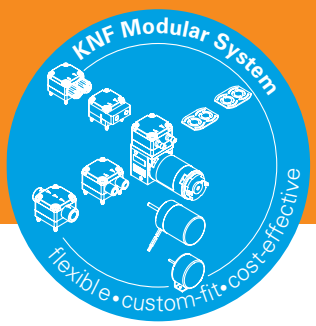
# FD 1.200
# DOSING PUMP

FD 1.200

## ADVANTAGES

- Precise dosing
- Robust against varying system conditions
- Bi-directional flow
- Always forward and backward flow tight
- Flexible communication interfaces
- Easy system integration
- Self-priming and run dry safe

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## POSSIBLE AREAS OF USE

- Medical diagnostics
- Analytical Instruments
- Cleaning + Disinfection
- Laboratory Instruments
- Food

| PERFORMANCE DATA | | |
|---|---|---|
| **Series model** | **FD 1.200** | |
| **Material variants** | **RP** | **RT** |
| Pump head | PPS | PPS |
| Diaphragm | EPDM | PTFE / EPDM |
| Valves | EPDM | FFKM |
| O-Rings | EPDM | FKM |
| Housing | PP | PP |
| Shot volume range (µl) | 50 … 200 | |
| Max. shot frequency (shots per second) | 3.33 | |
| Max. flow rate: dosing mode (ml/min) | 40 | |
| Max. flow rate: priming mode (ml/min) | 65 | |
| Set point accuracy | +/- 2% RD | |
| Repeatability (C.V.) | ≤ 0.5% | |
| Calibration | Calibration in factory @ 0 bar g / 25 °C with water | |
| Suction height, dry (mH2O / inHg) | ≥ 4.5 / 13 @ 200 µl shot volume | |
| Max. outlet pressure head (mH2O / psig) | 60 / 85 | |
| Max. inlet pressure head (mH2O / psig) | 20 / 28.5 | |
| Permissible media temperature (°C / °F) | 5 … 80 / 41 … 176 | |
| Max. media temp. for hot sterilization (°C / °F) | 95 / 203, for max. 40 minutes | |
| Permissible ambient temperature (°C / °F) | 5 … 50 / 41 … 122 | |
| IP protection factor | IP20 (optional: IP54) | |
| Weight (g) | 700 | |
| **ELECTRICAL DATA** | | |
| Operating voltage (VDC) | 24 +/- 10% | |
| Power (W) | 36 | |
| I load max (A) | 1.5 | |

## INFLUENCE ON ACCURACY

| Material Variants | RP | RT |
|---|---|---|
| Suction height | 0 / - 2% per mH2O | |
| Outlet pressure @ 200 µl | 0 / - 0.2% per mH2O | |
| Outlet pressure @ 50 µl (minimal shot volume) | 0 / - 0.6% per mH2O | |
| Viscosity (0.3 – 150 mPas) | 0 / - 3% | 0 / - 5% |
| Media temperature (5...80 °C) | +/- 2% | |
| Ambient and media temperature (5...50 °C) | +/- 3% | |
| Drift over time @ 200 µl (50 mio. cycles) | +/- 4% | |
| Drift over time @ 50 µl (50 mio. cycles)* | +/- 8% | |

