



Micro Pump 11 mm

- self-priming
- nearly pulsation free
- for continuous pump applications
- diaphragm pump

The Burkert series 7604 is a unique, self-priming, adjustable, diaphragm pump with a long service life and quiet operation that is ideally qualified for aggressive media. The pump is perfectly suited for continuous liquid low flow applications. Variations in flow rate are achieved by simply varying the frequency input. With a maximum frequency input of about 40 Hz, the fluid flows virtually pulsation free. Perfluorelastomer seals and a PEEK body are the only wetted parts, allowing the pump to be used for a wide range of aggressive fluids, organic and inorganic solvents and other difficult to handle media. The compact design (only 11 mm wide) allows for ease of mounting with standard bodies designed for surface mount (manifold) or tube connections. The low power consumption allows the device to be easily incorporated into mobile devices, and virtually eliminates any heat transfer passed from the actuator to the fluid. „Manufactured by Burkert“ ensures the user the same high quality products and proven reliability they have depended on in today's innovative market.

Applications

- continuous pumping
- Probe preparation e.g. for HPLC
- Replacement of peristaltic pumps
- Lubricant dosing

Technical data	
Body material	PEEK
Seal material	FFKM
Fluids	resistance to a wide range of organic and inorganic solvents (see chemical resistance chart) suitable for particles < 20 µm ¹⁾
Fluids temperature	+10 to +60 °C
Ambient temperature	+10 to +55 °C
Max. life cycle	> 1 milliard (10 ⁹)
Max. flow rate	> 5 ml/min ²⁾
Min. flow rate	1 ml/min ²⁾
Flowrate at 35Hz	≥ 4,5 ml/min ²⁾
Reproducibility	± 5 % ²⁾
Pressure	>200 mbar ³⁾
Suction pressure (pump dry)	>100 mbar
Pump frequency	8–40 Hz
Nominal voltage	12, 24 V/DC, pulsing by max. 40 Hz (use impulse generator, pulse duty factor 50:50)
Voltage tolerance	± 10 %
Power consumption	1.5 W (P _{eff} = 400 mW)
Elec. connections	Rectangular plug, flying leads
Fluid connections	Bürkert-Flange Barb tubes Ø 2.8 mm und Ø 1.7 mm UNF 1/4"-28
Installation position	as required
Mounting pitch	11 mm
Protection class	IP40

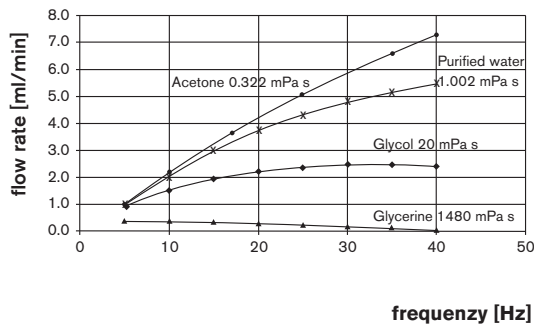
¹⁾ Please use an appropriate filter.

²⁾ 22 °C, purified water

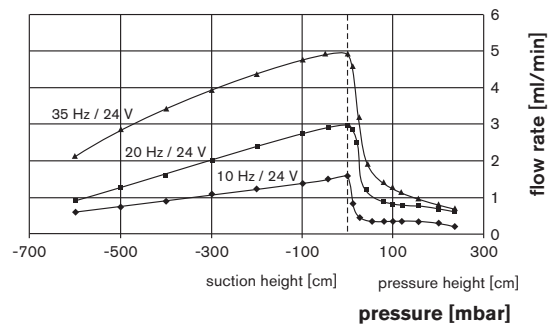
³⁾ [bar]: overpressures with respect to atmospheric pressure

