Motor-Driven Metering Pump Sigma/ 1 (Basic type)

The robust pump for safe and reliable use

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

The Sigma/ 1 diaphragm metering pump, together with pumps of type Sigma/ 2 and Sigma/ 3, represents an integrated product range. They cover the capacity range from 17 to 1,030 l/h, with a consistent operating concept, control concept and spare parts management. A wide range of power end versions is available, including some for use in areas at risk from explosion.

Your benefits

Excellent process reliability:

- In the event of an accident, the feed chemical does not escape to the outside nor into the pump's power end, thanks to the patented multi-layer safety diaphragm with optical (optionally electric) signalling.
- Integrated relief valve to protect the pump from overloading.
- Reliable operation by bleed option during the suction process.

Flexible adaptation to the process:

- The entire Sigma product range is available as standard in a "Physiologically safe in respect of wetted materials" design.
- Metering pumps with electro-polished stainless steel metering head enable them to be used in hygienically challenging applications.
- Adaptation to specific installation situations, as the "Liquid end on left" option can be selected as standard.

Field of application

- Volume-proportional addition of chemicals in water treatment, e.g. sodium-calcium hypochlorite for the disinfection of potable water
- Addition of chemicals depending on the measured value, e.g. metering of acid and alkali for pH neutralisation in waste water treatment
- Time-controlled addition of chemicals in the cooling water circuit
- Pulse-controlled metering in the bottling of different volumes e.g. glycerin filling of manometers

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Technical Data

Control of Sigma Basic type (S1Ba)

Stroke length actuator/controller

Actuator: Electronically regulated actuator with contactless position detection for automatic stroke length adjustment, actuating period approx. 1 second for 1% stroke length, return potentiometer 1 kΩ, degree of protection IP 65.

Control drive: Electronically regulated actuator with position detection, with no contact with the media, consisting of an actuator and integral servo controller for stroke length adjustment via a standard signal. Standard current input 0/4-20 mA corresponds to stroke length 0 – 100%, switch-over for manual /automatic operation, stroke adjustment in manual mode, electronic stroke length position display, wide-range voltage power unit 85 - 265 V 50/60 Hz, degree of protection Ip65, actual value output 0/4-20 mA for remote display.

Speed controllers with frequency converter (identity code specification Z)

The speed control, assembled, consists of a frequency converter and a variable speed motor with 0.09 kW (Sigma 1 Ba), 0.37 kW (Sigma 2 Ba) or 0.55 kW (Sigma 3 Ba).

"Physiologically safe" designs in respect to wetted sealing material

FDA

The wetted materials in the “FDA” (F) version comply with the FDA Guidelines.

FDA Guidelines: Material PTFE: FDA No. 21 CFR § 177.1550, material PVDF: FDA No. 21 CFR § 177.2510

Available for pump design plastic (PV) and stainless steel (SS)

Identity code example: S1BaH04084PV F S000S000

EU Regulation 1935/2004

Sealing materials in accordance with Regulation (EC) 1935/2004 are available in the stainless steel material version “Physiologically safe for wetted material in accordance with Regulation (EC) 1935/2004”. Available for stainless steel (SS) pump design.

Dosing heads with a hygienic design are available on request for hygienically demanding applications.

Sigma / 1 Basic Type version "left liquid end "

This version offers additional adaptability to special installation situations, e.g. in combination with storage tanks, brackets, etc.

