

Diaphragm Metering Pumps



Product Range: KNF STEPDOS Chemically-resistant Diaphragm Metering Pumps, Processor controlled

Technical features:

- Precise dosing, even for extremely small amounts
- Maintenance-free
- Silent
- Self-priming and dry run-proof
- Low-pulsation metering stroke motion

Flow rate (ml/min) ¹⁾	Pressure head (mWS)	Suction head (mWS)	Motor 100-230V/50-60Hz operating current (A)/ power P ₁ (W)	Protection class	Connections	Weight (kg)	Pump type (see techn. variants) Order No.	Page
0.03-30	60	4	0.14-0.06/14	IP 65	UNF 1/4"-28	1.5	FEM 03 KT.18 S	3.2
0.03-30	60	4	0.14-0.06/14	IP 65	UNF 1/4"-28	1.5	FEM 03 TT.18 S	3.2
0.03-30	60	4	0.14-0.06/14	IP 65	UNF 1/4"-28	1.5	FEM 03 FT.18 S	3.2
0.03-30	60	4	0.14-0.06/14	IP 65	UNF 1/4"-28	1.5	FEM 03 ST.18 S	3.2
0.03-30	60	4	0.14-0.06/14	IP 65	UNF 1/4"-28	1.5	FEM 03 KT.18 RC	3.2
0.03-30	60	4	0.14-0.06/14	IP 65	UNF 1/4"-28	1.5	FEM 03 TT.18 RC	3.2
0.03-30	60	4	0.14-0.06/14	IP 65	UNF 1/4"-28	1.5	FEM 03 FT.18 RC	3.2
0.03-30	60	4	0.14-0.06/14	IP 65	UNF 1/4"-28	1.5	FEM 03 ST.18 RC	3.2
0.08-80	20	4	0.14-0.06/14	IP 65	DN 4/6 mm	1.4	FEM 08 KT.18 S	3.4
0.08-80	20	4	0.14-0.06/14	IP 65	DN 4/6 mm	1.4	FEM 08 TT.18 S	3.4
0.08-80	20	4	0.14-0.06/14	IP 65	DN 4/6 mm	1.4	FEM 08 KT.18 RC	3.4
0.08-80	20	4	0.14-0.06/14	IP 65	DN 4/6 mm	1.4	FEM 08 TT.18 RC	3.4

¹⁾ Water at 20°C and zero pressure head

Technical variants:

Code	Comment
S	Manual operation via key pad: Run mode: continuous metering Dispense mode: metering according to volume and time
RC	The RC version features all functions of the S version. In addition, it can be controlled externally, via analog or digital signals. (The software and a control cable are included.)

Material in contact with the pumped media

Code	Pump head	Diaphragm	Valves
KT	PP	PTFE-coated	FFPM
TT	PVDF	PTFE-coated	FFPM
FT	PTFE	PTFE-coated	FFPM
ST	Stainless steel	PTFE-coated	FFPM

e.g.:

Pump type/order no.: FEM 03 KT.18 RC
is a pump with pump head parts made of PP, PTFE and FFPM. This pump is controlled manually or externally (RC).

Diaphragm Metering Pumps



Convenient metering

The STEPDOS diaphragm metering pumps.

They combine the best properties of diaphragm pump technology (such as high chemical resistance and precise metering) with great user friendliness and flexibility.

User-friendly operation

The metering amount is entered in ml/min or in any other of eleven units (such as mg/s, l/h, U.S. gallons/h), directly via the display. The set value is continually shown as a digital value, and can easily be read from above. The display is available in English or German.

The operating field directly under the display is well spaced and logically structured. It consists of a chemically-resistant key pad. The manual input commands are sent directly to the microprocessor. Entries are made in either run mode or dispense mode:

- 1. Run mode:** continuous metering according to volume and time
- 2. Dispense mode:** infinitely variable volume metering according to volume, time and repeat function
- 3. Prime function:** for quick suction and rinsing.

Flexible external control

STEPDOS 03 RC (Remote Control) is designed for inclusion in automatic metering processes. Either digital signals (RS232, RS485), analog signals (0-10 V, 0-20 mA, 4-20 mA) or a pulse generator can be used for control. The metering capacity can be tailored by means of an integrated pulse conver-

sion ratio. A potential-free output signal forwards errors. Further settings (such as AND/OR functions, vessel empty forewarning) offer a high degree of flexibility.

