, configurations for slurries or viscous fluids, unique material combinations, etc.

Literature #59193.05

MILTON ROY®

MILTON ROY®

General Specifications

mROY® Model A - Metallic Liquid Ends

mRoy Model	Plunger		Gear Ratio Code	Stroke/Minute		Capacity/Pressure @ 60 hz 1725 RPM						Capacity/Pressure @ 50 hz 1425 RPM					
						Ratings at 100 psi/7 bar		Capacity at Max pressure				Ratings at 100 psi/7 bar		Capacity at Max pressure			
								Capacity		Max Pressure				Capacity		Max Pressure	
	Diameter	Code		60 hz 1725 rpm	50 hz 1425 rpm	gph	l/hr	gph	l/hr	psi	bar	gph	l/hr	gph	l/hr	psi	bar
A	3/8 in 9.5 mm	C	77	23	19	0.36	1.4	0.20	0.8	2,000	137.9	0.30	1.1	0.17	0.6	2,000	137.9
			48	37	30	0.73	2.8	0.34	1.3	2,000	137.9	0.61	2.3	0.28	1.1	2,000	137.9
			24	73	60	1.44	5.5	0.68	2.6	2,000	137.9	1.20	4.5	0.57	2.2	2,000	137.9
			15	117	96	2.32	8.8	1.09	4.1	2,000	137.9	1.93	7.3	0.91	3.4	2,000	137.9
			10	185	152	3.64	13.8	1.72	6.5	2,000	137.9	3.03	11.5	1.43	5.4	2,000	137.9
			8	-	178	-	-	-	-	-	-	3.55	13.4	1.67	6.3	2,000	137.9
	7/16 in 11.1 mm	D	77	23	19	0.57	2.2	0.4	1.5	1,800	124.1	0.48	1.8	0.33	1.2	1,800	124.1
			48	37	30	0.8	3.0	0.6	2.3	1,800	124.1	0.67	2.5	0.50	1.9	1,800	124.1
			24	73	60	1.7	6.4	1.2	4.5	1,800	124.1	1.42	5.4	1.00	3.80	1,800	124.1
			15	117	96	2.8	10.6	2	7.6	1,800	124.1	2.33	8.8	1.67	6.30	1,800	124.1
			10	185	152	4.4	16.7	3.1	11.7	1,800	124.1	3.67	13.9	2.58	9.80	1,800	124.1
			8	-	178	-	-	-	-	-	-	4.30	16.3	3.02	11.40	1,800	124.1
	5/8 in 15.9 mm	E	48	37	30	1.8	6.8	1.4	5.31	925	63.8	1.50	5.7	1.2	4.4	925	63.8
			24	73	60	3.8	14.4	3.1	1.7	925	63.8	3.17	12	2.6	9.8	925	63.8
			15	117	96	6.2	23.5	5.1	19.3	925	63.8	5.17	19.6	4.3	16.6	925	63.8
			10	185	152	9.4	35.6	7.7	29.1	925	63.8	7.83	29.6	6.4	24.3	925	63.8
			8	-	178	-	-	-	-	-	-	9.17	34.7	7.5	28.5	925	63.8
	1-1/16 in 27 mm	F	48	37	30	6.1	23.1	5.5	20.8	350	24.1	5.08	19.2	4.6	17.3	350	24.1
			24	73	60	12.3	46.6	11.2	42.4	350	24.1	10.25	38.8	9.3	35.3	350	24.1
			15	117	96	19.4	73.4	18.1	68.5	350	24.1	16.17	61.2	15.1	57.1	350	24.1
			10	185	152	30.0	113.6	29.0	109.8	200	13.8	25.00	94.6	24.2	91.5	200	13.8
			8	-	178	-	-	-	-	-	-	29.28	110.8	28.3	107.1	200	13.8

Capacities shown are for simplex models. Double capacity for duplex models.
Certain options may slightly alter the capacity or pressure ratings shown above.

