

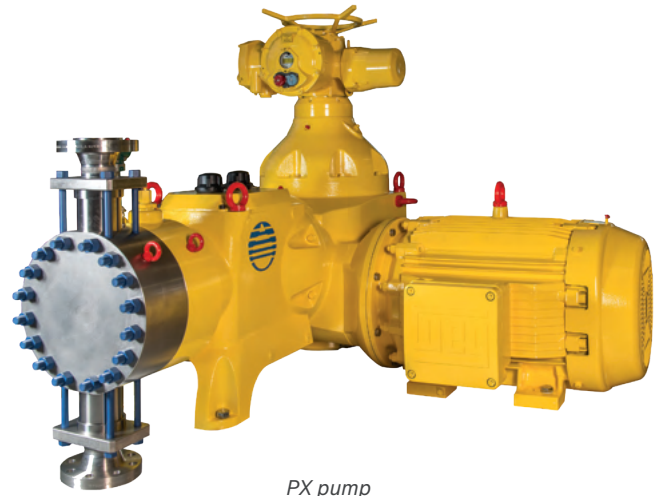
# PRIMEROYAL® Series

API 675 metering pump

## Models PX

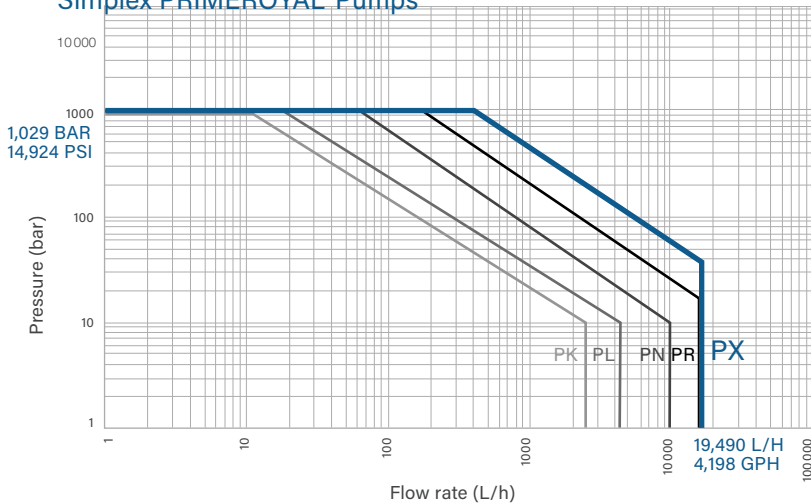
PRIMEROYAL® metering pumps are versatile, reliable pumps that consistently and accurately inject chemicals. The pumps' field-proven design enables precise control of the pump delivery rate with a +/-1% steady state accuracy, over a range to 10 to 100% of the nominal flow rate, and repeatability. They feature a compact, variable eccentric drive that changes the stroke length by changing the position of the center of the shaft in the centric this API675-compliant pump has been designed to deliver maximum performance within a minimized footprint.

Model X provides accurate dosing of a broad spectrum of fluids at pressures up to 1,029 bar (14,924 psi) and a maximum flow rate of up to 16,490 l/h (4,198 GPH) per dosing head. Available in vertical or horizontal motor configurations and with ability to accommodate three types of liquid ends, PRIMEROYAL X can meet the specific performance requirements of numerous industrial applications.



PX pump

## Simplex PRIMEROYAL® Pumps



	50 Hz motor	60 Hz motor
<b>Flow rate</b>	Up to 16,490 L/h	Up to 4,198 GPH
<b>Pressure</b>	Up to 1,029 bar	Up to 14,924 PSI
<b>Thrust</b>	6,000 daN	13,488
<b>100% stroke</b>	120 mm	4.72 in
<b>Ambient T° Standard</b>	-10 to + 50 °C	+ 14 to + 122 °F
<b>Low T° design</b>	-40 to +50 °C	- 40 to +122 °F