Restart points

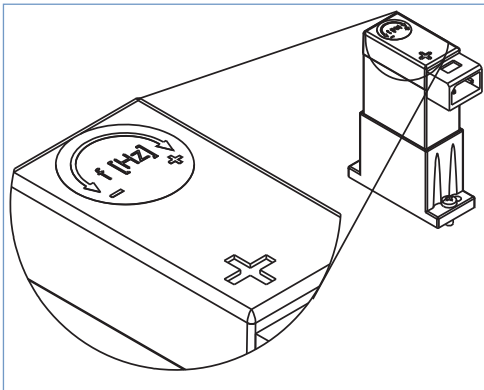
Flow rate against frequency for different viscosities



Flow rate against suction and pressure height (pump wet)



Integrated impulse generator



The optional integrated impulse generator is built in the cover of the pump. To change the frequency turn the pre-set potentiometer.

Technical Data

Frequency range	5 to 40 Hz
Nominal voltage	24 V/DC, 12 V/DC
Voltage tolerance	± 10 %

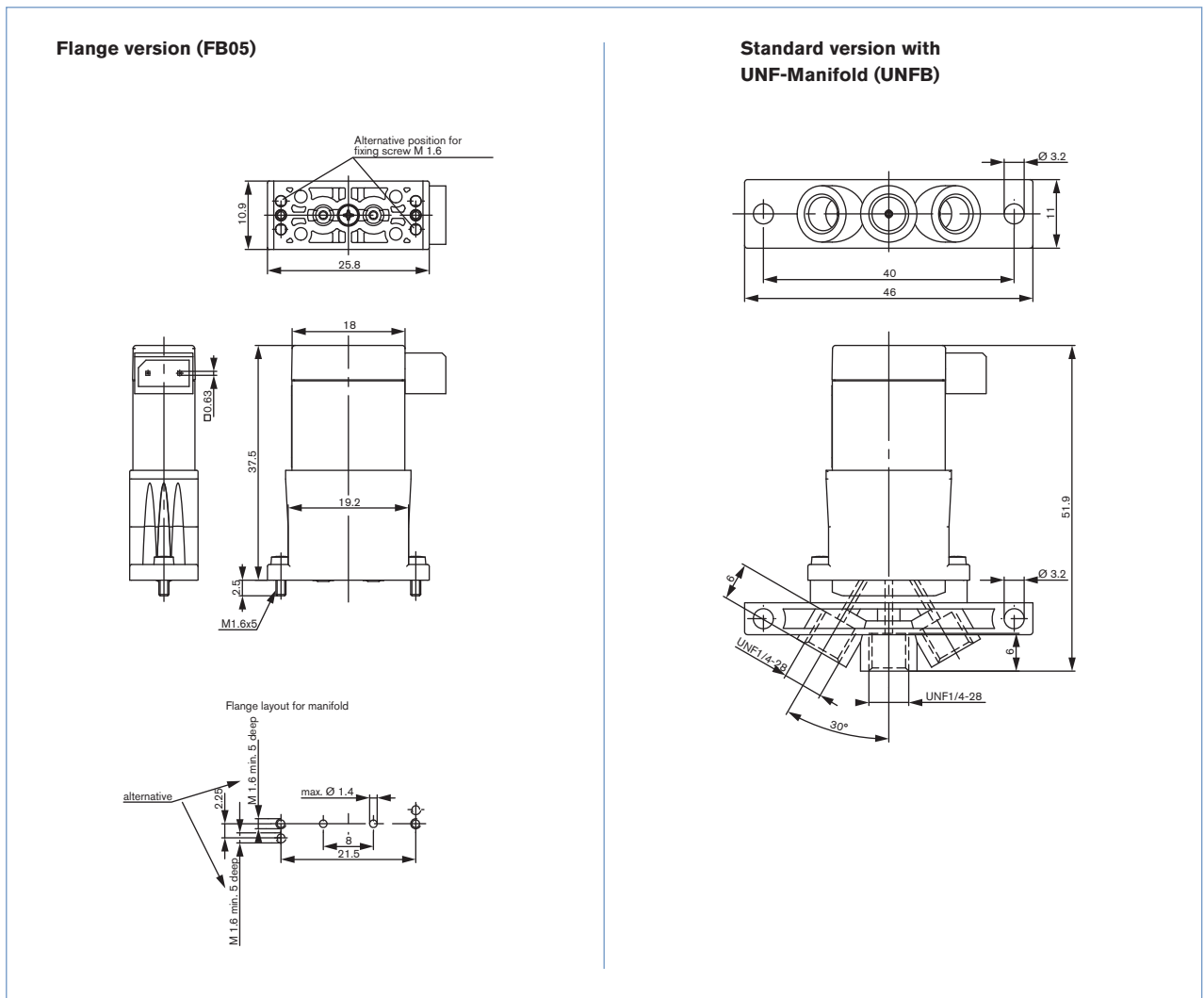
Ordering chart

Port connection	Seal material	Body material	Electrical connection	Voltage/V	Item no.
Flange	FFKM	PEEK	Rectangular plug	24V	156 992
Flange	FFKM	PEEK	Rectangular plug with integrated Clock generator	24V	161 399
Flange	FFKM	PEEK	Rectangular plug	12V	169 489
Flange	FFKM	PEEK	Rectangular plug with integrated Clock generator	12V	208 104
Tube spigot Øa=2.8mm	FFKM	PEEK	Rectangular plug	24V	156 993
Tube spigot Øa=2.8mm	FFKM	PEEK	Rectangular plug with integrated Clock generator	24V	161 398
Tube spigot Øa=2.8mm	FFKM	PEEK	Flying leads	24V	176 635
Tube spigot Øa=2.8mm	FFKM	PEEK	Rectangular plug	12V	171 568
Tube spigot Øa=2.8mm	FFKM	PEEK	Rectangular plug with integrated Clock generator	12V	246 567
Tube spigot Øa=1.7mm	FFKM	PEEK	Flying leads	24V	234 668
UNF	FFKM	PEEK	Rectangular plug	24V	155 781
UNF	FFKM	PEEK	Rectangular plug with integrated Clock generator	24V	163 782
UNF	FFKM	PEEK	Flying leads	24V	189 519
UNF	FFKM	PEEK	Rectangular plug	12V	164 991
UNF	FFKM	PEEK	Rectangular plug with integrated Clock generator	12V	183 561
UNF	FFKM	PEEK	Flying leads	12V	210 613

