

PRIMEROYAL® Series

API 675 metering pump

Model PH

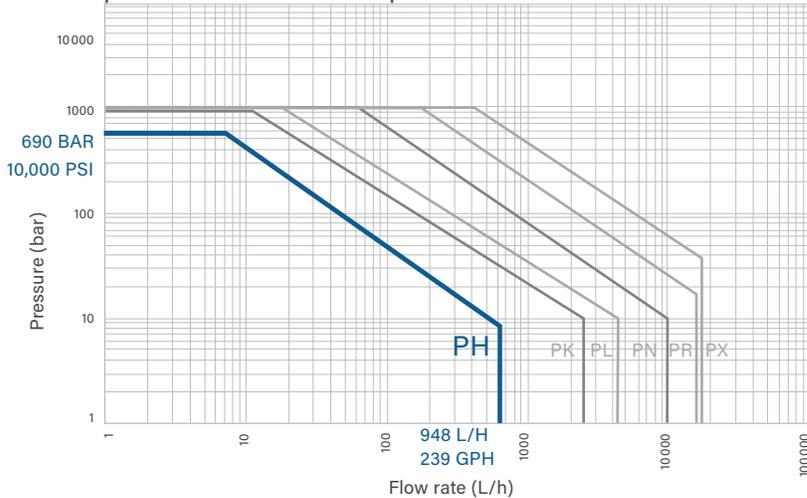
PRIMEROYAL® metering pumps are versatile, reliable pumps that consistently and accurately inject chemicals. The pumps' field-proven design enables precise control of the pump delivery rate with a +/-1% steady state accuracy ranging from 10 to 100% of the nominal flow rate. They feature a compact, variable eccentric drive that changes the stroke length by repositioning the center of the shaft in the eccentric.

Model PH provides accurate dosing of a broad spectrum of fluids used in many industrial processes due to their modular design, which offers several types of liquid ends, capacity control, and other configuration options to meet the specific requirements of your process application.



HPD Liquid End

Simplex PRIMEROYAL® Pumps



	50 Hz motor	60 Hz motor
Flow rate	Up to 948 L/h	Up to 239 gph
Pressure	Up to 690 bar	Up to 10,000 psi
Thrust	475 daN	787 lb-ft
100% stroke	30 mm	1.18 in
Ambient T°		
Standard	-10 to + 50 °C	+ 14 to + 122 °F
Low T° design	-40 to +50 °C	- 40 to +122 °F

Applications

- **Chemical/Petrochemical:** injection of additives, injection of co-catalyst such as TEAL for polyethylene and polypropylene production, injection of sulphuric acid into water to produce diluted sulphuric acid
- **Food and Beverage:** injection of enzymes in starch production, injection of caustic soda for process water neutralization in refining and distilling applications
- **Oil and Gas:** injection of biocide, corrosion/scale inhibitors, H₂S scavengers to protect piping and other assets and maintaining production rates, transfer of steam condensate
- **Refinery/Downstream:** injection of chemicals for separation and treatment of refined products, injection of paraffin inhibitor into fuel storage tanks
- **Water/Wastewater Treatment:**
 - **Municipal (drinking) Water Treatment:** disinfection, fluoridation, coagulation/flocculation, pH control, water conditioning before and/or after RO treatment in desalination plant, and more
 - **Industrial Water Treatment:** protection of installation such as boilers and hydraulic systems to prevent scale and corrosion

