PRIMEROYAL® Series
Metering Pump

Model PR

The PRIMEROYAL® PR 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 PR provides accurate dosing of a broad spectrum of fluids at flow rates that can reach more than 15,659 l/h (4,137 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

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

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General Specifications

Model	PR
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, and 140 spm
Thrust	5,000 daN (11,240 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	Conforms (exemptions available on request)
ATEX	Conforms to ATEX CE EX II 2G/D c T3 with ATEX motor 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 PR with Packed Plunger Liquid End Type NX*

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
		11	15	18.5	22	30				15	20	25	30	40		
10 bar	Pres. Max.	V	W	X	Y	AA	1,440	145 psi	Pres. Max.	V	W	X	Y	AA	1,725	
l/h		bar						gph		psi						
Ø 25 mm - Swept Volume: 36.8 cm³								Ø 98 in - Swept Volume: 1.44 in³								3/4"
95	67	1,000					48	30.1	21.2	14,504					58	(Ø 15.9 mm - LD) (Ø 0.625 in. - LD) 17.4 PH Z100
150	105	800	1,000				73	47.5	33.2	11,603	14,504				88	
197	139	630	860	1,000			93	62.4	44.0	9,137	12,473	14,504			112	
248	174	500	680	840	1,000		117	78.6	55.1	7,252	9,863	12,183	14,504		140	
310	218	390	560	670	800	930	146[1]	Not applicable with a 60 Hz motor								
Ø 40 mm - Swept Volume: 94.3 cm³								Ø 1.57 in - Swept Volume: 3.71 in³								1"
244	216	395					48	77.3	68.5	5,729					58	(Ø 25 mm - LD) (Ø 0.98 in. - LD) 17.4 PH Z100
384	339	310	395				73	121.7	107.5	4,496	5,729				88	
505	446	240	335	395			93	160.1	141.4	3,481	4,859	5,729			112	
635	561	190	265	325	395		117	201.3	177.9	2,756	3,843	4,714	5,729		140	
793	707	150	210	265	310	365	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.
*To have an ATEX certification in zone 1, probes are mandatory. Please consult us.
[1]Do not use with 60 Hz Motor
LD = Hardened valves - double valve

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Design Specifications

Model PR with Packed Plunger Liquid End Type 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
		11	15	18.5	22	30				15	20	25	30	40		
10 bar	Pres. Max.	V	W	X	Y	AA	1,440	145 psi	Pres. Max.	V	W	X	Y	AA	1,725	
l/h		bar						gph		psi						
Ø 44.5 mm - Swept Volume: 116.38 cm³								Ø 1.75 in - Swept Volume: 7.10 in³								1”
321	281	319					48	101.8	89.0	4,627					58	(Ø 25 mm - LS Ø 0.98 in. - LS)
489	428	249	319				73	155.0	135.7	3,611	4,627				88	
623	545	195	267	319			93	197.5	172.8	2,828	3,887	4,627			112	
784	687	154	213	264	315	319	117	248.5	217.8	2,234	3,089	3,829	4,569	4,627	140	
978	867	123	170	211	252	293	146[1]	Not applicable with a 60 Hz motor								
Ø 63.5 mm - Swept Volume: 237.52 cm³								Ø 2.5 in - Swept Volume: 14.49 in³								1” 1/2
656	617	155					48	208.0	195.6	2,248					58	P ≤ 140 bar (2,031 psi) (Ø 40 mm - NS Ø 1.575 in. - NS) P > 140 bar (2,031 psi) (Ø 40 mm Ø 1.575 in.)[2]
998	940	121	155				73	316.4	298.0	1,755	2,248				88	
1,272	1,198	95	131	155			93	403.3	379.80	1,378	1,900	2,248			112	
1,600	1,507	75	103	129	154	155	117	507.2	477.7	1,088	1,494	1,871	2,234	2,248	140	
1,997	1,890	59	82	103	123	143	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, probes are mandatory. Please consult us.

