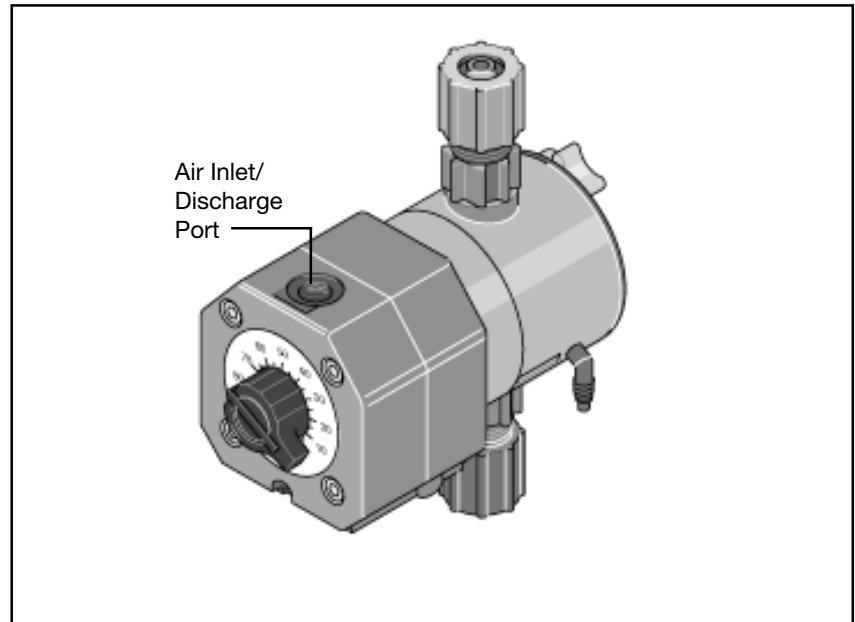


ProMinent® Pneumados Metering Pumps

ProMinent®

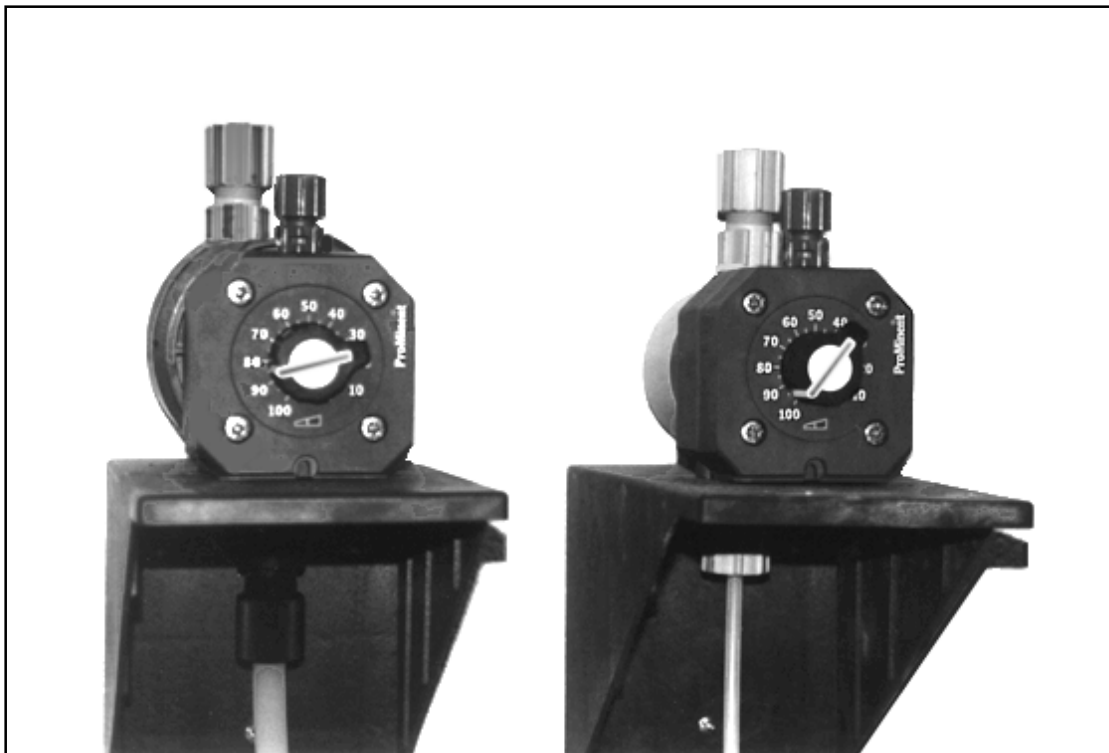
The ProMinent Pneumados is a pneumatically-actuated metering pump with a capacity in the 0.1 to 3.9 gph (0.24 to 14.8 l/h) range at maximum backpressures of 21 to 232 psig (0.9 to 16 bar).