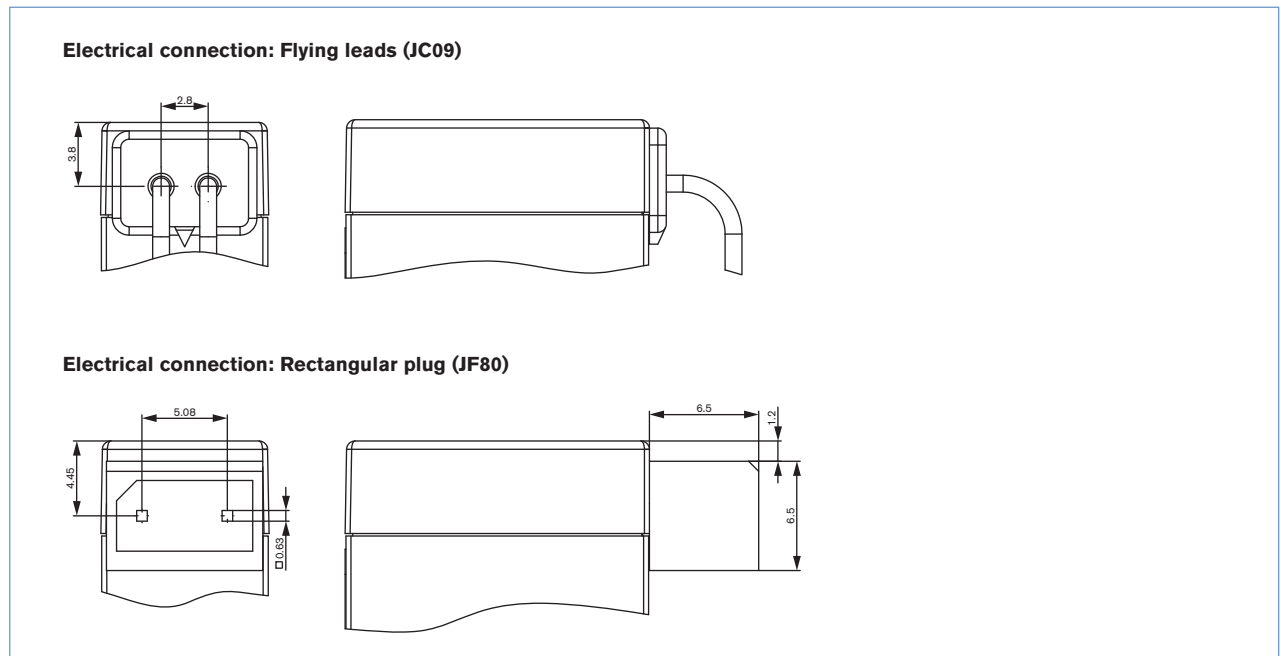
