FHKSC PVDF using fastening pin
with double isolation
Part number: 932-930X/PXXXX
General Description

The FHKSC Flowmeter is a general-purpose device. The device is installed between the tank container and the vibratory pump (on the suction side) and in this way prevents the measuring errors that arise during pulsating flow caused by vibratory pumps.

Specific applications: Thanks to its closure system, the water outlet side can be assembled in four different positions. Central sprayed fastening pin Ø 2.8mm x 7.5mm. Recommended washer disk: Quicklock® Benzing Ø 3mm or Starlock P-6490 Ø 3mm.

Employed in the semiconductor (wafer polishing) sector due to the high purity of materials used. Doubled isolation (water/electronics)

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**Material:**
- Housing: PVDF
- Bearing pin: Injection-moulded like the housing
- Nozzle: Injection-moulded like the housing
- O-ring: FPM (Viton)
- Turbine: PFA 2 Magnets
- Magnets: Ceramic Sr Fe O
  (not in contact with the medium)

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**Technical data:**
- Flow rate: 0.033 - 2 l/min depending on the nozzle diameter
- Measuring accuracy: +/- 2.0%
- Repetition: < +/- 0.25%
- Temperature range: -10°C to +65°C
  14°F to 149°F
- Pressure range: -1 bar to 0.3 bar at 20°C
  -14.5 psi to 4.35 psi /68°F
- Mounting position: Horizontal *
- Nozzle size: Ø 1.0, 1.2, 1.8, 2.0 mm

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**Electrical connection ratings:**
- Power supply: +3.8 to +24 VDC
- Consumption: < 8 mA
- Signal connection: Open collector NPN
- Signal voltage: 0 VDC GND
  (saturation <0.7 V)
- Signal load: max. 20 mA
- Leakage current: max. 10 μA
- Connections: PANCON MAS-CON T56 MLSS
- Signal: Square-wave output
- Duty Cycle: ~50%

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**Dimensions in mm:**

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**Approvals / Standards**
- EN55014-1:00 - A1:01 - A2:02, EN61000-6-3:01 - A1:04, IEC61000-6-3:06(ed.2.0), EN61000-3-2:06, IEC61000-3-2:05(ed.3.0), EN61000-3-2:05 - A1:01 - A2:05, IEC61000-3-94 - A1:01 - A2:05(Err.ed 1.2), EN55014-2:97 - A1:01, EN61000-6-1:01, IEC61000-6-1:05(ed 2)

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**RESISTANCE**

Special regulations which must be complied with by the flowmeter manufacturer apply to each country, e.g. CE, NSF, FDA and SK. The various media flowing through the flowmeter differ from application to application. You are advised to enquire with the medium manufacturer as to whether the entire installation and the flowmeter are resistant to the medium itself (see Material)!

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**ELECTRONIC**

DIGMESA electronic circuitry is always designed for operation with DIGMESA flowmeters. Please note the following if connecting to other electronic circuitry:
- The flowmeter does not supply an output voltage but switches the signal terminal to 0 V ground (actuated) or leaves it open (non-actuated)
- There must be a pull-up resistor between power supply + and signal depending on electronic circuitry!
Interface Connection: Examples Open Collector

simple circuit

TTL output

optocoupler interface
Measurement guaranteed only if mounted horizontally

Loop from silicone hose
Ø 5mm x 1.5mm 60 Shore A
Measurement Curve FHKSC 1.00 mm 0°

The values specified must be considered as approximate values.

The number of pulses per litre may differ depending on medium and installation.

We recommend to calibrate the number of pulses per litre in line with the complete installation.

**MEASUREMENT TIPS**

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +-, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)

### #932-9305/P2 (2 Magnets Turbine)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>2382</td>
<td>0.4197</td>
<td>0.0333</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>1925</td>
<td>0.5194</td>
<td>0.0750</td>
<td>0.5692</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>1315</td>
<td>0.7601</td>
<td>0.0753</td>
<td>0.8994</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1250</td>
<td>0.8001</td>
<td>0.1121</td>
<td>0.9068</td>
<td>0.21</td>
</tr>
</tbody>
</table>

### #932-9305/P4 (4 Magnets Turbine)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>4764</td>
<td>0.2098</td>
<td>0.0333</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>3850</td>
<td>0.2597</td>
<td>0.0750</td>
<td>0.5692</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>2630</td>
<td>0.3800</td>
<td>0.0753</td>
<td>0.8994</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>2500</td>
<td>0.4000</td>
<td>0.1121</td>
<td>0.9068</td>
<td>0.21</td>
</tr>
</tbody>
</table>
MEASUREMENT CURVE FHKSC 1.00 mm 90°

Medium: Water / max. Pressure: 1 bar (Arnite Daten)

The values specified must be considered as approximate values.
The number of pulses per litre may differ depending on medium and installation.
We recommend to calibrate the number of pulses per litre in line with the complete installation.

