

NEW TECHNOLOGY, DURABLE DESIGN



SIGMA SERIES



ProMinent®

SIGMA METERING PUMPS: EASY AS 1, 2, 3

1 OPERATING PRINCIPLE

Based on the recent technology developed for the gamma/L solenoid metering pumps. Providing unified operation and consistency across a wide range of applications.

2 OPERATING MODES

Basic or Microprocessor controlled

3 PERFORMANCE RANGES

Sigma/1 from 5.2 to 38 gph (20 to 144 l/h)

Sigma/2 from 15.9 to 111 gph (60 to 420 l/h)

Sigma/3 from 46 to 264 gph (174 to 1,000 l/h)



The control base on the Sigma/1 pump can be rotated on either side at a 90° angle

FEATURES AND BENEFITS



*Easy to set,
adjust, and access
information*

ANALOG INPUT:

- 4-20 mA input signal can be custom scaled to suit process conditions
- Direct input signal, SCR or inverter not needed
- Can be used for proportional control

ANALOG OUTPUT:

- 4-20 mA output signal proportional to pump flow rate
- Use with flow monitor to verify flow



*Sigma with
PROFIBUS®-DP
interface*

CONTACT/PULSE INPUT:

- Programmable multiplier/divider for proportional feed

CALIBRATION:

- Calibrate to actual flow with LCD indication of pump flow
- Displays capacity in gph or l/h and totalized volume pumped
- Easy field calibration



*LED status indicators
warn of operating faults*

FIELD BUS INTERFACE:

- PROFIBUS® DP option for remote monitoring, diagnostics and control



TIMER:

- Integral programmable timer (i.e. daily, weekly, biweekly, weekend)
- Change operation to vary dosage on a timed basis (i.e. peak/nonpeak usage times; to bleed gas from suction line; for shock dosing of chemical)
- Run pump from different control signals (i.e. analog then contact)

ACCESS CODES:

- Program codes to access settings; prevents unauthorized adjustments

TYPICAL APPLICATIONS:

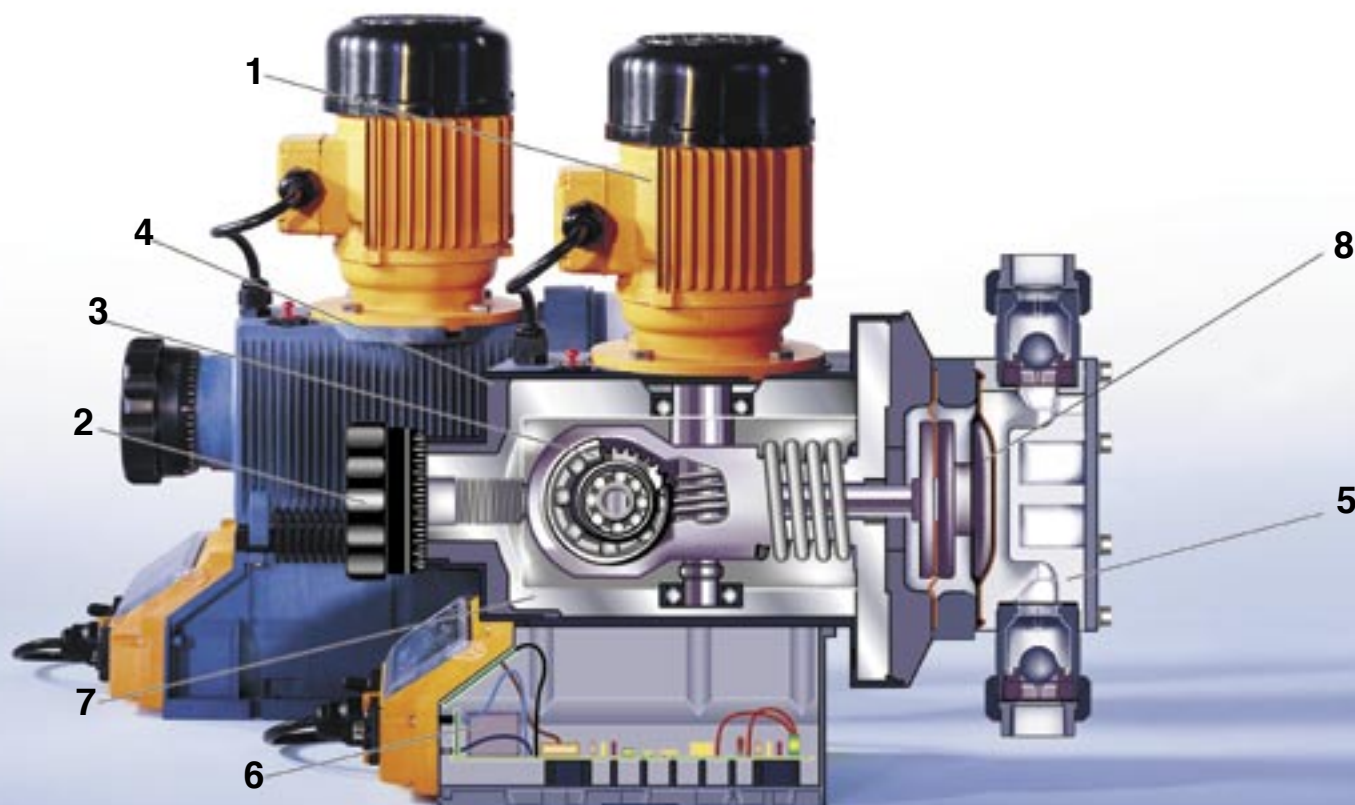
- | | |
|------------------------------------|------------------------------|
| - pH Neutralization | - Boiler chemical feed |
| - Chlorination/De-chlorination | - Polymer feed |
| - Disinfection | - Fertigation services |
| - Cooling tower chemical injection | - Water/wastewater treatment |