Overview of technical features

Dimensional stability diaphragm

- Nearly no loss of capacity between atmospheric pressure and maximum pressure
- Consistently high metering precision during continual operations

Stepper motor with sinus compensation

- Uniform output over the entire stroke motion

Calibration function

- For precise metering under the given conditions of use

Integrated solenoid valve

- No dripping and no flowing back, even after long idling

Small dead volume

- Good suction
- Low danger of carry-over

Lateral connections

- The hoses, with UNF threads, are easy to screw on

IP 65 Housing

- Protected against splash water

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STEPDOS 03 Chemically-resistant Diaphragm Metering Pumps, Processor controlled

Metering Pumps STEPDOS 03: FEM 03 __.18/S, FEM 03 __.18/RC

The chemically-resistant, microprocessor-controlled series FEM 03__18/S and FEM 03__18/RC diaphragm metering pumps meter the smallest volumes continuously and evenly. Thanks to a special drive technology, these pumps feature a remarkably wide metering range of 1:1000.

Material in contact with the pumped media

Type OrderNo.	Pump head	Diaphragm	Valves
FEM 03 KT.18/S	PP	PTFE-coated	FFPM
FEM 03 TT.18/S	PVDF	PTFE-coated	FFPM
FEM 03 FT.18/S	PTFE	PTFE-coated	FFPM
FEM 03 ST.18/S	Stainless steel	PTFE-coated	FFPM
FEM 03 KT.18/RC	PP	PTFE-coated	FFPM
FEM 03 TT.18/RC	PVDF	PTFE-coated	FFPM
FEM 03 FT.18/RC	PTFE	PTFE-coated	FFPM
FEM 03 ST.18/RC	Stainless steel	PTFE-coated	FFPM

S version (manual control):

Operation is manual using a keypad.

- Run Mode: - For continuous metering
- Dispense Mode: - Metering according to volume
- Metering according to time
- Repeated metering with adjustable pause time
- Rapid suction feature

Technical features:

- Maintenance-free
- Silent
- Even discharge over the entire travel range
- Suitable for virtually any chemicals
- Reproducibility +/- 1%
- Integrated solenoid valve ensures the liquid does not drip or flow back during stop

Technical data:

Flow rate ¹⁾	0.03-30 ml/min
Suction head	6 bar
Pressure head	4 m
Metering volumes	30 µl-180 l
Time metering	0.34 s - 100h
Repeated metering	1-65000
Pause time	1 s-24 h
Reproducibility	+/- 1 %
Permissible liquid temperature	5-80 °C
Permissible ambient temperature	5-40 °C
Connectors	UNF 1/4"-28
Mains	100-230V, 50/60Hz
Weight	approx. 1.5 kg
Housing	IP 65 (splash proof)
Dimensions (LxHxW)	192/115/81.5 mm

¹⁾ Water at 20°C and zero pressure head

RC version (manual or external control):

The RC version incorporates all the functions of the S version and can also be controlled externally via analog or digital signals (PC-compatible).

External control:

- Analog signals: 0/4 - 20 mA, 0 - 10 V
- Digital signals: RS 232, RS 485 (cable and software are included)
- Pulse input point: logic input I/01, I/02

Spare parts

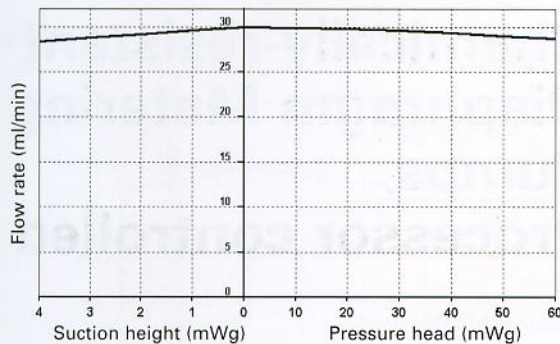
Description	Details	OrderNo.
Spares kit	for KT version	069866
Spares kit	for ST version	069868
Spares kit	for TT version	069867

KNF reserves the right to make changes.

