

# Technical data sheet

## CONCEPT 420sm and 420smd dosing pumps

Dosing pumps of the CONCEPT series with 4–20mA control



Concept 420sm, 230 V AC  
 Concept 420sm, 24 V AC/DC



Concept 420smd, 100–240 V AC  
 Concept 420smd, 100–240 V AC  
 (without rotor and tube kit)

### Areas of application

The Concept 420sm and 420smd dosing pumps are designed for continuous operation and offer a variety of control options.

The gearless step motor drive ensures a reliable continuous and precise dosing rate.

- Technical fine dosing
  - Water chemistry & treatment
  - Pool and spa
  - Flocculant aids (FA)
  - Biocides/Disinfectants
  - Anti-scaling/Scale prevention

### Overview of product variants

98307	Concept 420sm, 230 V, with rotor 47-13 blue and PS 140-4.8x1.6 PH
98338	Concept 420sm, 24 V AC/DC, with rotor 47-13 blue and PS 140-4.8x1.6 PH
98322	Concept 420smd, 100–240 VAC, with rotor 47-13 blue and PS 140-4.8x1.6 PH
1001477	Concept 420smd, 100–240 V AC, <b>without</b> rotor/tube kit and with blue hood

# Technical data sheet

## Technical specifications of Concept 420sm



Concept 420sm,  
 230 V AC  
 Item number: 98307

Concept 420sm,  
 24 V AC/DC  
 Item number: 98338

### Performance data

Dosing rate (min.)* <sup>1</sup> :	0.12 L/h (2 ml/min.) with 1.6x1.6 pump tube, water, unrestricted outlet
Dosing rate (max.)* <sup>1</sup> :	12 L/h (200 ml/min.) with 4.8x1.6 pump tube, water, unrestricted outlet
Duty cycle:	100% based on 1 h (continuous operation within the specified temperature range)
Dosing quantity (max.):	275 L/d (11,500 ml/h) with PS140-4.8x1.6 PH
Max. back pressure:	2 bar (with standard tube: 1.5 bar)
Suction height:	1.8 m

\*<sup>1</sup> Flow rate depends on the respective pump tube.

# Technical data sheet

Electrical data		
Operating voltage:	230 V AC +/-10%	24 V AC/DC
Mains frequency:	50 / 60 Hz	-
Power consumption:	14 W	13 W
Input current:	60 mA	540 mA
Protection class:	IP 65	
Minimum pulse input duration $t_{\text{min. pulse}}$ :	50 milliseconds [ms] falling edge	
Max. pulse frequency:	10 Hz	
Control signals:	For details, see ' <i>Electrical connection</i> ' chapter	
Connection:	Terminal in the device	

Mechanical data	
Dimensions (W x H x D):	93.5 x 150 x 130 mm
Weight:	1.20 kg
Motor:	Step motor
Pump housing color:	Anthracite
Rotor cover color:	Blue

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# Technical data sheet

Configuration	
Device:	Potentiometers, jumpers 1 button for purging and activation/deactivation
Operating modes:	<ul style="list-style-type: none"> <li>• Adjustable delivery rate</li> <li>• Potential-free N/O contact (on/off)</li> <li>• Pulse controlled (e.g. water meter)</li> <li>• Current controlled 0 ... 20 mA</li> <li>• Current controlled 4 to 20 mA</li> <li>• Timer-relay/Load</li> </ul>
Adjustable flow rate ranges:	<ul style="list-style-type: none"> <li>• 0.06 – 12 l/h (1.00 – 200 ml/min.)</li> <li>• 0.024 – 5.40 l/h (0.40 – 90 ml/min.)</li> <li>• 0.006 – 1.32 l/h (0.10 – 22 ml/min.)</li> <li>• 0.0012 – 0.3 l/h (0.02 – 5 ml/min.)</li> </ul>