## Applications

### • Oil and Gas:

- **Upstream:** injection of methanol, monoethylene glycol, corrosion inhibitors and many more to prevent hydrate formation, wax and scale deposits and corrosion in deep-water 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

### • Refinery:

Pumping of hydrocarbons/condensate

### • Water Treatment in Oil & Gas:

Deep water disposal, hydrocarbon condensate transfer

## Benefits

- Compliant with **API675 standards**
- **Adaptability and accuracy:** capacity adjustable while running or stopped (stroke micrometric adjustment, 10 turns only from 0 to 100%)
- **Space constraints:** Available in vertical or horizontal motor configurations
- **Suitable for the majority of fluids and a large number of industrial processes:** several stroke speeds for an accurate dosing
- **Modular design to precisely fit your needs:** more than five designs of liquid ends, specific check valves, adaptable connection types, control...
- **Multiplexing capability:** to reduce pulsations, meet a specific flow rate by reducing the number of parts, the power consumption and the footprint or to inject several products
- **Long life:** ensured by a robust and proven construction, oil bath lubrication to ensure reliability during continuous operation, best materials
- **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) avoid the need to delicately adjust the refill valve

## Technical features

- Packed plunger, Teflon® PTFE or metallic diaphragm liquid ends available
- Liquid end body in 316L S.S., 17-4P-H, PVC or PVDF. Other materials like 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 or electrical 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 sulfuric acid and slurries)
- Remote head, Cooling/heating jacket for handle processing 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
- Long term success, reliability, and efficiency

### TYPE NX

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

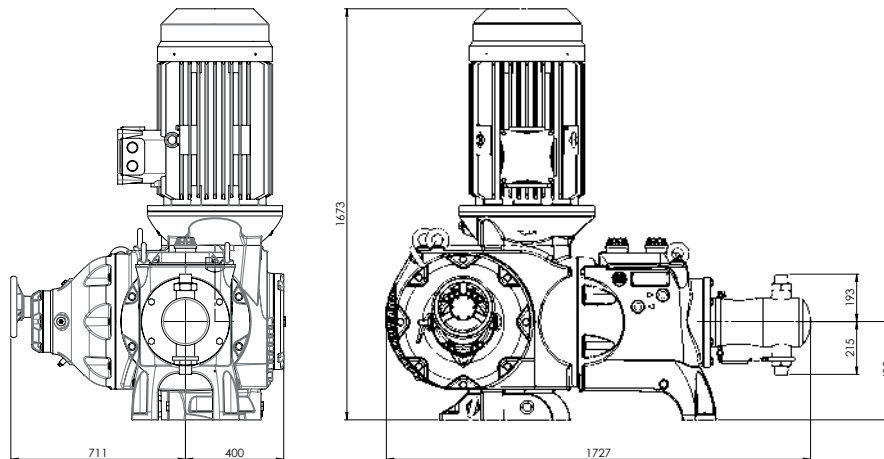
Plunger diameter code	Swept volume	50 Hz Motor					60 Hz Motor					Connections
		Stroke speed max	Motor speed max	Flow rate max		Pressure max	Stroke speed max	Motor speed max	Flow rate max		Pressure max	
				10 bar	P.max				145 psi	P.max		
Ø	cm <sup>3</sup>	spm	rpm	L/h		bar	spm	rpm	gph		psi	
28	73.9	146	1440	621	440	980	140	1728	158	112	14132	1" MP
32	96.5	146	1440	812	632	750	140	1728	206	160	10820	1" MP
36	122.2	146	1440	1027	848	590	140	1728	261	216	8549	1" MP
40	150.8	146	1440	1268	1089	480	140	1728	322	277	6925	1" MP

## Dimensions, Weight and Packing

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

### P4 (NX) LIQUID END

#### Simplex configuration



Version	Net weight(*)		Gross weight(*)		Packing	
	kg	lb	kg	lb	(L x W x H) mm	(L x W x H) in
Simplex - P4 (NX) liquid end	1270	2800	1600	3528	1950 x 1320 x 2100	76.7 x 52 x 82.7

