

# Safe, precise and cost-effective metering

Low-pressure metering pumps up to over 1,000 l/h



# Solenoid-driven metering pumps

## Low-wear pumps for low capacities

### Mode of operation

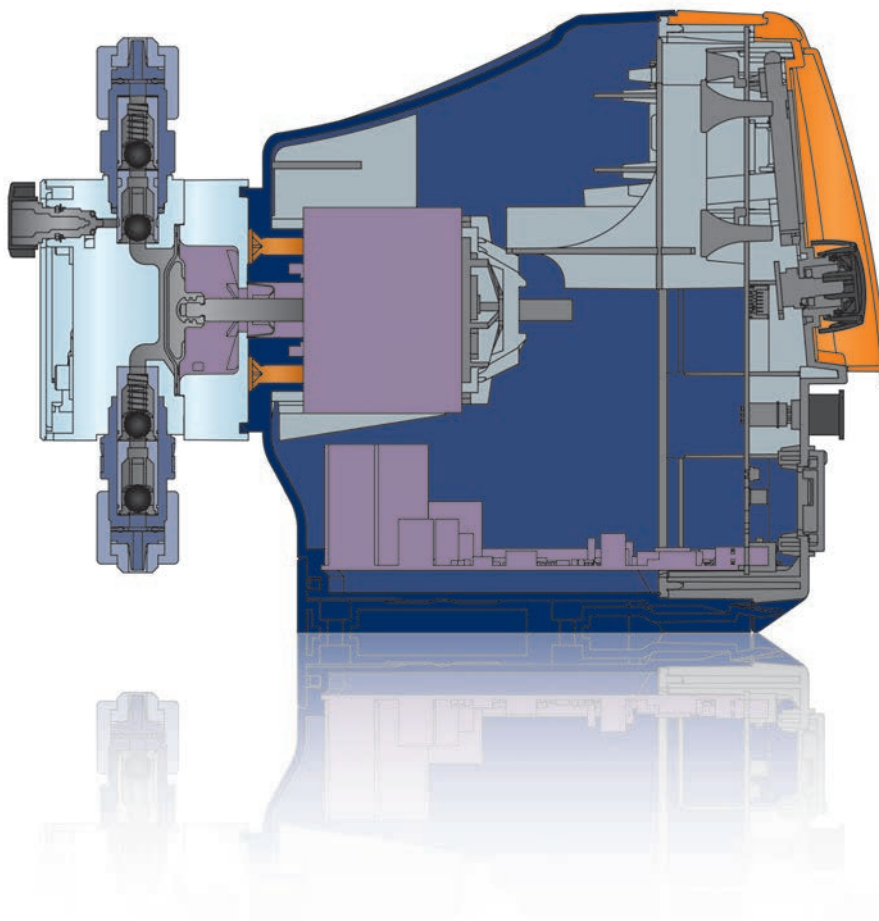
A magnet moves the solenoid shaft forwards and backwards by switching on and off. This stroke movement is transferred to the diaphragm in the dosing head. Two non-return valves prevent the feed chemical from flowing back during pumping. The stroke length and stroke rate can be adjusted to alter the capacity of a solenoid-driven metering pump.

### Features

- Capacity range: 0.74 to 80 l/h at 25 to 2 bar back pressure
- Virtually wear-free power end/drive, as only one moving part is used – the pump has no lubricated bearing or shafts
- Outstanding long-term stability
- Cost-effective technical alternative in the lower capacity range
- Maximum protection from overloading
- Low energy consumption thanks to excellent efficiency
- IP 65 degree of protection due to fully sealed housing

### Applications

- General: chemical metering in laboratories and in industry up to 80 l/h pumping capacity
- Potable water and swimming pool water treatment: metering of chemicals for disinfection and for pH correction
- General water treatment, process water, industrial water, and conditioners
- Cooling water circuits: metering disinfectants
- Mini-plant technology
- Paper industry, de-foamers
- Electroplating and surface treatment, pool additives, slide grinding systems



