

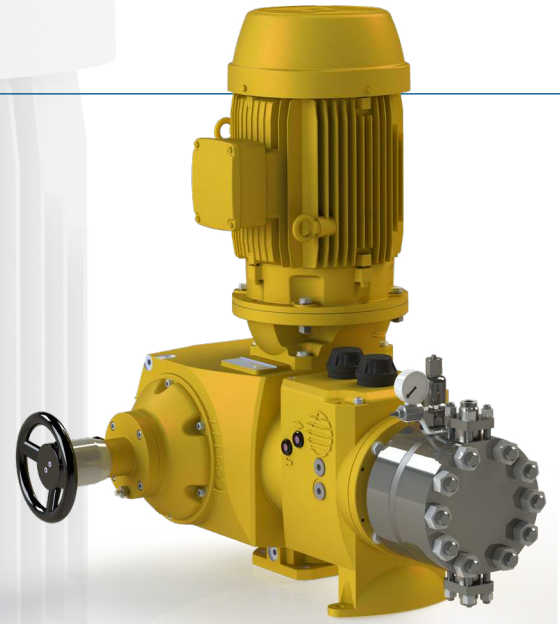
# PRIMEROYAL® SERIES

API 675 Metering Pump

## Model PQ

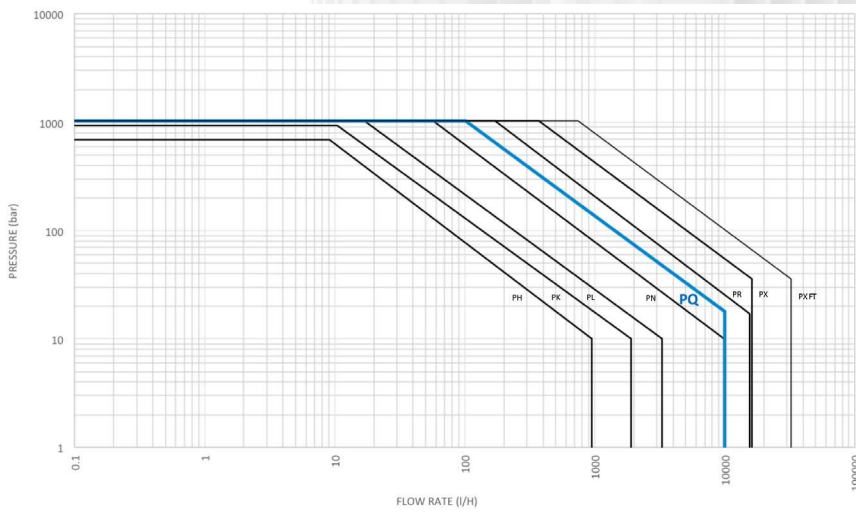
The PRIMEROYAL® metering pumps are versatile, reliable pumps that consistently and accurately inject chemicals. The pumps field-proven design enables precise control of the pump delivery rate with a +/-1 % steady state accuracy, over a range to 10 to 100% of the nominal flowrate. They feature a compact,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

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



*PQ pump - HX liquid end*

### Simplex PRIMEROYAL® Pumps



	50 Hz motor	60 Hz motor
Flow rate	Up to 8475 l/h	Up to 2,153 GPH
Pressure	Up to 1034 bar	Up to 15,000 PSI
Thrust	3500 daN	7,868 lbf
100% stroke	63 mm	2.48 in
Ambient T° Standard	-10 to + 50 °C	+ 14 to + 122 °F
Low T° design	- 40 to + 50 °C	- 40 to + 122 °F

## Applications

### • Oil & Gas:

- Flow assurance on onshore and offshore sites: hydrate prevention by injection of thermodynamic inhibitors (methanol, MEG and glycol), prevention and removal of scale/asphaltene deposits, microbial pollution control by biocide injection, injection of corrosion inhibitors
- Gas dehydration by MEG, TEG, DEG injection
- Water treatment: closed drain pump for hydrocarbon condensate transfer

### • Refinery/Petrochemistry/Chemistry:

Pumping of hydrocarbons/LP steam condensate, transfer of ammonia water in fertilizer plant, manufacturing of DME (dimethyl ether) from methanol