(\*) Approximately

## PTFE diaphragm liquid ends

- Widest chemical compatibility
- 100% leakage-free
- High operational safety: integrated relief valve
- Cost effective solution in the entire product cycle life

- 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, a delicate procedure

### TYPE H5 (HX)

- Universal solution

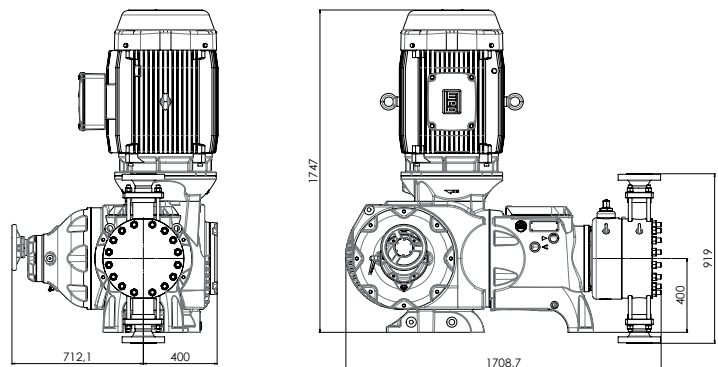
- Higher pressure capabilities
- High hydraulic efficiency

Plunger diameter code	Swept volume cm <sup>3</sup>	50 Hz Motor					60 Hz Motor					Connections
		Stroke speed max spm	Motor speed max rpm	Flow rate max		Pressure max bar	Stroke speed max spm	Motor speed max rpm	Flow rate max		Pressure max psi	
				10 bar L/h	P.max				145 psi GPH	P.max		
Metallic, Type HX												
55	285.1	146	1440	2372	1912	252	140	1728	603	486	3654	2" - VV2 m
60	339.3	146	1440	2823	2367	212	140	1728	717	601	3074	2" - VV2 m
63	374.1	146	1440	3113	2659	192	140	1728	791	675	2784	2" - VV2 m
65	398.2	146	1440	3313	2861	180	140	1728	842	727	2622	2" - VV2 m
70	461.8	146	1440	3843	3397	155	140	1728	976	863	2248	2" - VV2 m
75	530.1	146	1440	4411	3969	135	140	1728	1121	1008	1958	2" - VV2 m
80	603.2	146	1440	5019	4581	119	140	1728	1275	1164	1725	3" - VV3
85	680.9	146	1440	5666	5236	105	140	1728	1440	1330	1522	3" - VV3
90	763.4	146	1440	6353	5926	94	140	1728	1614	1505	1363	3" - VV3
95	850.6	146	1440	7078	6659	84	140	1728	1798	1692	1218	3" - VV3
100	942.5	146	1440	7843	7428	76	140	1728	1992	1887	1102	3" - VV3
105	1039.1	146	1440	8647	8238	69	140	1728	2197	2093	1000	3" - VV3
110	1140.4	146	1440	9490	9087	63	140	1728	2411	2308	913	4"
115	1246.4	146	1440	10372	9982	57	140	1728	2635	2536	826	4"
120	1357.2	146	1440	11294	10906	53	140	1728	2869	2770	768	4"
125	1472.6	146	1440	12255	11882	48	140	1728	3113	3018	696	4"
130	1592.8	146	1440	13255	12884	45	140	1728	3367	3273	652	4"
135	1717.7	146	1440	14294	13940	41	140	1728	3631	3541	594	4"
140	1847.3	146	1440	15372	15016	39	140	1728	3905	3815	565	4"
145	1981.6	146	1440	16490	16147	36	140	1728	4189	4102	522	4"