# Motor-driven metering pumps

## High level of dosing precision and robust technology

### Mode of operation

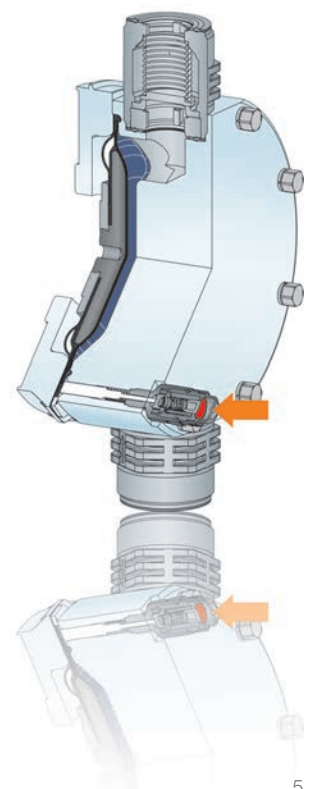
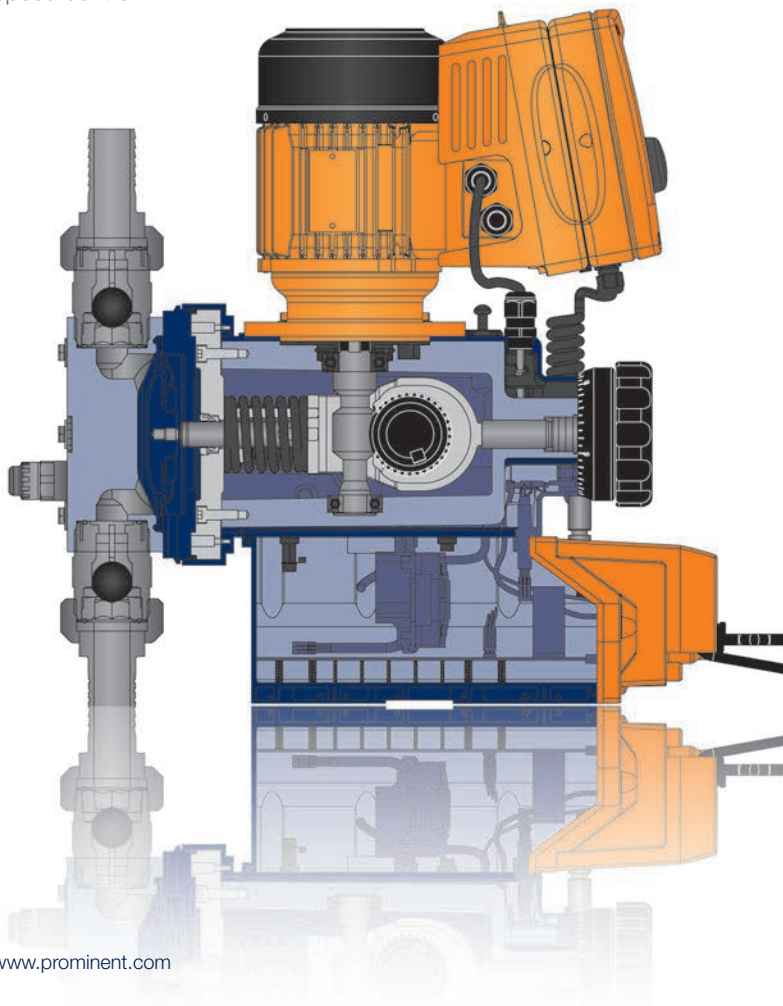
The stroke length and stroke rate – in this case the motor speed – can be adjusted to alter the capacity of this pump. The rotation of the electric motor is stepped down by a worm gear and converted into a linear stroke movement by a cam. The slide rod transfers this stroke movement to the diaphragm in the dosing head. Two non-return valves prevent the feed chemical from flowing back during pumping.

