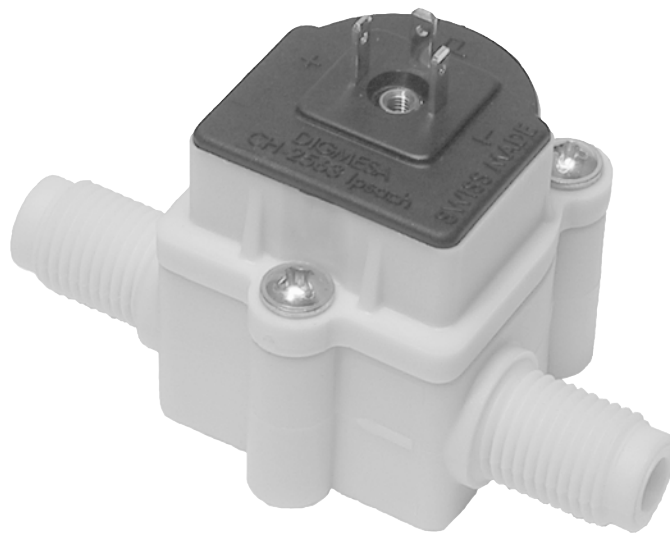


# DATA SHEET



## **DIGIMESA**

---

**FHKU G1/4" PEEK**  
Part number: 938-12XX/P014

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU PEEK 938-12XX/P014 GB Page 1-12

# General Description

The FHKU Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Able to withstand high temperatures, good resistance to chemicals. Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. **Employed in the semiconductor (wafer polishing) sector due to the high purity of materials used.**

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PEEK 450G
Bearing pin:	PEEK 450G
Nozzle:	PEEK 450G
O-ring:	FPM (Viton) EPDM / Kalrez on request
Turbine:	PFA 4 Magnets 2 Magnets on request
Magnets:	Keramik Sr Fe O (not in contact with the medium)
Screw:	Inox A2 PT-screws (Phillips cross recessed)

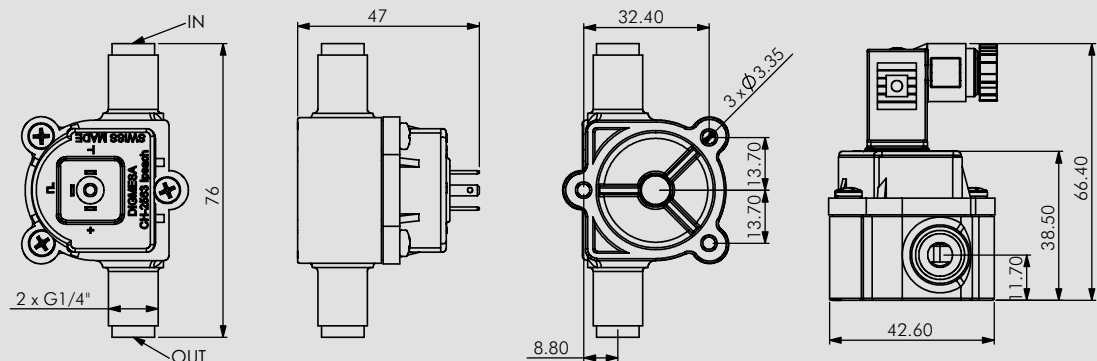
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	-10°C to +100°C 14°F to 212°F
Pressure range:	20 bar at 20°C 290 psi / 68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

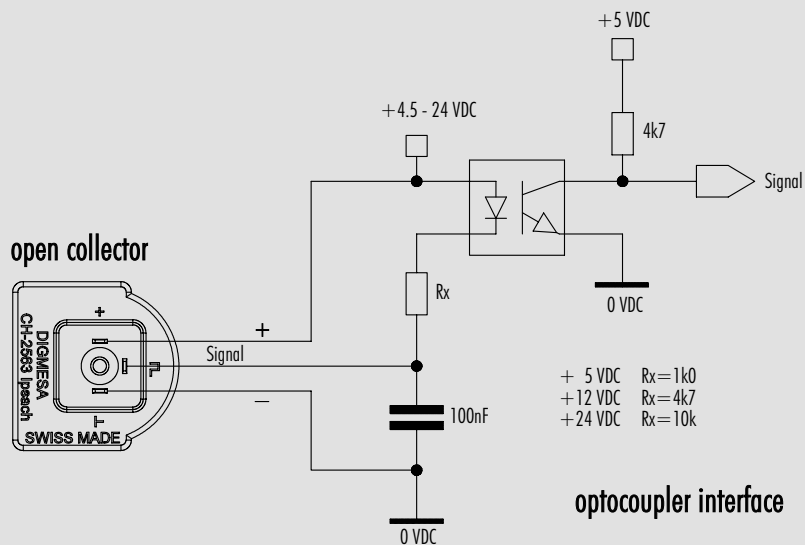
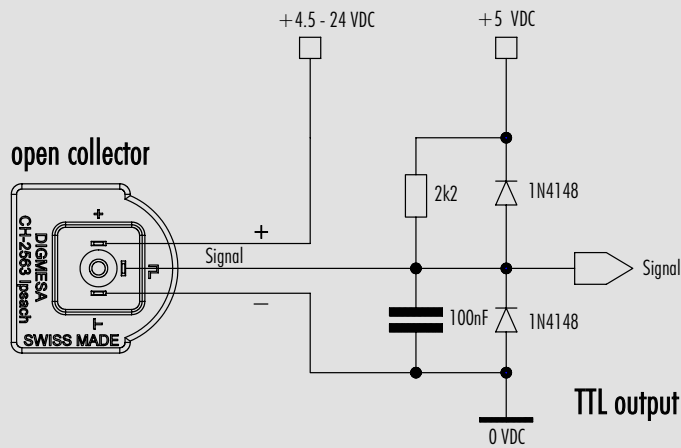
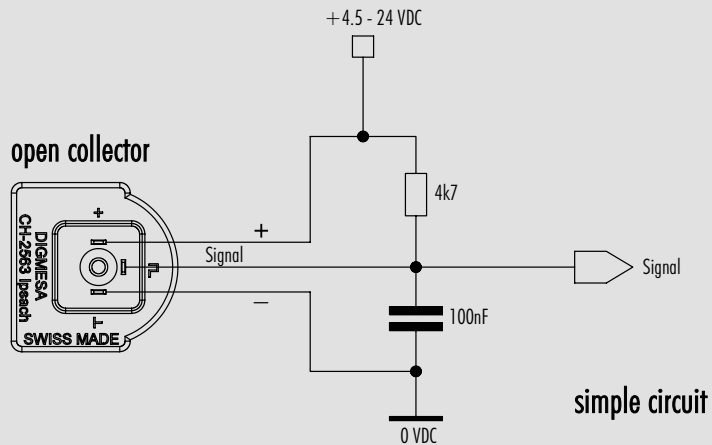
## ELECTRONIC

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!

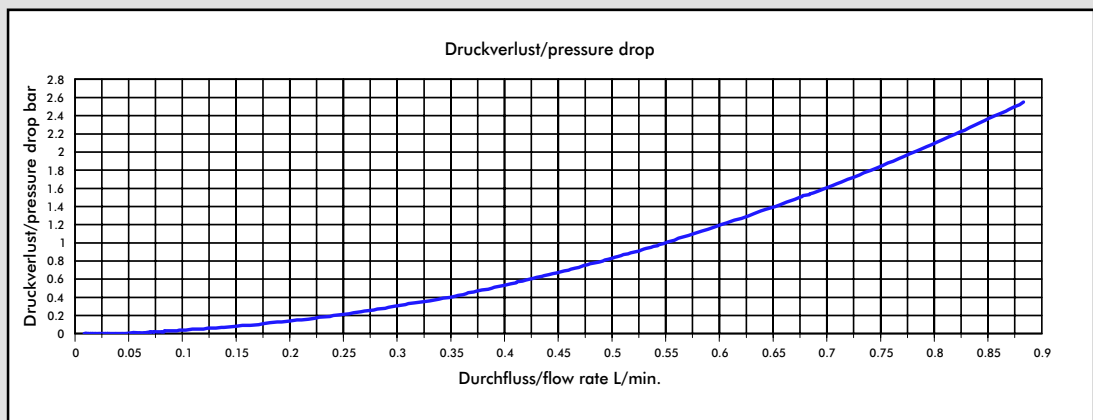
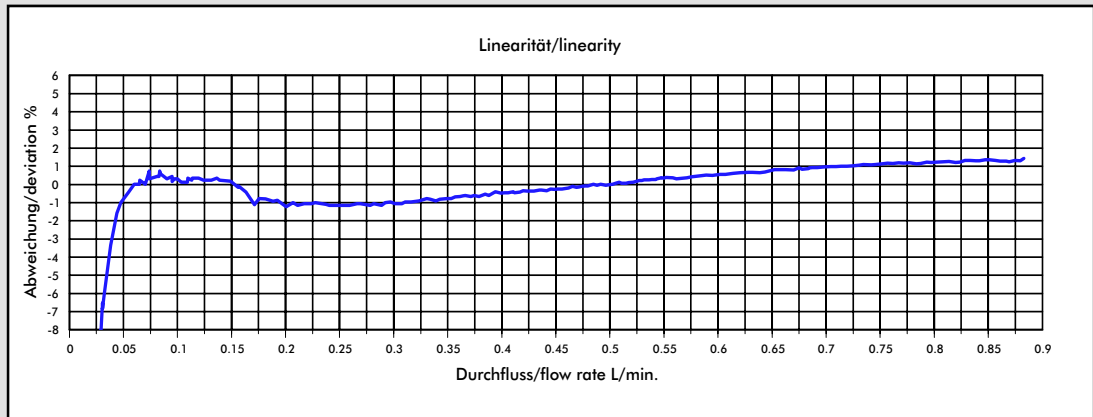
Version 01 FHKU PEEK 938-12XX/P014 GB Page 2-12

# Interface Connection: Examples Open Collector



Digimesa

# Measurement Curve FHKU PVDF 1.00 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

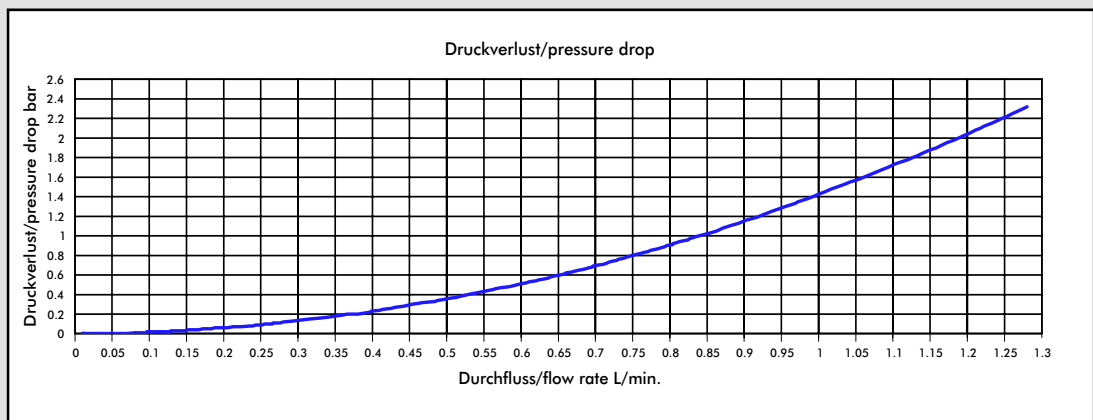
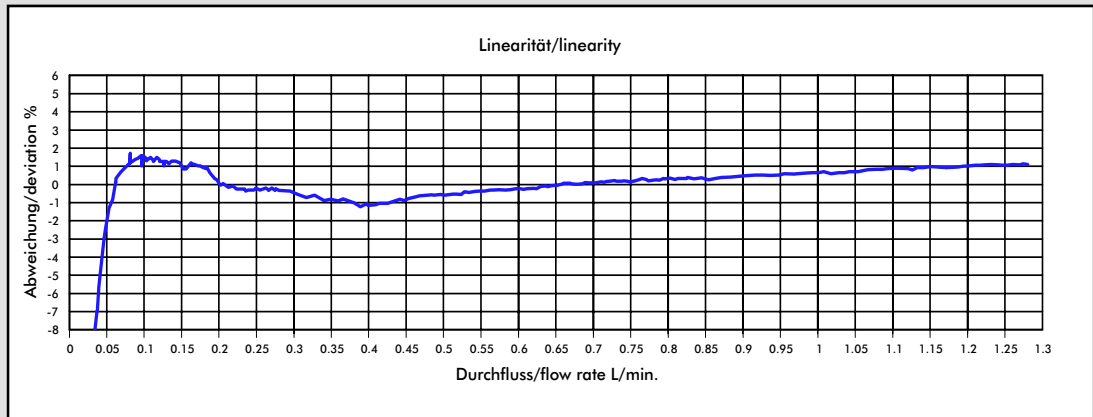
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 1.20 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

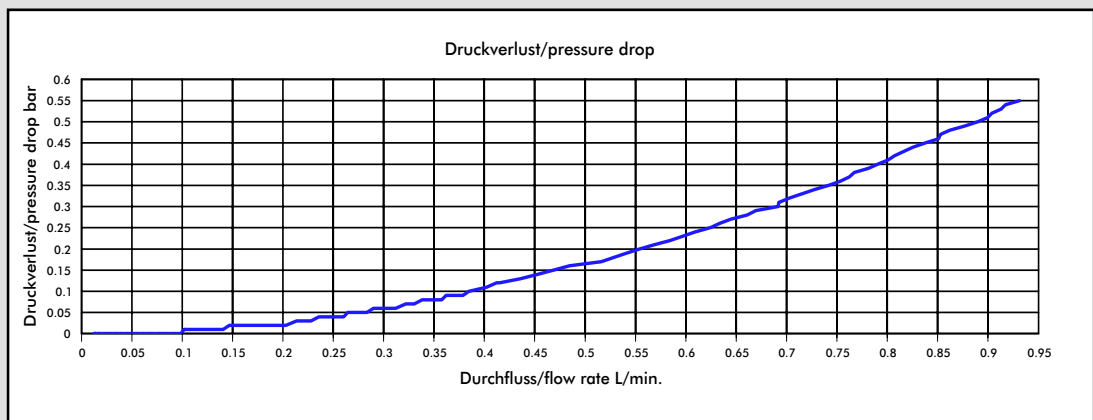
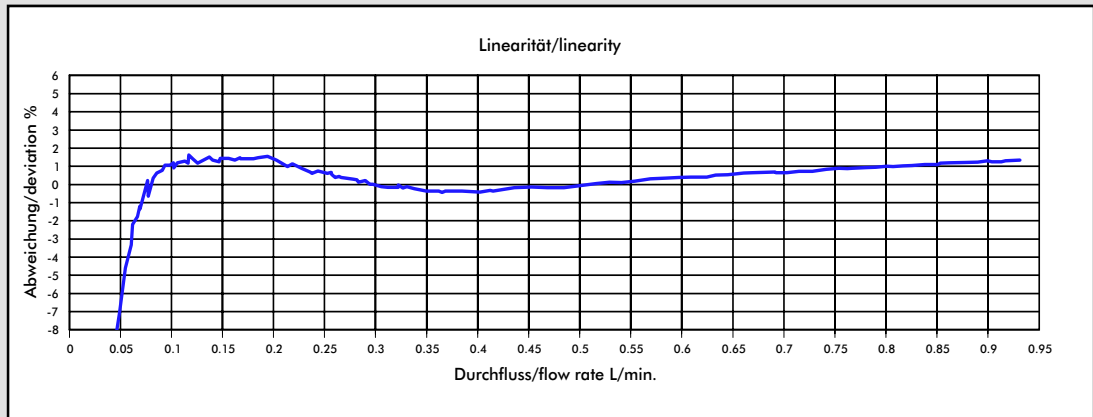
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 1.50 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

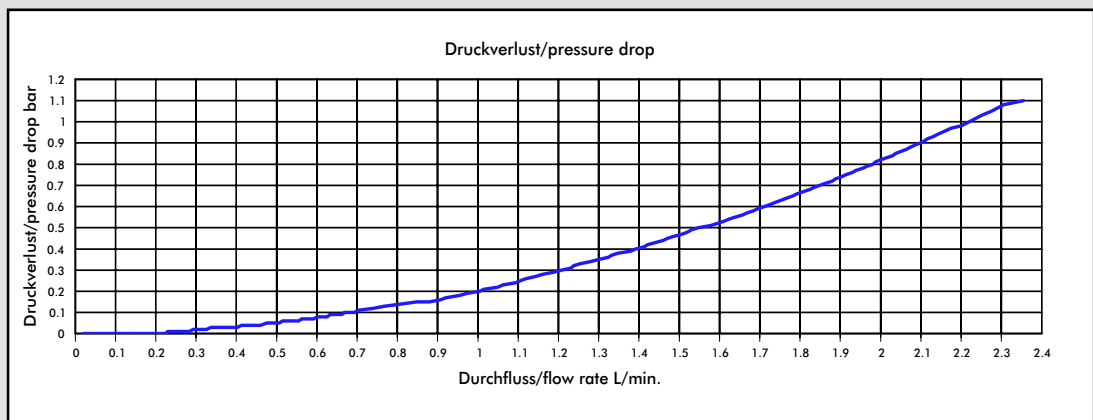
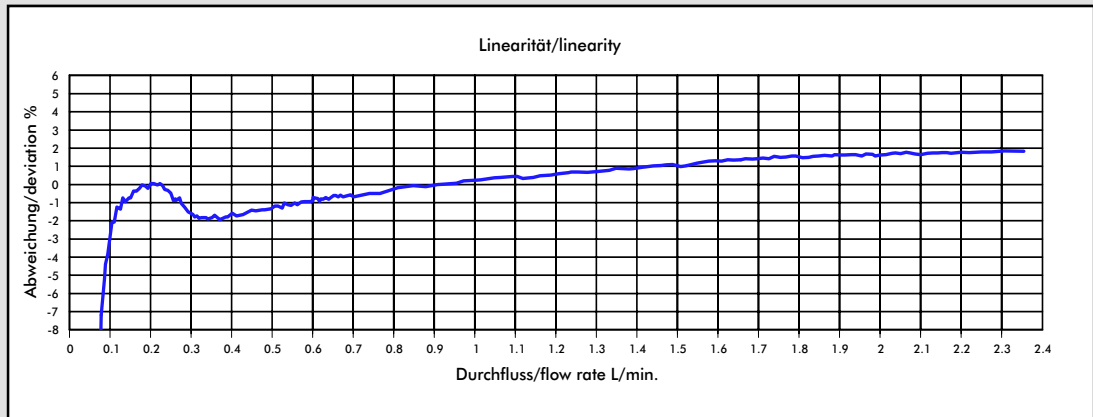
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 2.00 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

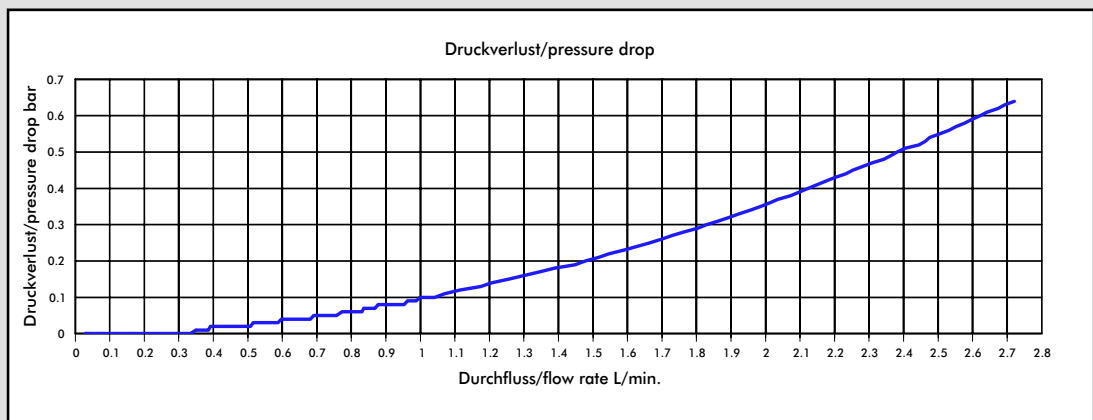
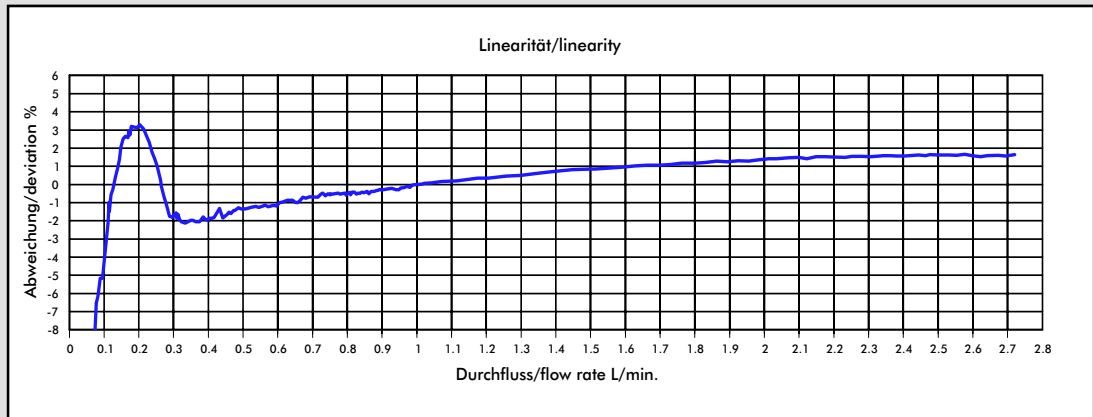
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 2.50 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

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

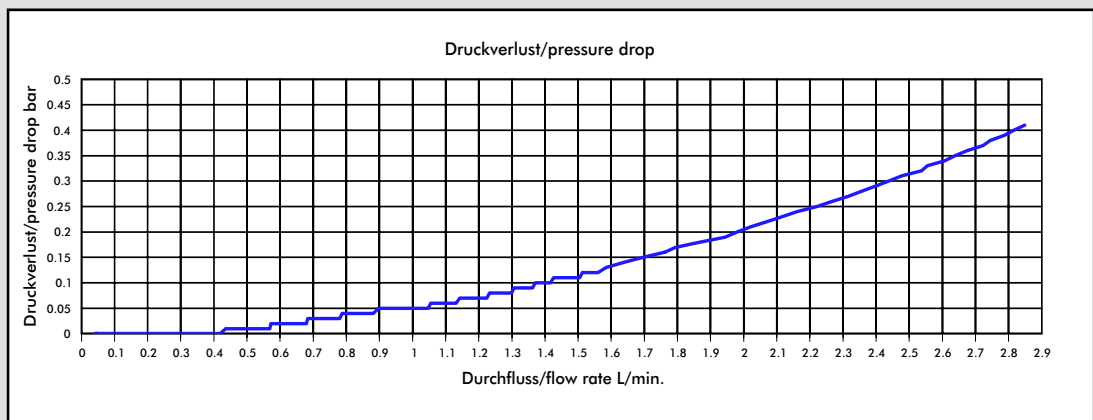
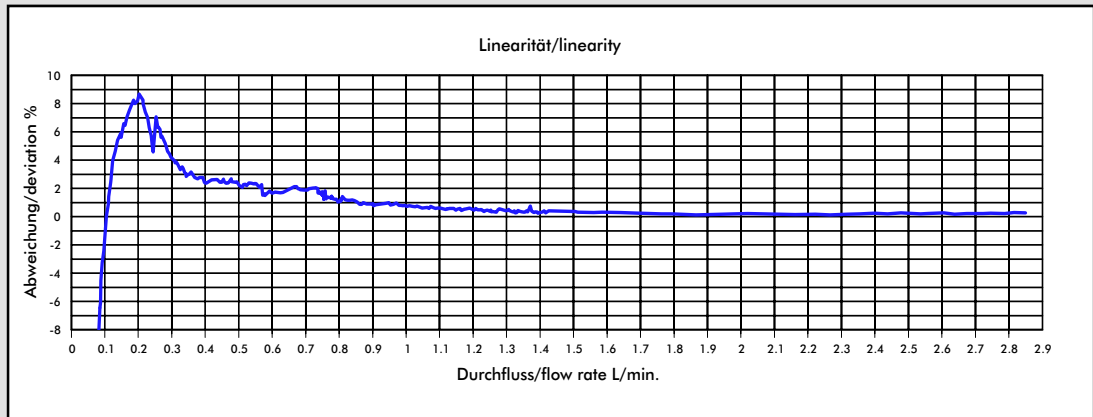
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU PVDF 3.00 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

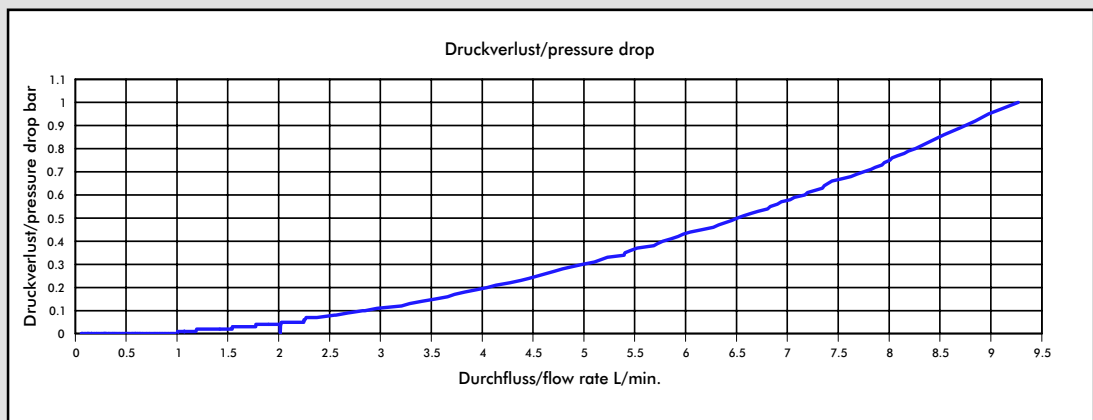
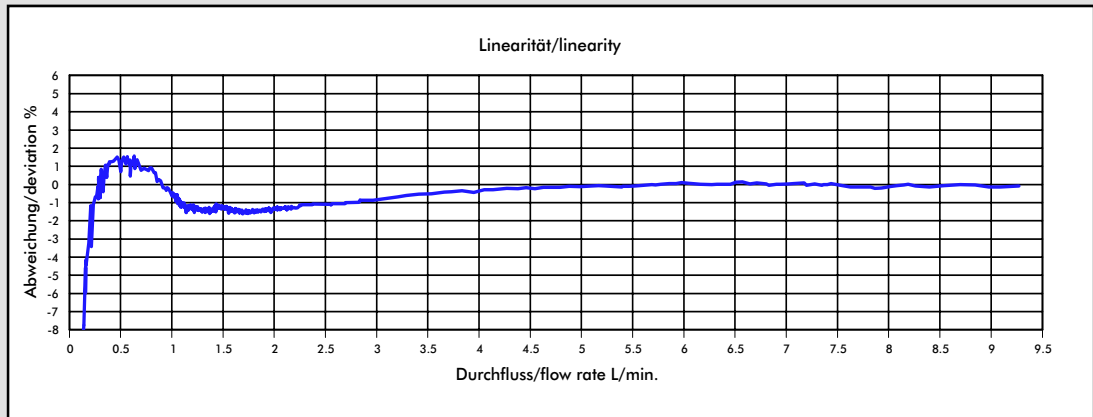
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 4.00 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

## MEASUREMENT TIPS

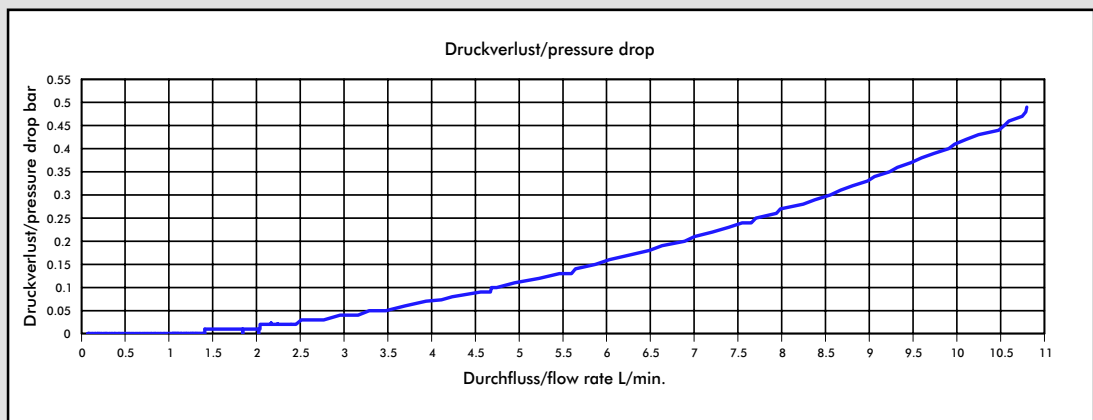
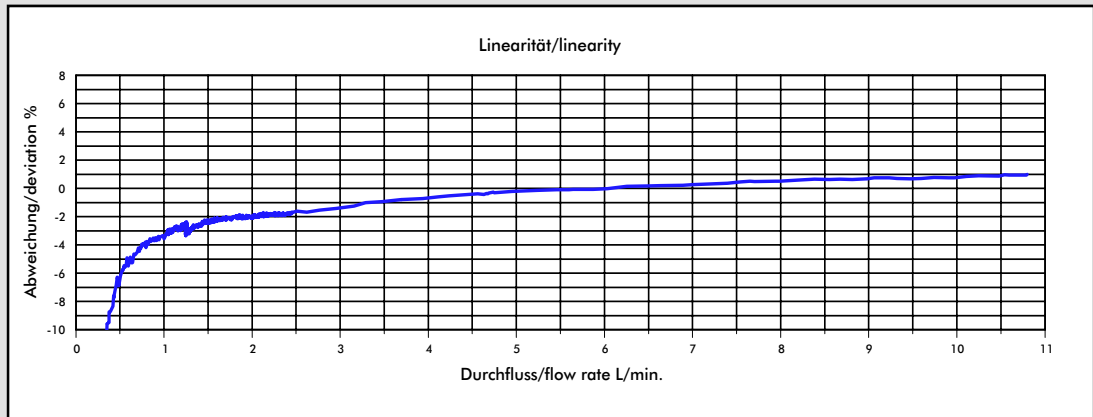
- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate 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.**

# Measurement Curve FHKU PVDF 5.60 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

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

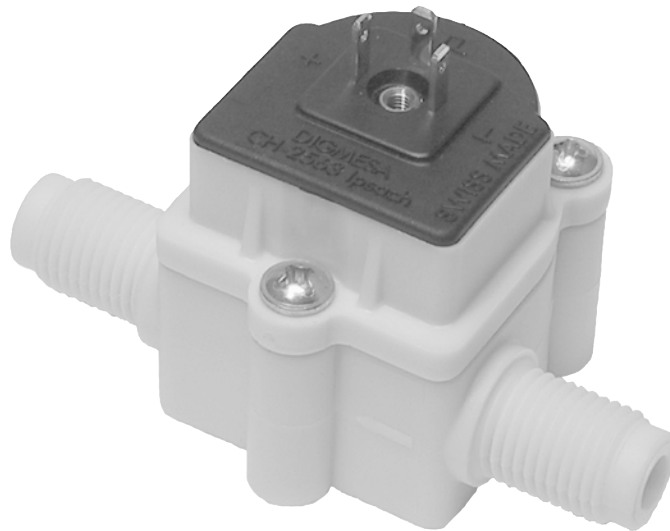
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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)



# DATA SHEET



# **DIGI MESA**

---

**FHKU G1/4" PVDF**  
Part number: 938-13XX/C014

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU PVDF 938-13XX/C014 GB Page 1-12

# General Description

The FHKU Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Able to withstand high temperatures, good resistance to chemicals. Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. **Employed in the semiconductor (wafer polishing) sector due to the high purity of materials used.**

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PVDF
Bearing pin:	PCTFE
Nozzle:	PTFE
O-ring:	FPM (Viton) EPDM / Kalrez on request
Turbine:	PVDF 4 Magnets 2 Magnets on request
Magnets:	Keramik Sr Fe O (not in contact with the medium)
Screw:	Inox A2 PT-screws (Phillips cross recessed)

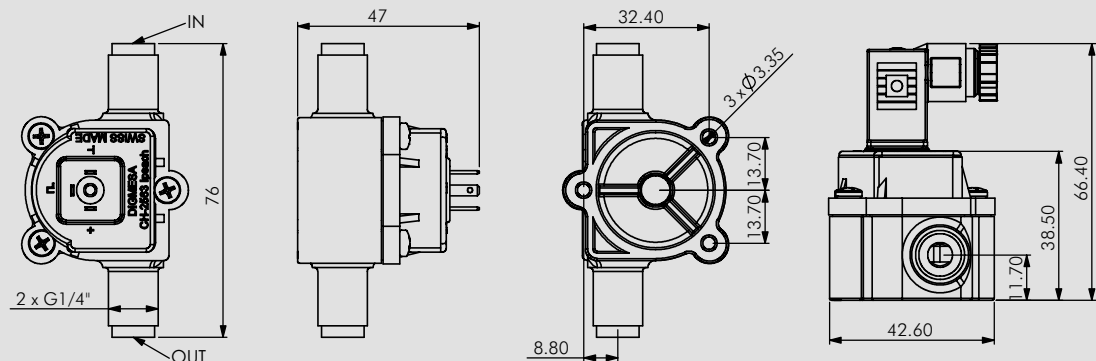
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	-10°C to +100°C 14°F to 212°F
Pressure range:	20 bar at 20°C 290 psi / 68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

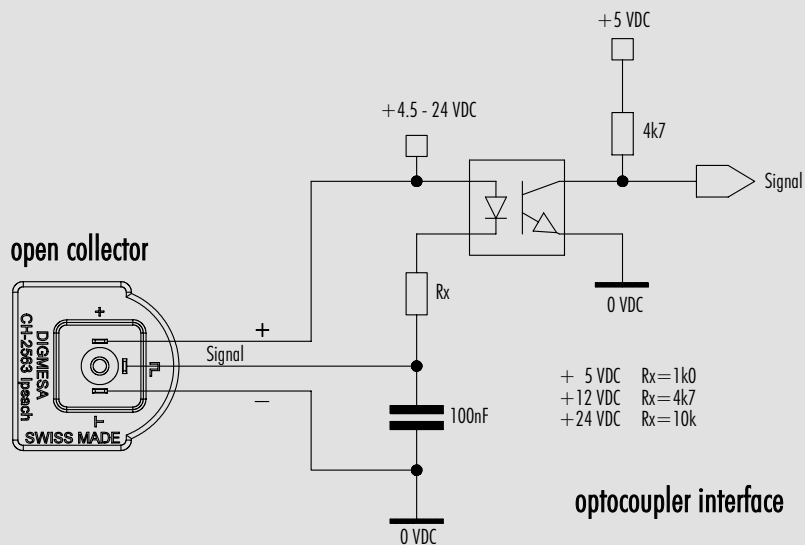
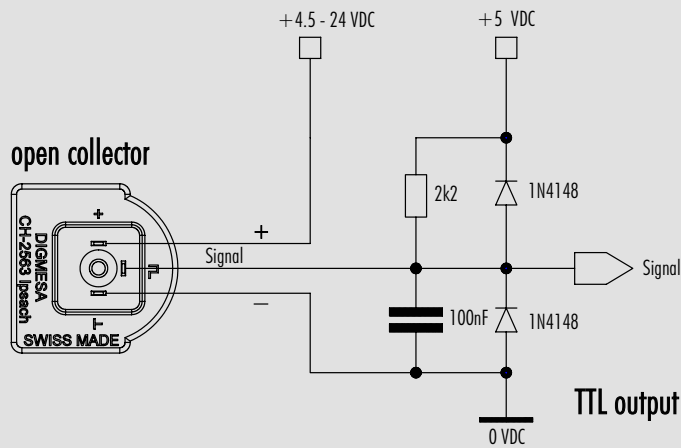
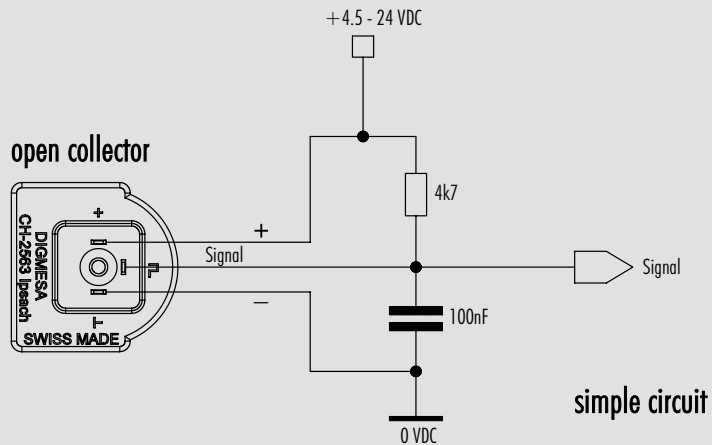
## ELECTRONIC

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!

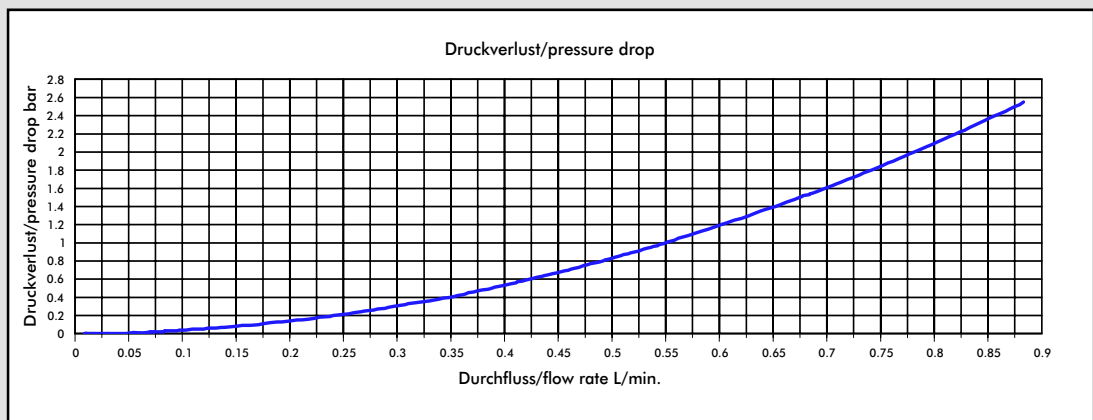
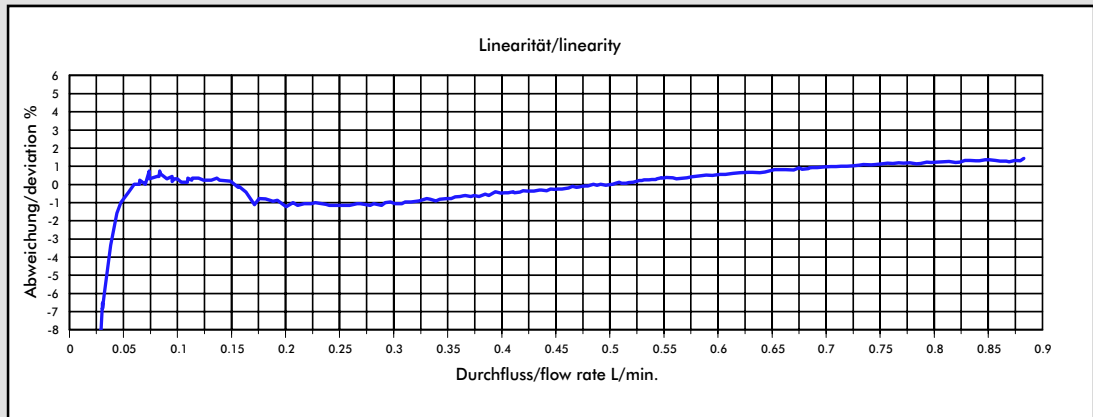
Version 01 FHKU PVDF 938-13XX/C014 GB Page 2-12

# Interface Connection: Examples Open Collector



DIGIMESA

# Measurement Curve FHKU PVDF 1.00 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

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

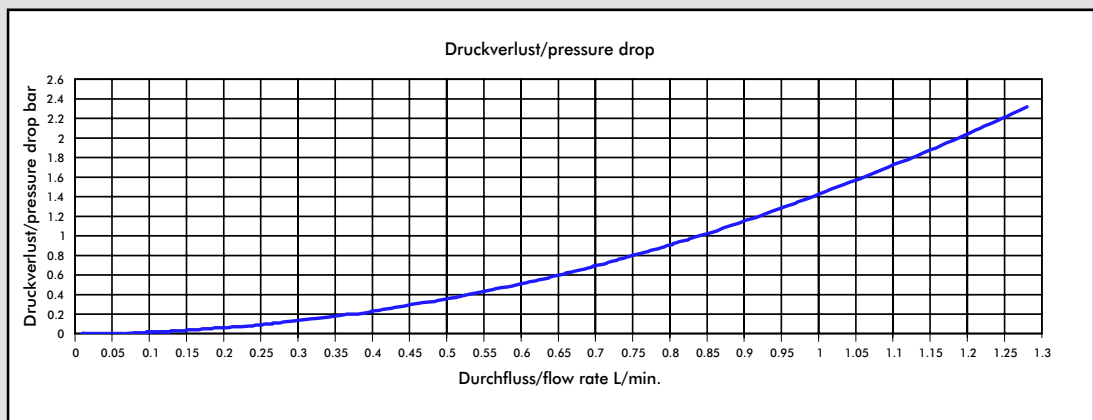
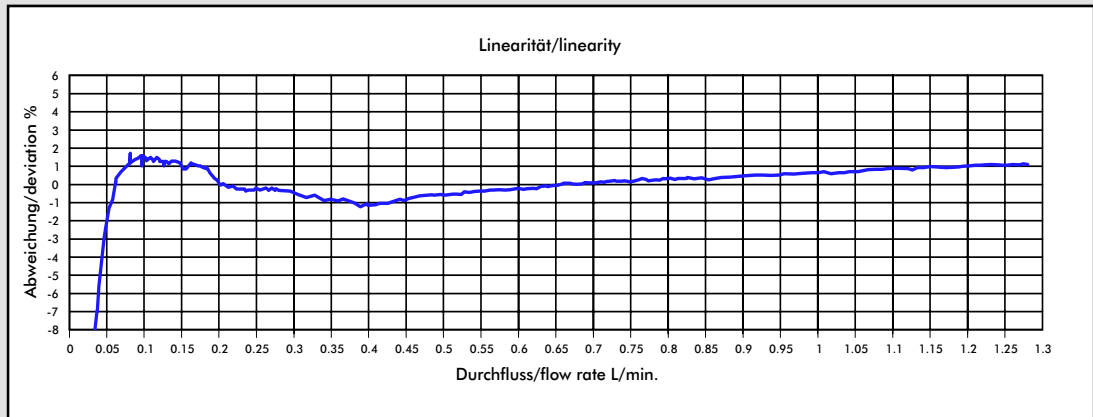
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU PVDF 1.20 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

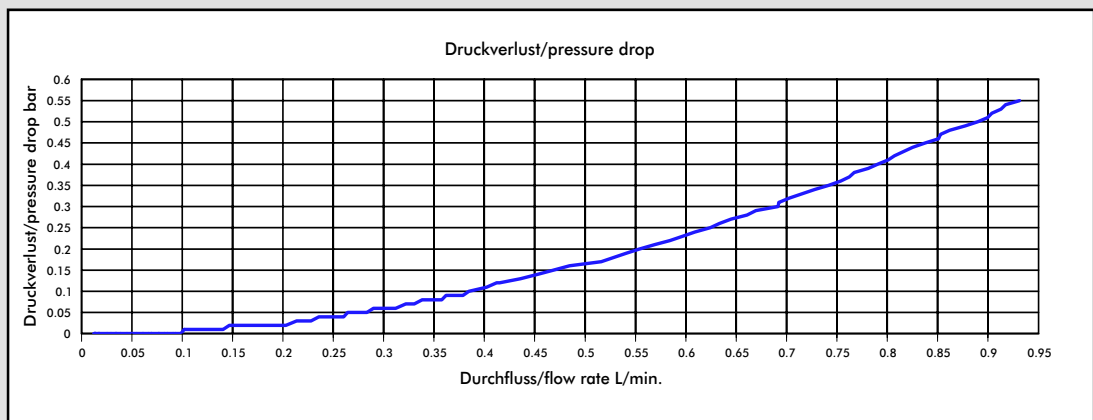
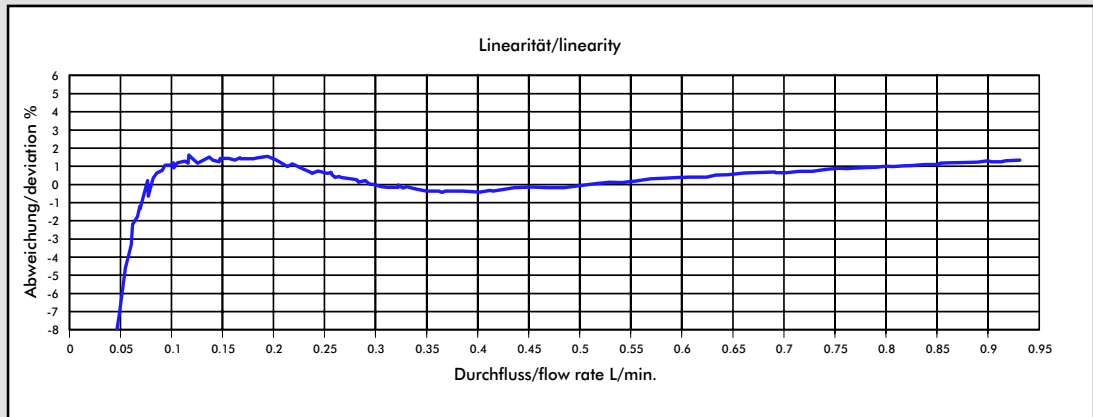
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 1.50 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

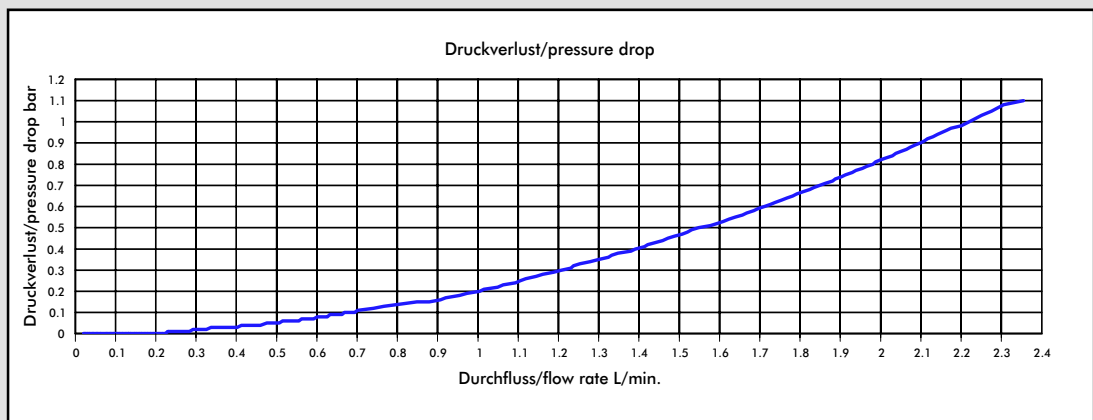
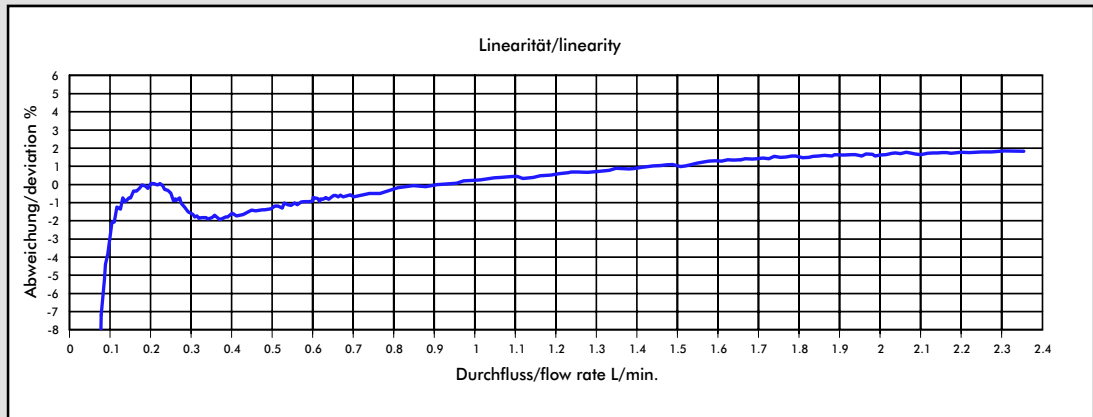
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 2.00 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

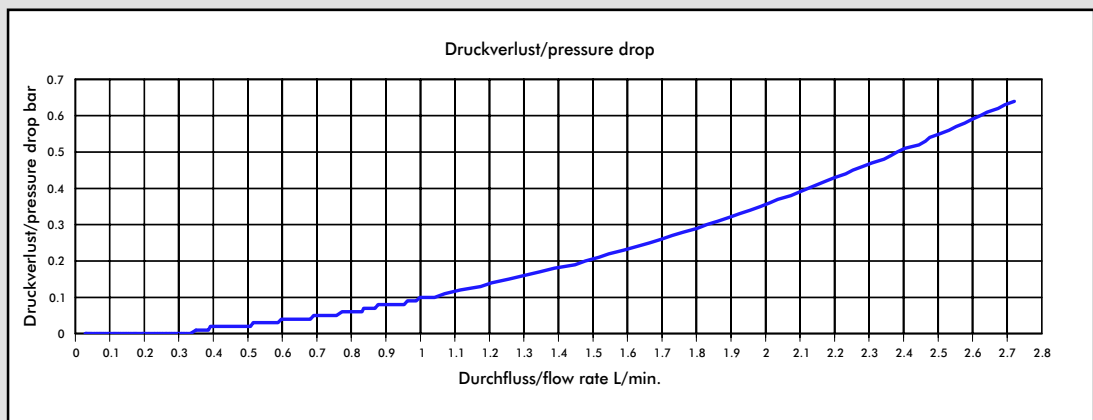
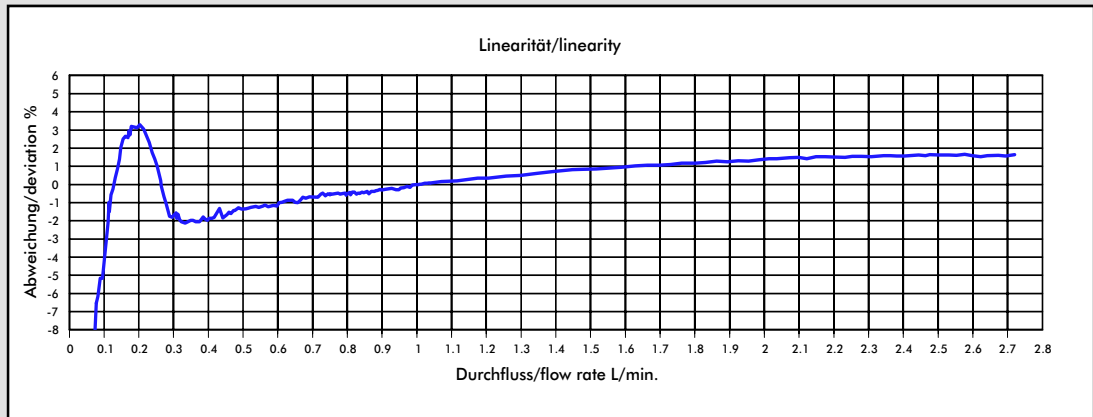
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 2.50 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

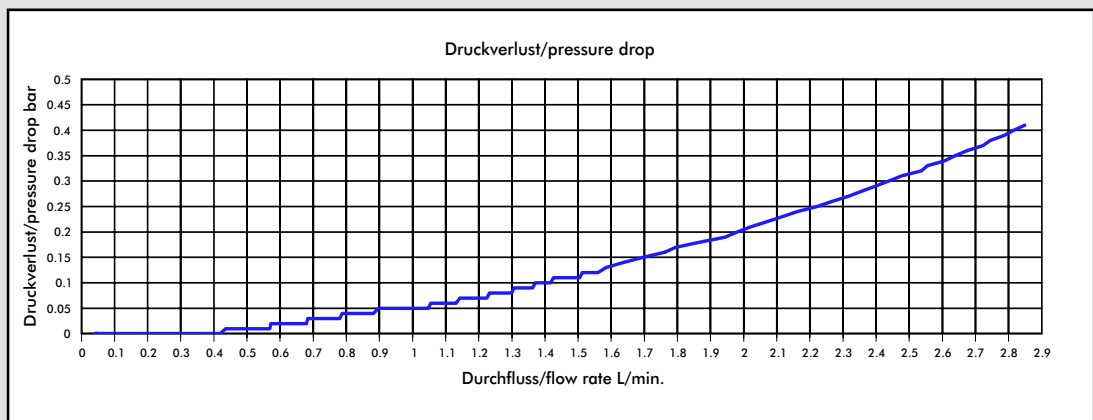
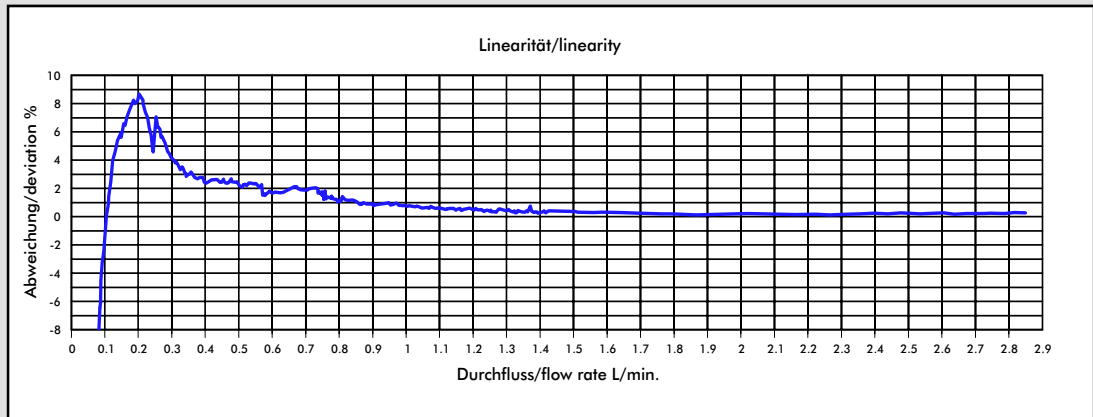
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 3.00 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

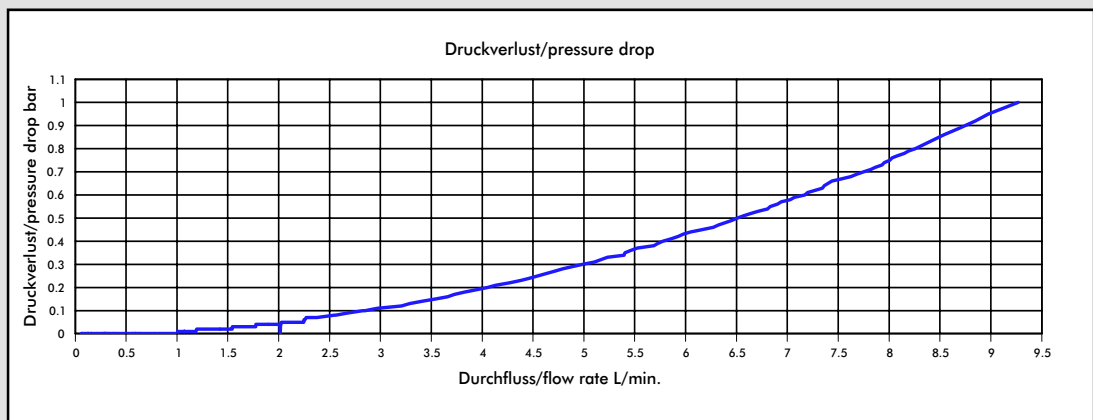
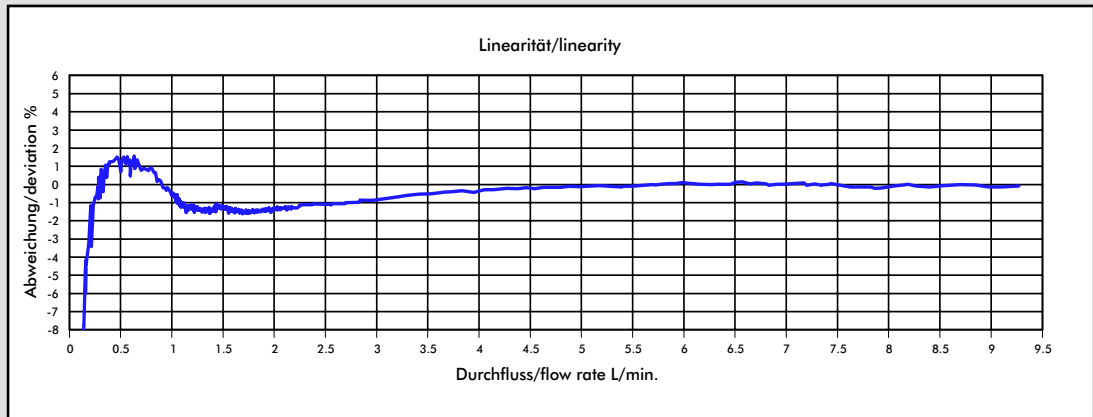
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 4.00 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

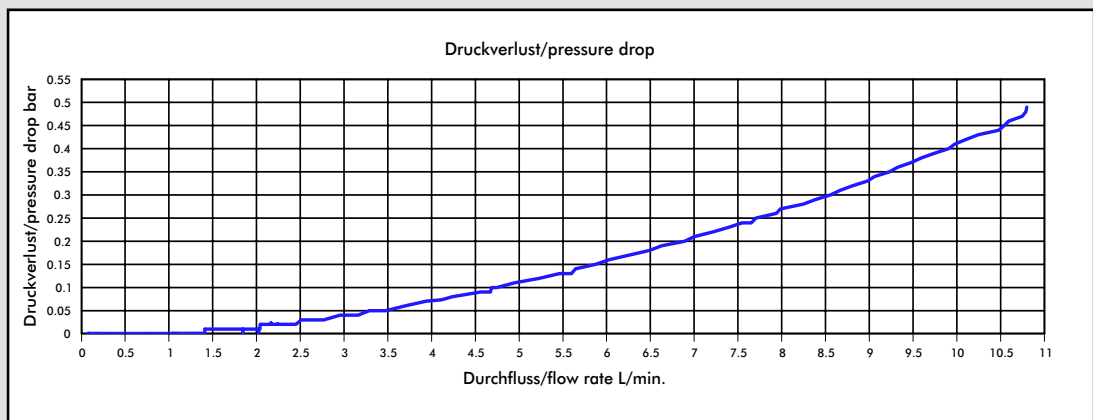
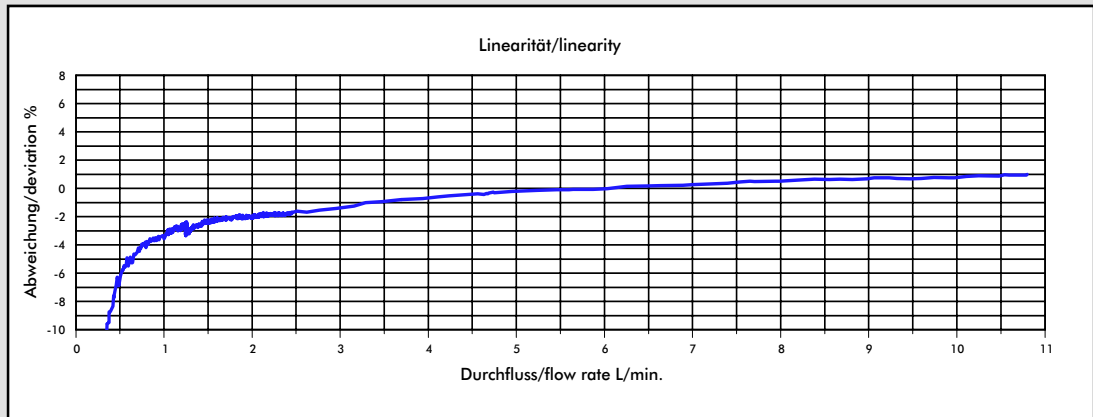
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU PVDF 5.60 mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

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	4366	0.2290	0.0440	0.5498	1.00
Ø 1.20 mm	3485	0.2869	0.0532	0.8447	1.00
Ø 1.50 mm	2827	0.3537	0.0668	0.9314	0.55
Ø 2.00 mm	2049	0.4879	0.1170	2.2198	1.00
Ø 2.50 mm	1544	0.6477	0.1147	2.7205	0.64
Ø 3.00 mm	1109	0.9018	0.1048	2.8494	0.41
Ø 4.00 mm	793	1.2610	0.2098	9.2712	1.00
Ø 5.60 mm	511	1.9566	1.7820	10.7990	0.49

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

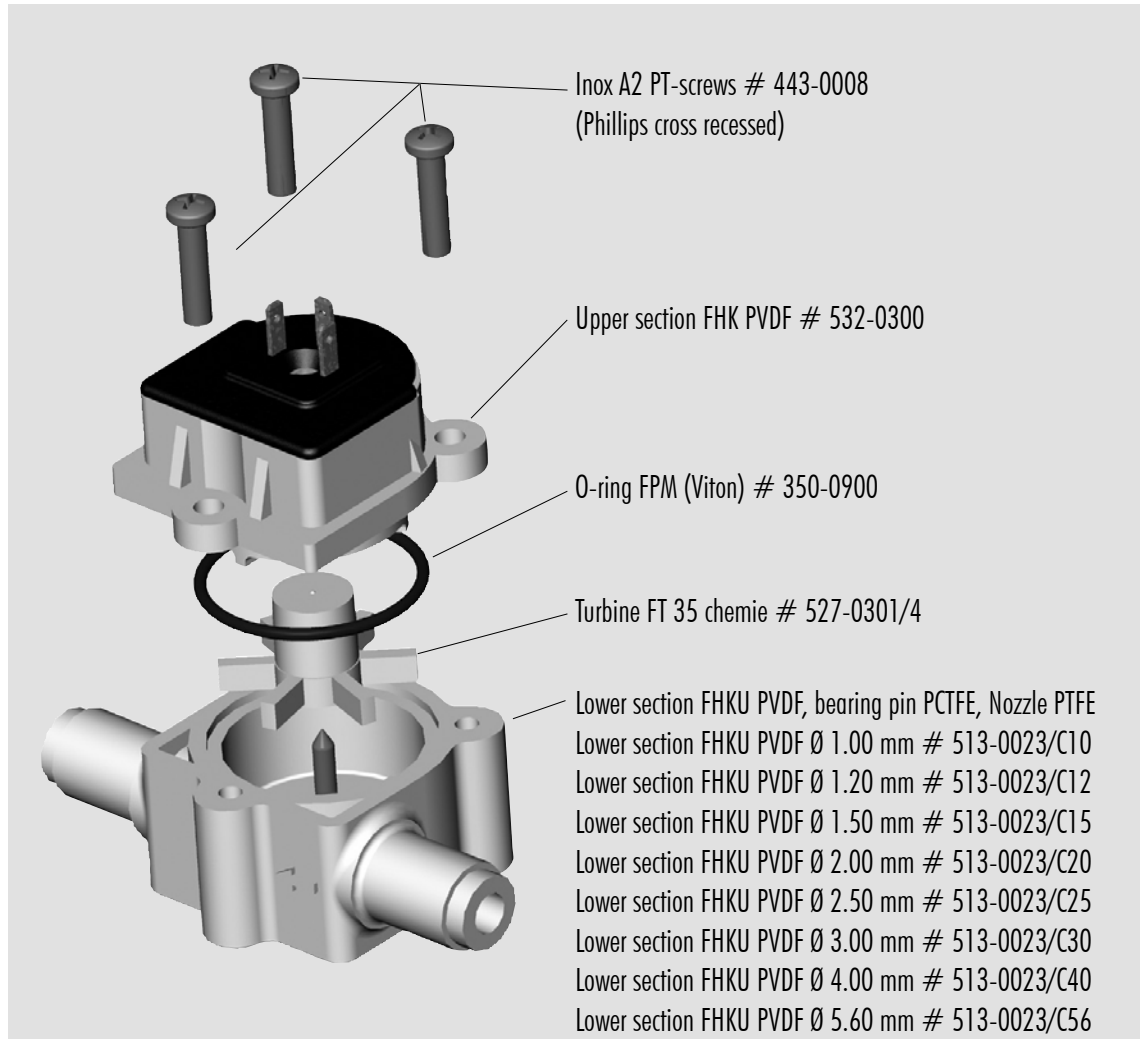
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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:

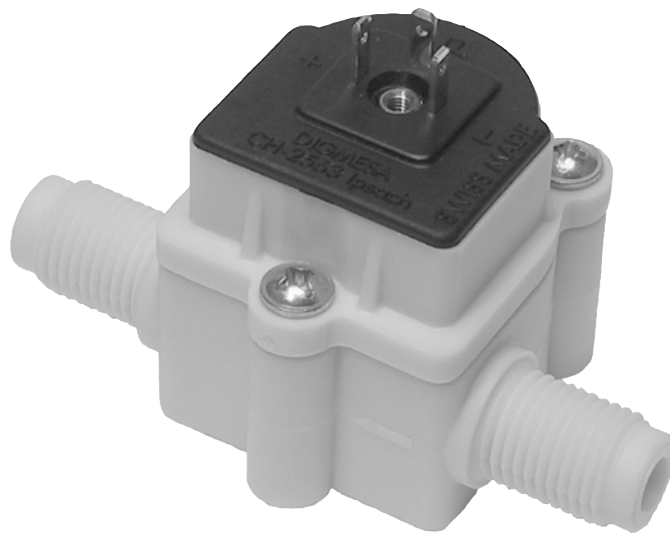


Digimesa

<b>Notes:</b>		



# DATA SHEET



# **DIGIMESA**

---

**FHKU G1/4" Arnite**  
Part number: 938-15XX/01

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88  
[www.digimesa.com](http://www.digimesa.com)

# General Description

The FHKU Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2:00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35%GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
O-ring:	MVQ (Silikon) FPM (Viton)/EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

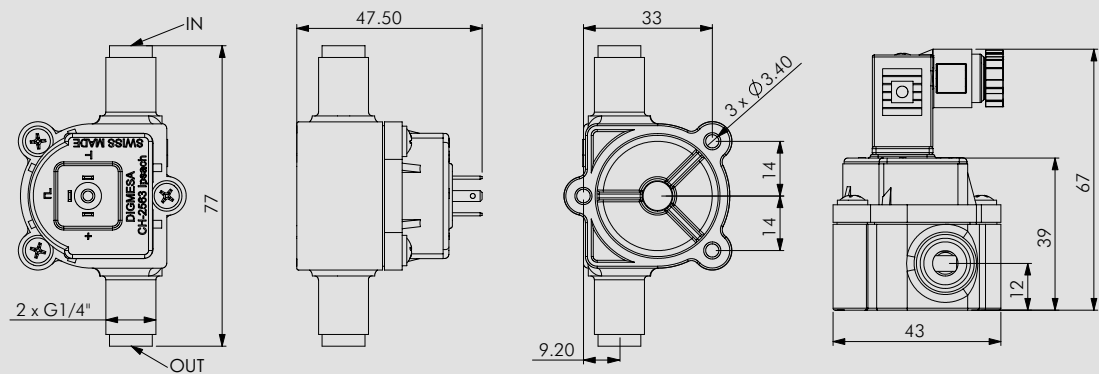
## Technical data:

Flow rate:	0.041 - 15 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:	20 bar at 20°C 290 psi /68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

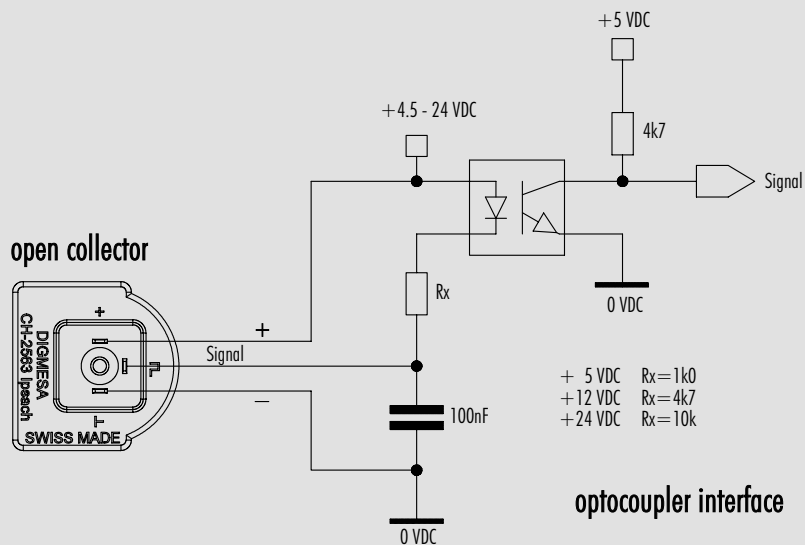
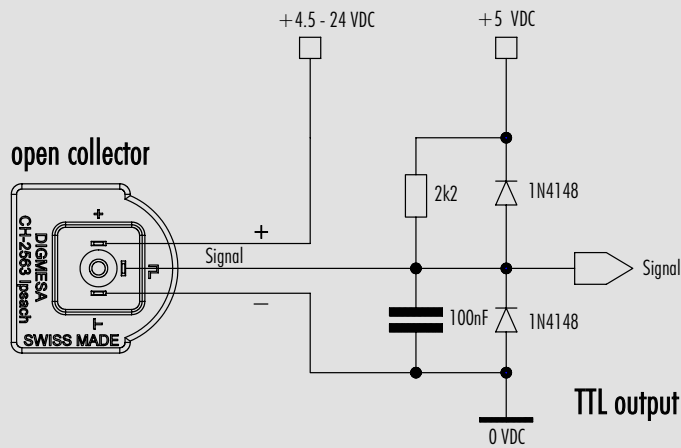
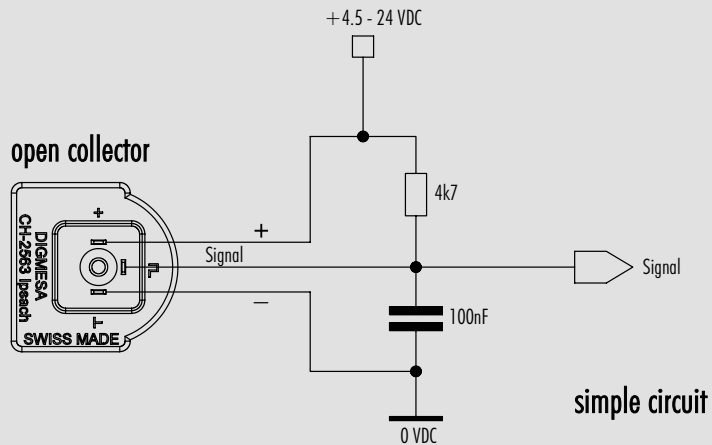
## ELECTRONIC

DIGMESA electronic circuitry is always designed for operation with DIGMESA flowmeters. Please note the following if connecting to other electronic circuitry:

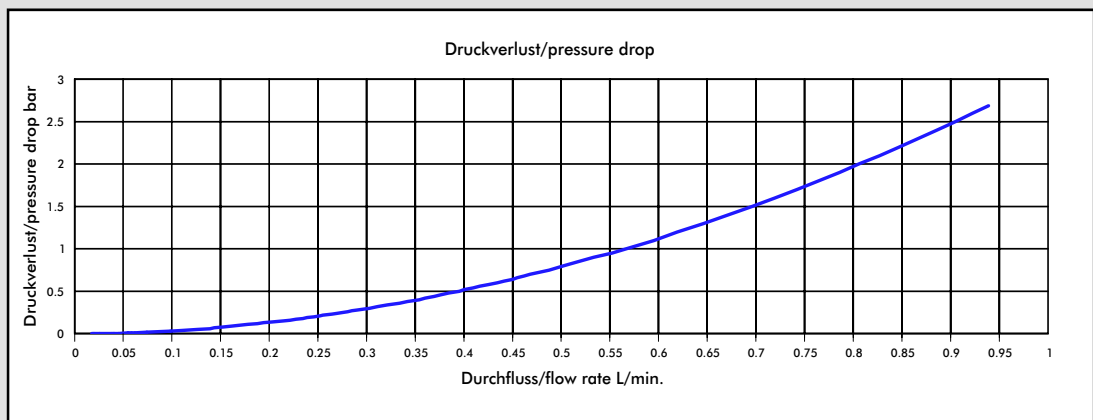
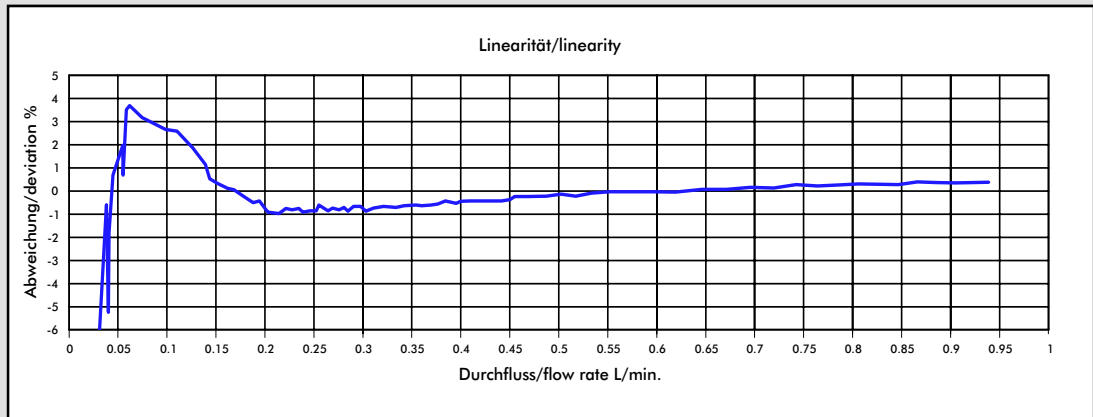
- The flowmeter does not supply an output voltage but switches the signal terminal to 0 V ground (actuated) or leaves it open (non-actuated)
- There must be a pull-up resistor between power supply + and signal depending on electronic circuitry!

