

ProMinent® alpha/b Metering Pumps

ProMinent®

The alpha/b pump is a reciprocating, diaphragm-type, motor-driven metering pump for continuous operation or external on/off control.

Capacities range from 0.37 to 5.68 gph (1.4 to 21.5 L/h), with maximum backpressures up to 145 psig (10 bar).

Areas of application

ProMinent alpha/b is a metering pump designed for basic applications. It is particularly suitable for constant metering.

Versions

The drive unit can be supplied in 4 gear ratios, and the liquid end in 2 sizes and 2 material types: polypropylene or Acrylic with PVC valves.

The alpha/b metering pump is switched on and off via the power supply line; there is no on/off switch. The metering capacity can be changed by adjusting the stroke length when the pump is not running.

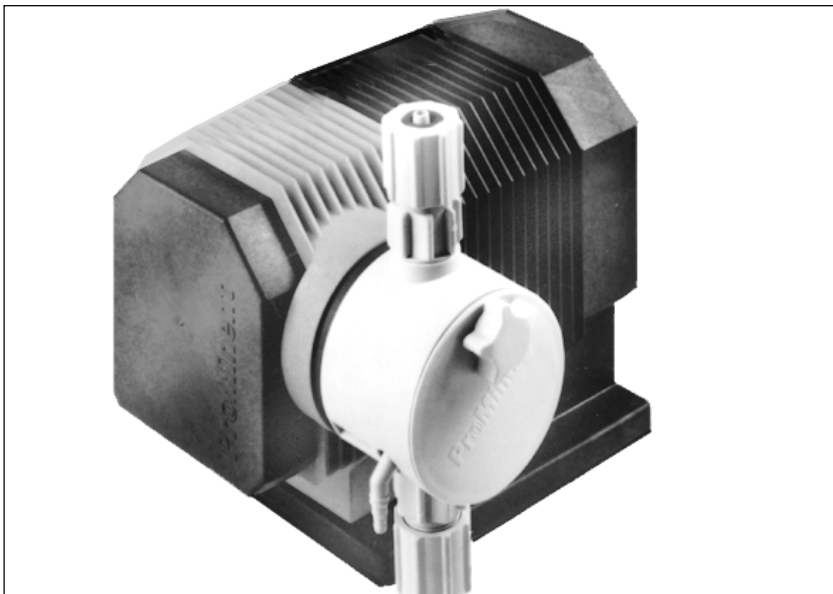
The drive unit

The drive unit consists of a strong split-pole motor with gear, eccentric shaft and connecting rod. The housing of fiberglass-reinforced plastic is shock proof and resistant to chemicals. The eccentric for the stroke movement is guided in an eccentric plate. The straight crank design means the suction stroke and discharge stroke are motor-powered.

The stroke length adjustment

Stroke length adjustment is accomplished by adjusting the eccentricity via a locking bar in 10% increments. The diaphragm deflection always takes place from the neutral center position.

Unlike most metering pumps, whose stroke length adjustment knobs are not directly proportional to displacement per stroke, the alpha pump's nine settings represent actual percentages of maximum capacity.



The powered suction and discharge stroke, as well as stroke length adjustment design, result in a harmonic sinusoidal stroking profile. Excellent priming, smooth discharge stroke and constant precise metering under low mechanical load of the pump diaphragm are the result.

