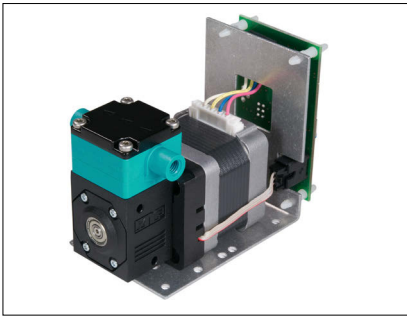


DIAPHRAGM DOSING PUMP

FEM 1.02, 1.09 .55 RC



FEM 1.02 KP .55 RC



FEM 1.09 KP .55 RC

Dosing very small quantities

- 5 - 180 µl
- 10 - 500 µl

The FEM diaphragm dosing pump has been specially developed in order to accurately dose small quantities of liquid over a long period of time whereby two of its most distinctive features are its compact size and robustness (pump and electronics). The FEM pump and electronics makes a complete dosing system which is suitable for both simple as well as complex applications.

Characteristics

- Partial stroke adjustment by potentiometer or analog signals 0 - 10V / 4 - 20 mA
- Digital input for single partial stroke
- Calibration by internal potentiometer
- Priming with constant motor speed
- Alarms in case of lost step or excessive pressure

Advantages

- Simple and precise pump control
- Flexibility of the control process
- Different speeds for the suction and the dispense stroke (two for the suction stroke and five for the dispense stroke)
- Maintenance free (>10'000 h resp. >10⁸ Strokes)
- Competitive price

Features

- Excellent repeatability
- High long-term stability
- High chemical resistance
- Self priming
- Run dry
- Long life-time
- Different mounting solutions

Areas of use

The versatility of KNF pumps allows a wide field of applications to be covered. Over many years our pumps have proven themselves in the following areas:

Analysers

- Medical/pharmaceutical
- Environmental/water treatment
- Food

Laboratory

- Filtration
- Chromatography

Cleaning industry

- Cuvette cleaning
- Sterilisers
- Industrial washing machine

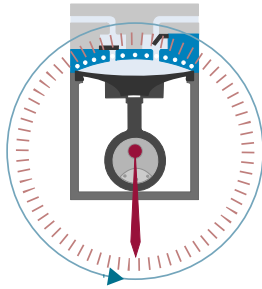
Other applications for diaphragm liquid pumps include: fuel cells, hydrogen generators, dental technology, textiles and many more.

PERFORMANCE			
Type	Dispense volume (µl)	max. suction head (mWg)	max. pressure head (mWg)
FEM 1.02 .55 RC	5 - 180	4	60
FEM 1.09 .55 RC	10 - 500	4	60

FEATURES AND FUNCTIONS

Prime-Mode

To prime or flush the pump. The pump runs at maximum speed.