Version 01 FHKU 938-15XV/01 GB Page 2-12

# Interface Connection: Examples Open Collector



# Measurement Curve FHKU G1/4" 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

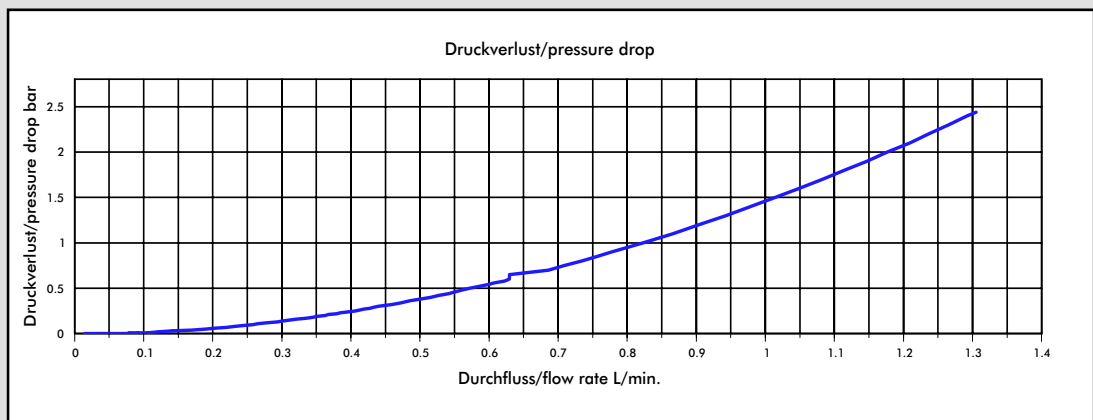
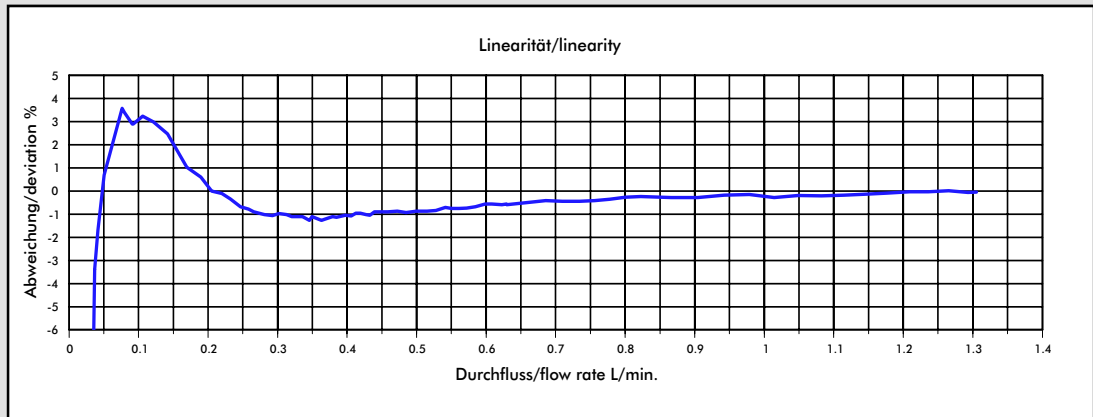
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU G1/4" 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

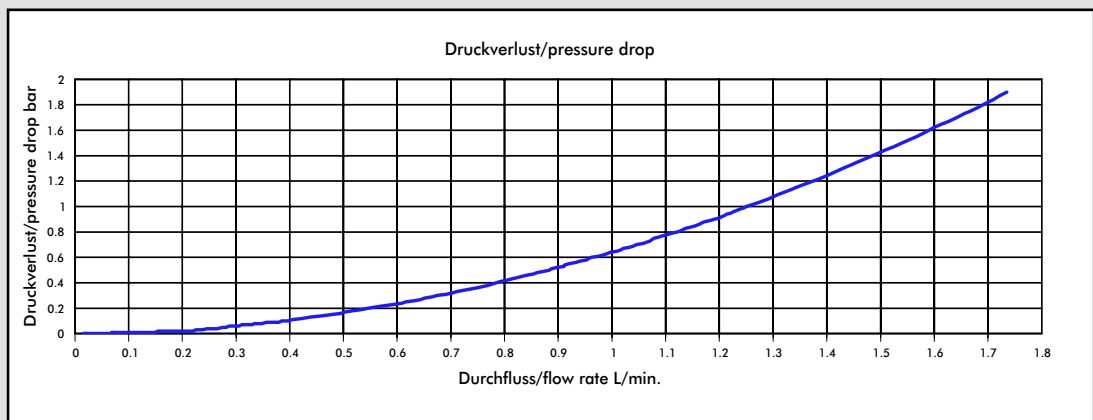
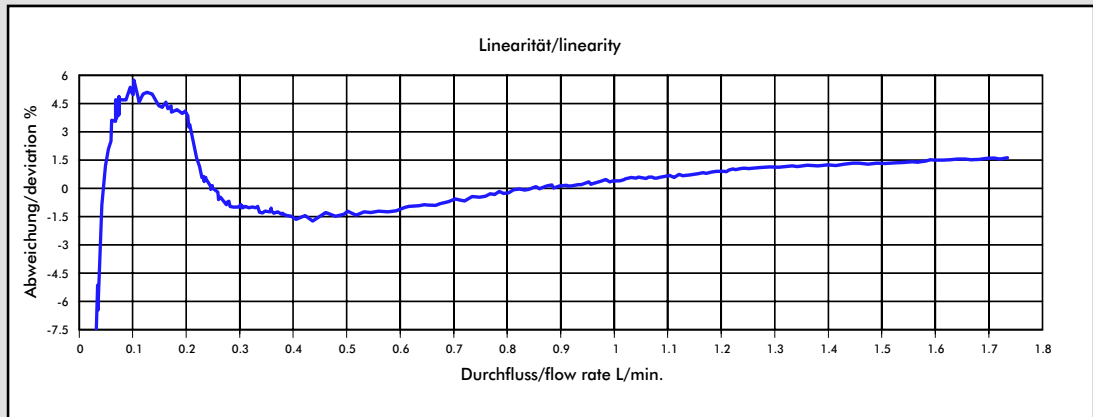
**The values specified must be considered as approximate values.**  
**The number of pulses per litre may differ depending on medium and installation.**  
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU G1/4" 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

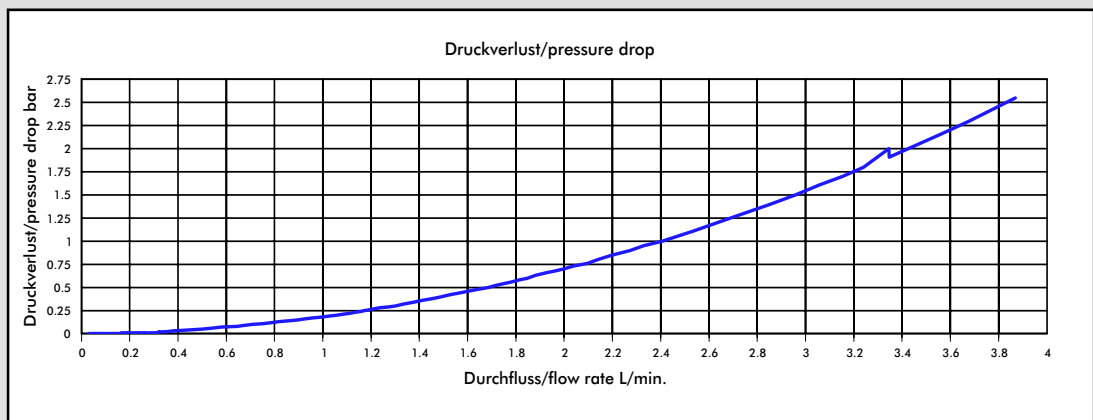
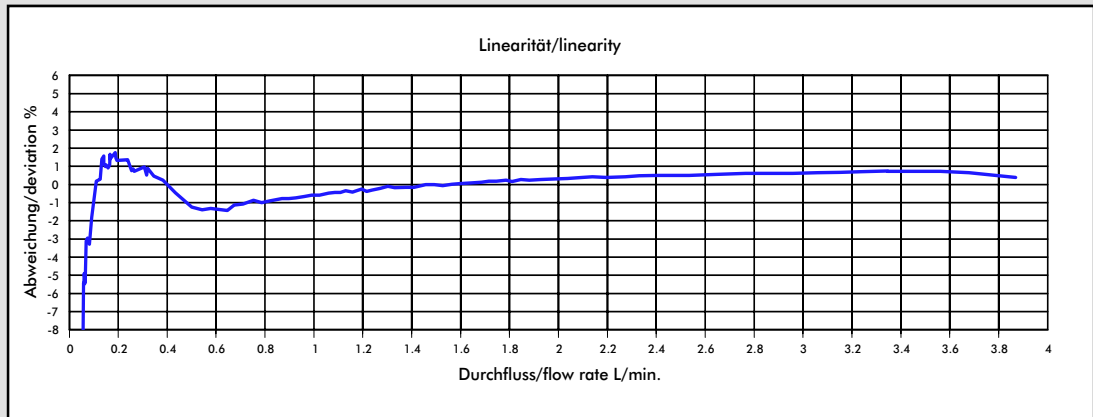
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU G1/4" 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

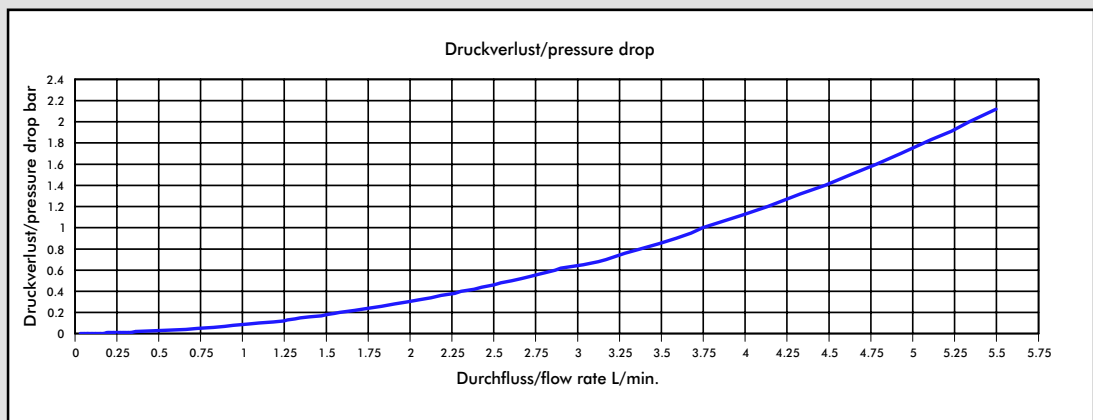
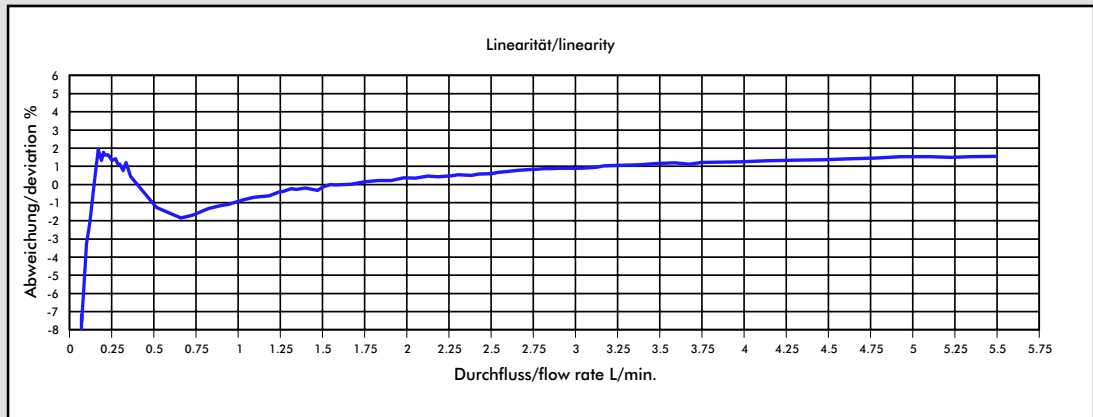
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU G1/4" 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

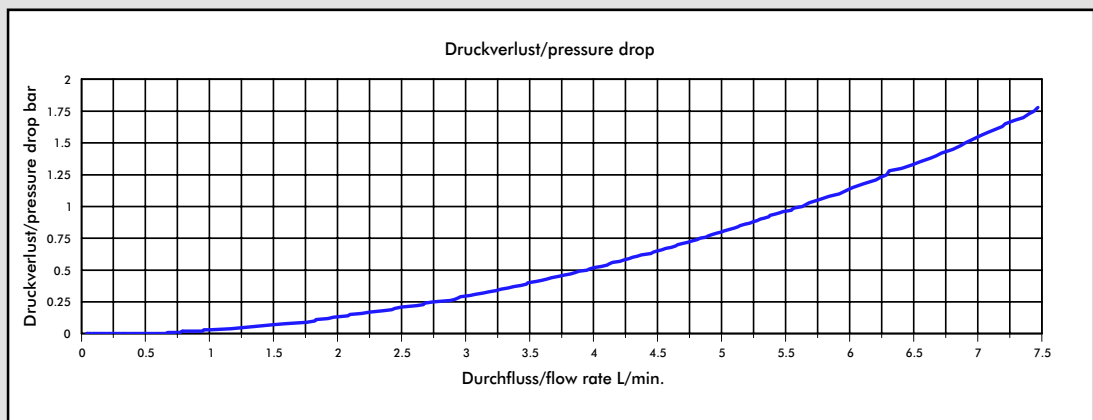
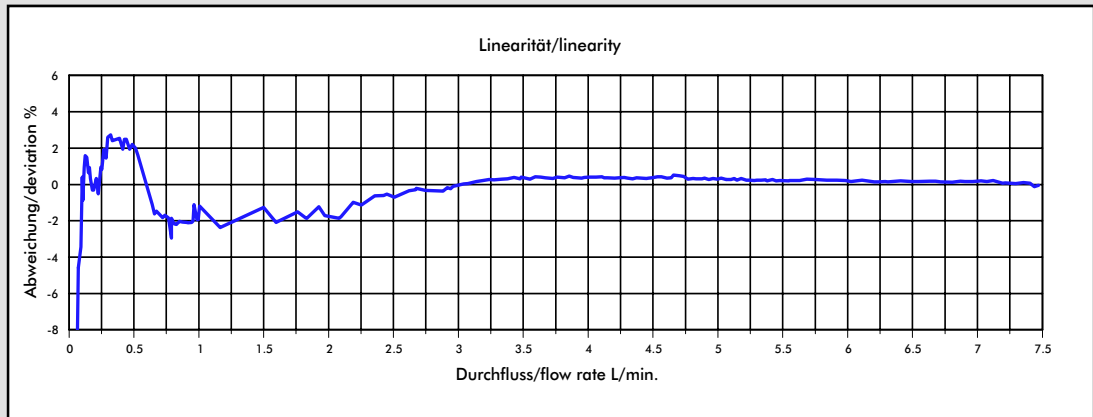
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU G1/4" 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

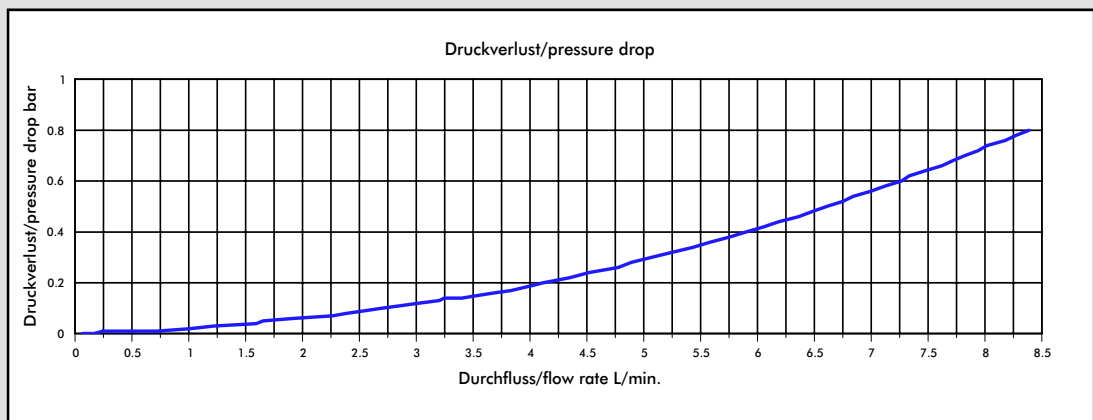
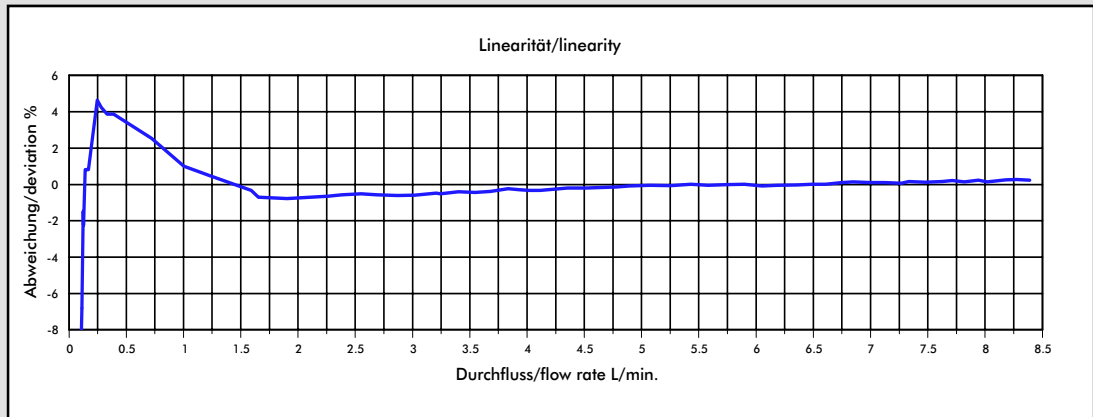
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU G1/4" 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

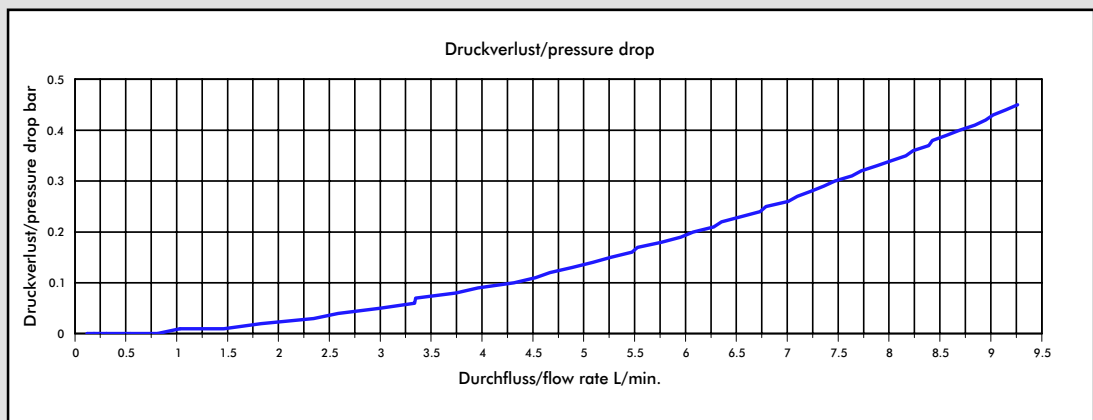
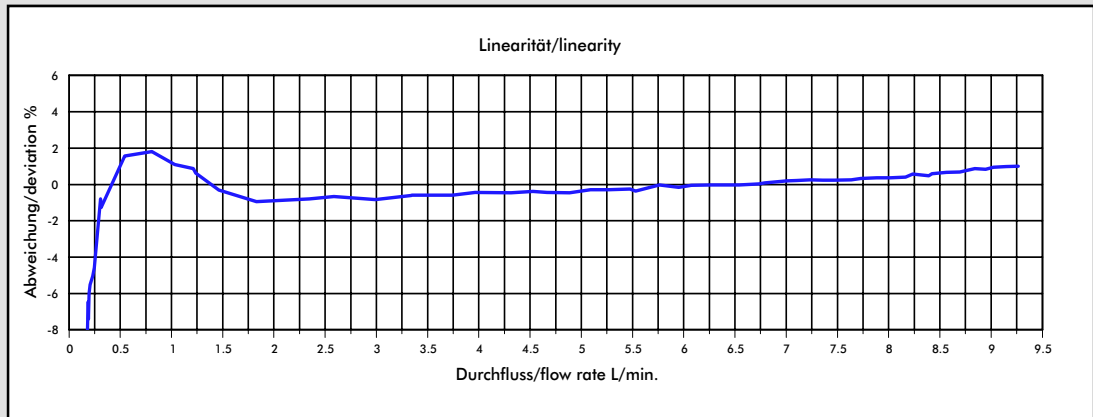
Nozzle size	Pulses/litre	g/pulse	min. flow rate in litres/min at Linear start	max. flow rate in litres/min	Pressure loss
Ø 1.00 mm	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

**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
- 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 FHKU G1/4" 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

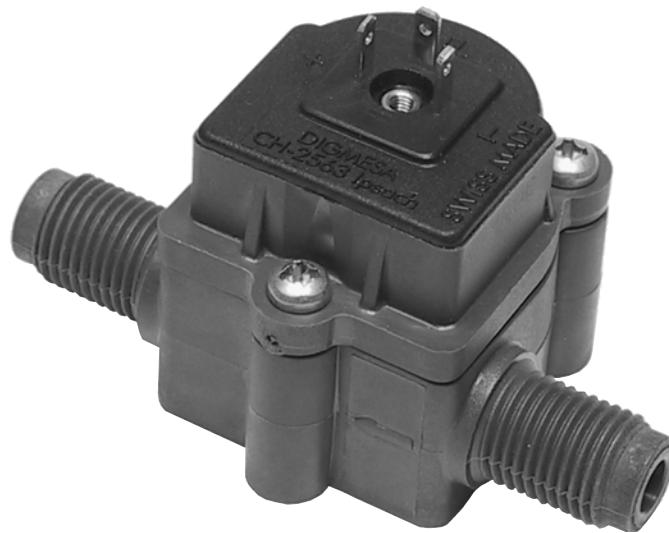
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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)



# DATA SHEET



## **DIGimesa**

---

FHKU G1/4" Ryton  
Part number: 938-18XX/01

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88  
[www.digimesa.com](http://www.digimesa.com)

# General Description

The FHKU Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2:00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PPS 40%GF (Ryton)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
O-ring:	MVQ (Silikon) FPM (Viton)/EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	Inox A2 PT-screws (Phillips cross recessed)

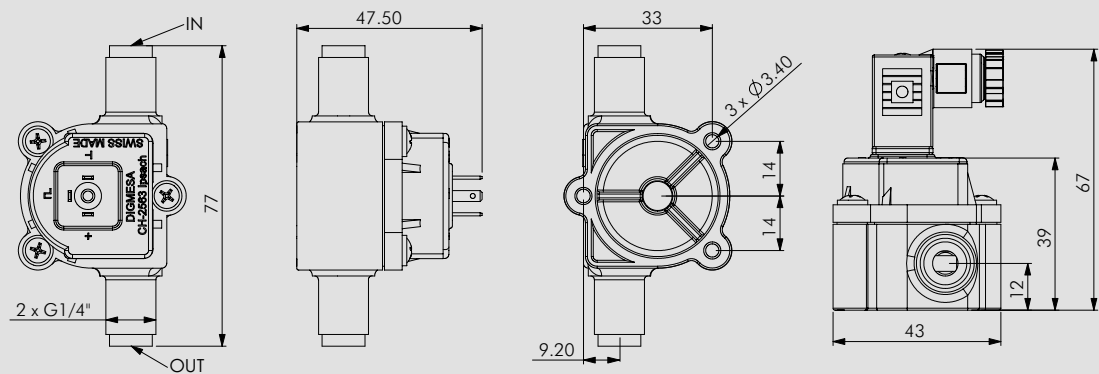
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	-10°C to +100°C 14°F to 212°F
Pressure range:	20 bar at 20°C 290 psi /68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

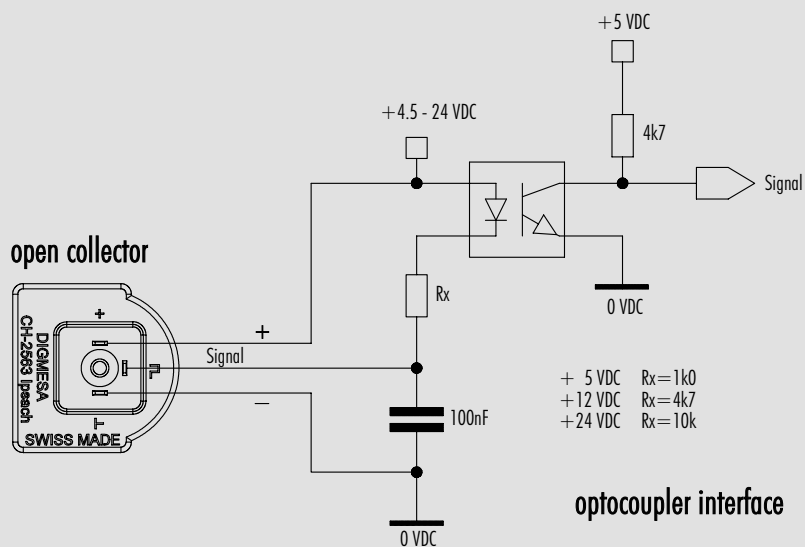
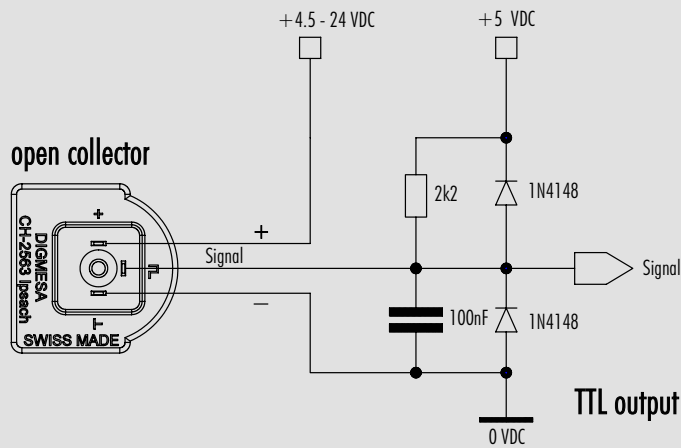
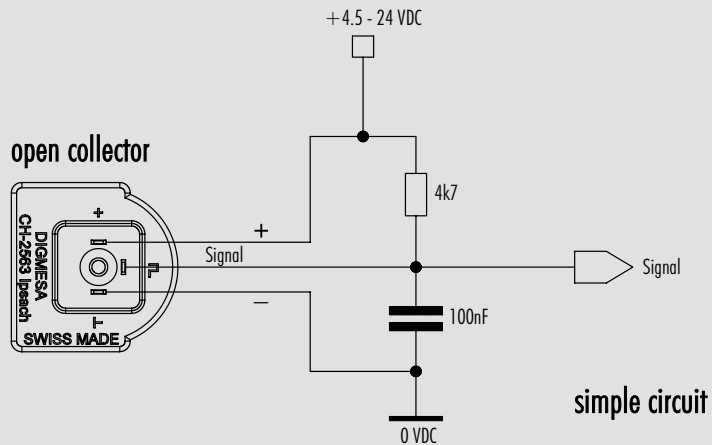
## ELECTRONIC

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!

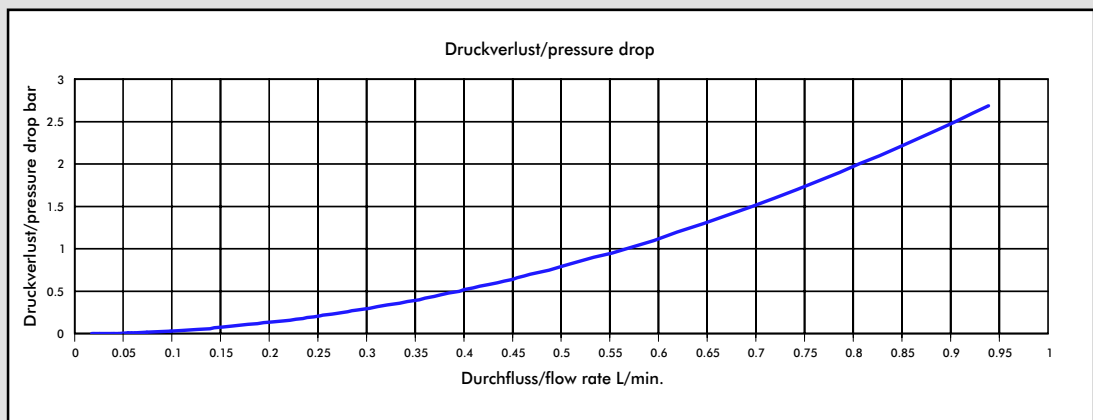
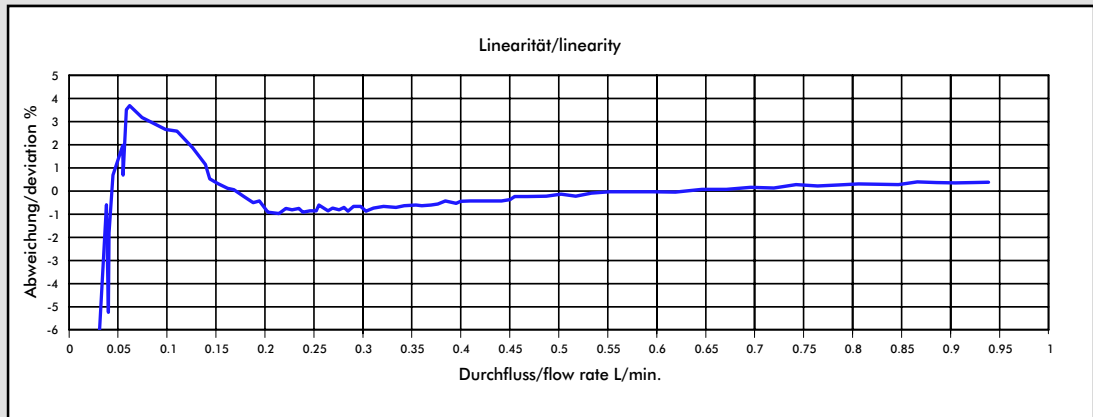
Version 01 FHKU 938-18XV/01 GB Page 2-12

# Interface Connection: Examples Open Collector



DIGIMESA

# Measurement Curve FHKU G1/4" 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

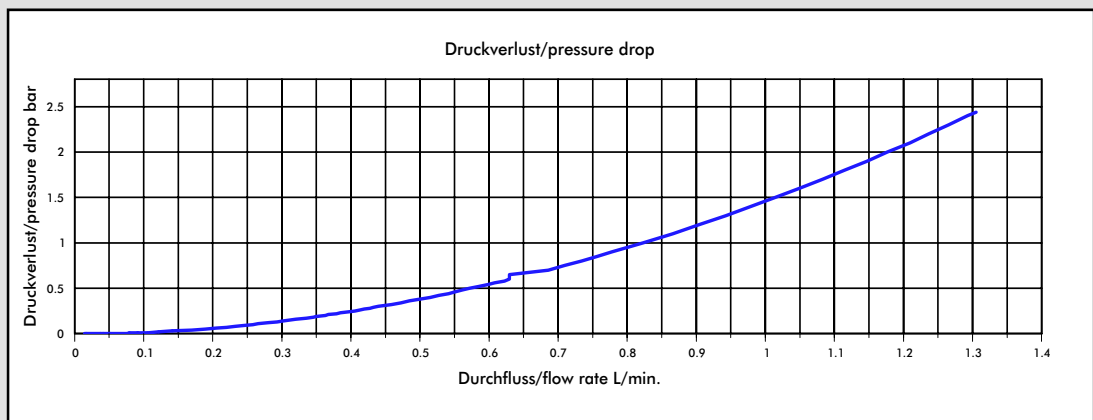
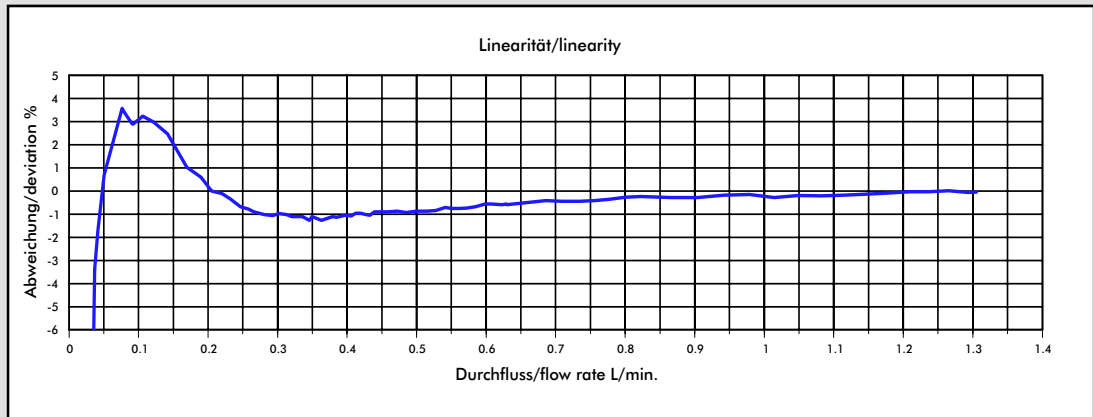
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU G1/4" 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

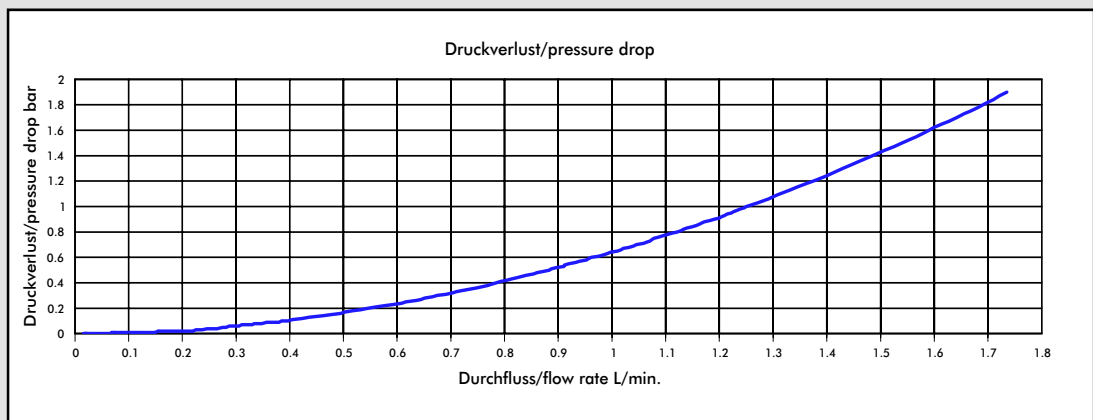
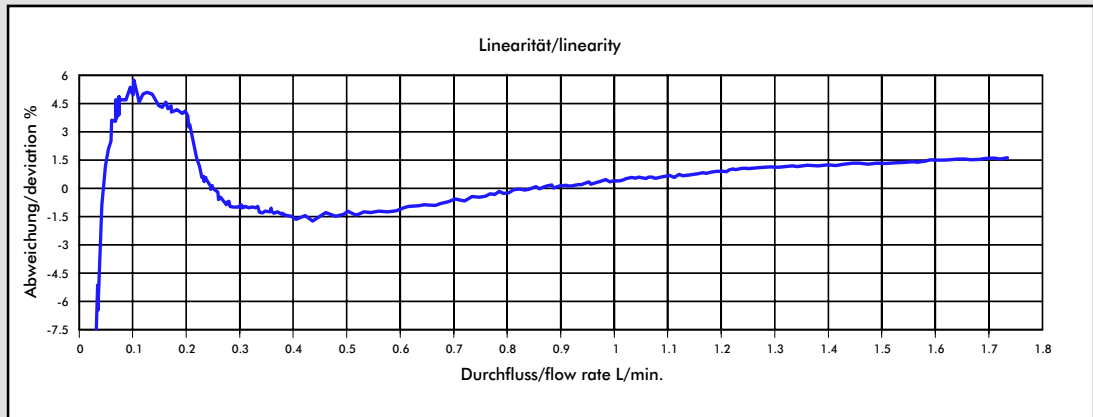
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU G1/4" 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

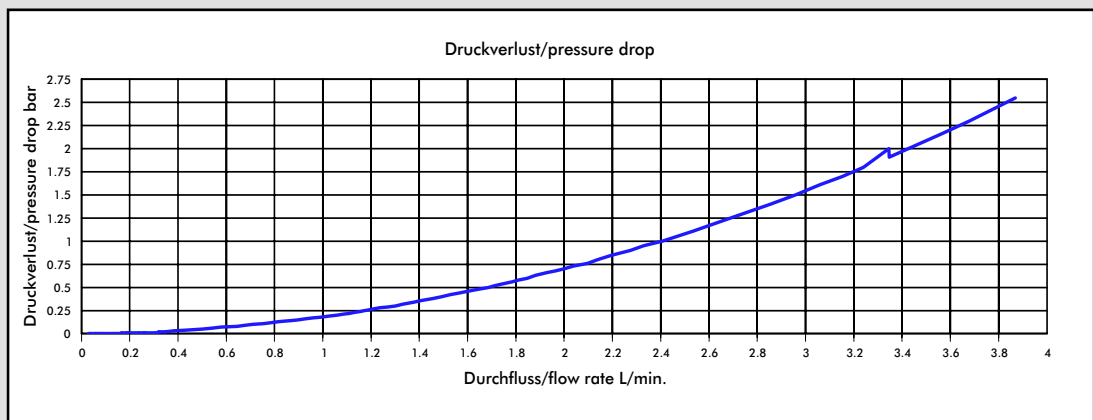
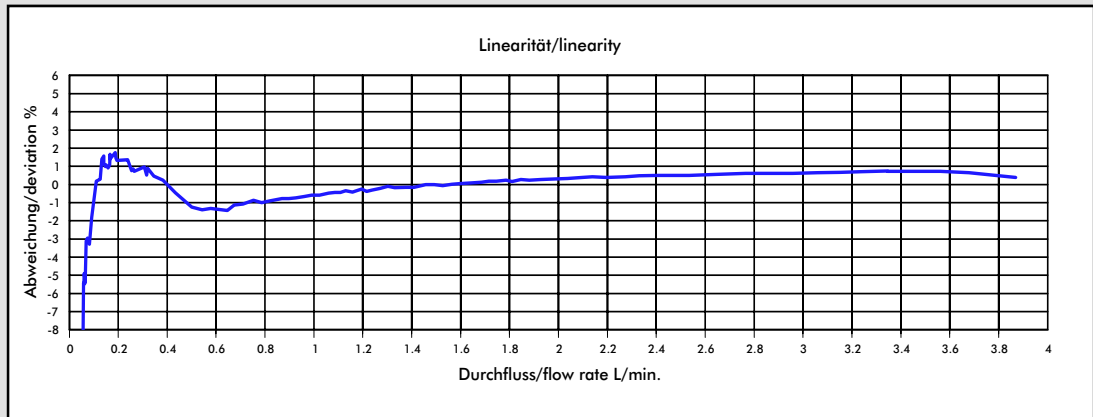
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU G1/4" 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

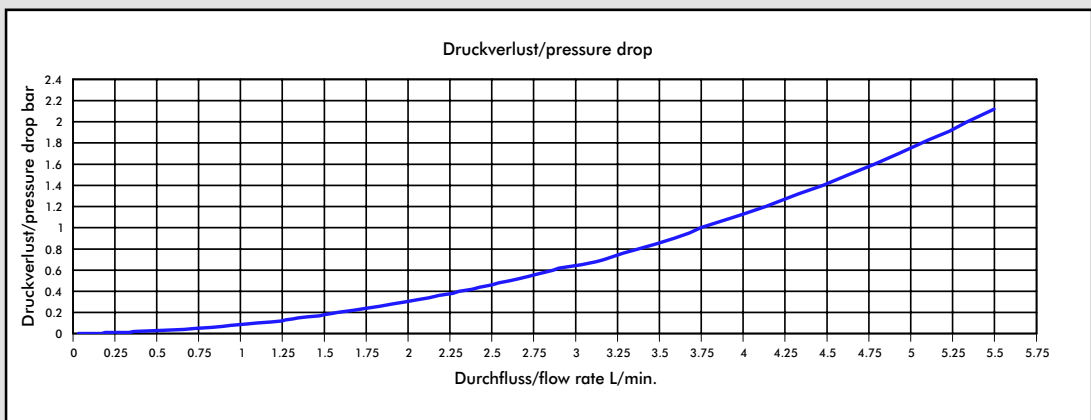
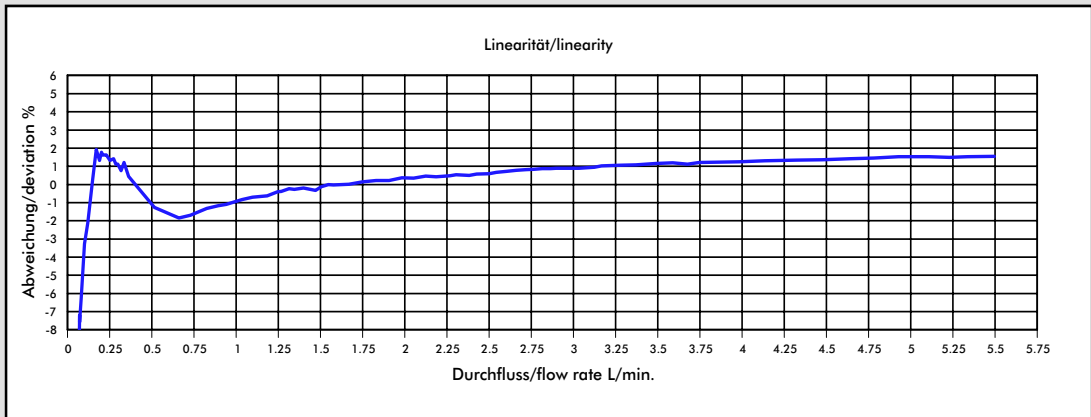
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU G1/4" 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

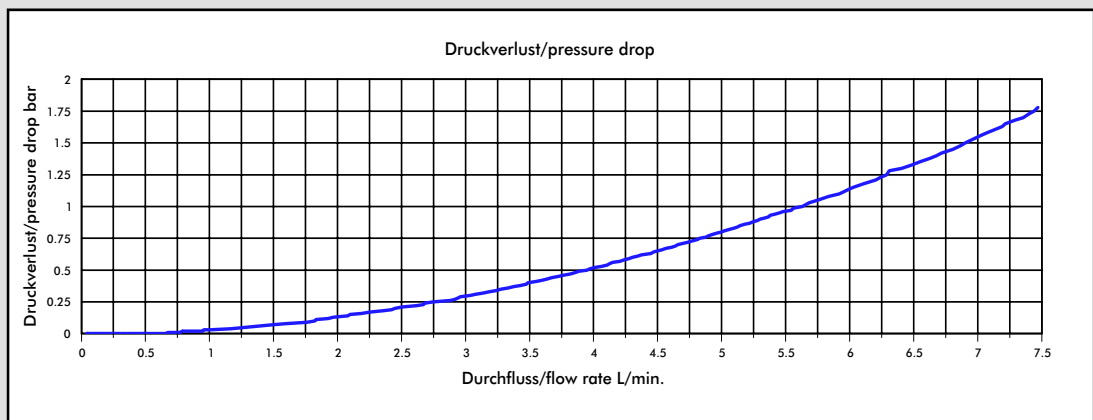
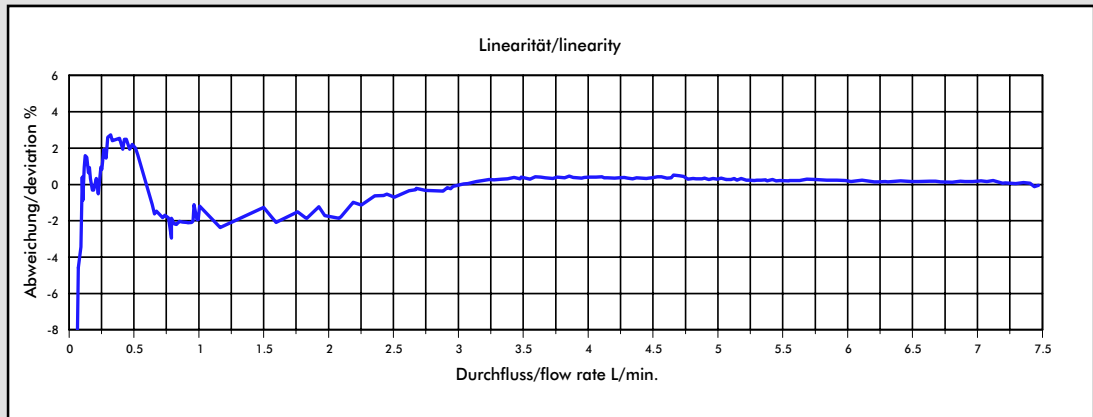
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU G1/4" 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

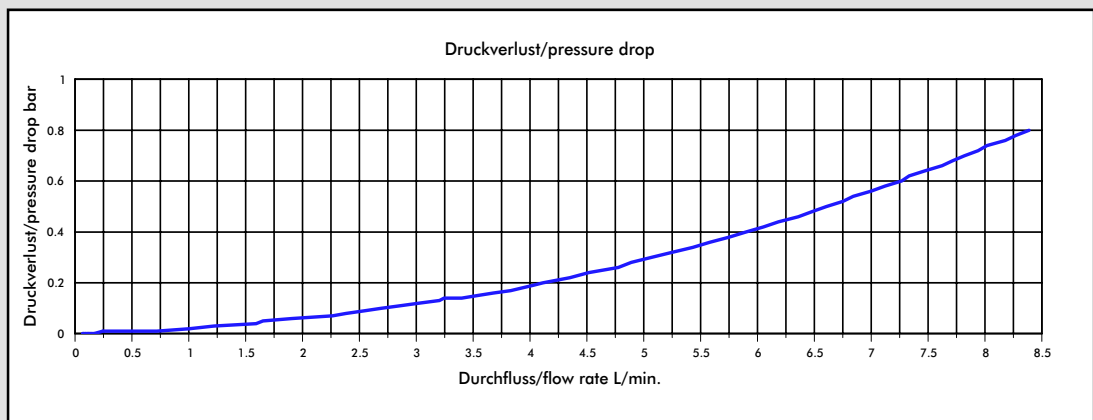
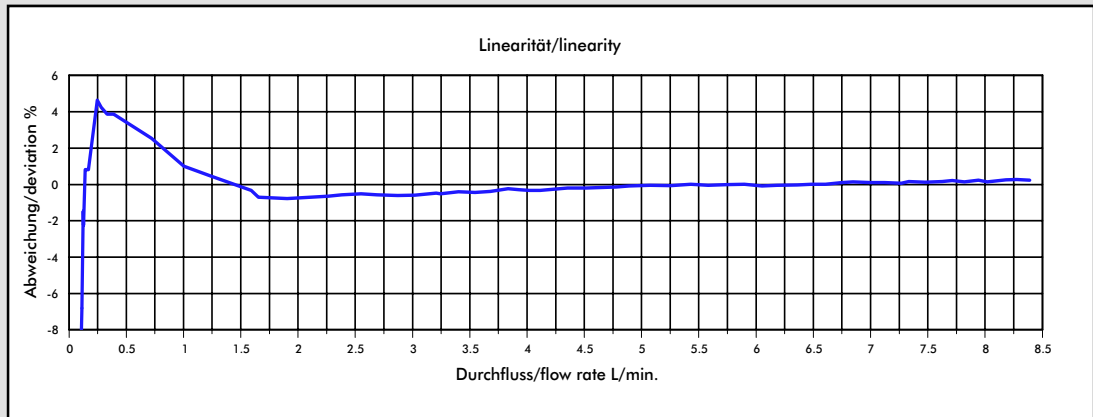
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU G1/4" 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

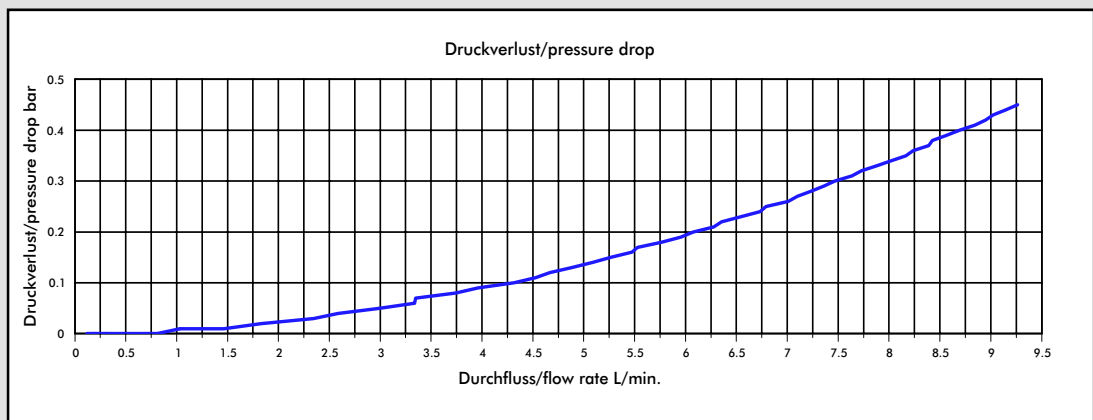
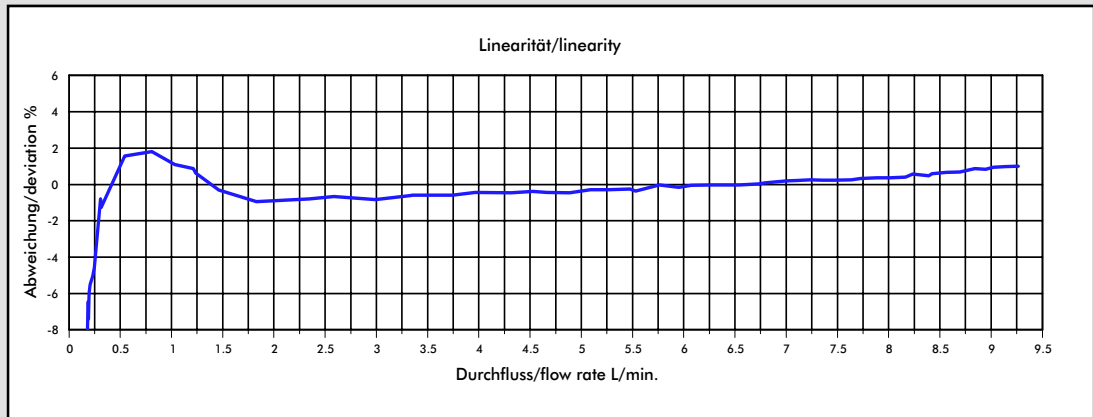
**The values specified must be considered as approximate values.**  
**The number of pulses per litre may differ depending on medium and installation.**  
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU G1/4" 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

**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.**

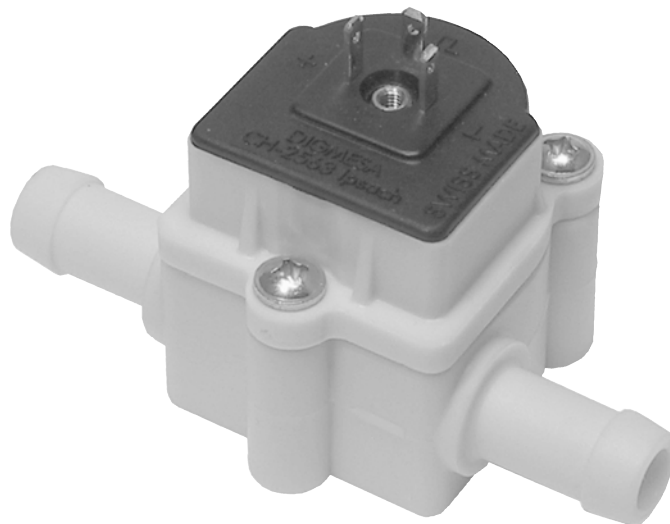
## MEASUREMENT TIPS

- 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
- 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)





# DATA SHEET



## **DIGimesa**

---

FHKU Hose connection Arnite

Part number: 938-3570/01

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland

Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU 938-3570/01 GB Page 1-5

# General Description

The FHKU Flowmeter is a general-purpose device; specially for higher throughputs of up to approx. 25 l/min. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Able to withstand high temperatures, good resistance to chemicals. Linear inlet and outlet, compact design.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35%GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
O-ring:	MVQ (Silikon) FPM (Viton)/EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

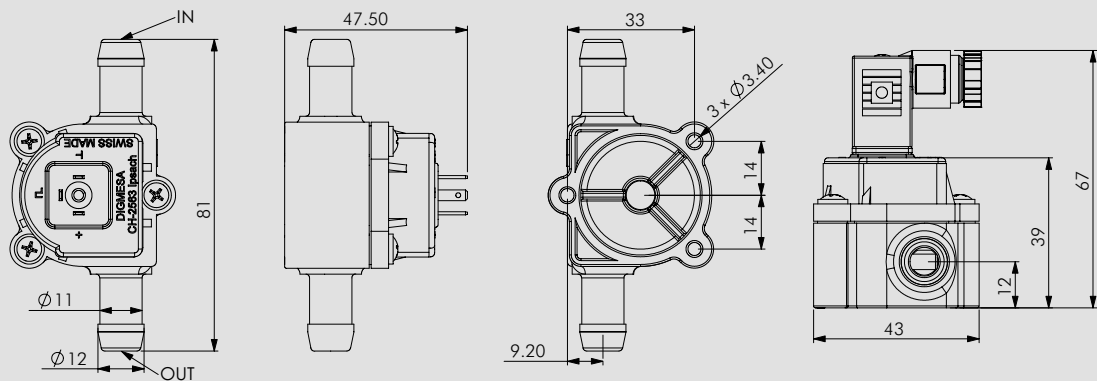
## Technical data:

Flow rate:	1.4 - 25 l/min
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	-10°C to +65°C 14°F to 149°F
Pressure range:	20 bar at 20°C 290 psi /68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 7.0 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

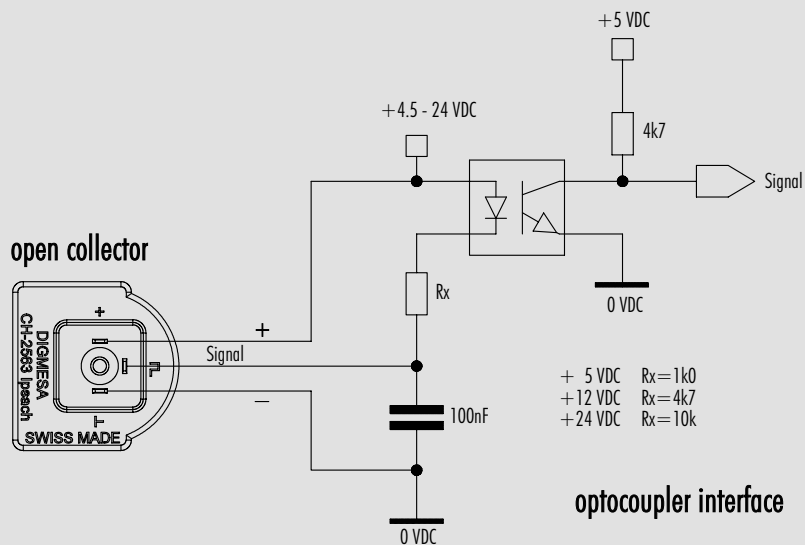
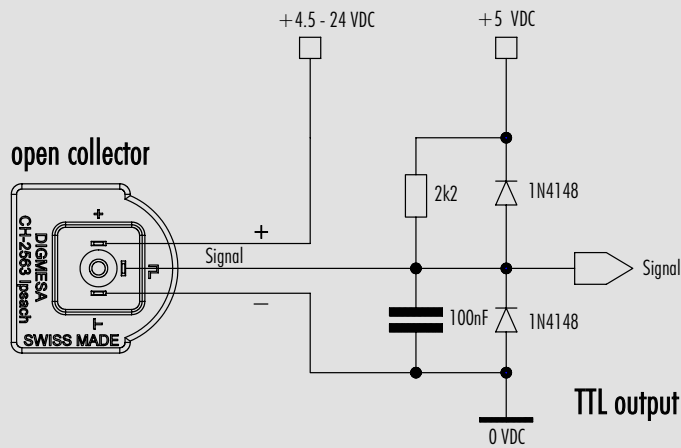
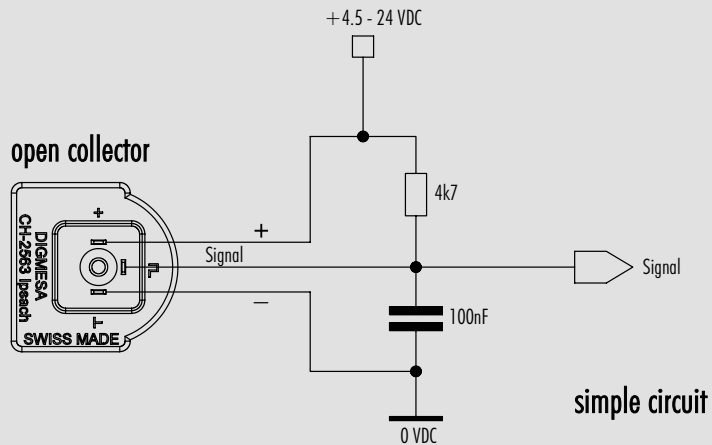
## ELECTRONIC

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!

