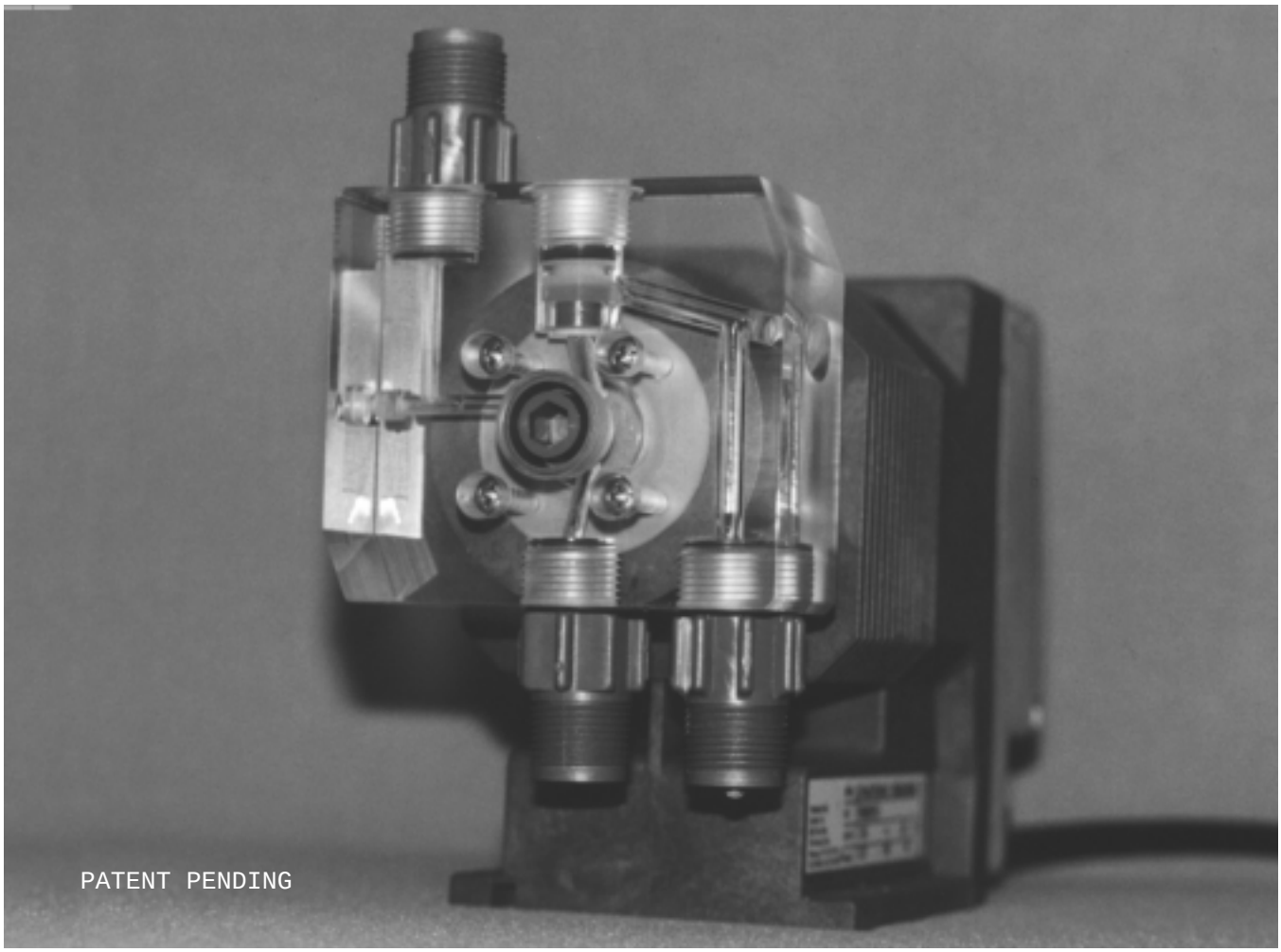
SUPPLEMENTAL OPERATING INSTRUCTIONS

gamma/4b AND CONCEPT/b

WITH SELF-DEGASSING LIQUID END

ProMinent®



Read the operating instructions before installation and use. The warranty does not cover damages due to faulty operation. *Keep for reference and replacement information.*