### • General industry:

High pressure cleaning of mechanical parts for industry

## Benefits

- Compliant with **API675 standard**
- **Adaptability and accuracy:** capacity adjustable while running or stopped (stroke micrometric adjustment, 10 turns only from 0 to 100%, graduation scale in %)
- **Space constraints:** available in vertical or horizontal motor configurations
- 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 whilst 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 for reliability during continuous operation
- **Safety:** diaphragm liquid ends guaranteed leak-proof with service life in excess of 20,000 hours
- **Operations even in the most extreme conditions:** specific configurations to operate in saline/offshore conditions, desert, low temperature environment
- **Global design:** can comply with the main worldwide certifications and systems: ATEX, NACE, SASO, Customs Union, etc.
- **Over-pressure protection:** integrated safety valve to protect the pump on diaphragm liquid ends
- **Maintenance easy and fast:** the patented MARS system (Mechanically Actuated Refill System) on PTFE diaphragm liquid ends avoids the need to delicately adjust the refill valve

## Technical Features

- Packed plunger, PTFE or metallic diaphragm liquid ends available
- Liquid end body in 316L S.S. or 17.4 PH. Other materials such as Alloy 20, Hastelloy, super Duplex available upon request
- Diaphragms in PTFE or 301 stainless steel; plunger in ceramic (Al<sub>2</sub>O<sub>3</sub>) or chromium oxide coated
- 6 stroke speeds/gear ratios available with 50 Hz-motor: 48, 73, 93, 117, 146 and 175 spm.  
5 stroke speeds/gear ratios with 60 Hz-motor: 58, 88, 112, 140 and 175 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 Update by ATEX II 2 G Ex h IIC T4/T3 Gb X motors
- Optimum protection for critical processes or pumped fluids: double or triple diaphragm, diaphragm failure detection, temperature probes
- Special valves for any type of fluid (including concentrated sulphuric acid and slurries)
- Remote head, cooling/heating jacket to operate into 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

According to your process, we advise you on the best design of liquid ends to meet your specific requirements. The following charts demonstrate the minimum and maximum flow rate and pressure of the pump for a single head on a basic configuration. To obtain the flow rate for multiplex head, 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.

## Packed plunger liquid end

- High pressure capabilities
- Lowest NPSH requirements
- Ideal for viscous fluids and slurries
- Robust, Reliable and Efficient operation

### LIQUID END TYPE P4 (NX)

- High and extreme pressure capability
- High Hydraulic efficiency
- Contained leakage concept reduces monitoring and maintenance

		50 Hz Motor					60 Hz Motor					
Plunger diameter code	Swept volume	Stroke speed max	Motor speed max	Flow rate max		Pressure max	Stroke speed max	Motor speed max	Flow rate max		Pressure max	Connections
				10 bar	P.max				145 psi	P.max		
Ø	cm <sup>3</sup>	spm	rpm	l/h		bar	spm	rpm	GPH		psi	
20	19.8	146	1440	166	100	1000	140	1728	42	25	14,503	3/4" - MP
25	30.9	146	1440	260	187	707	140	1728	66	48	10,254	1" - MP
28	38.8	146	1440	326	253	563	140	1728	83	64	8,165	1" - MP
32	50.7	146	1440	426	354	431	140	1728	108	90	6,251	1" - MP

# PTFE diaphragm liquid ends

- Widest chemical compatibility
- 100% leakage-free
- High operational safety: integrated relief valve
- Improved lifecycle costs
- The MARS system offers a number of advantages over traditional refill systems in hydraulically actuated diaphragm liquid ends: easy start-up without the need to adjust the refill valve, a delicate procedure
- The MARS system offers a number of advantages over traditional refill systems in hydraulically actuated diaphragm liquid ends: easy start-up without need to adjust the refill valve.