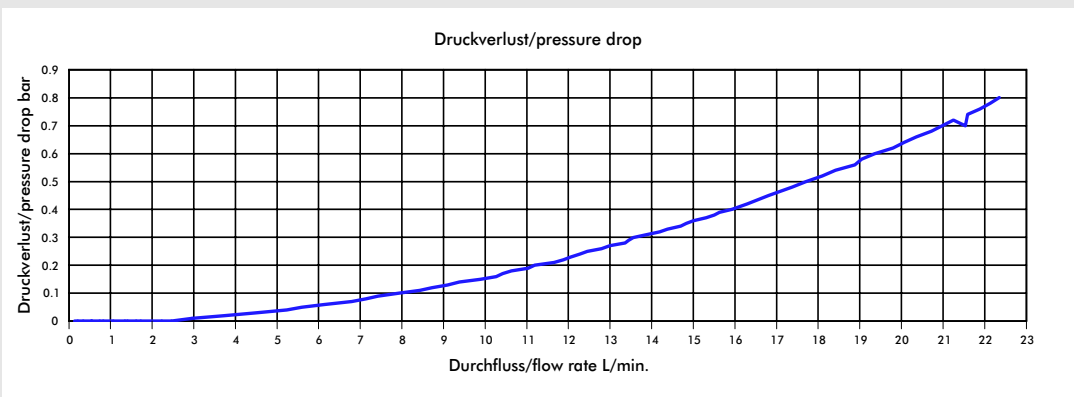
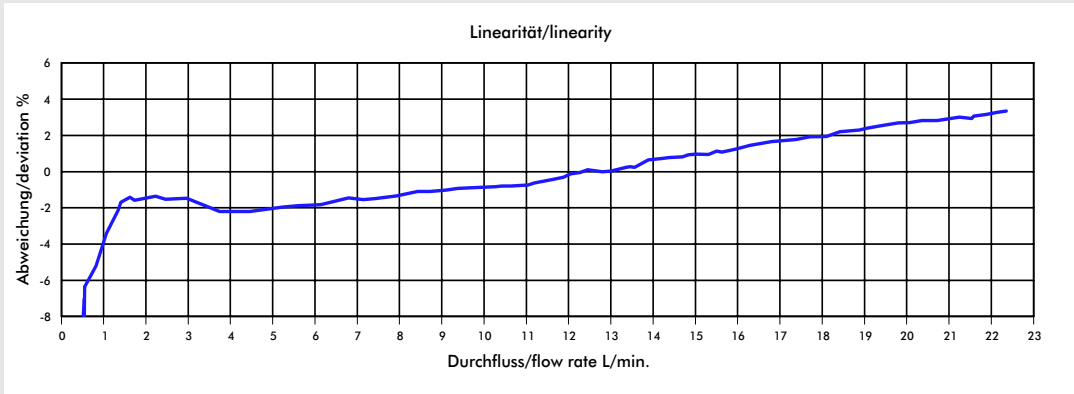
Version 01 FHKU 938-3570/01 GB Page 2-5

# Interface Connection: Examples Open Collector



DIGIMESA

# Measurement Curve FHKU Hose connection 7.00 mm



Medium: Water / max. Pressure: 3.3 bar

Nozzle size	Pulses/litre	g/pulse	min. flow rate in litres/min at Linear start	max. flow rate in litres/min	Pressure loss
Ø 7.00 mm	165	6.06	1.40	18.00	0.54

## 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
- 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.**



# DATA SHEET



# **DIGimesa**

---

FHKU Hose connection Ryton  
Part number: 938-3870/01

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88  
[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU 938-3870/01 GB Page 1-5

# General Description

The FHKU Flowmeter is a general-purpose device; specially for higher throughputs of up to approx. 25 l/min. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Able to withstand high temperatures, good resistance to chemicals. Linear inlet and outlet, compact design.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PPS 40%GF (Ryton)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
O-ring:	MVQ (Silikon) FPM (Viton)/EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	Inox A2 PT-screws (Phillips cross recessed)

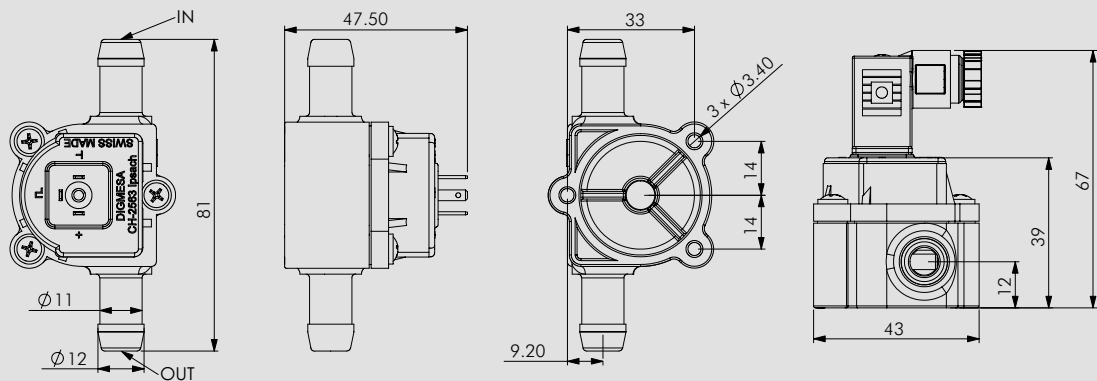
## Technical data:

Flow rate:	1.4 - 25 l/min
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	-10°C to +100°C 14°F to 212°F
Pressure range:	20 bar at 20°C 290 psi / 68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 7.0 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

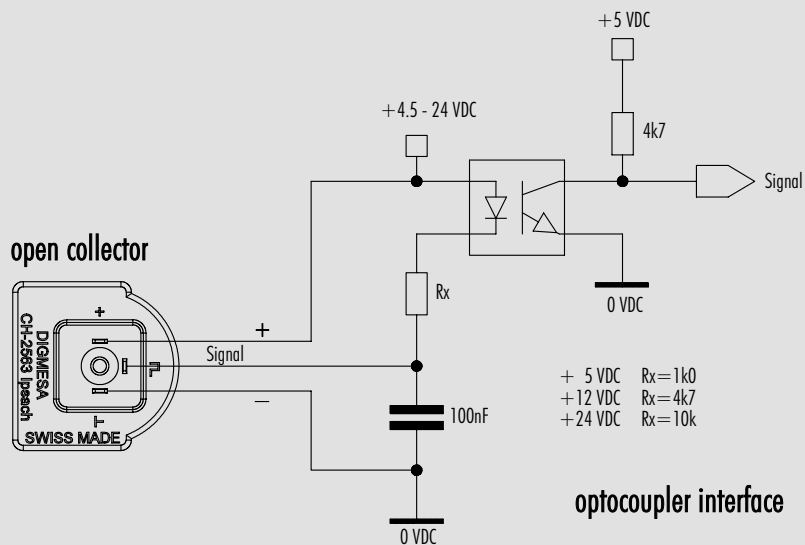
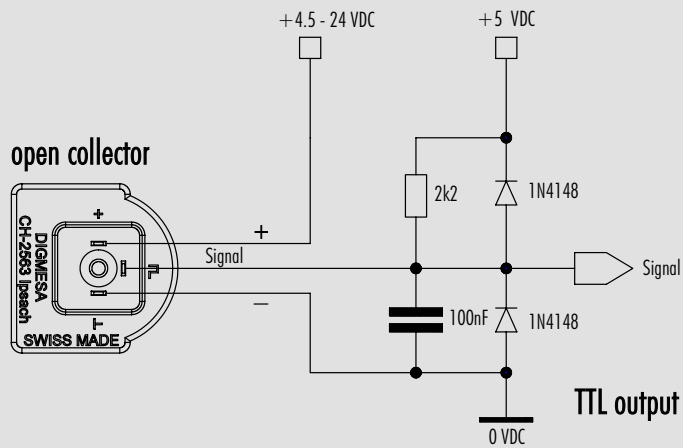
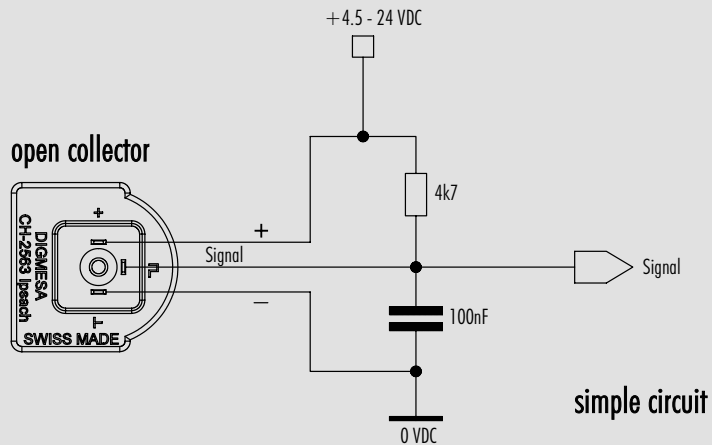
## ELECTRONIC

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!

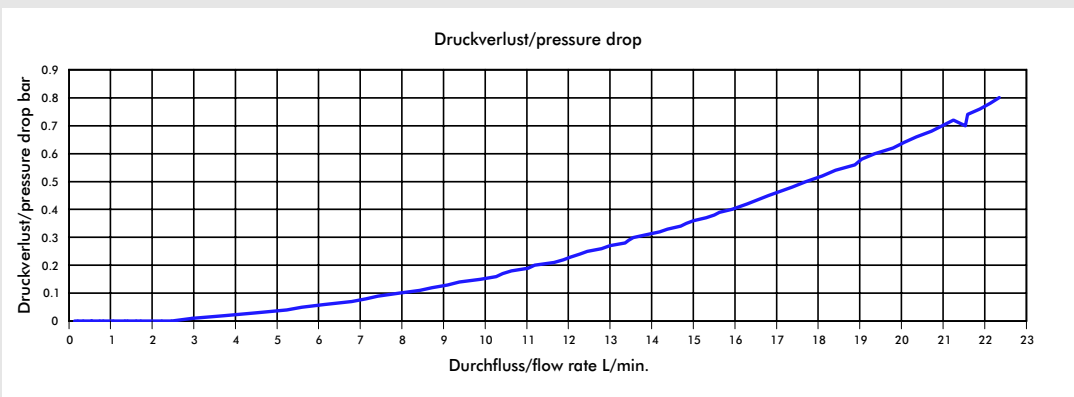
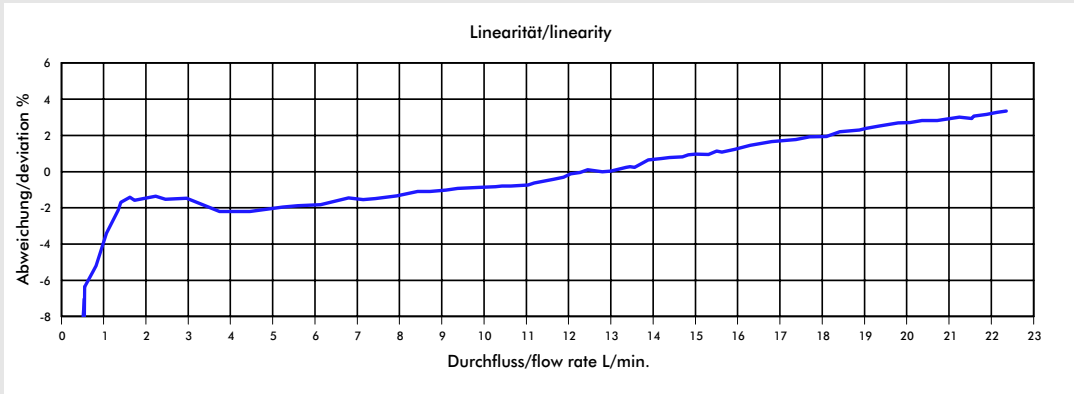
Version 01 FHKU 938-3870/01 GB Page 2-5

# Interface Connection: Examples Open Collector





# Measurement Curve FHKU Hose connection 7.00 mm



Medium: Water / max. Pressure: 3.3 bar

Nozzle size	Pulses/litre	g/pulse	min. flow rate in litres/min at Linear start	max. flow rate in litres/min	Pressure loss
Ø 7.00 mm	165	6.06	1.40	18.00	0.54

## MEASUREMENT TIPS

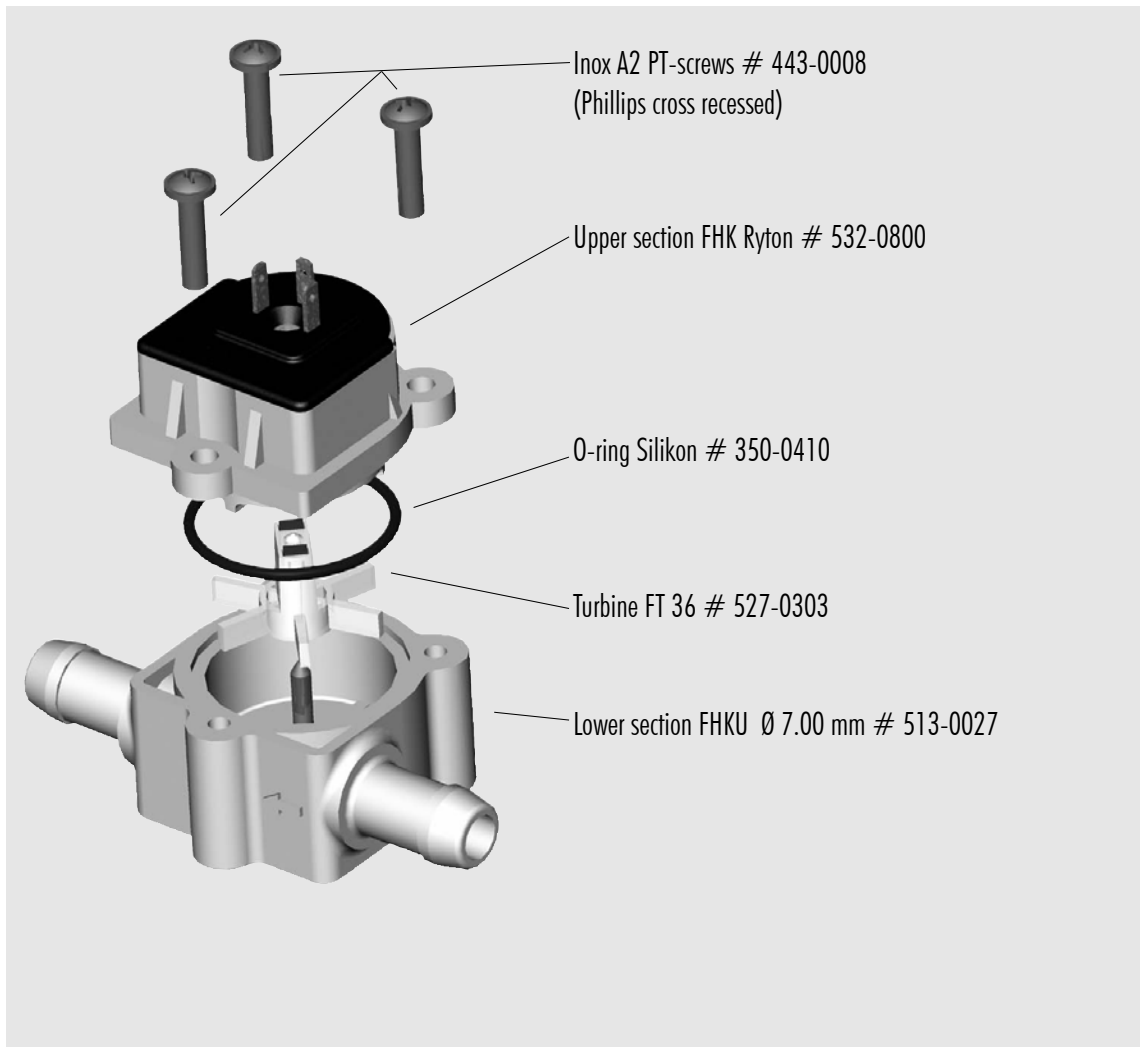
- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate 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.**

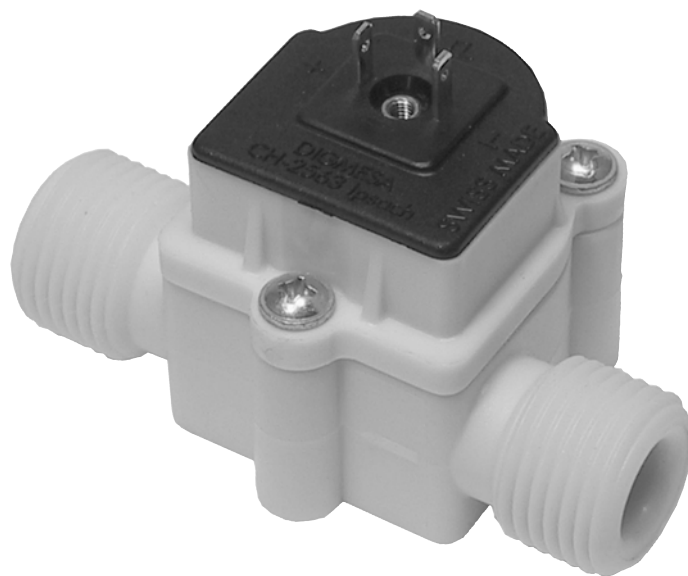
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

# Spare parts:



## Notes:


# DATA SHEET



## **DIGimesa**

---

**FHKU 100 G1/2" PEEK**

Part number: 938-6200/P014

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 02 FHKU PEEK 938-6200/P014 GB Page 1-5

# General Description

The FHKU Flowmeter is a general-purpose device; specially for higher throughputs of up to approx. 30 l/min. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Able to withstand high temperatures, good resistance to chemicals. Linear inlet and outlet, compact design. **Employed in the semiconductor (wafer polishing) sector due to the high purity of materials used.**

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PEEK 450G
Bearing pin:	PEEK 450G
Nozzle:	PEEK 450G
O-ring:	FPM (Viton) EPDM / Kalrez on request
Turbine:	PFA 4 Magnets 2 Magnets on request
Magnets:	Keramik Sr Fe O (not in contact with the medium)
Screw:	Inox A2 PT-screws (Phillips cross recessed)

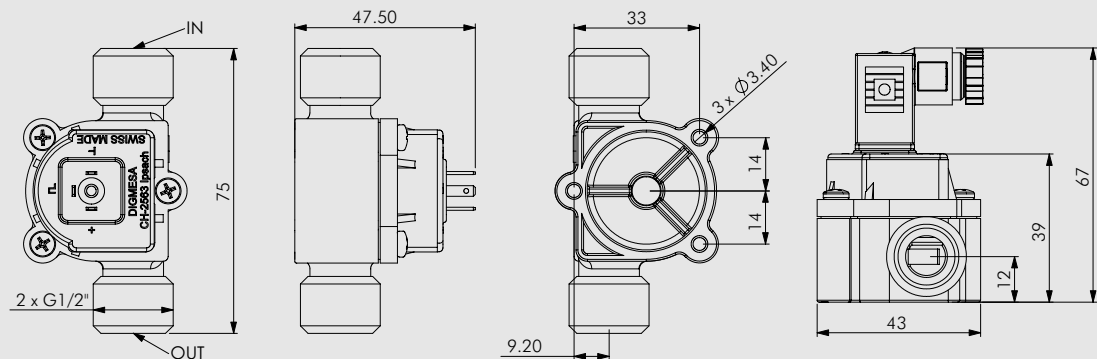
## Technical data:

Flow rate:	3 - 30 l/min
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	-10°C to +100°C 14°F to 212°F
Pressure range:	20 bar at 20°C 290 psi / 68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 10.0 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ± 5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

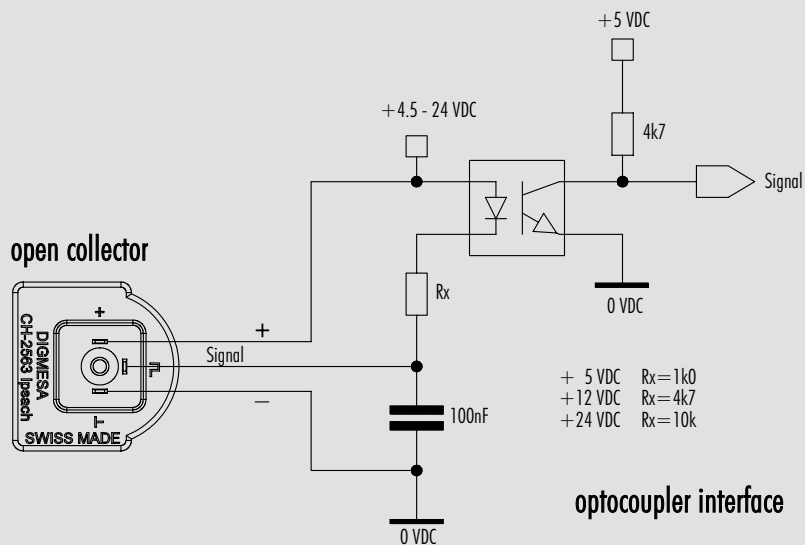
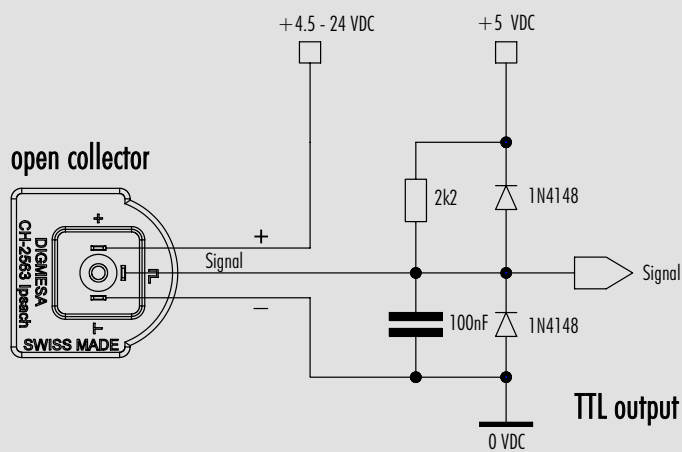
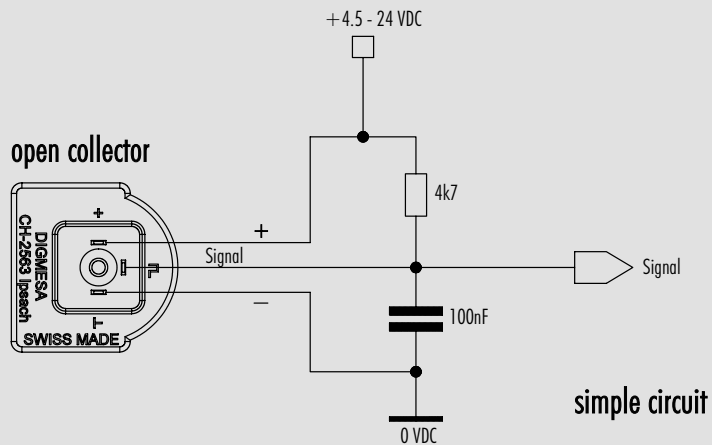
## ELECTRONIC

DIGMESA electronic circuitry is always designed for operation with DIGMESA flowmeters. Please note the following if connecting to other electronic circuitry:

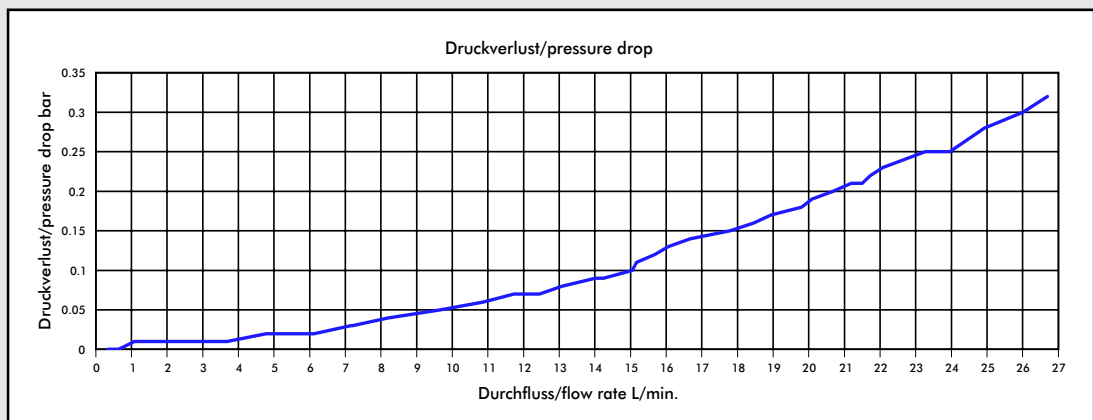
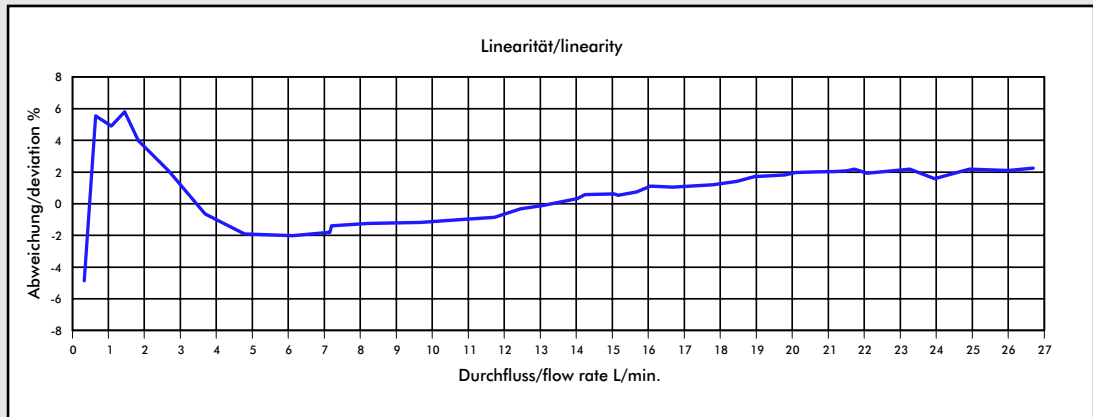
- The flowmeter does not supply an output voltage but switches the signal terminal to 0 V ground (actuated) or leaves it open (non-actuated)
- There must be a pull-up resistor between power supply + and signal depending on electronic circuitry!

Version 02 FHKU PEEK 938-6200/P014 GB Page 2-5

# Interface Connection: Examples Open Collector



# Measurement Curve FHKU Arnite 10.00mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

Nozzle size	Pulses/litre	g/pulse	min. flow rate in litres/min at Linear start	max. flow rate in litres/min	Pressure loss
Ø 10.00 mm	130	7.685	3.00	26.69	0.32

## MEASUREMENT TIPS

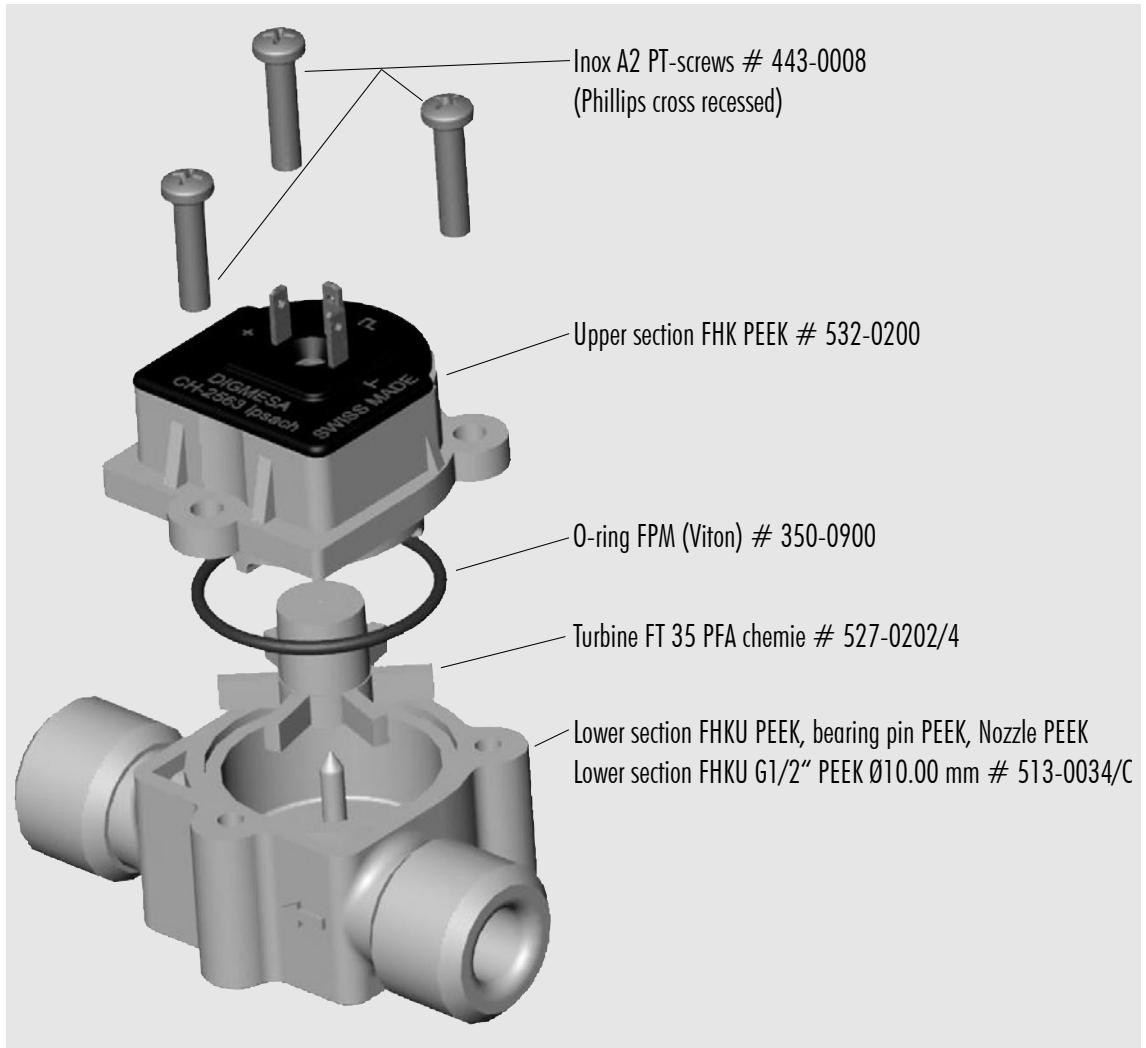
- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate 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.**

# Spare parts:

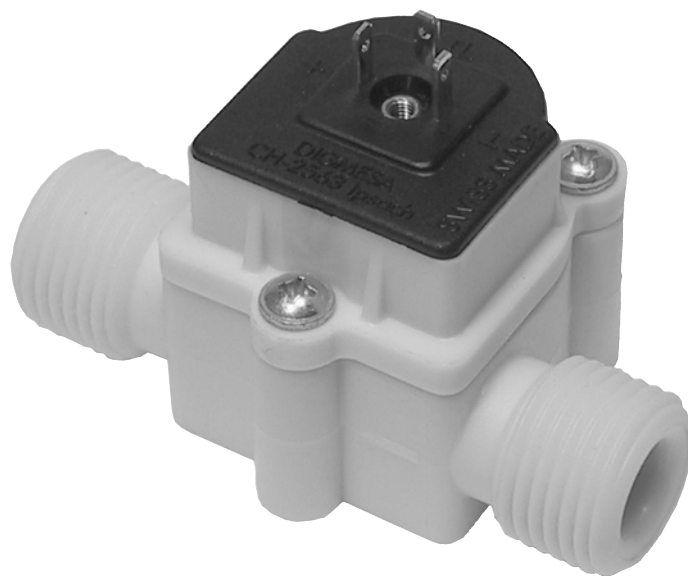


DIGimesa

**Notes:**


We reserve the right to make modifications in the interests of technical progress.

# DATA SHEET



***DIGMESA*** 

---

**FHKU 100 G1/2" PVDF**

Part number: 938-6300/C014

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU PVDF 938-6300/C014 GB Page 1-5



# General Description

The FHKU Flowmeter is a general-purpose device; specially for higher throughputs of up to approx. 30 l/min. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Able to withstand high temperatures, good resistance to chemicals. Linear inlet and outlet, compact design. **Employed in the semiconductor (wafer polishing) sector due to the high purity of materials used.**

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PVDF
Bearing pin:	PCTFE
O-ring:	FPM (Viton) EPDM / Kalrez on request
Turbine:	PVDF 4 Magnets 2 Magnets on request
Magnets:	Keramik Sr Fe O (not in contact with the medium)
Screw:	Inox A2 PT-screws (Phillips cross recessed)

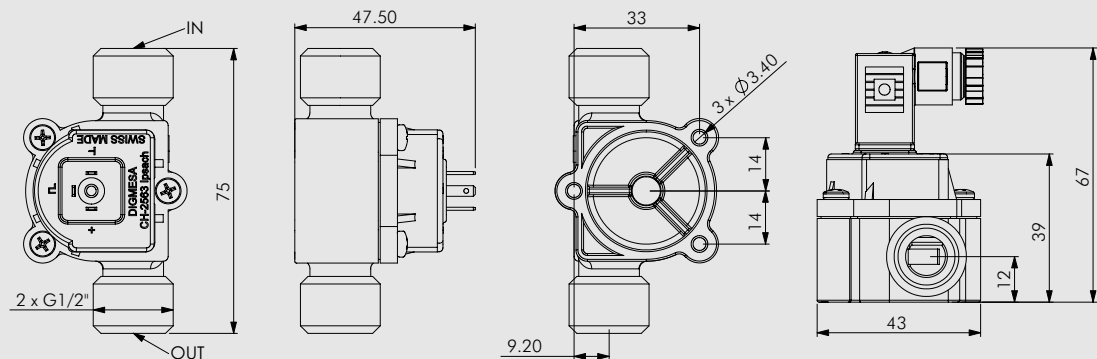
## Technical data:

Flow rate:	3 - 30 l/min
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	-10°C to +100°C 14°F to 212°F
Pressure range:	20 bar at 20°C 290 psi / 68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 10.0 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ± 5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

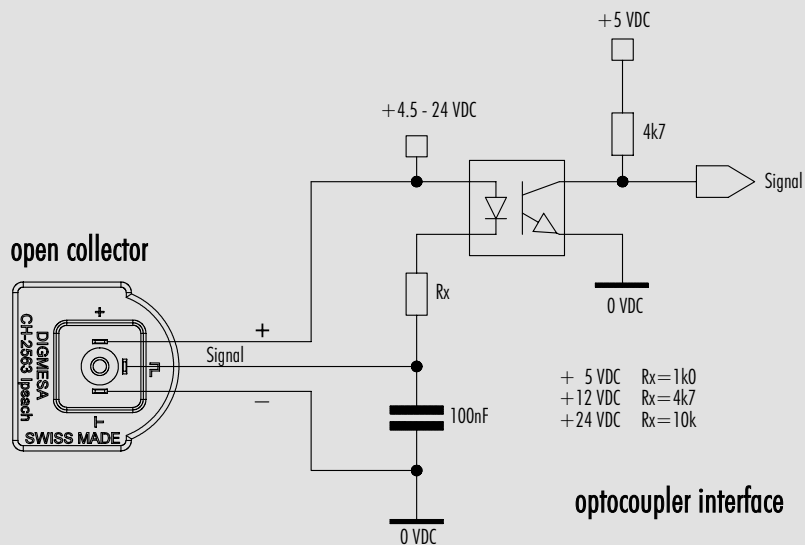
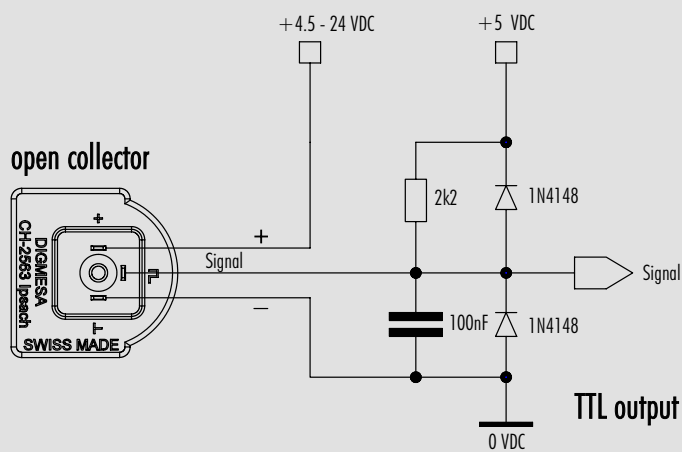
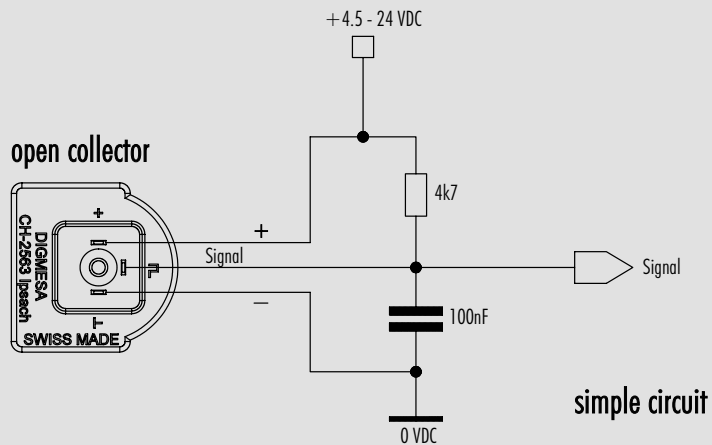
## ELECTRONIC

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!

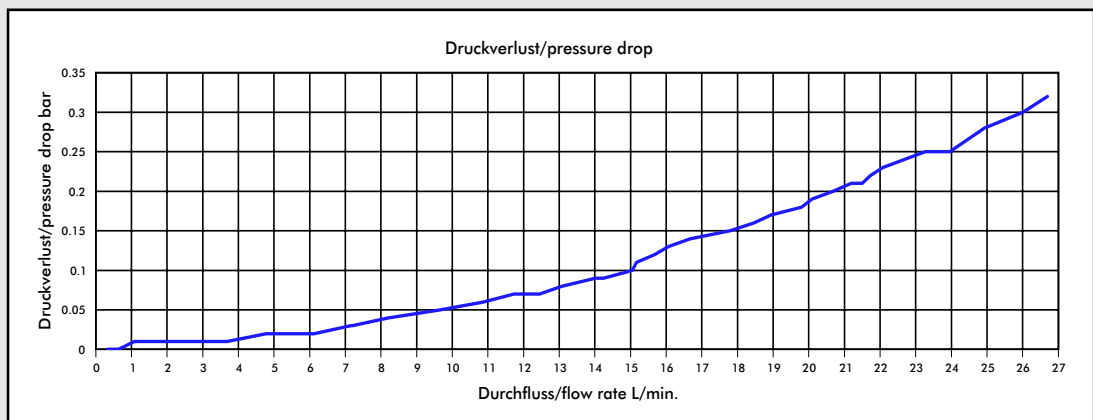
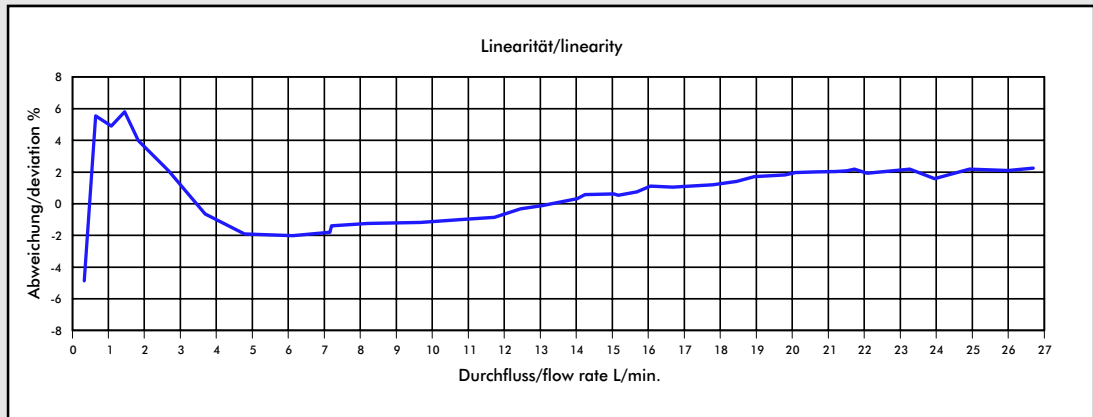
Version 01 FHKU PVDF 938-6300/CO14 GB Page 2-5

# Interface Connection: Examples Open Collector



Digimesa

# Measurement Curve FHKU Arnite 10.00mm (4 Magnets)



Medium: Water / max. Pressure: 3.3 bar

Nozzle size	Pulses/litre	g/pulse	min. flow rate in litres/min at Linear start	max. flow rate in litres/min	Pressure loss
Ø 10.00 mm	130	7.685	3.00	26.69	0.32

## 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
- 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)

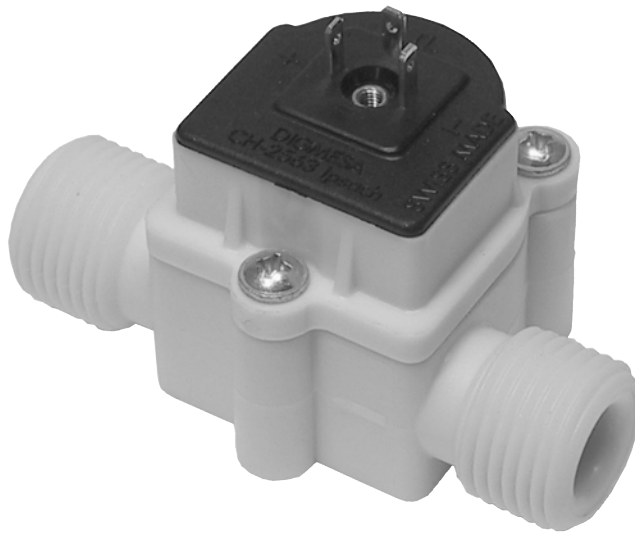
**The values specified must be considered as approximate values.**

**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.**



# DATA SHEET



## **DIGIMESA**

---

FHKU G1/2" 100 Arnite

Part number: 938-6500/01

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland

Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU 938-6500/01 GB Page 1-5

# General Description

The FHKU Flowmeter is a general-purpose device; specially for higher throughputs of up to approx. 30 l/min. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Able to withstand high temperatures, good resistance to chemicals. Linear inlet and outlet, compact design.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2:00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35%GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
O-ring:	MVQ (Silikon) FPM (Viton)/EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

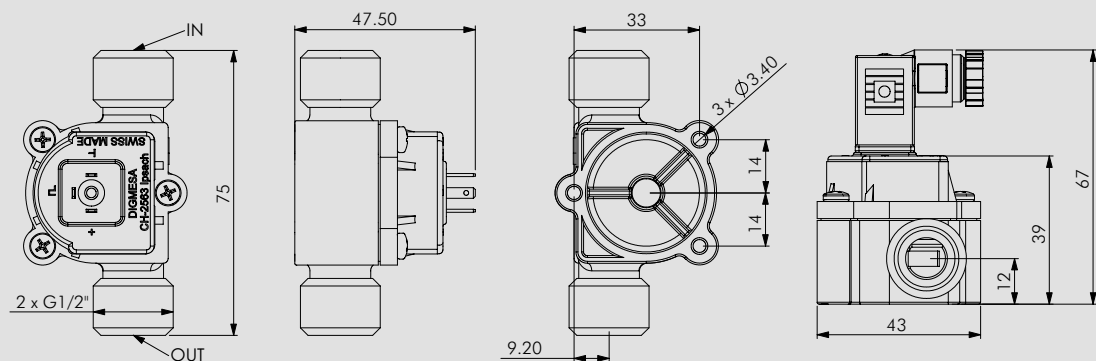
## Technical data:

Flow rate:	3 - 30 l/min
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	-10°C to +65°C 14°F to 149°F
Pressure range:	20 bar at 20°C 290 psi /68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 10.0 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

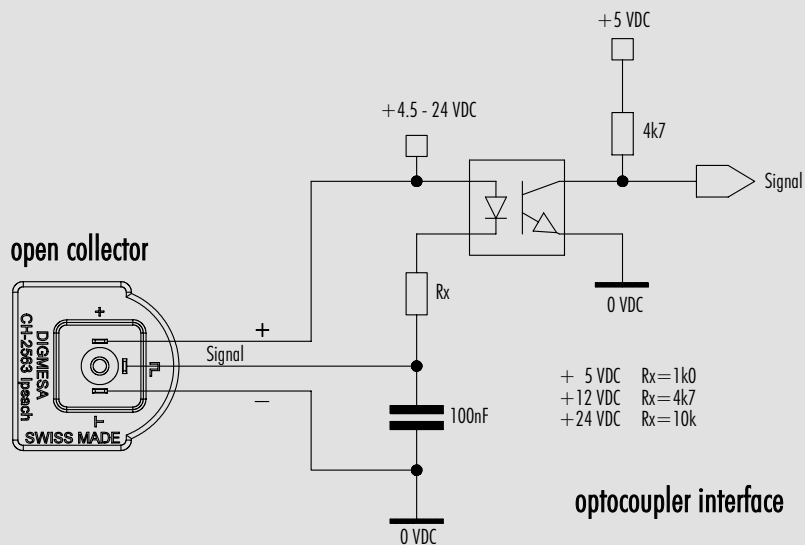
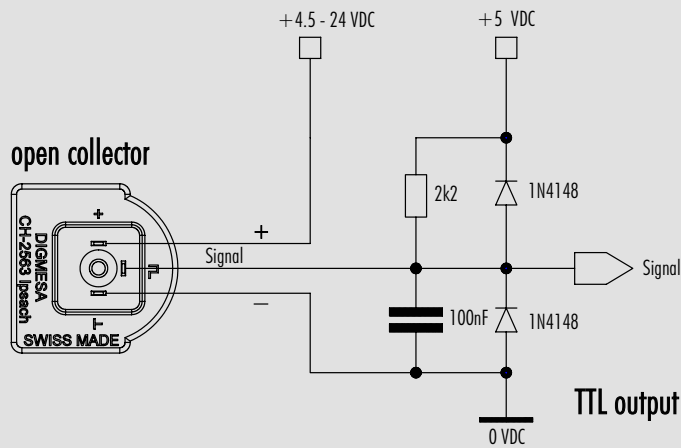
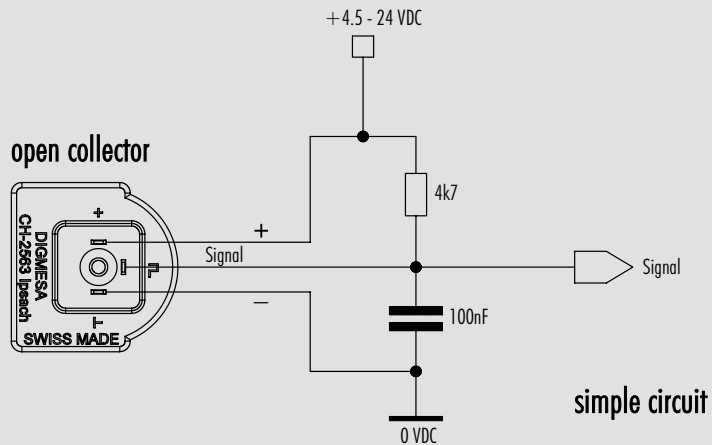
## ELECTRONIC

DIGMESA electronic circuitry is always designed for operation with DIGMESA flowmeters. Please note the following if connecting to other electronic circuitry:

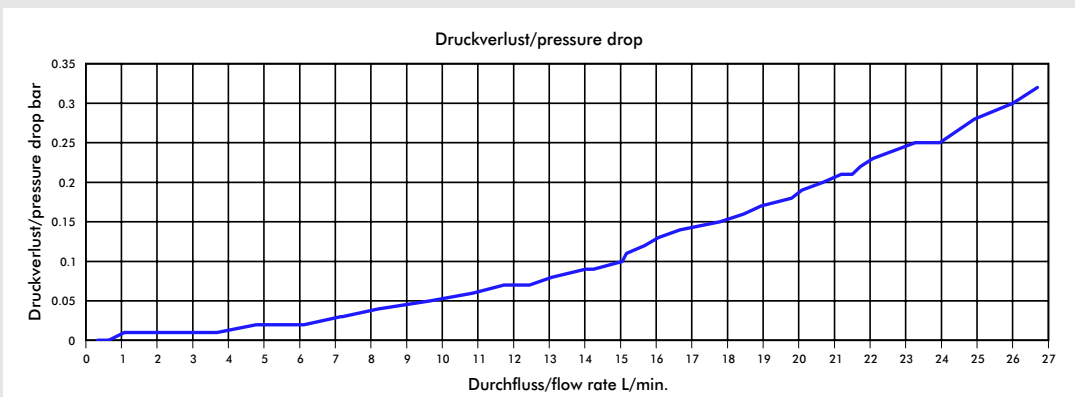
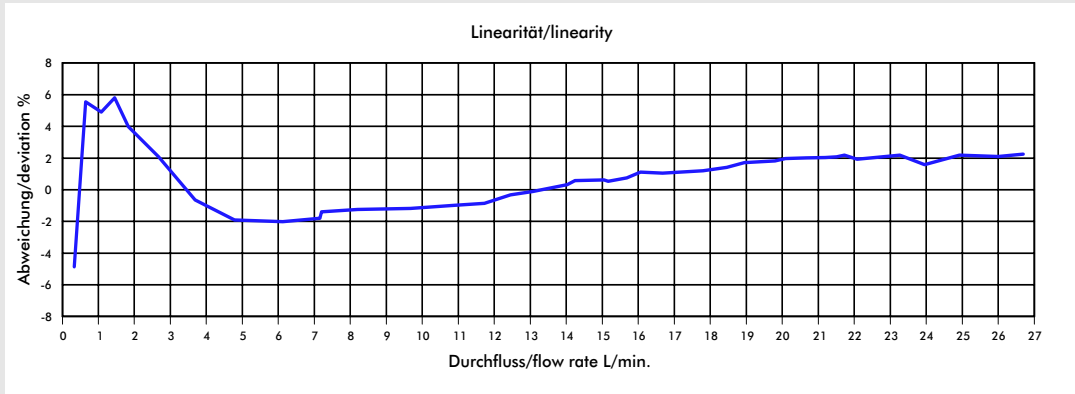
- The flowmeter does not supply an output voltage but switches the signal terminal to 0 V ground (actuated) or leaves it open (non-actuated)
- There must be a pull-up resistor between power supply + and signal depending on electronic circuitry!

Version 01 FHKU 938-6500/01 GB Page 2-5

# Interface Connection: Examples Open Collector



# Measurement Curve FHKU G1/2" 10.00 mm



Medium: Water / max. Pressure: 3.3 bar

Nozzle size	Pulses/litre	g/pulse	min. flow rate in litres/min at Linear start	max. flow rate in litres/min	Pressure loss
Ø 10.00 mm	65	15.37	3.00	26.69	0.32

## 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
- 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.**

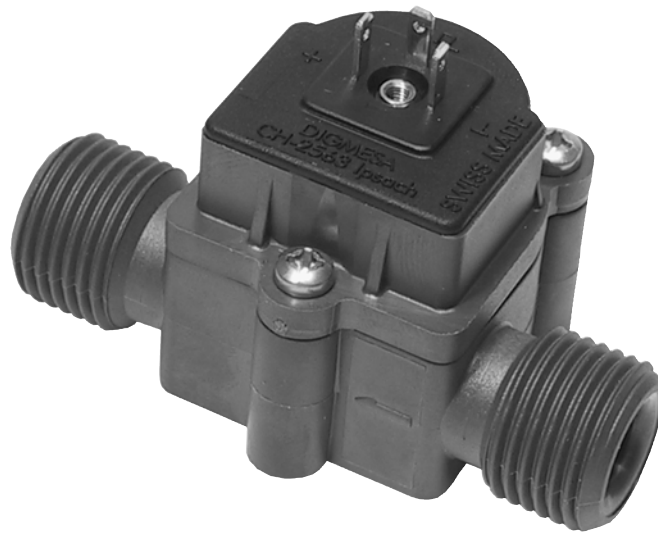
**The number of pulses per litre may differ depending on medium and installation.**

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





# DATA SHEET



## **DIGimesa**

---

**FHKU G1/2" 100 Ryton**  
Part number: 938-6800/01

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88  
[www.digimesa.com](http://www.digimesa.com)

# General Description

The FHKU Flowmeter is a general-purpose device; specially for higher throughputs of up to approx. 30 l/min. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Able to withstand high temperatures, good resistance to chemicals. Linear inlet and outlet, compact design.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PPS 40%GF (Ryton)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
O-ring:	MVQ (Silikon) FPM (Viton)/EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	Inox A2 PT-screws (Phillips cross recessed)

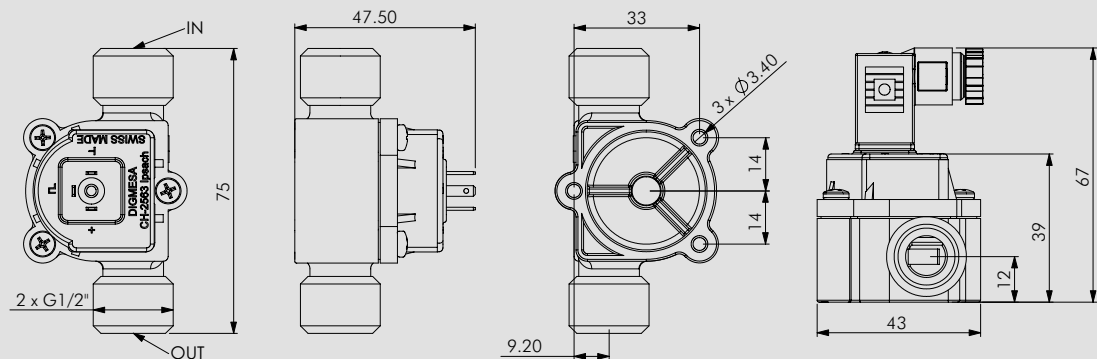
## Technical data:

Flow rate:	3 - 30 l/min
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	-10°C to +100°C 14°F to 212°F
Pressure range:	20 bar at 20°C 290 psi /68°F
Mounting position:	Horizontal recommended
Nozzle size:	Ø 10.0 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

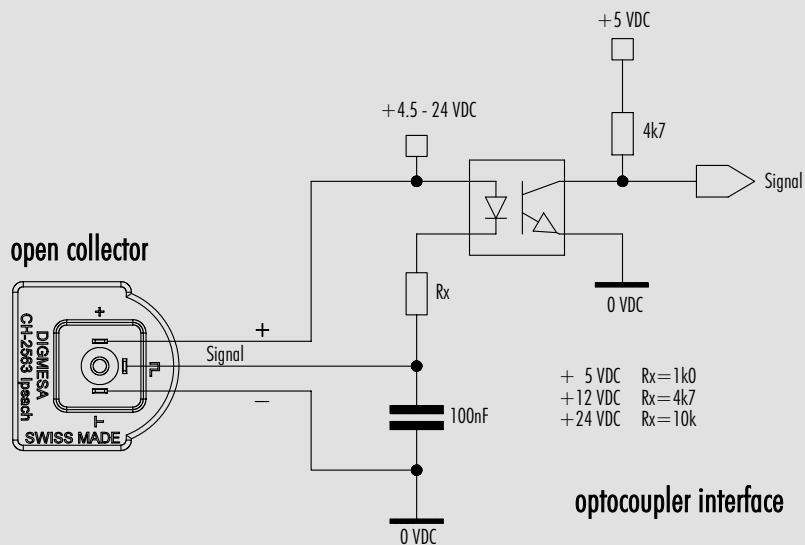
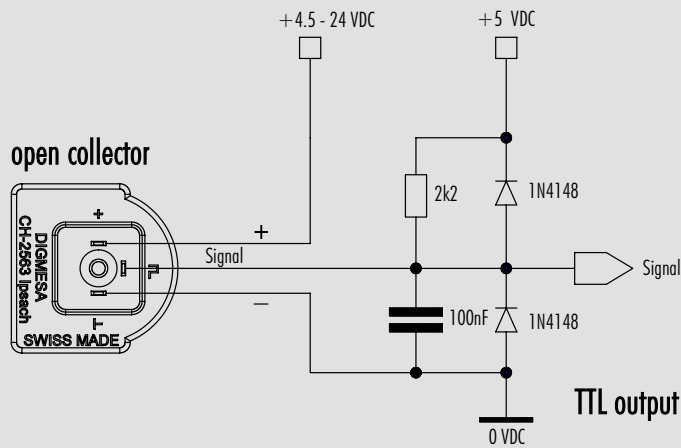
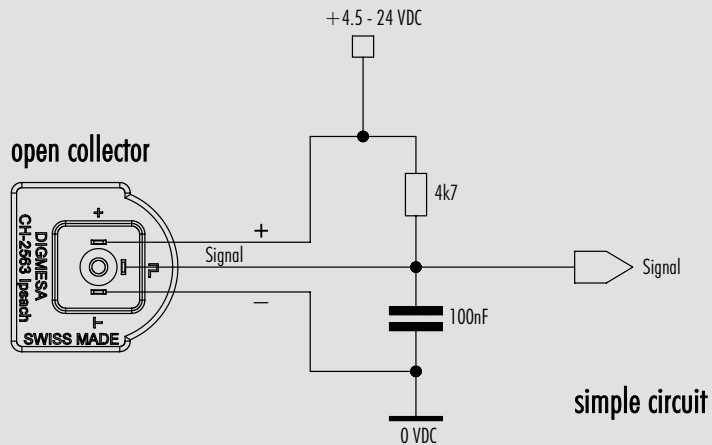
## ELECTRONIC

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!

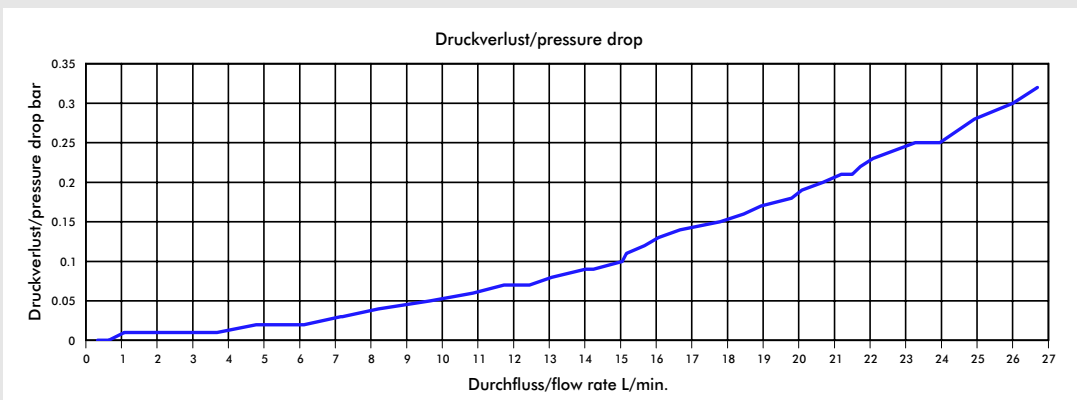
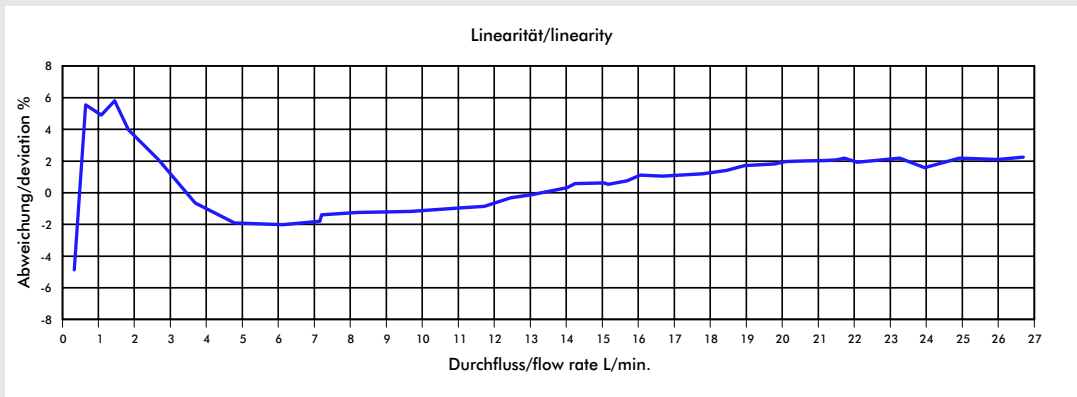
Version 01 FHKU 938-6800/01 GB Page 2-5

# Interface Connection: Examples Open Collector



DIGIMESA

# Measurement Curve FHKU G1/2" 10.00 mm



Medium: Water / max. Pressure: 3.3 bar

Nozzle size	Pulses/litre	g/pulse	min. flow rate in litres/min at Linear start	max. flow rate in litres/min	Pressure loss
Ø 10.00 mm	65	15.37	3.00	26.69	0.32

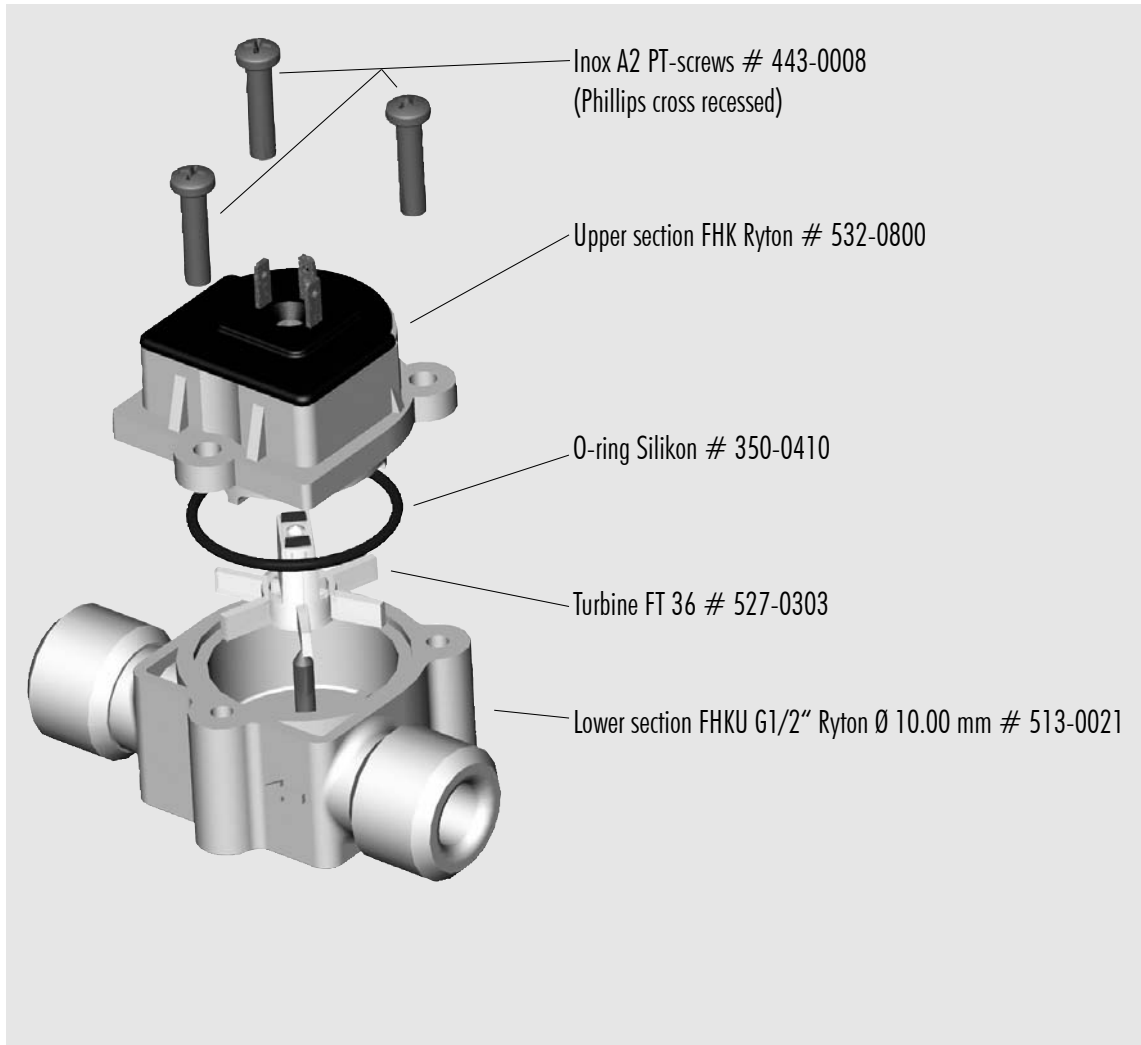
## MEASUREMENT TIPS

- 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
- 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.**

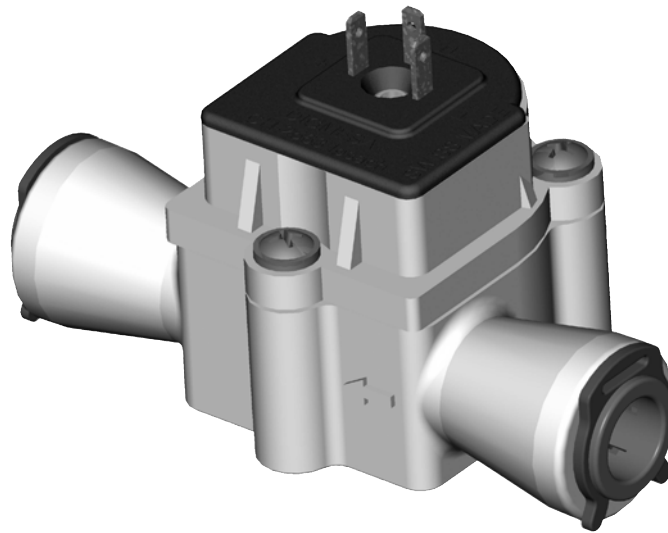


## Spare parts:



**Notes:**

# DATA SHEET



**DIGIMESA** 

---

FHKU John Guest 3/8" Arnite  
Part number: 938-75XX/01

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU JG 3/8" 938-75XX/01 GB Page 1-13

# General Description

The FHKU JG Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. Hose diameters from 3/8" (9.5mm) can be directly connected.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35% GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
Nozzle:	Inox 1.4305 (18/8) PTFE on request
O-ring:	MVQ (Silikon) FPM (Viton) / EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

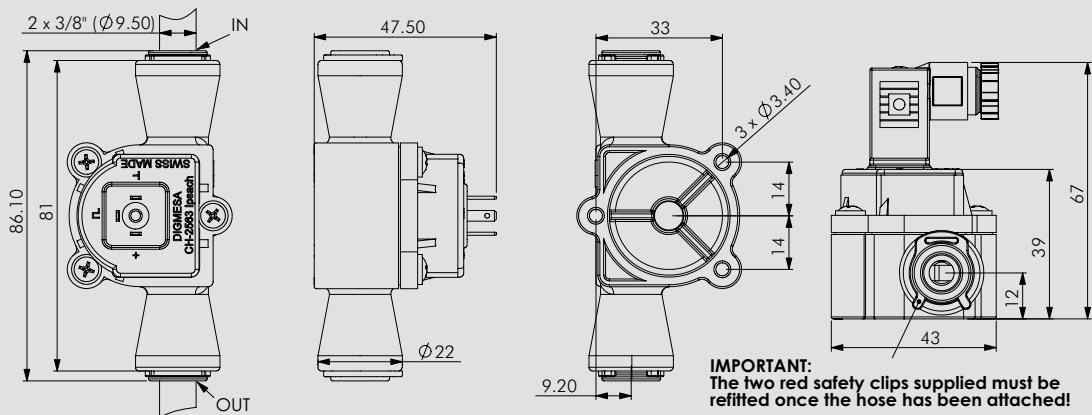
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	as shown on page 3
Pressure range:	as shown on page 3
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



DIGMESA

## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

## 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!

Version 01 FHKU JG 3/8" 938-75X/01 GB Page 2-13



## Working Pressure and Temperature Range

**Super Speedfit** fittings are suitable for the following

Temp .	Pressure	
	5/32"- 5/16" 4mm - 8mm	3/8"-1/2" 10mm - 22mm
<b>Air</b>		
- 20°C	16 Bar	10 Bar
<b>Potable Liquids and Air</b>		
+1°C	16 Bar	10 Bar
+23°C	16 Bar	10 Bar
+65°C	10 Bar	7 Bar

Also suitable for vacuum

Depending on the tube used, under certain conditions fittings may be used at higher pressures and temperatures. Please refer to our Customer Services Department for guidance. Note 1 Bar = 14.5 PSIG.