### Measurement Curve FHKSC 1.00 mm 90°

#### Nozzle size
- Ø 1.00 mm
- Ø 1.20 mm
- Ø 1.80 mm
- Ø 2.00 mm

<table>
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<th>Nozzle size</th>
<th>Pulses/litre</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>2386</td>
<td>0.4191</td>
<td>0.0500</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>1934</td>
<td>0.5171</td>
<td>0.0813</td>
<td>0.5667</td>
<td>0.43</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>1300</td>
<td>0.7691</td>
<td>0.0910</td>
<td>0.9012</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1215</td>
<td>0.8231</td>
<td>0.1396</td>
<td>0.9156</td>
<td>0.21</td>
</tr>
</tbody>
</table>

### MEASUREMENT TIPS

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)
Measurement Curve FHKSC 1.00 mm 180°

Nozzle size | Pulses/litre | g/pulse | min. flow rate in litres/min at Linear start | max. flow rate in litres/min | Pressure loss
--- | --- | --- | --- | --- | ---
Ø 1.00 mm | 2476 | 0.4038 | 0.0560 | 0.4044 | 0.48
Ø 1.20 mm | 2016 | 0.4960 | 0.1022 | 0.5705 | 0.43
Ø 1.80 mm | 1360 | 0.7349 | 0.1185 | 0.8966 | 0.26
Ø 2.00 mm | 1280 | 0.7815 | 0.1785 | 0.9175 | 0.22

#932-9305/P1804 (4 Magnets Turbine)

Nozzle size | Pulses/litre | g/pulse | min. flow rate in litres/min at Linear start | max. flow rate in litres/min | Pressure loss
--- | --- | --- | --- | --- | ---
Ø 1.00 mm | 4952 | 0.2019 | 0.0560 | 0.4044 | 0.48
Ø 1.20 mm | 4032 | 0.2480 | 0.1022 | 0.5705 | 0.43
Ø 1.80 mm | 2720 | 0.3674 | 0.1185 | 0.8966 | 0.26
Ø 2.00 mm | 2560 | 0.3907 | 0.1785 | 0.9175 | 0.22

The values specified must be considered as approximate values. The number of pulses per litre may differ depending on medium and installation. We recommend to calibrate the number of pulses per litre in line with the complete installation.

Medium: Water / max. Pressure: 1 bar (Arnite Daten)

MEASUREMENT TIPS
- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)
Measurement Curve FHKSC 1.00 mm 270°

Medium: Water / max. Pressure: 1 bar (Arnite Daten)

**#932-9305/P2702 (2 Magnets Turbine)**

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>2436</td>
<td>0.4105</td>
<td>0.0427</td>
<td>0.4019</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>2012</td>
<td>0.4969</td>
<td>0.0801</td>
<td>0.5677</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>1352</td>
<td>0.7397</td>
<td>0.0824</td>
<td>0.8982</td>
<td>0.26</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1274</td>
<td>0.7849</td>
<td>0.1573</td>
<td>0.9056</td>
<td>0.22</td>
</tr>
</tbody>
</table>

**#932-9305/P2704 (4 Magnets Turbine)**

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>4872</td>
<td>0.2052</td>
<td>0.0427</td>
<td>0.4019</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>4024</td>
<td>0.2484</td>
<td>0.0801</td>
<td>0.5677</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>2704</td>
<td>0.3698</td>
<td>0.0824</td>
<td>0.8982</td>
<td>0.26</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>2548</td>
<td>0.3924</td>
<td>0.1573</td>
<td>0.9056</td>
<td>0.22</td>
</tr>
</tbody>
</table>

The values specified must be considered as approximate values. The number of pulses per litre may differ depending on medium and installation. We recommend to calibrate the number of pulses per litre in line with the complete installation.