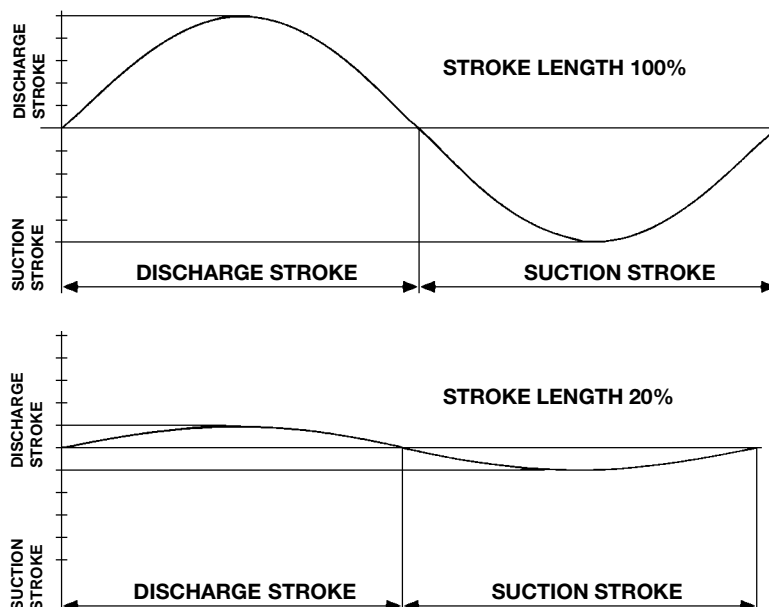
The liquid end

The liquid end features double ball valves for the suction and discharge for increased accuracy. The Polypropylene and NP3 versions are equipped with a bleed valve for priming when plumbed into a pressurized discharge line, or for

continuously bleeding off gases collected in the suction line. For high-viscosity media the valves can be spring-loaded to ensure proper seating.

External control

The pump is designed for up to 60 starts and stops per minute, and is perfect for external control. Typical applications include cooling tower treatments controlled by external timer or conductivity controller, acid or caustic feed with pH controller, or swimming pool disinfectants with ORP or chlorine controller.



Technical Data: alpha/b

Pump Version	Capacity at Maximum Backpressure					Capacity at 1/2 Maximum Backpressure					Maximum Allowable Starting Backpressure		Stroking Rate at Maximum Pressure spm	Suction/ Discharge Tubing Connectors* O.D. x I.D. inches	Pre- Primed Suction Lift	
	U.S.		mL/			U.S.		mL/			Backpressure	Backpressure			ft.	(m)
	psig	(bar)	GPH	(L/h)	stroke	psig (bar)	GPH	(L/h)	stroke	psig						
60 Hz power supply																
1001	145	(10)	0.37	(1.4)	0.65	73 (5)	0.42	(1.6)	0.74	145	(10)	36	1/2 x 3/8	19.7	(6)	
1002	145	(10)	0.76	(2.9)	0.70	73 (5)	0.84	(3.2)	0.77	145	(10)	69	1/2 x 3/8	19.7	(6)	
1003	145	(10)	1.11	(4.2)	0.67	73 (5)	1.19	(4.5)	0.71	145	(10)	105	1/2 x 3/8	19.7	(6)	
0804	109	(7.5)	1.32	(5)	2.31	58 (4)	1.42	(5.4)	2.50	109	(7.5)	36	1/2 x 3/8	19.7	(6)	
0808	109	(7.5)	2.51	(9.5)	2.29	58 (4)	2.64	(10)	2.42	109	(7.5)	69	1/2 x 3/8	19.7	(6)	
0612	80	(5.5)	3.70	(14)	2.22	44 (3)	4.02	(15.2)	2.41	51	(3.5)	105	1/2 x 3/8	19.7	(6)	
0419	58	(4)	5.68	(21.5)	2.33	29 (2)	6.21	(23.5)	2.54	36	(2.5)	154	1/2 x 3/8	19.7	(6)	

Above capacities and suction lift refer to electronic 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. Suction pressure is allowable up to 15 psig, less than pump discharge pressure.

50 Hz power supply

1001	145 (10)	0.32 (1.2)	0.66	73 (5)	0.34 (1.3)	0.72	145 (10)	30	1/2 x 3/8	19.7 (6)
1002	145 (10)	0.63 (2.4)	0.69	73 (5)	0.68 (2.6)	0.75	145 (10)	58	1/2 x 3/8	19.7 (6)
1003	145 (10)	0.92 (3.5)	0.66	73 (5)	1.00 (3.8)	0.72	145 (10)	88	1/2 x 3/8	19.7 (6)
0804	109 (7.5)	1.05 (4)	2.22	58 (4)	1.16 (4.4)	2.44	109 (7.5)	30	1/2 x 3/8	19.7 (6)
0808	109 (7.5)	2.11 (8)	2.30	58 (4)	2.24 (8.5)	2.44	109 (7.5)	58	1/2 x 3/8	19.7 (6)
0612	80 (5.5)	3.17 (12)	2.27	44 (3)	3.35 (12.7)	2.41	51 (5.5)	88	1/2 x 3/8	19.7 (6)
0419	58 (4)	4.89 (18.5)	2.41	29 (2)	5.23 (19.8)	2.58	36 (4)	128	1/2 x 3/8	19.7 (6)