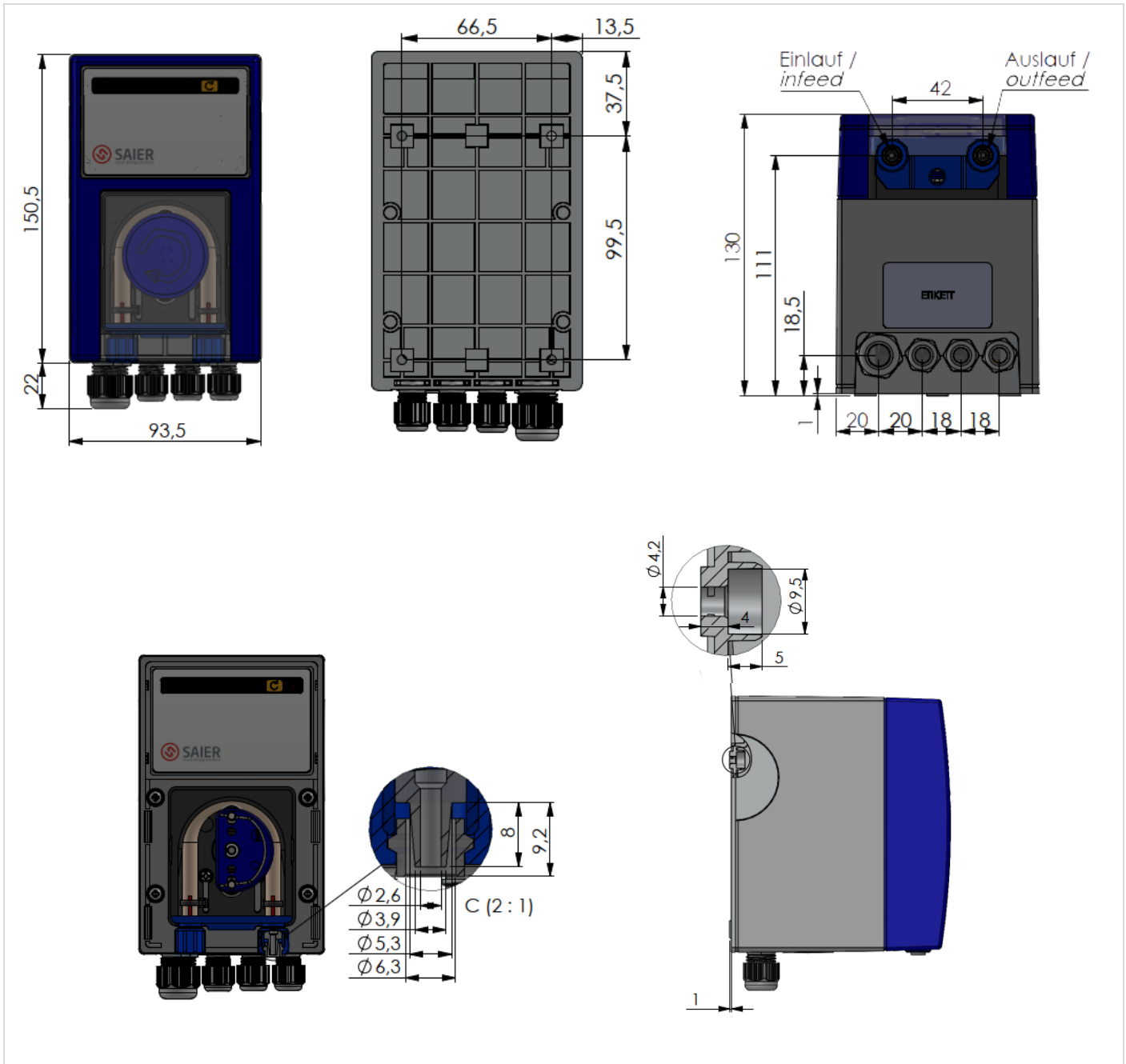
# Technical data sheet

Ambient conditions	
Permissible ambient temperature range:	+10 to +45°C
Environmental stress:	Conforms to DIN EN 60068-2-38
Certified in accordance with:	DIN EN ISO 9001:2015

Process connections & media routing (standard)	
Connection tube inner dia./outer dia.:	4 / 6 mm
Pump tube inner dia.:	4.8 x 1.6 mm
Tube connection:	Nozzle
Tube kit item number:	43300
Tube material:	Ph
Tube holder color, material:	Blue, PP
Rotor item number:	43061
Rotor:	ROT47-13 standard, blue
Dosable media:	Chlorine, precipitation agents, additives and similar media depending on the material of the pump tube