The Pneumados consists of a single-acting pneumatically operated drive unit, including an internal piston which provides a mechanical advantage of up to 2.6:1. This allows a fluid discharge pressure of 232 psig to be generated by an air inlet pressure of only 87 psig. The capacity can be varied by changing the stroke length from 100% to 10%, and by varying the stroking rate. A stroking rate of up to 120 strokes per minute can be achieved by means of solenoid-operated or pneumatically-actuated compressed air valve external to the pump and ordered separately. The discharge stroke is actuated by compressed air and the suction stroke by a return spring, with the exhaust air discharging out of the same inlet air line. The com-



pressed air consumption is approximately 2.88 cfm at 87 psig (25 l/min at 6 bar). The motive gas may be filtered air from a lubricated compressor, clean, dry air (instrument air), or nitrogen.

The Pneumados is very simple to operate. All that is required is compressed air matched to the stroking frequency. See Pneumados page 6 for necessary accessories, such as the electro-pneumatic or pneumatic control systems.



Technical Data: Pneumados

Pump Version	Capacity at Maximum Backpressure					Capacity at 1/2 Maximum Backpressure				Max. Stroking Rate spm	Standard Suction/ Discharge Connectors* O.D. x I.D. inches	Pre- Primed Suction Lift		Shipping Weight (PP, NP, TT-SS)		
	U.S.		ml/	U.S.		ml/	ft. (m)		lbs. (kg)							
	psig (bar)	GPH (l/h)	stroke	psig (bar)	GPH (l/h)	stroke										
1601	232	(16)	0.24	(0.90)	0.125	116	(8)	0.31	(1.17)	0.16	120	1/4 x 3/16	19.7	(6)	2.2-3.7	(1.0-1.7)
1201	174	(12)	0.41	(1.55)	0.215	87	(6)	0.48	(1.80)	0.25	120	1/4 x 3/16	19.7	(6)	2.2-3.7	(1.0-1.7)
0703	116	(7)	0.90	(3.40)	0.47	51	(3.5)	0.97	(3.67)	0.51	120	1/4 x 3/16	9.8	(3)	2.2-3.7	(1.0-1.7)
1002	145	(10)	0.55	(2.09)	0.29	73	(5)	0.74	(2.81)	0.39	120	1/2 x 3/8	19.7	(6)	2.6-5.3	(1.2-2.4)
0308	43	(3)	2.06	(7.78)	1.08	22	(1.5)	2.2	(8.50)	1.18	120	1/2 x 3/8	19.7	(6)	2.6-5.3	(1.2-2.4)
0215	21	(1.5)	3.91	(14.8)	2.05	14	(1)	4.2	(15.8)	2.2	120	1/2 x 3/8	4.9	(1.5)	3.1-6.6	(1.4-3.0)
PP4/PP5 Pneumados metering pumps for viscous fluids																
1002	145	(10)	0.55	(2.09)	0.29	73	(5)	0.74	(2.81)	0.39	120	1/2 MNPT	0	(0)	3.7	(1.7)

Above capacities and suction lift refer to pumps tested on water at an ambient temperature of 70°F (20°C).

