

Specifications: gamma/L

Maximum stroke length:	0.05" (1.25 mm)		
Materials of construction			
Housing:	Fiberglass reinforced PPE		
Diaphragm:	PTFE-faced EPDM with plastic core		
Liquid end options:	Polypropylene, PVC, Acrylic/PVC, PTFE, 316 SS		
Enclosure rating:	NEMA 4X (IP 65)		
Motor insulation class:	F		
Power supply:	100-230 VAC, 1 phase, 50/60 Hz, +/- 10%; 12-24 VDC or 24 VDC +/- 10%		
Check valves:	Double ball		
Repeatability of the metering:	When used according to operating instructions, ±2% under constant conditions and at minimum 30% stroke length. The minimum stroke length with auto-degassing liquid end is 50%.		
Power cord:	6 foot (2 m)		
Relay cable (optional):	6 foot (2 m)		
Relay load			
Fault relay only (options 1 & 3):	Contact load: 250 VAC, 2 A, 50/60 Hz Operating life: > 200,000 switch functions		
Fault and pacing relay (options 4 & 5):	Contact load: 24 V, 2 A, 50/60 Hz Operating life: > 200,000 switch functions Residual impedance in ON-position (R_{pSon}): < 8 Ω Residual current in OFF-position: < 1μA Maximum voltage: 24 VDC Maximum current: < 100 mA (for pacing relay) Switch functions: 15x10 ⁹ Contact closure: 100 ms (for pacing relay)		
Analog output signal:	Max. impedance 300 Ω Isolated 4-20 mA output signal		
Profibus - DP fieldbus options:	Transfer: RS - 485 Wiring: 2-wired, twisted, shielded Length: 3637 ft. (1200 m)/328 ft. (100 m) Baudrate: 9600 bits/s; 12 Mbits/s No. of participants: 32 with 127 repeaters Topology: Line Access procedure: Master/master with token ring		
Ambient temperature range:	14°F (-10°C) to 113°F (45°C)		
Max. fluid operating temperatures:	<u>Material</u>	<u>Constant</u>	<u>Short Term</u>
	Acrylic/PVC	113°F (45°C)	140°F (60°C)
	Polypropylene	122°F (50°C)	212°F (100°C)
	PVC	113°F (45°C)	140°F (60°C)
	PVDF	149°F (65°C)	212°F (100°C)
	PTFE	122°F (50°C)	248°F (120°C)
	316 SS	122°F (50°C)	248°F (120°C)
Average power drain at maximum stroking rate (Watts) / current drain at pump stroke (Amps)			
1000, 1601, •1602, 1005, 0708, 0413, & 0220 :	17W / 0.7 A or 15 A (peak current for approx. 1 ms)		
1605, 1008, 0713, 0420 & 0230 :	22W / 1.0 A or 15 A (peak current for approx. 1 ms)		
Service factor:	1.15		
Warranty:	2 years on drive, 1 year on liquid end		
Industry standards:	UL Recognized in United States and Canada, CE available		
Valve threads:	NP, PP, PC, TT Versions: M20 x 1.5 (provided with tubing adapters)		
Standard Production Test:	All pumps are tested for capacity at maximum pressure prior to shipment		
Max. solids size in fluid:	Pumps with 1/4" valves: 15μ - Pumps with 1/2" valves: 50μ		

Specifications: gamma/L (cont.)

Controlling contact (pulse):

With voltage free contact, or with semiconductor sink logic control (NPN), not source logic (PNP). With a residual voltage of <0.7 V, the contact load is approximately 0.5 mA at +5 VDC. (Note: Semiconductor contacts that require >0.7 V across a closed contact should not be used.) Pump ignores contacts exceeding maximum input rate, and will not remember.

Necessary contact duration:

>20 mS

Recommended Viscosity:

max. 200 cPs for standard liquid end
max. 500 cPs for bleed valve (valves with springs)
max. 50 cPs for auto-degassing liquid ends
max. 3000 cPs for high-viscosity liquid ends