# Technical data sheet

## Dimensions of CONCEPT 420sm



# Technical data sheet

## Technical specifications of Concept 420smd



Concept 420smd,  
 100–240 VAC  
 Item number: 98322

Concept 420smd  
 100–240 VAC  
 Item number: 1001477  
 without tube kit and  
 with blue hood

### Performance data

Dosing rate (min.)* <sup>1</sup> :	0.12 L/h (2 ml/min.) PS 138-1.6x1.6.PH Water, unrestricted discharge	Determined by the selected and mounted tube kit.
Dosing rate (max.)* <sup>1</sup> :	9 L/h (150 ml/min.) PS 140-4.8x1.6.PH, Water, unrestricted discharge	
Duty cycle:	100% based on 1 h (continuous operation within the specified temperature range)	
Dosing quantity (max.):	275 L/d (11,500 ml/h) with PS140-4.8x1.6 PH	Determined by the selected and mounted tube kit.
Max. back pressure:	2 bar	
Suction height:	1.8 m	

\*<sup>1</sup> Flow rate depends on the respective pump tube.

# Technical data sheet

Electrical data	
Operating voltage:	100-240 V AC
Mains frequency:	50 / 60 Hz
Power consumption:	14 W
Input current:	Max. 140 mA
Protection class:	IP 65
Minimum pulse input duration $t_{\text{min. pulse}}$ :	50 milliseconds [ms] falling edge
Max. pulse frequency:	10 Hz
Control signals:	For details, see ' <i>Electrical connection</i> ' chapter
Connection:	Terminal in the device

Mechanical data	
Dimensions (W x H x D):	93.5 x 150 x 130 mm
Weight:	1.20 kg
Motor:	Wear-free, gearless step motor
Pump housing color:	Anthracite
Rotor cover color:	Anthracite

# Technical data sheet

Configuration	
Device:	With buttons on the device 6 buttons, 2-line LCD display, illuminated
Operating modes:	<ul style="list-style-type: none"> <li>• Adjustable delivery rate</li> <li>• Potential-free N/O contact (on/off)</li> <li>• Potential-free N/O contact (runtime)</li> <li>• Current controlled 0 ... 20 mA</li> <li>• Current controlled 4 to 20 mA</li> <li>• Current controlled 20 ... 0 mA</li> <li>• Current controlled 20 ... 4 mA</li> <li>• Current controlled x to y mA</li> <li>• (X- and Y-values can be set from 0 ... 20 mA)</li> <li>• Pulse controlled (0 ... 10 Hz)</li> <li>• Pulse controlled (0 ... 10 Hz) with memory function</li> </ul>
Adjustable flow rate ranges:	<ul style="list-style-type: none"> <li>• 0.06 – 12 l/h (1.00 – 200 ml/min.)</li> <li>• 0.024 – 5.40 l/h (0.40 – 90 ml/min.)</li> <li>• 0.006 – 1.32 l/h (0.10 – 22 ml/min.)</li> <li>• 0.0012 – 0.3 l/h (0.02 – 5 ml/min.)</li> </ul>

Ambient conditions	
Permissible ambient temperature range:	+10 to +45 °C
Environmental stress:	Conforms to DIN EN 60068-2-38
Certified in accordance with:	DIN EN ISO 9001:2015