## Dimensions, Weight and Packing

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

### HX LIQUID END Simplex configuration



Version	Net weight(*)		Gross weight(*)		Packing (L x W x H) mm	Packing (L x W x H) in
	kg	lb	kg	lb		
Simplex - HX liquid end	1570	3462	1870	4123	1950 x 1320 x 2050	76.7 x 52 x 80.7

(\*) Approximately

## Metallic diaphragm liquid end

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

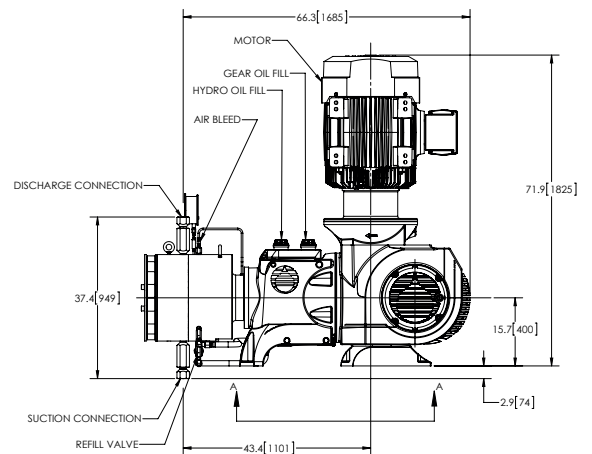
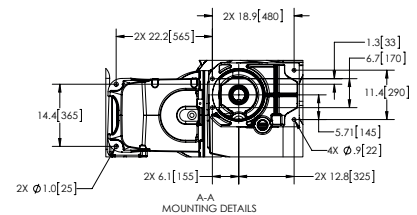
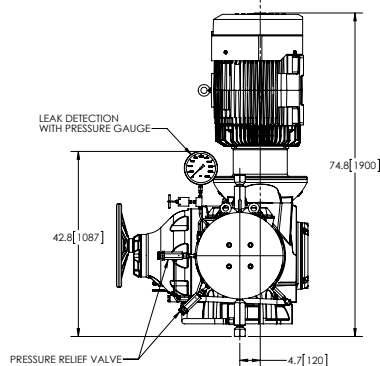
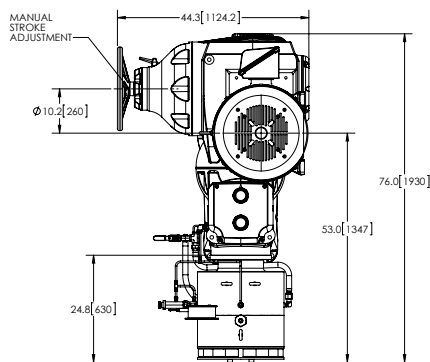
### TYPE M2 (MX)

Plunger diameter code	Swept volume cm <sup>3</sup>	50 Hz Motor					60 Hz Motor					Connections
		Stroke speed max spm	Motor speed max rpm	Flow rate max		Pressure max bar	Stroke speed max spm	Motor speed max rpm	Flow rate max		Pressure max psi	
				10 bar L/h	P.max				145 psi GPH	P.max		
Metallic, Type MX												
25	58.9	175	1440	569	350	1029	175	1728	150	92	14924	VV 7
30	84.8	175	1440	819	603	729	175	1728	217	159	10573	VV 7
31	90.6	175	1440	874	670	694	175	1728	231	178	10065	VV 7
33	102.6	175	1440	991	725	597	175	1728	262	192	8658	VV 7
35	115.5	175	1440	1115	855	544	175	1728	295	225	7890	VV 7
38	136.1	175	1440	1314	1050	457	175	1728	347	276	6628	VV2 f
42	166.3	175	1440	1606	1354	386	175	1728	424	358	5598	VV2 f
47	208.2	175	1440	2011	1748	302	175	1728	532	462	4380	VV2 f

## Dimensions, Weight and Packing

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### MX LIQUID END Simplex configuration