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

Design Specifications

Model PR 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
		11	15	18.5	22	30				15	20	25	30	40		
10 bar	Pres. Max.	V	W	X	Y	AA	1,440	145 psi	Pres. Max.	V	W	X	Y	AA	1,725	
l/h		bar						gph		psi						
Ø 69.9 mm - Swept Volume: 287.40 cm³								Ø 2.75 in - Swept Volume: 17.54 in³								1” 1/2
794	756	128					48	251.8	239.6	1,856					58	(Ø 40 mm - NS) (Ø 1.575 in. NS)
1,208	1,150	100	128				73	382.9	364.6	1,450	1,856				88	
1,539	1,466	78	108	128			93	487.9	464.8	1,131	1,566	1,856			112	
1,936	1,844	62	85	106	127	128	117	613.8	584.6	899	1,233	1,537	1,842	1,856	140	
2,416	2,311	49	68	85	101	118	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”
5,148	5,129	19					48	1,632.0	1,626.0	276					58	(Ø 110 mm - NS) (Ø 4.33 in. NS)[2]
7,829	7,800	13	19				73	2,481.6	2,472.0	189	276				88	
9,975	9,939	9	14	19			93	3,162.0	3,150.0	131	203	276			112	
12,549	12,503	6	10	14	18	19	117	3,978.0	3,963.6	1,262	145	203	261	276	140	
15,659	15,615		7	10	13	17	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, probes are mandatory. Please consult us.

[1]Do not use with 60 Hz Motor
[2]Flat valves
NS = Single valve

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Design Specifications

Model PR with Metallic Double Diaphragm Liquid End Type MX*

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 (double/hard)
		11	15	18.5	22	30				15	20	25	30	40		
10 bar	Pres. Max.	V	W	X	Y	AA	1,440	145 psi	Pres. Max.	V	W	X	Y	AA	1,725	
l/h		bar						gph		psi						
Ø 19 mm - Swept Volume: 21.4 cm³								Ø 0.75 in - Swept Volume: 1.30 in³								
57	23	1,379					48	18.1	7.3	20,001					58	Suction: 1" NPT f Discharge: 9/16" MP (Ø 12.7 mm - LD) (Ø 0.500 in. LD)
86	36	1,163	1,379				73	27.3	11.4	16,868	20,001				88	
110	45	912	1,254	1,379			93	34.9	14.3	13,227	18,188	20,001			112	
138	57	725	997	1,235	1,379		117	43.8	18.1	10,515	14,460	17,912	20,001		140	
173	71	581	799	990	1,180	1,379	146	54.8	22.5	8,427	11,588	14,359	17,114	20,001	175	
207	86	485	666	825	985	1,339	175[1]	Not applicable with a 60 Hz motor								
Ø 37 mm - Swept Volume: 82 cm³								Ø 1.469 in - Swept Volume: 5 in³								
217	182	380					48	68.8	57.7	5,511					58	Suction: 1" 1/2 NPT f Discharge: 1" MP (Ø 25.4 mm - LD) (Ø 1 in. - LD)
330	277	303	380				73	104.6	87.8	4,395	5,511				88	
421	353	237	327	380			93	133.4	111.9	3,437	4,743	5,511			112	
530	445	189	260	322	380		117	168.0	141.1	2,741	3,771	4,670	5,511		140	
661	559	151	208	258	307	365	146	209.5	177.2	2,190	3,017	3,742	4,453	5,294	175	
793	682	126	173	215	256	334	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.
[1]Do not use with 60 Hz Motor

Suction lift: 2 m (7 feet) water mini. Pump flooded
LS = Hardened valves - single valve