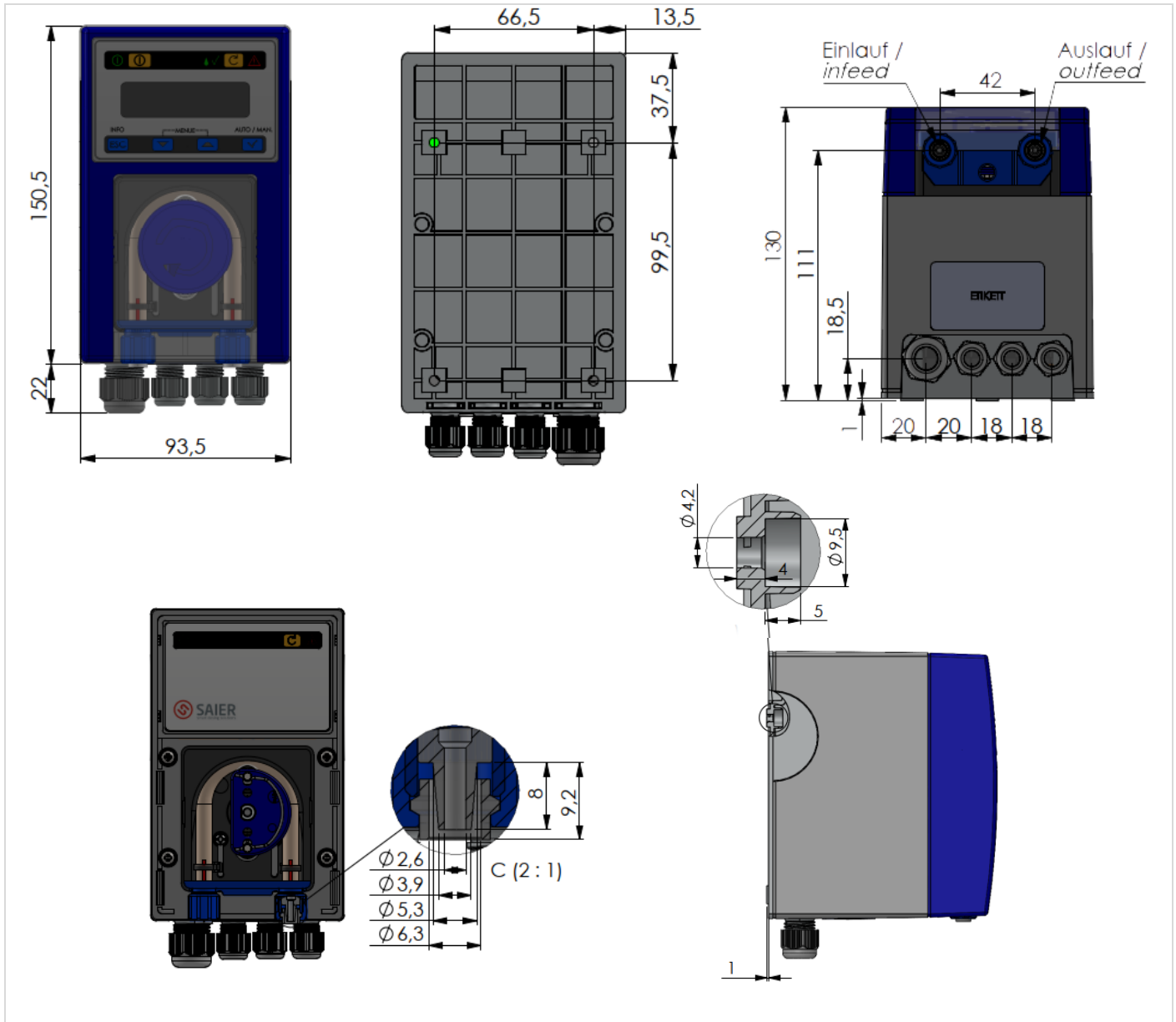
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# Technical data sheet

Process connections & media routing (standard)	
Connection tube inner dia./outer dia.:	4 / 6 mm
Pump tube inner dia.:	4.8 x 1.6 mm
Tube connection:	Nozzle
Tube kit item number:	43300
Tube material:	Ph
Tube holder color, material:	Blue, PP
Rotor item number:	43061
Rotor:	ROT47-13 standard, blue
Dosable media:	Chlorine, precipitation agents, additives and similar media depending on the material of the pump tube