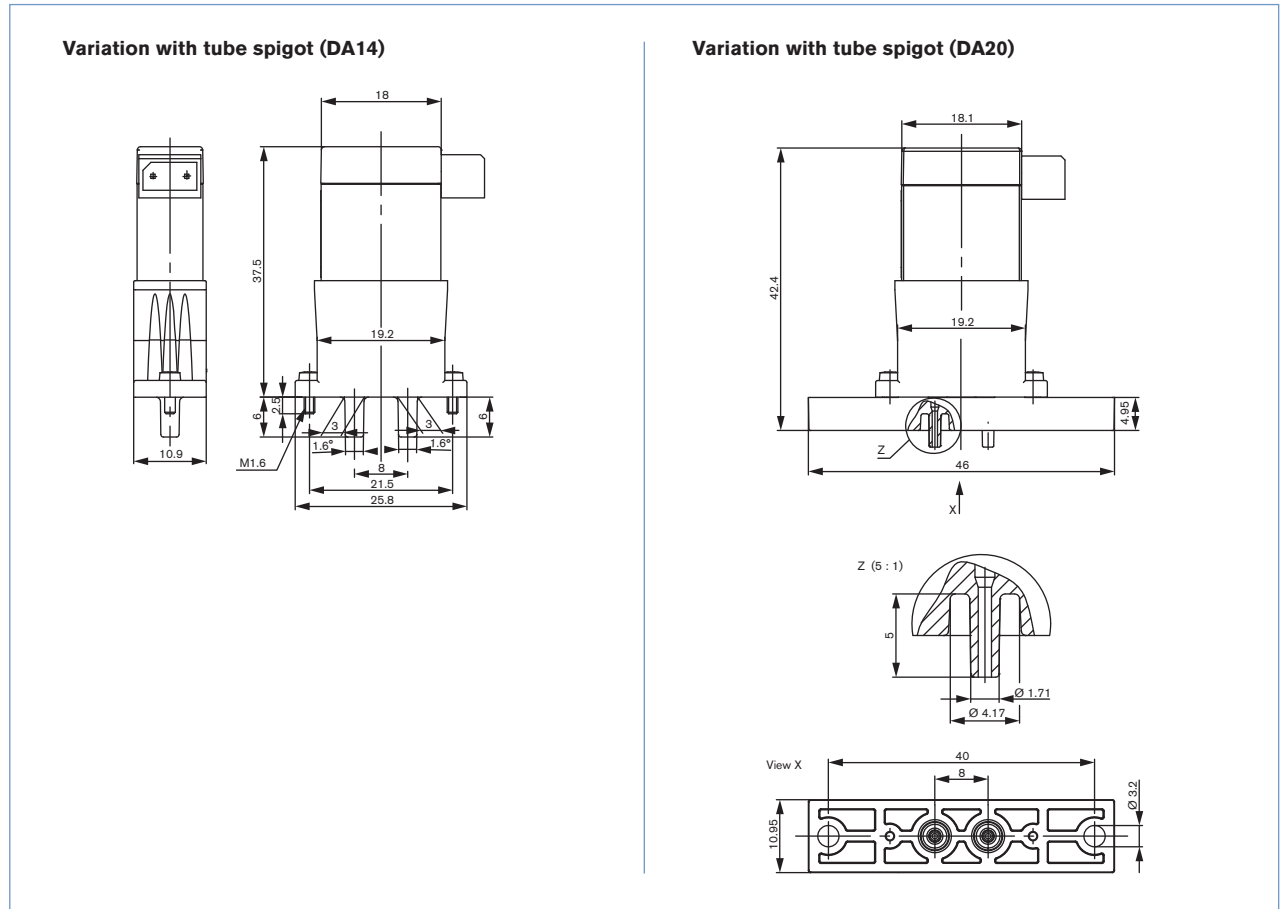
Ordering chart Accessoires