Design Specifications

Model PR with Double PTFE Diaphragm Liquid End Type HX*

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
		11	15	18.5	22	30				15	20	25	30	40		
10 bar	Pres. Max.	V	W	X	Y	AA	1,440	145 psi	Pres. Max.	V	W	X	Y	AA	1,725	
l/h		bar						gph		psi						
Ø 40 mm - Swept Volume: 94.25 cm³ Diaphragm: 168 mm								Ø 1.57 in - Swept Volume: 5.75 in³ Diaphragm: 6.6 in.								1"
257	177	397					48	81.5	56.2	5,758					58	(Ø 0.98 in. - LS) (Ø 25 mm - LS)
392	270	311	397				73	124.3	85.6	4,511	5,758				88	
499	344	244	335	397			93	158.2	109.0	3,539	4,859	5,758			112	
628	433	194	266	329	393	397	117	199.1	137.3	2,814	3,858	4,772	5,700	5,758	140	
784	560	155	213	264	315	366	146[1]	Not applicable with a 60 Hz motor								
Ø 45 mm - Swept Volume: 119.28 cm³ Diaphragm: 168 mm								Ø 1.77 in - Swept Volume: 7.28 in³ Diaphragm: 6.6 in.								1"
326	246	314					48	103.3	77.9	4,554					58	(Ø 25 mm - LS) (Ø 0.98 in. - LS)
496	375	245	314				73	157.2	118.9	3,553	4,554				88	
632	478	192	264	314			93	200.3	151.6	2,785	3,829	4,554			112	
795	601	153	210	260	310	314	117	252	190.4	2,219	3,046	3,771	4,496	4,554	140	
992	770	122	168	208	248	289	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.

[1]Do not use with 60 Hz Motor
LS = Hardened valves - single valve

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Design Specifications

Model PR with HPD (PTFE) Diaphragm Liquid End 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
		11	15	18.5	22	30				15	20	25	30	40		
10 bar	Pres. Max.	V	W	X	Y	AA	1,440	145 psi	Pres. Max.	V	W	X	Y	AA	1,725	
l/h		bar					Double diaphragm standard C5 168	gph		psi					Double diaphragm standard C5 168	
Ø 40 mm - Swept Volume: 94.25 cm³ - Diaphragm: 168 mm								Ø 1.575 in - Swept Volume: 5.75 in³ - Diaphragm: 6.6 in.								1”
257	197	300					48	81.5	62.4	4,351					58	
392	301	300					73	124.3	95.4	4,351					88	P < 200 bar (2,901 psi) (Ø 25 mm - NS) (Ø 0.98 in. - NS)
499	383	244	300				93	158.2	121.4	3,539	4,351				112	
628	482	194	266	300			117	198.6	152.8	2,814	3,858	4,351			140	P ≥ 200 bar (2,901 psi) (Ø 110 mm - NS) (Ø 0.98 in. -NS)[3]
784	602	155	213	264	300		146[2]	248.5	190.8	2,248	3,089	3,829	4,351		175[2]	
940	721	129	178	220	262	300	175[1 3]	Not applicable with a 60 hz motor								
Ø 160 mm - Swept Volume: 1,507.96 cm³ - Diaphragm: 366 mm								Ø 6.3 in - Swept Volume: 92.02 in³ - Diaphragm: 14.4 in.								4”
4,125	4,044	24					48	1,306.8	1,281.6	348					58	
6,274	6,151	18	24				73	1,988.4	1,950.0	261	348				88	
7,993	7,836	13	20	24			93	2,533.2	2,484.0	189	290	348			112	(Ø 110 mm – NS) (Ø 4.33 in. – NS)[3]
10,056	9,858	9	15	19	24		117	3,187.2	3,124.8	131	218	276	348		140	
12,549	12,338		11	14	18	22	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.
[1]Do not use with 60 Hz Motor
[2]60 Hz = flat valves
[3]Flat valves
NS = Single valve

