PRIMEROYAL® Series
Metering Pump

Model PP

The PRIMEROYAL® PP metering pumps are versatile, reliable pumps that consistently and accurately inject chemicals. The pumps' field-proven design enables precise control of the pump delivery rate while meeting or exceeding industry standards for steady state accuracy and repeatability. They feature a compact, variable eccentric drive that changes the stroke length by changing the position of the center of the shaft in the eccentric. Model PP provides accurate dosing of a broad spectrum of fluids at flow rates that can reach more than 15,665 l/h (4,138 gph). The pump has a modular design that accepts three types of liquid ends and offers capacity control options so it can meet the specific requirements of a large number of demanding industrial processes.

Applications

- Oil and Gas
  - Upstream – Injection of methanol at pressures of 1,034 bar (15,000 psi) and more at the wellhead for onshore and offshore wells
  - Midstream – Injection of corrosion inhibitors for produced oil and gas integrity during transportation
  - Downstream – Injection of chemicals for separation and treatment of refined products
  - Produced water treatment – Injection of sodium hypochlorite, biocides, scale inhibitors, oxygen reducing agent, etc.
- Chemical and Petrochemical Processing
  - Dosing catalysts for polymerization of polyethylene
- Power Generation
  - High-pressure boiler feed water treatment

Features and Benefits

- Available in vertical or horizontal motor configurations
- Manual or electrical stroke length adjustment
- Capacity adjustable while running or stopped
- Minimized footprint
- Packed plunger, Teflon® PTFE or metallic double diaphragm liquid ends available
- Compliant with API675 standards
- Compliant with API674 standards in fixed stroke configuration
- Conforms to ATEX CE EX II 2G/D c T3 with ATEX motors
- Multiplexable

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General Specifications

Accuracy	± 1% over a range of 10 to 100% nominal flowrate
Flow rate adjustment	Micrometer adjustment of stroke while running or stopped Fixed stroke version available as an option
Maximum stroke	75 mm (2.95 in)
Frequencies at 50 Hz 1,440 rpm	48, 73, 93, 117, 146, and 175 spm
Frequencies at 60 Hz 1,725 rpm	58, 88, 112, 140, and 175 spm
Thrust	2,500 daN (5,620 lbf)
Ambient operating temperature	Standard: -10°C to 50°C (14°F to 122°F) Low temperature option: -40°C to 50°C (-40°F to 122°F)
API675	Confroms (exemptions available on request)
ATEX	Conforms to ATEX CE EX II 2G/D c T3 with ATEX motor For packed plunger liquid ends, in area 1 consult us
Suction	UT liquid ends: 2 m (6.57 ft) water N and NX liquid ends: 6 m (19.7 ft) water H and HX liquid ends: 4 m (13 ft) water MX liquid ends: 2 m (6.57 ft) water mini pump flooded

Design Specifications

Model PP with Packed Plunger Liquid End Type UT or N*

Flow rate		Pressure Max. 50 Hz Motor (kW)				Freq. (spm) Motor Speed (rpm)	Flow rate		Pressure Max. 60 Hz Motor (HP)				Freq. (spm) Motor Speed (rpm)	Connections ball valves
		7.5	11	15	18.5				10	15	20	25		
10 bar	Pres. Max.	U	V	W	X	1,440	145 psi	Pres. Max.	U	V	W	X	1,725	
l/h		bar					gph		psi					
N Liquid End - Ø 32 mm - Swept Volume: 59.38 cm³							**N Liquid End - Ø 1.26 in - Swept Volume: 3.62 in³**							**1”**
166	156	306				48	52.6	49.5	4,438				58	(Ø 25 mm - LS) (Ø 0.98 in. - LS)
253	238	306				73	80.2	75.5	4,438				88	
323	303	253	306			93	102.4	96.1	3,669	4,438			112	
406	381	200	299	306		117	128.7	102.8	2,901	4,337	4,438		140	
507	476	160	239	306		146[1]	Not applicable with a 60 Hz motor							
UT Liquid End - Ø 63.5 mm - Swept Volume: 237.52 cm³							**UT Liquid End - Ø 2.5 in - Swept Volume: 14.49 in³**							**1” 1/2**
656	638	76				48	208.0	202.3	1,102				58	(Ø 40 mm - NS) (Ø 1.575 in. - NS)
998	971	76				73	316.4	307.8	1,102				88	
1,272	1,238	63	76			93	403.2	392.5	914	1,102			112	
1,600	1,557	50	75	76		117	507.2	493.6	725	1,088	1,102		140	
1,997	1,944	39	59	76		146[1]	Not applicable with a 60 Hz motor							