Accessory	Item no.
Rectangular plug 5.08 mm with 3 m cable	133 486
Rectangular plug 5.08 mm with 300 mm leads	644 068
Rectangular plug 5.08 mm with 2 single contacts	644 067
Fittings and Tubes	see data sheet TVU003

Dimension [mm]



Dimension [mm]



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In case of special application conditions, please consult for advice.

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Micro Dosing Unit

- Diaphragm Pump
- Self priming
- Precision Dosing
- Pumps in both Directions
- Integrated Electronics, easy to use


Type 6624 TwinPower

10 mm Rocker valve


Type 6626 TwinPower

16 mm Rocker valve


Type TVU003

Ferrules, Tubing

Bürkert's Micro Dosing Unit has been designed for precise dosing applications in the microliter range. It combines high dosing accuracy and precision with excellent chemical inertness. The unit is comprised of three valves which can be opened simultaneously for flushing. Active inlet and outlet valves enable the device to pump liquid in two directions. This feature can be used to mix fluids inside a tube or channel or to constantly keep them in motion. Reagents can be sucked back from the dispensing tip to prevent drying out after dosing. The integrated heating function heats up the valves and the media, and the unit comes along with dry running capabilities.

Applications

- Dosing applications in medical, analytical and biomedical applications
- Replacement of syringe pumps
- Pipetting of liquids
- Water analysis
- Lubricant dosing

Technical Data	
Body Material	PEEK
Seal Material	FFKM; EPDM on request
Fluids	Neutral and aggressive liquids (see Chemical Resistance Chart)
Fluid Temperatures	+15 to 60 °C (FFKM) +5 to 60 °C (EPDM) ¹⁾
Ambient Temperature	+10 to +55 °C ¹⁾
Dosing Quantity	Calibrated at 5 µl/stroke +/-1.5%; max. ca. 8ml/min; both directions ²⁾
Pump Frequency (Frequency Mode)	5Hz (Standard) 10Hz; 25Hz; 40Hz
Length of Voltage Impulse (Impulse Mode)	> 120 ms
Repetition accuracy	+/-2% ²⁾
Max. Outlet Pressure	1.0 bar ³⁾
Max. Suction Lift	> 2m (dry); > 4m (wet)
Duty Cycle	100%
Voltage	12 V/DC, 24 V/DC
Voltage Tolerance	± 10%
Power Consumption	11W (short term); 5W
Electrical Connection	e.g. suitable for connection to Molex plug no. 50-57-9404
Installation	Variable, unit with two holes for M3 fixing screws
Fluid Connection	Sub-base connection; UNF 1/4-28
Protection class	IP40
Lifetime	Approx. 20 Mio cycles (at 20 °C; 10 Hz; water)
Dimensions (L x W x H)	50 x 28.5 x 70mm (UNF 1/4-28) 44 x 39.5 x 70mm (sub-base)
Max. Viscosity	< 250 mm ² /s
Weight	ca. 120 g

¹⁾ For lower temperatures the unit can be electrically preheated.