### Features

- Extremely broad capacity range
- High dosing precision even under varying pressure conditions (rigid characteristic curve) enables chemical use to be reduced and ensures exact process control
- Robust and cost-effective drive in higher capacity classes
- Simple integration and retrofitting into automated processes by flexible control via stroke length and motor speed control
- Maximum safety thanks to multi-layer safety diaphragm with rupture warning system
- Sigma basic: robust pump for safe and reliable use
- Sigma X control type: reliable, smart and network-friendly

### Applications

- General: chemical metering up to over 1,000 l/h
- Potable water treatment: metering disinfectants
- Cooling circuits: metering disinfectants
- Waste water treatment: metering flocculants
- Paper industry: metering additives
- Plastics production: metering additives



# The broad-based range for reliability and precision

## Motor-driven metering pumps

### Sigma basic type

The robust pump for safe and reliable use

#### Sigma/ 1

Capacity range  
17 – 120 l/h  
12 – 4 bar

#### Sigma/ 2

Capacity range  
50 – 350 l/h  
16 – 4 bar

#### Sigma/ 3

Capacity range  
146 – 1,030 l/h  
12 – 4 bar

### Sigma X family

Reliable, smart and network-friendly

#### Sigma/ 1

Capacity range  
17 – 144 l/h  
12 – 4 bar

#### Sigma/ 2

Capacity range  
50 – 420 l/h  
16 – 4 bar

#### Sigma/ 3

Capacity range  
146 – 1,040 l/h  
12 – 4 bar



Sigma basic type



Sigma control type

### Sigma

#### For particular requirements

- MET, EAC certification
- Hygienic design
- Physiological safety with regard to the material
- EN10204 test certificates
- Special materials in the case of PVDF and >600l/h
- Project-specific solutions

Get in touch with us



# Sigma basic type

## Motor-driven metering pump

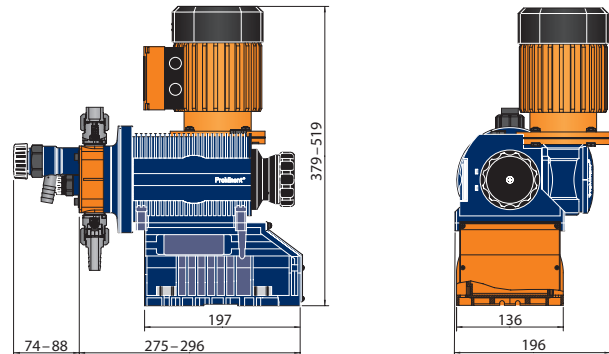
The right capacity for every application. There are two different versions of the Sigma product range available (the basic type and the control type).

The three versions differ in terms of their capacities:

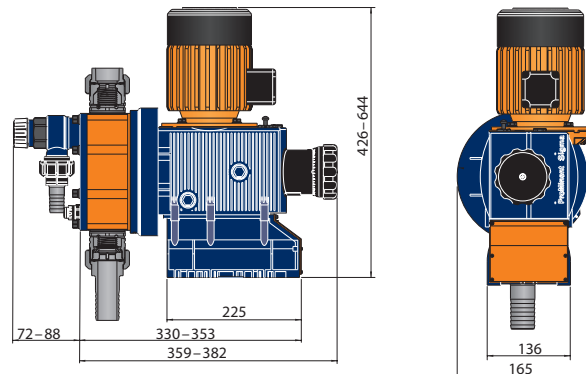
- Sigma/ 1** 17–120 l/h, 12–4 bar
- Sigma/ 2** 50–350 l/h, 16–4 bar
- Sigma/ 3** 146–1,030 l/h, 12–4 bar

- Process reliability thanks to multi-layer diaphragm with diaphragm rupture warning system
- Reliable operation due to bleeding option
- Integrated relief valve protects against overloading
- Simplified management of spare parts when using the Sigma product range
- Wide choice of drive variants, also for use in Exe and Exde areas and different flange designs for the use of customised motors.
- Servomotors or stroke control motors for adjusting the stroke length
- 2 standard materials PVDF/PTFE, stainless steel/PTFE