Weight of all alpha/b pumps is 6.6 Lbs. (3 Kg)

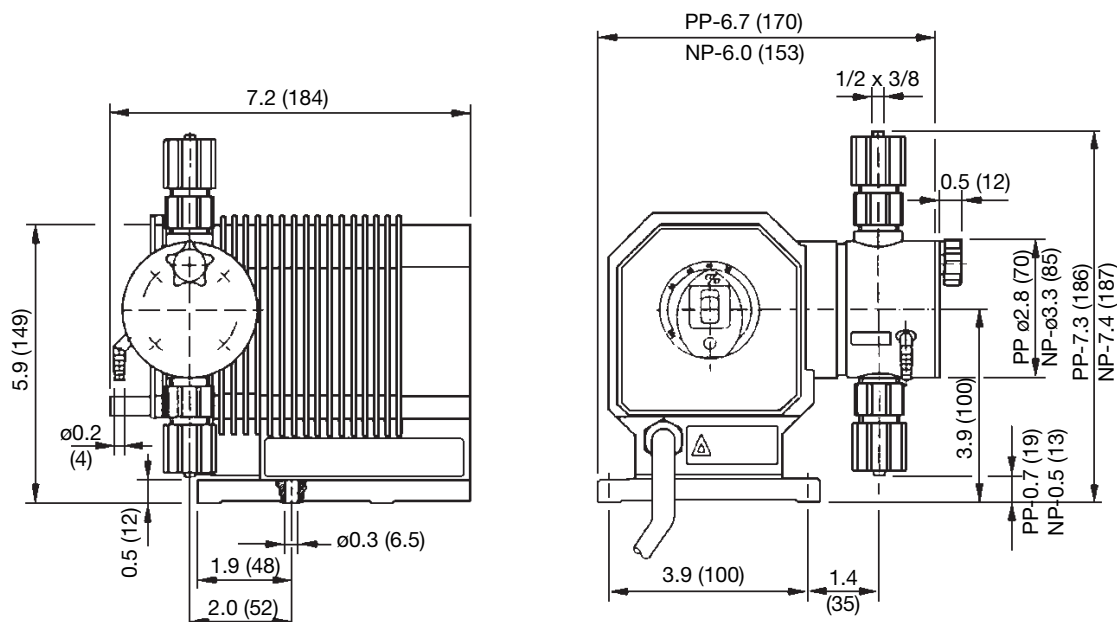
Liquid end materials

	Pump head	Suction/Discharge valves	Seals	Valve balls
PP1	Polypropylene with bleed valve	Polypropylene	EPDM	Ceramic
PP2	Polypropylene with bleed valve	Polypropylene	Viton®	Ceramic
PP3	Polypropylene with bleed valve	Polypropylene	Viton®	Ceramic
NP3	Acrylic with bleed valve	PVC	Viton®	Ceramic
NP6	Acrylic without bleed valve	PVC	Viton®	Ceramic

DEVELOPAN® diaphragm, consisting of nylon-reinforced EPDM, steel core, with PTFE facing.

Viton® is a registered trademark of DuPont Dow Elastomers.