Technical Data: gamma/L

Pump Version	Capacity at Maximum Backpressure				Capacity at 1/2 Maximum Backpressure				Pre-Primed Suction Lift		Max. Stroking Rate spm	Suction/Discharge Tubing Connectors**		Shipping Weight (higher weights are for SS)	
	U.S.		mL/		U.S.		mL/					O.D. x I.D.		(lbs. (kg))	
	psig (bar)	GPH (L/h)	stroke	psig (bar)	GPH (L/h)	stroke	ft. (m)	inches	lbs. (kg)						
GALa															
1000	145 (10)	0.19 (0.74)	0.07	73 (5)	0.21 (0.82)	0.08	19.6 (6)	180	1/4 x 3/16	7.5-8.6 (3.4-3.9)					
1601	253 (17.5)	0.29 (1.1)	0.10	126 (8.75)	0.37 (1.4)	0.13	19.6 (6)	180	1/4 x 3/16	7.5-8.6 (3.4-3.9)					
1602	253 (17.5)	0.55 (2.1)	0.19	126 (8.75)	0.66 (2.5)	0.24	19.6 (6)	180	1/4 x 3/16	7.5-8.8 (3.4-4.0)					
1005	145 (10)	1.1 (4.4)	0.41	73 (5)	1.32 (5.0)	0.46	19.6 (6)	180	1/2 x 3/8	7.7-9.0 (3.5-4.1)					
0708	101 (7)	1.9 (7.1)	0.66	50.5 (3.5)	2.22 (8.4)	0.78	19.6 (6)	180	1/2 x 3/8	7.7-11.0 (3.5-5.0)					
0413	58 (4)	3.2 (12.3)	1.14	29 (2)	3.75 (14.2)	1.31	9.8 (3)	180	1/2 x 3/8	7.7-11.0 (3.5-5.0)					
0220	29 (2)	5.0 (19.0)	1.76	14.5 (1)	5.52 (20.9)	1.94	6.5 (2)	180	1/2 x 3/8	7.7-11.0 (3.5-5.0)					
1605	253 (17.5)	1.1 (4.1)	0.38	126 (8.75)	1.29 (4.9)	0.45	19.6 (6)	180	1/2 x 3/8	9.3-10.8 (4.2-4.9)					
1008	145 (10)	1.8 (6.8)	0.63	73 (5)	2.19 (8.3)	0.76	19.6 (6)	180	1/2 x 3/8	9.5-12.8 (4.3-5.8)					
0713	101 (7)	2.9 (11.0)	1.02	50.5 (3.5)	3.46 (13.1)	1.21	13.1 (4)	180	1/2 x 3/8	9.5-12.8 (4.3-5.8)					
0420	58 (4)	4.5 (17.1)	1.58	29 (2)	5.04 (19.1)	1.77	9.8 (3)	180	1/2 x 3/8	9.5-12.8 (4.3-5.8)					
0232*	29 (2)	8.4 (32.0)	2.96	14.5 (1)	9.56 (36.2)	3.35	6.5 (2)	180	1/2 x 3/8	9.9-13.9 (4.5-6.3)					
GALa with auto-degassing liquid ends															
1601	253 (17.5)	0.16 (0.59)	0.055	126 (8.75)	0.21 (0.78)	0.07	5.9 (1.8)	180	1/4 x 3/16	7.7 (3.5)					
1602	253 (17.5)	0.37 (1.4)	0.13	126 (8.75)	0.45 (1.7)	0.16	6.9 (2.1)	180	1/4 x 3/16	7.7 (3.5)					
1005	145 (10)	0.95 (3.6)	0.33	73 (5)	1.05 (4.0)	0.37	8.8 (2.7)	180	1/2 x 3/8	7.7 (3.5)					
0708	101 (7)	1.74 (6.6)	0.61	50.5 (3.5)	1.98 (7.5)	0.69	6.5 (2.0)	180	1/2 x 3/8	7.7 (3.5)					
0413	58 (4)	2.8 (10.8)	1.00	29 (2)	3.3 (12.6)	1.17	6.5 (2.0)	180	1/2 x 3/8	7.9 (3.6)					
0220	29 (2)	4.3 (16.2)	1.50	14.5 (1)	4.7 (18.0)	1.67	6.5 (2.0)	180	1/2 x 3/8	7.9 (3.6)					
1605	253 (17.5)	0.87 (3.3)	0.31	126 (8.75)	1.00 (3.8)	0.35	9.8 (3)	180	1/2 x 3/8	9.5 (4.3)					
1008	145 (10)	1.66 (6.3)	0.58	73 (5)	1.98 (7.5)	0.69	9.8 (3)	180	1/2 x 3/8	9.5 (4.3)					
0713	101 (7)	2.77 (10.5)	0.97	50.5 (3.5)	3.2 (12.3)	1.14	8.2 (2.5)	180	1/2 x 3/8	9.5 (4.3)					
0420	58 (4)	4.12 (15.6)	1.44	29 (2)	4.6 (17.4)	1.61	8.2 (2.5)	180	1/2 x 3/8	9.5 (4.3)					
GALa with high viscosity liquid ends															
1005	145 (10)	1.00 (3.8)	0.35				†	180	1/2 MNPT	11 (5)					
0708	101 (7)	1.69 (6.4)	0.59				†	180	1/2 MNPT	11 (5)					
0413	58 (4)	2.91 (11.0)	1.02				†	180	1/2 MNPT	11 (5)					
0220	29 (2)	4.76 (18.0)	1.67				†	180	1/2 MNPT	11.5 (5.2)					
1605	253 (17.5)	0.95 (3.6)	0.33				†	180	1/2 MNPT	11.5 (5.2)					
1008	145 (10)	1.64 (6.2)	0.57				†	180	1/2 MNPT	11.5 (5.2)					
0713	101 (7)	2.85 (10.8)	1.00				†	180	1/2 MNPT	11.5 (5.2)					
0420	58 (4)	4.36 (16.5)	1.53				†	180	1/2 MNPT	11.5 (5.2)					