Higher specific gravity fluids will reduce suction lift. To determine suction lift, use the following formula: rated suction lift divided by specific gravity (density). Higher viscosity fluids will reduce capacity.

* For SS2 pump heads, 1/4" FNPT fittings are standard.

Liquid end materials

	<u>Pump head</u>	<u>Suction/Discharge valves</u>	<u>Seals</u>	<u>Valve balls</u>	<u>Valve springs</u>
PP1	Polypropylene	Polypropylene	EPDM	Ceramic	
PP2/3	Polypropylene	Polypropylene	Viton®	Ceramic	
PP4	Polypropylene	Polypropylene	EPDM	Ceramic	Hastelloy C
PP5	Polypropylene	Polypropylene	Viton®	Ceramic	Hastelloy C
NP1/NP3	Acrylic	PVC	Viton®	Ceramic	
TT1	Carbon-loaded PTFE	Carbon-loaded PTFE	PTFE	Ceramic	
SS1/SS2	316 Stainless steel	316 Stainless steel	PTFE	Ceramic	

DEVELOPAN® diaphragm with PTFE facing.

Viton® and Duran® (laboratory glass) are registered trademarks.

Identity code ordering system for ProMinent® Pneumados metering pumps

Series:
PNDa Pneumados
Version a

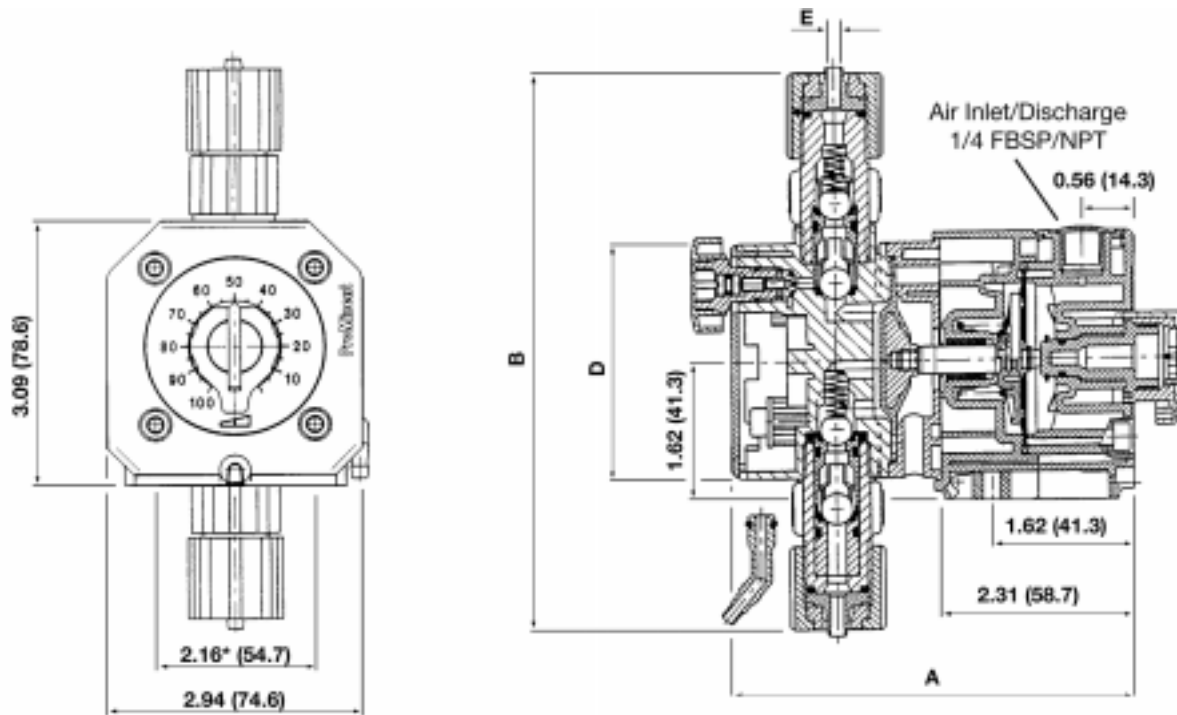
1601 1201 0703 1002 0308 0215	Pump version:						
	PP1 PP2/3 PP4 PP5 NP1 NP3 TT1 SS1/2	Liquid end materials: Polypropylene with EPDM O-rings Polypropylene with Viton® O-rings Polypropylene for high viscosity fluid with enlarged ports, EPDM O-rings & 1 psig Hastelloy C valve springs (For 1002 only) Polypropylene for high viscosity fluid with enlarged ports, Viton® O-rings & 1 psig Hastelloy C valve springs (For 1002 only) Acrylic with PVC check valves & Viton® O-rings Acrylic with PVC check valves & Viton® O-rings Carbon-reinforced PTFE with PTFE seals 316 SS with PTFE seals & 1/4" FNPT thread					
		0 1	Valve springs: Without springs With 2 springs, 316 SS (1 psig)				
			0	Connectors: Standard			
				1	Language: English		
					0	Air Connection: 1/4" Female thread	
						Control type: Standard (In accordance with technical data)	
PNDa	1601	PP1	0	0	1	0	0