mROY® Model B - Metallic Liquid Ends

mRoy Model	Plunger		Gear Ratio Code	Stroke/Minute		Capacity/Pressure @ 60 hz 1725 RPM						Capacity/Pressure @ 50 hz 1425 RPM					
						Ratings at 100 psi/7 bar		Capacity at Max pressure				Ratings at 100 psi/7 bar		Capacity at Max pressure			
								Capacity		Max Pressure				Capacity		Max Pressure	
	Diameter	Code		60 hz 1725 rpm	50 hz 1425 rpm	gph	l/hr	gph	l/hr	psi	bar	gph	l/hr	gph	l/hr	psi	bar
B	19/32 in 15.1 mm	K	38	48	40	4.7	17.8	3.3	12.5	1,500	103.4	3.92	14.8	2.75	10.4	1,500	103.4
			25	72	60	7	26.5	5.6	21.2	1,500	103.4	5.83	22.1	4.67	17.7	1,500	103.4
			19	96	80	9.5	36	7.1	26.9	1,500	103.4	7.92	30	5.92	22.4	1,500	103.4
			12	144	120	13.3	50.3	11.4	43.1	1,500	103.4	11.08	41.9	9.50	36	1,500	103.4
			10	-	148	-	-	-	-	1,500	103.4	13.67	51.7	11.72	44.3	1,500	103.4
	7/8 in 22.2 mm	L	38	48	40	10	37.9	4.7	17.8	1,000	69	8.33	31.5	3.92	14.8	1,000	69
			25	72	60	16	60.6	11	41.6	1,000	69	13.33	50.5	9.17	34.7	1,000	69
			19	96	80	21	79.5	16	60.6	1,000	69	17.5	66.2	13.33	50.5	1,000	69
			12	144	120	30.4	115.1	25.6	96.9	1,000	69	25.33	95.9	21.33	80.7	1,000	69
			10	-	148	-	-	-	-	1,000	69	31.24	118.2	26.31	99.6	1,000	69
	1-7/16 in 36.5 mm	R	38	48	40	27	102.2	21	79.5	400	27.6	22.5	85.2	17.50	66.2	400	27.6
			25	72	60	42	159	36	136.3	400	27.6	35	132.5	30.00	113.6	400	27.6
			19	96	80	57	215.7	51	193	400	27.6	47.5	179.8	42.50	160.9	400	27.6
			12	144	120	85	321.7	79	299	400	27.6	70.83	268.1	65.83	249.2	400	27.6
			10	-	148	-	-	-	-	400	27.6	87.357	330.6	81.19	307.3	400	27.6

Capacities shown are for simplex. Double capacity for duplex
Certain options may slightly alter the capacity or pressure ratings shown above.

Literature #59193.05

MILTON ROY®

General Specifications

mROY® Model A - Plastic Liquid Ends

mRoy Model	Plunger		Gear Ratio Code	Stroke/Minute		Capacity/Pressure @ 60 hz 1725 RPM						Capacity/Pressure @ 50 hz 1425 RPM					
						Ratings at 100 psi/7 bar		Capacity at Max pressure				Ratings at 100 psi/7 bar		Capacity at Max pressure			
								Capacity		Max Pressure				Capacity		Max Pressure	
	Diameter	Code		60 hz 1725 rpm	50 hz 1425 rpm	gph	l/hr	gph	l/hr	psi	bar	gph	l/hr	gph	l/hr	psi	bar
A	3/8 in 9.5 mm	C	77	23	19	0.32	1.2	0.28	1.1	150	10.3	0.27	1	0.23	0.9	150	10.3
			48	37	30	0.68	2.6	0.62	2.3	150	10.3	0.57	2.2	0.52	2	150	10.3
			24	73	60	1.35	5.1	1.30	4.9	150	10.3	1.13	4.3	1.08	4.1	150	10.3
			15	117	96	2.20	8.3	2.10	7.9	150	10.3	1.83	6.9	1.75	6.6	150	10.3
	7/16 in 11.1 mm	D	77	23	19	0.5	1.9	0.45	1.7	150	10.3	0.42	1.6	0.38	1.4	150	10.3
			48	37	30	0.7	2.6	0.65	2.5	150	10.3	0.58	2.2	0.54	2	150	10.3
			24	73	60	1.5	5.7	1.4	5.3	150	10.3	1.25	4.7	1.17	4.40	150	10.3
			15	117	96	2.5	9.5	2.4	9.1	150	10.3	2.08	7.9	2.00	7.60	150	10.3
	5/8 in 15.9 mm	E	48	37	30	1.6	6.1	1.5	5.7	150	10.3	1.33	5	1.3	4.7	150	10.3
			24	73	60	3.5	13.2	3.4	12.9	150	10.3	2.92	11.1	2.8	10.7	150	10.3
			15	117	96	5.6	21.2	5.5	20.8	150	10.3	4.67	17.7	4.6	17.3	150	10.3
	1-1/16 in 27 mm	F	48	37	30	5.7	21.6	5.6	21.2	150	10.3	4.75	18	4.7	17.7	150	10.3
			24	73	60	11.3	42.8	11.2	42.4	150	10.3	9.42	35.7	9.3	35.3	150	10.3
			15	117	96	18.1	68.5	18.0	68.1	150	10.3	15.08	57.1	15.0	56.8	150	10.3