Dimensions in inches (mm)



Identity code: alpha/b metering pumps

Series:
ALPb alpha pump Version b

		Pump version: Capacity at Maximum Backpressure (60 Hz power supply) U.S. <table border="1"> <thead> <tr> <th></th> <th>psig</th> <th>(bar)</th> <th>GPH</th> <th>(L/h)</th> </tr> </thead> <tbody> <tr> <td>1001</td> <td>145</td> <td>(10)</td> <td>0.37</td> <td>(1.4)</td> </tr> <tr> <td>1002</td> <td>145</td> <td>(10)</td> <td>0.76</td> <td>(2.9)</td> </tr> <tr> <td>1003</td> <td>145</td> <td>(10)</td> <td>1.11</td> <td>(4.2)</td> </tr> <tr> <td>0804</td> <td>109</td> <td>(7.5)</td> <td>1.32</td> <td>(5)</td> </tr> <tr> <td>0808</td> <td>109</td> <td>(7.5)</td> <td>2.51</td> <td>(9.5)</td> </tr> <tr> <td>0612</td> <td>80</td> <td>(5.5)</td> <td>3.70</td> <td>(14)</td> </tr> <tr> <td>0419</td> <td>58</td> <td>(4)</td> <td>5.68</td> <td>(21.5)</td> </tr> </tbody> </table>			psig	(bar)	GPH	(L/h)	1001	145	(10)	0.37	(1.4)	1002	145	(10)	0.76	(2.9)	1003	145	(10)	1.11	(4.2)	0804	109	(7.5)	1.32	(5)	0808	109	(7.5)	2.51	(9.5)	0612	80	(5.5)	3.70	(14)	0419	58	(4)	5.68	(21.5)
	psig	(bar)	GPH	(L/h)																																							
1001	145	(10)	0.37	(1.4)																																							
1002	145	(10)	0.76	(2.9)																																							
1003	145	(10)	1.11	(4.2)																																							
0804	109	(7.5)	1.32	(5)																																							
0808	109	(7.5)	2.51	(9.5)																																							
0612	80	(5.5)	3.70	(14)																																							
0419	58	(4)	5.68	(21.5)																																							
		Liquid end materials: <table border="1"> <tbody> <tr> <td>PP1</td> <td>Polypropylene with EPDM O-rings w/bleed valve (all versions)</td> </tr> <tr> <td>PP2</td> <td>Polypropylene with Viton® O-rings w/bleed valve (versions 0804, 0808, 0612, 0419 only)</td> </tr> <tr> <td>PP3</td> <td>Polypropylene with Viton® O-rings w/bleed valve (versions 1001, 1002, 1003 only)</td> </tr> <tr> <td>NP3</td> <td>Acrylic/PVC with Viton® O-rings w/bleed valve (versions 1001, 1002, 1003 only)</td> </tr> <tr> <td>NP6</td> <td>Acrylic/PVC with Viton® O-rings w/o bleed valve (versions 0804, 0808, 0612, 0419 only)</td> </tr> </tbody> </table>		PP1	Polypropylene with EPDM O-rings w/bleed valve (all versions)	PP2	Polypropylene with Viton® O-rings w/bleed valve (versions 0804, 0808, 0612, 0419 only)	PP3	Polypropylene with Viton® O-rings w/bleed valve (versions 1001, 1002, 1003 only)	NP3	Acrylic/PVC with Viton® O-rings w/bleed valve (versions 1001, 1002, 1003 only)	NP6	Acrylic/PVC with Viton® O-rings w/o bleed valve (versions 0804, 0808, 0612, 0419 only)																														
PP1	Polypropylene with EPDM O-rings w/bleed valve (all versions)																																										
PP2	Polypropylene with Viton® O-rings w/bleed valve (versions 0804, 0808, 0612, 0419 only)																																										
PP3	Polypropylene with Viton® O-rings w/bleed valve (versions 1001, 1002, 1003 only)																																										
NP3	Acrylic/PVC with Viton® O-rings w/bleed valve (versions 1001, 1002, 1003 only)																																										
NP6	Acrylic/PVC with Viton® O-rings w/o bleed valve (versions 0804, 0808, 0612, 0419 only)																																										
		<table border="1"> <thead> <tr> <th colspan="2">Valve springs:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Without springs</td> </tr> <tr> <td>1</td> <td>With 2 springs Hastelloy C (1 psig)</td> </tr> </tbody> </table>		Valve springs:		0	Without springs	1	With 2 springs Hastelloy C (1 psig)																																		
Valve springs:																																											
0	Without springs																																										
1	With 2 springs Hastelloy C (1 psig)																																										
		<table border="1"> <thead> <tr> <th colspan="2">Connection:</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>Standard tube fitting for 1/2" x 3/8" tubing</td> </tr> </tbody> </table>		Connection:		6	Standard tube fitting for 1/2" x 3/8" tubing																																				
Connection:																																											
6	Standard tube fitting for 1/2" x 3/8" tubing																																										
		<table border="1"> <thead> <tr> <th colspan="2">Labeling:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Standard, with logo</td> </tr> </tbody> </table>		Labeling:		0	Standard, with logo																																				
Labeling:																																											
0	Standard, with logo																																										
		<table border="1"> <thead> <tr> <th colspan="2">Electrical connection: with 6 ft. (2 m) power cord single phase</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>230 V 50 Hz Euro plug</td> </tr> <tr> <td>D</td> <td>115 V 50/60 Hz N. American plug</td> </tr> <tr> <td>U</td> <td>230 V 50/60 Hz N. American plug (6-15 P NEMA configuration)</td> </tr> </tbody> </table>		Electrical connection: with 6 ft. (2 m) power cord single phase		A	230 V 50 Hz Euro plug	D	115 V 50/60 Hz N. American plug	U	230 V 50/60 Hz N. American plug (6-15 P NEMA configuration)																																
Electrical connection: with 6 ft. (2 m) power cord single phase																																											
A	230 V 50 Hz Euro plug																																										
D	115 V 50/60 Hz N. American plug																																										
U	230 V 50/60 Hz N. American plug (6-15 P NEMA configuration)																																										
		<table border="1"> <thead> <tr> <th colspan="2">Options:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Standard</td> </tr> </tbody> </table>		Options:		0	Standard																																				
Options:																																											
0	Standard																																										