* Primarily only for small target volumes of 50 µl

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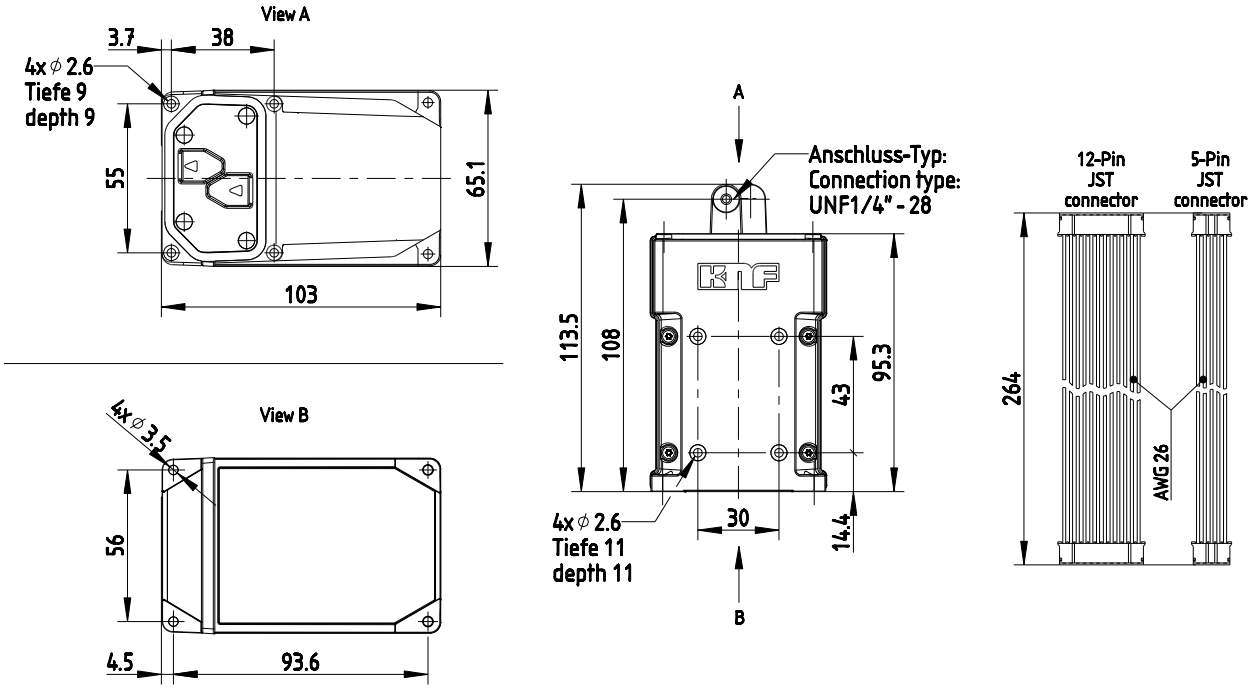


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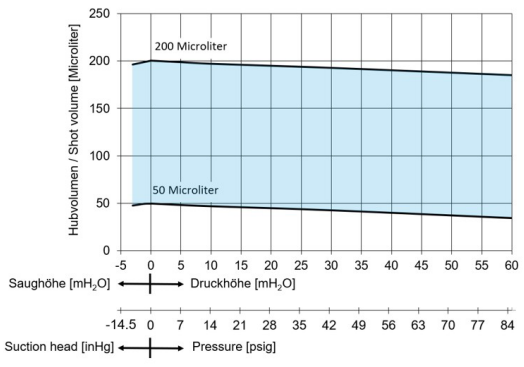


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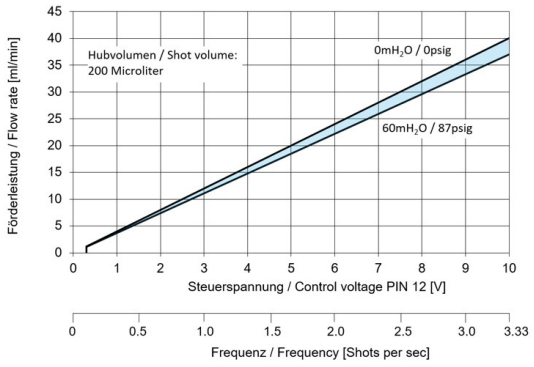