Ensure that there is no fast-pulsatory movement of the media
Ensure that there are no reverse pressure surges
Ensure that there is no air in the system
Keep the pressure loss as small as possible
Note the mounting position of the flowmeter
Min/max flow should be in the linear range of the selected flowmeter
Clean the system at appropriate intervals
Avoid electrical current peaks
Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
Do not mechanically load electrical contacts
Avoid moisture on the electrical contacts
Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)
### Measurement Curve FHKSC 1.20 mm 0°

#### #932-9301/P2 (2 Magnets Turbine)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
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<tr>
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<td>1315</td>
<td>0.7601</td>
<td>0.0753</td>
<td>0.8994</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1250</td>
<td>0.8001</td>
<td>0.1121</td>
<td>0.9068</td>
<td>0.21</td>
</tr>
</tbody>
</table>

#### #932-9301/P4 (4 Magnets Turbine)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>4764</td>
<td>0.2098</td>
<td>0.0333</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>3850</td>
<td>0.2597</td>
<td>0.0750</td>
<td>0.5692</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>2630</td>
<td>0.3800</td>
<td>0.0753</td>
<td>0.8994</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>2500</td>
<td>0.4000</td>
<td>0.1121</td>
<td>0.9068</td>
<td>0.21</td>
</tr>
</tbody>
</table>

*The values specified must be considered as approximate values. The number of pulses per litre may differ depending on medium and installation. We recommend to calibrate the number of pulses per litre in line with the complete installation.*

**MEASUREMENT TIPS**

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)
Measurement Curve FHKSC 1.20 mm 90°

Medium: Water / max. Pressure: 1 bar (Arnite Daten)

### #932-9301/P902 (2 Magnets Turbine)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss in litres/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>2386</td>
<td>0.4191</td>
<td>0.0500</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>1934</td>
<td>0.5171</td>
<td>0.0813</td>
<td>0.5667</td>
<td>0.43</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>1300</td>
<td>0.7691</td>
<td>0.0910</td>
<td>0.9012</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1215</td>
<td>0.8231</td>
<td>0.1396</td>
<td>0.9156</td>
<td>0.21</td>
</tr>
</tbody>
</table>

### #932-9301/P904 (4 Magnets Turbine)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss in litres/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>4772</td>
<td>0.2095</td>
<td>0.0500</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>3868</td>
<td>0.2585</td>
<td>0.0813</td>
<td>0.5667</td>
<td>0.43</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>2600</td>
<td>0.3845</td>
<td>0.0910</td>
<td>0.9012</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>2430</td>
<td>0.4115</td>
<td>0.1396</td>
<td>0.9156</td>
<td>0.21</td>
</tr>
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**MEASUREMENT TIPS**

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)
Measurement Curve FHKSC 1.20 mm 180°

**MEASUREMENT TIPS**

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
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The values specified must be considered as approximate values.

The number of pulses per litre may differ depending on medium and installation.

We recommend to calibrate the number of pulses per litre in line with the complete installation.
### Measurement Curve FHKSC 1.20 mm 270°

![Measurement Curve Image]

#### Medium: Water / max. Pressure: 1 bar (Arnite Daten)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss in bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>2436</td>
<td>0.4105</td>
<td>0.0427</td>
<td>0.4019</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>2012</td>
<td>0.4969</td>
<td>0.0801</td>
<td>0.5677</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>1352</td>
<td>0.7397</td>
<td>0.0824</td>
<td>0.8978</td>
<td>0.26</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1274</td>
<td>0.7849</td>
<td>0.1573</td>
<td>0.9056</td>
<td>0.22</td>
</tr>
</tbody>
</table>

The values specified must be considered as approximate values.

The number of pulses per litre may differ depending on medium and installation. We recommend to calibrate the number of pulses per litre in line with the complete installation.
Measurement Curve FHKSC 1.80 mm 0°

Medium: Water / max. Pressure: 1 bar (Arnite Daten)

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<td>0.1121</td>
<td>0.9068</td>
<td>0.21</td>
</tr>
</tbody>
</table>

MEASUREMENT TIPS

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)

The values specified must be considered as approximate values.
The number of pulses per litre may differ depending on medium and installation.
We recommend to calibrate the number of pulses per litre in line with the complete installation.
#932-9304/P902 (2 Magnets Turbine)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>2386</td>
<td>0.4191</td>
<td>0.0500</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>1934</td>
<td>0.5171</td>
<td>0.0813</td>
<td>0.5667</td>
<td>0.43</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>1300</td>
<td>0.7691</td>
<td>0.0910</td>
<td>0.9012</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1215</td>
<td>0.8231</td>
<td>0.1396</td>
<td>0.9156</td>
<td>0.21</td>
</tr>
</tbody>
</table>