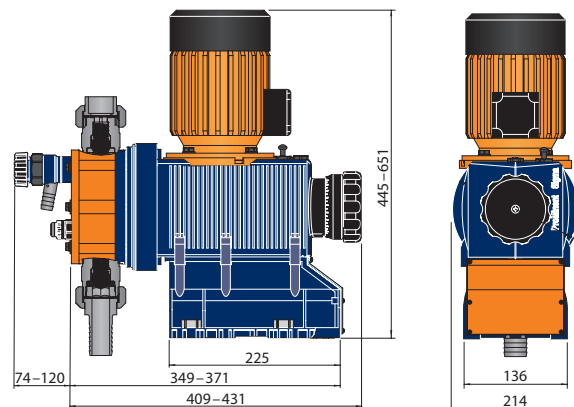
Sigma/ 1



Sigma/ 2



Sigma/ 3





Pump type	Pump capacity at max. back pressure with motor operating at 1,500 rpm at 50 Hz operation			Stroke rate Strokes/min	with motor operating at 1,800 rpm at 60 Hz operation		Stroke rate Strokes/min	Suction lift mWS	Reliable pre-pressure on suction side bar	Connector Suction/discharge side G-DN
	bar	l/h	ml/stroke		psi	l/h				
<b>Sigma/ 1 basic type (S1Ba)</b>										
12017	12	17	3.8	73	174	20	88	7	1	¾-10
12035	12	35	4.0	143	174	42	172	7	1	¾-10
10050	10	50	4.0	205	145	60	246	7	1	¾-10
10022	10	22	5.0	73	145	26	88	6	1	¾-10
10044	10	44	5.1	143	145	53	172	6	1	¾-10
07065	7	65	5.2	205	102	78	246	6	1	¾-10
07042	7	42	9.5	73	102	50	88	3	1	1-15
04084	4	84	9.7	143	58	101	172	3	1	1-15
04120	4	120	9.7	205	58	144	246	3	1	1-15
<b>Sigma/ 2 basic type (S2Ba)</b>										
16050	16	47	11.4	73	232	57	87	7	3	1-15
16090	16	88	11.4	132	232	98	158	7	3	1-15
16130	16	124	10.9	198	232	148	238	7	3	1-15
07120	7	126	27.4	73	102	150	87	5	1	1½-25
07220	7	220	27.7	132	102	264	158	5	1	1½-25
04350	4	350	29.4	198	58	420	238	5	1	1½-25
<b>Sigma/ 3 basic type (S3Ba)</b>										
120145	12	146	33.7	72	174	174	86	5	2	1½-25
120190	12	208	33.7	103	174	251	124	5	2	1½-25
120270	12	292	33.8	144	174	351	173	5	2	1½-25
120330	12	365	33.8	180	174	-	-	5	2	1½-25
070410	7	410	95.1	72	102	492	86	4	1	2-32
070580	7	580	95.1	103	102	696	124	4	1	2-32
040830	4	830	95.1	144	58	1,000	173	3	1	2-32
041030	4	1,030	95.1	180	58	-	-	3	1	2-32

Dosing head, PVDF design, max. 10 bar. \*\* DN32 plate valves with valve spring

Wetted materials					Integral relief valve
Material	Dosing head	Suction/pressure connector	Seals/ball seat	Valve balls	
<b>Sigma/ 1 + Sigma/ 2</b>					
PVT	PVDF	PVDF	PTFE/PTFE	Ceramic	PVDF/FPM or EPDM
SST	Stainless steel material no. 1.4404	Stainless steel material no. 1.4581	PTFE/PTFE	Stainless steel material no. 1.4404	Stainless steel/FPM or EPDM

ATEX design: TTT wetted materials, PTFE+25% carbon, PTFE+25% carbon, PTFE/PTFE, ceramic

Material	Suction/pressure connection of dosing head	DN 25 ball valves			DN 32 plate valves			Integral relief valve
		Seals	Valve balls	Valve seats	Seals	Valve plates/ valve springs	Valve seats	
<b>Sigma/ 3</b>								
PVT	PVDF	PTFE	Glass	PTFE	PTFE	Ceramic/ Hast C. + CTFE	PTFE	PVDF/FPM or EPDM
SST	Stainless steel material no. 1.4404	PTFE	Stainless steel material no. 1.4404	PTFE	PTFE	Stainless steel 1.4404/Hast C.	PTFE	Stainless steel/FPM or EPDM

Multi-layer safety diaphragm with PTFE support in all designs. FPM: fluorine rubber

Alternative material versions available on request.