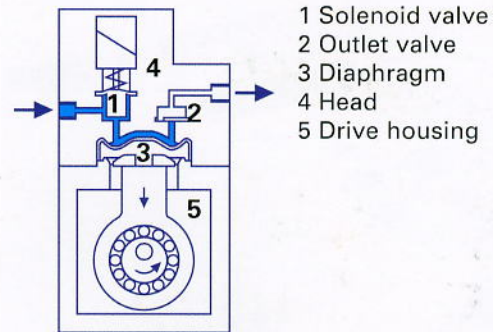
Diaphragm Metering Pumps

Dimensions and performance characteristics

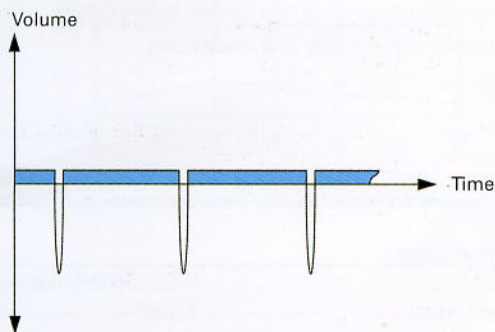
Flow rate



Function of the diaphragm metering pump STEPDOS 03



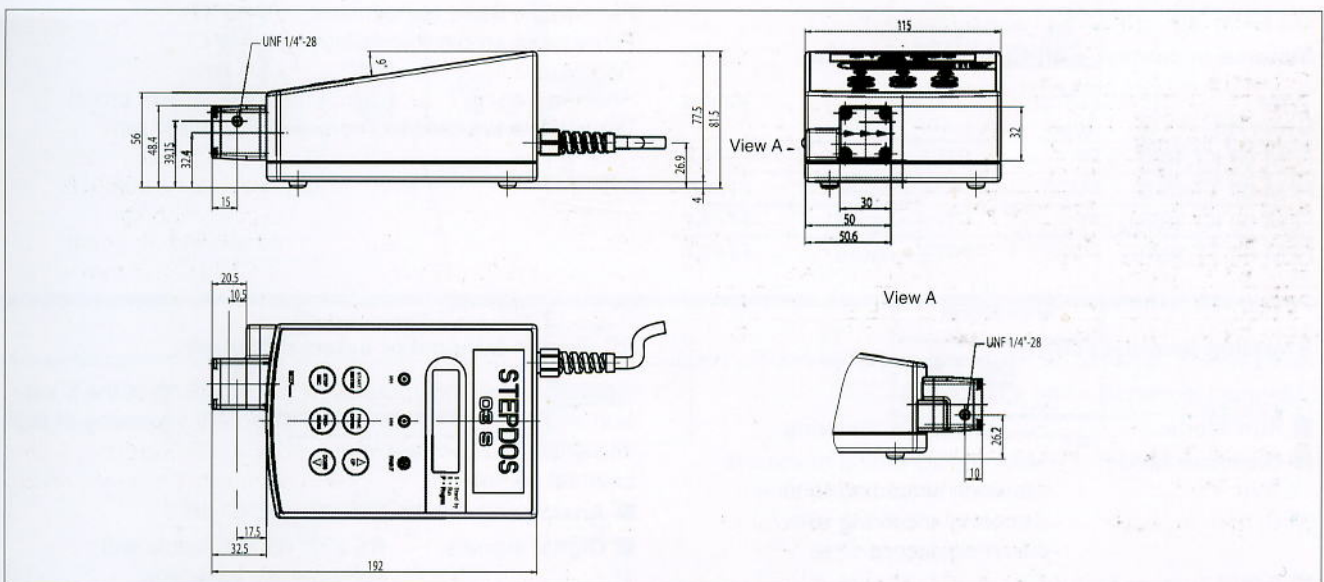
Pump performance characteristics for a dose of 1 ml/min



Technology with long-term precision

A stepper motor and integrated solenoid valve continuously ensure controlled movement in the pump head. The result is exact, practically pulsation-free, careful metering. The liquid is released slowly and evenly, while the suction stroke always occurs at maximum speed. Thus, the liquid is metered virtually continuously and very quietly, without pressure peaks.