#932-9304/P904 (4 Magnets Turbine)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>4772</td>
<td>0.2095</td>
<td>0.0500</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>3868</td>
<td>0.2585</td>
<td>0.0813</td>
<td>0.5667</td>
<td>0.43</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>2600</td>
<td>0.3845</td>
<td>0.0910</td>
<td>0.9012</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>2430</td>
<td>0.4115</td>
<td>0.1396</td>
<td>0.9156</td>
<td>0.21</td>
</tr>
</tbody>
</table>

The values specified must be considered as approximate values.
The number of pulses per litre may differ depending on medium and installation.
We recommend to calibrate the number of pulses per litre in line with the complete installation.

Measurement Curve FHKSC 1.80 mm 90°

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)
Measurement Curve FHKSC 1.80 mm 180°

- **Ensure that there is no fast-pulsatory movement of the media**
- **Ensure that there are no reverse pressure surges**
- **Ensure that there is no air in the system**
- **Keep the pressure loss as small as possible**
- **Note the mounting position of the flowmeter**
- **Min/max flow should be in the linear range of the selected flowmeter**
- **Clean the system at appropriate intervals**
- **Avoid electrical current peaks**
- **Incorrect cabling of power supply +, signal and ground will destroy the flowmeter**
- **Do not mechanically load electrical contacts**
- **Avoid moisture on the electrical contacts**
- **Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)**

**MEASUREMENT TIPS**

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss in litres/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>2476</td>
<td>0.4038</td>
<td>0.0560</td>
<td>0.4044</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>2016</td>
<td>0.4960</td>
<td>0.1022</td>
<td>0.5705</td>
<td>0.43</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>1360</td>
<td>0.7349</td>
<td>0.1185</td>
<td>0.8966</td>
<td>0.26</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1280</td>
<td>0.7815</td>
<td>0.1785</td>
<td>0.9175</td>
<td>0.22</td>
</tr>
</tbody>
</table>

The values specified must be considered as approximate values.
The number of pulses per litre may differ depending on medium and installation.
We recommend to calibrate the number of pulses per litre in line with the complete installation.
Measurement Curve FHKSC 1.80 mm 270°

Nozzle size | Puls per litre | g/pulse | min. flow rate in litres/min at Linear start | max. flow rate in litres/min | Pressure loss
---|---|---|---|---|---
Ø 1.00 mm | 2436 | 0.4105 | 0.0427 | 0.4019 | 0.48
Ø 1.20 mm | 2012 | 0.4969 | 0.0801 | 0.5677 | 0.42
Ø 1.80 mm | 1352 | 0.7397 | 0.0824 | 0.8982 | 0.26
Ø 2.00 mm | 1274 | 0.7849 | 0.1573 | 0.9506 | 0.22

The values specified must be considered as approximate values.
The number of pulses per litre may differ depending on medium and installation.

MEASUREMENT TIPS

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick up via the cable (Do not lay cables in parallel with high current loads)
**Measurement Curve FHKSC 2.00 mm 0°**

### MEASUREMENT TIPS

- Ensure that there is no fast-pulsatory movement of the media.
- Ensure that there are no reverse pressure surges.
- Ensure that there is no air in the system.
- Keep the pressure loss as small as possible.
- Note the mounting position of the flowmeter.
- Min/max flow should be in the linear range of the selected flowmeter.
- Clean the system at appropriate intervals.
- Avoid electrical current peaks.
- Incorrect cabling of power supply +, signal, and ground will destroy the flowmeter.
- Do not mechanically load electrical contacts.
- Avoid moisture on the electrical contacts.
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads).