## Tube Types

**Plastic Tube** - Polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall tube we recommend the use of tube inserts.

**Braided Tube** - Use of Tube to Hose Stems listed on pages 5 and 12 is essential when using tube. Use of clamps to retain braided tube on barbs is recommended.

**Metal Tube (soft)** - Brass, copper or mild steel conforming to the tolerances below.

**Metal Tube (hard)** - We do not recommend **Super Speedfit** fittings for hard metal tubes.

For stainless steel and other polished metal tubes we recommend the use of **Superseal** fittings. These are shown on page 9 of this brochure.

It is essential that outside diameters be free from score marks and that the tube be deburred before inserting the fitting.

## Tube Tolerances

**Super Speedfit** fittings are offered for tubes with outside diameters to the following tolerances.

Size (inches)	5/32 - 3/16	1/4 - 1/2
Tolerance (inches)	+0.001 / -0.003	+0.001 / -0.004
Size (mm)	4mm- 5mm	6mm- 22mm
Tolerance (mm)	+0.05 / -0.07	+0.05 / -0.10

Phone: (49)-521 / 9 72 56-0  
 Fax: (49)-521 / 9 72 56-80  
 Internet: <http://www.johnguest.com>  
<http://www.speedfit.co.uk>

We reserve the right to make modifications in the interests of technical progress.

## Installation and System Testing

**Fittings and tube should be kept clean and undamaged before use.**

All tube and fittings installations must be pressure tested after installation to ensure system integrity before handing over to the final user. See also "How to make a connection".

## Chemicals

For use with chemicals or other potentially aggressive liquids, please refer to our Customer Services Department.

**Super Speedfit** fittings are not recommended for use with explosive gases, petroleum spirits, and other fuels or for central heating systems.

## Collet Covers

Are available as additional security against removal of the tube or to provide a simple means of colour coding. The cover is offered in a range of six colours. Please see pages 6 and 12 of this brochure.

## Food Quality

All the fittings in the brochure are produced in Food and Drug Administration (FDA) approved materials and are therefore recommended for food quality applications.



## Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

	Threads		
	1/8 - 1/4	3/8 - 1/2	3/4
Max. Torque	1.5Nm	3.0Nm	4.0Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.
- The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British or International thread standard.

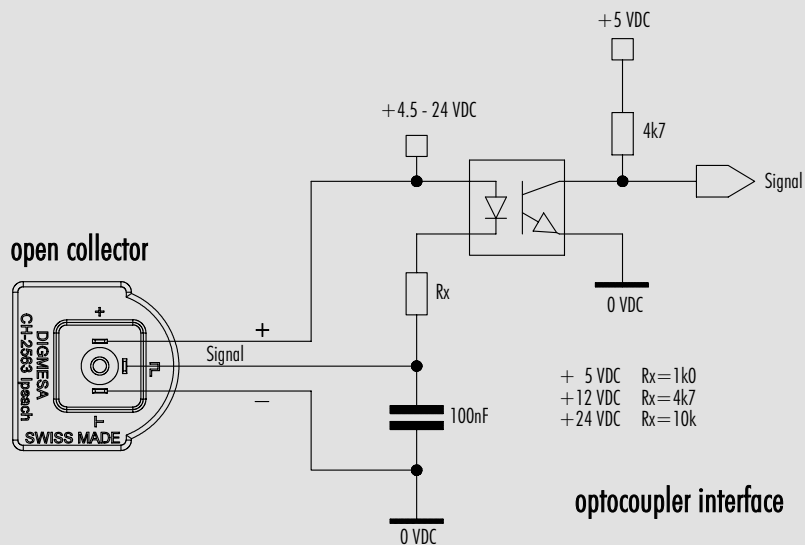
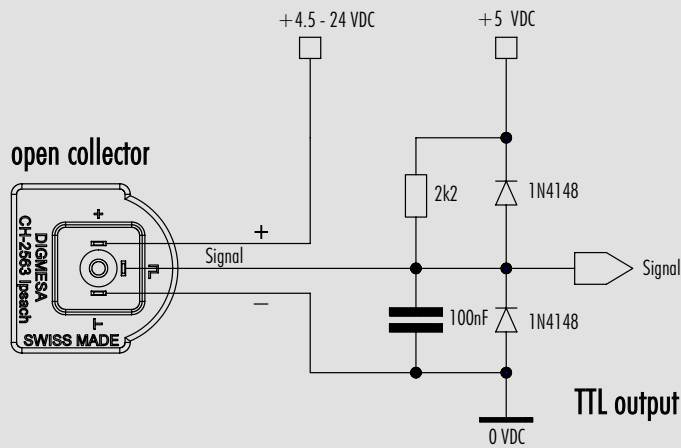
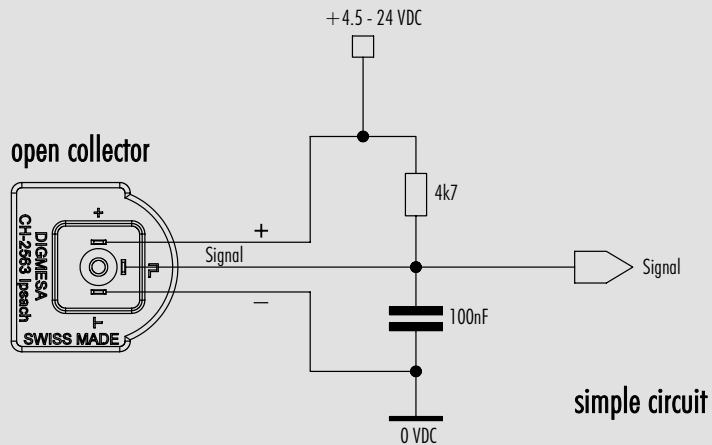
## Cleaners and Sanitising of Acetal Fittings

Our advice to customers is to use cleaners and sanitising agents that are above pH4 and low in hypochlorite level. Acetal fittings and parts that are cleaned and/or sanitised should be rinsed immediately with copious amounts of clean tap water to remove all traces of the cleaners. Details of which products are made from acetal are shown in our catalogues but generally John Guest products incorporating acetal are designated by the part number prefix PI, PM, CI, CM and RM. Polypropylene fittings offer greater resistance to aggressive chemicals than acetal fittings. Polypropylene does not have the same mechanical properties as acetal and John Guest polypropylene fittings are generally designated by the part number prefix PP. Our material suppliers recommend ECOLAB Oasis 133 as a suitable external cleaner for acetal products manufactured by John Guest.

## Warranty

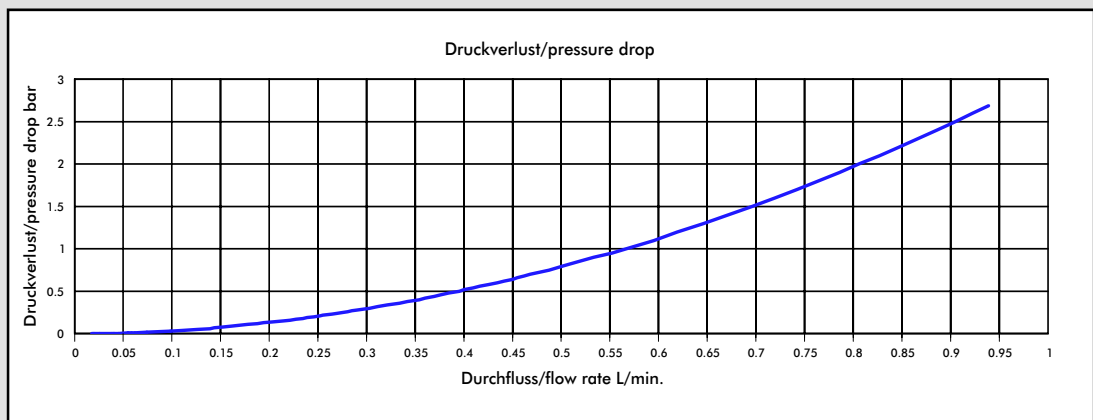
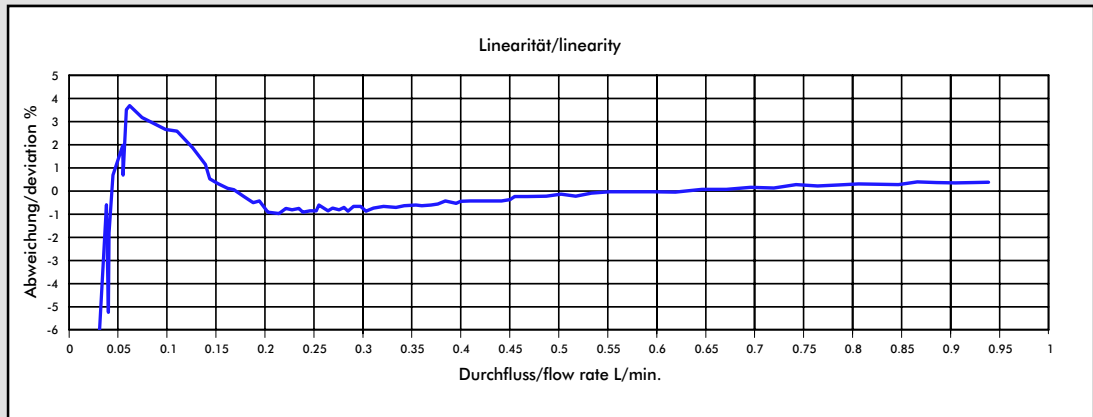
Whilst we give a warranty against defects in manufacture or materials, it is the responsibility of the specifier to ensure that fittings and related products are suitable for their application. The installation must be carried out correctly in accordance with our recommendations, complying with recognised codes of practice and relevant national

# Interface Connection: Examples Open Collector



DIGIMESA

# Measurement Curve FHKU 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

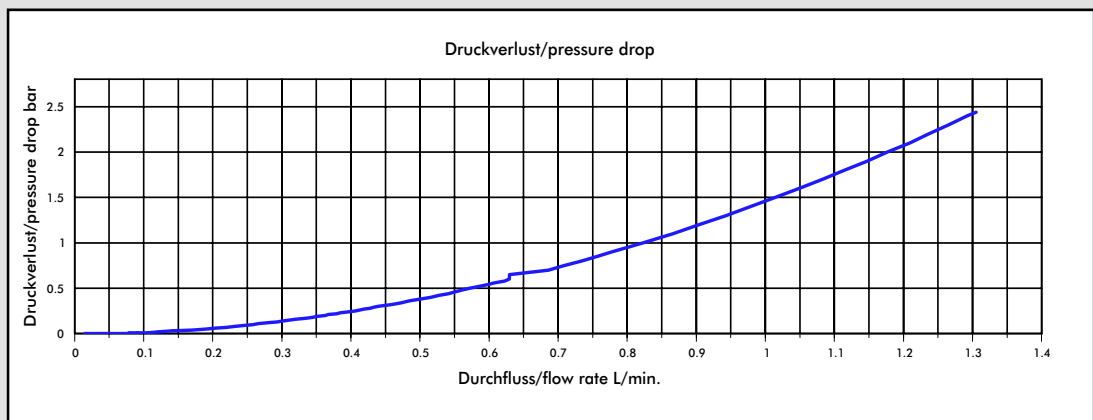
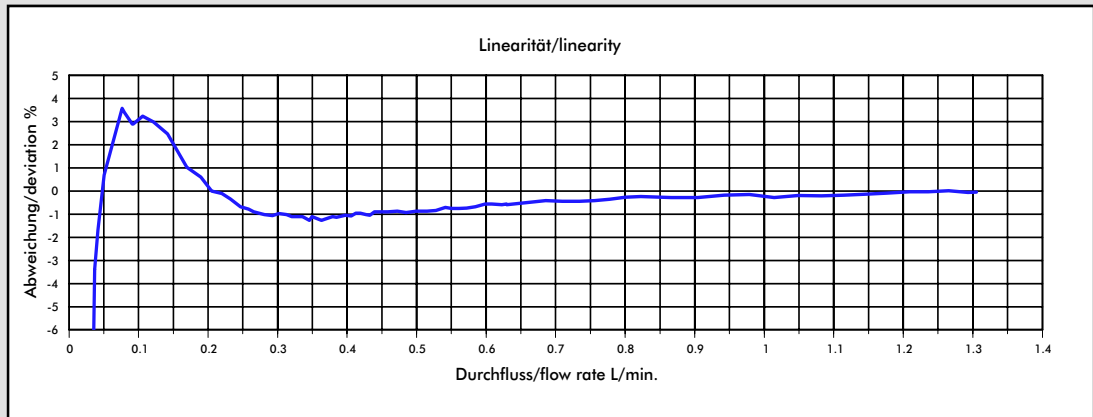
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

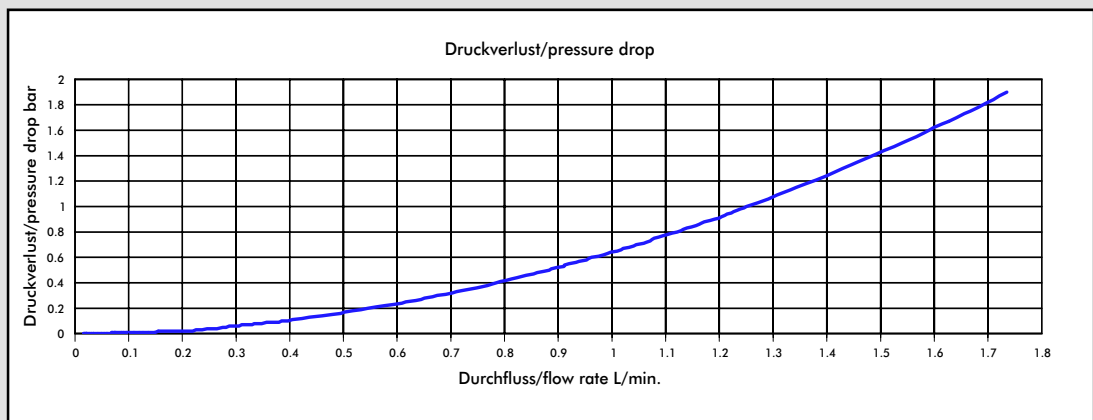
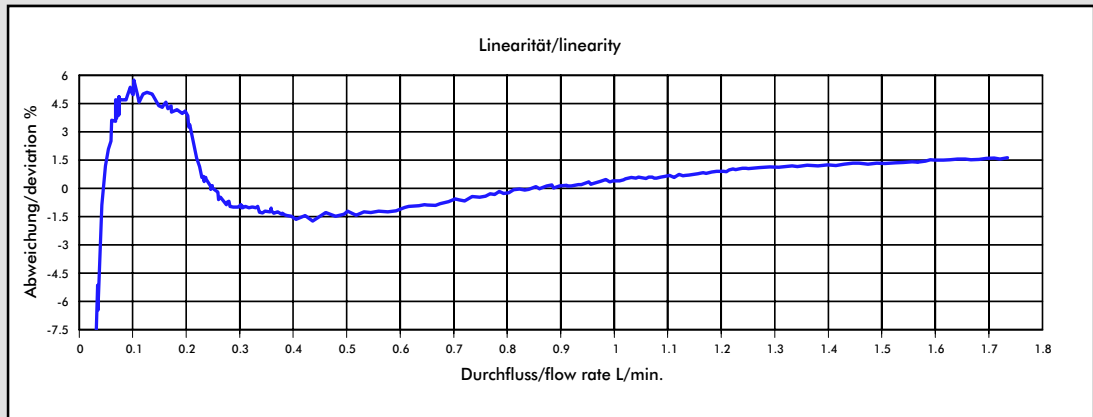
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

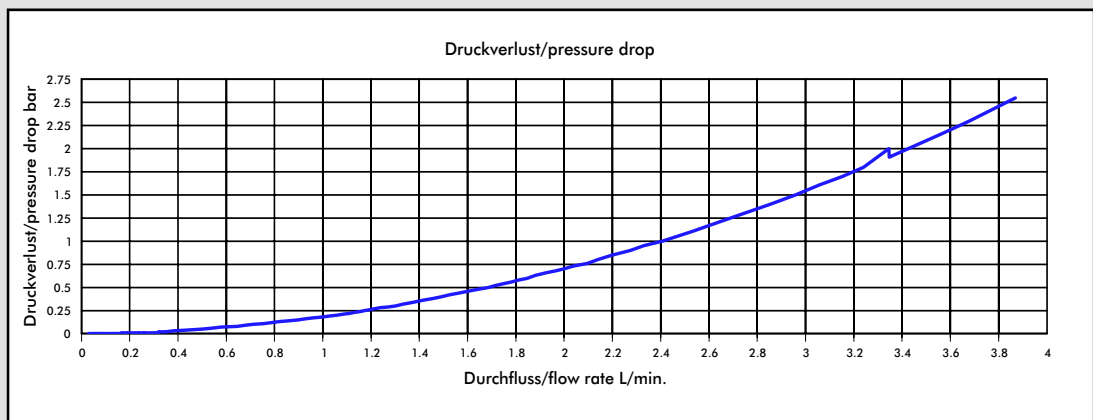
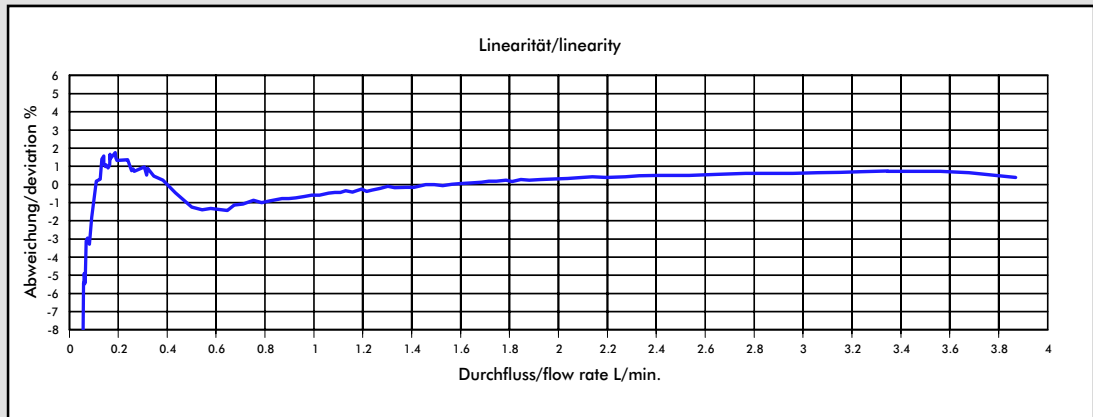
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

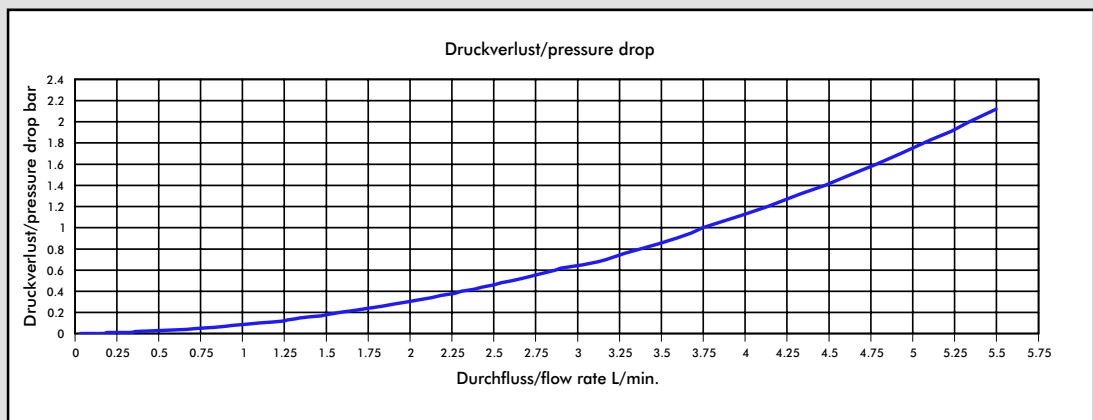
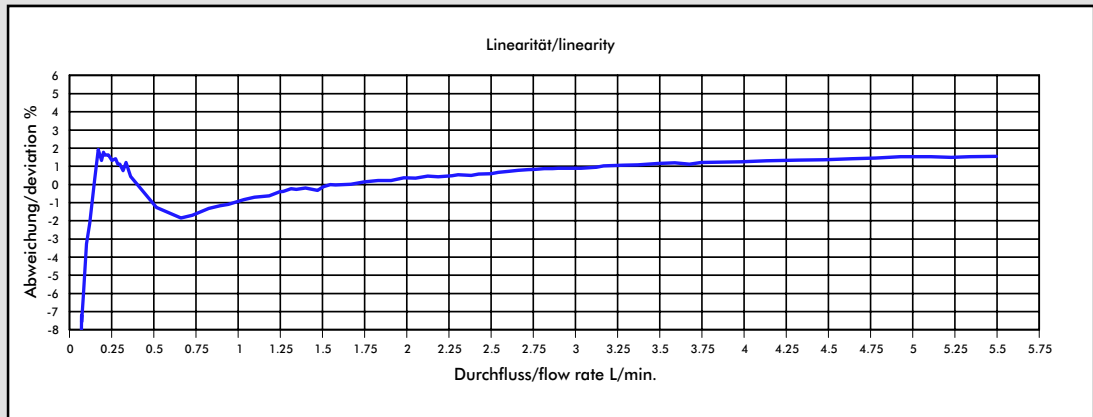
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

## MEASUREMENT TIPS

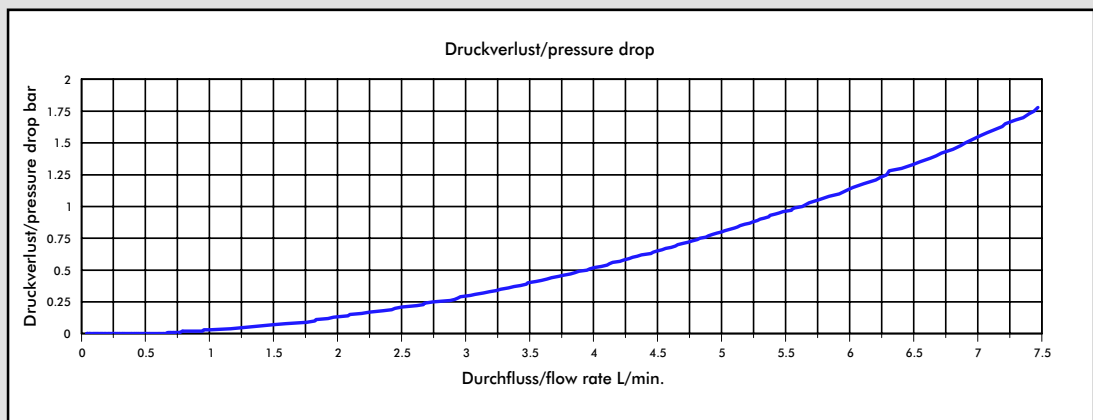
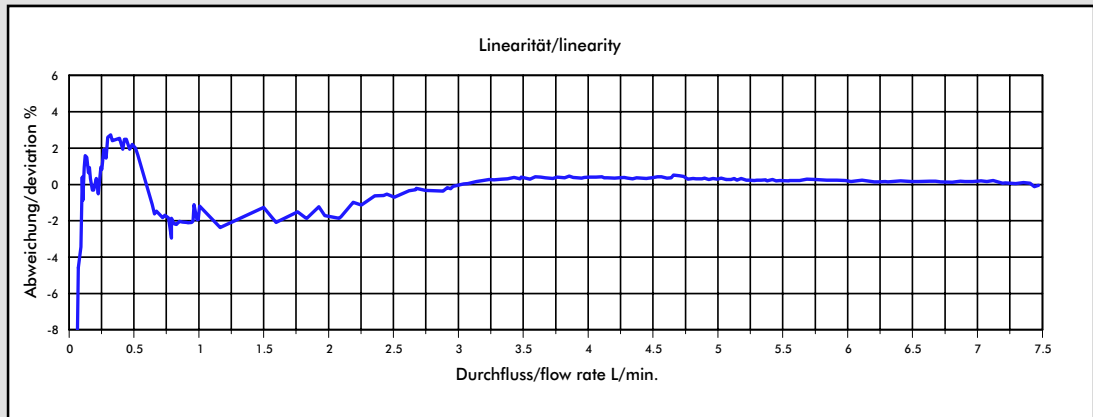
- Ensure that there is no fast-pulsatory movement of the media
- Ensure that there are no reverse pressure surges
- Ensure that there is no air in the system
- Note the mounting position of the flowmeter
- Min/max flow should be in the linear range of the selected flowmeter
- Clean the system at appropriate 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.**

# Measurement Curve FHKU 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

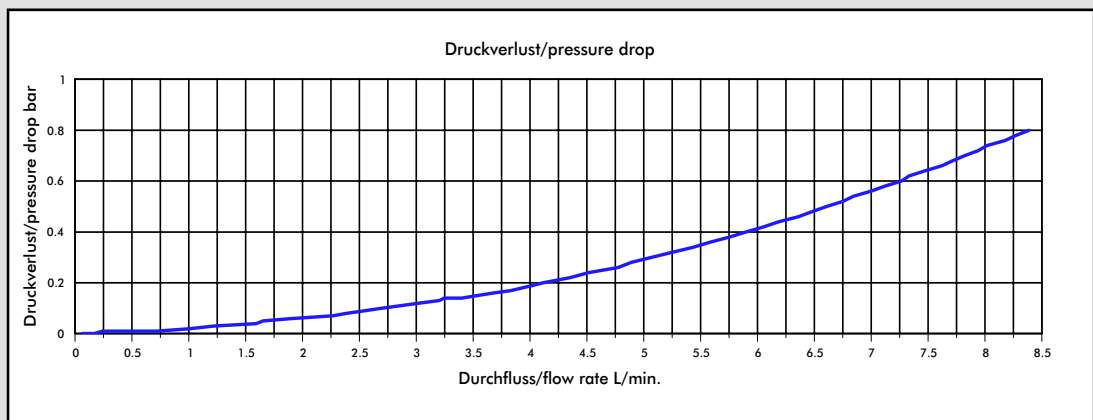
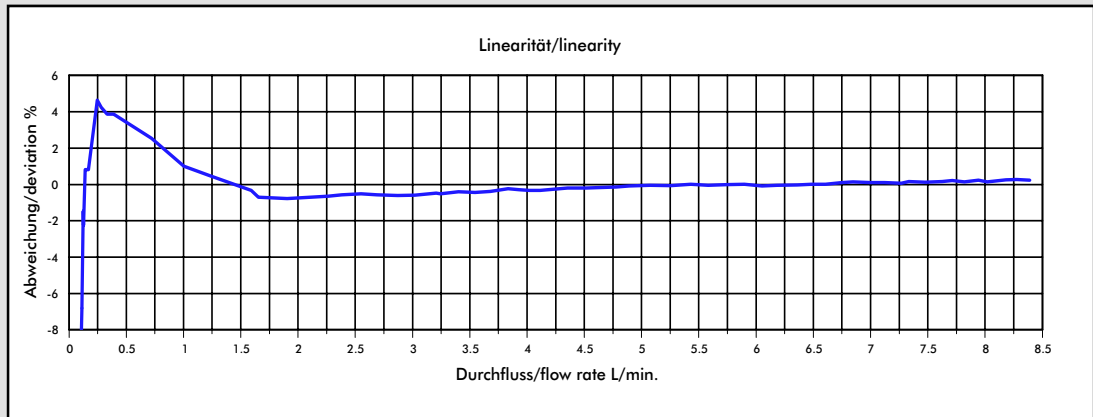
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

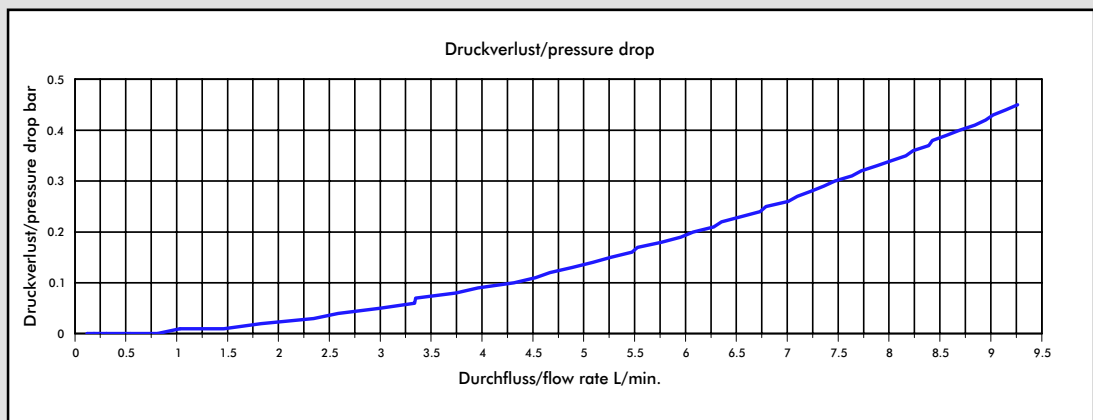
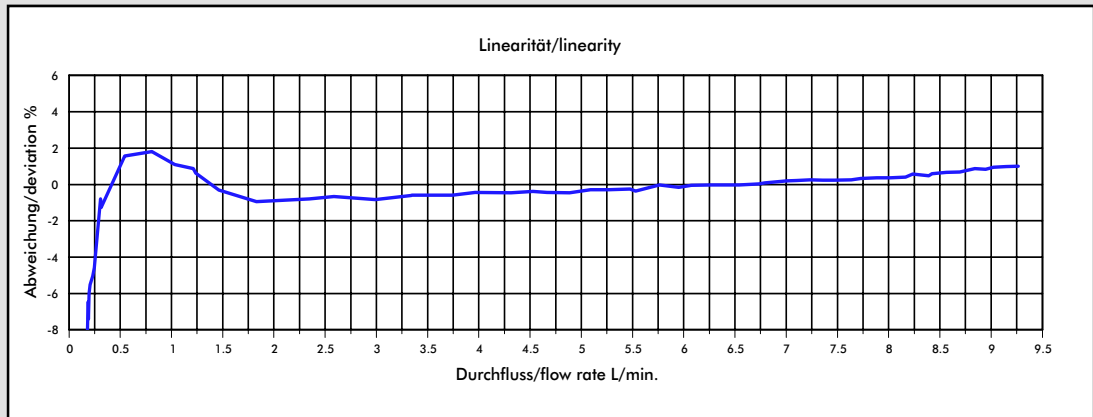
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

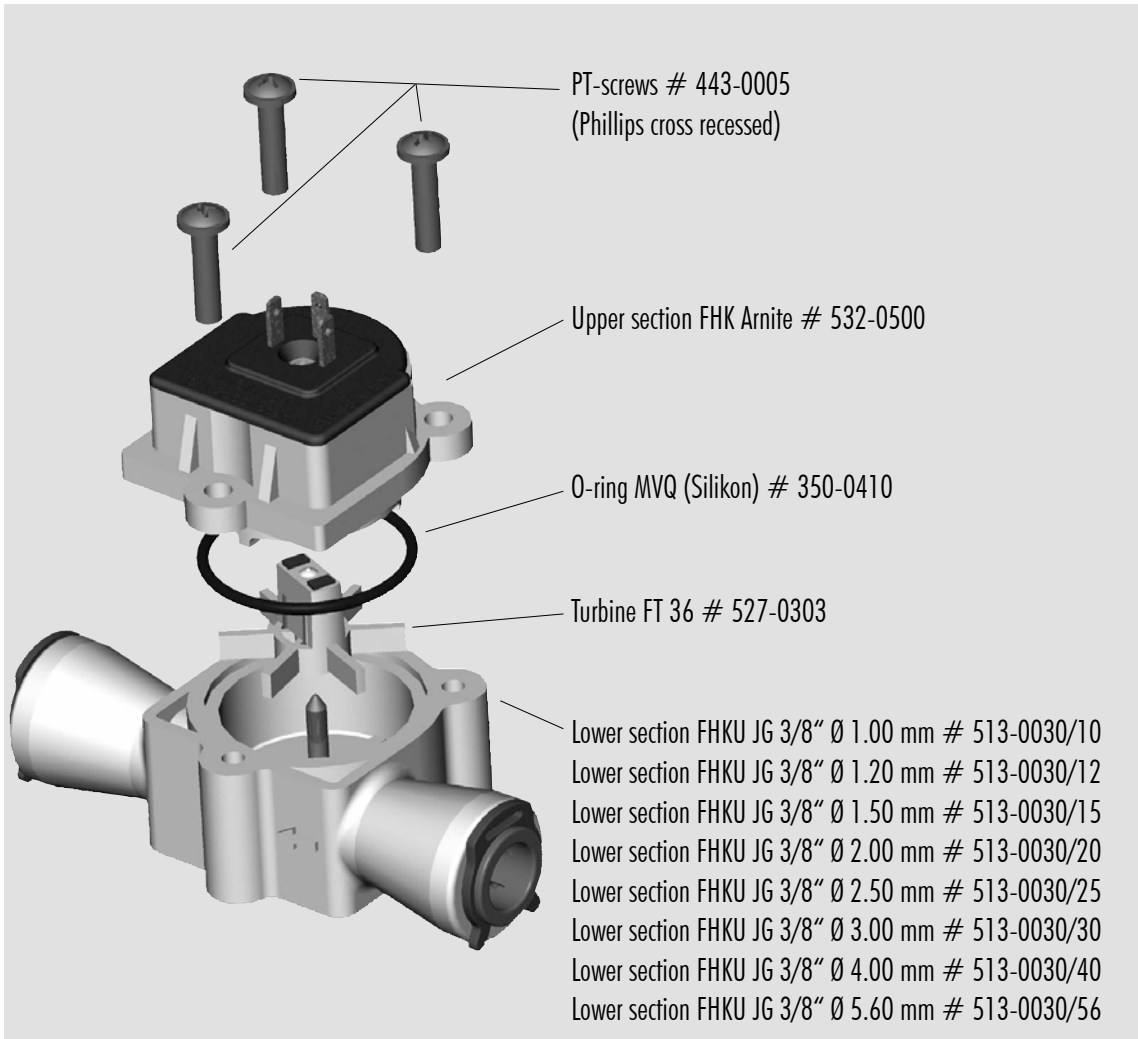
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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)

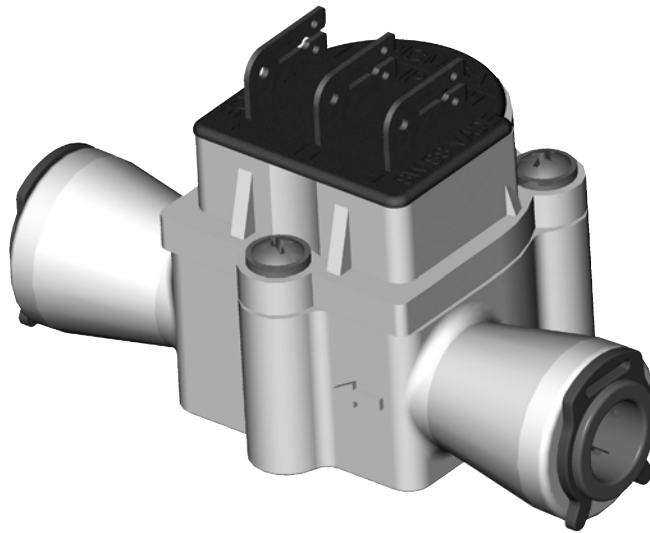
# Spare parts:



**Notes:**




# DATA SHEET



**DIGIMESA** 

---

FHKUF John Guest 3/8" Arnite  
Part number: 938-75XX/02

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU JG 3/8" 938-75XX/02 GB Page 1-13

# General Description

The FHKU JG Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. Hose diameters from 3/8" (9.5mm) can be directly connected.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35% GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
Nozzle:	Inox 1.4305 (18/8) PTFE on request
O-ring:	MVQ (Silikon) FPM (Viton) / EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

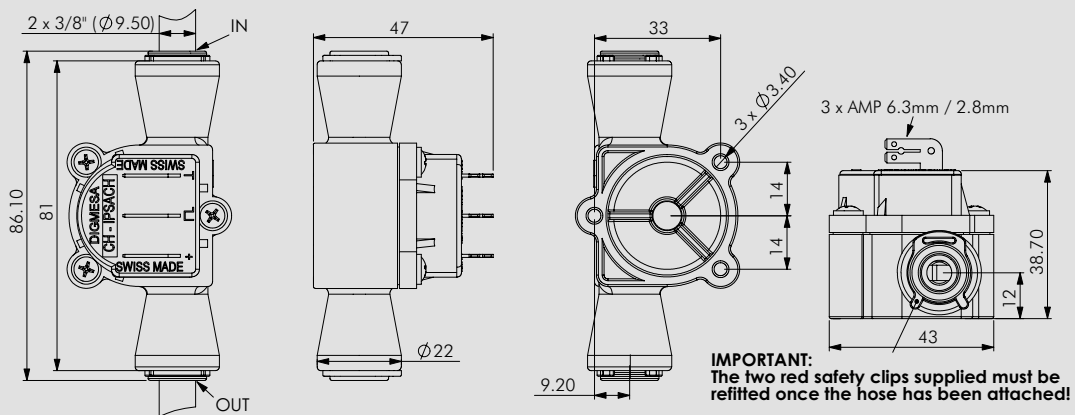
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	as shown on page 3
Pressure range:	as shown on page 3
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	Faston AMP 6.3 x 2.8mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## 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)!

## 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!

## Working Pressure and Temperature Range

**Super Speedfit** fittings are suitable for the following

Temp .	Pressure	
	5/32"- 5/16" 4mm - 8mm	3/8"-1/2" 10mm - 22mm
<b>Air</b>		
- 20°C	16 Bar	10 Bar
<b>Potable Liquids and Air</b>		
+1°C	16 Bar	10 Bar
+23°C	16 Bar	10 Bar
+65°C	10 Bar	7 Bar

Also suitable for vacuum

Depending on the tube used, under certain conditions fittings may be used at higher pressures and temperatures. Please refer to our Customer Services Department for guidance. Note 1 Bar = 14.5 PSIG.

## Tube Types

**Plastic Tube** - Polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall tube we recommend the use of tube inserts.

**Braided Tube** - Use of Tube to Hose Stems listed on pages 5 and 12 is essential when using tube. Use of clamps to retain braided tube on barbs is recommended.

**Metal Tube (soft)** - Brass, copper or mild steel conforming to the tolerances below.

**Metal Tube (hard)** - We do not recommend **Super Speedfit** fittings for hard metal tubes.

For stainless steel and other polished metal tubes we recommend the use of **Superseal** fittings. These are shown on page 9 of this brochure.

It is essential that outside diameters be free from score marks and that the tube be deburred before inserting the fitting.

## Tube Tolerances

**Super Speedfit** fittings are offered for tubes with outside diameters to the following tolerances.

Size (inches)	5/32 - 3/16	1/4 - 1/2
Tolerance (inches)	+0.001 / -0.003	+0.001 / -0.004
Size (mm)	4mm- 5mm	6mm- 22mm
Tolerance (mm)	+0.05 / -0.07	+0.05 / -0.10

Phone: (49)-521 / 9 72 56-0  
 Fax: (49)-521 / 9 72 56-80  
 Internet: <http://www.johnguest.com>  
<http://www.speedfit.co.uk>

We reserve the right to make modifications in the interests of technical progress.

## Installation and System Testing

**Fittings and tube should be kept clean and undamaged before use.**

All tube and fittings installations must be pressure tested after installation to ensure system integrity before handing over to the final user. See also "How to make a connection".

## Chemicals

For use with chemicals or other potentially aggressive liquids, please refer to our Customer Services Department.

**Super Speedfit** fittings are not recommended for use with explosive gases, petroleum spirits, and other fuels or for central heating systems.

## Collet Covers

Are available as additional security against removal of the tube or to provide a simple means of colour coding. The cover is offered in a range of six colours. Please see pages 6 and 12 of this brochure.

## Food Quality

All the fittings in the brochure are produced in Food and Drug Administration (FDA) approved materials and are therefore recommended for food quality applications.



## Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

	Threads		
	1/8 - 1/4	3/8 - 1/2	3/4
Max. Torque	1.5Nm	3.0Nm	4.0Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.
- The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British or International thread standard.

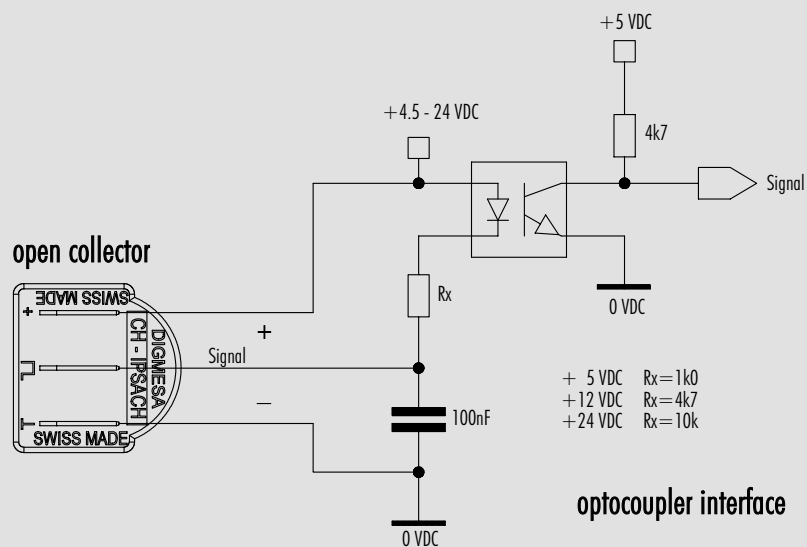
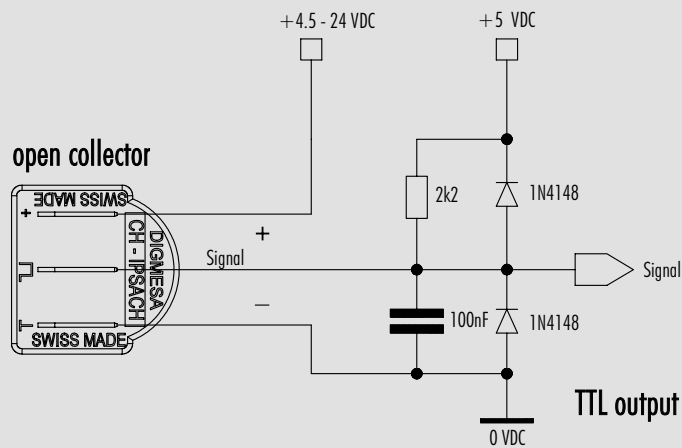
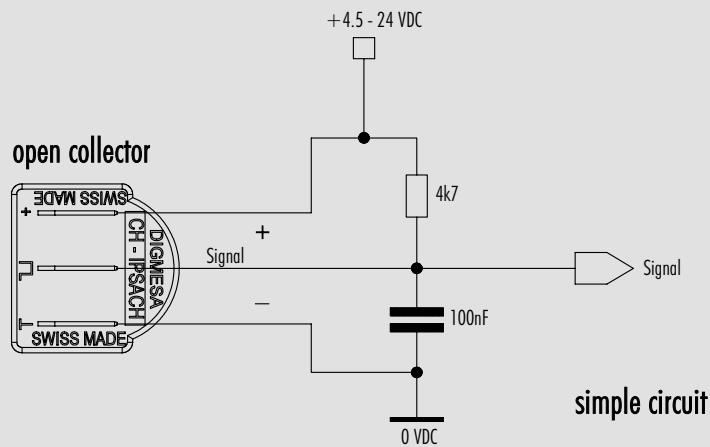
## Cleaners and Sanitising of Acetal Fittings

Our advice to customers is to use cleaners and sanitising agents that are above pH4 and low in hypochlorite level. Acetal fittings and parts that are cleaned and/or sanitised should be rinsed immediately with copious amounts of clean tap water to remove all traces of the cleaners. Details of which products are made from acetal are shown in our catalogues but generally John Guest products incorporating acetal are designated by the part number prefix PI, PM, CI, CM and RM. Polypropylene fittings offer greater resistance to aggressive chemicals than acetal fittings. Polypropylene does not have the same mechanical properties as acetal and John Guest polypropylene fittings are generally designated by the part number prefix PP. Our material suppliers recommend ECOLAB Oasis 133 as a suitable external cleaner for acetal products manufactured by John Guest.

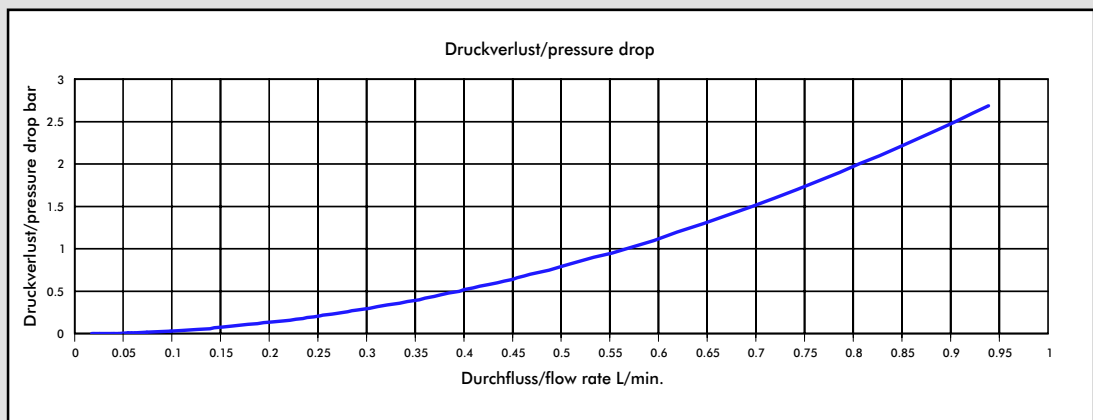
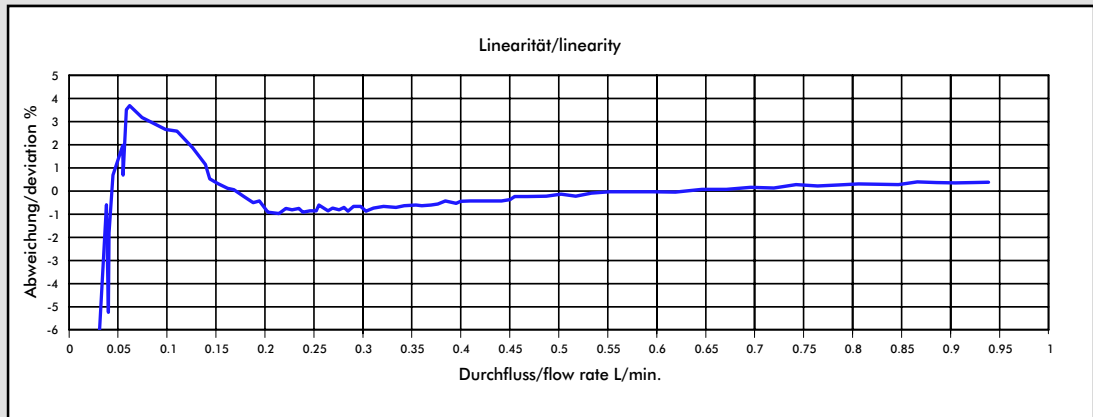
## Warranty

Whilst we give a warranty against defects in manufacture or materials, it is the responsibility of the specifier to ensure that fittings and related products are suitable for their application. The installation must be carried out correctly in accordance with our recommendations, complying with recognised codes of practice and relevant national

# Interface Connection: Examples Open Collector



# Measurement Curve FHKU 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

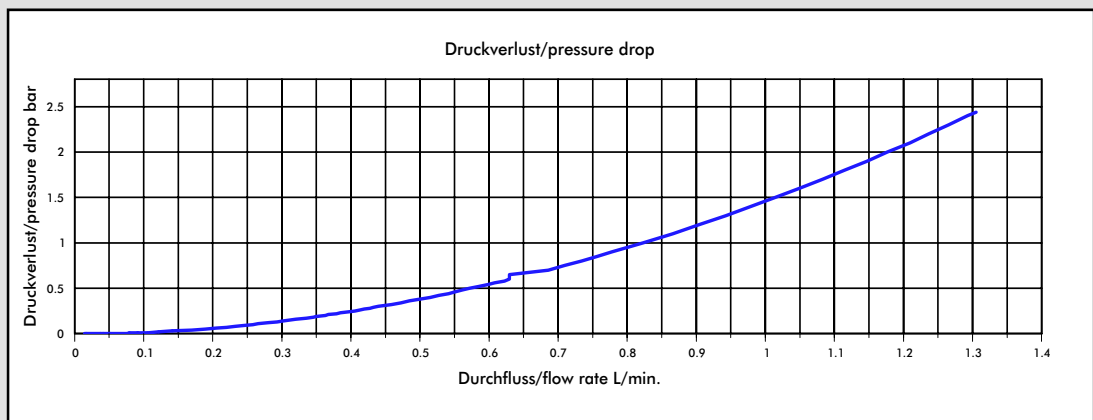
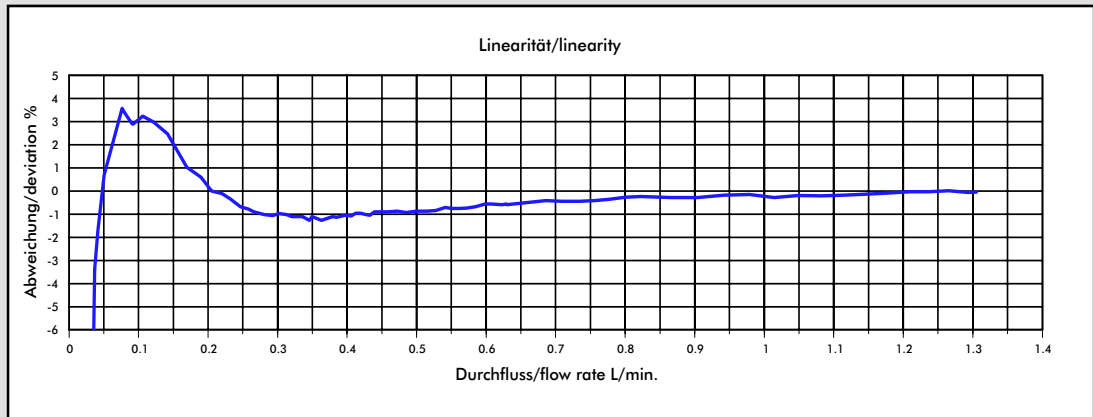
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

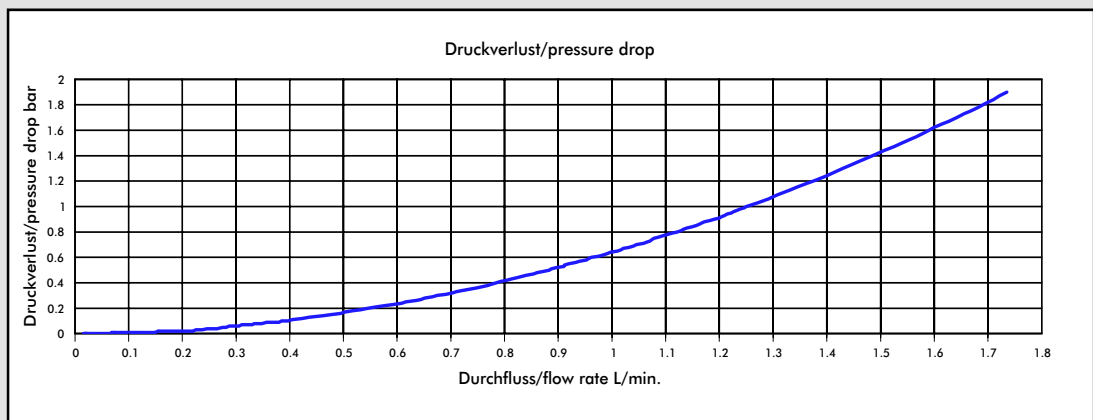
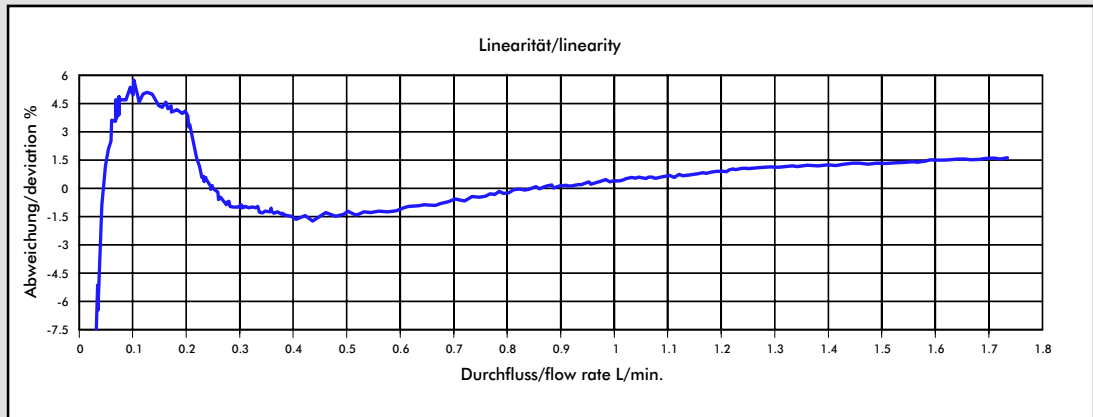
**The values specified must be considered as approximate values.**  
**The number of pulses per litre may differ depending on medium and installation.**  
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

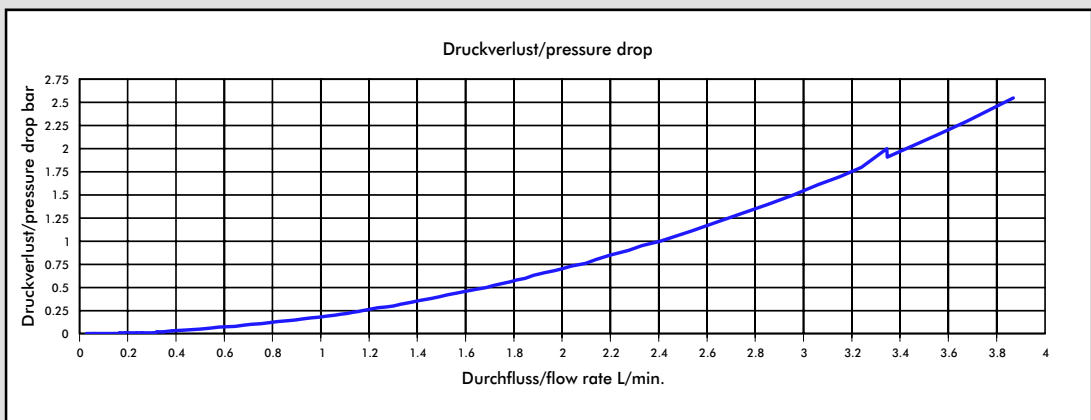
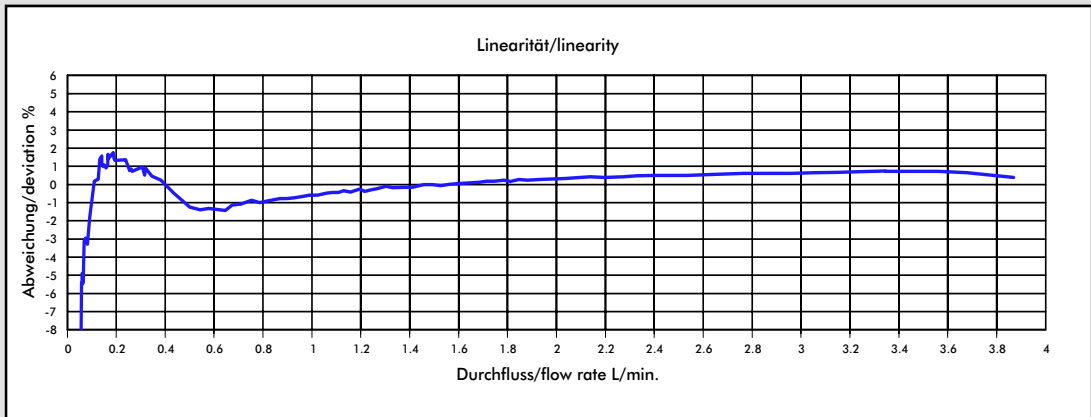
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

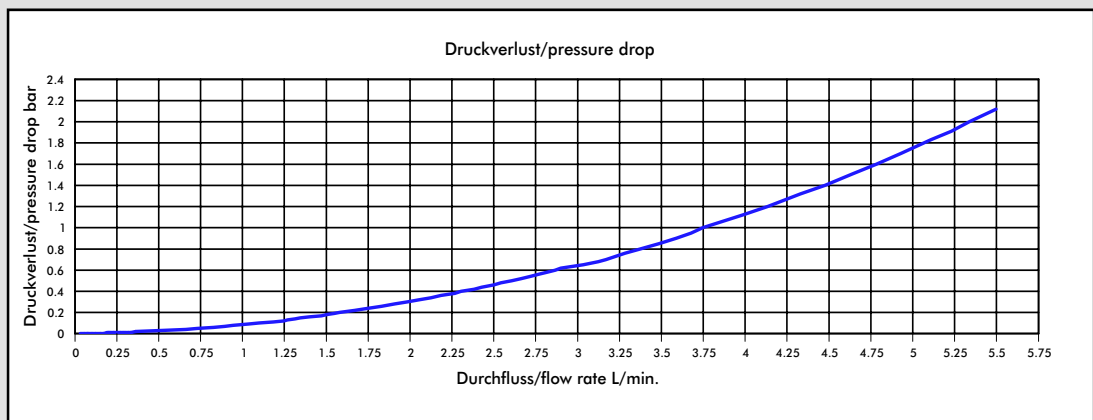
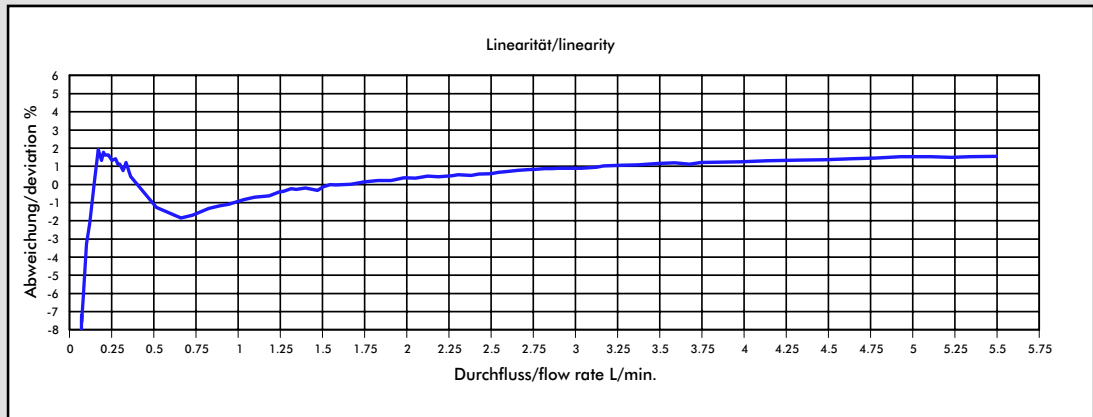
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

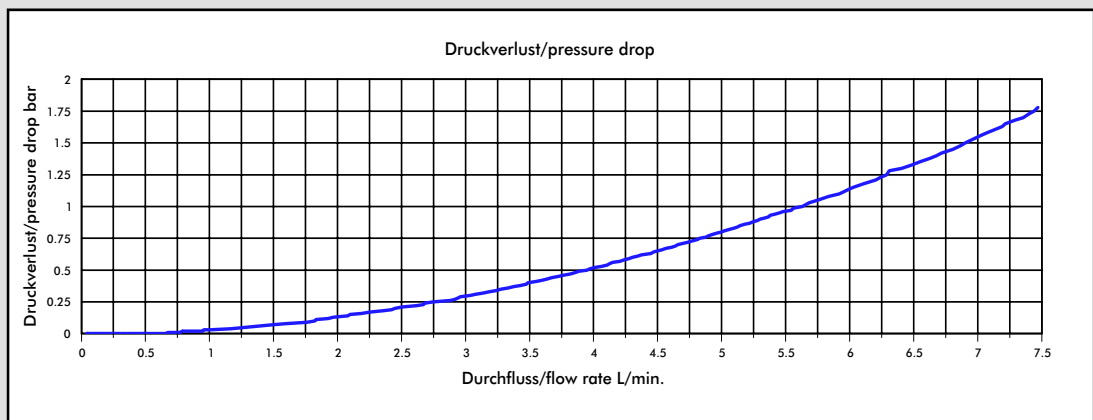
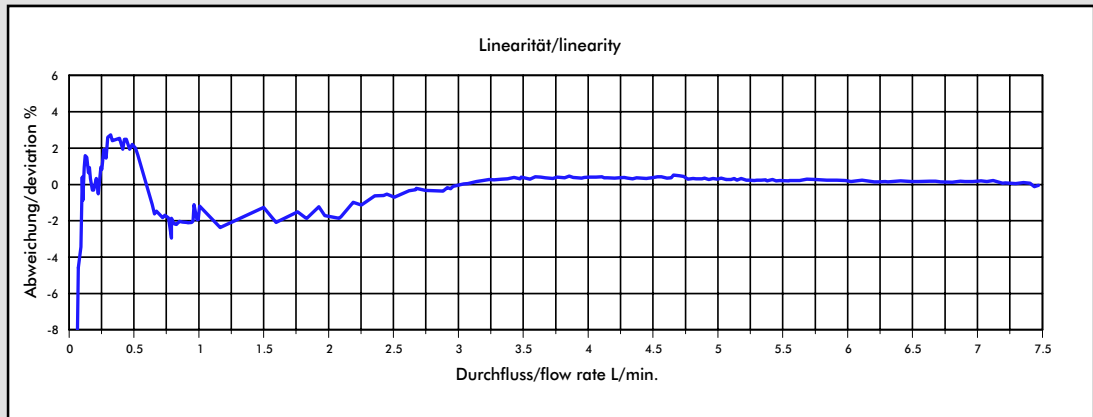
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