## LIQUID END TYPE H5 (HX) and H1-H4 (HPD)

- Universal solution
- Higher pressure capabilities
- High hydraulic efficiency

		50 Hz Motor					60 Hz Motor					Connections
Plunger diameter code	Swept volume	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				145 psi	P.max		
Ø	cm <sup>3</sup>	spm	rpm	l/h		bar	spm	rpm	GPH		psi	
<b>PTFE Double Diaphragm, type H5 (HX)</b>												
32	50.7	146	1440	421	273	400	140	1728	107	69	5,801	1" - WV2 m
35	60.6	146	1440	504	361	361	140	1728	128	92	5,264	1" - WV2 m
<b>PTFE Double Diaphragm, type H1, H4 (HPD)</b>												
40	79.2	175	1440	789	620	278	175	1728	209	164	4,032	1" - WV1 m
45	100.2	175	1440	999	831	220	175	1728	264	220	3,190	1" - WV1 m
50	123.7	175	1440	1233	1067	178	175	1728	326	282	2,581	1" - WV1 m 1 1/2" - WV1 m @ 175 SPM
55	149.7	175	1440	1493	1329	147	175	1728	395	351	2,132	1 1/2" - WV1 m
60	178.1	175	1440	1776	1615	123	175	1728	470	427	1,783	1 1/2" - WV1 m
63	196.4	175	1440	1958	1798	112	175	1728	518	476	1,624	2" - WV1 m
65	209.1	175	1440	2085	1926	105	175	1728	551	509	1,522	2" - WV1 m
70	242.5	175	1440	2418	2261	90	175	1728	639	598	1,305	2" - WV1 m
75	278.3	175	1440	2776	2622	79	175	1728	734	693	1,145	2" - WV1 m
80	316.7	175	1440	3158	3008	69	175	1728	835	795	1,000	2" - WV1 m
85	357.5	175	1440	3565	3418	61	175	1728	943	904	884	2" - WV1 m
90	400.8	146	1440	3335	3215	55	140	1728	847	817	797	2" - WV1 m
95	446.6	146	1440	3716	3599	49	140	1728	944	914	710	2" - WV1 m
100	494.8	146	1440	4117	4003	44	140	1728	1,046	1,017	638	2" - WV1 m
105	545.5	146	1440	4539	4429	40	140	1728	1,153	1,125	580	2" - WV1 m
110	598.7	146	1440	4882	4875	36	140	1728	1,265	1,239	522	2" - WV1 m
115	654.6	146	1440	5445	5342	33	140	1728	1,383	1,357	478	3" - WV3 - 600 lbs
120	712.5	146	1440	5929	5830	30	140	1728	1,506	1,481	435	3" - WV3 - 600 lbs
125	773.1	146	1440	6433	6338	28	140	1728	1,634	1,610	406	3" - WV3 - 600 lbs
130	836.2	146	1440	6958	6867	26	140	1728	1,768	1,744	377	3" - WV3 - 600 lbs
135	901.8	146	1440	7504	7417	24	140	1728	1,906	1,884	348	3" - WV3 - 600 lbs
140	969.8	146	1440	8070	7988	22	140	1728	2,050	2,029	319	3" - WV3 - 600 lbs
145	1040.3	146	1440	8657	8579	21	140	1728	2,199	2,179	304	3" - WV3 - 600 lbs

## Metallic diaphragm liquid end

Challenging products dosing: diffusing, radioactive liquids

- High pumped liquid temperatures
- High operation safety: integrated relief valve