---

**#932-9306/P2 (2 Magnets Turbine)**

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>2382</td>
<td>0.4197</td>
<td>0.0333</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>1925</td>
<td>0.5194</td>
<td>0.0750</td>
<td>0.5692</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>1315</td>
<td>0.7601</td>
<td>0.0753</td>
<td>0.8994</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1250</td>
<td>0.8001</td>
<td>0.1121</td>
<td>0.9068</td>
<td>0.21</td>
</tr>
</tbody>
</table>

**#932-9306/P4 (4 Magnets Turbine)**

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>4764</td>
<td>0.2098</td>
<td>0.0333</td>
<td>0.4023</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>3850</td>
<td>0.2597</td>
<td>0.0750</td>
<td>0.5692</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>2630</td>
<td>0.3800</td>
<td>0.0753</td>
<td>0.8994</td>
<td>0.25</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>2500</td>
<td>0.4000</td>
<td>0.1121</td>
<td>0.9068</td>
<td>0.21</td>
</tr>
</tbody>
</table>

The values specified must be considered as approximate values. The number of pulses per litre may differ depending on medium and installation. We recommend to calibrate the number of pulses per litre in line with the complete installation.
### Measurement Curve FHKSC 2.00 mm 90°

#### Linearitäts/linearity

<table>
<thead>
<tr>
<th>Durchfluss/flow rate L/min.</th>
<th>Abweichung/Deviation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>0.05</td>
<td>0.5</td>
</tr>
<tr>
<td>0.1</td>
<td>1.0</td>
</tr>
<tr>
<td>0.15</td>
<td>1.5</td>
</tr>
<tr>
<td>0.2</td>
<td>2.0</td>
</tr>
<tr>
<td>0.25</td>
<td>2.5</td>
</tr>
<tr>
<td>0.3</td>
<td>3.0</td>
</tr>
<tr>
<td>0.35</td>
<td>3.5</td>
</tr>
<tr>
<td>0.4</td>
<td>4.0</td>
</tr>
<tr>
<td>0.45</td>
<td>4.5</td>
</tr>
<tr>
<td>0.5</td>
<td>5.0</td>
</tr>
<tr>
<td>0.55</td>
<td>5.5</td>
</tr>
<tr>
<td>0.6</td>
<td>6.0</td>
</tr>
<tr>
<td>0.65</td>
<td>6.5</td>
</tr>
<tr>
<td>0.7</td>
<td>7.0</td>
</tr>
<tr>
<td>0.75</td>
<td>7.5</td>
</tr>
<tr>
<td>0.8</td>
<td>8.0</td>
</tr>
<tr>
<td>0.85</td>
<td>8.5</td>
</tr>
<tr>
<td>0.9</td>
<td>9.0</td>
</tr>
<tr>
<td>0.95</td>
<td>9.5</td>
</tr>
</tbody>
</table>

#### Druckverlust/pressure drop

<table>
<thead>
<tr>
<th>Durchfluss/flow rate L/min.</th>
<th>Druckverlust/pressure drop bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>0.35</td>
<td>0.35</td>
</tr>
<tr>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>0.45</td>
<td>0.45</td>
</tr>
<tr>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>0.55</td>
<td>0.55</td>
</tr>
<tr>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>0.65</td>
<td>0.65</td>
</tr>
<tr>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>0.75</td>
<td>0.75</td>
</tr>
<tr>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>0.85</td>
<td>0.85</td>
</tr>
<tr>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>0.95</td>
<td>0.95</td>
</tr>
</tbody>
</table>

**Medium:** Water / max. Pressure: 1 bar (Arnite Daten)

---

### Measurement Tips

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)

---

**Nozzle size** | **Pulses/litre** | **g/pulse** | **min. flow rate in litres/min at Linear start** | **max. flow rate in litres/min** | **Pressure loss** |
---|---|---|---|---|---|
Ø 1.00 mm | 2386 | 0.4191 | 0.0500 | 0.4023 | 0.48 |
Ø 1.20 mm | 1934 | 0.5171 | 0.0813 | 0.5667 | 0.43 |
Ø 1.80 mm | 1300 | 0.7691 | 0.0910 | 0.9012 | 0.25 |
Ø 2.00 mm | 1215 | 0.8231 | 0.1396 | 0.9156 | 0.21 |

### #932-9306/P904 (4 Magnets Turbine)

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)

---

**Nozzle size** | **Pulses/litre** | **g/pulse** | **min. flow rate in litres/min at Linear start** | **max. flow rate in litres/min** | **Pressure loss** |
---|---|---|---|---|---|
Ø 1.00 mm | 4772 | 0.2095 | 0.0500 | 0.4023 | 0.48 |
Ø 1.20 mm | 3868 | 0.2585 | 0.0813 | 0.5667 | 0.43 |
Ø 1.80 mm | 2600 | 0.3845 | 0.0910 | 0.9012 | 0.25 |
Ø 2.00 mm | 2430 | 0.4115 | 0.1396 | 0.9156 | 0.21 |