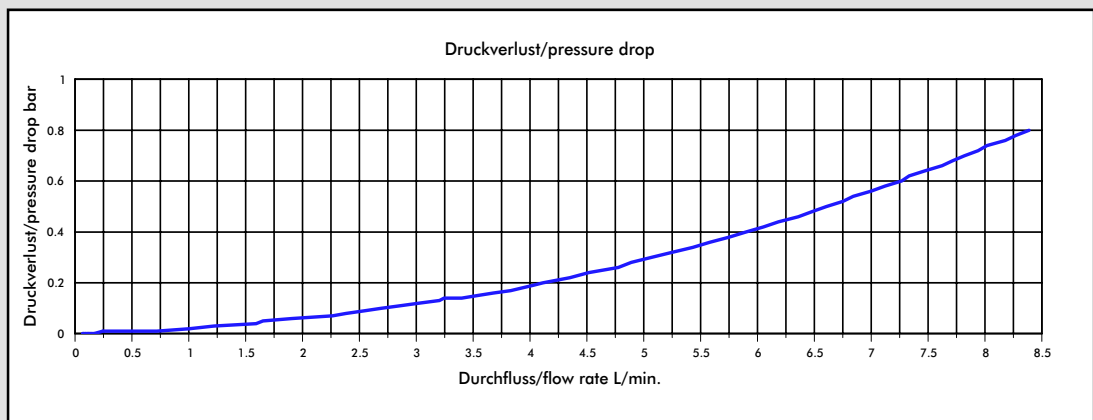
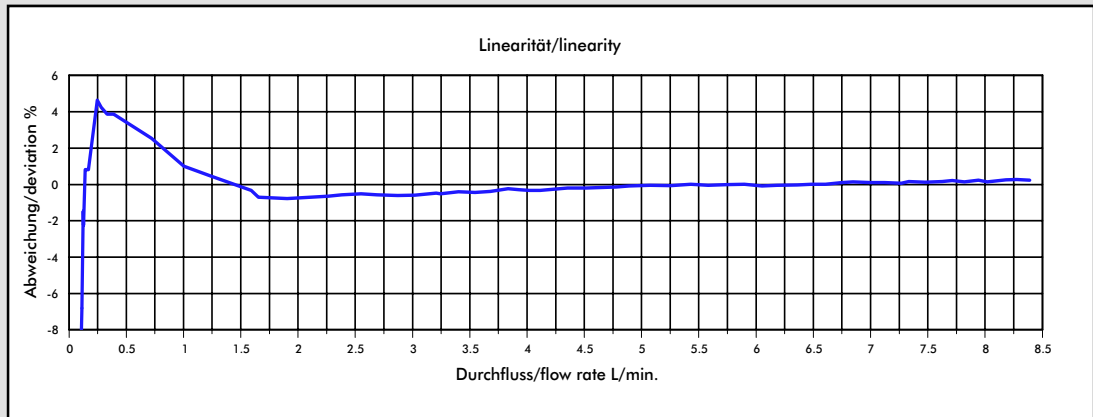
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

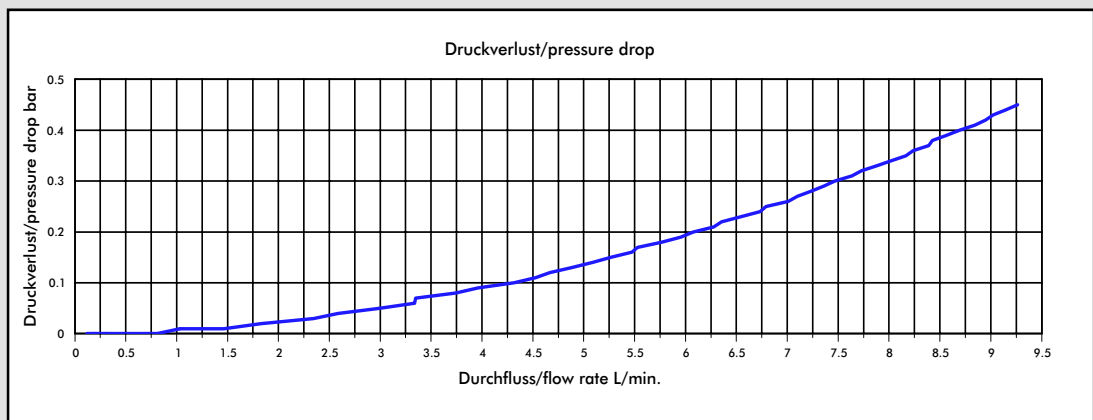
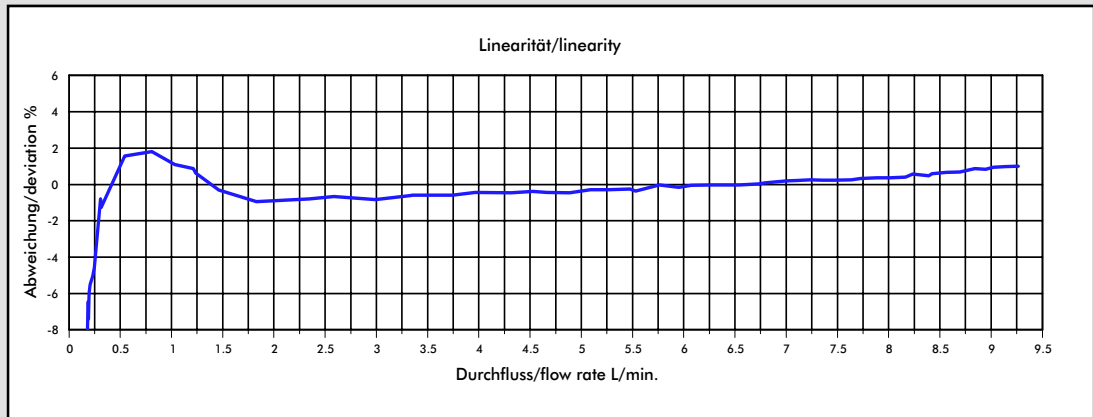
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

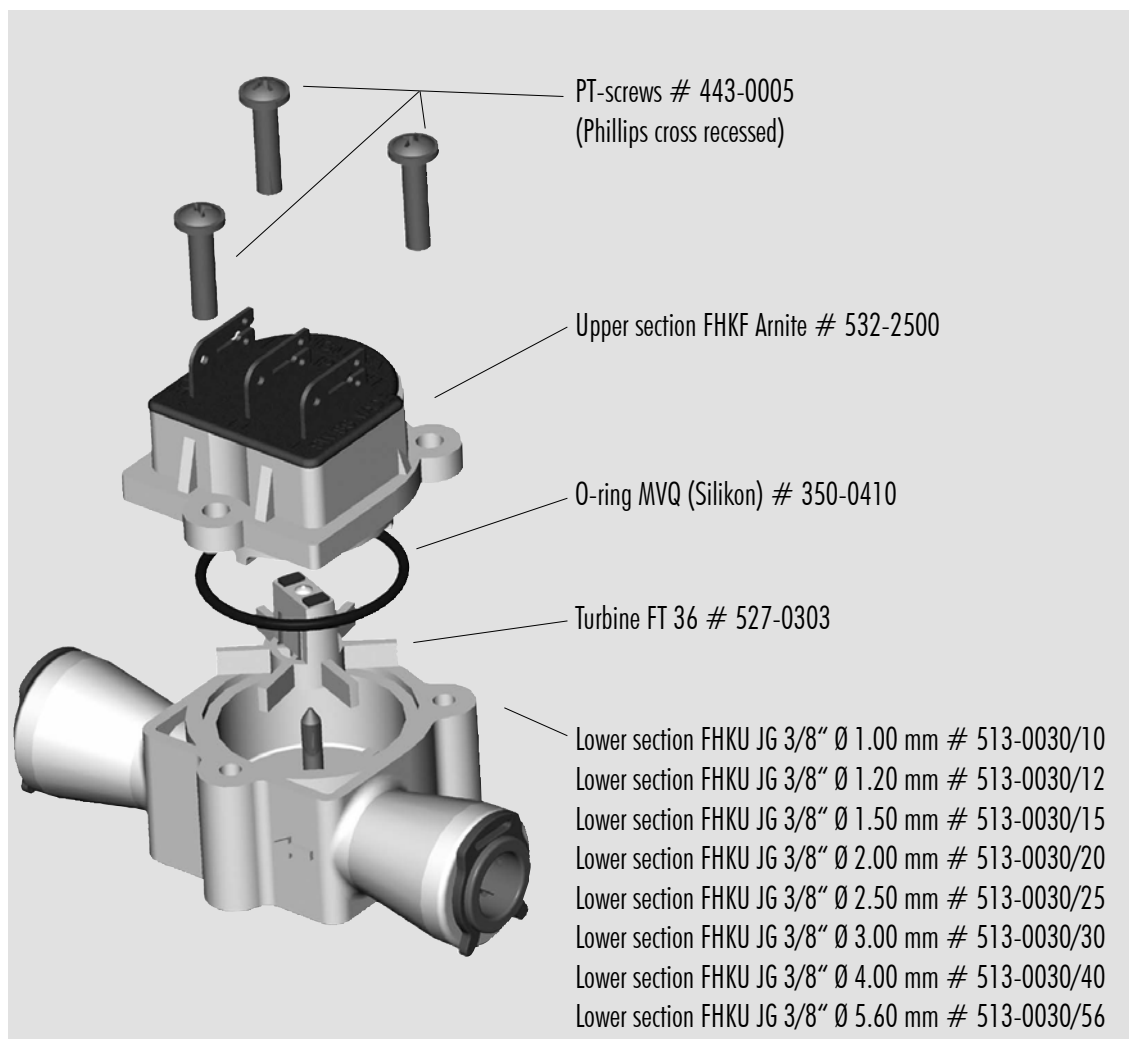
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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:

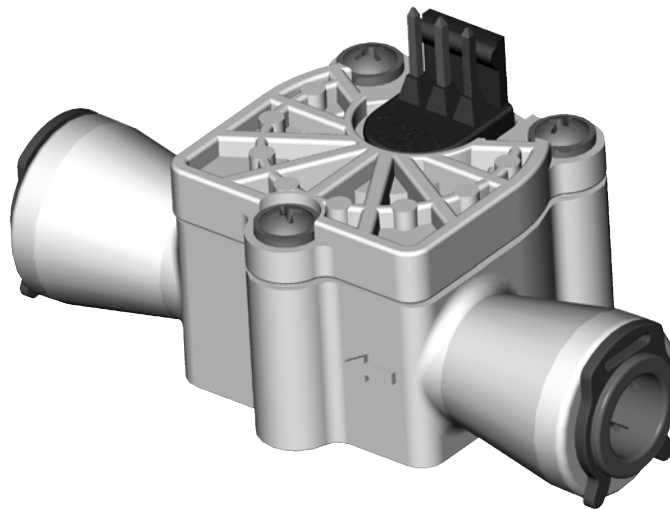


## Notes:

**DIGMESA**



# DATA SHEET



## **DIGIMESA**

---

FHKUC John Guest 3/8" Arnite  
Part number: 938-75XX/03

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU JG 3/8" 938-75XX/03 GB Page 1-13

# General Description

The FHKU JG Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. Hose diameters from 3/8" (9.5mm) can be directly connected.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35% GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
Nozzle:	Inox 1.4305 (18/8) PTFE on request
O-ring:	MVQ (Silikon) FPM (Viton) / EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

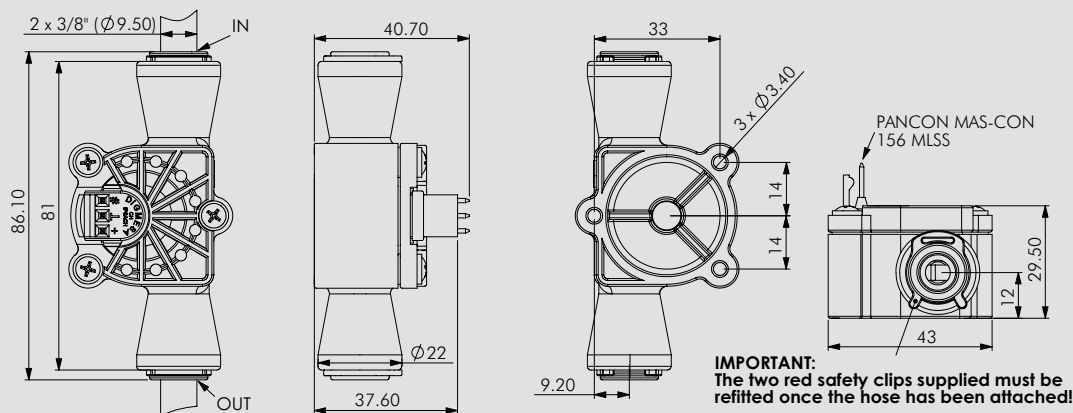
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	as shown on page 3
Pressure range:	as shown on page 3
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	PANCON MAS-CON 156 MLSS
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## 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)!

## 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!

## Working Pressure and Temperature Range

**Super Speedfit** fittings are suitable for the following

Temp .	Pressure	
	5/32"- 5/16" 4mm - 8mm	3/8"-1/2" 10mm - 22mm
<b>Air</b>		
- 20°C	16 Bar	10 Bar
<b>Potable Liquids and Air</b>		
+1°C	16 Bar	10 Bar
+23°C	16 Bar	10 Bar
+65°C	10 Bar	7 Bar

Also suitable for vacuum

Depending on the tube used, under certain conditions fittings may be used at higher pressures and temperatures. Please refer to our Customer Services Department for guidance. Note 1 Bar = 14.5 PSIG.

## Tube Types

**Plastic Tube** - Polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall tube we recommend the use of tube inserts.

**Braided Tube** - Use of Tube to Hose Stems listed on pages 5 and 12 is essential when using tube. Use of clamps to retain braided tube on barbs is recommended.

**Metal Tube (soft)** - Brass, copper or mild steel conforming to the tolerances below.

**Metal Tube (hard)** - We do not recommend **Super Speedfit** fittings for hard metal tubes.

For stainless steel and other polished metal tubes we recommend the use of **Superseal** fittings. These are shown on page 9 of this brochure.

It is essential that outside diameters be free from score marks and that the tube be deburred before inserting the fitting.

## Tube Tolerances

**Super Speedfit** fittings are offered for tubes with outside diameters to the following tolerances.

Size (inches)	5/32 - 3/16	1/4 - 1/2
Tolerance (inches)	+0.001 / -0.003	+0.001 / -0.004
Size (mm)	4mm- 5mm	6mm- 22mm
Tolerance (mm)	+0.05 / -0.07	+0.05 / -0.10

Phone: (49)-521 / 9 72 56-0  
 Fax: (49)-521 / 9 72 56-80  
 Internet: <http://www.johnguest.com>  
<http://www.speedfit.co.uk>

We reserve the right to make modifications in the interests of technical progress.

## Installation and System Testing

**Fittings and tube should be kept clean and undamaged before use.**

All tube and fittings installations must be pressure tested after installation to ensure system integrity before handing over to the final user. See also "How to make a connection".

## Chemicals

For use with chemicals or other potentially aggressive liquids, please refer to our Customer Services Department.

**Super Speedfit** fittings are not recommended for use with explosive gases, petroleum spirits, and other fuels or for central heating systems.

## Collet Covers

Are available as additional security against removal of the tube or to provide a simple means of colour coding. The cover is offered in a range of six colours. Please see pages 6 and 12 of this brochure.

## Food Quality

All the fittings in the brochure are produced in Food and Drug Administration (FDA) approved materials and are therefore recommended for food quality applications.



## Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

	Threads		
	1/8 - 1/4	3/8 - 1/2	3/4
Max. Torque	1.5Nm	3.0Nm	4.0Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.
- The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British or International thread standard.

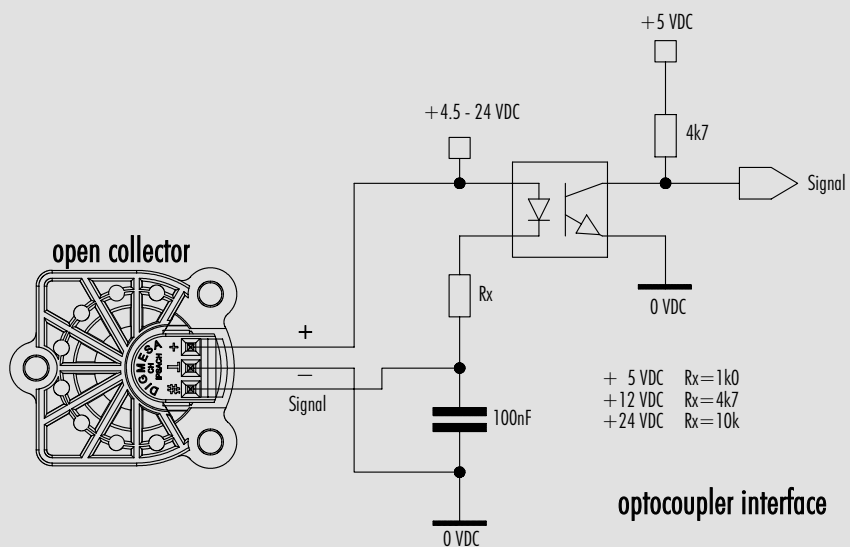
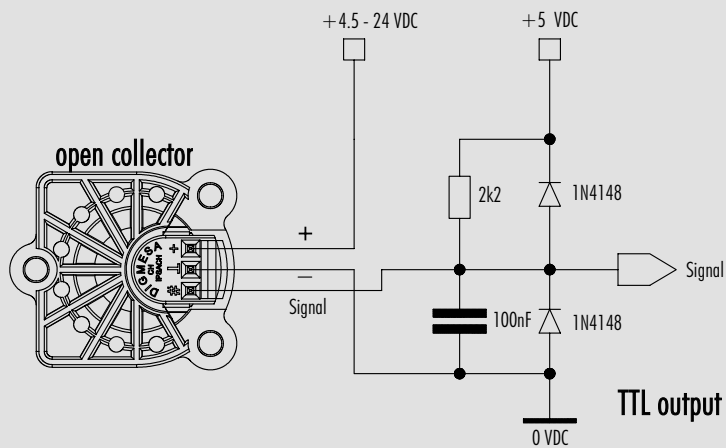
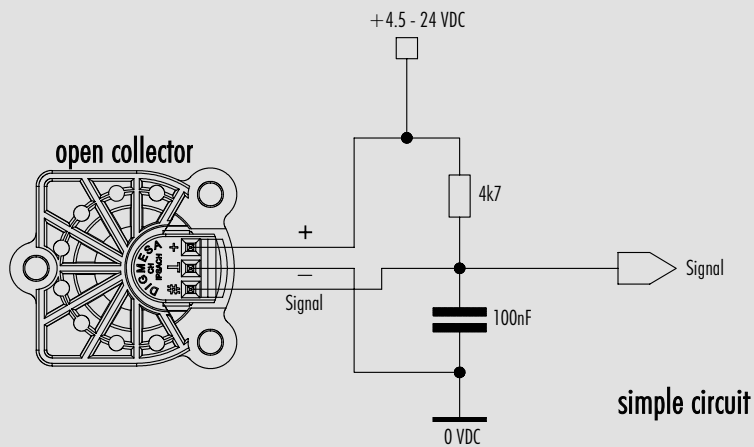
## Cleaners and Sanitising of Acetal Fittings

Our advice to customers is to use cleaners and sanitising agents that are above pH4 and low in hypochlorite level. Acetal fittings and parts that are cleaned and/or sanitised should be rinsed immediately with copious amounts of clean tap water to remove all traces of the cleaners. Details of which products are made from acetal are shown in our catalogues but generally John Guest products incorporating acetal are designated by the part number prefix PI, PM, CI, CM and RM. Polypropylene fittings offer greater resistance to aggressive chemicals than acetal fittings. Polypropylene does not have the same mechanical properties as acetal and John Guest polypropylene fittings are generally designated by the part number prefix PP. Our material suppliers recommend ECOLAB Oasis 133 as a suitable external cleaner for acetal products manufactured by John Guest.

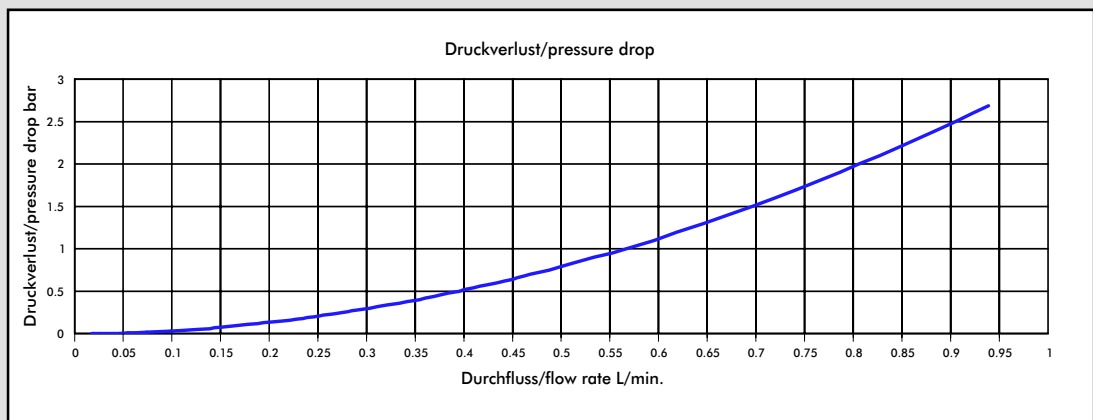
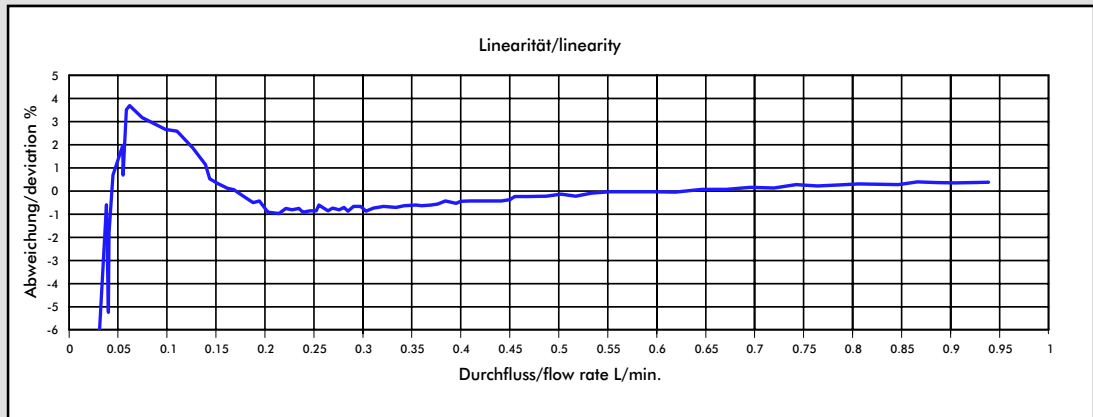
## Warranty

Whilst we give a warranty against defects in manufacture or materials, it is the responsibility of the specifier to ensure that fittings and related products are suitable for their application. The installation must be carried out correctly in accordance with our recommendations, complying with recognised codes of practice and relevant national

# Interface Connection: Examples Open Collector



# Measurement Curve FHKU 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

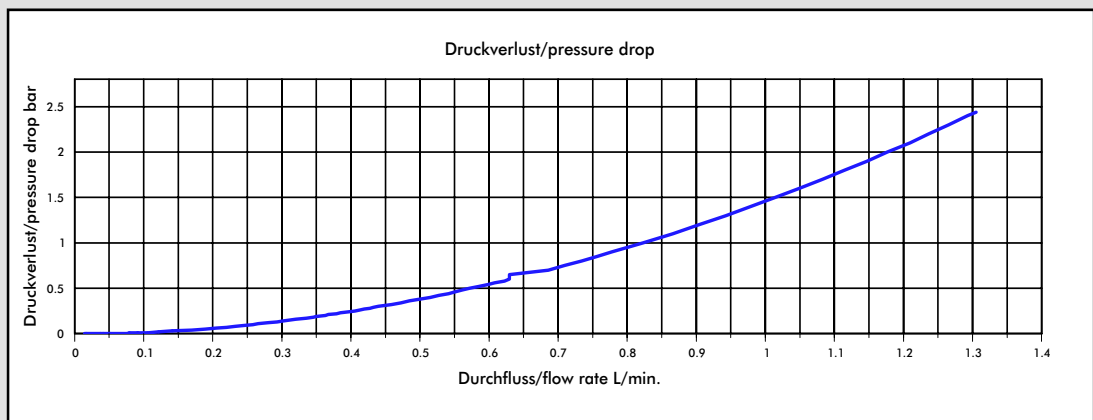
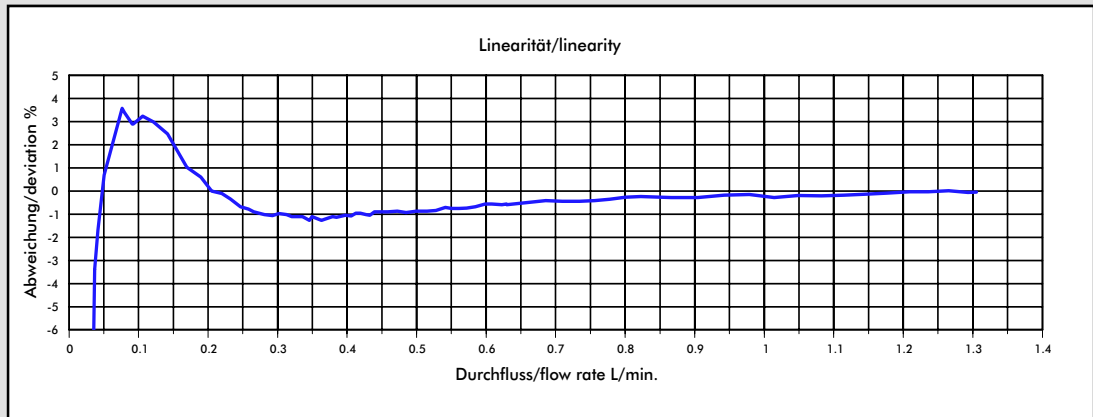
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

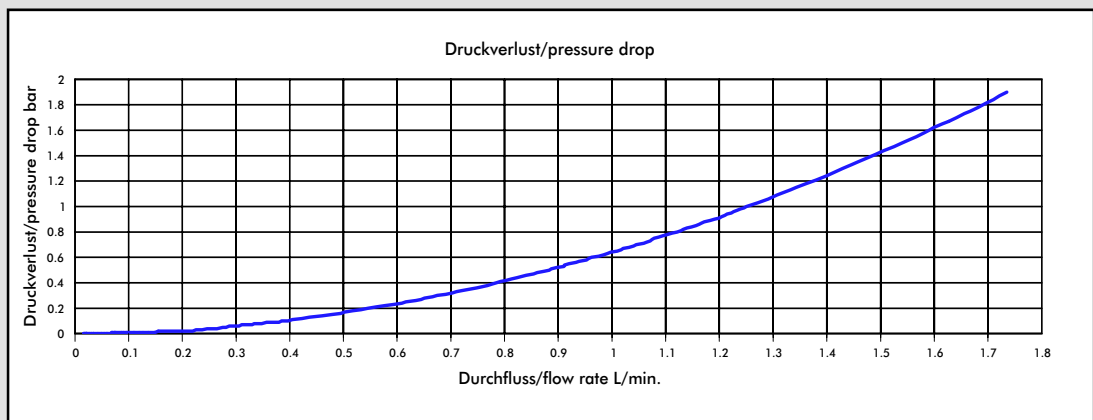
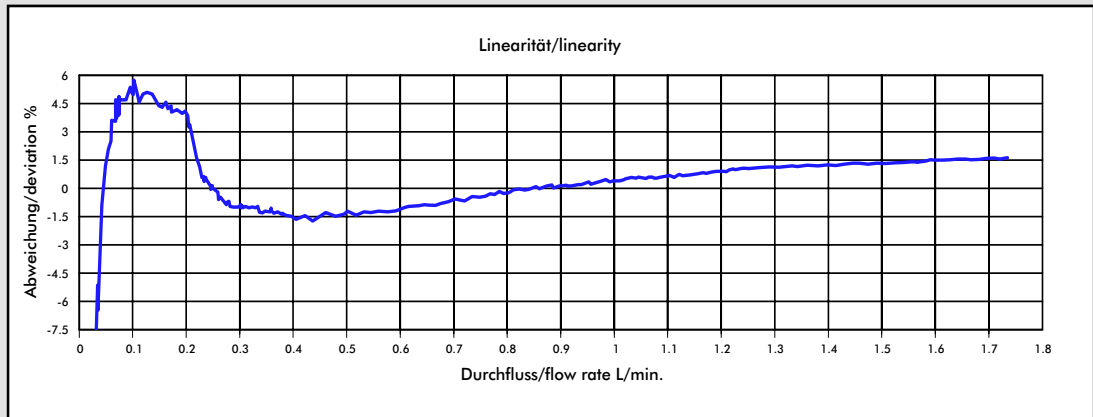
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

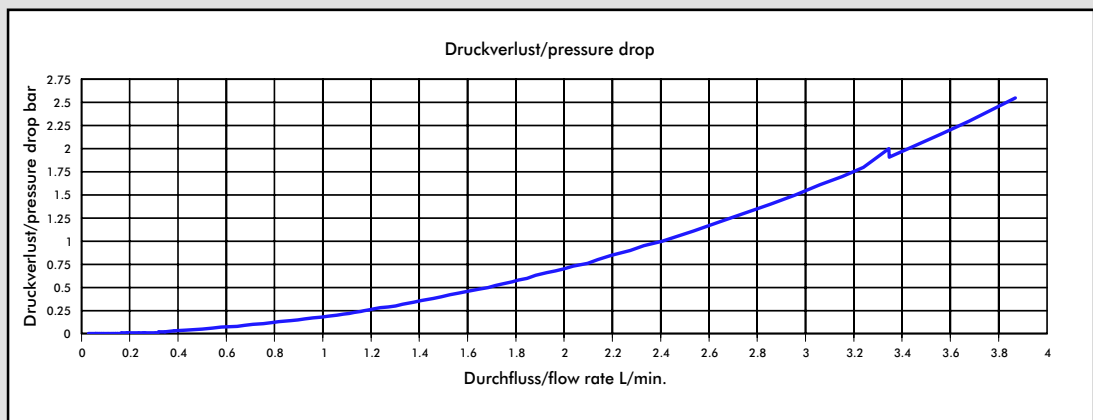
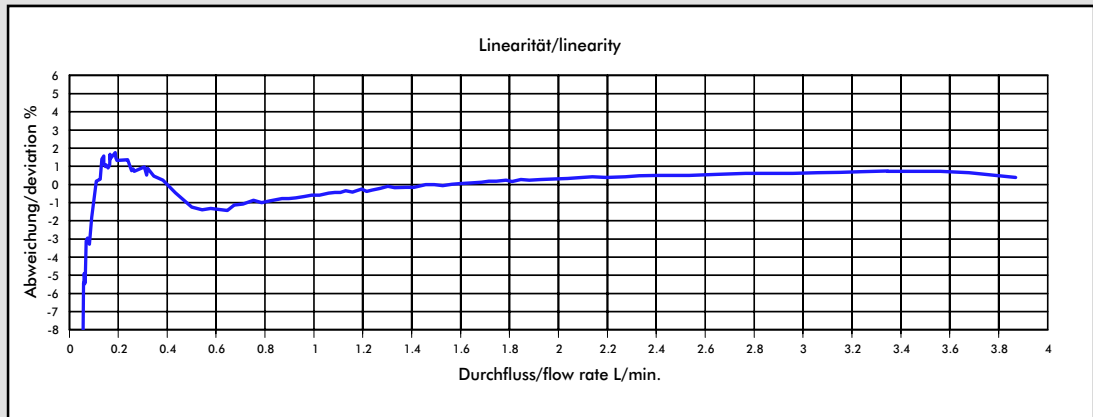
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

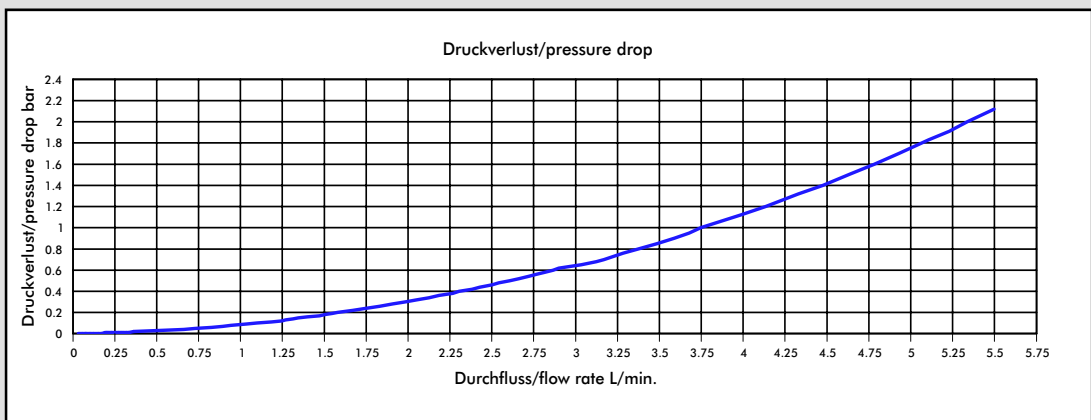
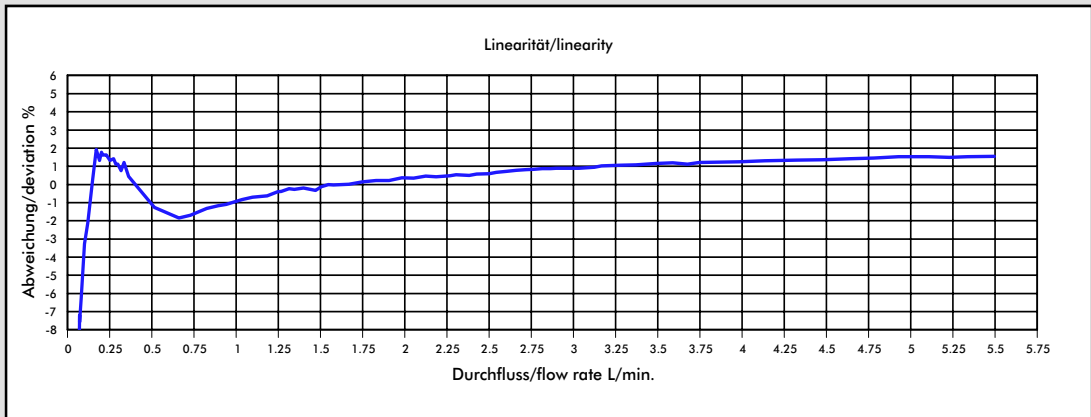
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

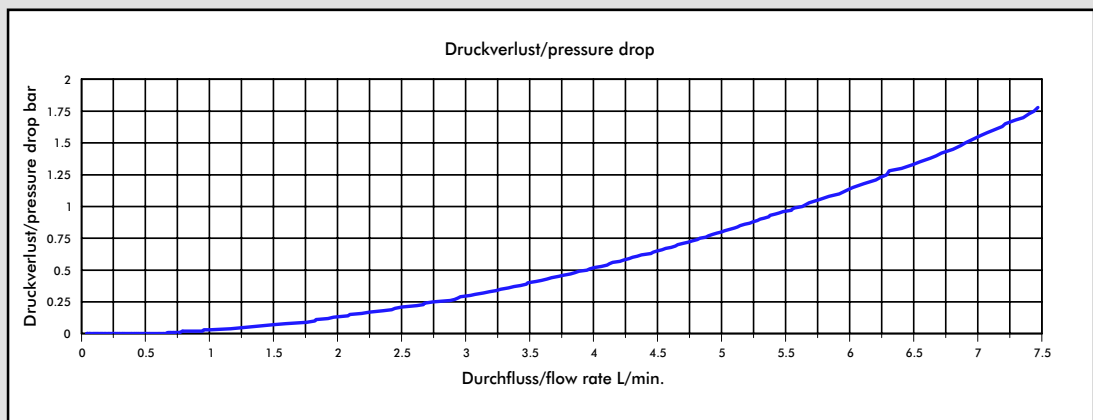
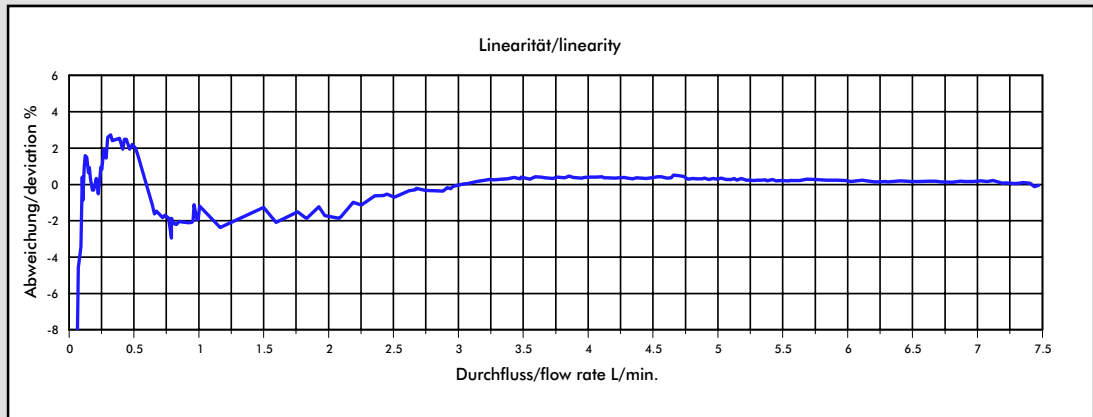
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

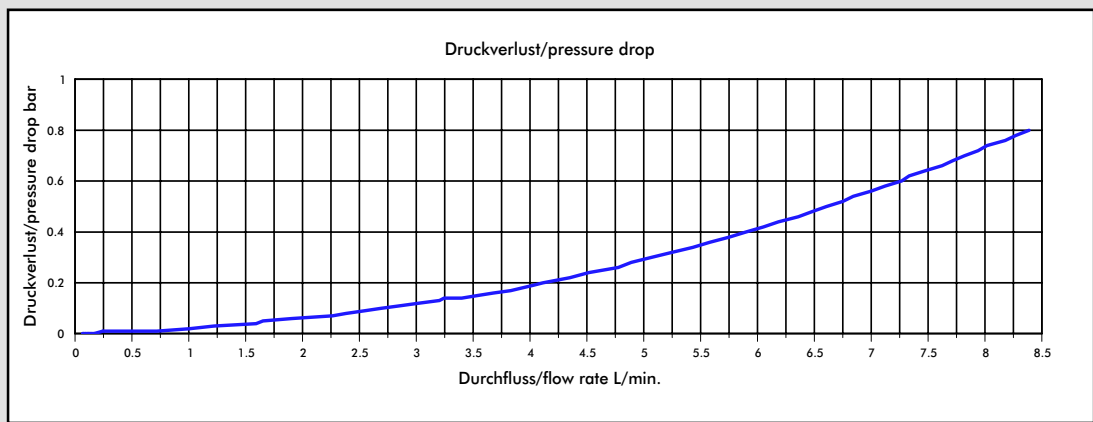
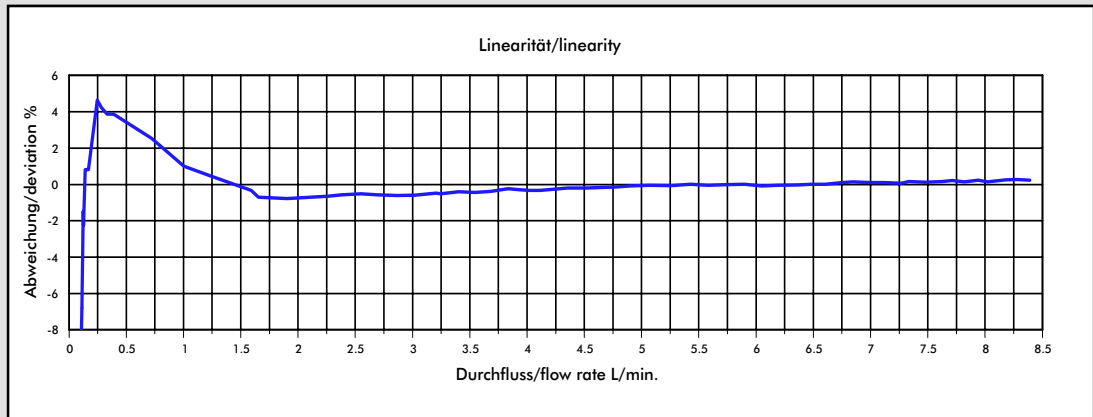
Nozzle size	Pulses/litre	g/pulse	min. flow rate in litres/min at Linear start	max. flow rate in litres/min	Pressure loss
Ø 1.00 mm	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

**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
- 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 FHKU 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

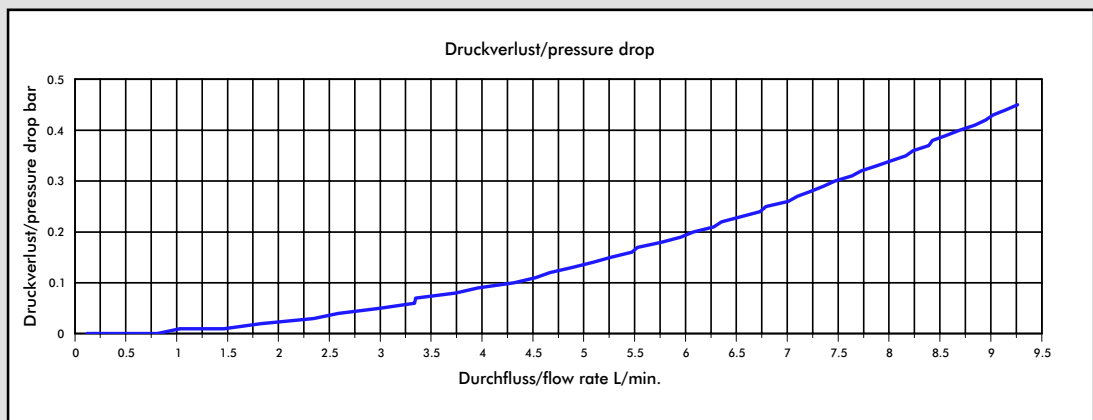
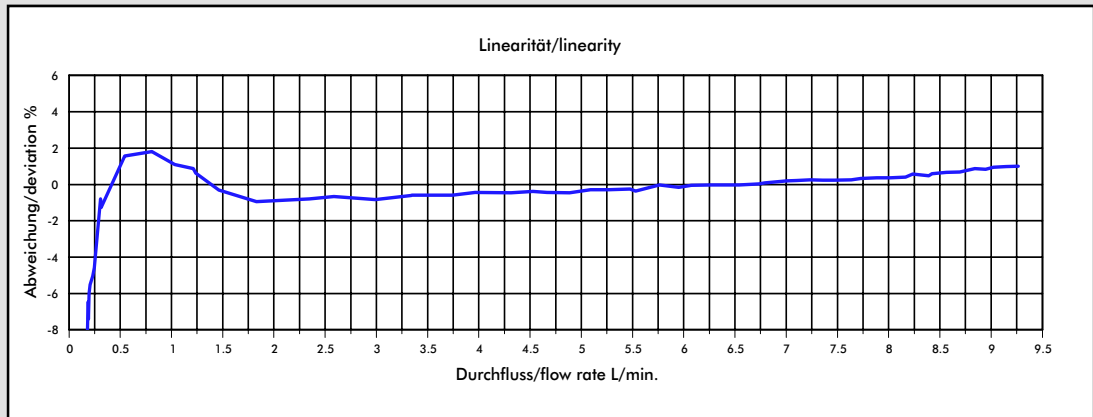
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

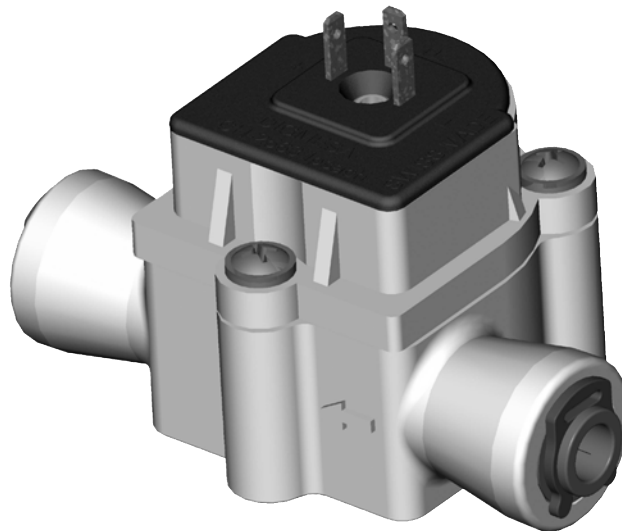
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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)



# DATA SHEET



**DIGIMESA**

---

FHKU John Guest 1/4" Arnite  
Part number: 938-85XX/01

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland

Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU JG 1/4" 938-85XX/01 GB Page 1-13

# General Description

The FHKU JG Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. Hose diameters from 1/4" (6.35mm) can be directly connected.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35% GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
Nozzle:	Inox 1.4305 (18/8) PTFE on request
O-ring:	MVQ (Silikon) FPM (Viton) / EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

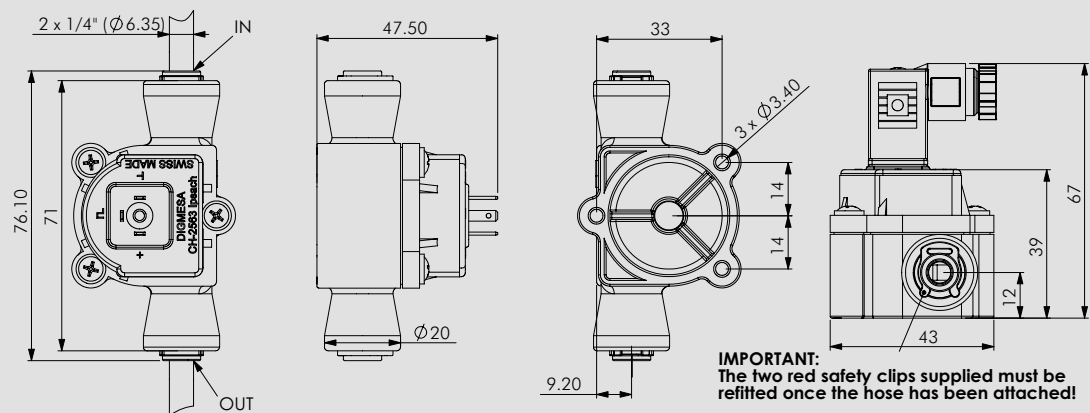
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	as shown on page 3
Pressure range:	as shown on page 3
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

## 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!

Version 01 FHKU JG 1/4" 938-85X/01 GB Page 2-13

## Working Pressure and Temperature Range

**Super Speedfit** fittings are suitable for the following

Temp .	Pressure	
	5/32"- 5/16" 4mm - 8mm	3/8"-1/2" 10mm - 22mm
<b>Air</b>		
- 20°C	16 Bar	10 Bar
<b>Potable Liquids and Air</b>		
+1°C	16 Bar	10 Bar
+23°C	16 Bar	10 Bar
+65°C	10 Bar	7 Bar

Also suitable for vacuum

Depending on the tube used, under certain conditions fittings may be used at higher pressures and temperatures. Please refer to our Customer Services Department for guidance. Note 1 Bar = 14.5 PSIG.

## Tube Types

**Plastic Tube** - Polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall tube we recommend the use of tube inserts.

**Braided Tube** - Use of Tube to Hose Stems listed on pages 5 and 12 is essential when using tube. Use of clamps to retain braided tube on barbs is recommended.

**Metal Tube (soft)** - Brass, copper or mild steel conforming to the tolerances below.

**Metal Tube (hard)** - We do not recommend **Super Speedfit** fittings for hard metal tubes.

For stainless steel and other polished metal tubes we recommend the use of **Superseal** fittings. These are shown on page 9 of this brochure.

It is essential that outside diameters be free from score marks and that the tube be deburred before inserting the fitting.

## Tube Tolerances

**Super Speedfit** fittings are offered for tubes with outside diameters to the following tolerances.

Size (inches)	5/32 - 3/16	1/4 - 1/2
Tolerance (inches)	+0.001 / -0.003	+0.001 / -0.004
Size (mm)	4mm- 5mm	6mm- 22mm
Tolerance (mm)	+0.05 / -0.07	+0.05 / -0.10

Phone: (49)-521 / 9 72 56-0  
 Fax: (49)-521 / 9 72 56-80  
 Internet: <http://www.johnguest.com>  
<http://www.speedfit.co.uk>

We reserve the right to make modifications in the interests of technical progress.

## Installation and System Testing

**Fittings and tube should be kept clean and undamaged before use.**

All tube and fittings installations must be pressure tested after installation to ensure system integrity before handing over to the final user. See also "How to make a connection".

## Chemicals

For use with chemicals or other potentially aggressive liquids, please refer to our Customer Services Department.

**Super Speedfit** fittings are not recommended for use with explosive gases, petroleum spirits, and other fuels or for central heating systems.

## Collet Covers

Are available as additional security against removal of the tube or to provide a simple means of colour coding. The cover is offered in a range of six colours. Please see pages 6 and 12 of this brochure.

## Food Quality

All the fittings in the brochure are produced in Food and Drug Administration (FDA) approved materials and are therefore recommended for food quality applications.



## Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

	Threads		
	1/8 - 1/4	3/8 - 1/2	3/4
Max. Torque	1.5Nm	3.0Nm	4.0Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.
- The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British or International thread standard.

## Cleaners and Sanitising of Acetal Fittings

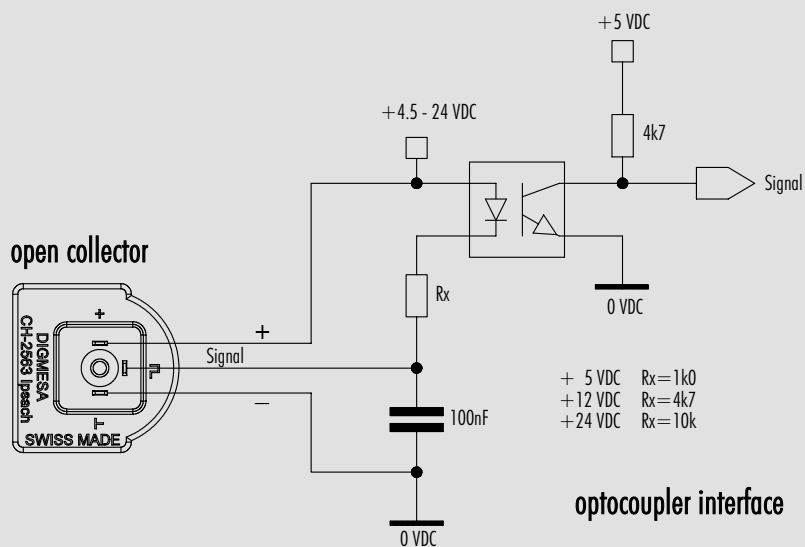
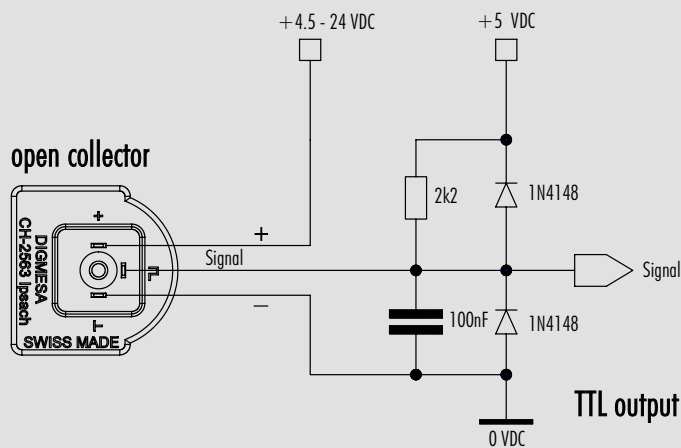
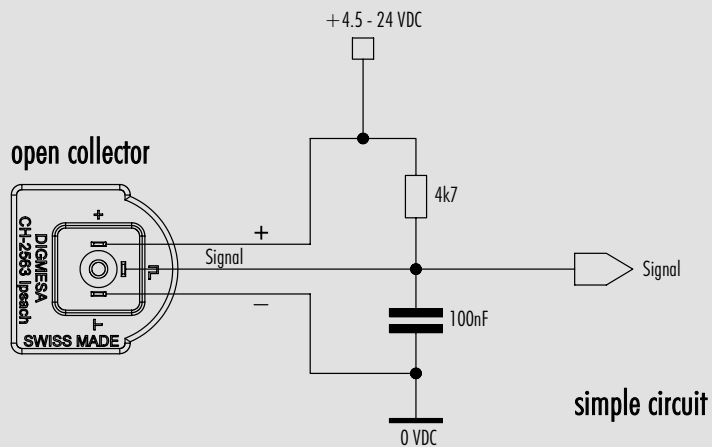
Our advice to customers is to use cleaners and sanitising agents that are above pH4 and low in hypochlorite level. Acetal fittings and parts that are cleaned and/or sanitised should be rinsed immediately with copious amounts of clean tap water to remove all traces of the cleaners. Details of which products are made from acetal are shown in our catalogues but generally John Guest products incorporating acetal are designated by the part number prefix PI, PM, CI, CM and RM. Polypropylene fittings offer greater resistance to aggressive chemicals than acetal fittings. Polypropylene does not have the same mechanical properties as acetal and John Guest polypropylene fittings are generally designated by the part number prefix PP. Our material suppliers recommend ECOLAB Oasis 133 as a suitable external cleaner for acetal products manufactured by John Guest.

## Warranty

Whilst we give a warranty against defects in manufacture or materials, it is the responsibility of the specifier to ensure that fittings and related products are suitable for their application. The installation must be carried out correctly in accordance with our recommendations, complying with recognised codes of practice and relevant national

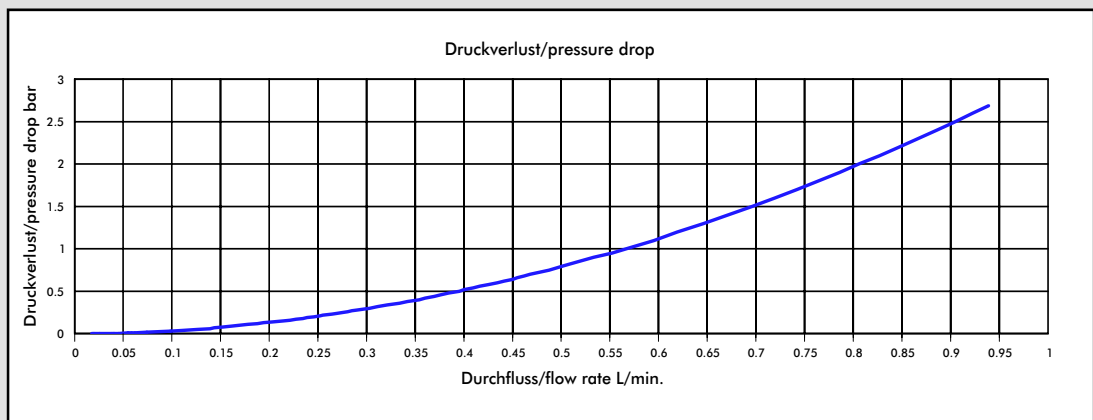
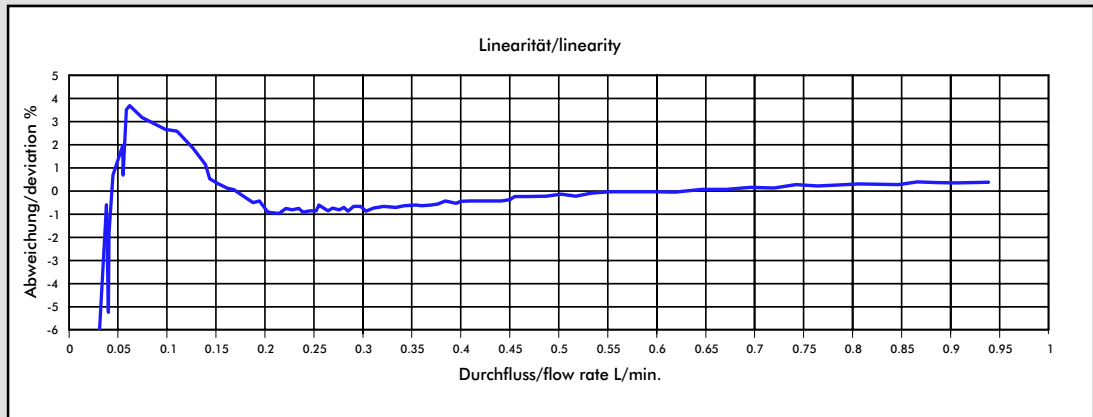


# Interface Connection: Examples Open Collector



Digimesa

# Measurement Curve FHKU 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

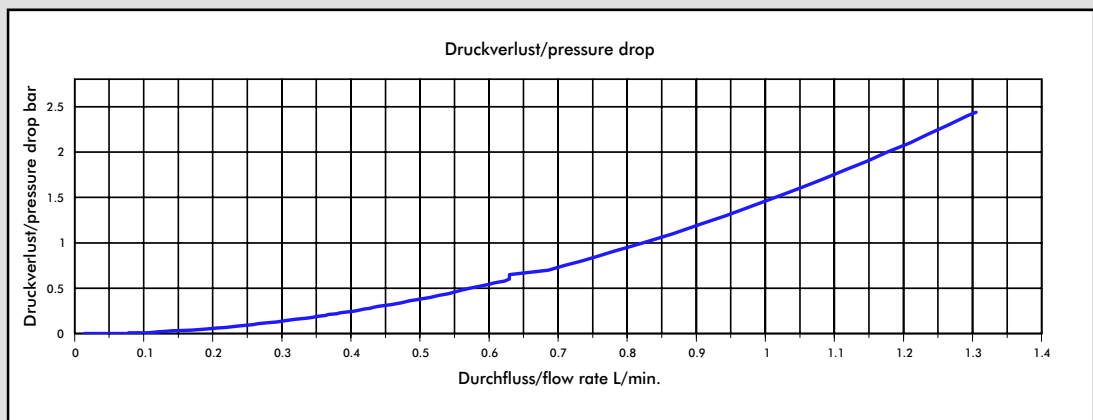
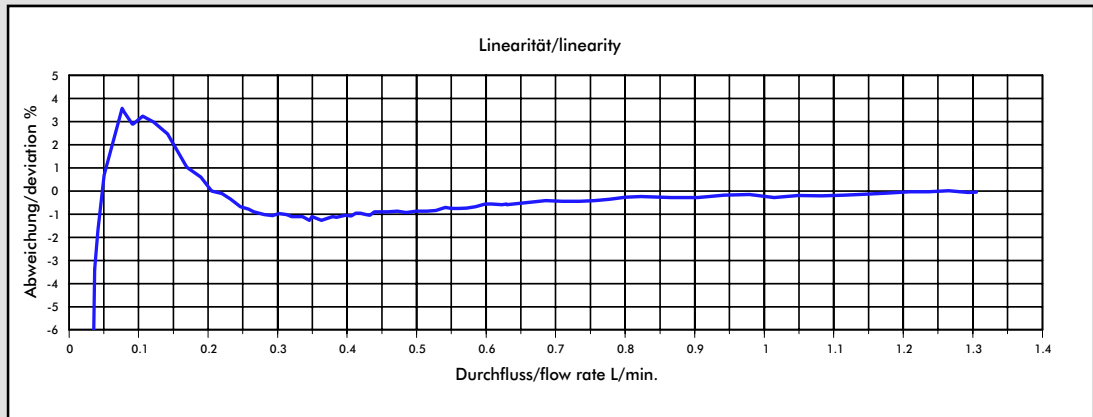
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

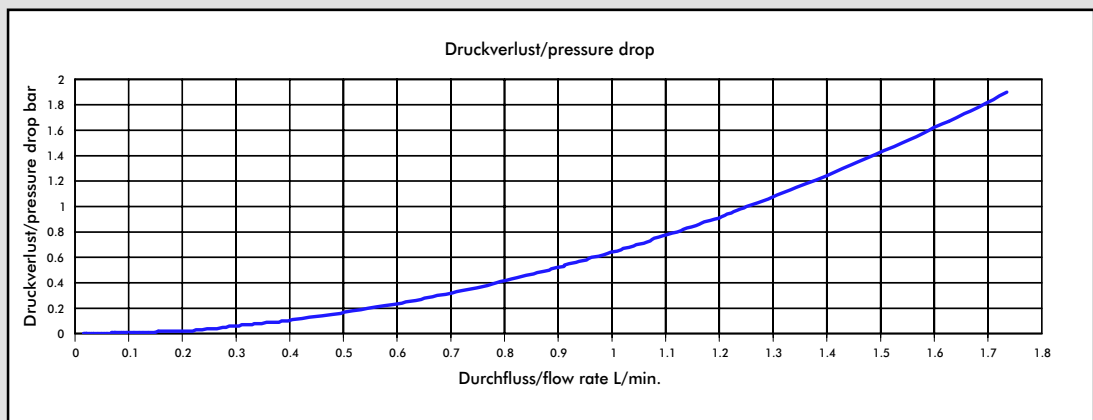
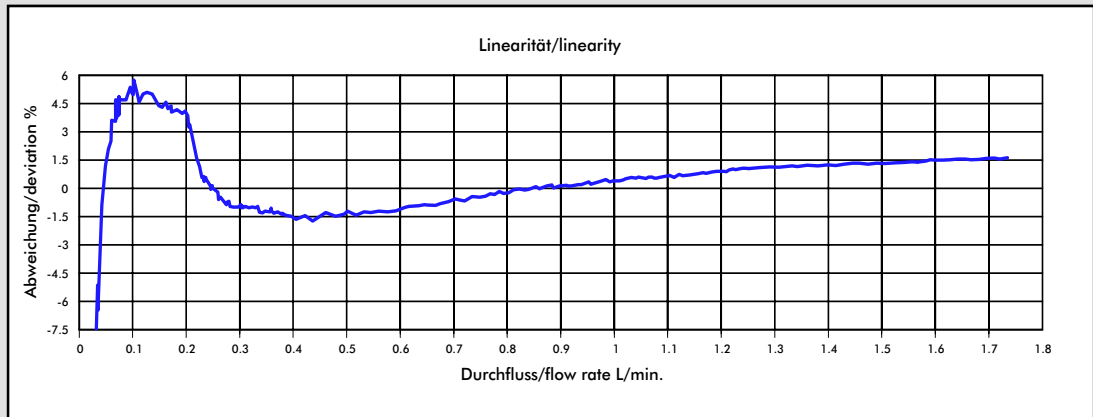
**The values specified must be considered as approximate values.**  
**The number of pulses per litre may differ depending on medium and installation.**  
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

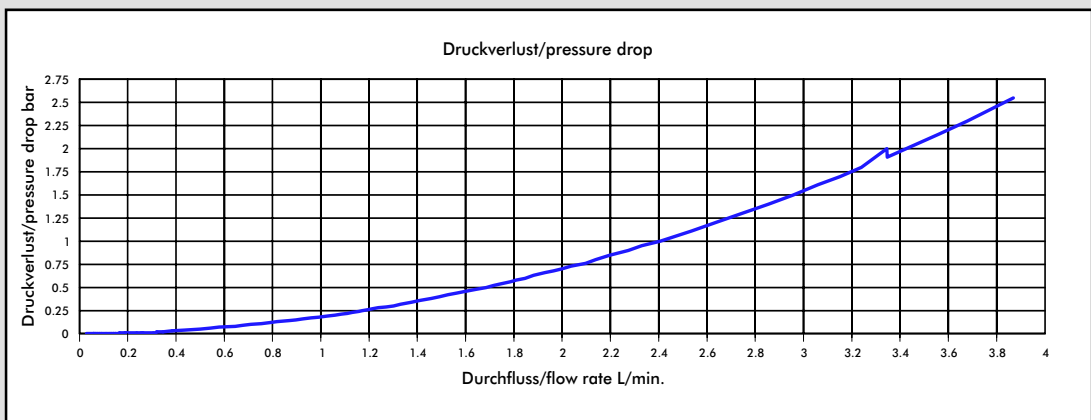
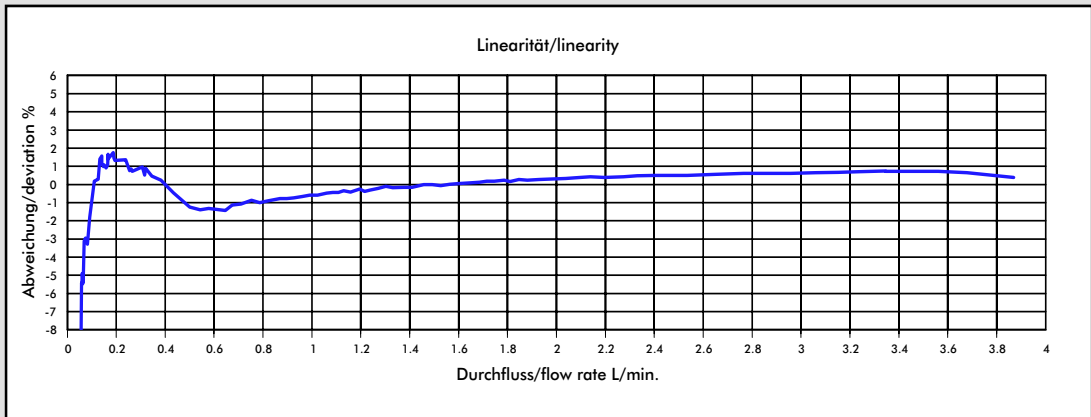
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