* This chart demonstrates the minimum and maximum flow rate and pressure of the pump. For other specifications, please consult your local representative.
*For “methanol” applications, please consult us.
*To have an ATEX certification in zone 1, please add probes = CONSULT
[1]Do not use with 60 Hz motor
LS - Hardened valves - single valve
NS - Single valves

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Design Specifications

Model PP with Packed Plunger Liquid End Type UT*

Flow rate		Pressure Max. 50 Hz Motor (kW)				Freq. (spm) Motor Speed (rpm)	Flow rate		Pressure Max. 60 Hz Motor (HP)				Freq. (spm) Motor Speed (rpm)	Connections ball valves	Connections flat valves
		7.5	11	15	18.5				10	15	20	25			
10 bar	Pres. Max.	U	V	W	X	1,440	145 psi	Pres. Max.	U	V	W	X	1,725		
l/h		bar					gph		psi						
Ø 69.9 mm - Swept Volume: 287.40 cm³							Ø 52.75 in - Swept Volume: 17.54 in³							1" 1/2	
794	777	63				48	251.7	246.3	914				58	(Ø 40 mm - NS) (Ø 1.575 in. - NS)	
1,208	1,182	63				73	382.9	374.7	914				88		
1,539	1,506	52	63			93	487.9	477.4	754	914			112		
1,936	1,894	41	62	63		117	613.7	600.4	595	899	914		140		
2,416	2,364	32	49	63		146[1]	Not applicable with a 60 Hz motor								
Ø 177.8 mm - Swept Volume: 1,862.15 cm³							Ø 7 in - Swept Volume: 113.63 in³							4"	
	5,150	9				48		1,633	131				58		(Ø 110 mm - NS) (Ø 4.33 in. - NS)
	7,832	7	9			73		2,483	102	131			88		
	9,978		9			93		3,163		131			112		
	12,554		6	9		117		3,980		87	131		140		
	15,665			7	9	146[1]	Not applicable with a 60 Hz motor								

* This chart demonstrates the minimum and maximum flow rate and pressure of the pump. For other specifications, please consult your local representative.
*For "methanol" applications, please consult us.

*To have a certification in zone 1, please add probes = CONSULT
[1]Do not use with 60 Hz motor
NS= Single valve

Design Specifications

Model PP with Metallic Diaphragm Liquid End with HPD Type H*

Flow rate		Pressure Max. 50 Hz Motor (kW)				Freq. (spm) Motor Speed (rpm)	Flow rate		Pressure Max. 60 Hz Motor (HP)				Freq. (spm) Motor Speed (rpm)	Connections ball valves	Connections flat valves
		7.5	11	15	18.5				10	15	20	25			
10 bar	Pres. Max.	U	V	W	X	1,440	145 psi	Pres. Max.	U	V	W	X	1,725		
l/h		bar					gph		psi						
Ø 32 mm - Swept Volume: 60.3 cm³ - Diaphragm: 168 mm							Ø 1.57 in - Swept Volume: 3.68 in³ - Diaphragm: 6.6 in.							1"	
165	126	300				48	52.3	39.9	4,351				58	P < 200 bar (2,901 psi) (Ø 25 mm - LS) (Ø 0.98 in. - LS)	P ≥ 200 bar (2,901 psi) (Ø 25 mm -NS) (Ø 0.98 in. - NS)
250	192	300				73	79.3	60.9	4,351				88		
319	244	257	300			93	101.1	77.3	3,727	4,351			112		
402	308	204	300			117	127.4	97.6	2,959	4,351			140		
501	384	163	243	300		146	158.8	121.7	2,364	3,524	4,351		175[2]		
601	461	136	202	278	300	175[1]	Not applicable with a 60 Hz motor								(Ø 25 mm - NS) (Ø 0.98" - NS)
Ø 63 mm - Swept Volume: 233.79 cm³ - Diaphragm: 268 mm							Ø 2.48 in - Swept Volume: 14.26 in³ - Diaphragm: 10.55 in.							2"	
639	603	80				48	202.6	191.2	1,160				58		(Ø 50 mm - NS) (Ø 2 in. - NS)
972	918	80				73	308.1	291.0	1,160				88		
1,239	1,170	66	80			93	392.8	370.9	957	1,160			112		
1,559	1,472	52	78	80		117	494.2	466.6	754	1,131	1,160		140		
1,945	1,836	42	62	80		146	616.6	582.0	609	899	1,160		175		
2,332	2,202	35	52	71	80	175[1]	Not applicable with a 60 Hz motor								