# Technical data sheet

## Dimensions of CONCEPT 420smd



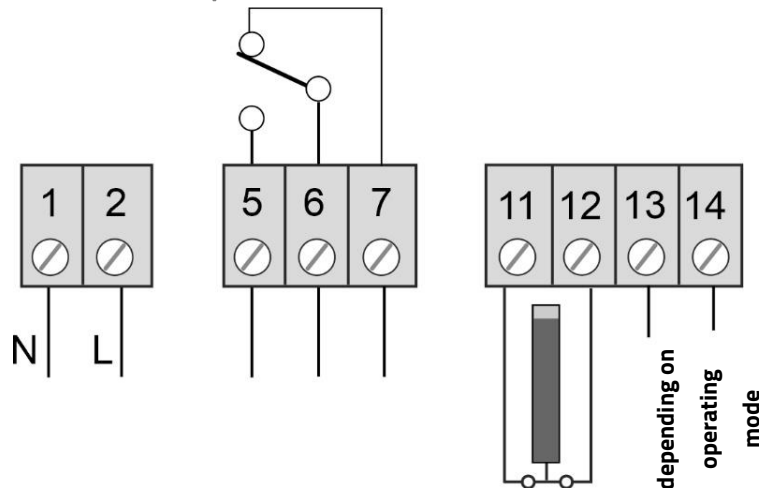
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Tube kits							
Possible delivery rate	Operating pressure (max.)	Rotor Item number	Rotor	Pump tube Material	Pump tube Connection	Tube kit Item number	Tube kit
0.06 – 12.00 l/h (1.0–200 ml/min.)* <sup>1</sup>	1.5 bar	43061	Rotor 47-13, blue	Ph	4x1 (terminals)	43300	SK9911/4.8-4x1 140-4.8x1.6, ph, blue
0.024–5.40 l/h (0.4–90 ml/min.)	2.0 bar					43301	SK9911/3.2-4x1 138-3.2x1.6, ph, blue
0.006–1.32 l/h (0.1–22 ml/min.)	3.0 bar	1002463	Rotor 1511, blue FR 0.8 to 2.4, chlorine resistant			43302	SK9911/1.6-4x1 138-1.6x1.6, ph, blue
0.0012–0.30 l/h (0.02–5 ml/min.)	3.7 bar					43303	SK9911/0.8-4x1 138-0.8x1.6, ph, blue

\*<sup>1</sup>Standard tube kit (as delivered).

# Technical data sheet

## Electrical connection of Concept 420sm and 420smd



No.:	Connection	
1	Neutral conductor (N), operating voltage	
2	Phase (L1), operating voltage	
<b>Potential-free changeover contact:</b>		
5, 6, 7	Alarm signaling contact: 5/6: N/O contact	Additional pump: 6/7: N/C contact
<b>Control signal inputs:</b>		
11	Control signal inputs: Suction lance input for empty signal	
12	Suction lance input (normally closed = NC) or can be used as EXTERNAL STOP.	
<b>Control input for dosing:</b>		
13	Dosing control depends on the operating mode (see table below).	
14		
<b>Operating modes</b>	<b># 13</b>	<b># 14</b>
Auto External	N/O contact	
Charge Auto	N/O contact	
Auto 0 to 20 mA	I out	I in
Auto 4 to 20 mA	I out	I in
Auto x to y mA	I out	I in
Auto 20 to 0 mA	I out	I in
Auto 20 to 4 mA	I out	I in
Auto Pulse	Signal 0 ... 10 Hz	
Auto Pulse Memory	Signal 0 ... 10 Hz	

# Technical data sheet

## Accessories

Item number:	Description	Details
43245	Mounting plate	Mounting pl 94.5x197Concept 1fComb
43300	Tube kit 1	Tube kit, 1.5 bar
43301	Tube kit 2	Tube kit, 2.0 bar
43302	Tube kit 3	Tube kit, 3.0 bar
43303	Tube kit 4	Tube kit, 3.7 bar
45001	Product inlet 6mm	Tank inlet nozzle TEST M 10
996026	Product inlet 90° PE 4/6mm	TEST M 10/90-4x1, blue
1002632	Non-return valve suitable for alkalis	NRV EG-6 AG-G1/8, PVDF
45034	Non-return valve	NRV EG-4x1 AG-G1/8, V2, EP380
18036	Suction lance with float switch	SLNS9608-500 mm
18046	Suction lance	SLNS9608-600 mm
18021	Suction lance	SLNS9608-1000 mm
45030	Tube by the meter	S-tube 4x1 PVC transparent
45038	Tube by the meter	S-tube 4x1 PE natural
1002682	Tube, 100 meter roll	S-tube 4x1 PVC transparent
1004717	Suction line	PVC tube 8x3, 50 m roll
1003858	Control line 1	Control cable 5x0.5, 7.5 m
1002530	Control line 2	Control cable M LiYY 7x0.75 num, by the meter
45007	Tube clip 1	Tube clip, 08–12 mm (1 pc.)
45008	Tube clip 2	Tube clip, 10–16 mm (1 pc.)
996005	Intake weight	Intake weight 4x1, compression fitting
20026	Intake weight	Intake weight, internal 6 mm



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