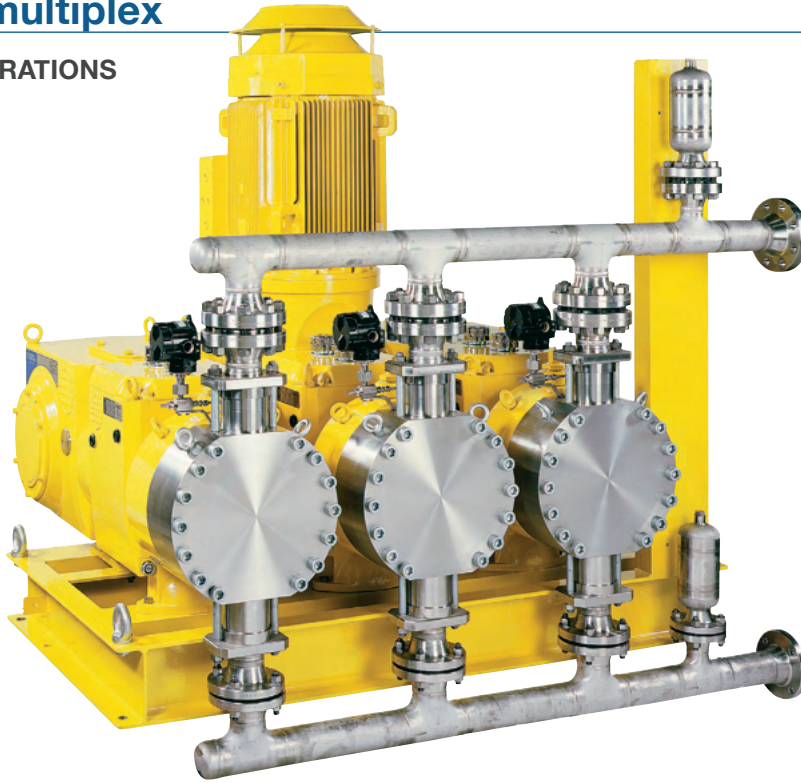
Version	Net weight(*)		Gross weight(*)		Packing (L x W x H) mm	Packing (L x W x H) in
	kg	lb	kg	lb		
Simplex - MX liquid end	1690	3726	2080	4586	2180 x 1320 x 2250	85.8 x 52 x 88.6

(\*) Approximately

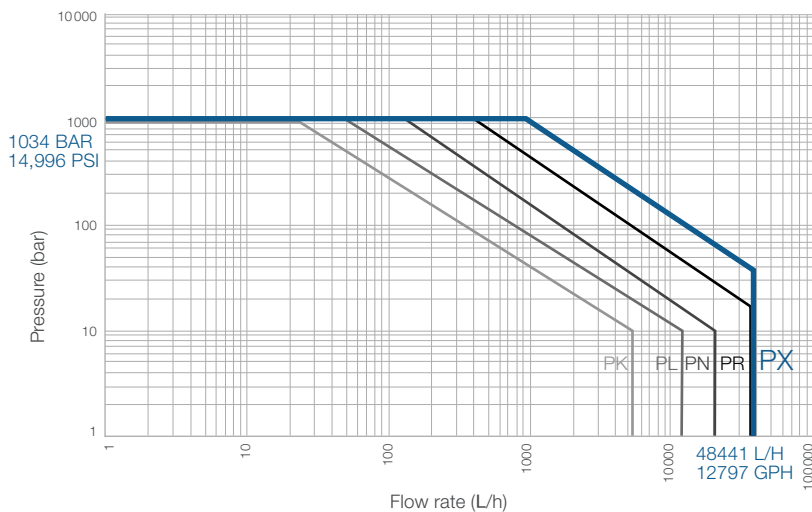


## Exemple of multiplex

### TRIPLEX CONFIGURATIONS



Triplex PRIMEROYAL® Pumps



### Milton Roy and its trusted partners:

- 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
- Can provide turnkey dosing solutions, from a skid-mounted pump to a complex, 100% customized chemical injection package

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