* This chart demonstrates the minimum and maximum flow rate and pressure of the pump. For other specifications, please consult your local representative.
*For "methanol" applications, please consult us.
*To have a certification in zone 1, please add probes = CONSULT

[1]Do not use with 60 Hz motor
[2]60 Hz = flat valves
LS = Hardened valves - single valve
NS = Single valve

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Design Specifications

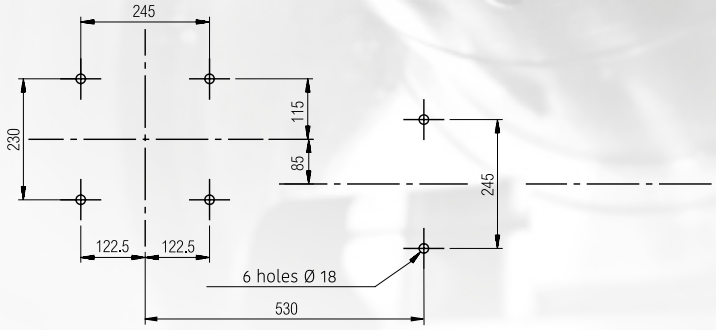
Model PP with Metallic Diaphragm Liquid End with HPD Type H*

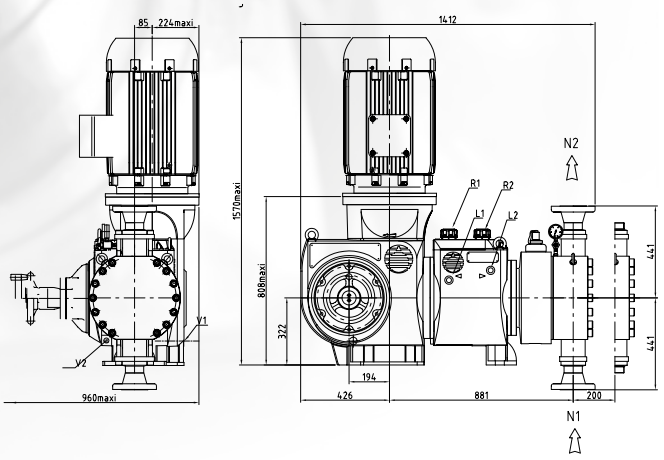
Flow rate		Pressure Max. 50 Hz Motor (kW)				Freq. (spm) Motor Speed (rpm)	Flow rate		Pressure Max. 60 Hz Motor (HP)				Freq. (spm) Motor Speed (rpm)	Connections ball valves	Connections flat valves
		7.5	11	15	18.5				10	15	20	25			
10 bar	Pres. Max.	U	V	W	X	1,440	145 psi	Pres. Max.	U	V	W	X	1,725		
l/h		bar					gph		psi						
Ø 70 mm - Swept Volume: 288.63 cm³ - Diaphragm: 268 mm							Ø 2.76 in - Swept Volume: 11.36 in³ - Diaphragm: 10.55 in.							2"	
789	750	64				48	250.1	237.8	928				58		
1,201	1,142	64				73	380.7	362.0	928				88		
1,530	1,454	53	64			93	485.0	460.9	769	928			112		(Ø 50 mm - NS) (Ø 2 in. - NS)
1,924	1,830	42	63	64		117	609.9	580.1	609	914	928		140		
2,402	2,282	34	50	64		146	761.4	723.4	493	725	928		175		
2,879	2,736	28	42	58	64	175[1]	Not applicable with a 60 hz motor								
Ø 160 mm - Swept Volume: 1507.96 cm³ - Diaphragm: 366 mm							Ø 6.3 in - Swept Volume: 59.36 in³ - Diaphragm: 14.4 in.							3"	
4,125	4,113	12				48	1,308	1,304	174				58		
6,274	6,256	11	12			73	1,989	1,983	160	174			88	(Ø 80 mm - NS) (Ø 3.14 in. - NS)	
7,993	7,970	7	12			93	2,534	2,527	102	174			112		
10,056	10,027		9	12		117	3,188	3,179		131	174		140		