²⁾ At 20°C ambient temperature, medium degassed DI water, 5 Hz, no backpressure

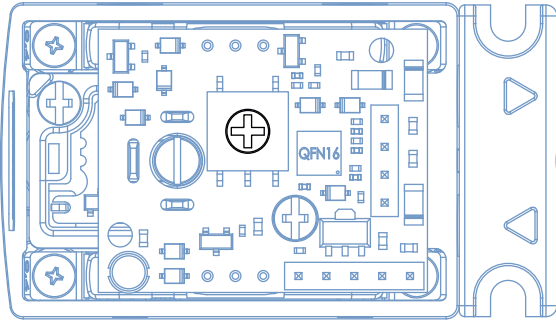
³⁾ Relative pressure

Function Mode

Different modes allow for a high level of customisation:

Impulse mode: An electrical power signal of 120ms length creates a dosing of 5µl at a time. Higher volumes can be dosed by repeating the signal.

Frequency mode: The unit runs with a predefined frequency. Frequencies between 5Hz and 40Hz can be selected. The standard setting is 5Hz.



Rotary Switch to select Mode

0 = Impulse Mode >120ms

1 = Frequency Mode 40 Hz

2 = Frequency Mode 25 Hz

3 = Frequency Mode 10Hz

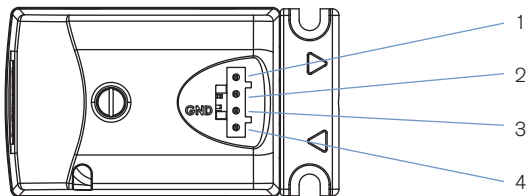
4 = Frequency Mode 5Hz (Standard)

5 = Service Mode 5Hz (pump stops after 100 cycles).

6 = Quick Impulse Mode, >50ms

Electrical Connection

PIN	Forward dosing	Reverse dosing	Flush Mode (all valves open)	Heating Up Mode (Heat up unit at low temperatures)
1 (Supply)	+	+	not connected	+
2 (Reverse)	not connected	+	+	+
3 (Ground)	-	-	-	-
4 (Forward)	+	not connected	+	+



Materials

Body:	PEEK
Seal material:	FFKM (EPDM on request)
Cover:	PPS
Ground plate, screws:	Stainless steel
Sub-base plate, threaded plate UNF 1/4-28:	PEEK

Dosing

Function mode	Dosing per stroke	Repetition accuracy	Max. possible dosing
0 = Impulse 120 ms	5 µl	+/- 2 %	2.4 ml/min
1 = Frequency 40 Hz	ca 3,8µl		> 8ml/min
2 = Frequency 25 Hz	4.6 µl	ca. +/- 5 %	7 ml/min
3 = Frequency 10 Hz	4.95 µl	< +/- 2.5 %	3.0 ml/min
4 = Frequency 5 Hz	5.0 µl	+/- 2 %	1.5 ml/min
5 = Service Mode 5 Hz	5.0 µl	+/- 2 %	500µl
6 = Impulse 50 ms	4.8 µl	+/- 2.5%	5.8 ml/min