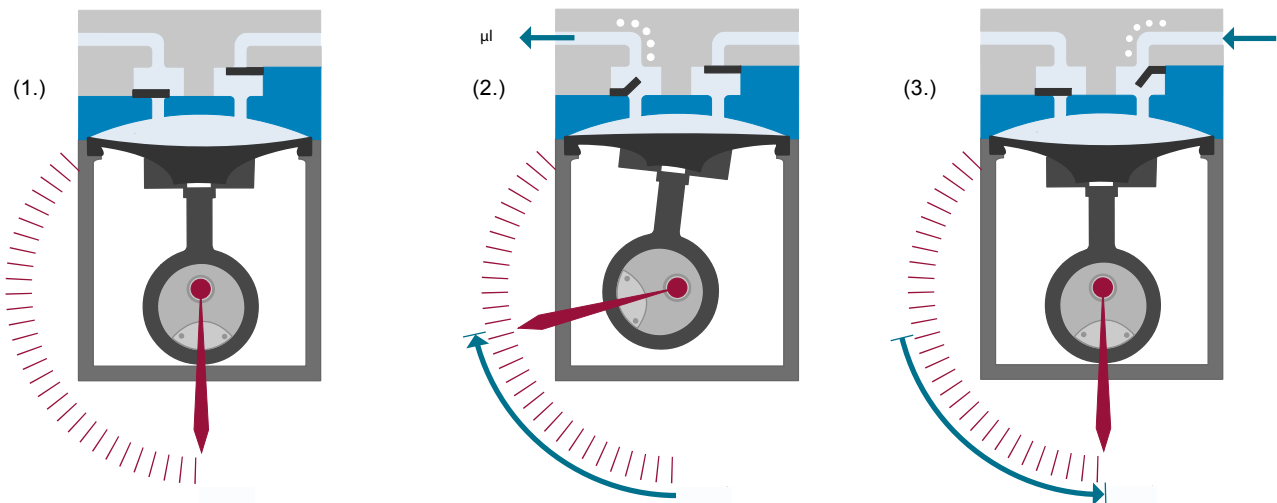
Technology with long-term precision

A flexible diaphragm is moved up and down by an eccentric which is connected to the motor shaft. During the downwards movement the liquid is sucked in through the inlet valve into the working chamber and by the upwards movement the liquid is pushed out through the outlet valve. The working chamber of the pump is hermetically separated from the motor so that the liquid can not be contaminated in any way.

Dispense-Mode

Dosing a volume.

The diaphragm is positioned at the lowest point ready for dosing with the pump head completely filled with liquid (1.). After receiving the start order the diaphragm moves upwards displacing the required volume of liquid (2.), the diaphragm then returns back to the start position drawing new liquid in (3.).



Material of head components

MATERIAL OF HEAD COMPONENTS		
KP	Head Valves O-ring Diaphragm	PP EPDM EPDM PTFE covered
KT	Head Valves O-ring Diaphragm	PP FFKM FFKM PTFE covered
TT	Head Valves O-ring Diaphragm	PVDF FFKM FFKM PTFE covered

Electronic control

Partial strokes can be set by a potentiometer or analog signals 0 - 10 V / 4 - 20 mA. The pump can be calibrated in this manner as well (5 - 180 μl FEM 1.02.55 RC or 10 - 500 μl FEM 1.09.55 RC).

The dispense volume can be set by a potentiometer or analog signals 0 - 10 V / 4 - 20 mA.

Single strokes can be triggered by a digital Impuls.

Analog interface	4 - 20 mA, 0 - 10 V
Logical control	Impuls (TTL)
Output signal	Alarm (Open Collector)

FEM 1.02 .55 RC

TECHNICAL DATA

Dispense Mode	5 – 180 µl
Prime Mode (max.)	20 ml/min
max. suction head	4 mWS
max. back pressure	6 bar
accuracy	±2%
Repeatability	±1%
Allowed ambient temp.	+5 – +40 °C
Allowed liquid temp.	+5 – +80 °C
Max Viscosity	150 cSt
Rpm max	200 U/min
Motor protection factor	IP 40
Noise level	<40 dB
Connectors	UNF 1/4"-28
Tube (ID/AD)	1/16"/1/8" (1.6/3.2 mm)
Weight	390 g

ELECTRONIC CONTROL

Voltage (DC)	12 – 24 V
Power rating	15 W
Max power consumption	0.6 A
Impuls start	TTL level
Analog input	0 – 10 V (reference 10 V) 4 – 20 mA
Prime / Drain	TTL level
Alarm Output	Open Collector

FEM 1.09 .55 RC

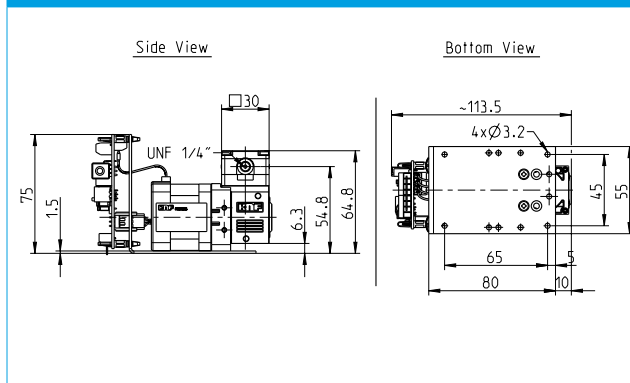
TECHNICAL DATA

Dispense Mode	10 – 500 µl
Prime Mode (max.)	90 ml/min
max. suction head	4 mWS
max. back pressure	6 bar
accuracy	±2%
Repeatability	±1%
Allowed ambient temp.	+5 – +40 °C
Allowed liquid temp.	+5 – +80 °C
Max Viscosity	150 cSt
Rpm max	200 U/min
Motor protection factor	IP 40
Noise level	<40 dB
Connectors	Compression fittings 4/6
Tube (ID/AD)	4/6 mm
Weight	390 g