Above capacities and suction lift refer to pumps tested on water at 115 VAC, 60 Hz, and an ambient temperature of 70°F (20°C). Higher specific gravity fluids will reduce suction lift. Higher viscosity fluids will reduce capacity.

Liquid ends for viscous media have 10-20% less metering capacity and are not self-priming against pressure. Standard connectors are 1/2" MNPT or 5/8" hose barb.

† Positive suction is recommended.

* Not available with bleed valve. Liquid ends in TT, PVT and SS are also not available with a bleed valve.

** SS versions use 1/4" female threads except models 0220, 0420, and 0232 which use 3/8" female threads.

Technical Data: gamma/L (cont.)

Liquid end materials

Version	Liquid End	Suction/Discharge valves	Seals	Valve balls	Diaphragm*
PPE	Polypropylene	Polypropylene	EPDM	Ceramic	PTFE
PPB	Polypropylene	Polypropylene	Viton®	Ceramic	PTFE
PCE	PVC	PVC	EPDM	Ceramic	PTFE
PCB	PVC	PVC	Viton®	Ceramic	PTFE
NPE	Acrylic	PVC	EPDM	Ceramic	PTFE
NPB	Acrylic	PVC	Viton®	Ceramic	PTFE
PVT	PVDF	PVDF	PTFE	Ceramic	PTFE
TTT	PTFE with carbon	PTFE with Carbon	PTFE	Ceramic	PTFE
SST	316 Stainless steel	316 Stainless Steel	PTFE	Ceramic	PTFE

Auto-degassing type with Hastelloy C valve spring and PVDF valve seat.

Viton® is a registered trademark of DuPont Dow Elastomers.

*Other materials available for special applications.

Identity code: gamma/L metering pumps

ProMinent®

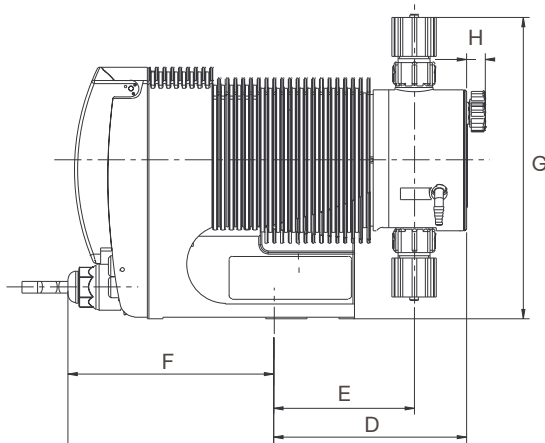
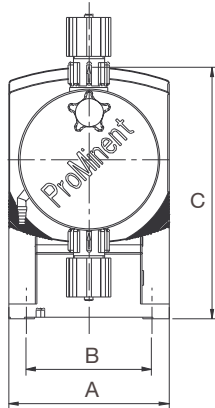
Series:
GALA gamma/L version a