* This chart demonstrates the minimum and maximum flow rate and pressure of the pump. For other specifications, please consult your local representative.
*Min./Max. temperatures of pumped fluid: 14°F 302°F
[1]Do not use with 60 Hz motor
NS= Single valve

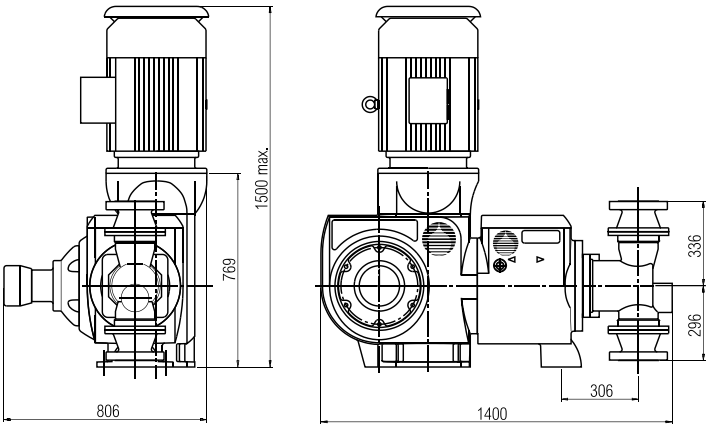
Dimensions

Diaphragm liquid end simplex configuration

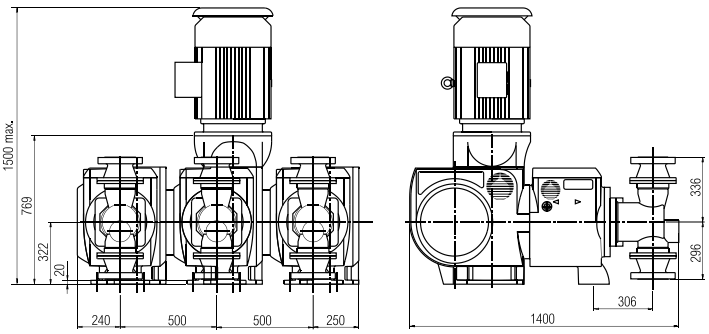




Packed plunger liquid end simplex configuration



Packed plunger liquid end triplex configuration



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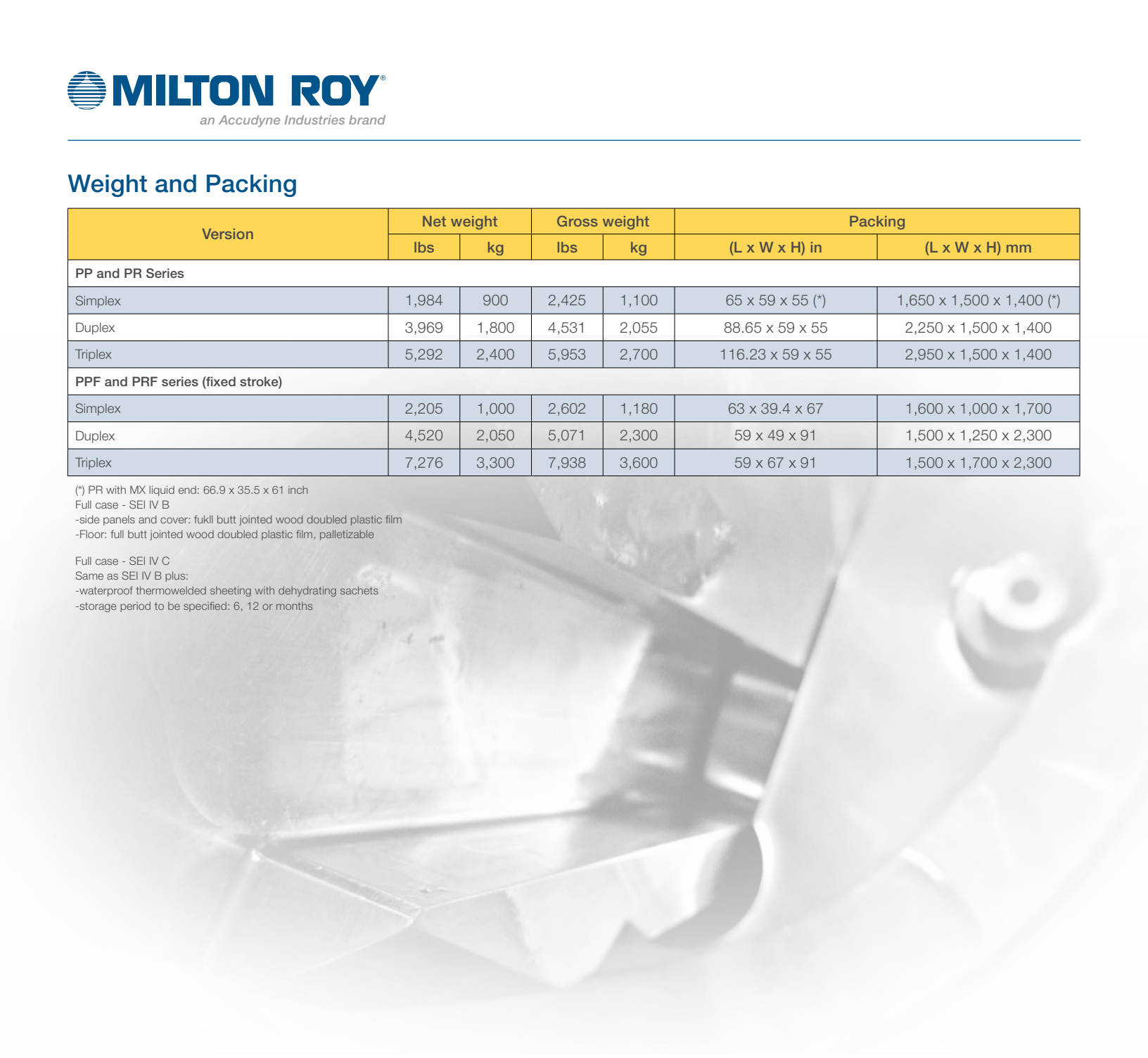
Weight and Packing

Version	Net weight		Gross weight		Packing	
	lbs	kg	lbs	kg	(L x W x H) in	(L x W x H) mm
PP and PR Series						
Simplex	1,984	900	2,425	1,100	65 x 59 x 55 (*)	1,650 x 1,500 x 1,400 (*)
Duplex	3,969	1,800	4,531	2,055	88.65 x 59 x 55	2,250 x 1,500 x 1,400
Triplex	5,292	2,400	5,953	2,700	116.23 x 59 x 55	2,950 x 1,500 x 1,400
PPF and PRF series (fixed stroke)						
Simplex	2,205	1,000	2,602	1,180	63 x 39.4 x 67	1,600 x 1,000 x 1,700
Duplex	4,520	2,050	5,071	2,300	59 x 49 x 91	1,500 x 1,250 x 2,300
Triplex	7,276	3,300	7,938	3,600	59 x 67 x 91	1,500 x 1,700 x 2,300

(*) PR with MX liquid end: 66.9 x 35.5 x 61 inch
Full case - SEI IV B
-side panels and cover: fukll butt jointed wood doubled plastic film
-Floor: full butt jointed wood doubled plastic film, palletizable

Full case - SEI IV C
Same as SEI IV B plus:
-waterproof thermowelded sheeting with dehydrating sachets
-storage period to be specified: 6, 12 or months



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Literature #59196.01