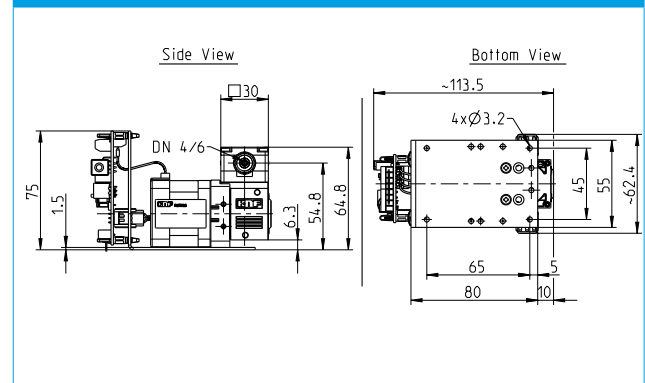
ELECTRONIC CONTROL

Voltage (DC)	12 – 24 V
Power rating	15 W
Max power consumption	0.6 A
Impuls start	TTL level
Analog input	0 – 10 V (reference 10 V) 4 – 20 mA
Prime / Drain	TTL level
Alarm Output	Open Collector

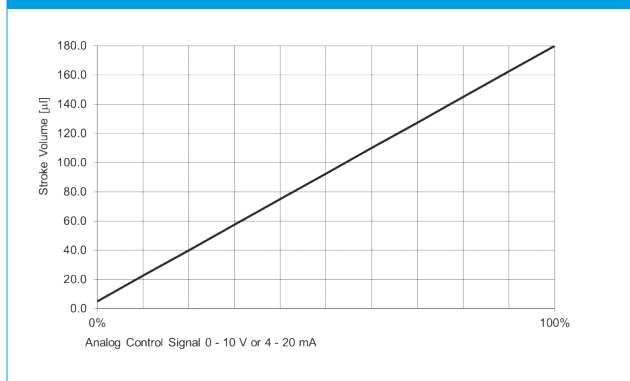
FEM 1.02 .55 RC



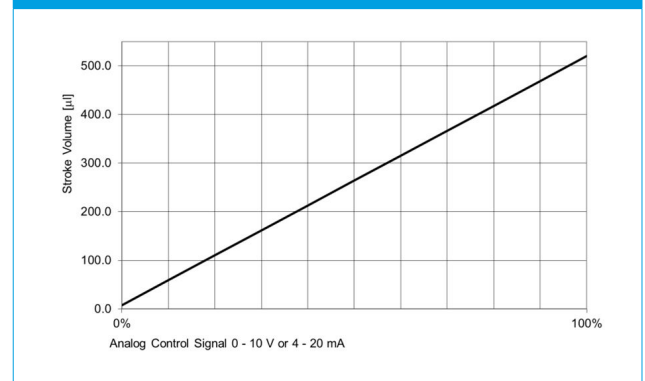
FEM 1.09 .55 RC



FEM 1.02 .55 RC STROKE VOLUME



FEM 1.09 .55 RC STROKE VOLUME



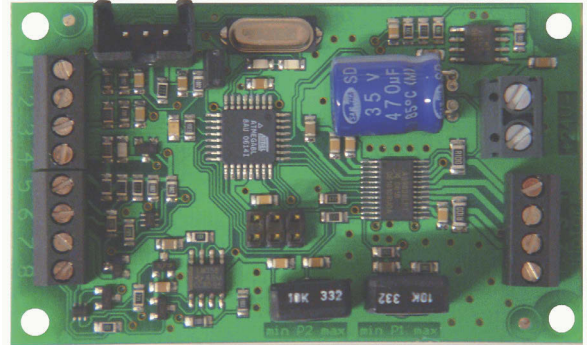
OPTIONS, ACCESSORIES

Options

- Other connectors on request
- Modular construction
- Different mounting possibilities
- Customer specific solutions on request

Control board for continuous dosing FE Z4

- FEM 1.02: 20 ml/min
- FEM 1.09: 90 ml/min



Pump without command FEM 1.02, 1.09_SM2

(Data sheet ID No. 157 624)

- for own stepper motor electronic
- Advice from KNF specialist for optimal solution