Benefits

- Compliant with **API 675 standards**
- **Adaptability and accuracy:** capacity adjustable while running or stopped (stroke micrometric adjustment, 10 turns only from 0 to 100%, graduation scale in %)
- **Space constraints:** Minimized footprint and weight, available in vertical or horizontal motor configurations, GSD design for tiny spaces
- **Suitable for the majority of fluids in all industrial processes:** many stroke speeds for accurate dosing
- **Modular design to precisely fit your needs:** multiple options for liquid ends, check valves, connection types, and control
- **Multiplexing capability:** providing cost savings in the power consumption and asset footprint while reducing pulsation and required NPSH and, giving the capability to inject several different products or meet a specific flow rate
- **Long life:** ensured by using high quality materials engineered to a robust and proven construction, oil bath lubrication to ensure reliability during continuous operation
- **Safety:** diaphragm liquid ends guaranteed leak-proof with service life in excess of 20,000 hours
- **Operates in the most extreme conditions:** specific configurations to operate in saline/offshore conditions, desert, or low temperature environment
- **Global design:** can comply with the main worldwide certifications and systems: ATEX, NACE, SASO, Customs Union, etc.
- **Overpressure protection:** integrated safety valve to protect the pump on diaphragm liquid ends
- **Maintenance easy and fast:** the patented Mechanically Actuated Refill System (MARS) eliminates the need for adjustments the refill valve

Technical features

- Packed plunger, PTFE or metallic diaphragm liquid ends available
- Liquid end body in 316L SS, 17-4P-H, PVC or PVDF. Other materials such as Alloy 20, Hastelloy®, super Duplex available upon request
- Diaphragms in PTFE or 316L stainless steel; plunger in Z55CDV17 steel or chromium oxide coated
- 6 stroke speeds/gear ratios available with 50 Hz-motor: 39, 59, 100, 120, 144 and 180 spm. 5 stroke speeds/gear ratios with 60 Hz-motor: 47, 71, 120, 144 and 173 spm
- Manual, electrical or pneumatic stroke length adjustment
- IEC or NEMA mounting, motor for frequency variation
- Electric equipment for non-hazardous or hazardous area, large variety of protections and insulations
- Conforms to ATEX CE EX II 2G/D c T4/T3 with ATEX motors
- Optimum protection for critical processes or pumped fluids: double or triple diaphragm, diaphragm failure detection, temperature probes
- Food grade design (in accordance with CE 1935-2004)
- Special valves for any type of fluid (including concentrated sulphuric acid and slurries)
- Remote head, cooling/heating jacket to operate in processes requiring low/extreme fluid temperatures
- Full set of connections: screwed or flanged connectors (ANSI, DIN or ISO)
- Wide range of accessories available to complete your dosing installation

• Design Specifications

Based on your process requirements, we will recommend the best liquid ends to meet your specific needs. The following charts demonstrate the minimum and maximum flow rate and pressure of a pump with a single head on a basic configuration. To obtain the flow rate for multiplexed heads, multiply the flow rate by the number of heads. For other applications, please consult us.

Standard connections are depending on the plunger diameter; a full set of connections are available upon request. Please consult us for details.

PTFE diaphragm liquid ends

- Widest chemical compatibility
- 100% leakage-free
- High operational safety: integrated relief valve
- Improved lifecycle costs
- Mechanically Actuated Relief System (MARS) offers a number of advantages over traditional refill systems in hydraulically actuated diaphragm liquid ends: easy start-up, eliminating the need to adjust the refill valve

TYPE H3 (HPD)