Viton® is a registered trademark of DuPont Dow Elastomers

Specifications: Pneumados

Maximum stroke length:	0.05" (1.25 mm)															
Materials of construction																
Housing:	Glass-filled Luranyl™ (PPE)															
Diaphragm:	PTFE faced EPDM with steel core and Nylon reinforcement															
Liquid end options:	Polypropylene, Acrylic/PVC, PTFE, 316 SS															
Enclosure rating:	NEMA 4X (IP 65)															
Check valves:	Double ball (except single ball on PP4, PP5 models)															
Standard production test:	100% tested for capacity at maximum pressure															
Capacity test criteria:	-5% to +15%															
Repeatability of the metering:	When used according to the operating instructions ±2%															
Ambient temperature range:	14°F (-10°C) to 122°F (50°C)															
Max. fluid operating temperatures:	<table><tr><td><u>Material</u></td><td><u>Constant</u></td><td><u>Short Term</u></td></tr><tr><td>Acrylic/PVC</td><td>113°F (45°C)</td><td>140°F (60°C)</td></tr><tr><td>Polypropylene</td><td>122°F (50°C)</td><td>212°F (100°C)</td></tr><tr><td>PTFE</td><td>122°F (50°C)</td><td>248°F (120°C)</td></tr><tr><td>316 SS</td><td>122°F (50°C)</td><td>248°F (120°C)</td></tr></table>	<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)	PTFE	122°F (50°C)	248°F (120°C)	316 SS	122°F (50°C)	248°F (120°C)
<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)														
PTFE	122°F (50°C)	248°F (120°C)														
316 SS	122°F (50°C)	248°F (120°C)														
Resolution of the stroke setting:	1:20															
Warranty:	Two years on drive; one year on liquid end.															
Max. solids size in fluid:	Pumps with 1/4" valves: 15µ; Pumps with 1/2" valves: 50µ															
Valve threads:	NP, PP and TT (except PP4/PP5): M20 x 1.5 (tubing adapter supplied); 1002 PP4/PP5: DN10 SS: 1/4" FNPT															
Compressed air quality:	Filtered lubricated air, clean dry air, or nitrogen															
Max. air pressure:	87 psig (6 bar)															
Air consumption:	2.88 cfm (25 l/m)															
Pulse duration:	250 mS															
Max. stroke frequency:	120 spm															

Dimensions: Pneumados



*Dimension of two threaded inserts for mounting. Threaded inserts accept 5 mm mounting bolts.
Order (2) Part No. 468003.9 M5 x 10 bolts for mounting.