		Pump version:			
1000	1602	0708*	0220*	1008*	0420*
1601	1005*	0413*	1605*	0713*	0232
*Versions available with high viscosity liquid ends					
		Liquid end materials: PP Polypropylene PC PVC NP Acrylic/PVC PV PVDF (for high viscosity only) TT PTFE SS			
		Seal: E EPDM seals (PP, PC, NP) B Viton® seals (PP, PC, NP) T PTFE seals (PVDF, TT, SS) P EPDM diaphragm with EPDM seals (PP, PC, NP) V Viton® diaphragm with Viton® seals (PP, PC, NP)			
		Liquid end version: 0 W/o bleed valve, w/o springs (TT, SS and version 0232) 1 W/o bleed valve, with springs (TT, SS and version 0232) 2 With bleed valve, w/o springs (PP, PC, NP; except version 0232 PP/PC) 3 With bleed valve, with springs (PP, PC, NP; except version 0232 PP/PC) 4 W/o bleed valve, with springs (for high viscosity only) 9 With auto-degassing (PP, NP - except versions 1000, 0232)			
		Connection: 0 Standard according to technical data 6 1/2" x 3/8" tube fittings		NOTE: Connector option 6 must be used on all pumps with standard 1/2" x 3/8" tubing connections, and it may be used on pumps with 1/4" x 3/16" tubing connectors. Use option 0 on all pumps with standard NPT connections and for high viscosity.	
		Labeling: 0 Standard, with logo			
		Electrical connection (± 10%): M 12-24 VDC (versions 1000-0220) N 24 VDC (versions 1605-0232) U 115-230 V, 50/60 Hz			
		Cable and plug with 6 ft (2 m) power cord, single phase: A European plug D N. American plug, 115 V U N. American plug, 230 V 1 Open ended (for low voltage options M and N)			
		Relay: 0 Without relay (Required with Profibus) 1 Fault annunciating relay, drops out 3 Fault annunciating relay, pulls in 4 Option 1 + pacing relay 5 Option 3 + pacing relay C Option 1 + 4-20 mA analog output D Option 3 + 4-20 mA analog output E Pacing relay + 4-20 mA analog output F High current relay drops out G High current relay pulls in			
		Accessories: 0 Not included (for PVDF, TT, SS) 1 Standard (for PP, PC, NP)			
		Control Variants: (Pulse control is needed to run the batch mode) 0 Manual + External 1:1 1 Manual + External with pulse control (multiplier/divider) 2 Manual + External 1:1 with analog control 3 Manual + External with pulse control & analog control 4 Option 0 + Timer 5 Option 3 + Timer P Option 3 + Profibus (Relay must be 0)			
		Access Code: 0 No Access Code 1 Access Code			
		Flow Monitor: 0 Input for metering monitor signal (pulse) 1 Input for maintained flow switch signal			
		Pause/Float: 0 Standard			
GALA 1602 NP B 2 0 0 U D 0 1 0 0 0 0					

Dimensions: gamma/L

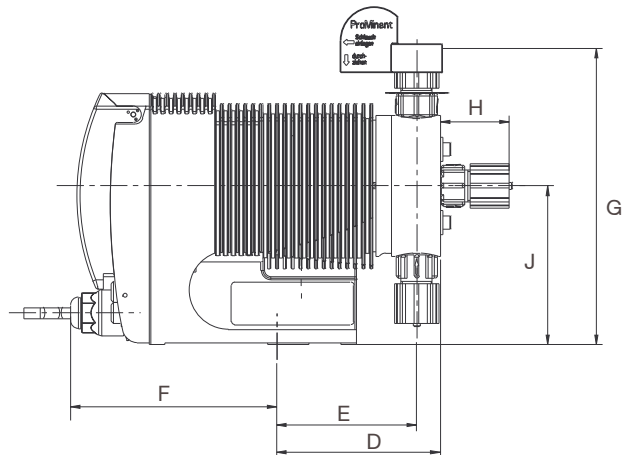
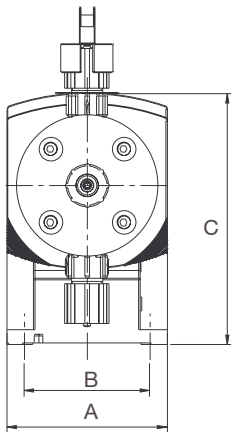
Dimensions in inches (mm).

Ranges given, actual dimension dependant on liquid end material.



Pump	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>
GALa	4.0 (102)	3.1 (80)	6.3 (160)	3.3-4.3 (85-110)	2.8-3.1 (71-80)	5.8 (147)	6.4-8.5 (162-217)	0.5-0.6 (12-14)

With Auto-Degassing Liquid Ends



	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>J</u>
GALa	4.0 (102)	3.1 (80)	6.3 (160)	3.5-3.6 (89-92)	2.9-3.0 (74-77)	5.8 (147)	6.7-7.4 (177-189)	1.7 (44)	4.0 (101)