### TYPE M2 (MX)

- High and extreme pressures
- Low flow rates

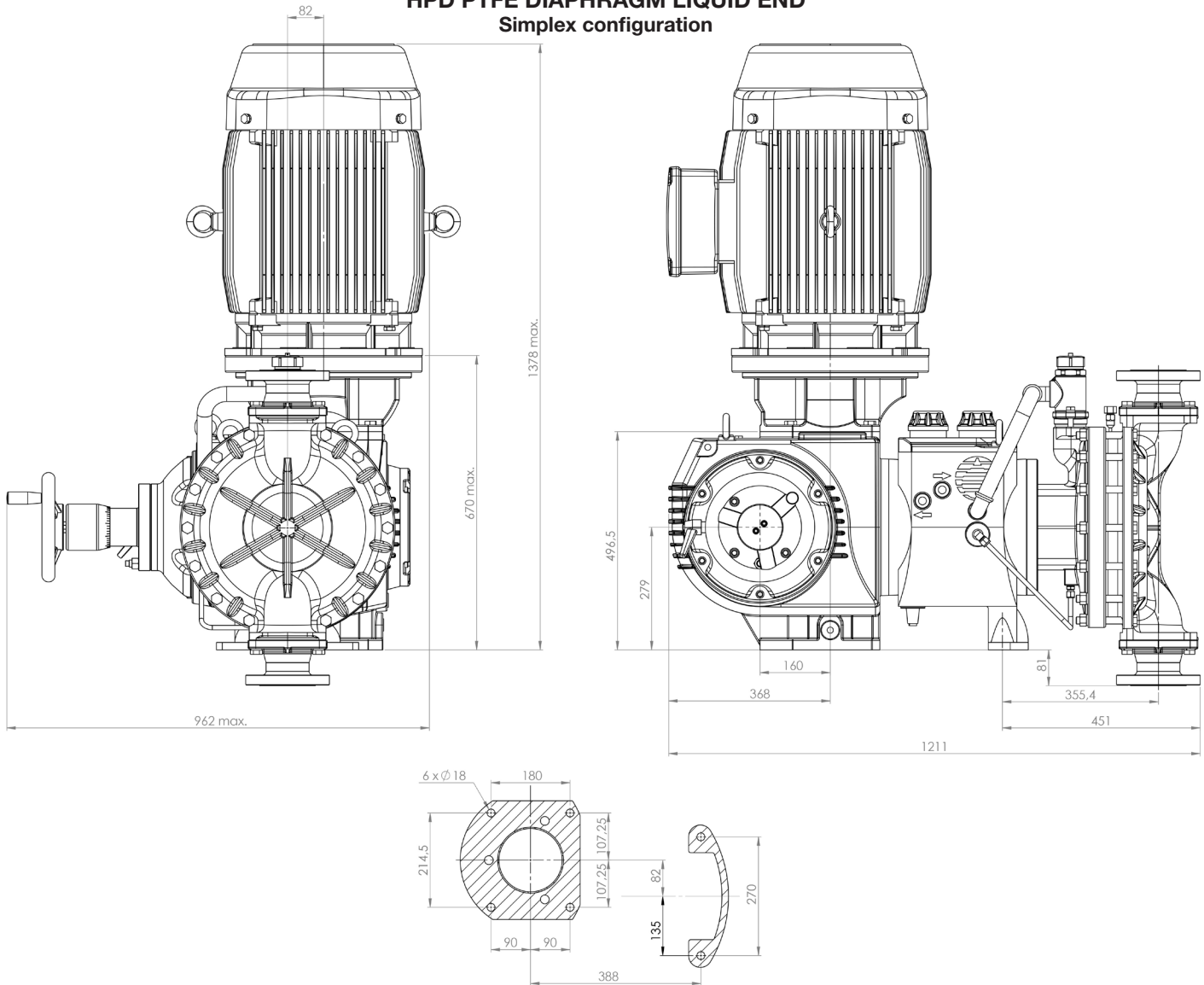
Plunger diameter code	Swept volume	50 Hz Motor					60 Hz Motor					Connections
		Stroke speed max	Motor speed max	Flow rate max		Pressure max	Stroke speed max	Motor speed max	Flow rate max		Pressure max	
				10 bar	P.max				145 psi	P.max		
Ø	cm <sup>3</sup>	spm	rpm	l/h		bar	spm	rpm	GPH		psi	
<b>Metallic double diaphragm, Type M2 (MX)</b>												
20	19.8	175	1440	191	126	1035	175	1728	51	33	15,011	Suction : 3/4" NPT f Discharge : 3/4" MP
23	26.2	175	1440	253	178	842	175	1728	67	47	12,212	Suction : 3/4" NPT f Discharge : 3/4" MP
25	30.9	175	1440	299	225	713	175	1728	79	59	10,341	Suction : 3/4" NPT f Discharge : 3/4" MP
28	38.8	175	1440	375	293	568	175	1728	99	77	8,238	Suction : 1" NPT f Discharge : 1" MP
32	50.7	175	1440	489	410	435	175	1728	129	108	6,309	Suction : 1" NPT f Discharge : 1" MP



# 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).

## HPD PTFE DIAPHRAGM LIQUID END Simplex configuration



Version	Net weight (*)		Gross weight (*)		Packing (L x W x H) mm	Packing (L x W x H) in
	kg	lbs	kg	lbs		
Series PQ Simplex	900	1984	1000	2205	1450 x 1200 x 1900	57 x 67 x 75

### Milton Roy and our trusted partners can help to:

- Guide you in selecting the turnkey solution that best suits your needs
- Advise you on the optimum installation of your equipment
- Propose a wide range of accessories to complete the installation of your pump
- Advise you on the essential wear parts to be kept 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

Picture for illustration purposes only. We reserve the right to modify the characteristics of our products without prior notice



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