Dimensions in inches (mm)

Liquid End Version		A	B	D	E
1601,1201	PP	4.75 (120.6)	6.6 (167.6)	2.8 (70)	1/4 x 3/16
	NP	4.75 (120.6)	6.3 (160.0)	2.8 (70)	1/4 x 3/16
	TT	4.05 (102.9)	5.8 (147.3)	2.4 (60)	1/4 x 3/16
	SS	3.95 (100.3)	5.2 (132.1)	2.4 (60)	1/4 FNPT
0703	PP	4.75 (120.6)	6.6 (167.6)	2.8 (70)	1/4 x 3/16
	NP	4.75 (120.6)	6.3 (160.0)	2.8 (70)	1/4 x 3/16
	TT	4.05 (102.9)	6.2 (157.5)	2.8 (70)	1/4 x 3/16
	SS	3.95 (100.3)	5.6 (142.2)	2.8 (70)	1/4 FNPT
1002, 0308	PP	4.55 (115.6)	6.6 (167.6)	2.8 (70)	1/2 x 3/8
	NP	4.45 (113.0)	7.0 (177.8)	3.3 (85)	1/2 x 3/8
	TT	4.15 (105.4)	8.4 (213.4)	3.1 (80)	1/2 x 3/8
	SS	4.05 (102.9)	8.4 (213.4)	3.1 (80)	1/4 FNPT
0215	PP	4.55 (115.6)	7.6 (193.0)	3.5 (90)	1/2 x 3/8
	NP	4.45 (113.0)	7.6 (193.0)	3.9 (100)	1/2 x 3/8
	TT	4.15 (105.4)	9.0 (228.6)	3.7 (95)	1/2 x 3/8
	SS	4.05 (102.9)	8.6 (218.4)	3.7 (95)	1/4 FNPT
1002	PP4/PP5	4.05 (102.9)	7.0 (177.8)	2.8 (70)	1/2 MNPT

ProMinent® Pneumados® Controllers

Description

Part No.

Pump Controllers

Electro-pneumatic control system:

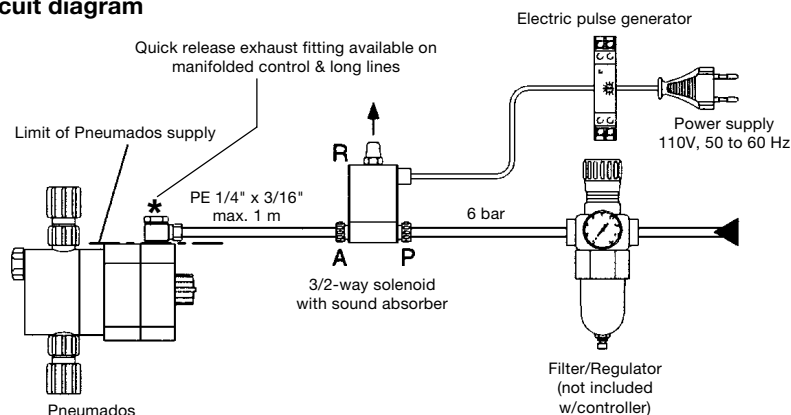
(Note: one control system may control up to 8 pumps at same frequency)

Complete System includes:

7700984

- 1 x 3/2-way solenoid valve, 311C 1/8", 110 V, 50/60 Hz, w/muffler
- 2 x threaded connector fitting 1/8"
- 1 x sound absorber 1/8"
- 1 x electrical pulse generator, 110 V, 50/60 Hz
- 1 x pneumatic connector for Pneumados
- 15 ft. compressed air line, PE, 1/4" x 3/16" (priced per foot)

Circuit diagram



Pneumatic control system:

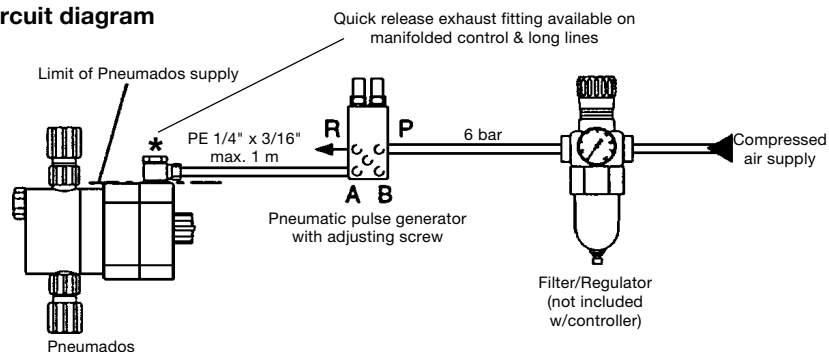
(Note: one control system may control up to 8 pumps at same frequency)