PRINCIPLES OF OPERATION

The ProMinent Sigma Series pumps are motor-driven with a mechanically actuated diaphragm-type liquid end. The Sigma pumps are constructed with a corrosion resistant plastic outer housing. The Sigma/2 and 3 also have

a rugged metal inner casing for components subjected to mechanical stress. The standard liquid end materials are PVDF or 316 stainless steel; both with PTFE seals.

Sigma pumps are designed with a convex DEVELOPAN® diaphragm which seals to a concave curve in the liquid end. This allows for precise metering of media with various viscosities and reduces stress for long diaphragm life.



- 1 Motor
- 2 Stroke length adjuster
- 3 Gearbox
- 4 Plastic housing

- 5 Liquid end
- 6 Microprocessor controller
- 7 Metal inner casing (Sigma 2 and 3)
- 8 Diaphragm failure monitor

SPECIFICATIONS



The Sigma series offers an economic basic version for simple applications

BASIC VERSION

The choice for simple, metering pump applications. The pumps may be operated manually by adjusting the stroke length knob (displacement per stroke) at a constant stroke frequency using a constant speed motor. Automatic control of displacement per stroke

via analog (4-20 mA) or 3P signal is possible with optional motorized stroke positioning systems.

CONTROL VERSION



New control technology

Sigma microprocessor controlled metering pumps are programmable and display informative data for monitoring, recording and tracking. Functions include digital setting of stroke

frequency, batch delivery and external control by contact, pulse or analog signal. Displays include flow rate (gph or l/h) and totalized flow (gallons or litres), cumulative stroke count, and stroke length adjustment. Options include remote monitoring, diagnostics, control (via fieldbus, analog, pulse and/or timer), access codes, fault/pacing relays, mA analog output, and flow monitoring. Control version pumps are supplied with an integral TEFC motor.

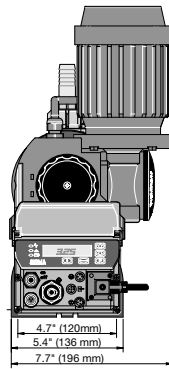
SPECIFICATIONS

	SIGMA/1	SIGMA/2*	SIGMA/3
Max. Capacity Range: Basic	5.2 - 38 gph 20 - 144 l/h	15.9 - 111 gph 60 - 420 l/h	46 - 264 gph 174 - 1000 l/h
Max. Capacity Range: Control	5.2 - 31.7 gph 20 - 120 l/h	15.9 - 92.5 gph 60 - 350 l/h	46 - 264 gph 174 - 1000 l/h
Max. Pressure Range	174 - 58 psi	174 - 58 psi	174 - 58 psi
Maximum Stroke Length	0.157" (4mm)	0.196" (5mm)	0.236" (6mm)
Stroke Length Adjustment Increments	1.0%	0.5%	0.5%
Repeatability (between 30-100%)	+/- 2%	+/- 2%	+/- 2%
Warranty on drive	2 years	2 years	2 years
Warranty on liquid end	1 year	1 year	1 year
Industry Standards	CE, CSA	CE, CSA	CE, CSA

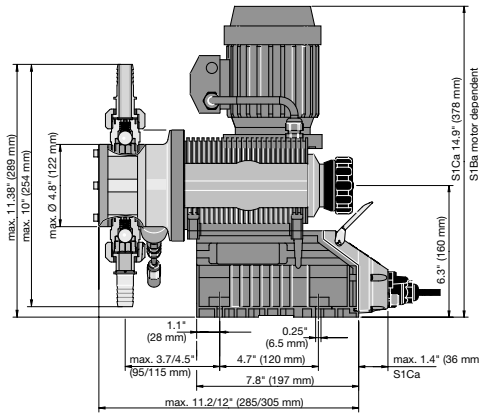
* also available with a packed plunger type liquid end for higher pressure applications

DIMENSIONS

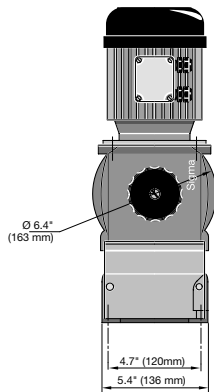
Dimensions vary based on liquid end size and material (PVDF or SS); maximum dimensions are shown.