Includes PVC, PVDF liquid ends, and liquid ends for fluoride applications
Capacities shown are for simplex. Double capacity for duplex

Certain options may slightly alter the capacity or pressure ratings shown above.®

mROY Model B - Plastic Liquid Ends

mRoy Model	Plunger		Gear Ratio Code	Stroke/Minute		Capacity/Pressure @ 60 hz 1725 RPM						Capacity/Pressure @ 50 hz 1425 RPM					
						Ratings at 100 psi/7 bar		Capacity at Max pressure				Ratings at 100 psi/7 bar		Capacity at Max pressure			
								Capacity		Max Pressure				Capacity		Max Pressure	
	Diameter	Code		60 hz 1725 rpm	50 hz 1425 rpm	gph	l/hr	gph	l/hr	psi	bar	gph	l/hr	gph	l/hr	psi	bar
B	7/8 in 22.2 mm	L	38	48	40	10.0	37.9	9.7	36.7	150	10.3	8.33	31.5	8.1	30.6	150	10.3
			25	72	60	16.0	60.6	15.7	59.4	150	10.3	13.33	50.5	13.1	49.5	150	10.3
			19	96	80	21.0	79.5	20.7	78.3	150	10.3	17.50	66.2	17.3	65.3	150	10.3
			12	144	120	30.4	115.1	30.1	113.9	150	10.3	25.33	95.9	25.1	94.9	150	10.3
			10	-	148	-	-	-	-	150	10.3	31.24	118.2	30.93	117.1	150	10.3
	1-7/16 in 36.5 mm	R	38	48	40	27.0	102.2	26.0	98.4	150	10.3	22.50	85.2	21.7	82.0	150	10.3
			25	72	60	42.0	159	41.0	155.2	150	10.3	35.00	132.5	34.2	129.3	150	10.3
			19	96	80	57.0	215.7	56.0	212	150	10.3	47.50	179.8	46.7	176.6	150	10.3
			12	144	120	85.0	321.7	84.0	317.9	150	10.3	70.83	268.1	70.0	265.0	150	10.3
			10	-	148	-	-	-	-	150	10.3	87.36	330.6	86.33	326.8	150	10.3

Includes PVC, PVDF liquid ends, and liquid ends for fluoride applications
Capacities shown are for simplex. Double capacity for duplex
Certain options may slightly alter the capacity or pressure ratings shown above.

Power Requirements

mRoy® Frame		A	B					
Plunger Code		C,D,E,F	K		L		R	
			<1,000 psi/67 bar	>1,000 psi/67 bar	<400 psi/28 bar	>400 psi/28 bar	<100 psi/7 bar	>100 psi/7 bar
1 Ph	Simplex	1/4 HP (0.18 kW)	3/4 HP (0.55 kW)	1 HP (0.75 kW)	3/4 HP (0.55 kW)	1 HP (0.75 kW)	1 HP (0.75 kW)	1 HP (0.75 kW)
	Duplex	1/3 HP (0.25 kW)	1 HP (0.75 kW)	1 HP (0.75 kW)	1 HP (0.75 kW)	1 HP (0.75 kW)	1 HP (0.75 kW)	1 HP (0.75 kW)
3 Ph	Simplex	1/4 HP (0.18 kW)	1/2 HP (0.37 kW)	3/4 HP (0.55 kW)	1/2 HP (0.37 kW)	3/4 HP (0.55 kW)	3/4 HP (0.55 kW)	3/4 HP (0.55 kW)
	Duplex	1/3 HP (0.25 kW)	3/4 HP (0.55 kW)	1 HP (0.75 kW)	3/4 HP (0.55 kW)	1 HP (0.75 kW)	1 HP (0.75 kW)	1 HP (0.75 kW)