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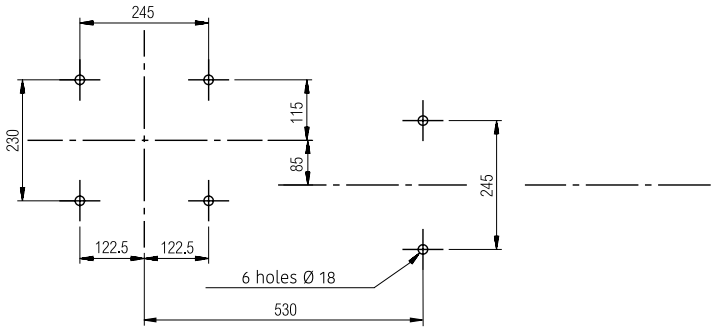
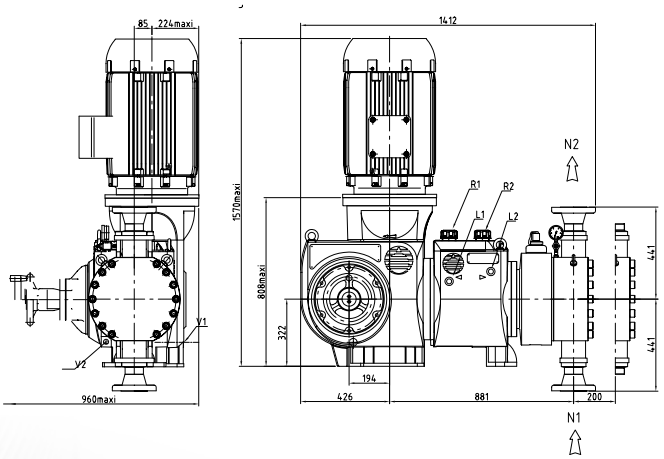
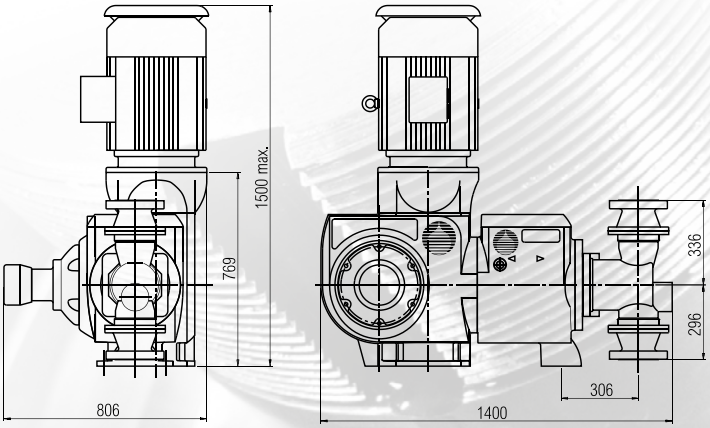
Dimensions

Diaphragm liquid end simplex configuration

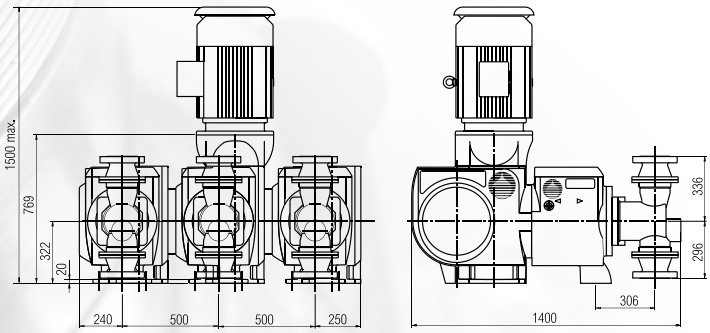




Packed plunger liquid end simplex configuration



Packed plunger liquid end triplex configuration



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	1984	900	2425	1100	65 x 59 x 55 (*)	1650 x 1500 x 1400 (*)
Duplex	3969	1800	4531	2055	88.65 x 59 x 55	2250 x 1500 x 1400
Triplex	5292	2400	5953	2700	116.23 x 59 x 55	2950 x 1500 x 1400
PPF and PRF series (fixed stroke)						
Simplex	2205	1000	2602	1180	63 x 39.4 x 67	1600 x 1000 x 1700
Duplex	4520	2050	5071	2300	59 x 49 x 91	1500 x 1250 x 2300
Triplex	7276	3300	7938	3600	59 x 67 x 91	1500 x 1700 x 2300

(*) PR with MX liquid end: 66.9 x 35.5 x 61 inch
Full case - SEI IV B
- side panels and cover: full 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 thermovwelded sheeting with dehydrating sachets
- storage period to be specified: 6, 12 or months

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