Complete System includes:

7303836

- 1 x pneumatic pulse generator, w/mufflers
- 2 x union, 1/8"
- 1 x blanking plug 1/8"
- 1 x pneumatic connector for Pneumados
- 15 ft. compressed air line, PE, 1/4" x 3/16" (priced per foot)

Circuit diagram



ProMinent® Pneumados Materials

Description

Part No.

Spare parts and Liquid ends

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

PP, NP

Liquid Ends

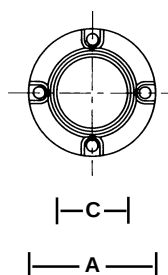
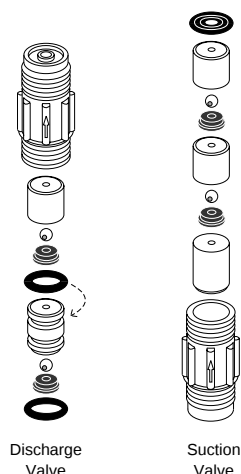
1 Diaphragm
1 Suction Valve
1 Discharge Valve
2 Adapter Sets
2 Valve Balls
1 Set of Seals

TT Liquid Ends

1 Diaphragm
1 Suction Valve
1 Discharge Valve
2 Adapter Sets
2 Valve Balls
2 Ball Seat Disks
1 Set of Seals

SS Liquid Ends

1 Diaphragm
4 Valve Balls
1 Discharge Valve Inserts
2 Suction Valve Inserts
1 Set of Seals



Pump Version	Dim A (mm)	Dim C (mm)
1601	48	12.5
1201	48	16
0803	48	22
1002	60	22
0308	60	34
0215	76	42

Liquid End Version	Material Code	Complete Liquid End	Spare Parts Kit	Spare Valves Only (adapter sets not included)		Diaphragm
				Suction	Discharge	
1601	PP1	740413	740361	792644	740350	811453
	PP3	740412	740360	792646	740351	811453
	NP3	740410	740358	792026	740348	811453
	TT1	911338	912678	809407	809406	811453
	SS2	911344	912679	809424	809423	811453
1201	PP1	740417	740380	792644	740350	811454
	PP3	740416	740364	792646	740351	811454
	NP3	740414	740362	792026	740348	811454
	TT1	911365	912682	809407	809406	811454
	SS2	911371	912683	809424	809423	811454
0703	PP1	740421	740384	792644	740350	811455
	PP3	740420	740383	792646	740351	811455
	NP3	740418	740381	792026	748348	811455
	TT1	911392	912686	809407	809406	811455
	SS2	911398	912687	809424	809423	811455
1002	PP1	740425	740388	792644	740350	811456
	PP3	740424	740387	792646	740351	811456
	NP3	740422	740385	792026	740348	811456
	TT1	911420	912690	809445	809444	811456
	SS2	911426	912691	809497	809496	811456
	PP4	910344	910174	809457	809457	811456
	PP5	7910344	910772	7809457	7809457	811456
0308	PP1	912227	912693	809439	809438	811457
	PP2	7912237	910770	809449	809448	811457
	NP1	912226	912692	809413	809412	811457
	TT1	911448	912694	809445	809444	811457
	SS2	911454	912695	809497	809496	811457
0215	PP1	912232	912697	809439	809438	811458
	PP2	7912238	910771	809449	809448	811458
	NP1	912231	912696	809413	809412	811458
	TT1	911476	912698	809445	809444	811458
	SS2	911482	912699	809497	809496	811458