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MILTON ROY®

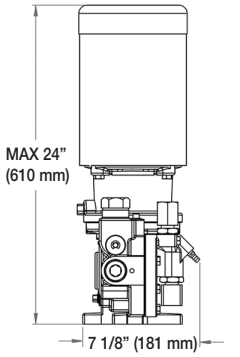
High Viscosity Option Ratings in Centipoise

The high viscosity option limits the pump to 350 psi (24 bar)

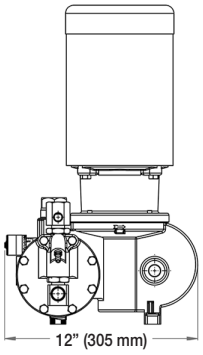
Plunger Size	Plunger Code	Gear Ratio Code	Strokes per Minute		With High Viscosity Option - Max Fluid Viscosity at Typical Conditions (Centipoise)	Standard pump without High Viscosity Option - Viscosity at Typical Conditions (Centipoise)
			60 hz	50 hz		
3/8 in. 9.5 mm	C	77	23	19	-	2,400
		48	37	30	-	1,460
		24	73	60	-	460
		15	117	96	-	250
		10	185	152	-	100
		8	-	178	-	100
7/16 in. 11 mm	D	77	23	19	12,200	2,400
		48	37	30	7,500	1,460
		24	73	60	4,000	460
		15	117	96	2,000	250
		10	185	152	350	100
		8	-	178	350	100
5/8 in. 16 mm	E	48	37	30	5,000	550
		24	73	60	2,500	220
		15	117	96	1,250	120
		10	185	152	350	80
		8	-	178	350	80
1-1/16 in. 27 mm	F	48	37	30	1,000	130
		24	73	60	500	60
		15	117	96	300	30
		10	185	152	120	25
		8	-	178	120	25
19/32 in. 15.1 mm	K	38	48	40	-	130
		25	72	60	-	84
		19	96	80	-	59
		12	144	120	-	39
		10	-	148	-	39
7/8 in. 22.2 mm	L	38	48	40	-	325
		25	72	60	-	186
		19	96	80	-	143
		12	144	120	-	94
		10	-	148	-	94
1-7/16 in. 36.5 mm	R	38	48	40	-	107
		25	72	60	-	65
		19	96	80	-	46
		12	144	120	-	28
		10	-	148	-	28