Dimensions (mm)



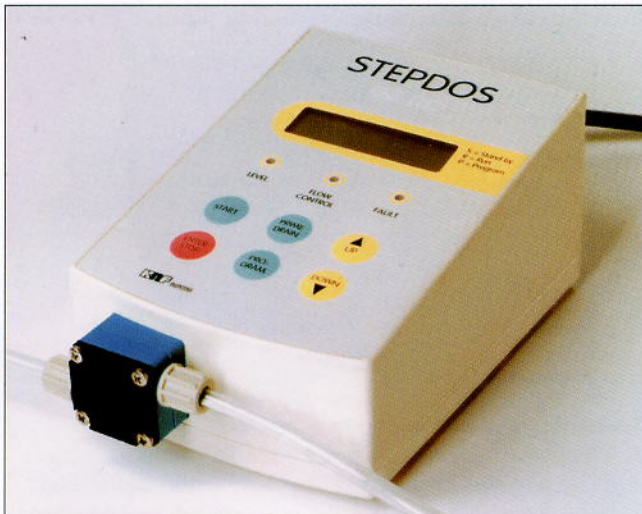
Accessories

Description	Details	Order No.
Cable for external control	2 m (without connector)	063959
Foot switch		069875
Tube ID/OD 1.6/3.2mm	PTFE	069684
Flangeless fitting	for tube 1.6/3.2mm	150213

KNF worldwide - Diaphragm Pumps and Systems

Diaphragm Metering Pumps

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STEPDOS 08 Chemically-resistant Diaphragm Metering Pumps, Processor controlled

Technical features:

- Maintenance-free
- Silent
- Even discharge over the entire travel range
- Suitable for virtually any chemicals
- Reproducibility +/- 1%

Metering Pumps STEPDOS 08: FEM 08 __.18/S, FEM 08 __.18/RC

The chemically-resistant, microprocessor-controlled series FEM 08__18/S and FEM 08__18/RC diaphragm metering pumps meter the smallest volumes continuously and evenly. Thanks to a special drive technology, these pumps feature a remarkably wide metering range of 1:1000.

Material in contact with the pumped media

Type OrderNo.	Pump head	Diaphragm	Valves
FEM 08 KT.18/S	PP	PTFE-coated	FFPM
FEM 08 TT.18/S	PVDF	PTFE-coated	FFPM
FEM 08 KT.18/RC	PP	PTFE-coated	FFPM
FEM 08 TT.18/RC	PVDF	PTFE-coated	FFPM

Technical data:

Flow rate ¹⁾	0.08-80 ml/min.
Pressure head	2 bar
Suction head	4 m
Connectors	for tube 4/6mm
Mains	100-230V 50/60Hz
Permissible liquid temperature	5-80 °C
Permissible ambient temperature	5-40 °C
Weight	1.4 kg
Housing	IP 65 (splash proof)
Dimensions (LxHxW)	180/115/81 mm

¹⁾ Water at 20°C and zero pressure head

S version (manual control):

Operation is manual using a keypad.

- Run Mode: - For continuous metering
- Dispense Mode: - Metering according to volume
- Metering according to time
- Repeated metering with adjustable pause time
- Rapid suction feature

RC version (manual or external control):

The RC version incorporates all the functions of the S version and can also be controlled externally via analog or digital signals (PC-compatible).

External control:

- Analog signals: 0/4 - 20 mA, 0 - 10 V
- Digital signals: RS 232, RS 485 (cable and software are included)
- Pulse input point: logic input I/01, I/02

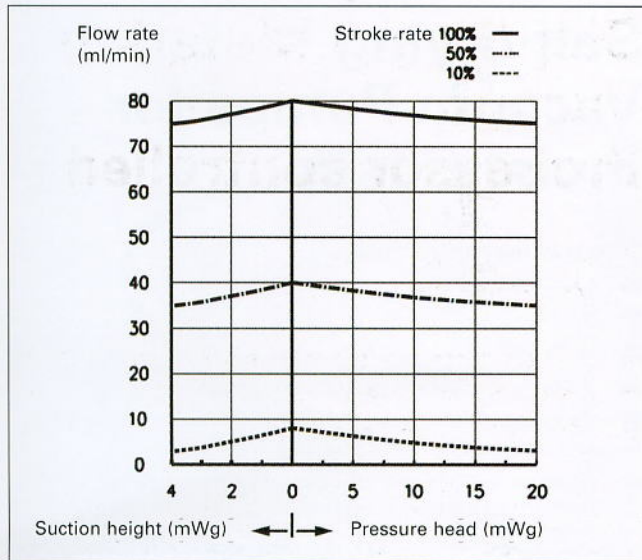
Accessories

Description	Details	OrderNo.
Cable for external control	2 m (without connector)	063959
Foot switch		069875

Diaphragm Metering Pumps

Dimensions and performance characteristics

Flow rate



Dimensions (mm)