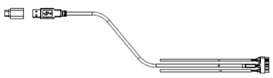
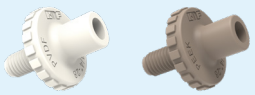
## ELECTRICAL CONNECTION

| | | | | |
|---|---|---|---|---|
| Serial Interface | UART TTL | | | |
| Interface project options | UART on RS232 (on request), CAN open (on request) | | | |
| Socket 1 (JST, 5 pins)<br>Manufacturer no.<br>B5B-PH-SM4-TB | **Number** | **Designation** | | **Function** |
| | PIN 1 | 24V | | Power supply |
| | PIN 2 | GND | | GND for power supply |
| | PIN 3 | Serial GND | | GND for serial communication |
| | PIN 4 | Serial COM 2 | | Tx (transmit) |
| | PIN 5 | Serial COM 1 | | Rx (receive) |
| Socket 2 (JST, 12 pins)<br>Manufacturer no.<br>B12B-PH-SM4-TB | **Number** | **Designation** | **Type** | **Function** |
| | PIN 1 | 24V | | Power supply |
| | PIN 2 | GND | | GND for power supply |
| | PIN 3 | Run | Digital input | • HIGH pulse (>5 ms, 5 V) starts a dosing cycle<br>• Permanent HIGH for continuous dosing (Ends dosing cycle as soon as LOW) |
| | PIN 4 | Reverse | Digital input | At HIGH (5 V), the pump runs in reverse. (Applies to both Run and Prime modes) |
| | PIN 5 | Error | Digital output | HIGH (5 V) in case of fault |
| | PIN 6 | Overpressure warning | Digital output | HIGH (5 V) when there is overpressure at the pump outlet (Default: >7 bar) |
| | PIN 7 | Cycle complete | Digital output | HIGH pulse (10 ms, 5 V) after each dosing cycle |
| | PIN 8 | Prime | Analog input | Prime mode (filling mode)<br>0.5 V = 5 ml/min (23 rpm)<br>6.5 V = 65 ml/min (300 rpm) |
| | PIN 9 | GND Diff | GND Pin 10 – 12 | GND (differential) for input signals PIN 10-12 |
| | PIN 10 | Suction ratio | Analog input* | Analog input 0-10 V<br>0.3 V = 3% (min)<br>9.7 V = 97% (max)<br>Default (<0.2V): 50% ** |
| | PIN 11 | Shot volume | Analog input* | Analog input 0-10 V<br>1.6 V = 40 µl (min)<br>8.4 V = 210 µl (max)<br>Default (< 0.2 V): 200 µl ** |
| | PIN 12 | Frequency | Analog input* | Analog input 0-10V<br>0.3 V = 0.1 shots per sec (min)<br>10 V = 3.33 shots per sec (max)<br>Default (<0.2 V): 2 shots per sec ** |

* Pin 10-12: Customizable inputs/outputs (analog input: 0-10V or PWM), default: 0-10V. For accurate dosing, it is important that the differential voltage at the input is sufficiently accurate.

** or value of the serial interface

## ACCESSORIES

| Description | Illustration | Part No. | Details |
|---|---|---|---|
| Starter-Kit cable USB – UART TTL |  | 358830 | USB Connecting cable to parametrize the FD 1.200 System with the KNF Connect Software, open wire ends for power and control input/signal output |
| Filter<br>FS 60 T PVDF<br>FS 60 X PEEK |  | PVDF: 346932<br>PEEK: 323625 | KNF filters protect both pumps and other upstream instrumentation and hydraulic circuits against particulate, crystals and fibres which can improve optimum operation.<br>Mesh opening:<br>PVDF: 70 µm<br>PEEK: 35 µm |

The performance values for the series models shown on this data sheet were determined under test conditions.
The actual performance values may differ and depend in particular on the usage conditions and therefore on the specific application, on the parameters of the components involved in the user's system and on any technical modifications carried out which deviate from the standard configuration or the as delivered condition.

If individual designs have been created for specific customers on the basis of series models, other technical performance data may apply.
Before operation begins, the relevant operating instructions and/or assembly or installation instructions should be read and the safety information contained in these instructions should be noted.
KNF reserves the right to make changes to the product and the associated documentation without prior notice to the customer.

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