BA gC/SDG 02 7/98 NA **Order no. 7750061**

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Introduction

The information contained in this manual is to be used as a supplement to the following sections of the ProMinent gamma/4b and CONCEPT/b operating instruction manual:

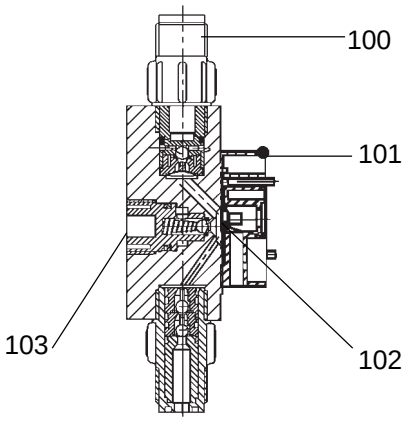
- *Introduction*
- *Specifications*
- *Installation*
- *Control and Operation*
- *Maintenance*

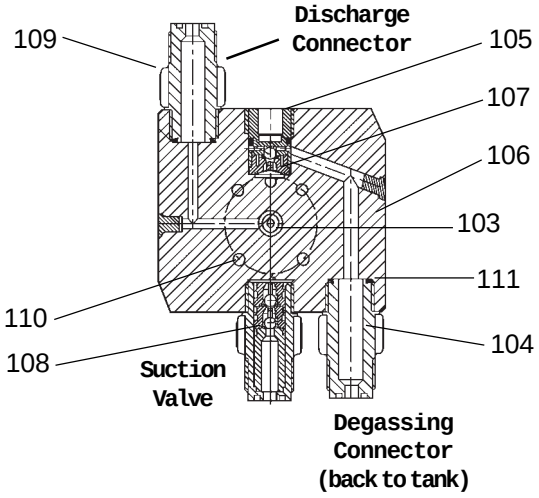
Some chemicals "off-gas" (i.e. decompose) when the pump is sitting idle; the gas accumulates and may cause the pump to lose prime. ProMinent's self-degassing liquid end incorporates a special degassing valve that can evacuate gases accumulated in the suction line or liquid end automatically, against system backpressure.

The self-degassing liquid end operates by allowing any accumulated gases to exit through the degassing valve. A small amount of liquid along with the expelled gases are channeled through the degassing valve and bypassed back to the supply tank (Cutaway View). When the liquid end becomes full of liquid, the degassing valve is forced closed, the discharge valve opens and liquid discharges to system pressure.

This action allows the pump to self-prime against the maximum rated backpressure and eliminates the need to have a flooded suction or to relieve pressure on the discharge line to reprime. The metering reproducibility is 5% for the 1601 and 1602 liquid ends and 2% for all other liquid ends.

Cutaway View/Cross Section





100	connection set
101	intermediate disk (backplate)
102	diaphragm
103	backpressure valve
104	bypass connection complete
105	bleed valve nut
106	liquid end
107	bleed valve
108	suction connection
109	discharge connection
110	fastening screws
111	O-ring