ALPb
1001
PP1
0
6
0
D
0

Specifications: alpha/b

<i>Maximum stroke length:</i>	0.08" (2 mm) for models 1001, 1002, 1003 0.12" (3 mm) for models 0804, 0808, 0612, 0419		
<i>Materials of construction</i>			
<i>Housing:</i>	Glass-filled Luranyl [™] (PPE)		
<i>Diaphragm:</i>	PTFE faced EPDM with steel core and Nylon reinforcement		
<i>Liquid end options:</i>	Polypropylene, Acrylic/PVC		
<i>Enclosure rating:</i>	Open Drip Proof (ODP) motor, fan-cooled (use indoors or protected from outdoor elements)		
<i>Motor insulation class:</i>	F		
<i>Power supply:</i>	115 V or 230 VAC, 1 phase, 50/60 Hz (Note: different performance with 50 and 60 Hz power)		
<i>Service factor:</i>	1.10 (100 - 120 VAC or 200 - 240 VAC)		
<i>Motor protection:</i>	Thermal cutout switches motor off at 223°F (106°C), switches pump back on after motor has cooled		
<i>Check valves:</i>	Double ball		
<i>Repeatability of the metering:</i>	When used according to operating instructions, ±5%		
<i>Power cord:</i>	6 foot (2 m)		
<i>Ambient temperature range:</i>	14°F (-10°C) to 113°F (45°C)		
<i>Max. fluid operating temperatures:</i>	<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)
<i>Average power consumption:</i>	115 V 60 Hz, 50 W, 0.9 A 230 V 60 Hz, 45 W, 0.35 A		
<i>Maximum starts/stops:</i>	60 per minute (0.5 sec. on, 0.5 sec. off)		
<i>Warranty:</i>	1 year		
<i>Industry standards:</i>	CSA inspection available at additional cost in U.S., standard in Canada. Electrical safety to DIN VDE 0700 / EN 335.1 / IEC 60335.1 standard		
<i>Valve threads:</i>	NP6 and PP: M20 x 1.5 (provided with adapters to 1/2" x 3/8" tubing)		
<i>Standard Production Test:</i>	100% tested for capacity at maximum pressure		
<i>Max. solids size in fluid:</i>	50μ		

Data required to size metering pumps and accessories

Complete this data sheet and fax it to ProMinent Pittsburgh at (412) 787-0704 or ProMinent Canada at (519) 836-5226 for a review of the system hydraulics and recommendations on pump and accessory selection.