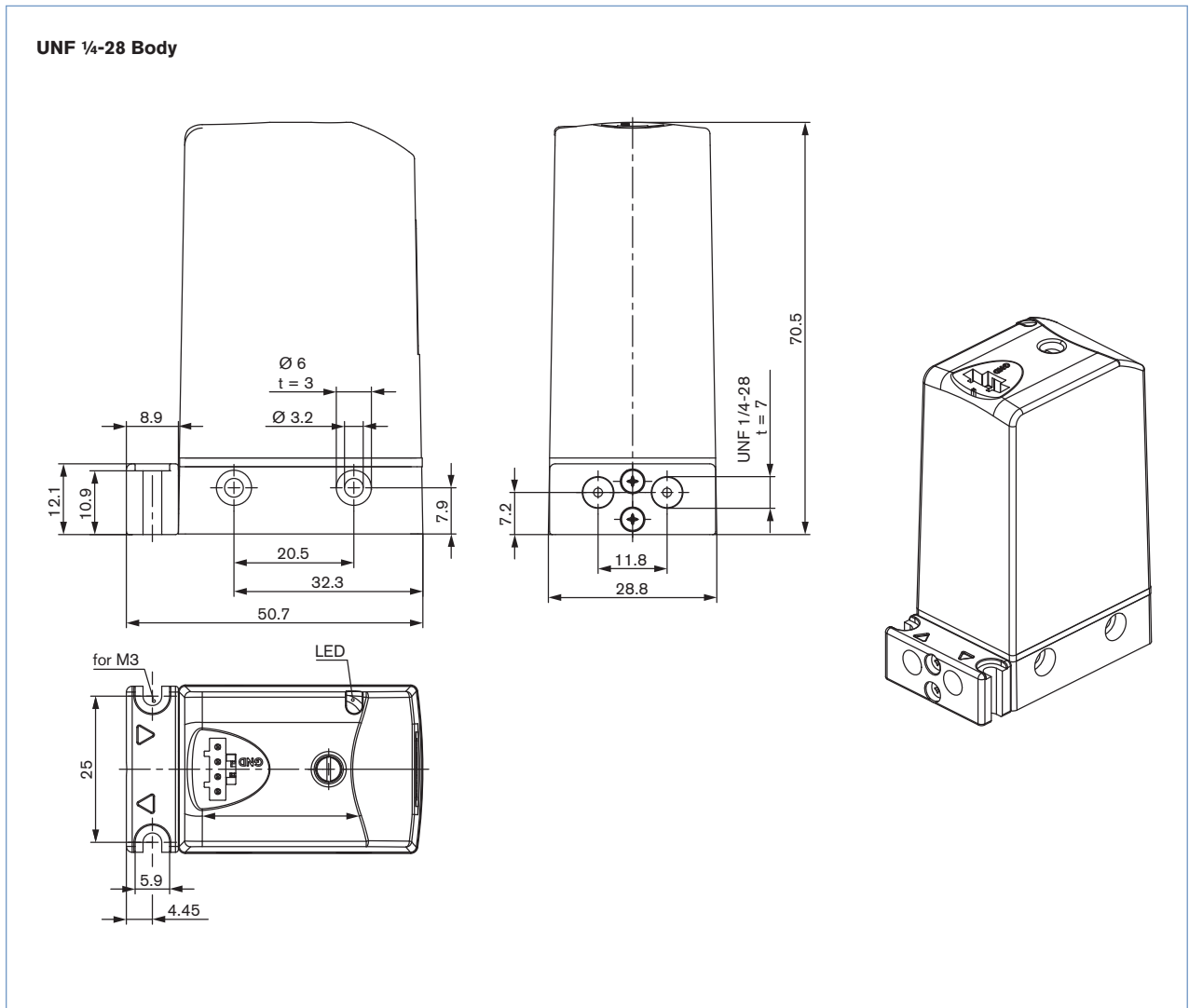
All values are indicative and may vary according to the conditions of use.