Specifications

Pump Version NS2/NS3 PS2/PS3	Capacity at Maximum Backpressure psig	(bar)	U.S. GPH	(L/h)	mL/ stroke	Max. Stroking Rate spm	Standard Suction/Discharge Connectors O.D. x I.D. inches	Suction Lift ft.	(m)	Shipping Weight lbs.	(kg)
g/4b											
1601	232	(16)	0.17	(0.66)	0.090	120	1/4 x 3/16	5.9	(1.8)	6.8	(3.1)
1602	232	(16)	0.26	(0.99)	0.090	180	1/4 x 3/16	5.9	(1.8)	6.8	(3.1)
1201	174	(12)	0.26	(1.00)	0.140	120	1/4 x 3/16	6.6	(2.0)	6.8	(3.1)
1203	174	(12)	0.40	(1.50)	0.140	180	1/4 x 3/16	6.6	(2.0)	6.8	(3.1)
0803	116	(8)	0.63	(2.40)	0.330	120	1/4 x 3/16	9.2	(2.8)	6.8	(3.1)
0806	116	(8)	0.95	(3.60)	0.330	180	1/4 x 3/16	9.2	(2.8)	6.8	(3.1)
1002	145	(10)	0.48	(1.80)	0.250	120	1/4 x 3/16	6.6	(2.0)	6.8	(3.1)
1003	145	(10)	0.71	(2.70)	0.250	180	1/4 x 3/16	6.6	(2.0)	6.8	(3.1)
CONb											
1601	232	(16)	0.17	(0.66)	0.090	120	1/4 x 3/16	15.7	(4.8)	6.4	(2.9)
1602	232	(16)	0.26	(0.99)	0.090	180	1/4 x 3/16	15.7	(4.8)	6.4	(2.9)
1201	174	(12)	0.26	(1.00)	0.140	120	1/4 x 3/16	6.6	(2.0)	6.4	(2.9)
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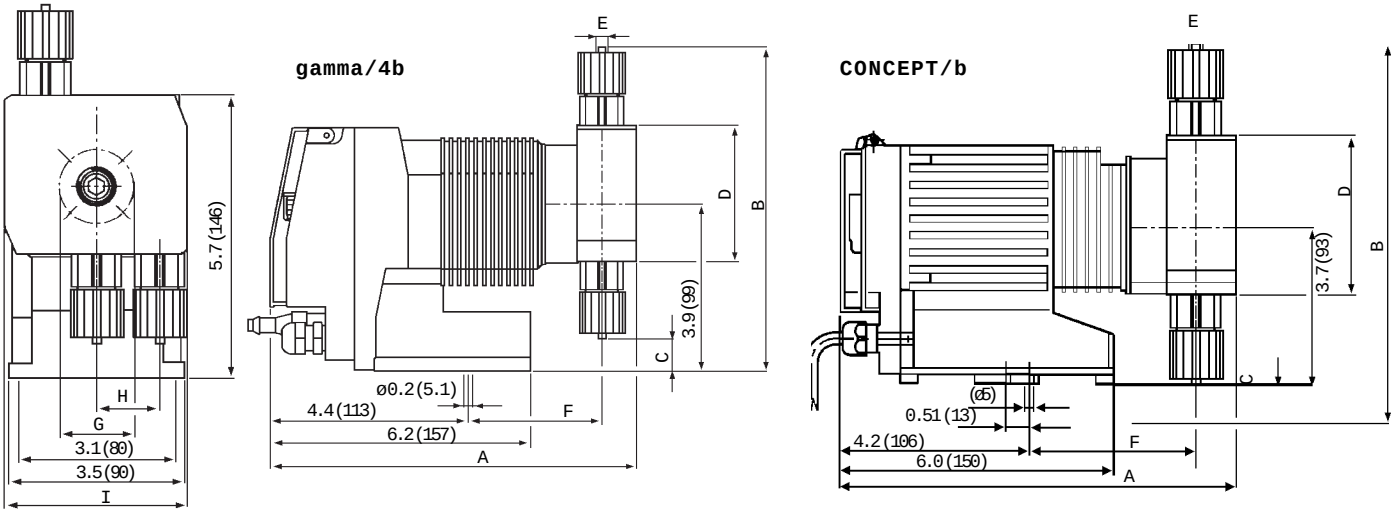
1003	145	(10)	0.71	(2.70)	0.250	180	1/4 x 3/16	6.6	(2.0)	6.4	(2.9)

Materials	Liquid End	Suction/Discharge Connection	Seals	Balls
NS2	Acrylic	PVC	EPDM	Ceramic
NS3	Acrylic	PVC	Viton B	Ceramic
PS2	PVC	PVC	EPDM	Ceramic
PS3	PVC	PVC	Viton B	Ceramic

Viscosity: ≤ 20 mPa's
Stroke Length: Recommended setting range 60-100% (1601 and 1602); all other models, 40-100%.