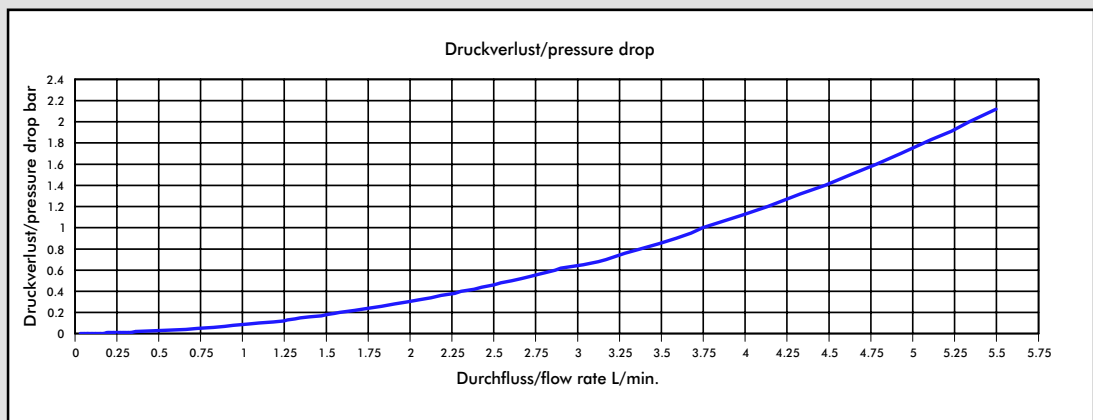
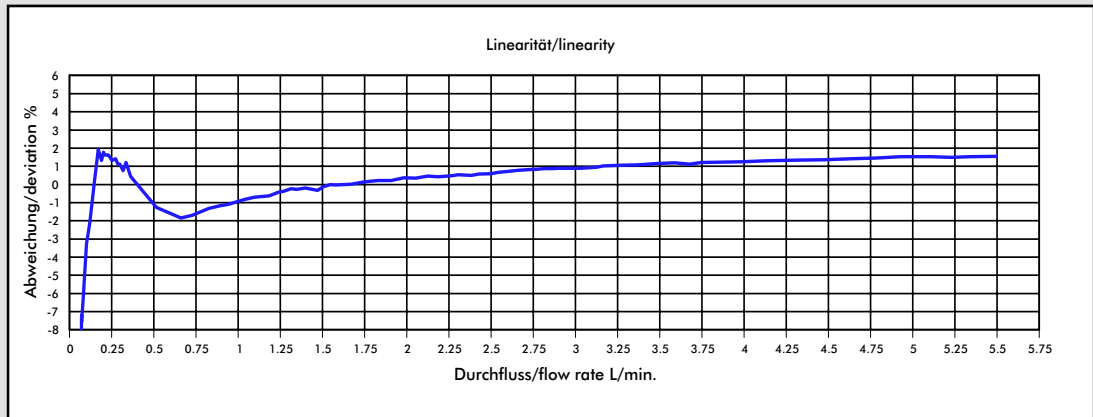
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

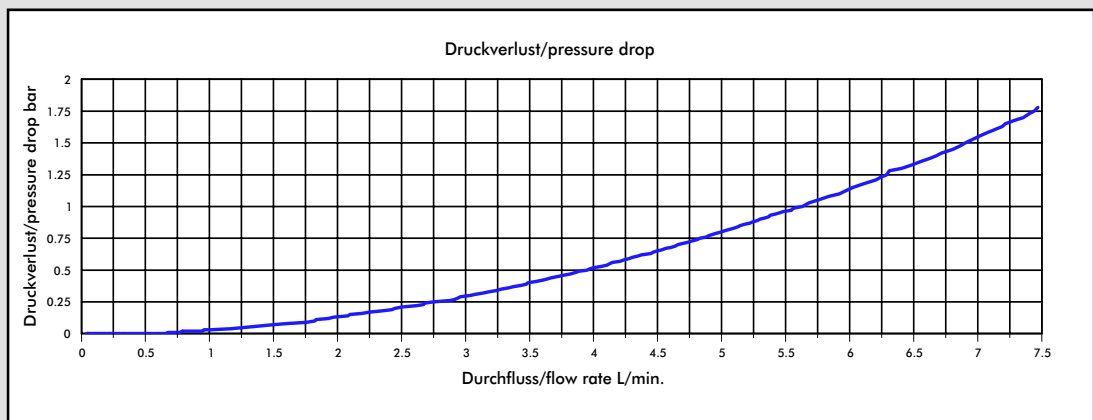
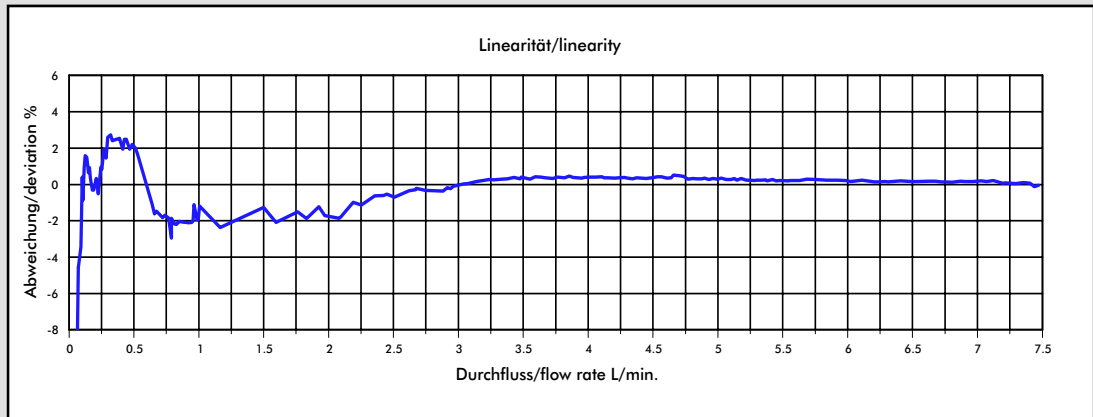
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

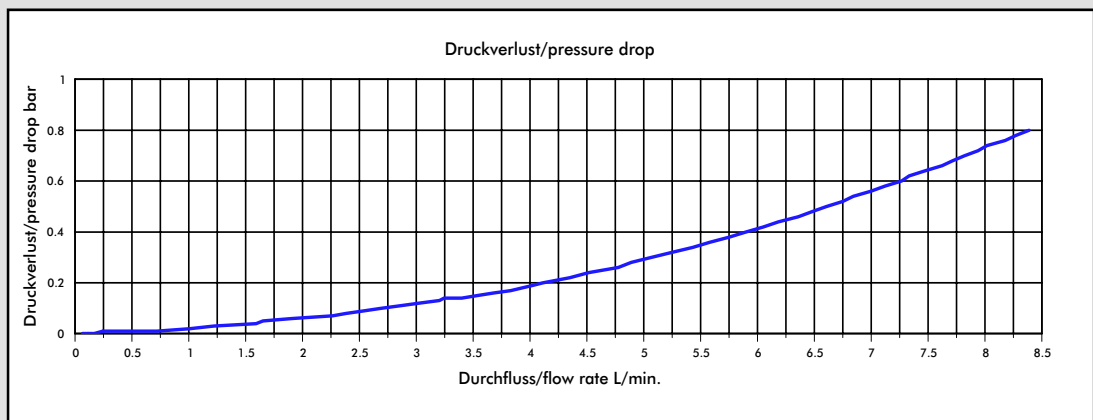
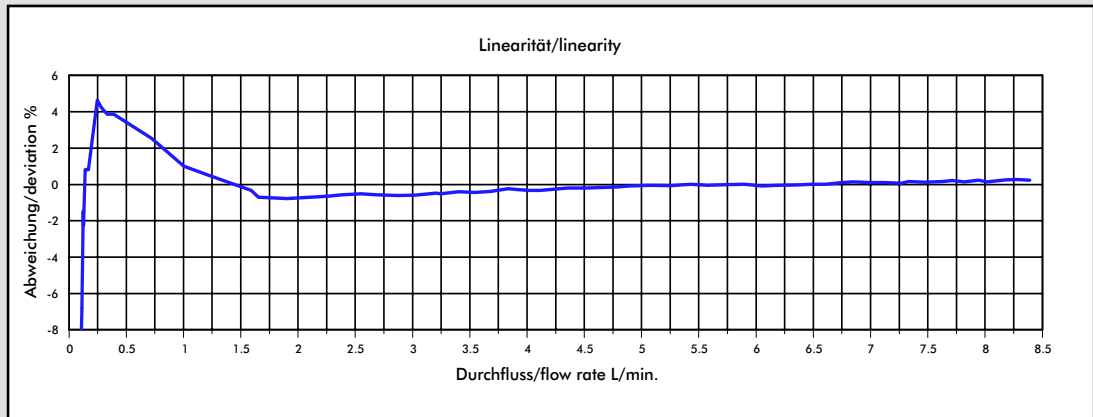
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

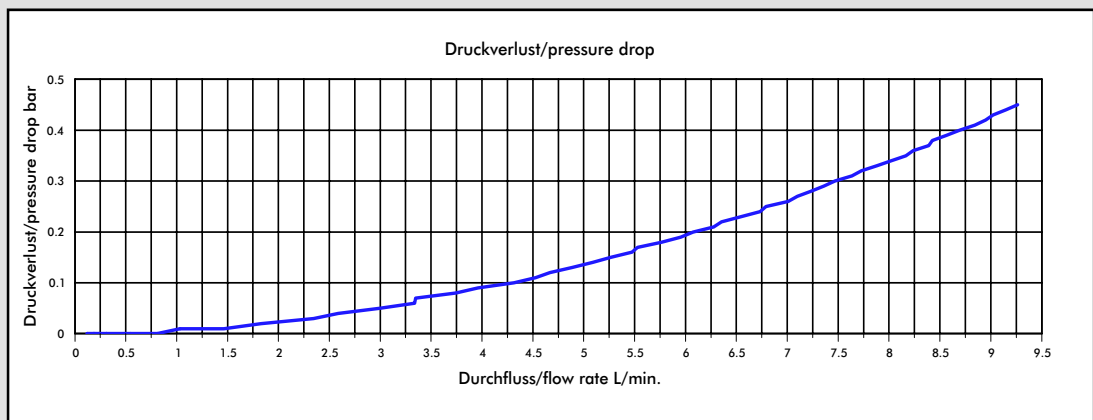
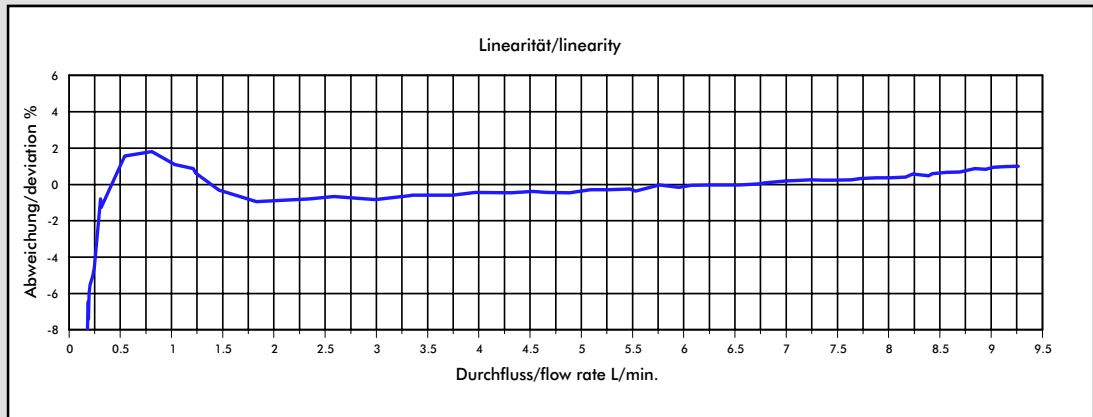
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

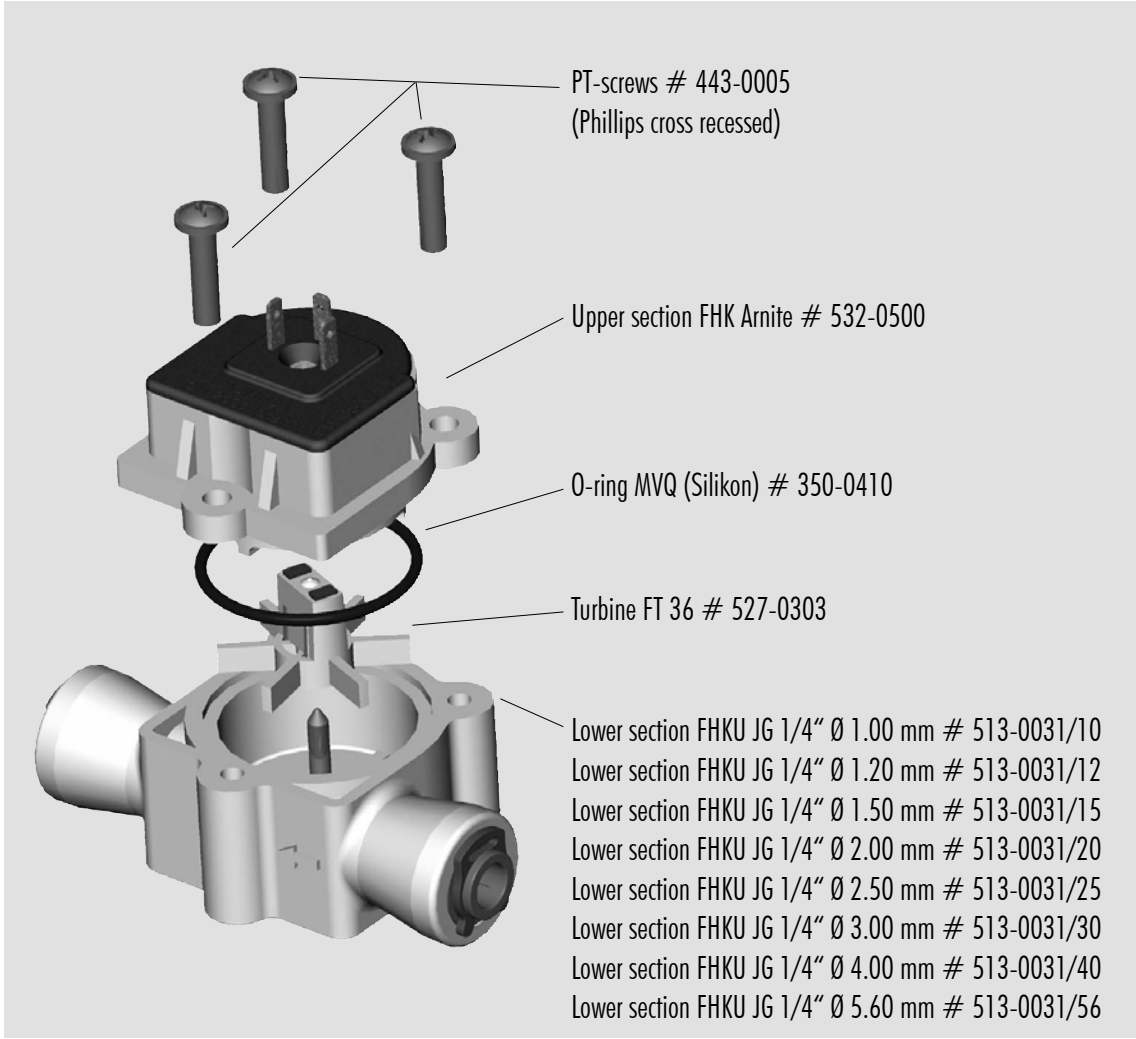
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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:

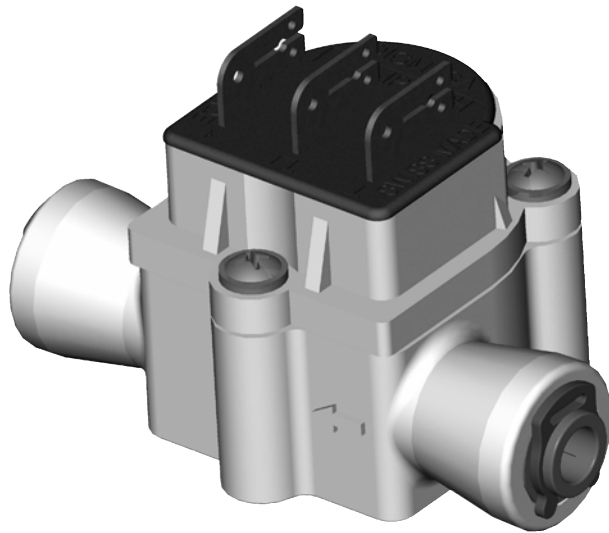


**Notes:**


We reserve the right to make modifications in the interests of technical progress.

DIGimesa

# DATA SHEET



## **DIGIMESA**

---

FHKUF John Guest 1/4" Arnite  
Part number: 938-85XX/02

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU JG 1/4" 938-85XX/02 GB Page 1-13

# General Description

The FHKU JG Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. Hose diameters from 1/4" (6.35mm) can be directly connected.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35% GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
Nozzle:	Inox 1.4305 (18/8) PTFE on request
O-ring:	MVQ (Silikon) FPM (Viton) / EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

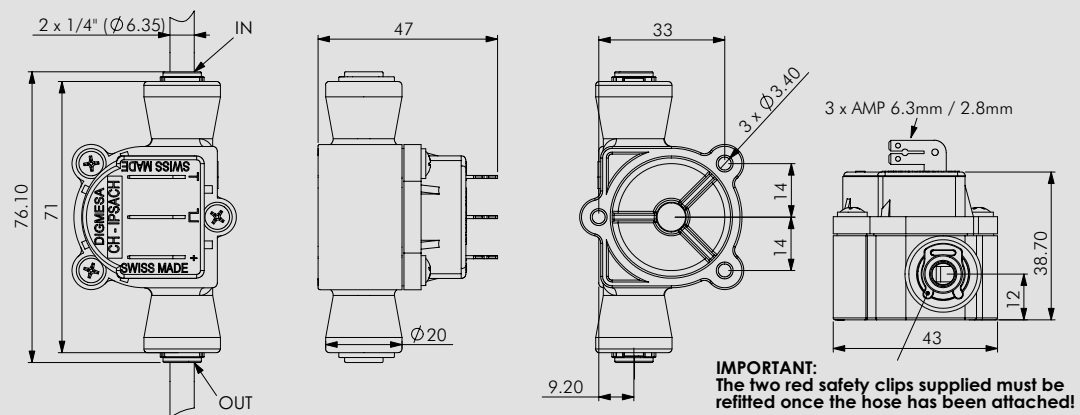
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	as shown on page 3
Pressure range:	as shown on page 3
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	Faston AMP 6.3 x 2.8mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## 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)!

## 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!

## Working Pressure and Temperature Range

**Super Speedfit** fittings are suitable for the following

Temp .	Pressure	
	5/32"- 5/16" 4mm - 8mm	3/8"-1/2" 10mm - 22mm
<b>Air</b>		
- 20°C	16 Bar	10 Bar
<b>Potable Liquids and Air</b>		
+1°C	16 Bar	10 Bar
+23°C	16 Bar	10 Bar
+65°C	10 Bar	7 Bar

Also suitable for vacuum

Depending on the tube used, under certain conditions fittings may be used at higher pressures and temperatures. Please refer to our Customer Services Department for guidance. Note 1 Bar = 14.5 PSIG.

## Tube Types

**Plastic Tube** - Polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall tube we recommend the use of tube inserts.

**Braided Tube** - Use of Tube to Hose Stems listed on pages 5 and 12 is essential when using tube. Use of clamps to retain braided tube on barbs is recommended.

**Metal Tube (soft)** - Brass, copper or mild steel conforming to the tolerances below.

**Metal Tube (hard)** - We do not recommend **Super Speedfit** fittings for hard metal tubes.

For stainless steel and other polished metal tubes we recommend the use of **Superseal** fittings. These are shown on page 9 of this brochure.

It is essential that outside diameters be free from score marks and that the tube be deburred before inserting the fitting.

## Tube Tolerances

**Super Speedfit** fittings are offered for tubes with outside diameters to the following tolerances.

Size (inches)	5/32 - 3/16	1/4 - 1/2
Tolerance (inches)	+0.001 / -0.003	+0.001 / -0.004
Size (mm)	4mm- 5mm	6mm- 22mm
Tolerance (mm)	+0.05 / -0.07	+0.05 / -0.10

Phone: (49)-521 / 9 72 56-0  
 Fax: (49)-521 / 9 72 56-80  
 Internet: <http://www.johnguest.com>  
<http://www.speedfit.co.uk>

We reserve the right to make modifications in the interests of technical progress.

## Installation and System Testing

**Fittings and tube should be kept clean and undamaged before use.**

All tube and fittings installations must be pressure tested after installation to ensure system integrity before handing over to the final user. See also "How to make a connection".

## Chemicals

For use with chemicals or other potentially aggressive liquids, please refer to our Customer Services Department.

**Super Speedfit** fittings are not recommended for use with explosive gases, petroleum spirits, and other fuels or for central heating systems.

## Collet Covers

Are available as additional security against removal of the tube or to provide a simple means of colour coding. The cover is offered in a range of six colours. Please see pages 6 and 12 of this brochure.

## Food Quality

All the fittings in the brochure are produced in Food and Drug Administration (FDA) approved materials and are therefore recommended for food quality applications.



## Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

	Threads		
	1/8 - 1/4	3/8 - 1/2	3/4
Max. Torque	1.5Nm	3.0Nm	4.0Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.
- The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British or International thread standard.

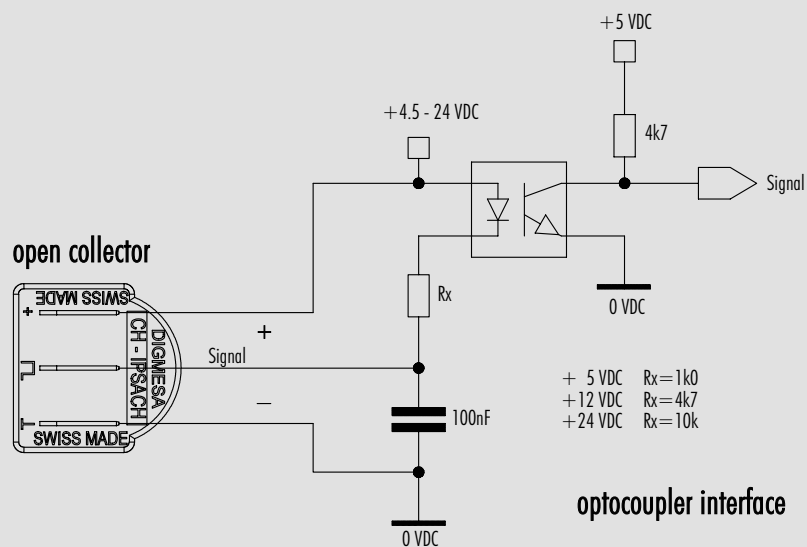
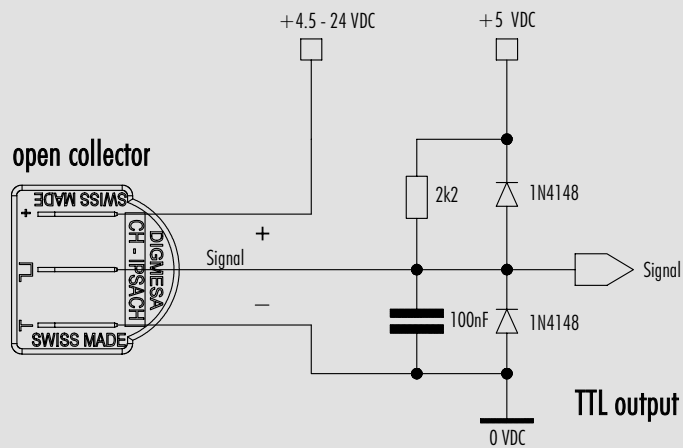
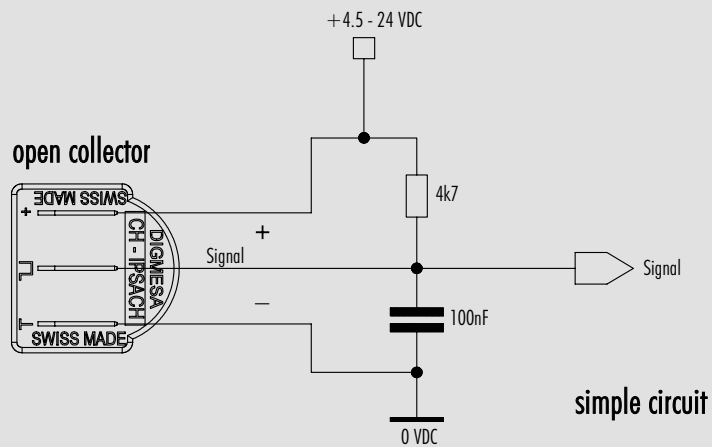
## Cleaners and Sanitising of Acetal Fittings

Our advice to customers is to use cleaners and sanitising agents that are above pH4 and low in hypochlorite level. Acetal fittings and parts that are cleaned and/or sanitised should be rinsed immediately with copious amounts of clean tap water to remove all traces of the cleaners. Details of which products are made from acetal are shown in our catalogues but generally John Guest products incorporating acetal are designated by the part number prefix PI, PM, CI, CM and RM. Polypropylene fittings offer greater resistance to aggressive chemicals than acetal fittings. Polypropylene does not have the same mechanical properties as acetal and John Guest polypropylene fittings are generally designated by the part number prefix PP. Our material suppliers recommend ECOLAB Oasis 133 as a suitable external cleaner for acetal products manufactured by John Guest.

## Warranty

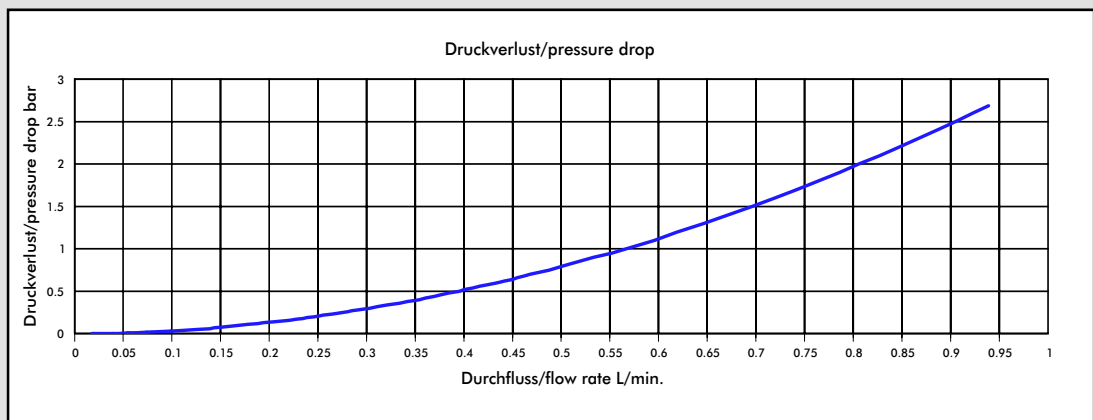
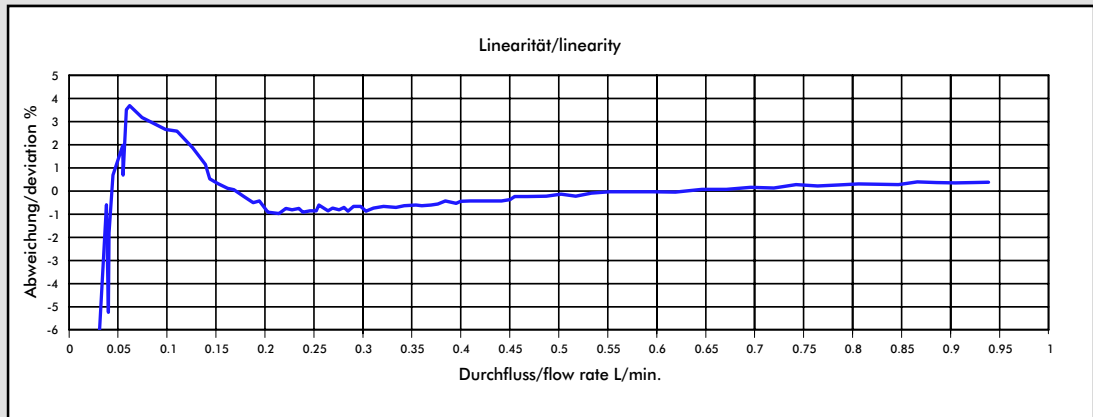
Whilst we give a warranty against defects in manufacture or materials, it is the responsibility of the specifier to ensure that fittings and related products are suitable for their application. The installation must be carried out correctly in accordance with our recommendations, complying with recognised codes of practice and relevant national

# Interface Connection: Examples Open Collector



Digimesa

# Measurement Curve FHKU 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

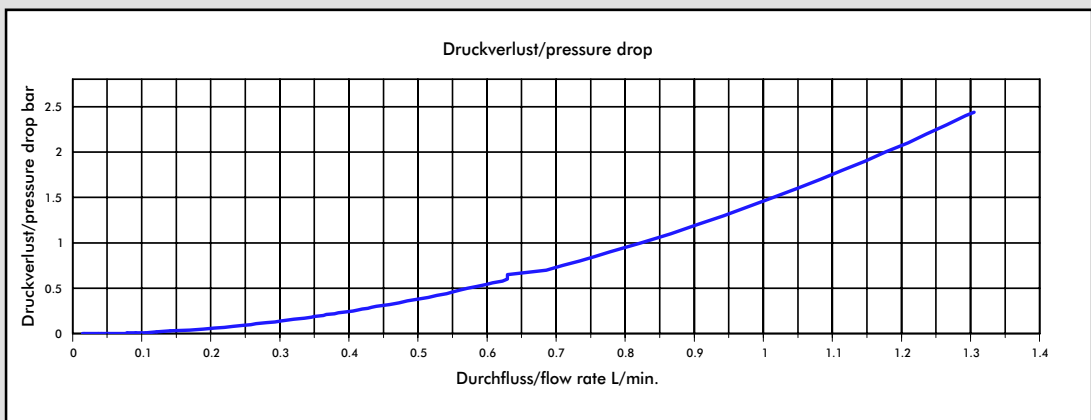
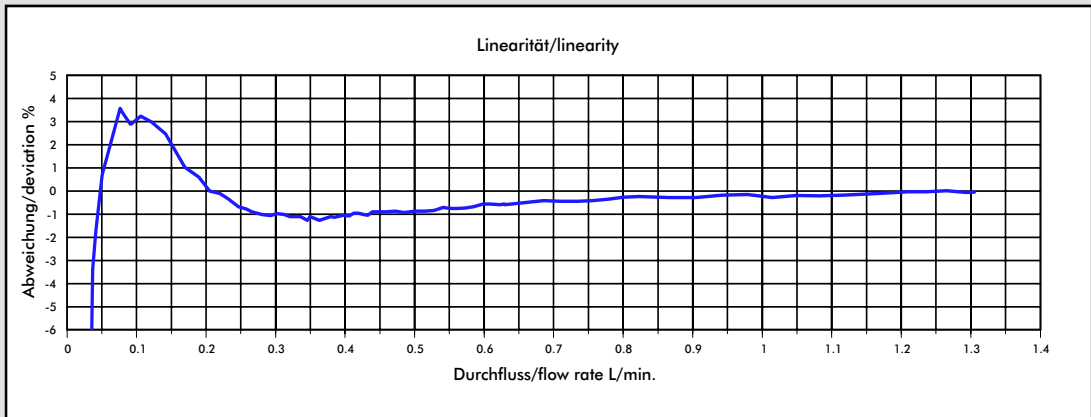
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

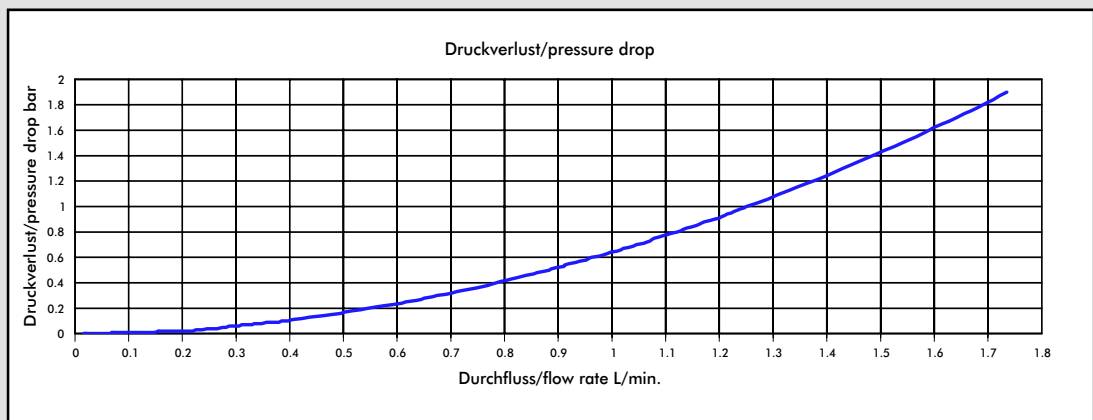
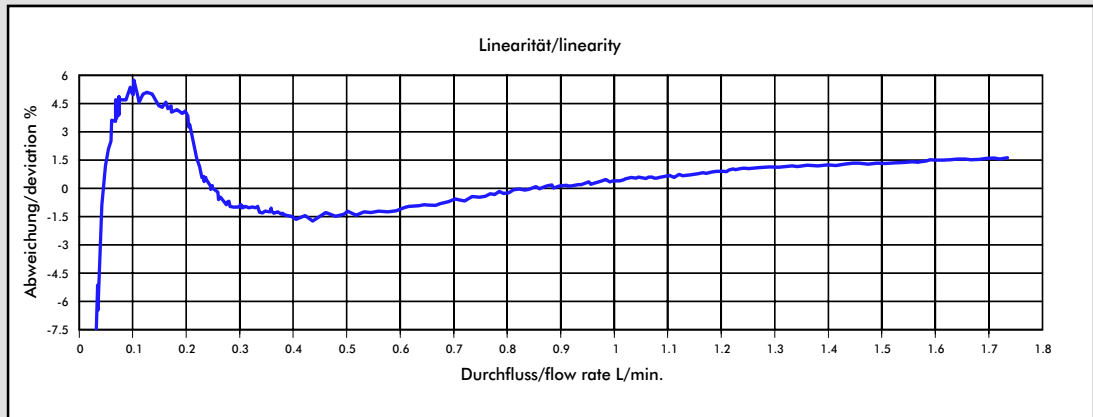
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

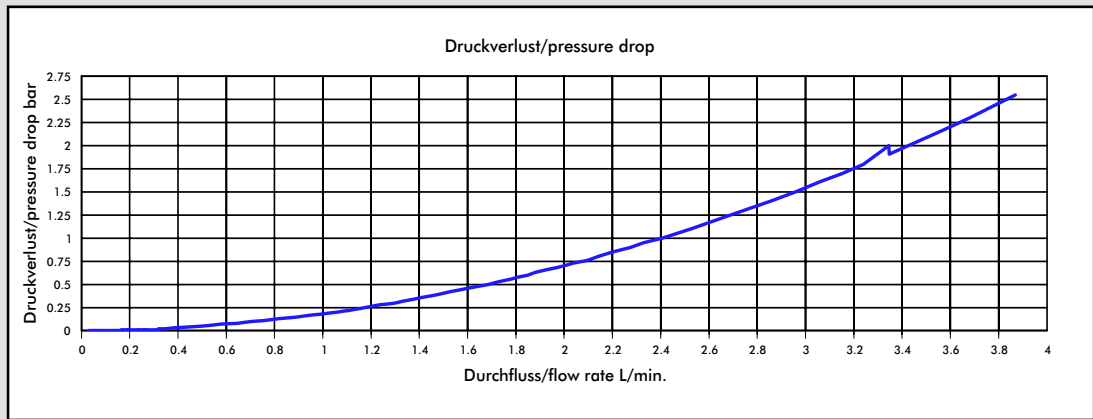
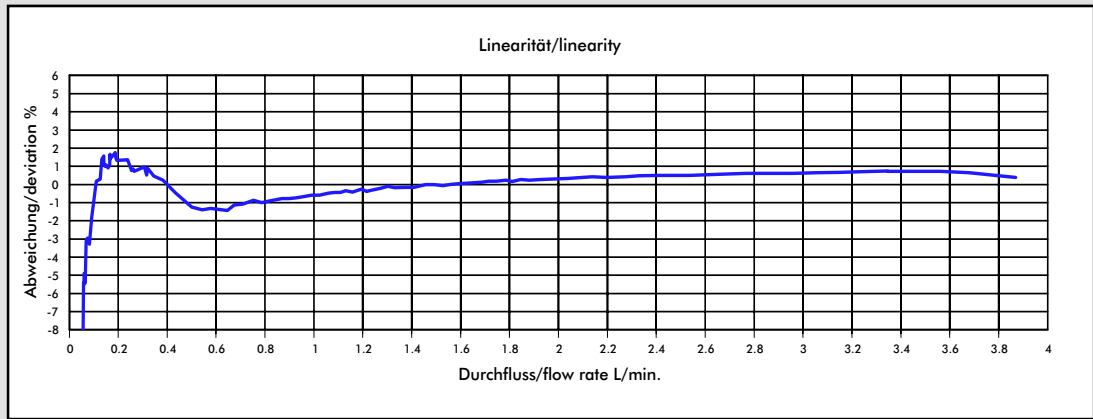
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

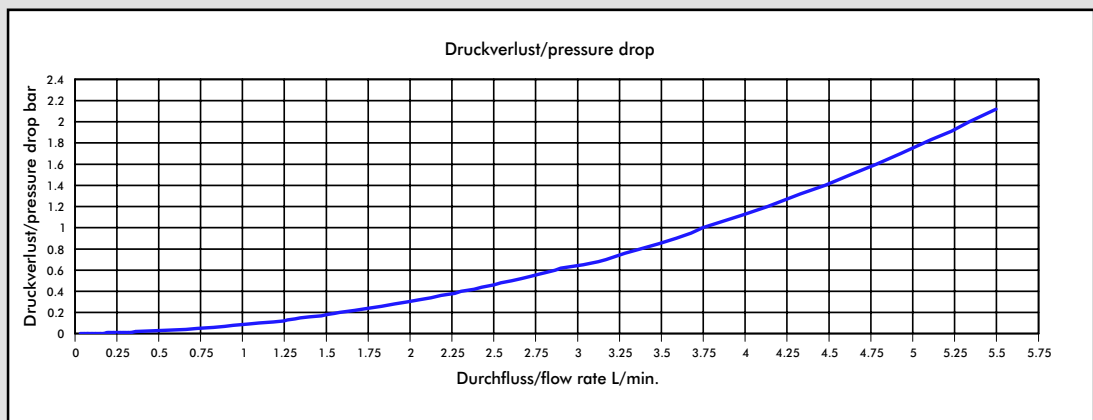
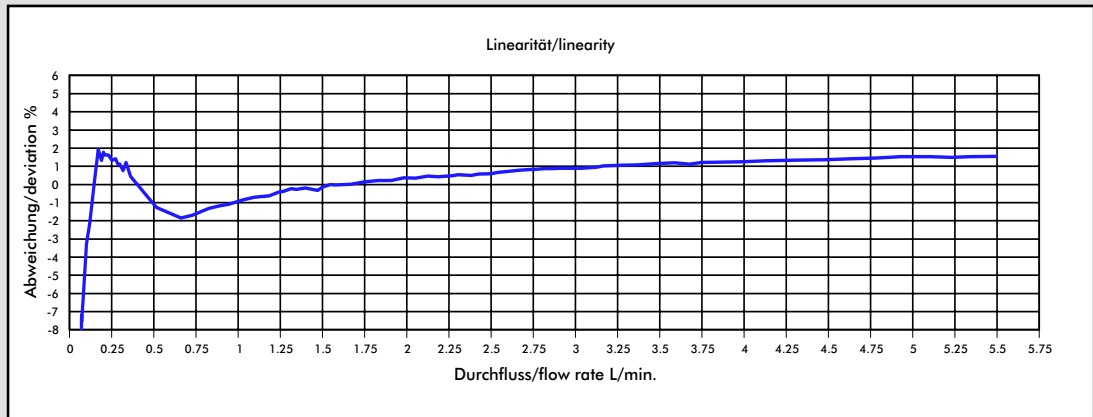
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

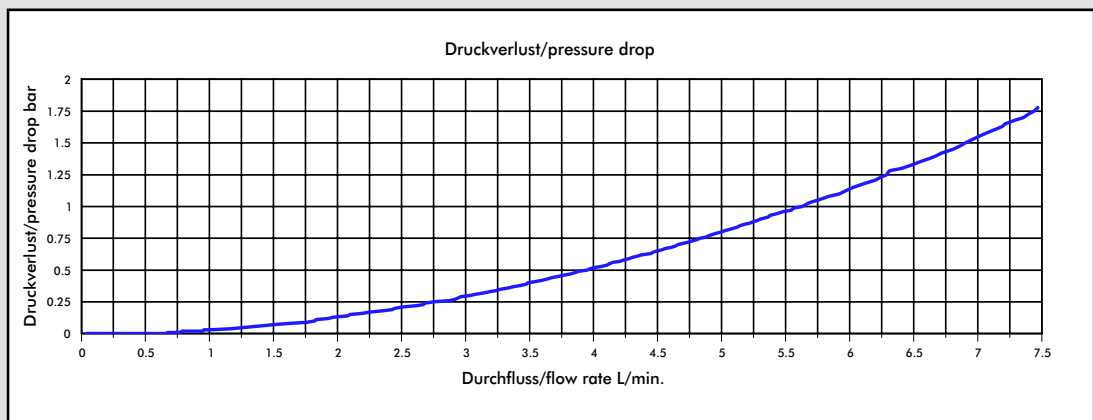
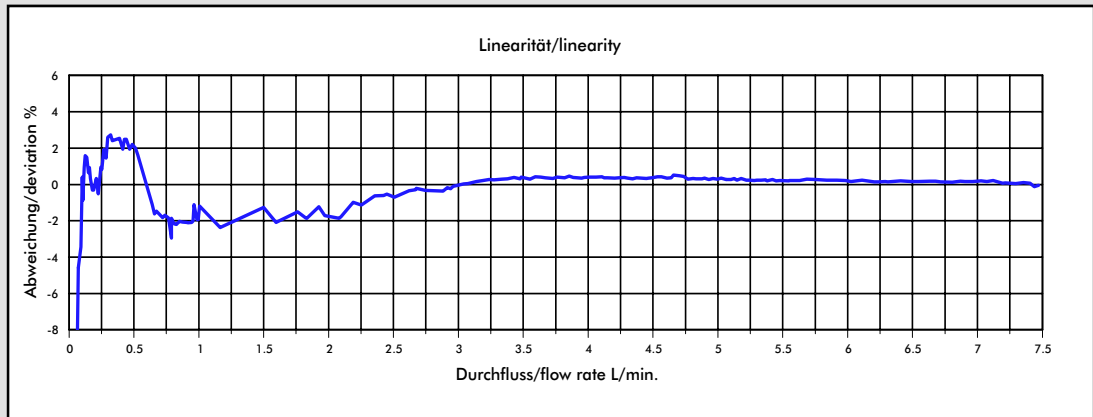
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

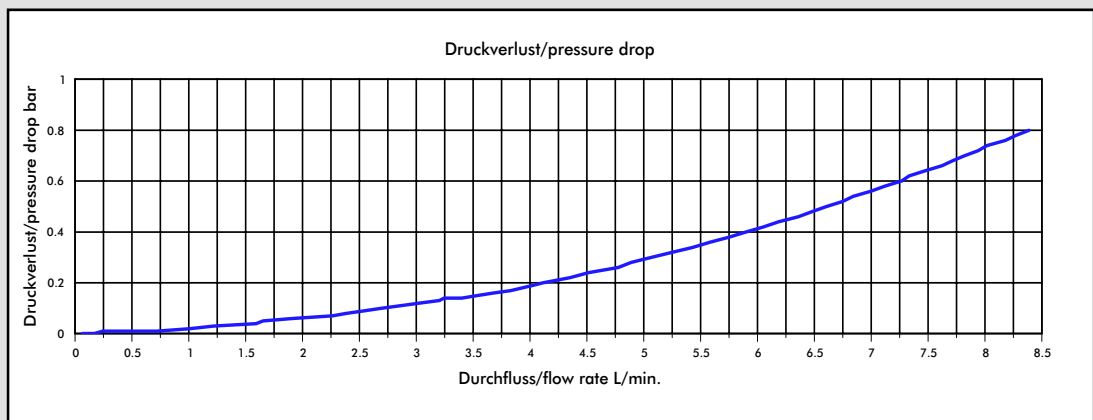
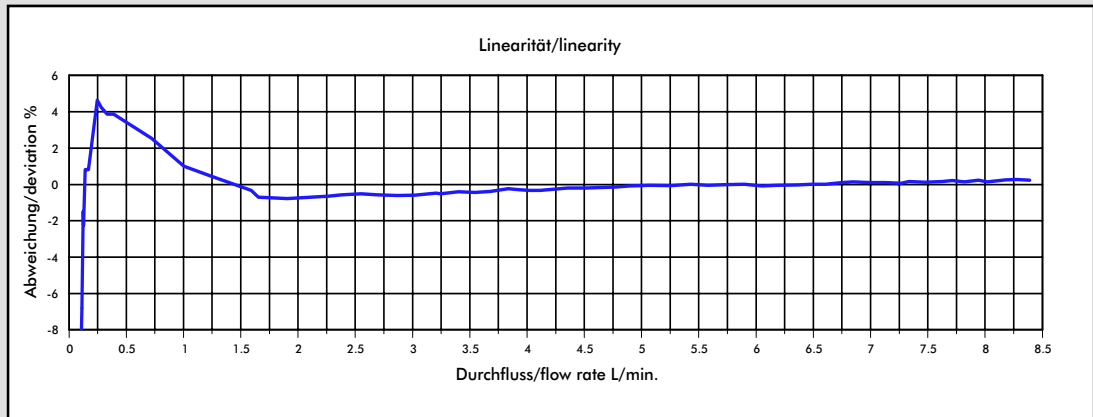
Nozzle size	Pulses/litre	g/pulse	min. flow rate in litres/min at Linear start	max. flow rate in litres/min	Pressure loss
Ø 1.00 mm	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

**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
- 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 FHKU 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

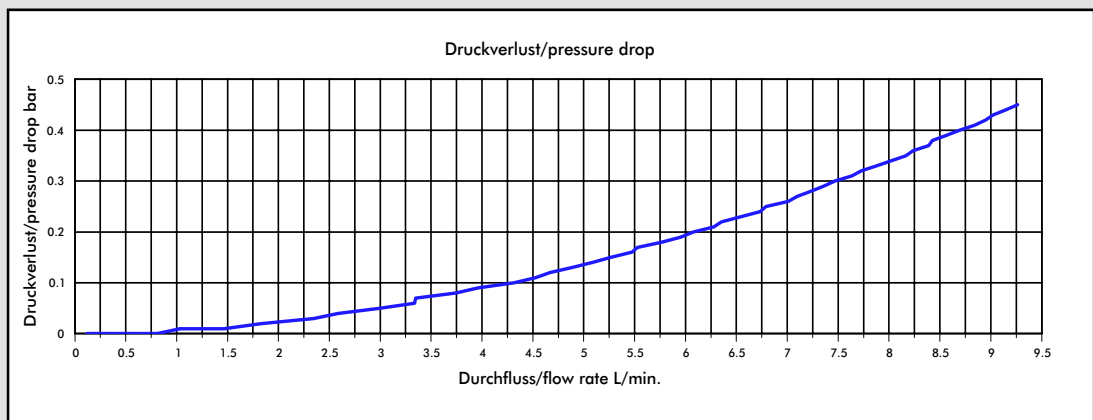
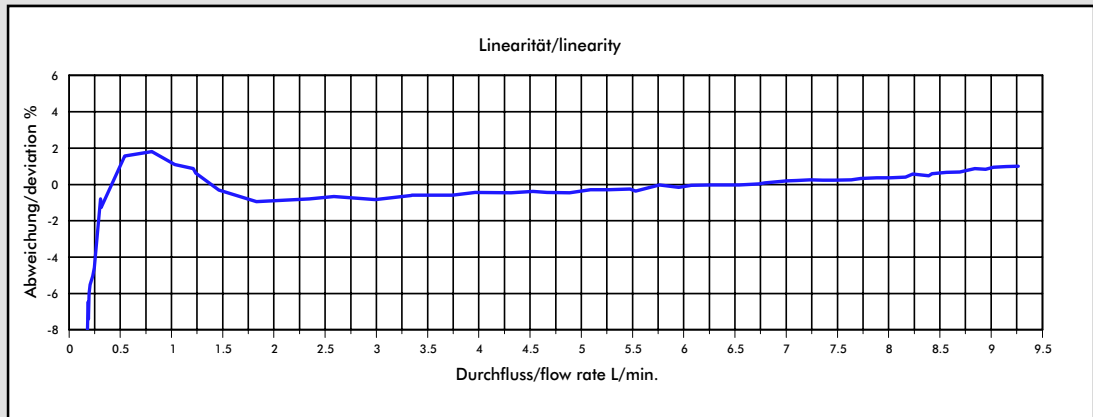
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

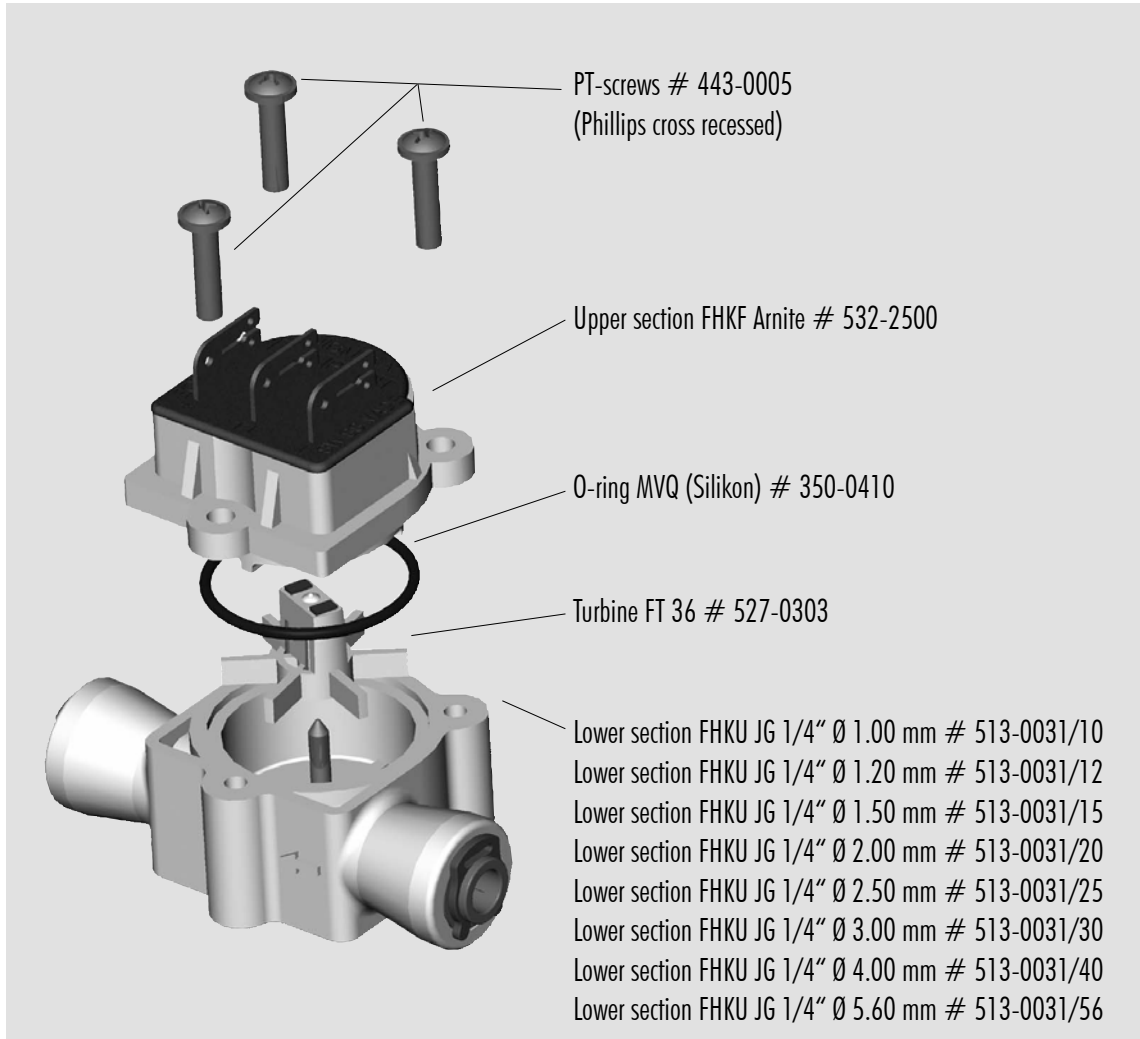
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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:

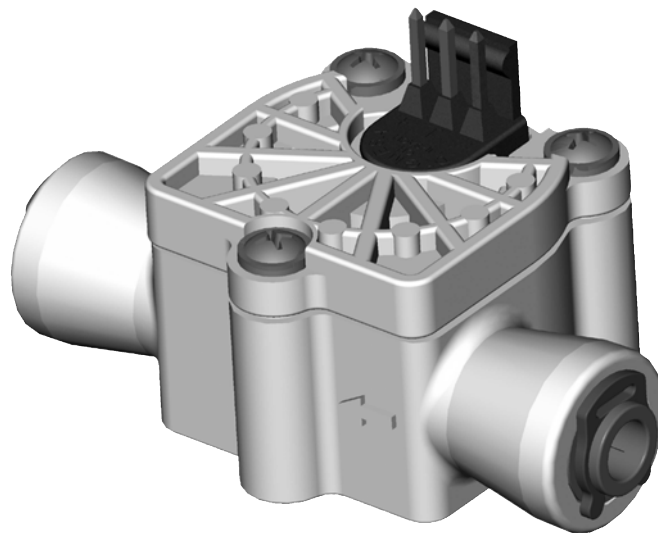


DIGMESA

<b>Notes:</b>	

We reserve the right to make modifications in the interests of technical progress.

# DATA SHEET



**DIGIMESA** 

---

FHKUC John Guest 1/4" Arnite  
Part number: 938-85XX/03

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKUJG 1/4" 938-85XX/03 GB Page 1-13



# General Description

The FHKU JG Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. Hose diameters from 1/4" (6.35mm) can be directly connected.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35% GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
Nozzle:	Inox 1.4305 (18/8) PTFE on request
O-ring:	MVQ (Silikon) FPM (Viton) / EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

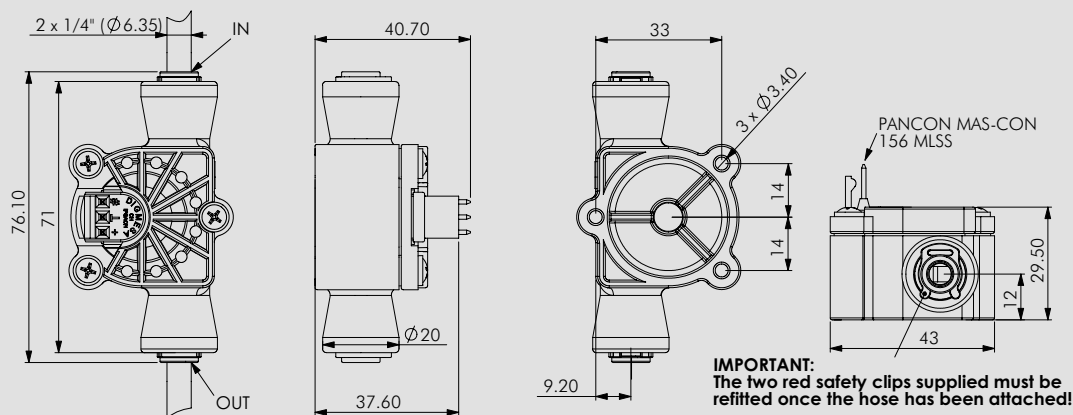
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	as shown on page 3
Pressure range:	as shown on page 3
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	PANCON MAS-CON 156 MLSS
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## 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)!

## 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!

## Working Pressure and Temperature Range

**Super Speedfit** fittings are suitable for the following

Temp .	Pressure	
	5/32"- 5/16" 4mm - 8mm	3/8"-1/2" 10mm - 22mm
<b>Air</b>		
- 20°C	16 Bar	10 Bar
<b>Potable Liquids and Air</b>		
+1°C	16 Bar	10 Bar
+23°C	16 Bar	10 Bar
+65°C	10 Bar	7 Bar

Also suitable for vacuum

Depending on the tube used, under certain conditions fittings may be used at higher pressures and temperatures. Please refer to our Customer Services Department for guidance. Note 1 Bar = 14.5 PSIG.

## Tube Types

**Plastic Tube** - Polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall tube we recommend the use of tube inserts.

**Braided Tube** - Use of Tube to Hose Stems listed on pages 5 and 12 is essential when using tube. Use of clamps to retain braided tube on barbs is recommended.

**Metal Tube (soft)** - Brass, copper or mild steel conforming to the tolerances below.

**Metal Tube (hard)** - We do not recommend **Super Speedfit** fittings for hard metal tubes.

For stainless steel and other polished metal tubes we recommend the use of **Superseal** fittings. These are shown on page 9 of this brochure.

It is essential that outside diameters be free from score marks and that the tube be deburred before inserting the fitting.

## Tube Tolerances

**Super Speedfit** fittings are offered for tubes with outside diameters to the following tolerances.

Size (inches)	5/32 - 3/16	1/4 - 1/2
Tolerance (inches)	+0.001 / -0.003	+0.001 / -0.004
Size (mm)	4mm- 5mm	6mm- 22mm
Tolerance (mm)	+0.05 / -0.07	+0.05 / -0.10

Phone: (49)-521 / 9 72 56-0  
 Fax: (49)-521 / 9 72 56-80  
 Internet: <http://www.johnguest.com>  
<http://www.speedfit.co.uk>

We reserve the right to make modifications in the interests of technical progress.

## Installation and System Testing

**Fittings and tube should be kept clean and undamaged before use.**

All tube and fittings installations must be pressure tested after installation to ensure system integrity before handing over to the final user. See also "How to make a connection".

## Chemicals

For use with chemicals or other potentially aggressive liquids, please refer to our Customer Services Department.

**Super Speedfit** fittings are not recommended for use with explosive gases, petroleum spirits, and other fuels or for central heating systems.

## Collet Covers

Are available as additional security against removal of the tube or to provide a simple means of colour coding. The cover is offered in a range of six colours. Please see pages 6 and 12 of this brochure.

## Food Quality

All the fittings in the brochure are produced in Food and Drug Administration (FDA) approved materials and are therefore recommended for food quality applications.



## Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

	Threads		
	1/8 - 1/4	3/8 - 1/2	3/4
Max. Torque	1.5Nm	3.0Nm	4.0Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.
- The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British or International thread standard.

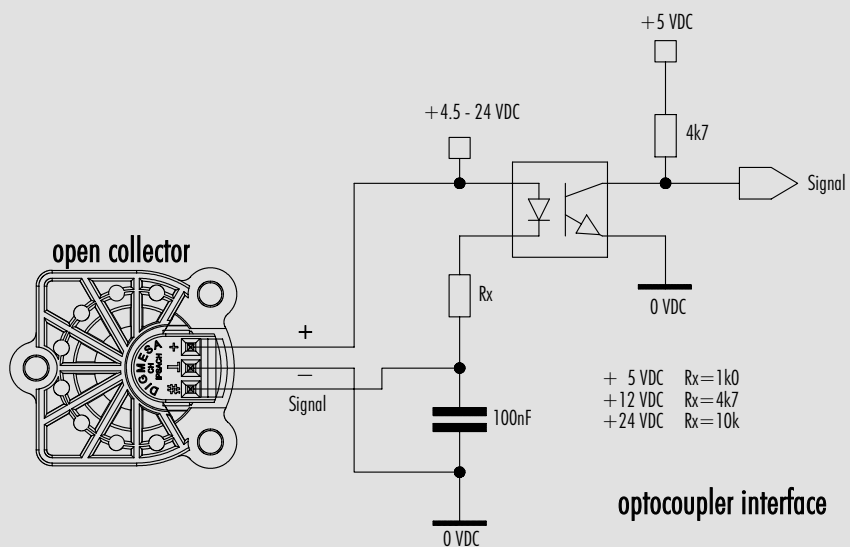
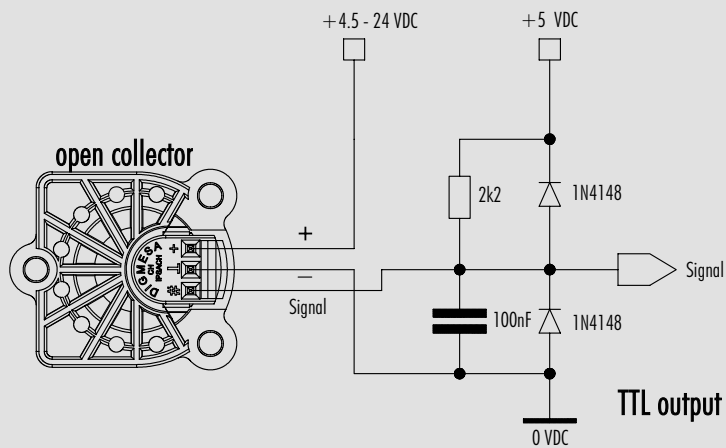
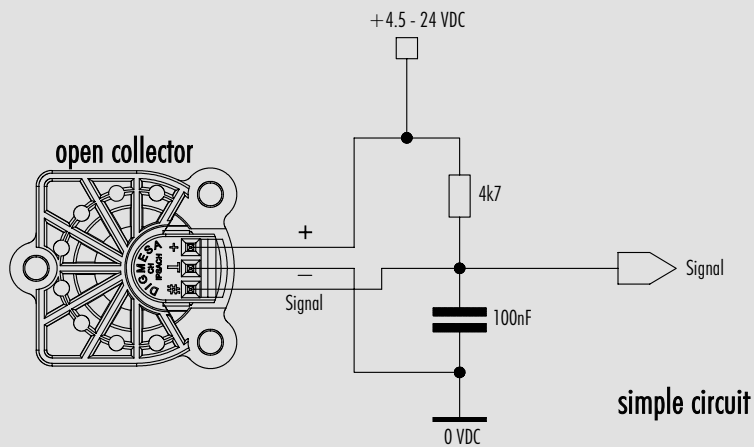
## Cleaners and Sanitising of Acetal Fittings

Our advice to customers is to use cleaners and sanitising agents that are above pH4 and low in hypochlorite level. Acetal fittings and parts that are cleaned and/or sanitised should be rinsed immediately with copious amounts of clean tap water to remove all traces of the cleaners. Details of which products are made from acetal are shown in our catalogues but generally John Guest products incorporating acetal are designated by the part number prefix PI, PM, CI, CM and RM. Polypropylene fittings offer greater resistance to aggressive chemicals than acetal fittings. Polypropylene does not have the same mechanical properties as acetal and John Guest polypropylene fittings are generally designated by the part number prefix PP. Our material suppliers recommend ECOLAB Oasis 133 as a suitable external cleaner for acetal products manufactured by John Guest.