Desired capacity min./max.	GPH (l/h) _____
Available power supply	_____ V, _____ Hz, _____ phase
Working temperature min./max.	°F (°C) _____
Description of process fluid	_____
Concentration %	_____
Solids content %	_____
Absolute viscosity, cP	_____
Vapor pressure at working temperature	psig (bar) _____
Remarks (e.g. abrasive, developing gases and fumes, flammable, corrosive)	_____ _____
Suction conditions:	
Suction lift min./max., or	ft. (m) _____
Positive suction head min./max., or	ft. (m) _____
Pressure in chemical tank	psig (bar) _____
Length of suction line	ft. (m) _____
Size (I.D.) of suction line	in. (mm) _____
Number of valves and fittings in suction line	_____
Discharge conditions:	
Back-pressure min./max.	psig (bar) _____
Discharge head min./max.	ft. (m) _____
Negative discharge head min./max.	ft. (m) _____
Length of discharge line	ft. (m) _____
Size (I.D.) of discharge line	in. (mm) _____
Number of valves and fittings in discharge line	_____

System sketch

ProMinent® alpha/b

Accessory kits

Description	Part No.
Accessory kits	

Pump includes tubing, foot valve or injection valve as standard.

Accessory kits for alpha pumps: including 5 ft. (1.5 m) of suction tubing, 10 ft. (3 m) of discharge tubing, foot valve and injection valve:

Tubing Size (in.) (select to fit pump)	Material Code	Suction Tubing	Discharge Tubing	
1/2 x 3/8	PP1	PVC	PE	7809404
1/2 x 3/8	PP2, PP3	PVC	PE	7809406
1/2 x 3/8	NP6, NP3	PVC	PE	7809402

PVC 1/2" x 3/8" suction tubing is pliable, allowing foot valve to sink. PE discharge tubing is rigid. Pressure ratings are:

PVC: 7 psig PE: 100 psig.

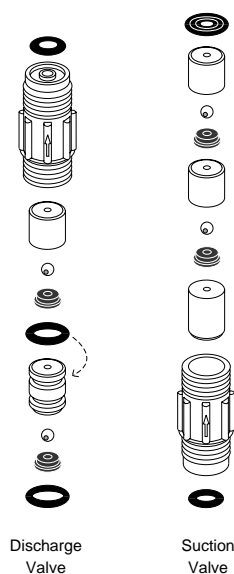
ProMinent® alpha/b Materials

Description

Part No.

Spare parts and Liquid ends

Complete liquid ends include pump head, valves, mounting screws, diaphragm and backplate. Spare parts kits includes:



PP, PE & NP
Liquid Ends
1 Diaphragm
1 Suction Valve
1 Discharge Valve
2 Adapter Sets
1 Valve Ball
1 Set of Seals

alpha/b

Liquid End Version	Material Code	Liquid End	Spare Parts Kit	Spare Valves Only (adapter sets not included)		Diaphragm
				Suction	Discharge	
1001,	PP1	791521	740388	792644	740350	811456
1002,	PP3	791523	740387	792646	740351	811456
1003	NP3	1001629	740385	792026	740348	811456
0804,	PP1	791522	740015	792644	740350	794175
0808,	PP2	791524	740017	792646	740351	794175
0612,	NP6	791526	740013	792026	740348	794175
0419						

alpha/a (old style)

Liquid End Version	Material Code	Liquid End	Spare Parts Kit	Spare Valves Only (adapter sets not included)		Diaphragm
				Suction	Discharge	
1001	PE1	7912322	912689	809439	809438	811456
	PE2	7912336	910769	809449	809448	811456
	NP3	7912321	912688	809413	809412	811456
1002, 1003	PP1	7912327	912689	809439	809438	811456
	PP2	7912337	910769	809449	809448	811456
	NP3	7912321	912688	809413	809412	811456
0804, 0808, 0612, 0419	PP1	7912338	7912693	809439	809438	791475
	PP2	7912339	7910771	809449	809448	791475
	NP6	7912340	7912692	809413	809412	791475