TTT, PTFE+25% carbon, PTFE, ceramic, PTFE, PVDF, ceramic/Hast C. + CTFE, for ATEX design

# Sigma X control type

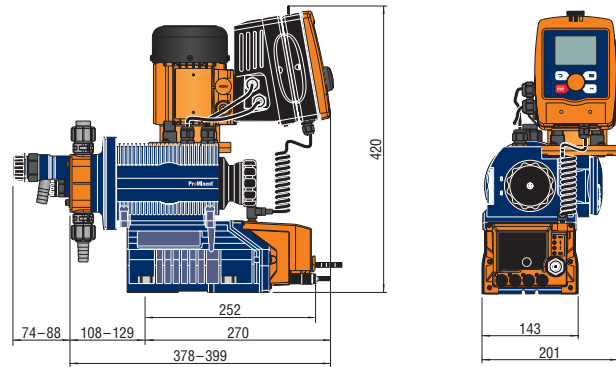
## Motor-driven metering pump

The Sigma X type is a smart, flexible motor-driven metering pump that is setting new standards in terms of operating convenience, reliability and safety.

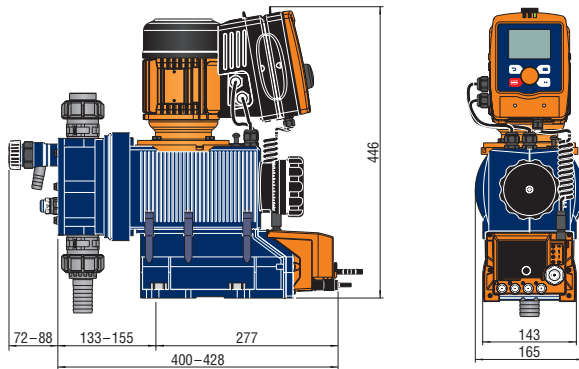
The Sigma X diaphragm metering pump covers a capacity range of 21 to 1,040 l/h in the S1Cb, S2Cb and S3Cb variants. Efficient protection of the power end from overloading by means of an integral frequency converter with microprocessor controller. One highlight is the standardised operating concept with click wheel and 4 additional operating keys on a removable operating unit. A large illuminated LCD and a 3-LED display for operating, warning and error messages, visible from all sides, offers additional operating convenience. The Sigma, like all smart ProMinent metering pumps, can be flexibly connected to various bus systems. It has a large adjustment range thanks to a combination of frequency and stroke length adjustment. The pump works with high precision across the entire frequency range. Accurate and complication-free metering of viscous and gaseous media by adjustment of the movement profile. Operating statuses are transferred remotely via additional relay modules. Relevant spare parts can be shown in the display.

- External control is scalable via potential-free contacts with pulse step-up and step-down, batch mode or via a 0/4-20 mA standard signal
- Can be flexibly networked: connection to process management systems via integrated PROFIBUS®, CANopen interface (optional)
- Bluetooth and Wi-Fi connection for the simple configuration of parameters and call-up of process data (optional)

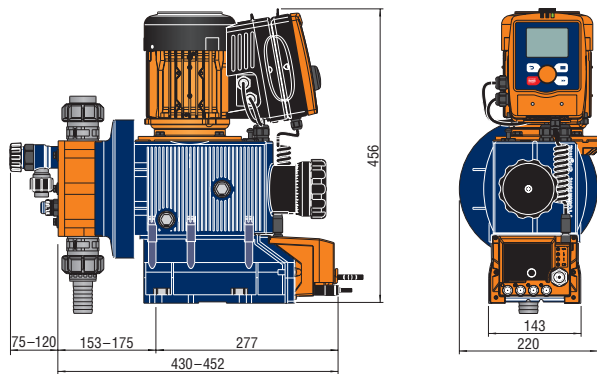
Sigma/ 1



Sigma/ 2



Sigma/ 3



Capacity ranges:

**Sigma/ 1** 17–117 l/h, 12–4 bar

**Sigma/ 2** 61–353 l/h, 16–4 bar

**Sigma/ 3** 182–1,040 l/h, 12–4 bar



## Sigma X family

Pump type	Pump capacity at max. back pressure			Stroke rate Strokes/min	Suction lift mWS	Reliable pre-pressure on suction side bar	Connector Suction/ discharge side G-DN
	bar	l/h	ml/stroke				
<b>Sigma/ 1 control type (S1Cb)</b>							
12017	12	21	3.9	90	7	1	¾-10
12035	12	42	4.0	170	7	1	¾-10
10050	10	49	4.0	200	7	1	¾-10
10022	10	27	5.1	90	6	1	¾-10
10044	10	53	5.1	170	6	1	¾-10
07065	7	63	5.1	200	6	1	¾-10
07042	7	52	9.5	90	3	1	1-15
07084	4	101	9.7	170	3	1	1-15
04120	4	117	9.7	200	3	1	1-15
<b>Sigma/ 2 control type (S2Cb)</b>							
16050	16	56	10.4	90	7	2	1-15
16090	16	99	10.3	160	7	2	1-15
16130	16	129	10.9	200	7	2	1-15
07120	7	150	27.4	90	5	1	1½-25 <sup>1)</sup>
07220	7	271	27.7	160	5	1	1½-25 <sup>1)</sup>
04350	4	353	29.4	200	5	1	1½-25 <sup>1)</sup>
<b>Sigma/ 3 control type (S3Cb)</b>							
120145	12	182	33.7	90	5	2	1½-25
120190	12	243	33.7	120	5	2	1½-25
120270	12	365	33.8	180	5	2	1½-25
070410	7	500	95.1	90	4	1	2-32
070580	7	670	95.1	120	4	1	2-32
040830	4	1,040	95.1	180	3	1	2-32

Dosing head, PVDF design, max. 10 bar. \*\*DN32 plate valves

Wetted materials					Integral relief valve
Material	Dosing head	Suction/pressure connector	Seals/ball seat	Valve balls	
<b>Sigma/ 1 + Sigma/ 2</b>					
PVT	PVDF	PVDF	PTFE/PTFE	Ceramic	PVDF/FPM or EPDM
SST	Stainless steel material no. 1.4404	Stainless steel material no. 1.4581	PTFE/PTFE	Stainless steel material no. 1.4404	Stainless steel/FPM or EPDM

Material	Suction/pressure connection of dosing head	DN 25 ball valves			DN 32 plate valves			Integral relief valve
		Seals	Valve balls	Valve seats	Seals	Valve plates/ valve springs	Valve seats	
<b>Sigma/ 3</b>								
PVT	PVDF	PTFE	Glass	PTFE	PTFE	Ceramic/ Hast C. + CTFE	PTFE	PVDF/FPM or EPDM
SST	Stainless steel material no. 1.4404	PTFE	Stainless steel material no. 1.4404	PTFE	PTFE	Stainless steel 1.4404/Hast C.	PTFE	Stainless steel/FPM or EPDM

Multi-layer safety diaphragm with PTFE support in all designs. FPM: fluorine rubber

Alternative material versions available on request.

MET, EAC design (optional).



## Worldwide contacts

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### Ready for you. Any time, anywhere.

ProMinent is at home in more than 100 countries across the globe. This guarantees the worldwide availability of our products and comprehensive expertise on the ground with close proximity to the customer. We offer the same high quality standards for our solutions and services all over the world. And we work day in, day out to keep our promise: Ready for you. Any time, anywhere.

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