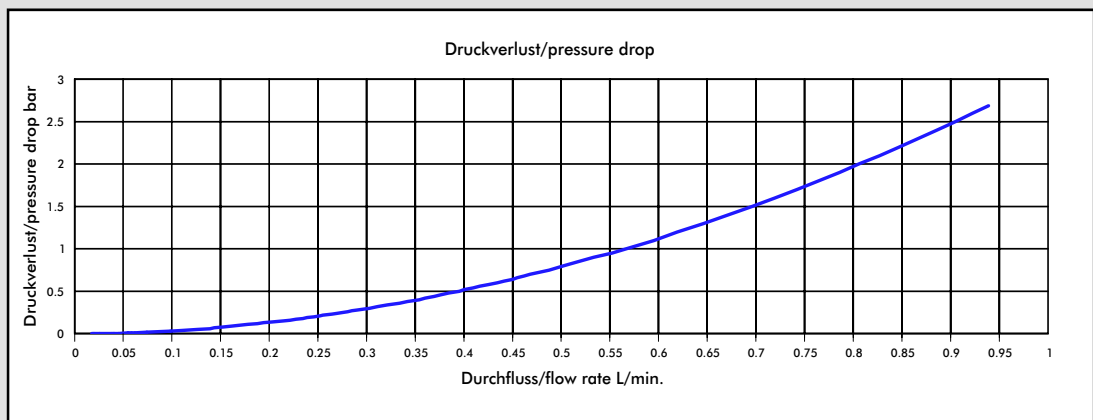
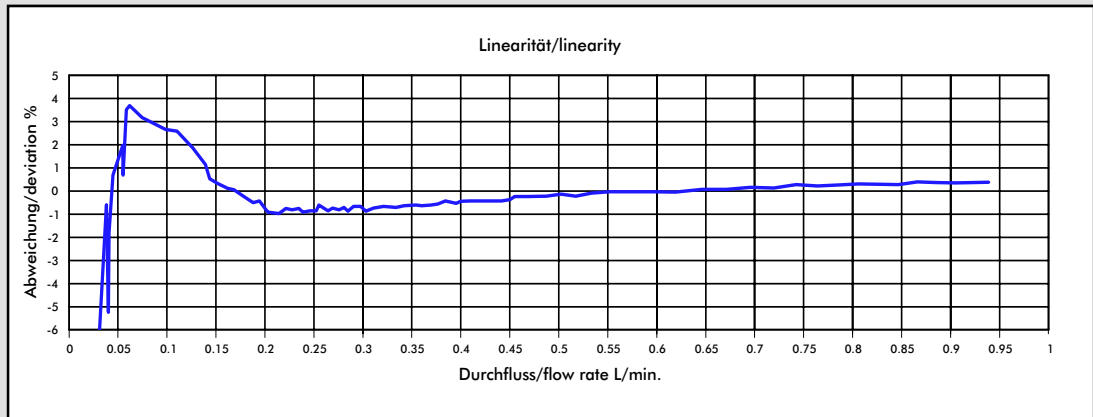
## Warranty

Whilst we give a warranty against defects in manufacture or materials, it is the responsibility of the specifier to ensure that fittings and related products are suitable for their application. The installation must be carried out correctly in accordance with our recommendations, complying with recognised codes of practice and relevant national

# Interface Connection: Examples Open Collector



# Measurement Curve FHKU 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

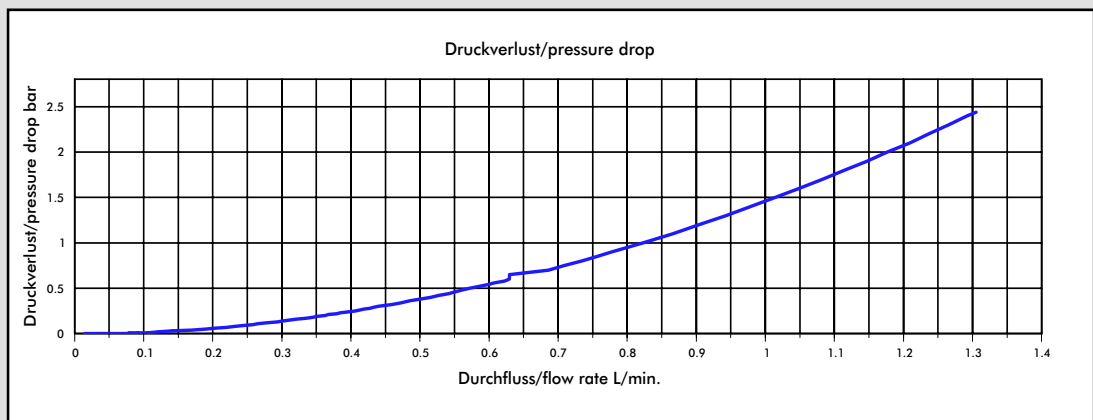
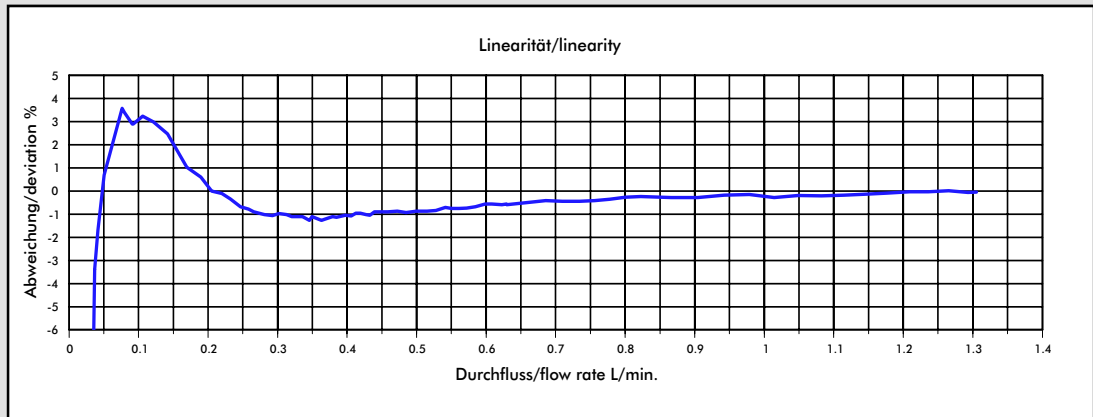
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

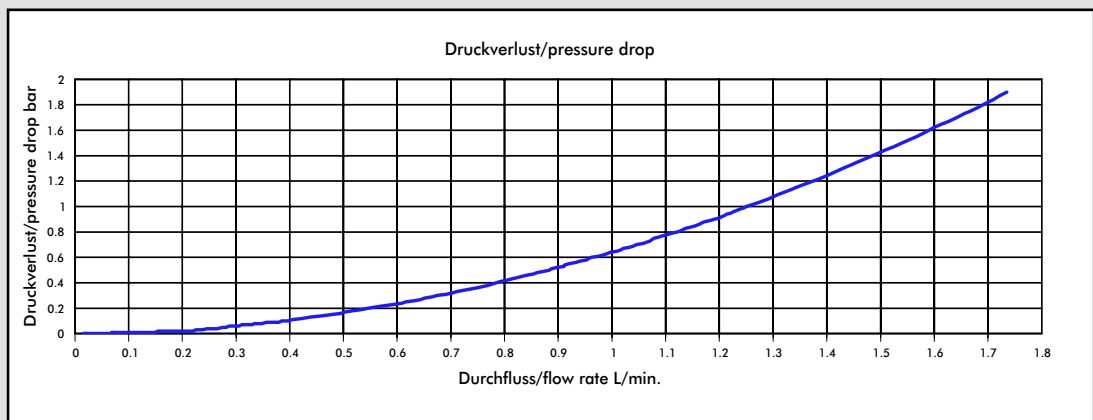
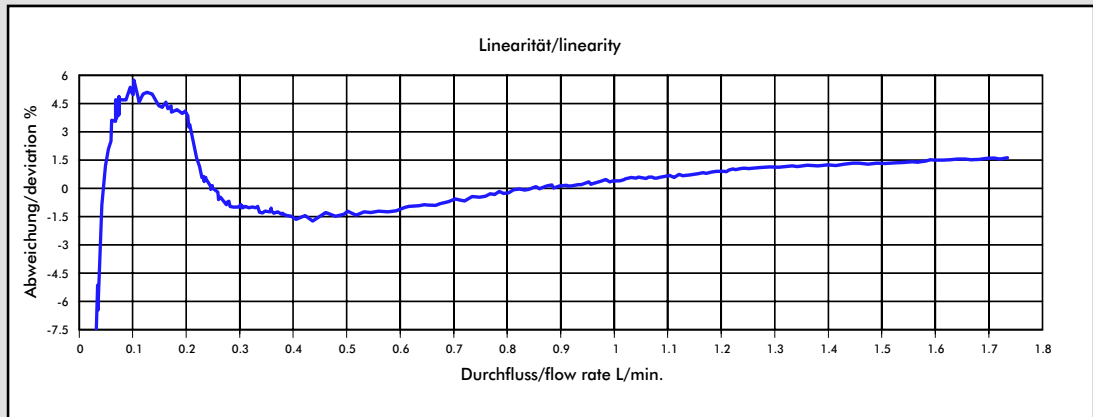
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

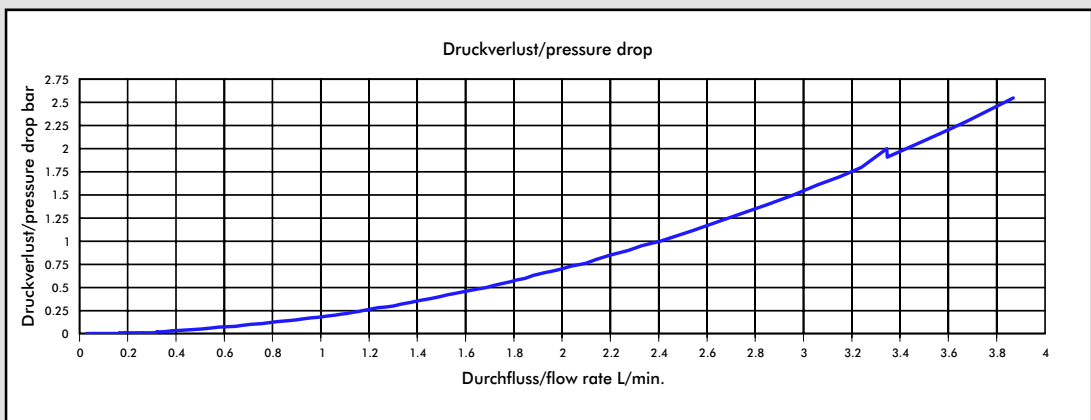
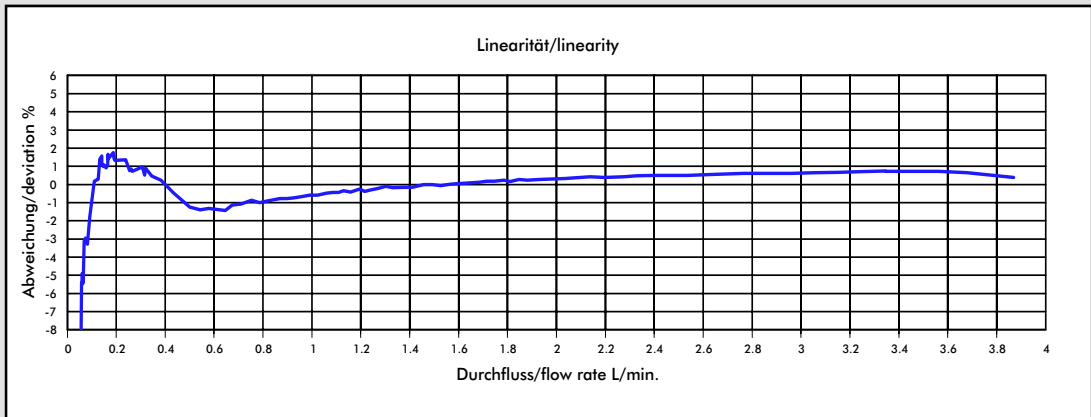
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

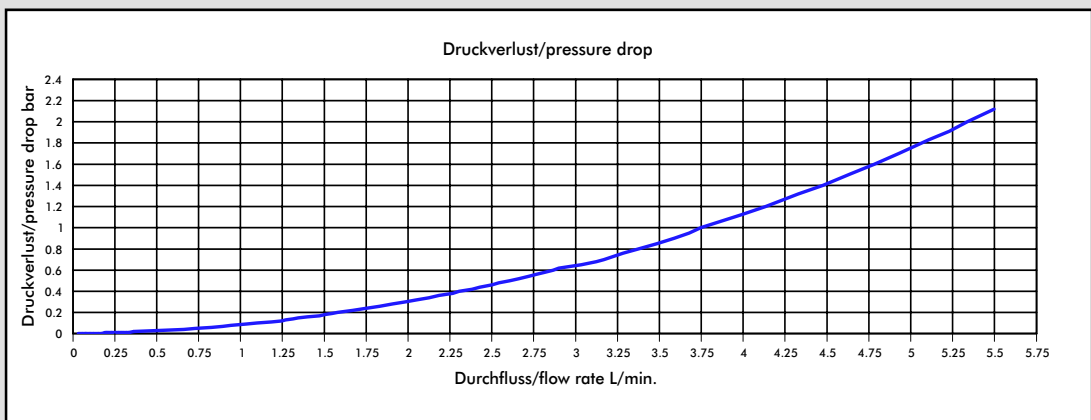
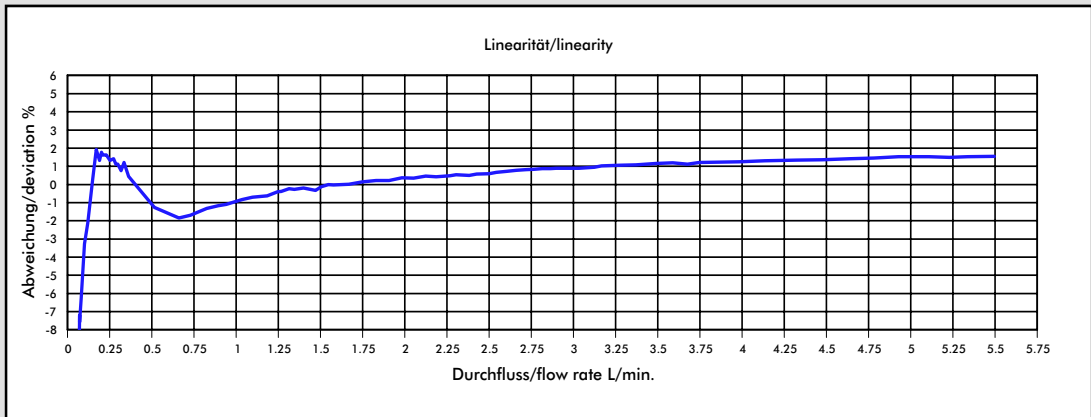
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

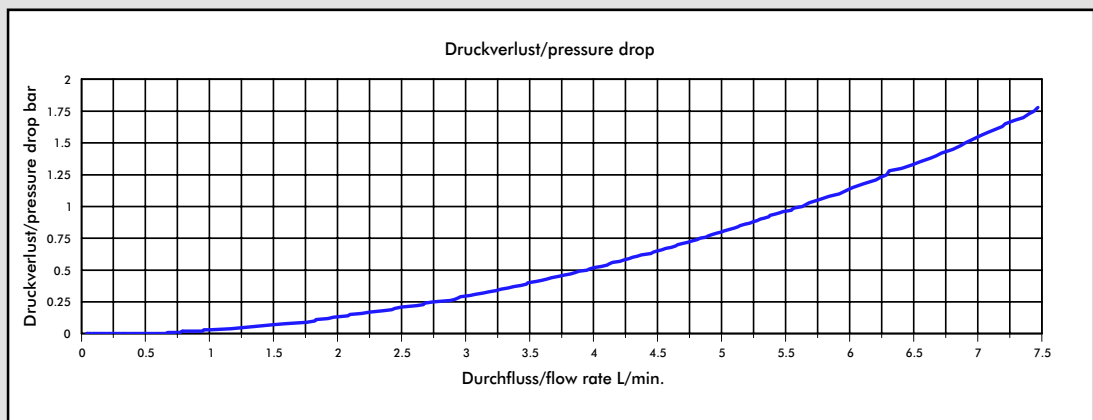
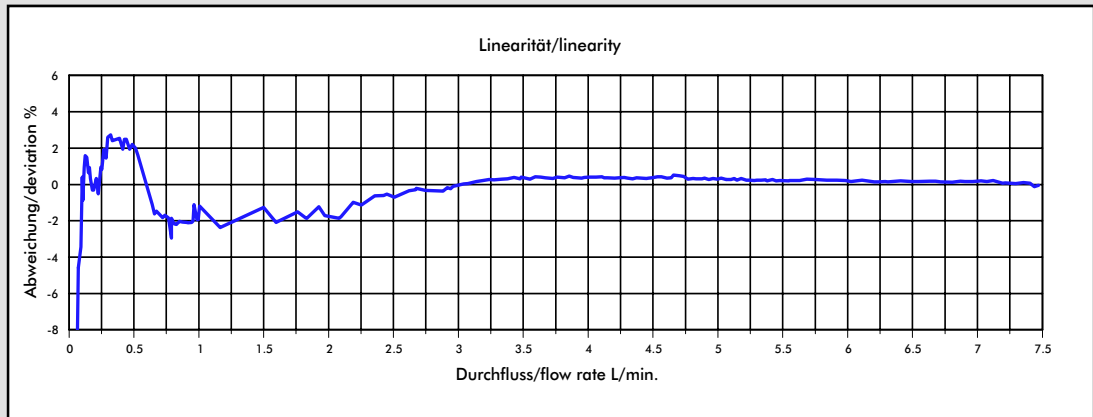
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

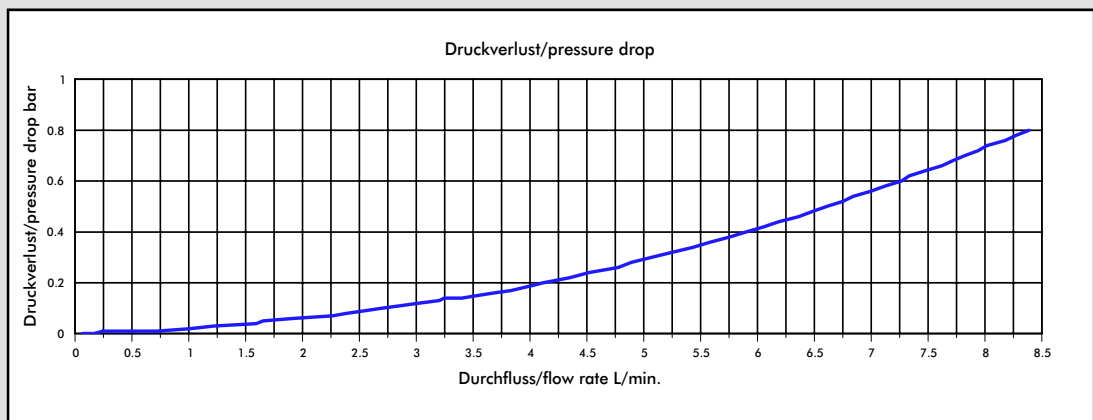
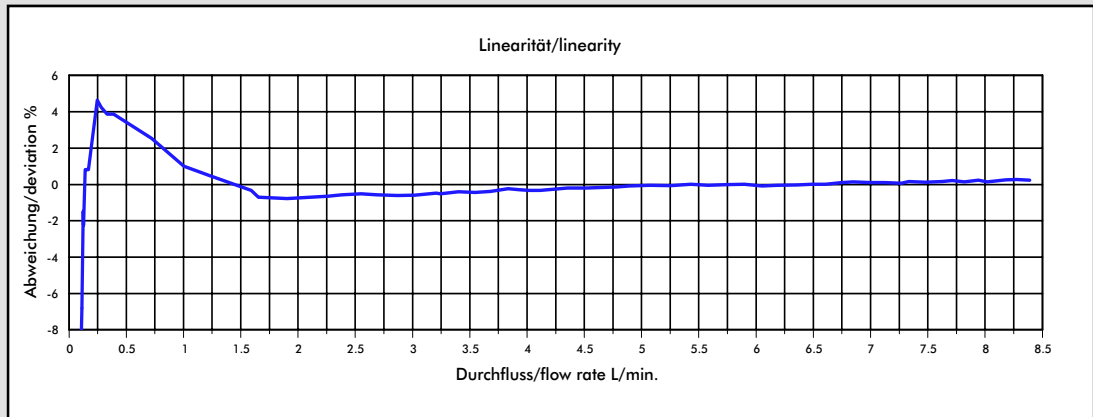
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

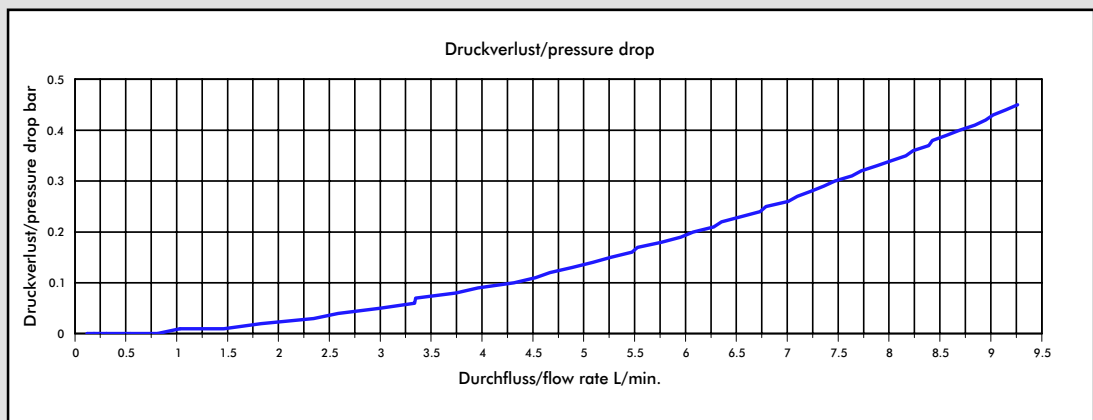
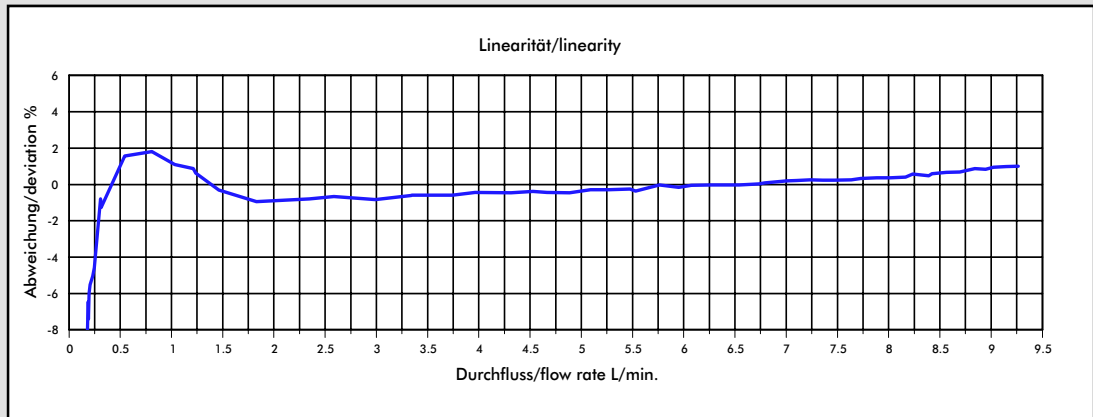
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

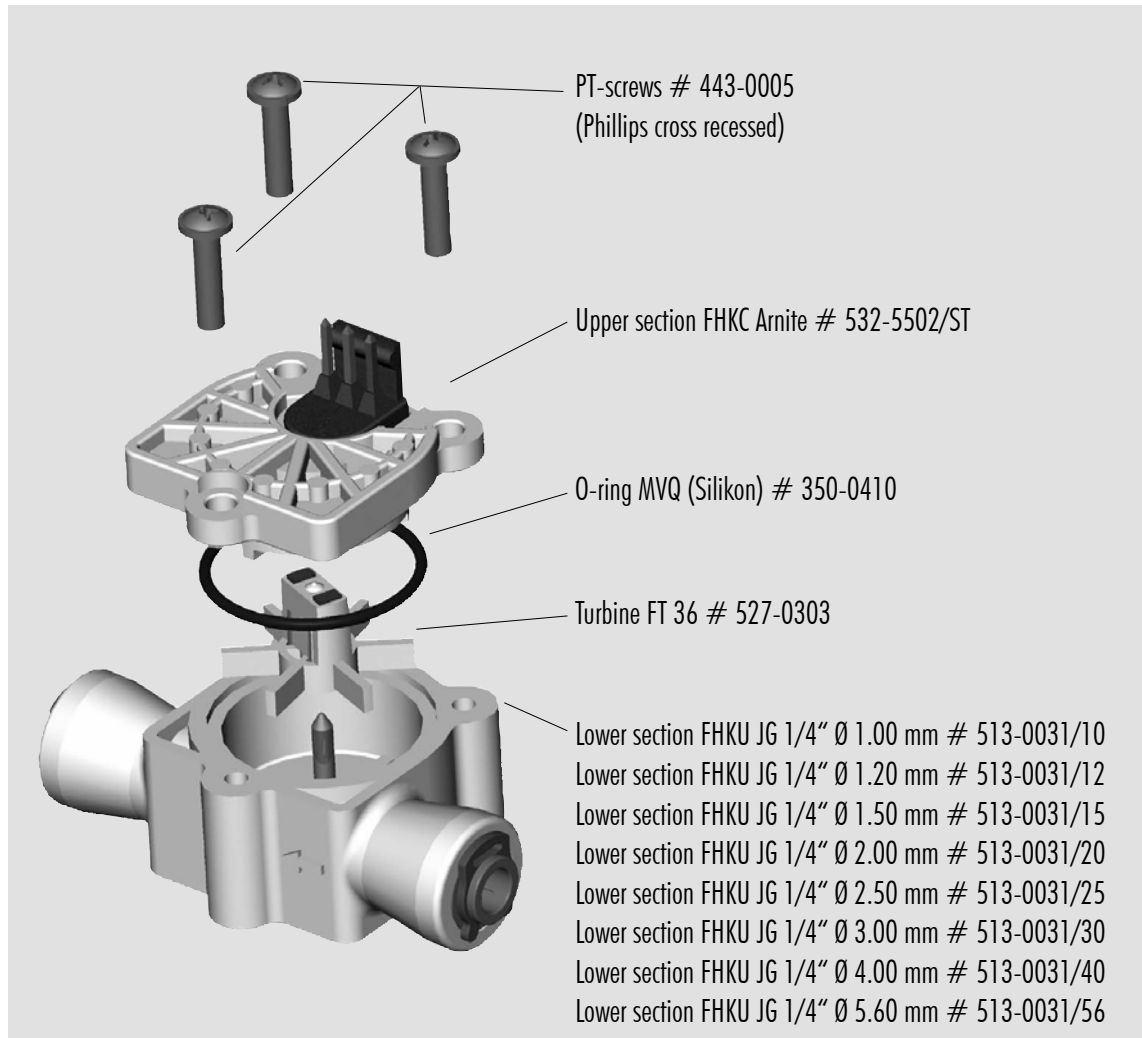
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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:



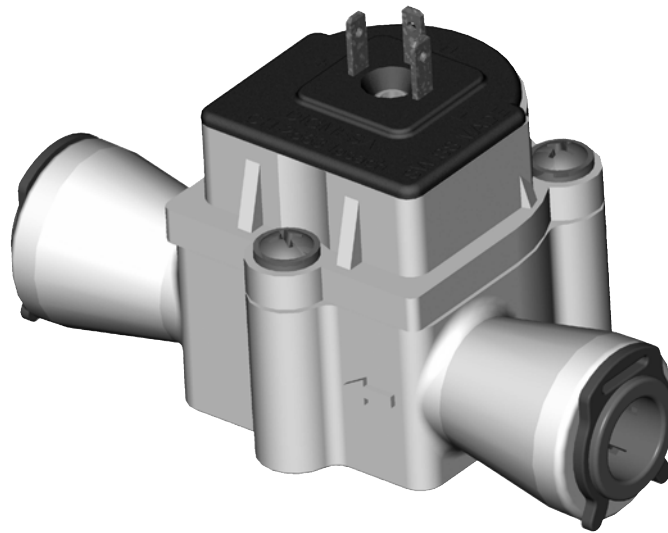
**Notes:**


We reserve the right to make modifications in the interests of technical progress.

Version 01 FHKU JG 1/4" 938-85XX/03 GB Page 13-13

Digmesa

# DATA SHEET



**DIGIMESA** 

---

FHKU John Guest 10mm Arnite  
Part number: 938-95XX/01

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU JG 10mm 938-95XX/01 GB Page 1-13

# General Description

The FHKU JG Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. Hose diameters from 10.0mm can be directly connected.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35% GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
Nozzle:	Inox 1.4305 (18/8) PTFE on request
O-ring:	MVQ (Silikon) FPM (Viton) / EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

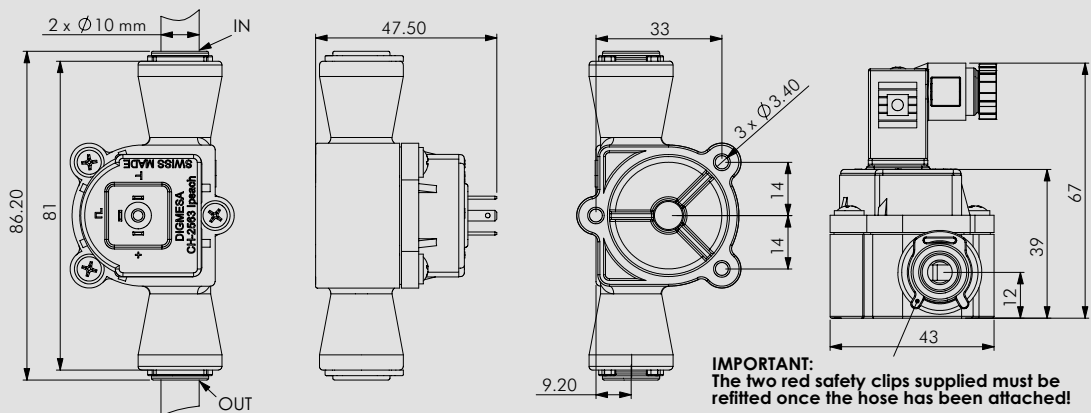
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	as shown on page 3
Pressure range:	as shown on page 3
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	3-pin AMP 2.8 x 0.8 mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## Options:

3-pin solenoid socket  
Item number: 941-0002/3



We reserve the right to make modifications in the interests of technical progress.

## 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)!

## 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!

Version 01 FHKU JG 10mm 938-95X/01 GB Page 2-13

## Working Pressure and Temperature Range

**Super Speedfit** fittings are suitable for the following

Temp .	Pressure	
	5/32"- 5/16" 4mm - 8mm	3/8"-1/2" 10mm - 22mm
<b>Air</b>		
- 20°C	16 Bar	10 Bar
<b>Potable Liquids and Air</b>		
+1°C	16 Bar	10 Bar
+23°C	16 Bar	10 Bar
+65°C	10 Bar	7 Bar

Also suitable for vacuum

Depending on the tube used, under certain conditions fittings may be used at higher pressures and temperatures. Please refer to our Customer Services Department for guidance. Note 1 Bar = 14.5 PSIG.

## Tube Types

**Plastic Tube** - Polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall tube we recommend the use of tube inserts.

**Braided Tube** - Use of Tube to Hose Stems listed on pages 5 and 12 is essential when using tube. Use of clamps to retain braided tube on barbs is recommended.

**Metal Tube (soft)** - Brass, copper or mild steel conforming to the tolerances below.

**Metal Tube (hard)** - We do not recommend **Super Speedfit** fittings for hard metal tubes.

For stainless steel and other polished metal tubes we recommend the use of **Superseal** fittings. These are shown on page 9 of this brochure.

It is essential that outside diameters be free from score marks and that the tube be deburred before inserting the fitting.

## Tube Tolerances

**Super Speedfit** fittings are offered for tubes with outside diameters to the following tolerances.

Size (inches)	5/32 - 3/16	1/4 - 1/2
Tolerance (inches)	+0.001 / -0.003	+0.001 / -0.004
Size (mm)	4mm- 5mm	6mm- 22mm
Tolerance (mm)	+0.05 / -0.07	+0.05 / -0.10

Phone: (49)-521 / 9 72 56-0  
 Fax: (49)-521 / 9 72 56-80  
 Internet: <http://www.johnguest.com>  
<http://www.speedfit.co.uk>

We reserve the right to make modifications in the interests of technical progress.

## Installation and System Testing

**Fittings and tube should be kept clean and undamaged before use.**

All tube and fittings installations must be pressure tested after installation to ensure system integrity before handing over to the final user. See also "How to make a connection".

## Chemicals

For use with chemicals or other potentially aggressive liquids, please refer to our Customer Services Department.

**Super Speedfit** fittings are not recommended for use with explosive gases, petroleum spirits, and other fuels or for central heating systems.

## Collet Covers

Are available as additional security against removal of the tube or to provide a simple means of colour coding. The cover is offered in a range of six colours. Please see pages 6 and 12 of this brochure.

## Food Quality

All the fittings in the brochure are produced in Food and Drug Administration (FDA) approved materials and are therefore recommended for food quality applications.



## Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

	Threads		
	1/8 - 1/4	3/8 - 1/2	3/4
Max. Torque	1.5Nm	3.0Nm	4.0Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.
- The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British or International thread standard.

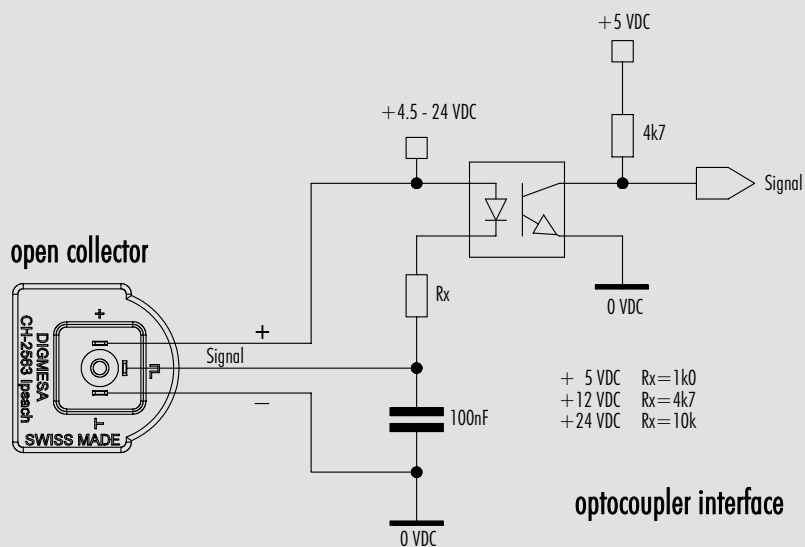
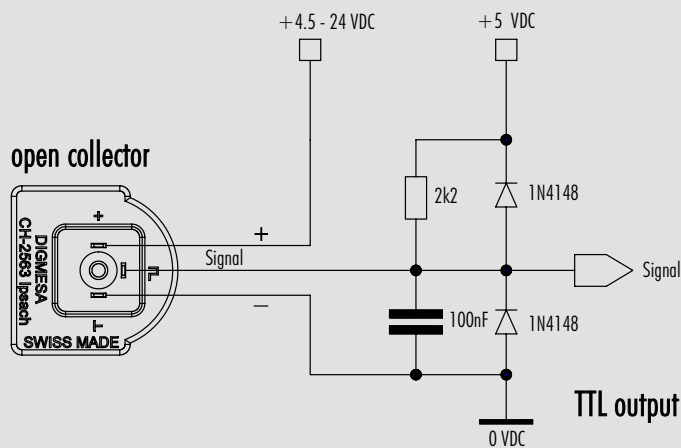
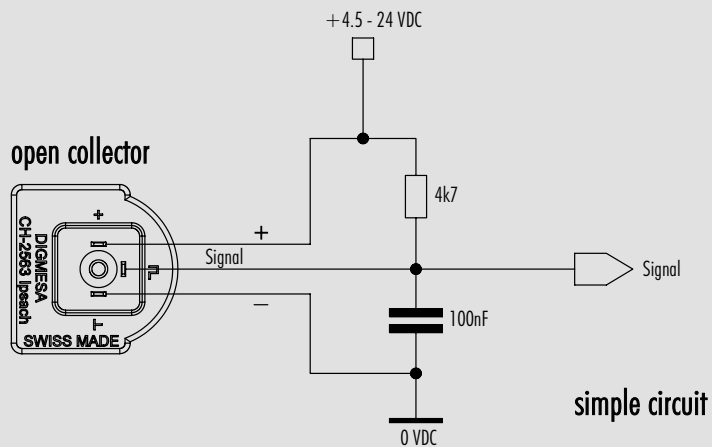
## Cleaners and Sanitising of Acetal Fittings

Our advice to customers is to use cleaners and sanitising agents that are above pH4 and low in hypochlorite level. Acetal fittings and parts that are cleaned and/or sanitised should be rinsed immediately with copious amounts of clean tap water to remove all traces of the cleaners. Details of which products are made from acetal are shown in our catalogues but generally John Guest products incorporating acetal are designated by the part number prefix PI, PM, CI, CM and RM. Polypropylene fittings offer greater resistance to aggressive chemicals than acetal fittings. Polypropylene does not have the same mechanical properties as acetal and John Guest polypropylene fittings are generally designated by the part number prefix PP. Our material suppliers recommend ECOLAB Oasis 133 as a suitable external cleaner for acetal products manufactured by John Guest.

## Warranty

Whilst we give a warranty against defects in manufacture or materials, it is the responsibility of the specifier to ensure that fittings and related products are suitable for their application. The installation must be carried out correctly in accordance with our recommendations, complying with recognised codes of practice and relevant national

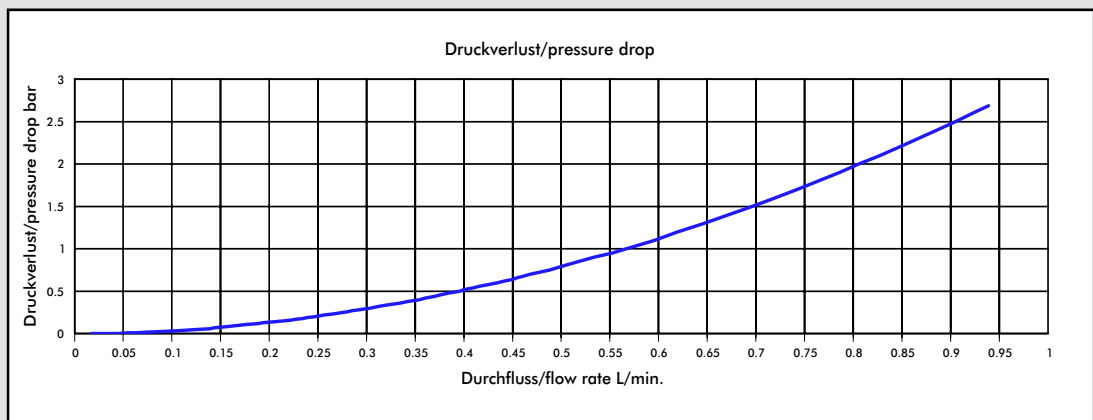
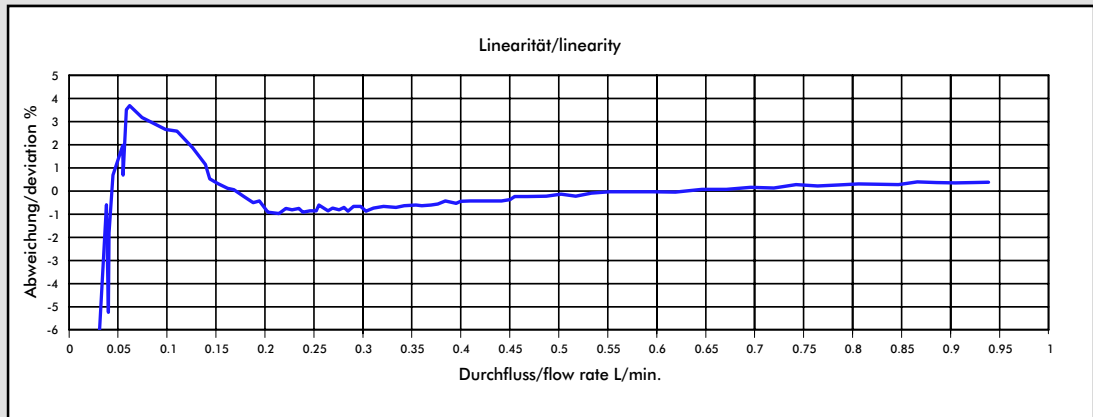
# Interface Connection: Examples Open Collector



DIGIMESA



# Measurement Curve FHKU 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

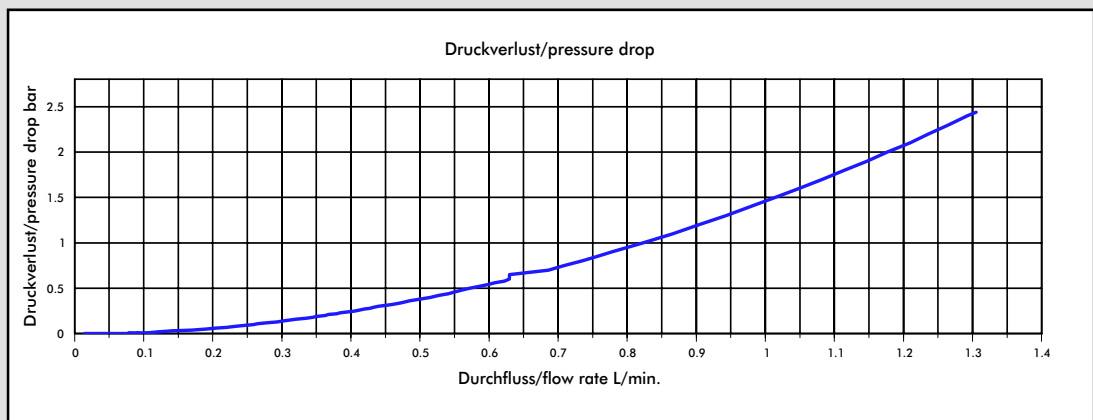
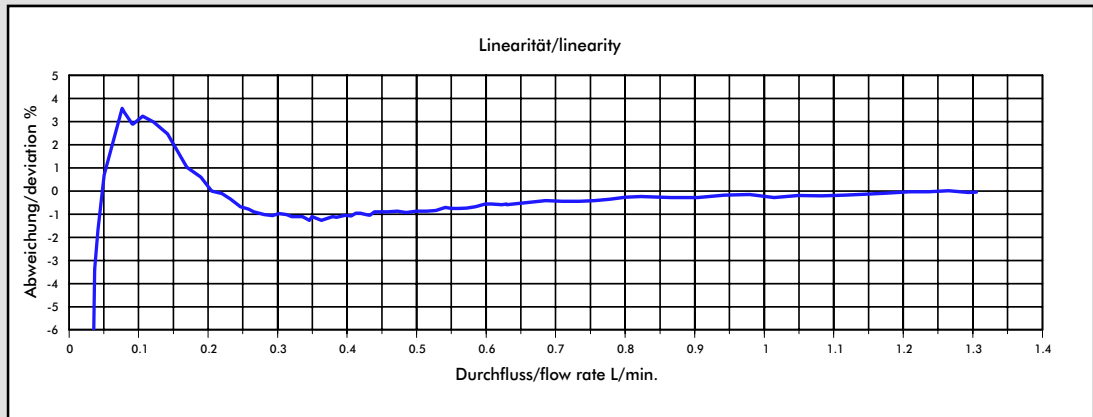
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

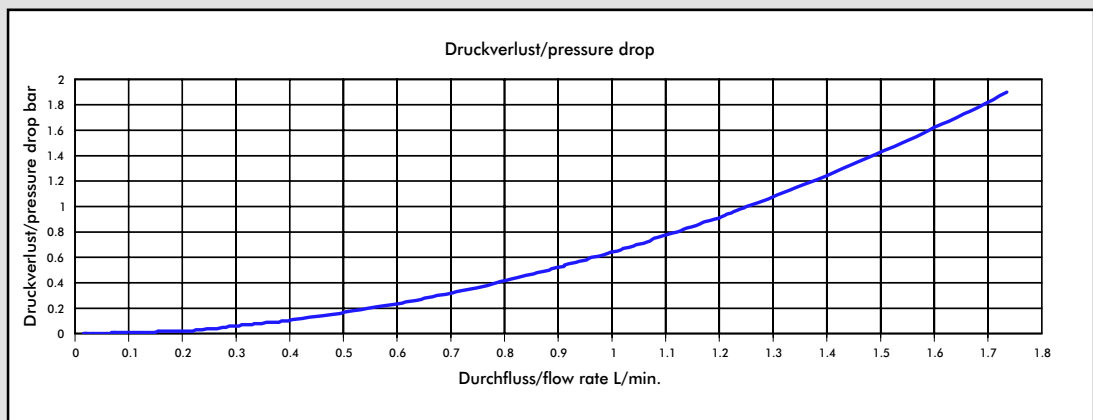
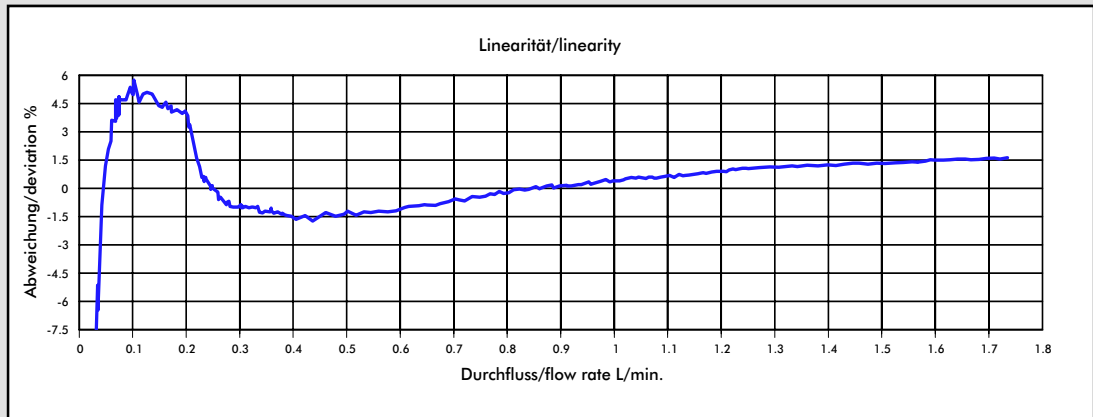
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

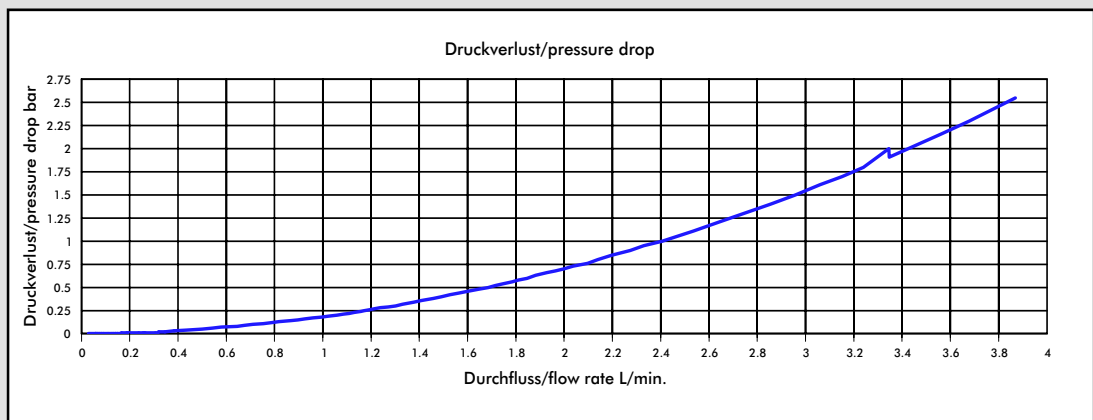
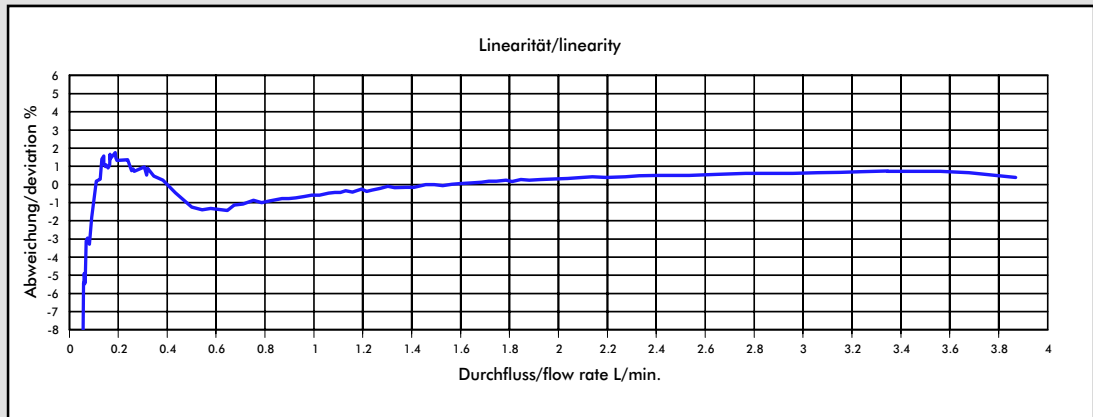
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

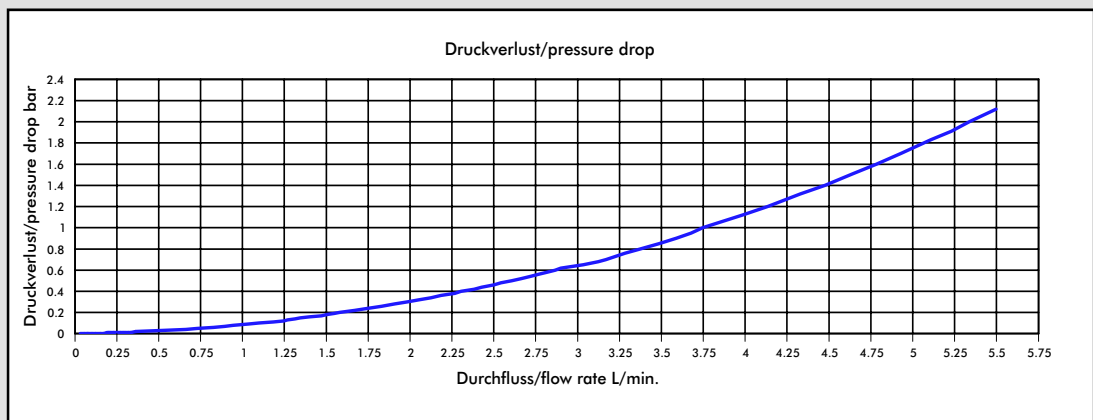
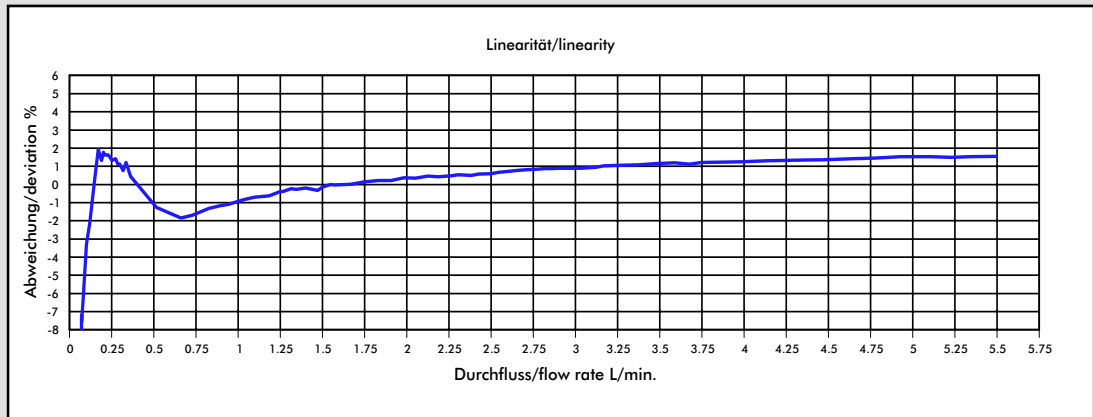
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

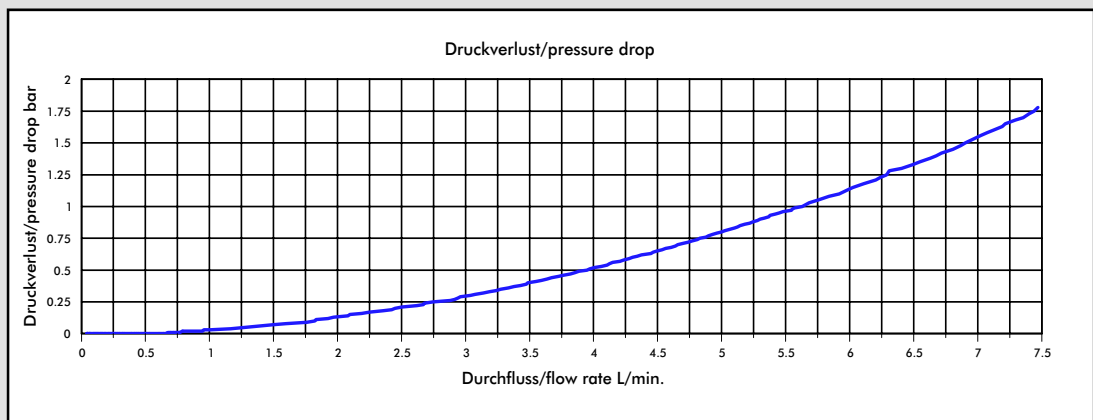
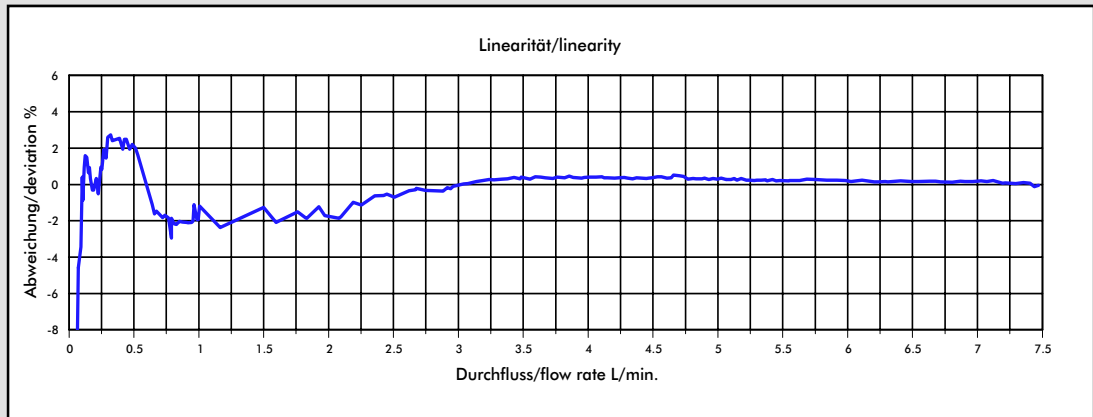
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

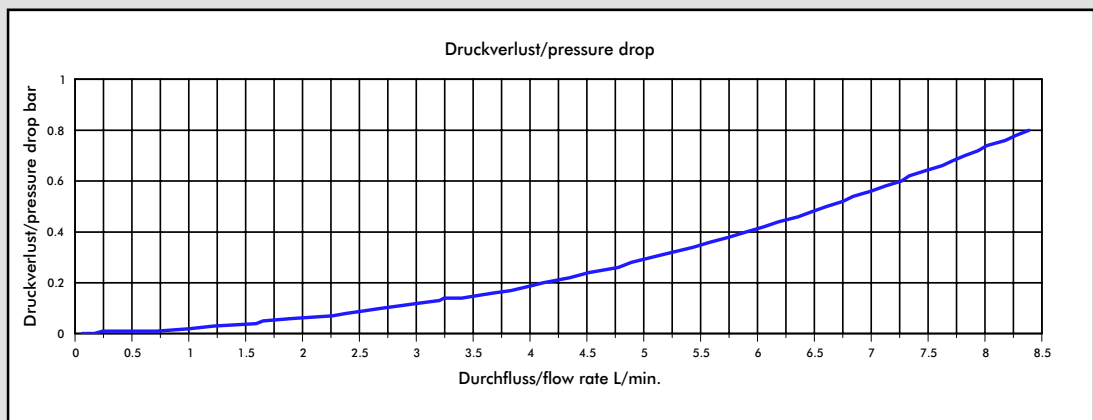
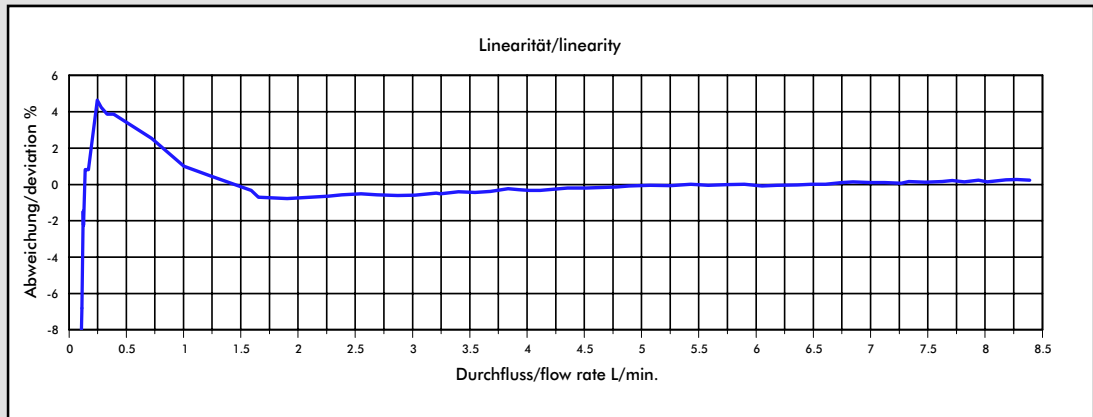
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

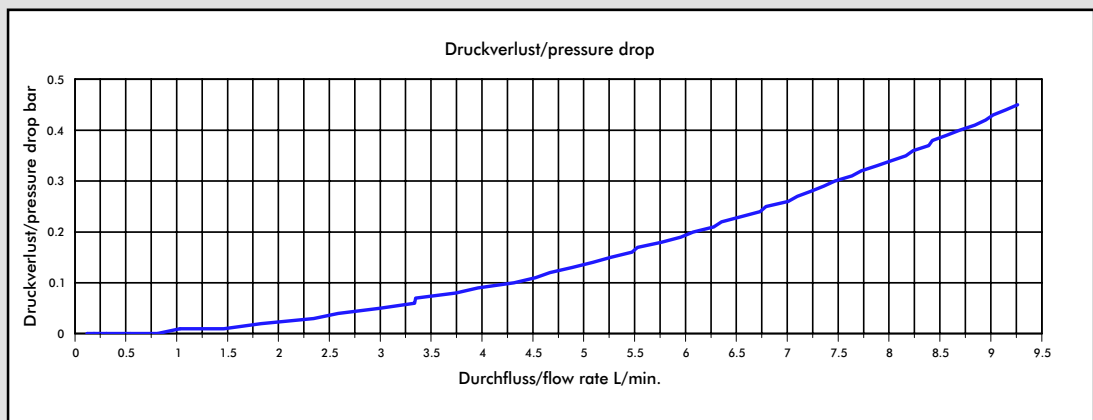
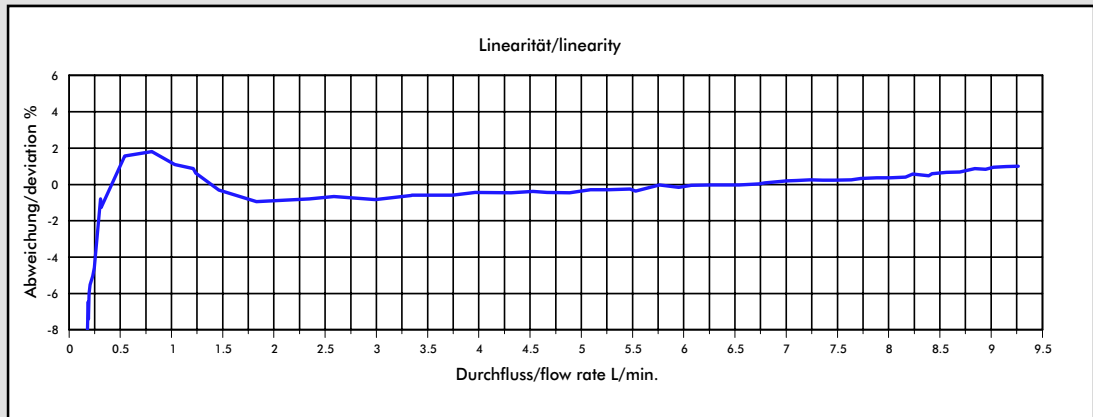
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

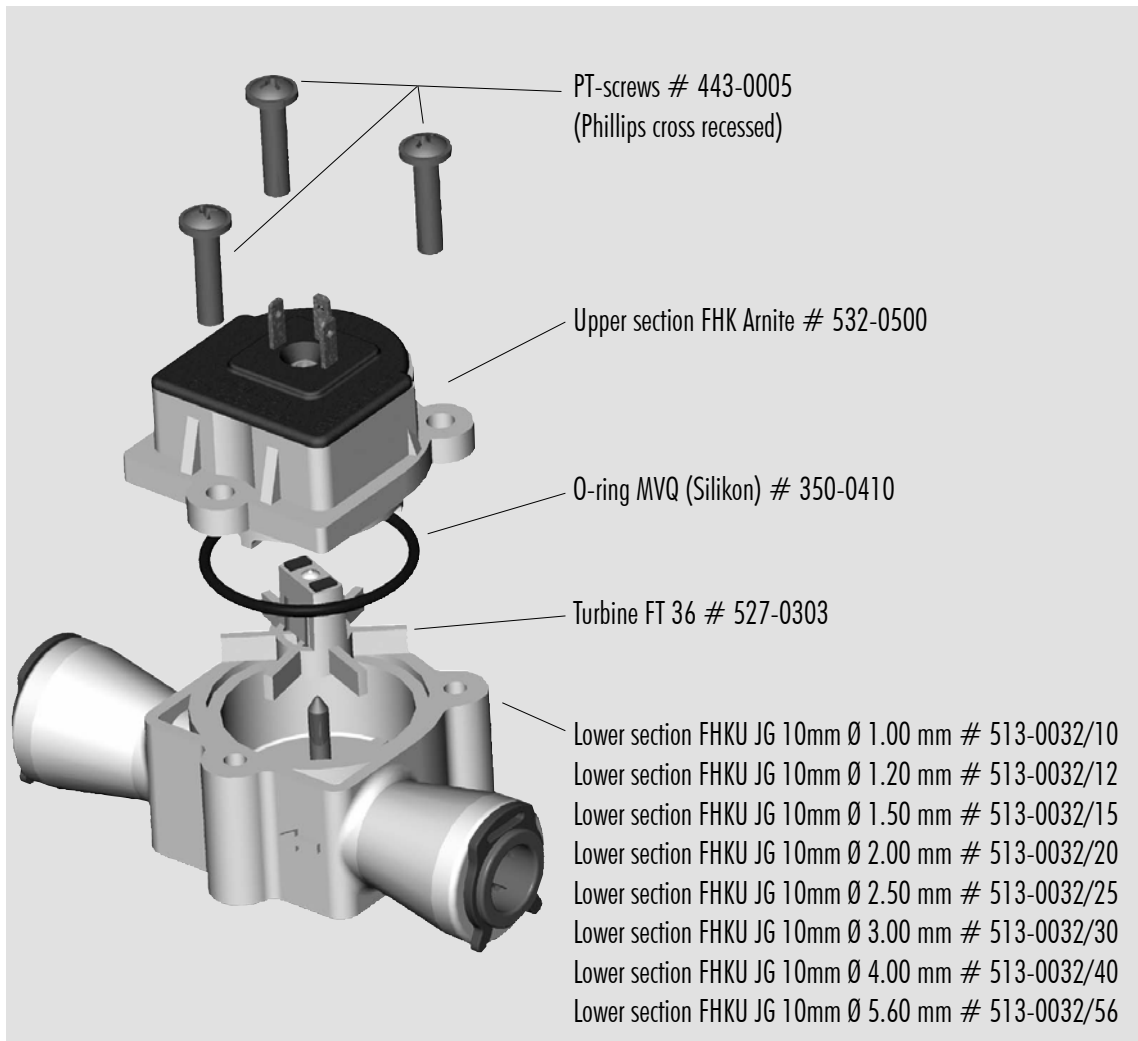
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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)

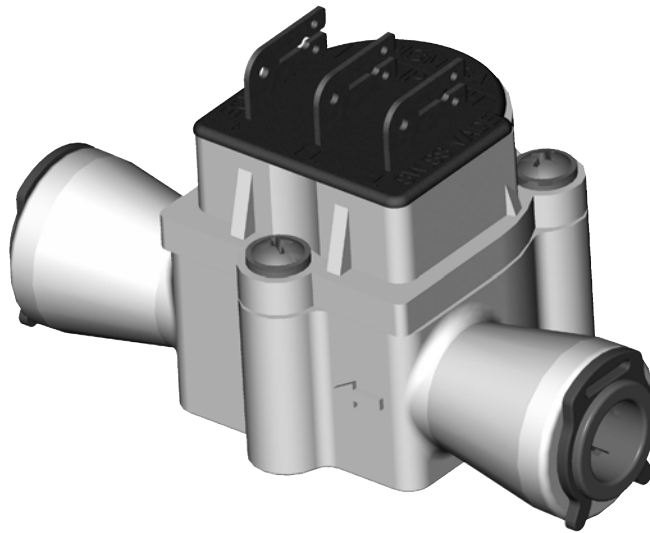


# Spare parts:



**Notes:**


# DATA SHEET



## **DIGIMESA**

---

FHKUF John Guest 10mm Arnite  
Part number: 938-95XX/02

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU JG 10mm 938-95XX/02 GB Page 1-13

# General Description

The FHKU JG Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. Hose diameters from 10.0mm can be directly connected.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35% GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
Nozzle:	Inox 1.4305 (18/8) PTFE on request
O-ring:	MVQ (Silikon) FPM (Viton) / EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

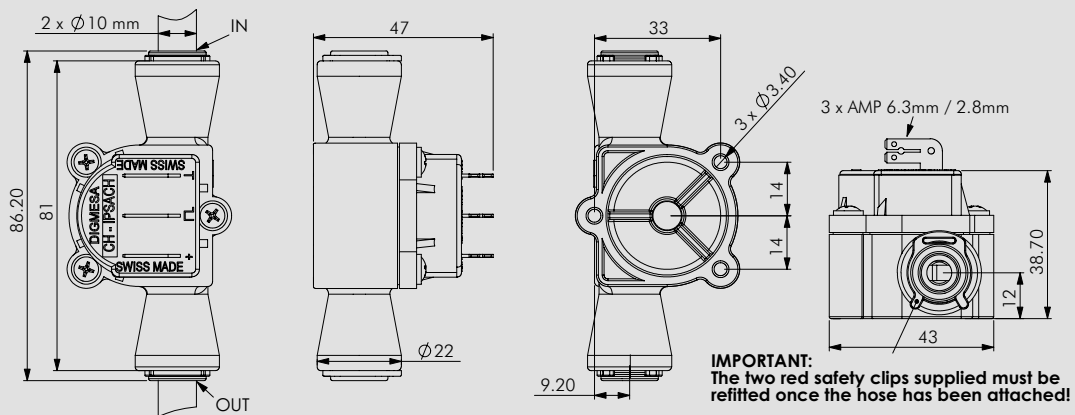
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	as shown on page 3
Pressure range:	as shown on page 3
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	Faston AMP 6.3 x 2.8mm
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## 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)!

## 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!

## Working Pressure and Temperature Range

**Super Speedfit** fittings are suitable for the following

Temp .	Pressure	
	5/32"- 5/16" 4mm - 8mm	3/8"-1/2" 10mm - 22mm
<b>Air</b>		
- 20°C	16 Bar	10 Bar
<b>Potable Liquids and Air</b>		
+1°C	16 Bar	10 Bar
+23°C	16 Bar	10 Bar
+65°C	10 Bar	7 Bar

Also suitable for vacuum

Depending on the tube used, under certain conditions fittings may be used at higher pressures and temperatures. Please refer to our Customer Services Department for guidance. Note 1 Bar = 14.5 PSIG.

## Tube Types

**Plastic Tube** - Polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall tube we recommend the use of tube inserts.

**Braided Tube** - Use of Tube to Hose Stems listed on pages 5 and 12 is essential when using tube. Use of clamps to retain braided tube on barbs is recommended.

**Metal Tube (soft)** - Brass, copper or mild steel conforming to the tolerances below.

**Metal Tube (hard)** - We do not recommend **Super Speedfit** fittings for hard metal tubes.

For stainless steel and other polished metal tubes we recommend the use of **Superseal** fittings. These are shown on page 9 of this brochure.

It is essential that outside diameters be free from score marks and that the tube be deburred before inserting the fitting.