Ordering Chart

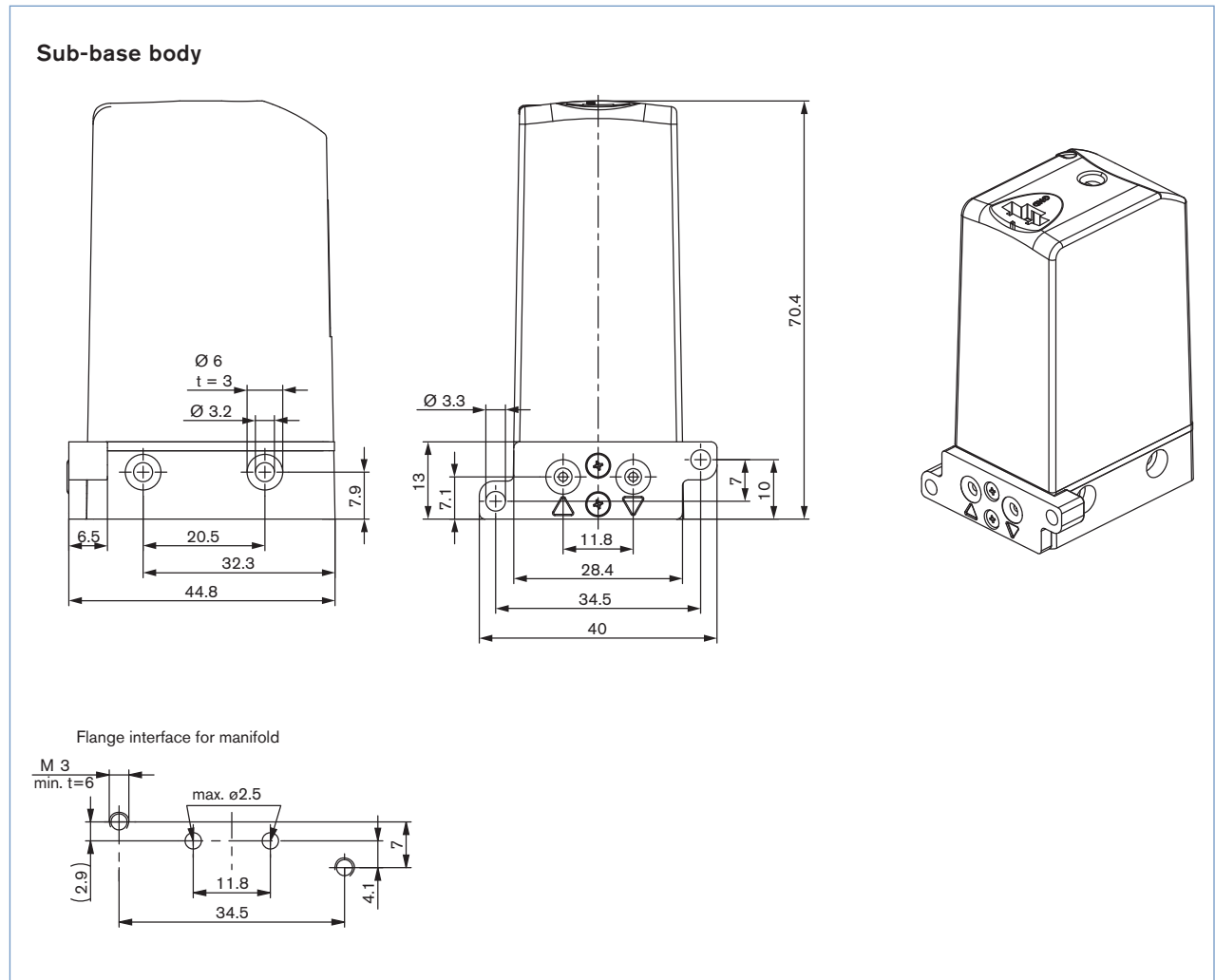
Version	Voltage	Connection	Seal material	Function mode ⁴⁾	Item no.
Standard	24V DC	Sub-base	FFKM	5 Hz (Frequency mode)	238 190
Standard	24V DC	UNF 1/4-28	FFKM	5 Hz	215 793
Standard	24V DC	Sub-base	FFKM/EPDM	5 Hz	238 193
Standard	24V DC	UNF 1/4-28	FFKM/EPDM	5 Hz	238 194
Standard	12V DC	UNF 1/4-28	FFKM/EPDM	5 Hz	238 195
FEP-Leads 500 mm with 4-pole connector	12-24V				683 613

⁴⁾ Mode can be changed please see manual

Dimensions [mm]



Dimensions [mm], continued



Patent pending.

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