---

**The values specified must be considered as approximate values.**

**The number of pulses per litre may differ depending on medium and installation.**

We recommend to calibrate the number of pulses per litre in line with the complete installation.
### Measurement Curve FHKSC 2.00 mm 180°

#### Nozzle size Pulses/litre g/pulse min. flow rate in litres/min at Linear start max. flow rate in litres/min Pressure loss

| Ø 1.00 mm | 2476 | 0.4038 | 0.0560 | 0.4044 | 0.48 |
| Ø 1.20 mm | 2016 | 0.4960 | 0.1022 | 0.5705 | 0.43 |
| Ø 1.80 mm | 1360 | 0.7349 | 0.1185 | 0.8966 | 0.26 |
| Ø 2.00 mm | 1280 | 0.7815 | 0.1785 | 0.9175 | 0.22 |

#### Nozzle size Pulses/litre g/pulse min. flow rate in litres/min at Linear start max. flow rate in litres/min Pressure loss

| Ø 1.00 mm | 4952 | 0.2019 | 0.0560 | 0.4044 | 0.48 |
| Ø 1.20 mm | 4032 | 0.2480 | 0.1022 | 0.5705 | 0.43 |
| Ø 1.80 mm | 2720 | 0.3674 | 0.1185 | 0.8966 | 0.26 |
| Ø 2.00 mm | 2560 | 0.3907 | 0.1785 | 0.9175 | 0.22 |

The values specified must be considered as approximate values. The number of pulses per litre may differ depending on medium and installation. We recommend to calibrate the number of pulses per litre in line with the complete installation.

### Measurement Tips

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)
Measurement Curve FHKSC 2.00 mm 270°

Medium: Water / max. Pressure: 1 bar (Arnite Daten)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>2436</td>
<td>0.4105</td>
<td>0.0427</td>
<td>0.4019</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>2012</td>
<td>0.4969</td>
<td>0.0801</td>
<td>0.5677</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>1352</td>
<td>0.7397</td>
<td>0.0824</td>
<td>0.8982</td>
<td>0.26</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>1274</td>
<td>0.7849</td>
<td>0.1573</td>
<td>0.9056</td>
<td>0.22</td>
</tr>
</tbody>
</table>

#932-9306/P2704 (4 Magnets Turbine)

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Pulses/litre</th>
<th>g/pulse</th>
<th>min. flow rate in litres/min at Linear start</th>
<th>max. flow rate in litres/min</th>
<th>Pressure loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 1.00 mm</td>
<td>4872</td>
<td>0.2052</td>
<td>0.0427</td>
<td>0.4019</td>
<td>0.48</td>
</tr>
<tr>
<td>Ø 1.20 mm</td>
<td>4024</td>
<td>0.2484</td>
<td>0.0801</td>
<td>0.5677</td>
<td>0.42</td>
</tr>
<tr>
<td>Ø 1.80 mm</td>
<td>2704</td>
<td>0.3698</td>
<td>0.0824</td>
<td>0.8982</td>
<td>0.26</td>
</tr>
<tr>
<td>Ø 2.00 mm</td>
<td>2548</td>
<td>0.3924</td>
<td>0.1573</td>
<td>0.9056</td>
<td>0.22</td>
</tr>
</tbody>
</table>

The values specified must be considered as approximate values.
The number of pulses per litre may differ depending on medium and installation.
We recommend to calibrate the number of pulses per litre in line with the complete installation.

MEASUREMENT TIPS

- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Keep the pressure loss as small as possible
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate intervals
- Avoid electrical current peaks
- Incorrect cabling of power supply +, signal and ground will destroy the flowmeter
- Do not mechanically load electrical contacts
- Avoid moisture on the electrical contacts
- Avoid stray pick-up via the cable (Do not lay cables in parallel with high current loads)
Spare parts:

- Upper section FHKSC PVDF # 532-9301/ST
- O-ring FPM (Viton) # 350-0900
- Turbine FT 35 chemie # 527-0202/2 (2 Magnets)
  # 527-0202/4 (4 Magnets)
- Lower section FHKSC Ø 1.00 mm # 313-4310
- Lower section FHKSC Ø 1.20 mm # 313-4312
- Lower section FHKSC Ø 1.80 mm # 313-4318
- Lower section FHKSC Ø 2.00 mm # 313-4320