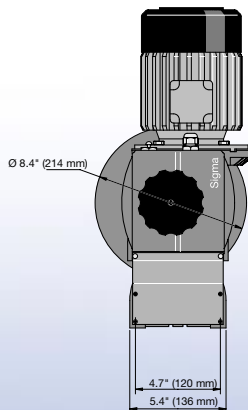
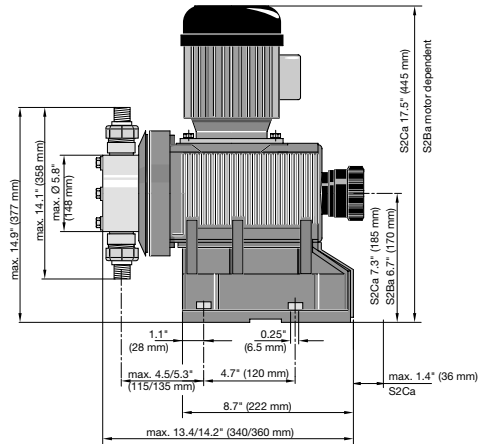
Sigma/ 1



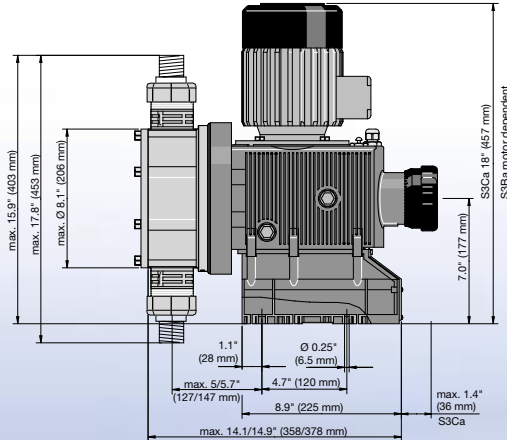
Shown with optional
diaphragm failure
monitor