Dimensions

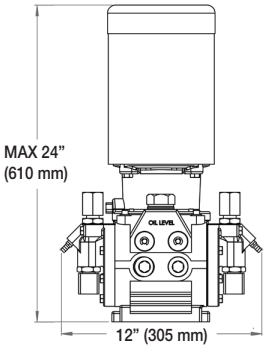
Model A



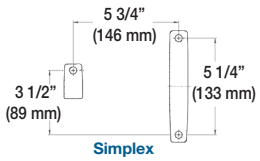
Simplex Front View



Simplex & Duplex Side View

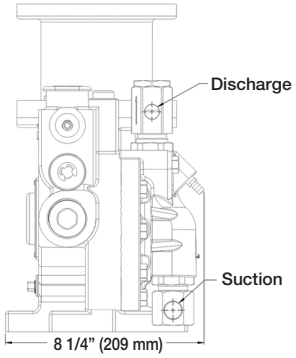


Duplex Front View

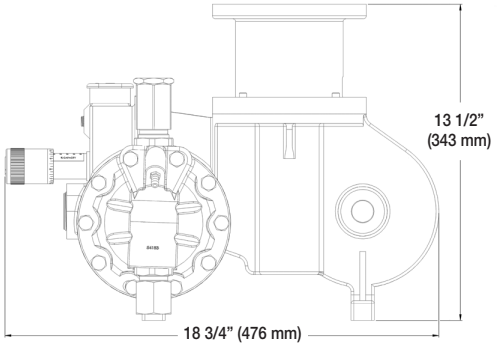


A Footprint

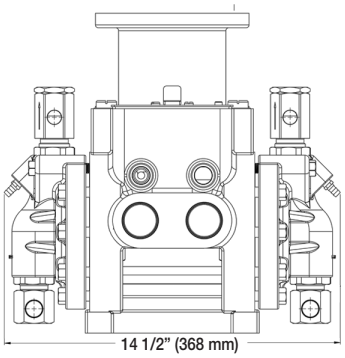
Model B



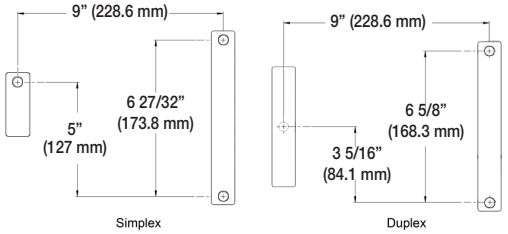
Simplex Front View



Simplex & Duplex Side View



Duplex Front View



Simplex & Duplex Footprints

Dimensions are provided for pump envelope estimates with basic options. Drawings are available for the exact configuration required.

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MILTON ROY

Model Selection Guide

Example Code: | MRA | 1 | 1 | E | 10 | S1 | A | P | P | N | S | 4 | N | Extended code for less common options

Frame/Range

MRA
MRB

Number of Heads

1	Simplex
2	Duplex

Liquid End Material

1	316L SS
2	PVC
5	Alloy 20
6	Hast C
7	PVDF
8	Fluoride

Plunger Diameter

MRA Range

C	3/8" (9.5 mm)
D	7/16" (11.1 mm)
E	5/8" (15.9 mm)
F	1 1/16" (27 mm)

MRB Range

K	19/32" (15.1 mm)
L	7/8" (22.2 mm)
R	1 7/16" (36.5 mm)

Gear Ratio Code

Strokes per minute (60 Hz - 1725 rpm) MRA Range

77	23
48	37
24	73
15	117
10	185
08	N/A

Strokes per minute (60 Hz - 1725 rpm) MRB Range

38	48
28	72
19	96
12	144
10	N/A

Strokes per minute (50 Hz - 1425 rpm)

77	19
48	30
24	60
15	96
10	152
08	178

Strokes per minute (50 Hz - 1425 rpm)

38	40
28	60
19	80
12	120
10	148

Motor or IEC/NEMA Mount

There are many options based on power and installation conditions. Your local representative can help select the proper option.

Type Motor Mount

C	Close coupled
A	API Flange with flexible coupling

Base

N	None
Y	Yes
V	VSD Drive

Diaphragm Rupture Detection

N	None
3	Double diaphragm with pressure gauge (not available on plastic ends w/plunger size C and D)
4	Double diaphragm with pressure gauge and NEMA 4 switch
5	Double diaphragm with pressure gauge and explosion proof switch
6	Double diaphragm with intermediate fluid and no probe
7	Double diaphragm with intermediate fluid and probe

Capacity Control

N	Standard aluminum manual micrometer
S	Stainless steel manual micrometer
L	Stainless steel locking manual micrometer (API 675)
W	ACC NEMA 4
E	ACC Ex proof
P	Pneumatic actuator

O Ring Options

N	Standard - Typically Viton
E	EPDM
T	Teflex

Discharge Connections

Suction Connections

Same code used for suction and discharge

Metallic Liquid Ends - Horizontal Connections

P	NPT - Female

Flange - Metallic Liquid Ends

A	ANSI 1/2 in. with raised face, thread, 150 Class
B	ANSI 1/2 in. with raised face, thread, 300 Class
C	ANSI 1/2 in. with raised face, thread, 600 Class
D	ANSI 1/2 in. with raised face, socket weld, 150 Class
E	ANSI 1/2 in. with raised face, socket weld, 300 Class
F	ANSI 1/2 in. with raised face, socket weld, 600 Class

Plastic Liquid Ends - Vertical Connections

P	NPT - Male

Flange - Plastic Liquid Ends

P	NPT - Male
1	ANSI 1/2 in. with raised face, thread, 150 Class

Literature #59193.05