Dimensions



All dimensions in inches (mm)

Pump Version NS/PS - g/4b	A	B	C	D	E	F	G	H	I
1601, 1201, 0803, 1602, 1203, 0806	8.82 (224)	7.58 (192.5)	0.69 (17.5)	3.19 (81)	1/4 x 3/16 (6x4)	3.27 (83)	1.50 (38)	1.26 (32)	3.66 (93)
1002, 1003	8.82 (224)	7.58 (192.5)	0.69 (17.5)	3.19 (81)	1/4 x 3/16 (6x4)	3.27 (83)	1.97 (50)	1.26 (32)	3.66 (93)

CONb	A	B	C	D	E	F	G
1601, 1201 1602, 1203	8.80 (223)	7.58 (192.5)	0.69 (17.5)	3.19 (81)	1/4 x 3/16 (6x4)	3.27 (83)	1.50 (38)
0803, 0806	8.82 (224)	7.58 (192.5)	0.69 (17.5)	3.19 (81)	1/4 x 3/16 (6x4)	3.27 (83)	1.50 (38)

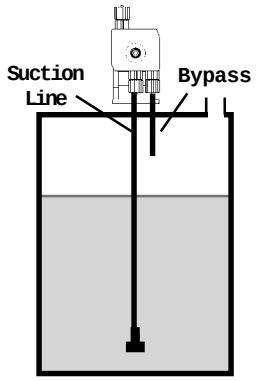
Installation

See also gamma/4b and CONCEPT/b installation instructions.

A. Suction Lift

For applications where the pump is mounted above the chemical tank, the bypass line should be routed back to the top of the tank. Install the pump so the bypass line is not submerged in the chemical. To prevent the pump from running dry we recommend installing a float switch.

A



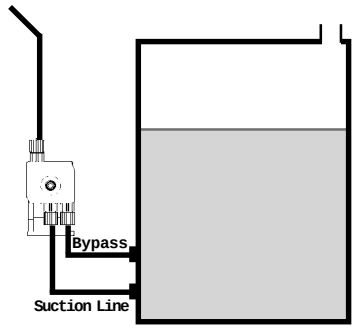
B. Positive Suction

For applications where the pump is mounted lower than the chemical supply (positive suction), we recommend routing the bypass line to a location approximately the same level as the suction line. To prevent loss of chemical if a diaphragm ruptures, we suggest installing a diaphragm failure detector.

Warning: Install the pump so any bypassed air/gas is not rerouted into the suction line.

Maximum allowable static suction head is 6.5 feet (2 m).

B



Calibration

In calibrating the pump, use a graduated cylinder as the fluid source. **Note:** Collect any fluid returned through the bypass during the calibration and subtract it from the quantity drawn into the suction line.

Install the pump in accordance with the instructions contained in the gamma/4b or CONCEPT/b operating instructions. The self-degassing liquid end is capable of priming against system pressure.

Maintenance

Ensure the pump connections are correct.

Maintain a clean liquid end with no buildup of chemical crystalline material. Especially check the bleed and backpressure valve.

Replacing the backpressure valve or spring:

Unscrew backpressure valve assembly with an Allen wrench.
Remove valve ball and valve spring.
Carefully remove the O-ring with a small screwdriver.
Fit a new O-ring into the groove.
Fit a new valve ball on the shoulder in front of the O-ring.
Fit a new valve spring (large diameter end first) into the valve housing.
Screw in a new valve housing as far as it will go.

Replacing the bleeder gasket:

Unscrew the bleeder valve assembly.
Carefully remove the PTFE gasket with a small screwdriver.
Fit a new PTFE gasket into the groove.
Screw in the bleeder valve and tighten to 2.2-2.6 ft. lb. (3-3.5 Nm) with a torque wrench.