Sigma/ 2



Sigma/ 3



Detailed dimension sheets on request

TECHNICAL DATA

Pump type Sigma	Sigma Basic					Sigma Control								
	Feed rate at max. back pressure psi	Capacity U.S. gph		Approx ml/stroke	Max. stroke rate strokes/min	Feed rate at max. back pressure psi	Capacity U.S. gph		Approx ml/stroke	Max. stroke rate strokes/min	Suction lift ft	*mWc	Max. suction pressure psi	Suction/ discharge connector NPT
Sigma/ 1														
12017 PVT	145	5.2	20	4.0	88	145	5.2	20	4.0	90	23	7	14.5	1/2" MNPT
12017 SST	174	5.2	20	4.0	88	174	5.2	20	4.0	90	23	7	14.5	3/8" FNPT
12035 PVT	145	11.1	42	4.0	172	145	11.1	42	4.0	170	23	7	14.5	1/2" MNPT
12035 SST	174	11.1	42	4.0	172	174	11.1	42	4.0	170	23	7	14.5	3/8" FNPT
10050 PVT	145	15.8	60	4.0	240	145	13.2	50	4.0	200	23	7	14.5	1/2" MNPT
10050 SST	145	15.8	60	4.0	240	145	13.2	50	4.0	200	23	7	14.5	3/8" FNPT
10022 PVT	145	6.8	26	5.1	88	145	6.8	26	5.1	90	19.6	6	14.5	1/2" MNPT
10022 SST	145	6.8	26	5.1	88	145	6.8	26	5.1	90	19.6	6	14.5	3/8" FNPT
10044 PVT	145	14	53	5.1	172	145	14	53	5.1	170	19.6	6	14.5	1/2" MNPT
10044 SST	145	14	53	5.1	172	145	14	53	5.1	170	19.6	6	14.5	3/8" FNPT
07065 PVT	102	20.6	78	5.1	240	102	17.2	65	5.1	200	19.6	6	14.5	1/2" MNPT
07065 SST	102	20.6	78	5.1	240	102	17.2	65	5.1	200	19.6	6	14.5	3/8" MNPT
07042 PVT	102	13.2	50	9.7	88	102	13.2	50	9.7	90	9.8	3	14.5	3/4" MNPT
07042 SST	102	13.2	50	9.7	88	102	13.2	50	9.7	90	9.8	3	14.5	1/2" FNPT
04084 PVT	58	26.7	101	9.7	172	58	26.7	101	9.7	170	9.8	3	14.5	3/4" MNPT
04084 SST	58	26.7	101	9.7	172	58	26.7	101	9.7	170	9.8	3	14.5	1/2" FNPT
04120 PVT	58	38	144	9.7	240	58	31.7	120	9.7	200	9.8	3	14.5	3/4" MNPT
04120 SST	58	38	144	9.7	240	58	31.7	120	9.7	200	9.8	3	14.5	1/2" FNPT
Sigma/ 2														
12050 PVT	145	15.9	60	11.4	87	145	15.9	60	11.4	90	23	7	43.5	1/2" MNPT
12050 SST	174	15.2	57	11.4	87	174	15.9	60	11.4	90	23	7	43.5	1/2" FNPT
12090 PVT	145	28.5	108	11.4	156	145	28.5	108	11.4	160	23	7	43.5	3/4" MNPT
12090 SST	174	27	103	11.4	156	174	28.5	108	11.4	160	23	7	43.5	1/2" FNPT
12130 PVT	145	41	156	10.9	232	145	34.3	130	10.9	200	23	7	43.5	3/4" MNPT
12130 SST	174	39.6	150	10.9	232	174	34.3	130	10.9	200	23	7	43.5	1/2" FNPT
07120 PVT	100	38	144	27.4	87	100	38	144	27.4	90	16	5	14.5	3/4" MNPT
07120 SST	100	38	144	27.4	87	100	38	144	27.4	90	16	5	14.5	3/4" MNPT
07220 PVT	100	69.7	264	27.7	156	100	69.7	264	27.7	160	16	5	14.5	3/4" MNPT
07220 SST	100	69.7	264	27.7	156	100	69.7	264	27.7	160	16	5	14.5	3/4" MNPT
04350 PVT	58	111	420	29.4	232	58	92.5	350	29.4	200	16	5	14.5	1" MNPT
04350 SST	58	111	420	29.4	232	58	92.5	350	29.4	200	16	5	14.5	1" MNPT
Sigma/ 3														
120145 PVT	145	46	174	31.5	86	145	46	174	31.5	90	16	5	29	1" MNPT
120145 SST	174	46	174	31.5	86	174	46	174	31.5	90	16	5	29	1" MNPT
120190 PVT	145	60.2	228	31.5	124	145	60.2	228	31.5	120	16	5	29	1" MNPT
120190 SST	174	60.2	228	31.5	124	174	60.2	228	31.5	120	16	5	29	1" MNPT
120270 PVT	145	85.6	324	31.5	173	145	85.6	324	31.5	180	16	5	29	1" MNPT
120270 SST	174	85.6	324	31.5	173	174	85.6	324	31.5	180	16	5	29	1" MNPT
070410 PVT	100	130	492	95.1	86	100	130	492	95.1	90	13	4	14.5	1-1/2" MNPT
070410 SST	100	130	492	95.1	86	100	130	492	95.1	90	13	4	14.5	1-1/2" MNPT
070580 PVT	100	184	696	95.1	124	100	184	696	95.1	120	13	4	14.5	1-1/2" MNPT
070580 SST	100	184	696	95.1	124	100	184	696	95.1	120	13	4	14.5	1-1/2" MNPT
040830 PVT	58	264	1000	95.1	173	58	264	1000	95.1	180	10	3	14.5	1-1/2" MNPT
040830 SST	58	264	1000	95.1	173	58	264	1000	95.1	180	10	3	14.5	1-1/2" MNPT

Detailed product information can be found on the ProMinent website

* mWc = metres of water column

Technical data subject to change

PRE-ENGINEERED SYSTEMS

Standard pre-engineered metering packages available with the Sigma series pumps include the single metering pump (M1) and dual metering pump (M2) dosing systems.

ProMinent also offers customized systems built to specification. For more information, contact ProMinent or your local Representative.

- Systems are corrosion-resistant, self contained units with chemical metering pump(s), piping, fittings, and optional accessories.
- Production capabilities include threaded, welded and thermal fusion joining systems for pipe; system assembly; wiring and

equipment support and testing (with criteria for electrical, control, mechanical and aesthetic features).

- All systems are factory assembled and tested prior to shipment.



- Standard options:
 - Pipe size
 - Stand material
 - Calibration column
 - Backpressure valve
 - Pulsation dampener

- Accumulator
- Pressure gauge
- Flow monitor
- Sediment strainer
- Pressure relief valve
- Engineering services include process design, P&ID development, CAD drawings, general arrangements, shop electrical drawings, as built, custom operation instructions and maintenance manuals.



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