- Universal solution
- High hydraulic efficiency

Plunger diameter code	Swept volume	50 Hz Motor					60 Hz Motor					Connections
		Stroke speed max	Motor speed max	Flow rate max		Pressure max	Stroke speed max	Motor speed max	Flow rate max		Pressure max	
				10 bar	P.max				10 bar	P.max		
Ø	cm ³	spm	rpm	L/h		10 bar	spm	rpm	gph		psi	
Metallic, Type H												
20	9.3	144	1440	96	84	111	172	1728	24.4	21.2	1615	1/2" - VV1 m
22	11.4	144	1440	117	105	92	172	1728	29.4	26.6	1335	1/2" - VV1 m
25	14.7	144	1440	151	139	71	172	1728	38.0	35.1	1034	1/2" - VV1 m
28	18.5	144	1440	189	178	56	172	1728	47.8	45.3	824	1/2" - VV1 m
32	24.1	144	1440	247	237	43	172	1728	62.7	60.2	631	1/2" - VV1 m
36	30.5	144	1440	313	304	34	172	1728	79.2	77.0	498	1/2" - VV1 m
40	37.7	144	1440	386	378	27	172	1728	97.9	95.7	403	1/2" - VV1 m
45	47.7	144	1440	391	385	22	138	1728	98.9	97.6	319	1" - VV1 m
50	58.9	144	1440	483	478	17	138	1728	122.3	121.1	258	1" - VV1 m
55	71.3	144	1440	585	581	14	138	1728	148.0	147.0	213	1" - VV1 m
60	84.8	144	1440	696	694	12	138	1728	176.2	175.6	179	1" - VV1 m
63	93.5	144	1440	-	766	11	138	1728	-	193.6	162	1" - VV1 m
70	115.5	144	1440	-	948	9	138	1728	-	239.9	131	1" - VV1 m
Plastic - PVC, Type H												
20	9.3	180	1440	-	96	10	172	1728	-	24.4	145	1/2" - VV1 m
22	11.4	180	1440	-	117	10	172	1728	-	29.4	145	1/2" - VV1 m
25	14.7	180	1440	-	151	10	172	1728	-	38.0	145	1/2" - VV1 m
28	18.5	180	1440	-	189	10	172	1728	-	47.8	145	1/2" - VV1 m
32	24.1	180	1440	-	247	10	172	1728	-	62.7	145	1/2" - VV1 m
36	30.5	180	1440	-	386	10	172	1728	-	79.2	145	1/2" - VV1 m
40	37.7	180	1440	-	313	10	172	1728	-	97.9	145	1/2" - VV1 m
45	47.7	180	1440	-	386	10	138	1728	-	85.2	145	1" - VV1 m
50	58.9	180	1440	-	467	10	138	1728	-	105.2	145	1" - VV1 m
55	71.3	180	1440	-	585	10	138	1728	-	127.4	145	1" - VV1 m
60	84.8	180	1440	-	556	10	138	1728	-	151.5	145	1" - VV1 m
63	93.5	180	1440	-	611	10	138	1728	-	166.7	145	1" - VV1 m
70	115.5	180	1440	-	757	9	138	1728	-	206.6	131	1" - VV1 m

Metallic diaphragm liquid end

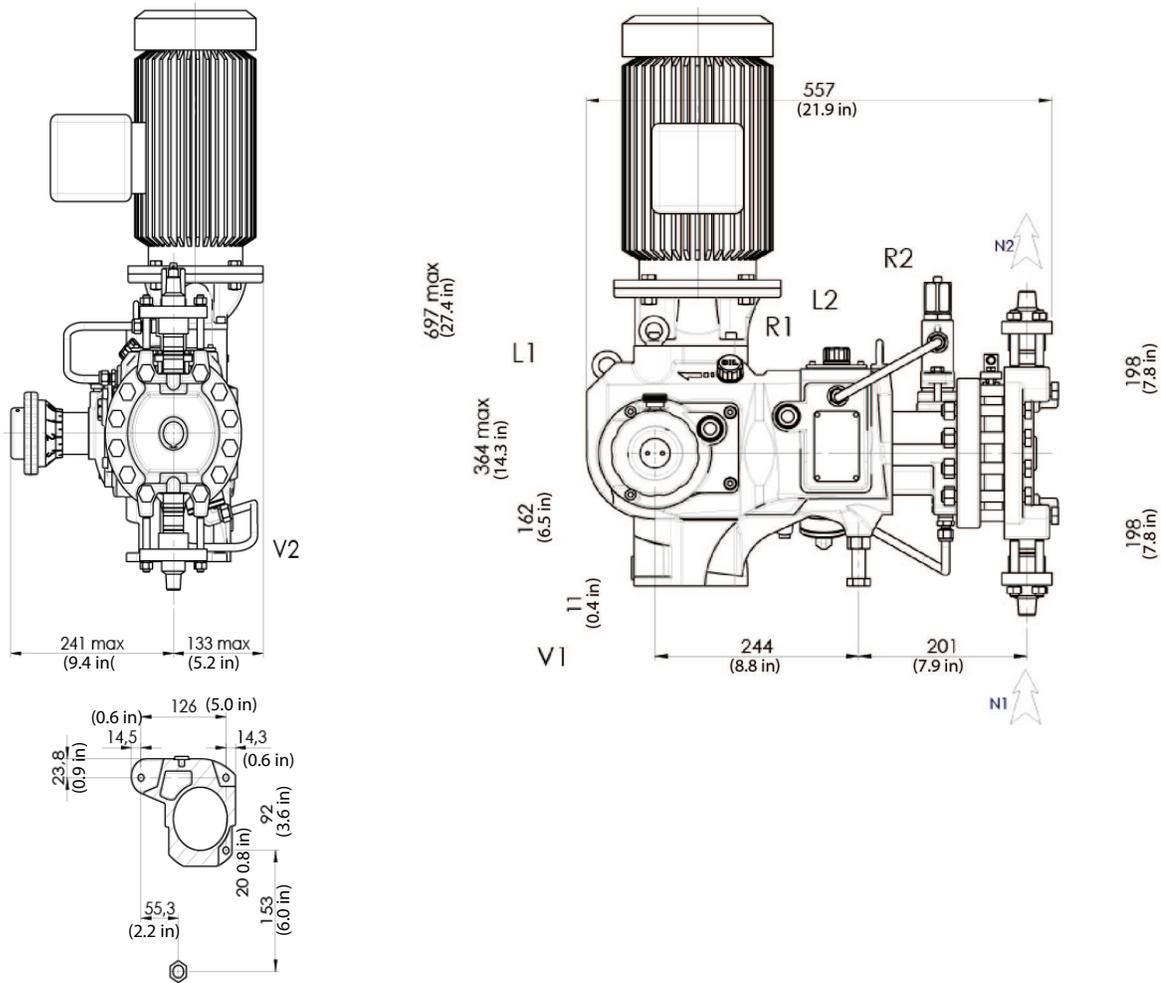
- High pressures
- High pumped liquid temperatures
- Challenging products dosing: diffusing, radioactive or abrasive liquids
- “Metal to Metal” sealing design assures leak-free operation