Identity code example: S1BaH07042PVTS00 **5** S000

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Type S1Ba	With 1500 rpm motor at 50 Hz				With 1800 rpm motor at 60 Hz			Suction lift	Perm. pre-pressure suction side	Connection, suction/ discharge side	Shipping weight
	Delivery rate at max. back pressure			Max. stroke rate	Delivery rate at max. back pressure		Max. stroke rate				
	bar	l/h	ml/stroke	Strokes/min	psi	l/h/gph (US)	Strokes/min	m WC	bar	G–DN	kg
12017 PVT	10	17	3.8	73	145	20.4/5.3	88	7	1	3/4–10	9
12017 SST	12	17	3.8	73	174	20.4/5.3	88	7	1	3/4–10	12
12035 PVT	10	35	4.0	143	145	42.0/11.0	172	7	1	3/4–10	9
12035 SST	12	35	4.0	143	174	42.0/11.0	172	7	1	3/4–10	12
10050 PVT	10	50	4.0	205	145	60.0/15.8	246	7	1	3/4–10	9
10050 SST	10	50	4.0	205	145	60.0/15.8	246	7	1	3/4–10	12
10022 PVT	10	22	5.0	73	145	26.4/6.9	88	6	1	3/4–10	9
10022 SST	10	22	5.0	73	145	26.4/6.9	88	6	1	3/4–10	12
10044 PVT	10	44	5.1	143	145	52.8/13.9	172	6	1	3/4–10	9
10044 SST	10	44	5.1	143	145	52.8/13.9	172	6	1	3/4–10	12
07065 PVT	7	65	5.2	205	102	78.0/20.6	246	6	1	3/4–10	9
07065 SST	7	65	5.2	205	102	78.0/20.6	246	6	1	3/4–10	12
07042 PVT	7	42	9.5	73	102	50.4/13.3	88	3	1	1–15	10
07042 SST	7	42	9.5	73	102	50.4/13.3	88	3	1	1–15	14
04084 PVT	4	84	9.7	143	58	100.8/26.6	172	3	1	1–15	10
04084 SST	4	84	9.7	143	58	100.8/26.6	172	3	1	1–15	14
04120 PVT	4	120	9.7	205	58	144.0/38.0	246	3	1	1–15	10
04120 SST	4	120	9.7	205	58	144.0/38.0	246	3	1	1–15	14

Performance data for TTT, see type PVT

Materials in Contact With the Medium

Material	Dosing head	Suction/pressure connector	Seals/ball seat	Balls	Integral relief valve
PVT	PVDF	PVDF	PTFE/PTFE	Ceramic	PVDF/FKM or EPDM
SST	Stainless steel 1.4404	Stainless steel 1.4581	PTFE/PTFE	Stainless steel 1.4404	Stainless steel/FKM or EPDM
TTT*	PTFE + 25% carbon	PTFE + 25% carbon	PTFE/PTFE	Ceramic	–

* specifically for areas at risk from explosion

Sealing material “F“ - "FDA" ball seat version: PVDF

Sealing material “G” - (EC) Regulation 1935/2004" ball seat version: 1.4404

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Motor Data

Identity code specification	Power supply	Δ/Y			Remarks
S	3-phase, IP 55	220 – 240 V/380 – 420 V 265 – 280 V/440 – 480 V	50 Hz 60 Hz	0.09 kW 0.09 kW	
T	3-phase, IP 55	220 – 240 V/380 – 420 V 265 – 280 V/440 – 480 V	50 Hz 60 Hz	0.09 kW 0.09 kW	with PTC, speed control range 1:5
R	3-phase, IP 55	220 – 240 V/380 – 420 V	50 Hz	0.09 kW	with PTC, speed adjustment range 1:20 with external fan (1-phase 230 V; 50/60 Hz, 20 W)
M	1-phase AC, IP 55	230 V ± 5 %	50/60 Hz	0.12 kW	
N	1-phase AC, IP 55	115 V ± 5 %	60 Hz	0.12 kW	
L1	3-phase, II2GExeIIT3	220 – 240 V/380 – 420 V	50 Hz	0.12 kW	
L2	3-phase, II2GExdIICT4	220 – 240 V/380 – 420 V	50 Hz	0.18 kW	with PTC, speed control range 1:5
P1	3-phase, II2GExeIIT3	250 – 280 V/440 – 480 V	60 Hz	0.12 kW	
P2	3-phase, II2GExdIICT4	250 – 280 V/440 – 480 V	60 Hz	0.18 kW	with PTC, speed control range 1:5

Motor data sheets can be requested for more information. Special motors or special motor flanges are available on request.

Motors for Sigma basic pumps are available on request.

Motors less than 0.75 kW and motors designed for speed-controllable operation are not subject to the IE3 standard in compliance with the Ecodesign Directive 2009/125/EC.

Information for use in areas at risk from explosion

Only use pumps with the appropriate labelling in line with the ATEX Directive 2014/34/EU in premises at risk from explosion. Ensure that the explosion group, category and degree of protection specified on the label corresponds to or is better than the conditions prevalent in the intended field of application.

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