TYPE M1 (M)

Plunger diameter code	Swept volume	50 Hz Motor					60 Hz Motor					Connections
		Stroke speed max	Motor speed max	Flow rate max		Pressure max	Stroke speed max	Motor speed max	Flow rate max		Pressure max	
				10 bar	P.max				10 bar	P.max		
Ø	cm ³	spm	rpm	L/h		bar	spm	rpm	gph		psi	
M single diaphragm												
8	1.5	180	1440	14.9	14.1	500	173	1728	3.7	2.6	7251	1/2" - VV1 m
10	2.4	180	1440	23.4	21	445	173	1728	5.9	4.3	6463	1/2" - VV1 m
12	3.4	180	1440	33.7	33	309	173	1728	8.5	7.0	4488	1/2" - VV1 m
14	4.6	180	1440	45.0	50	227	173	1728	11.4	9.8	3297	1/2" - VV1 m
16	6.0	180	1440	59.0	68	174	173	1728	14.9	13.5	2524	1/2" - VV1 m
18	7.6	180	1440	75.0	90	137	173	1728	19.0	17.7	1994	1/2" - VV1 m
20	9.4	180	1440	93.0	113	111	173	1728	23.4	22.1	1615	1/2" - VV1 m

Dimensions, Weight and Packing

The general dimensions are given in mm and as an indication only. The dimensions given correspond to the maximum dimensions (largest liquid ends, most powerful motor)



Version	Net weight(*)		Gross weight(*)		Packing	
	kg	lb	kg	lb	(L x W x H) mm	(L x W x H) in
Series PH - Simplex Series	95	209	190	419	1020 x 670 x 1050	40.1 x 26.4 x 41.3

(*) Approximately

Milton Roy and our trusted partners can help to:

- Guide in selecting the turnkey solution that best suits your needs
- Advise on the optimum installation of your equipment
- Propose a wide range of accessories to complete the installation of your pump
- Advise on the essential parts to keep on hand in order to optimize the performance of your equipment
- Provide turnkey dosing solutions, from a skid-mounted pump to a complex, 100% customized chemical injection package

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