## Tube Tolerances

**Super Speedfit** fittings are offered for tubes with outside diameters to the following tolerances.

Size (inches)	5/32 - 3/16	1/4 - 1/2
Tolerance (inches)	+0.001 / -0.003	+0.001 / -0.004
Size (mm)	4mm- 5mm	6mm- 22mm
Tolerance (mm)	+0.05 / -0.07	+0.05 / -0.10

Phone: (49)-521 / 9 72 56-0  
 Fax: (49)-521 / 9 72 56-80  
 Internet: <http://www.johnguest.com>  
<http://www.speedfit.co.uk>

We reserve the right to make modifications in the interests of technical progress.

## Installation and System Testing

**Fittings and tube should be kept clean and undamaged before use.**

All tube and fittings installations must be pressure tested after installation to ensure system integrity before handing over to the final user. See also "How to make a connection".

## Chemicals

For use with chemicals or other potentially aggressive liquids, please refer to our Customer Services Department.

**Super Speedfit** fittings are not recommended for use with explosive gases, petroleum spirits, and other fuels or for central heating systems.

## Collet Covers

Are available as additional security against removal of the tube or to provide a simple means of colour coding. The cover is offered in a range of six colours. Please see pages 6 and 12 of this brochure.

## Food Quality

All the fittings in the brochure are produced in Food and Drug Administration (FDA) approved materials and are therefore recommended for food quality applications.



## Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

	Threads		
	1/8 - 1/4	3/8 - 1/2	3/4
Max. Torque	1.5Nm	3.0Nm	4.0Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.
- The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British or International thread standard.

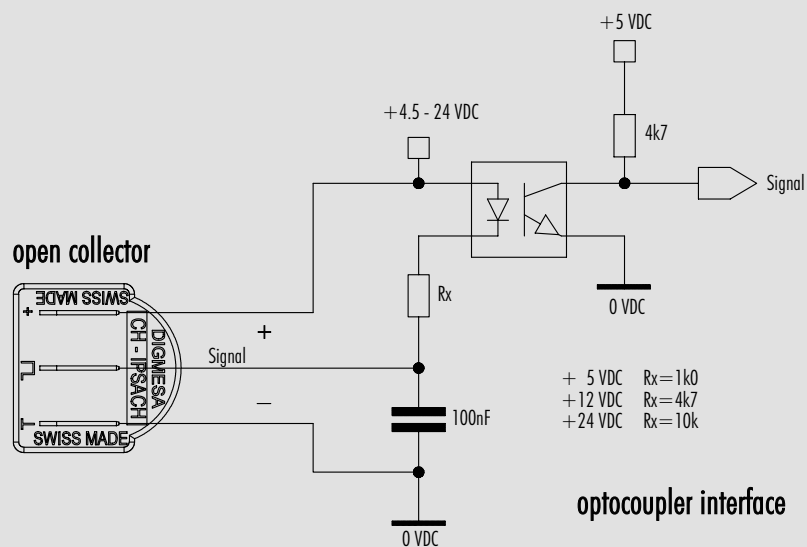
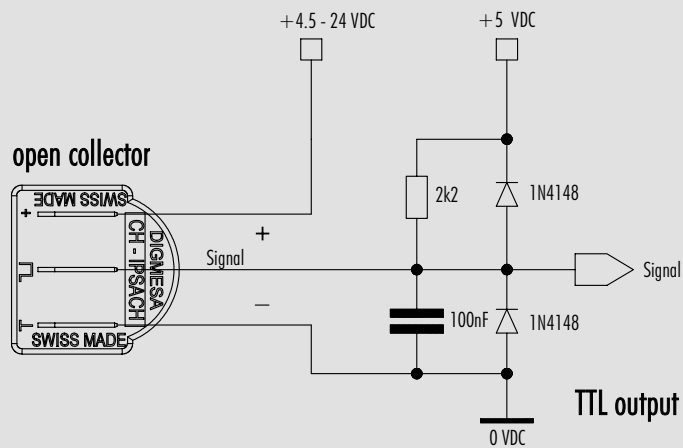
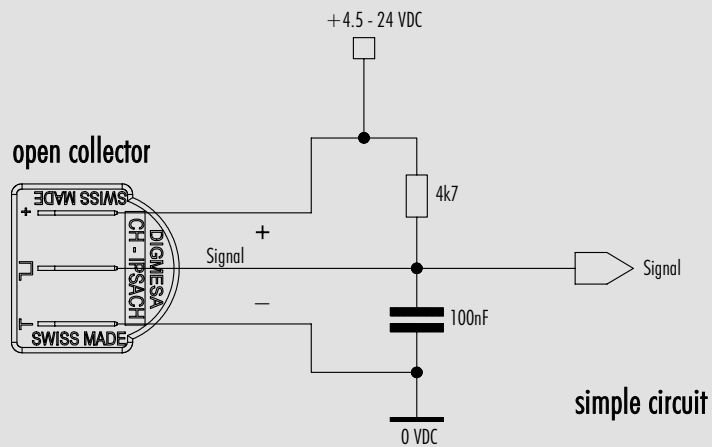
## Cleaners and Sanitising of Acetal Fittings

Our advice to customers is to use cleaners and sanitising agents that are above pH4 and low in hypochlorite level. Acetal fittings and parts that are cleaned and/or sanitised should be rinsed immediately with copious amounts of clean tap water to remove all traces of the cleaners. Details of which products are made from acetal are shown in our catalogues but generally John Guest products incorporating acetal are designated by the part number prefix PI, PM, CI, CM and RM. Polypropylene fittings offer greater resistance to aggressive chemicals than acetal fittings. Polypropylene does not have the same mechanical properties as acetal and John Guest polypropylene fittings are generally designated by the part number prefix PP. Our material suppliers recommend ECOLAB Oasis 133 as a suitable external cleaner for acetal products manufactured by John Guest.

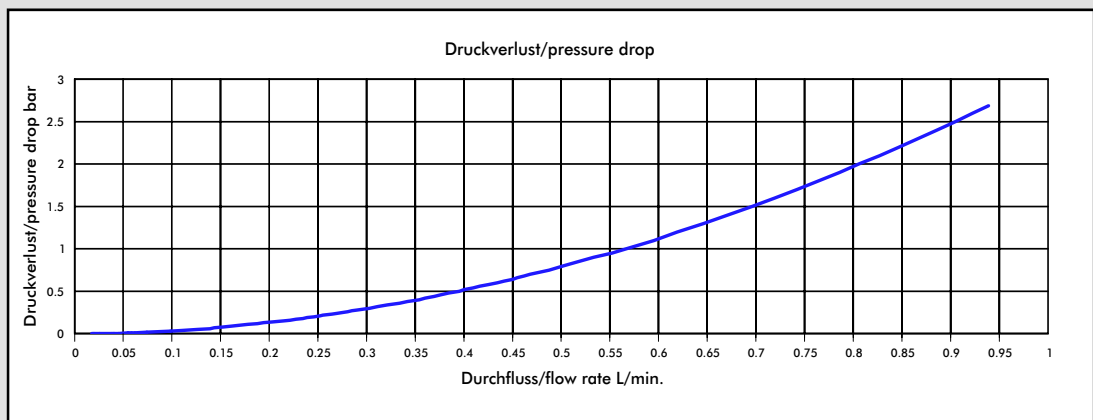
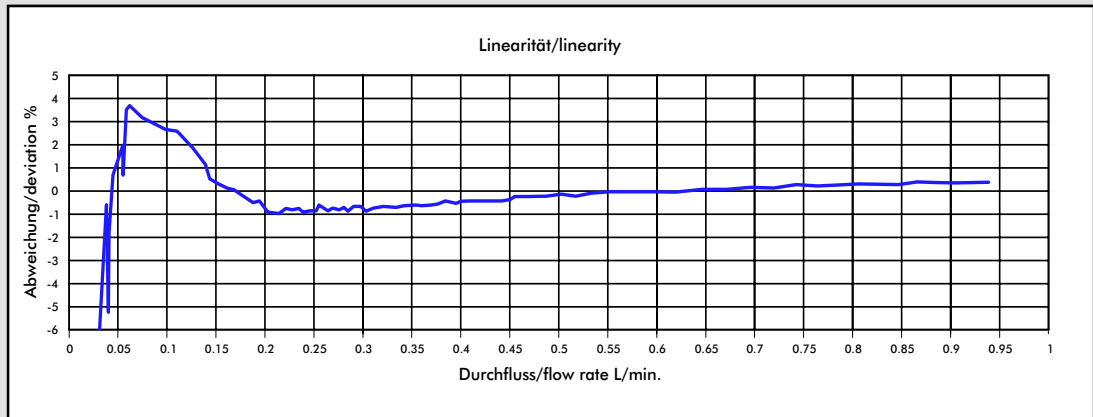
## Warranty

Whilst we give a warranty against defects in manufacture or materials, it is the responsibility of the specifier to ensure that fittings and related products are suitable for their application. The installation must be carried out correctly in accordance with our recommendations, complying with recognised codes of practice and relevant national

# Interface Connection: Examples Open Collector



# Measurement Curve FHKU 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

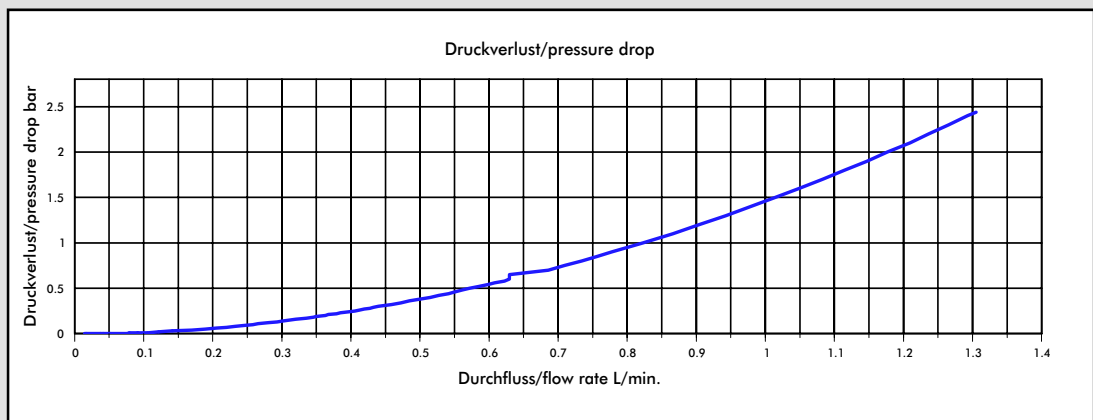
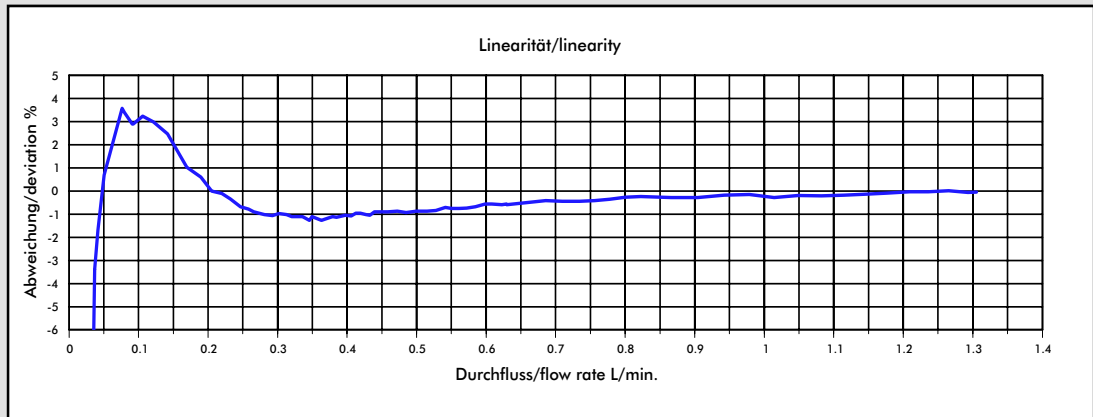
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

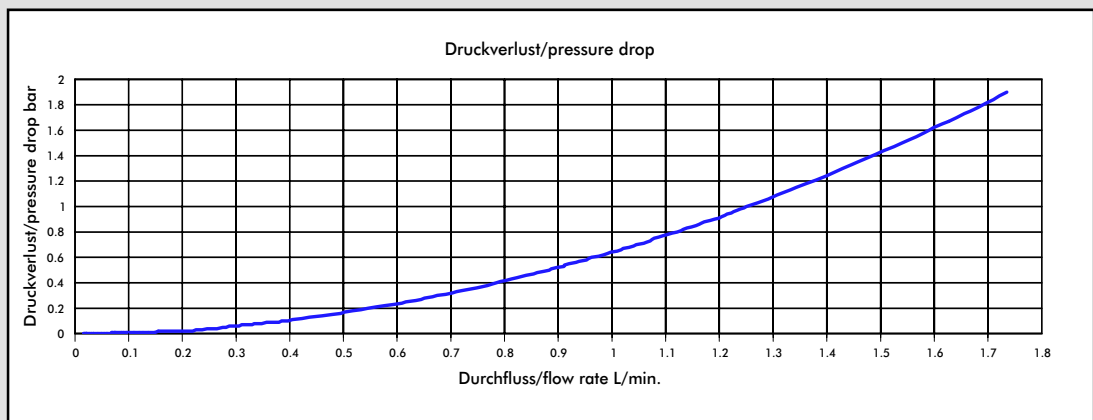
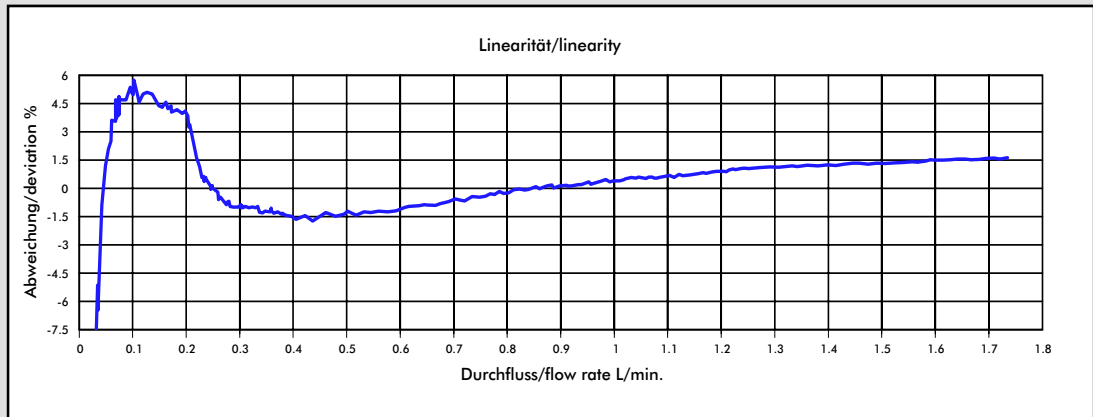
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

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

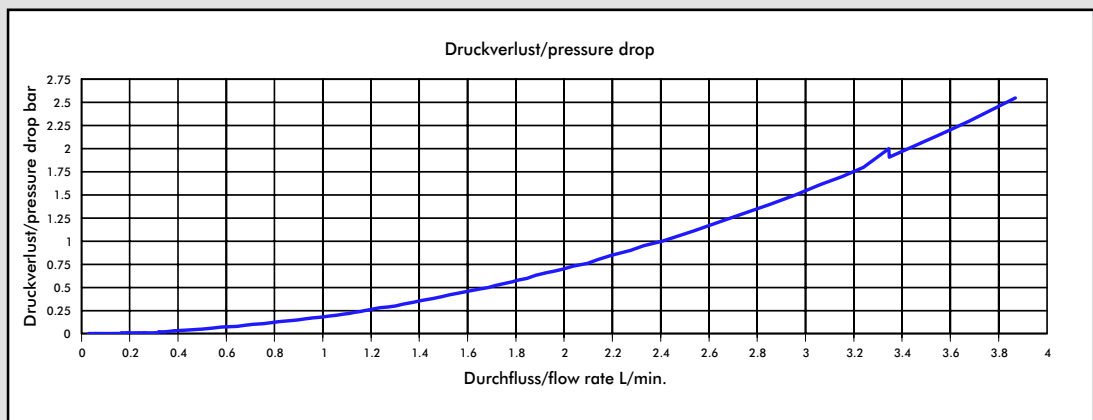
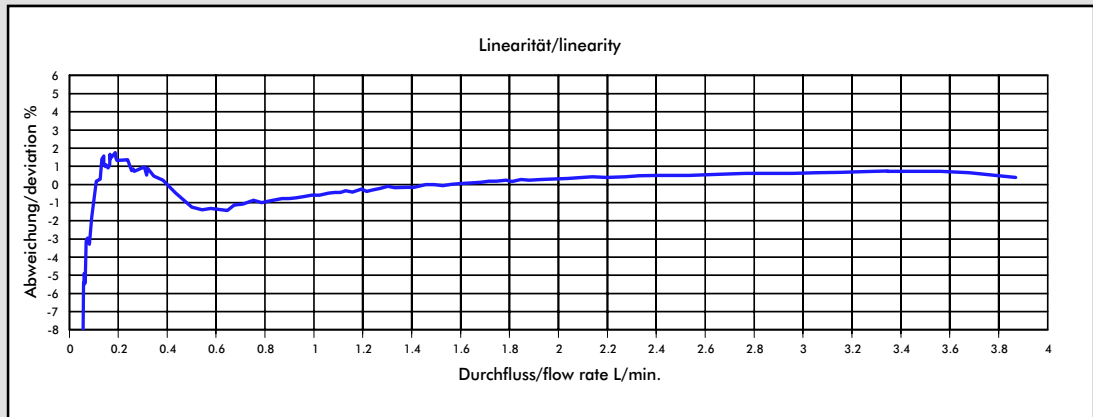
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

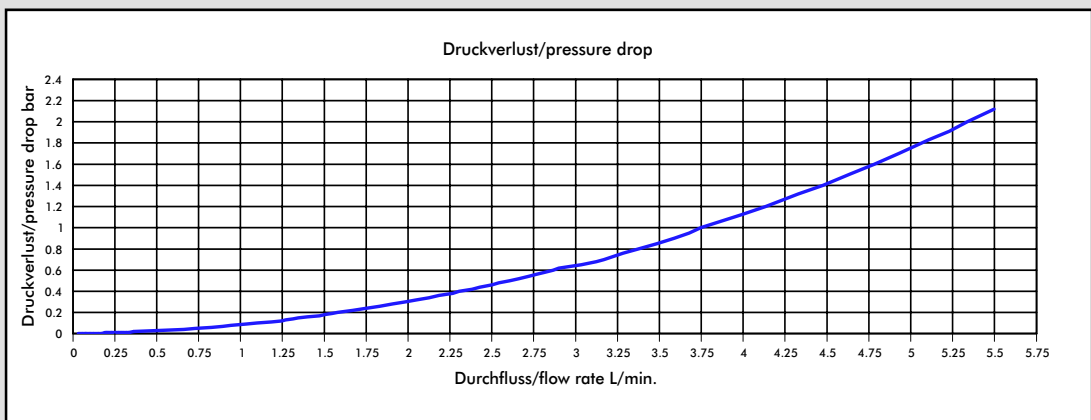
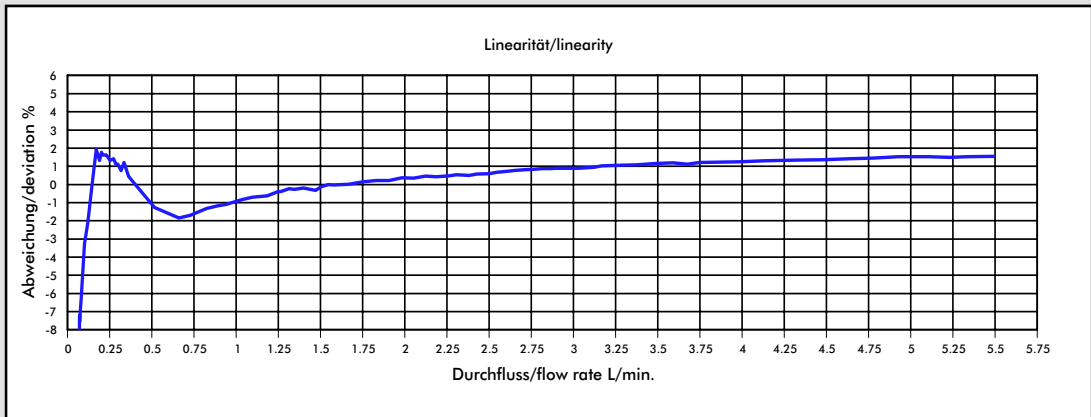
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

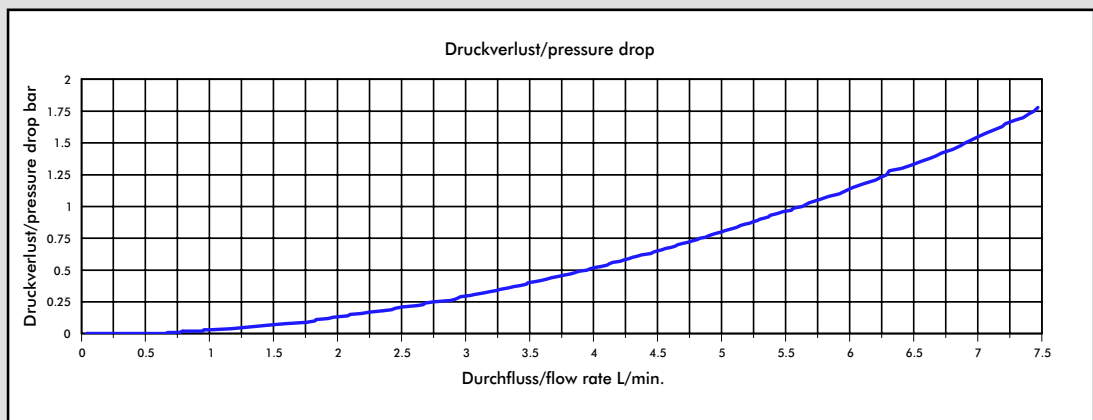
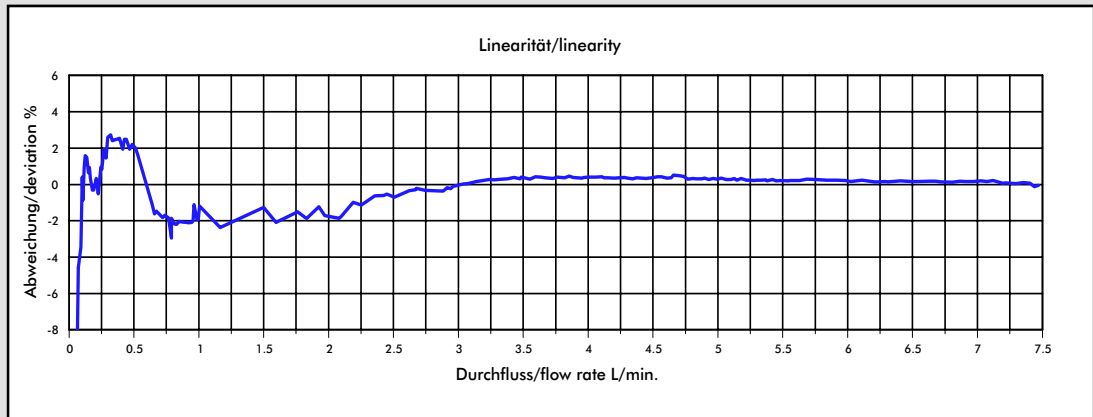
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

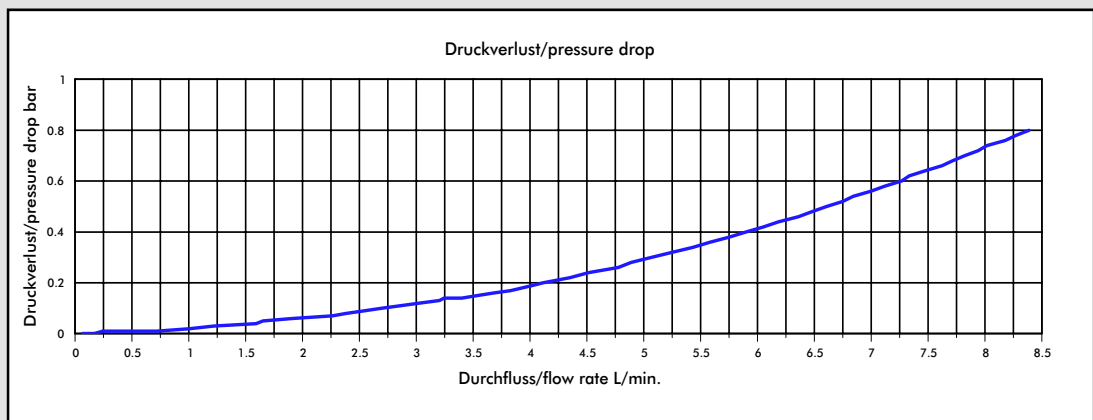
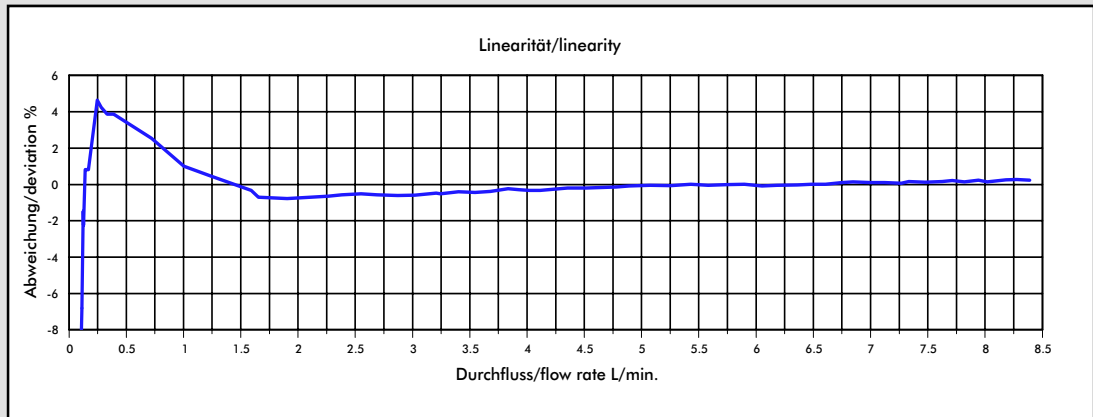
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

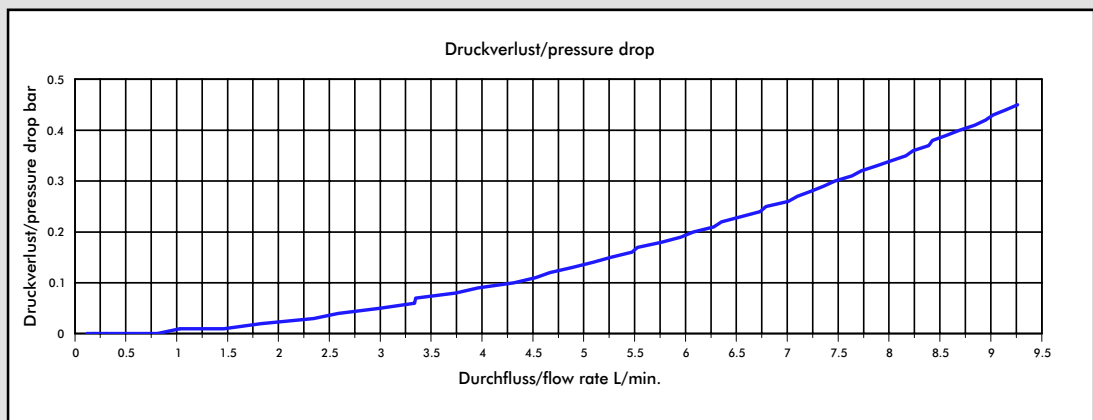
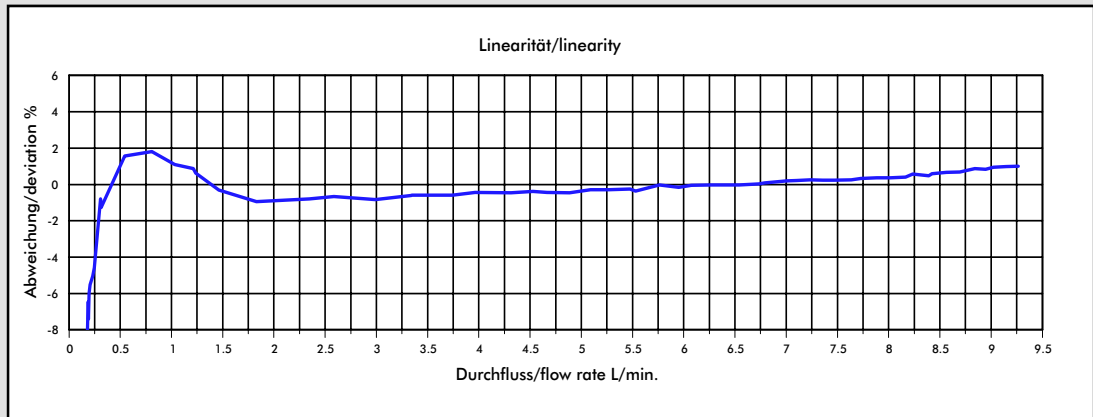
**The values specified must be considered as approximate values.**  
**The number of pulses per litre may differ depending on medium and installation.**  
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

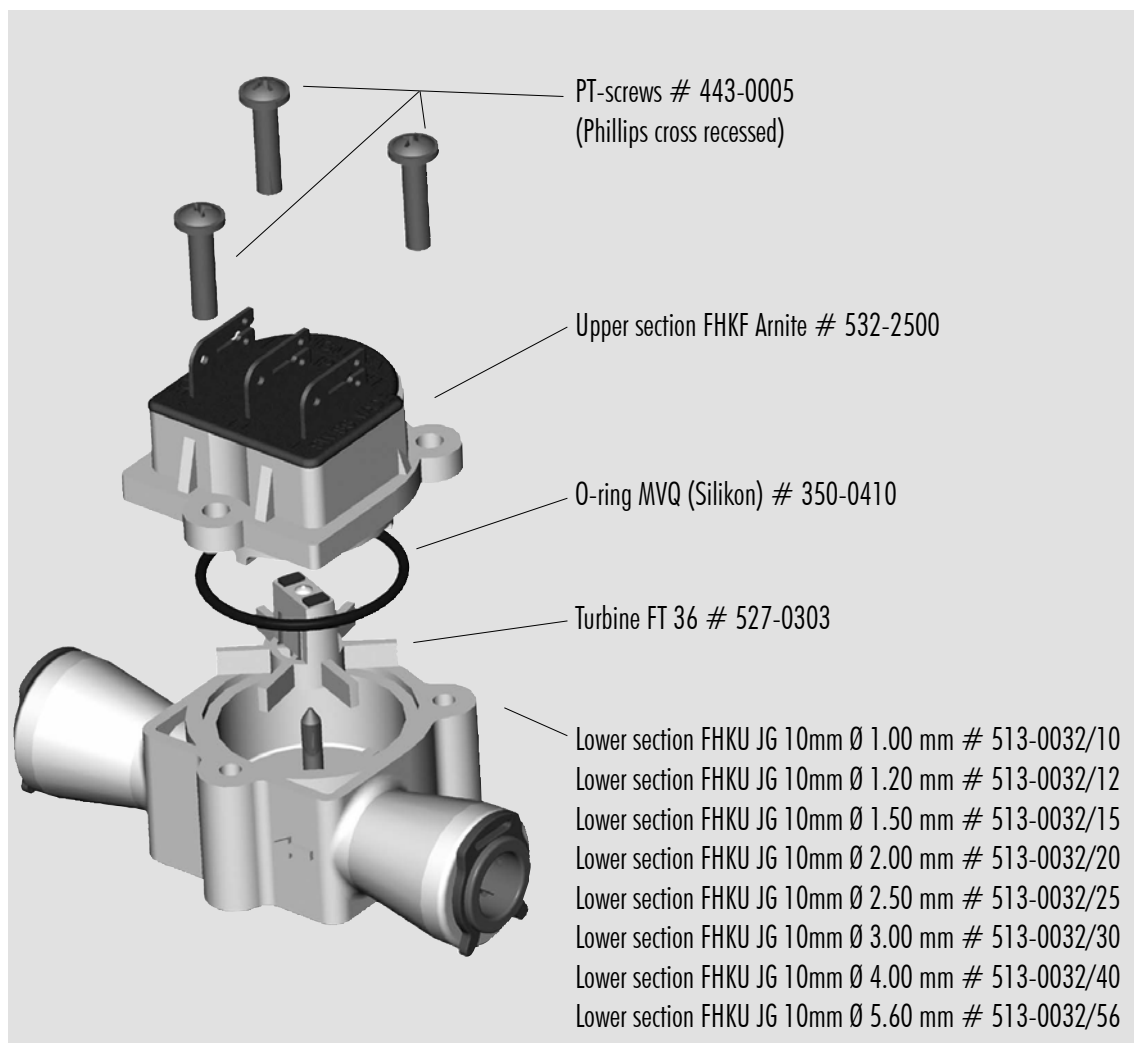
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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)

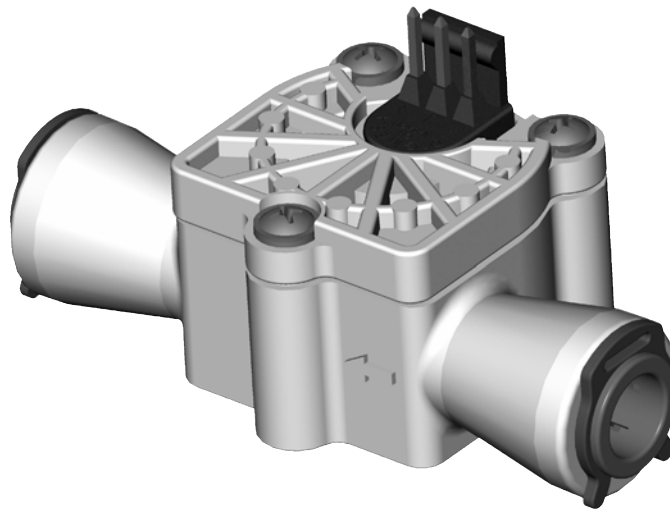
## Spare parts:



### Notes:

--	--	--

# DATA SHEET



**DIGIMESA**

---

FHKUC John Guest 10mm Arnite  
Part number: 938-95XX/03

Digimesa AG, Keltenstrasse 31, CH-2563 Ipsach / Switzerland  
Phone +41 (32) 332 77 77, Fax +41 (32) 332 77 88

[www.digimesa.com](http://www.digimesa.com)

Version 01 FHKU JG 10mm 938-95XX/03 GB Page 1-13

# General Description

The FHKU JG Flowmeter is a general-purpose device; its working range can be individually defined according to its nozzle size. It is employed for measuring, regulating or metering and guarantees most precise measurement of fluid quantities. In addition, a pulse generator integrated into the flowmeter guarantees a practically unlimited useful life.

**Special features:** Linear inlet and outlet, compact design, great working range, depending on the nozzle diameter. Hose diameters from 10.0mm can be directly connected.

## Approvals / Standards

EN 50081-1:92, EN 50082-1:97,  
EN 61000-3-2:00, EN 61000-3-3:95,  
IEC 61000-6-3:96, IEC 61000-6-1:96,  
IEC 61000-3-2-00, IEC 61000-3-3:94 + A1:01



## Material:

Housing:	PBT 35% GF (Arnite)
Bearing pin:	Inox 1.4305 (18/8) Inox 1.4571 on request
Nozzle:	Inox 1.4305 (18/8) PTFE on request
O-ring:	MVQ (Silikon) FPM (Viton) / EPDM on request
Turbine:	PVDF
Magnets:	Keramik Sr Fe O (in contact with the medium)
Screw:	PT-screws (Phillips cross recessed)

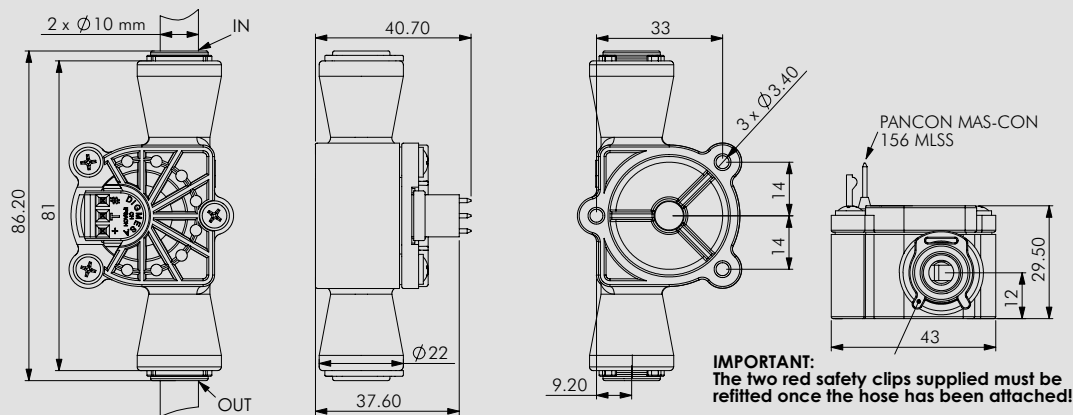
## Technical data:

Flow rate:	0.041 - 15 l/min depending on the nozzle diameter
Measuring accuracy:	+/- 2.0%
Repetition:	< +/- 0.25%
Temperature range:	as shown on page 3
Pressure range:	as shown on page 3
Mounting position:	Horizontal recommended
Nozzle size:	Ø 1.0, 1.2, 1.5, 2.0, 2.5, 3.0, 4.0, 5.6 mm

## Electrical connection ratings:

Power supply:	4.5–24 VDC
Consumption:	5 mA to max. 13 mA
Signal connection:	Open collector NPN
Signal voltage:	0 V GND
Signal load:	max. 20 mA
Leakage current:	max. 10 µA
Connections:	PANCON MAS-CON 156 MLSS
Signal:	Square-wave output
Duty Cycle:	50% / ±5%

## Dimensions in mm:



## 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)!

## 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!



## Working Pressure and Temperature Range

**Super Speedfit** fittings are suitable for the following

Temp .	Pressure	
	5/32"- 5/16" 4mm - 8mm	3/8"-1/2" 10mm - 22mm
<b>Air</b>		
- 20°C	16 Bar	10 Bar
<b>Potable Liquids and Air</b>		
+1°C	16 Bar	10 Bar
+23°C	16 Bar	10 Bar
+65°C	10 Bar	7 Bar

Also suitable for vacuum

Depending on the tube used, under certain conditions fittings may be used at higher pressures and temperatures. Please refer to our Customer Services Department for guidance. Note 1 Bar = 14.5 PSIG.

## Tube Types

**Plastic Tube** - Polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall tube we recommend the use of tube inserts.

**Braided Tube** - Use of Tube to Hose Stems listed on pages 5 and 12 is essential when using tube. Use of clamps to retain braided tube on barbs is recommended.

**Metal Tube (soft)** - Brass, copper or mild steel conforming to the tolerances below.

**Metal Tube (hard)** - We do not recommend **Super Speedfit** fittings for hard metal tubes.

For stainless steel and other polished metal tubes we recommend the use of **Superseal** fittings. These are shown on page 9 of this brochure.

It is essential that outside diameters be free from score marks and that the tube be deburred before inserting the fitting.

## Tube Tolerances

**Super Speedfit** fittings are offered for tubes with outside diameters to the following tolerances.

Size (inches)	5/32 - 3/16	1/4 - 1/2
Tolerance (inches)	+0.001 / -0.003	+0.001 / -0.004
Size (mm)	4mm- 5mm	6mm- 22mm
Tolerance (mm)	+0.05 / -0.07	+0.05 / -0.10

Phone: (49)-521 / 9 72 56-0  
 Fax: (49)-521 / 9 72 56-80  
 Internet: <http://www.johnguest.com>  
<http://www.speedfit.co.uk>

We reserve the right to make modifications in the interests of technical progress.

## Installation and System Testing

**Fittings and tube should be kept clean and undamaged before use.**

All tube and fittings installations must be pressure tested after installation to ensure system integrity before handing over to the final user. See also "How to make a connection".

## Chemicals

For use with chemicals or other potentially aggressive liquids, please refer to our Customer Services Department.

**Super Speedfit** fittings are not recommended for use with explosive gases, petroleum spirits, and other fuels or for central heating systems.

## Collet Covers

Are available as additional security against removal of the tube or to provide a simple means of colour coding. The cover is offered in a range of six colours. Please see pages 6 and 12 of this brochure.

## Food Quality

All the fittings in the brochure are produced in Food and Drug Administration (FDA) approved materials and are therefore recommended for food quality applications.



## Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

	Threads		
	1/8 - 1/4	3/8 - 1/2	3/4
Max. Torque	1.5Nm	3.0Nm	4.0Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.
- The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British or International thread standard.

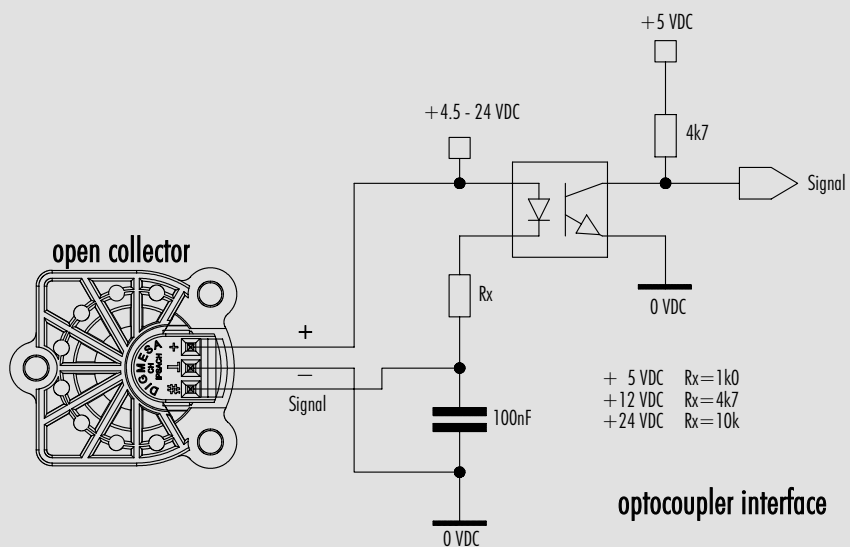
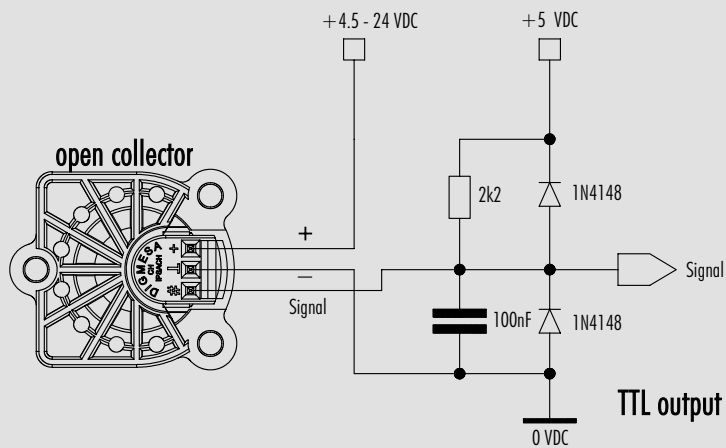
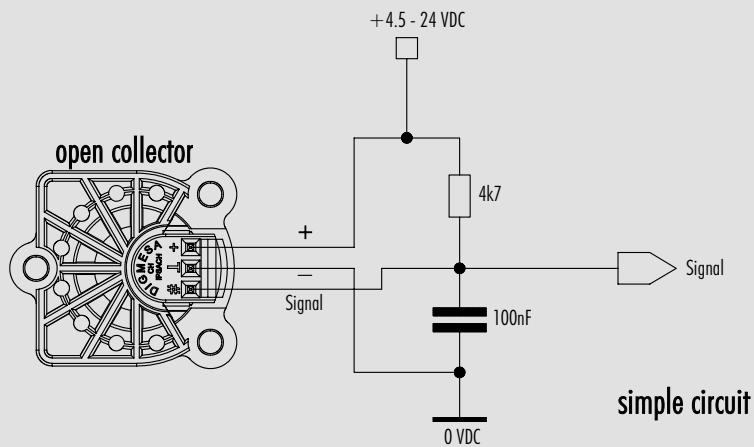
## Cleaners and Sanitising of Acetal Fittings

Our advice to customers is to use cleaners and sanitising agents that are above pH4 and low in hypochlorite level. Acetal fittings and parts that are cleaned and/or sanitised should be rinsed immediately with copious amounts of clean tap water to remove all traces of the cleaners. Details of which products are made from acetal are shown in our catalogues but generally John Guest products incorporating acetal are designated by the part number prefix PI, PM, CI, CM and RM. Polypropylene fittings offer greater resistance to aggressive chemicals than acetal fittings. Polypropylene does not have the same mechanical properties as acetal and John Guest polypropylene fittings are generally designated by the part number prefix PP. Our material suppliers recommend ECOLAB Oasis 133 as a suitable external cleaner for acetal products manufactured by John Guest.

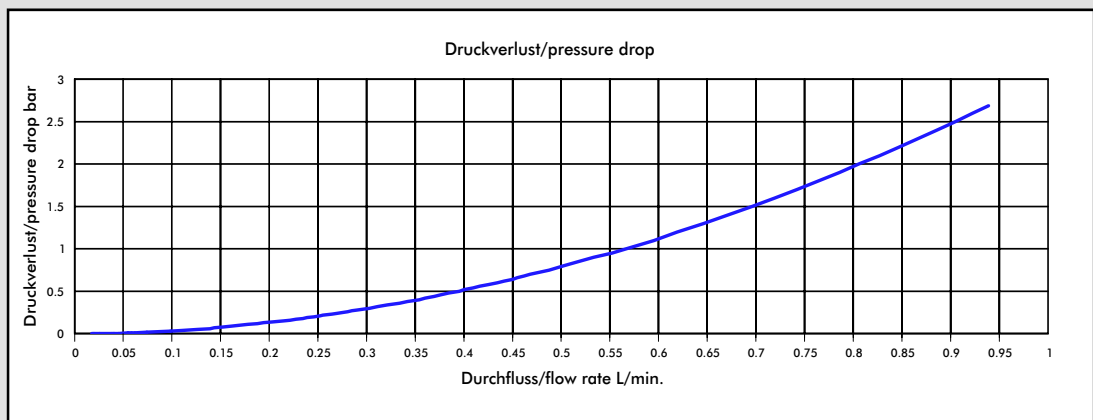
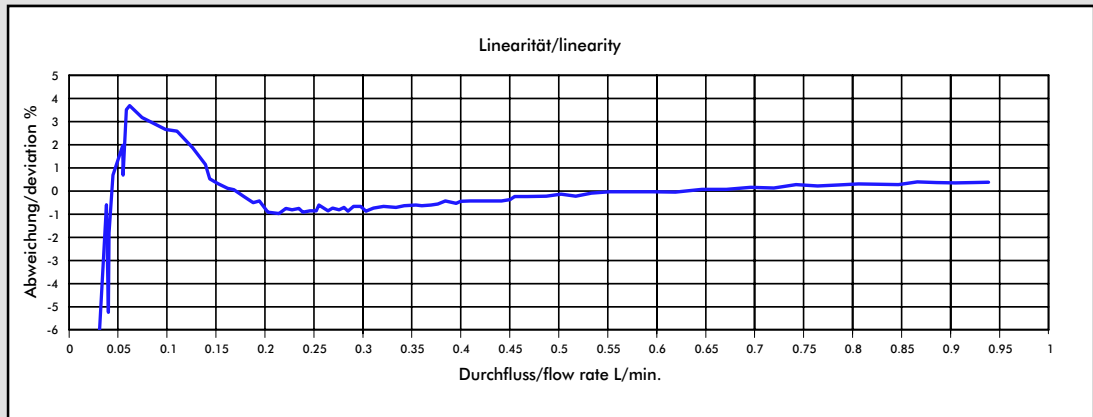
## Warranty

Whilst we give a warranty against defects in manufacture or materials, it is the responsibility of the specifier to ensure that fittings and related products are suitable for their application. The installation must be carried out correctly in accordance with our recommendations, complying with recognised codes of practice and relevant national

# Interface Connection: Examples Open Collector



# Measurement Curve FHKU 1.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

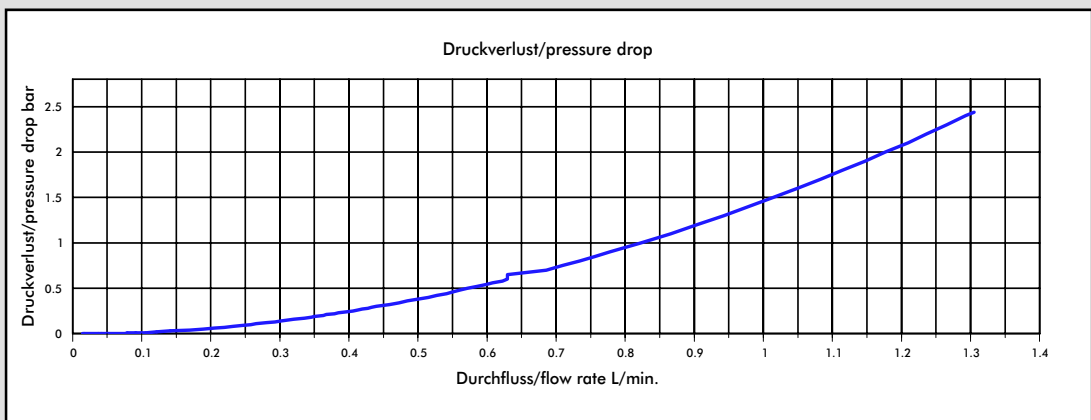
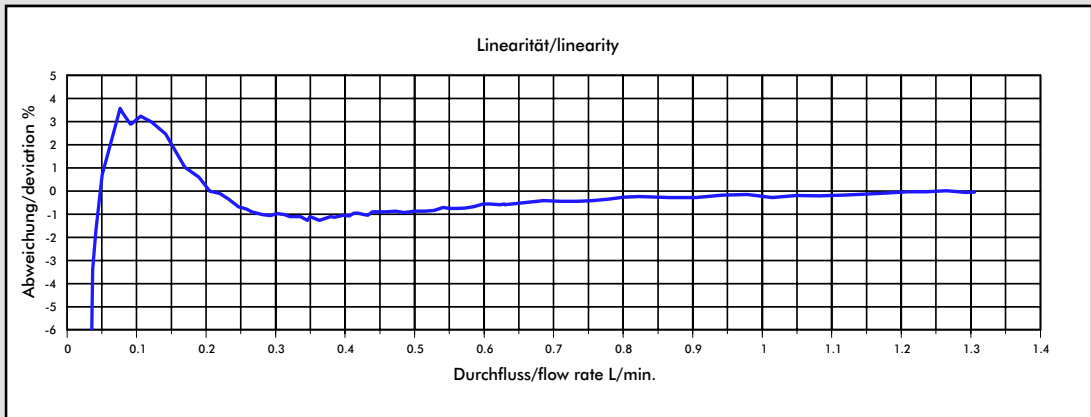
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.20 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

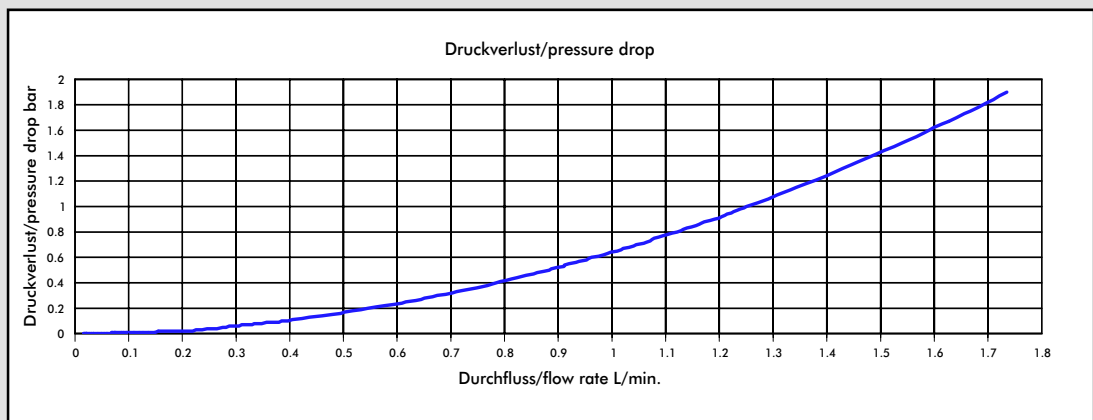
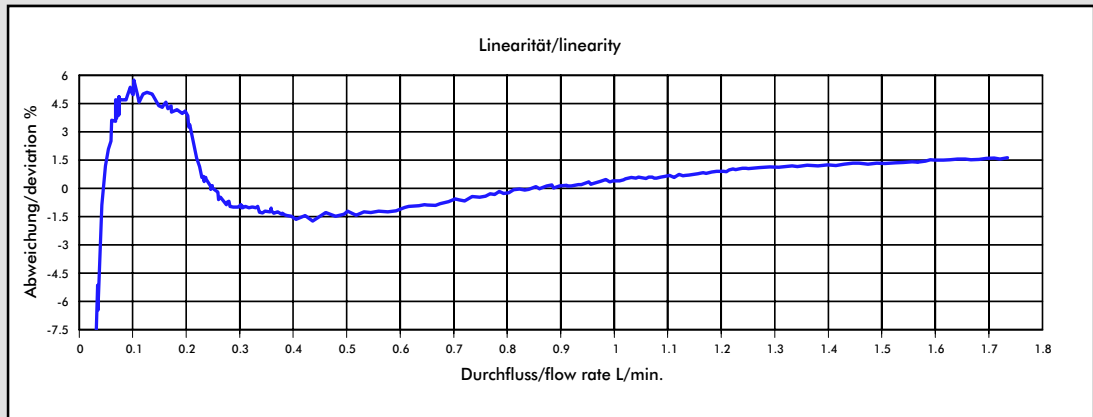
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 1.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

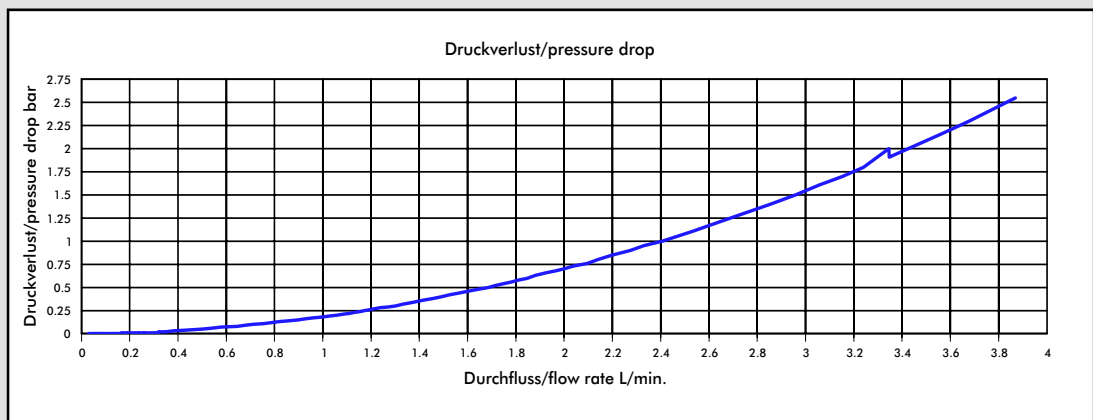
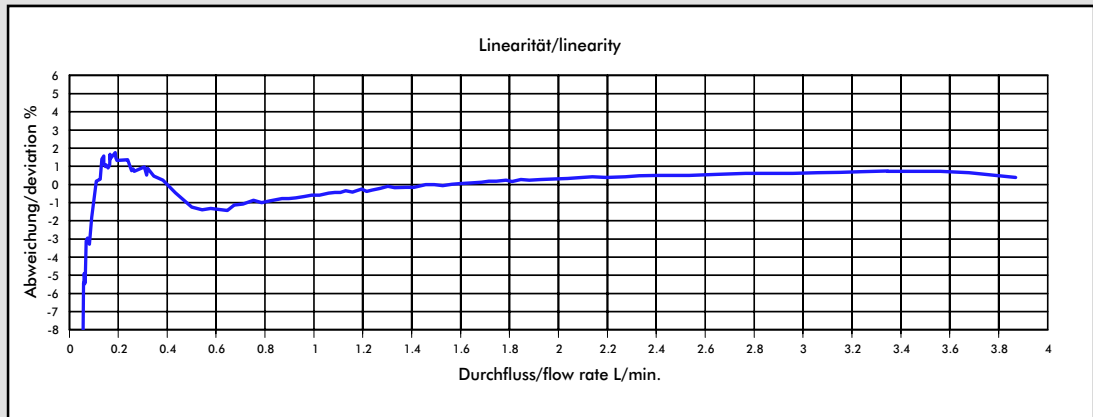
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

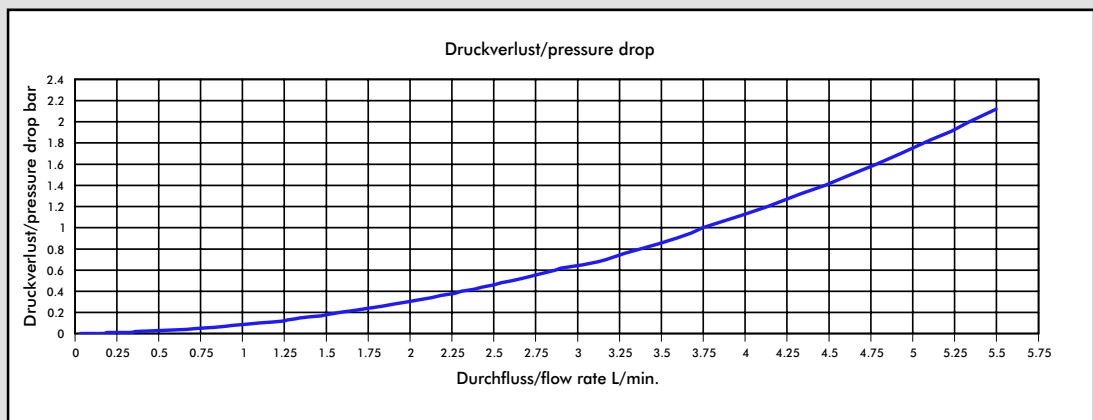
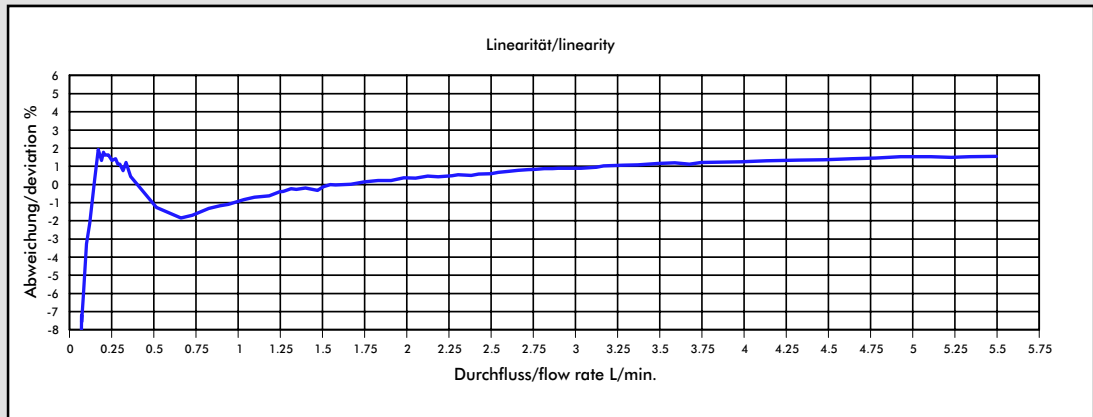
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 2.50 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

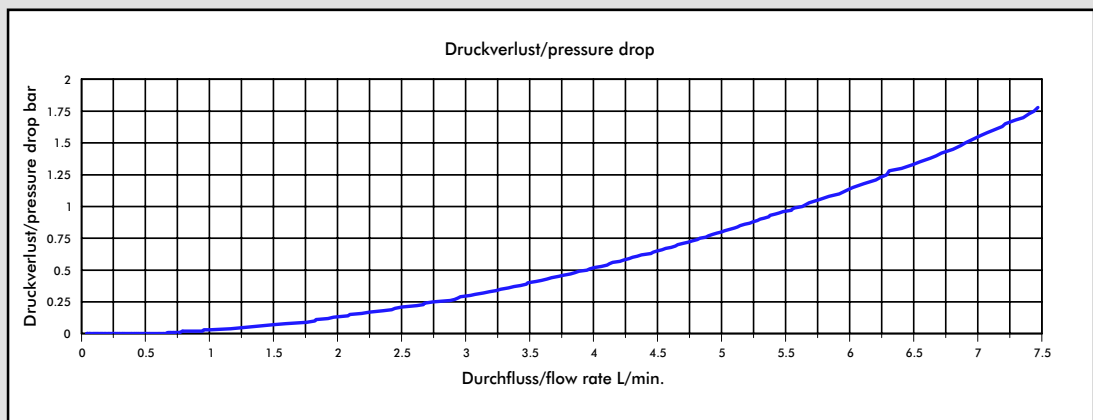
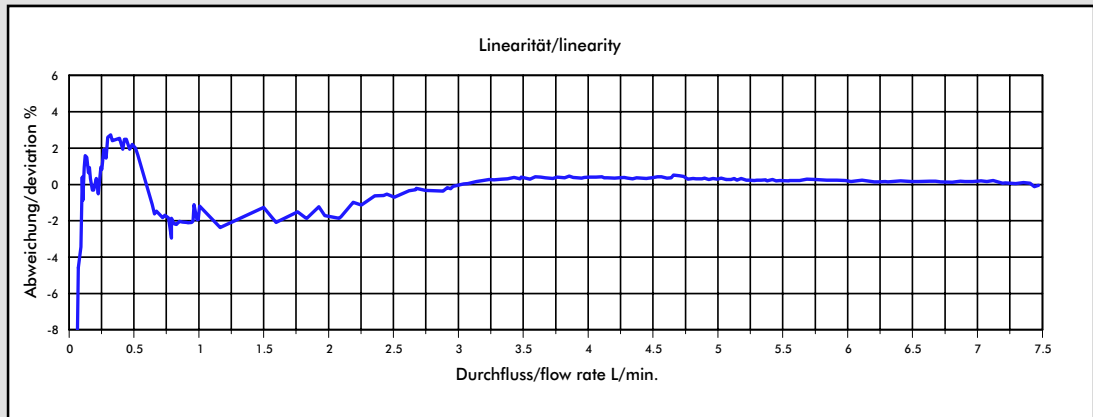
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 3.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

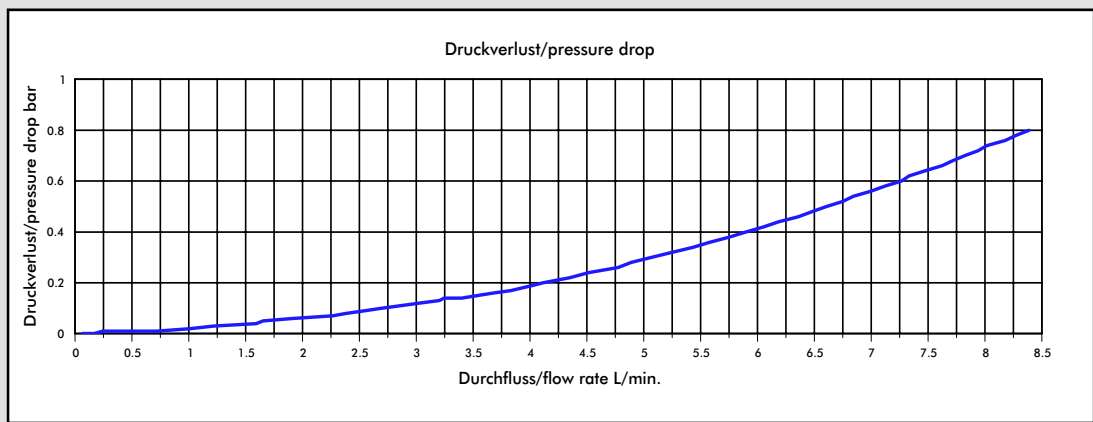
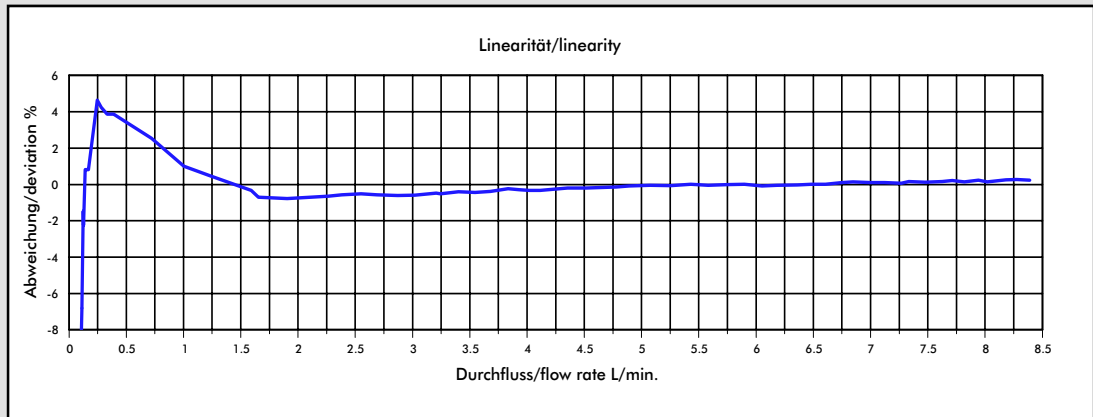
**The values specified must be considered as approximate values.**  
**The number of pulses per litre may differ depending on medium and installation.**  
**We recommend to calibrate the number of pulses per litre in line with the complete installation.**

## 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
- 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 FHKU 4.00 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

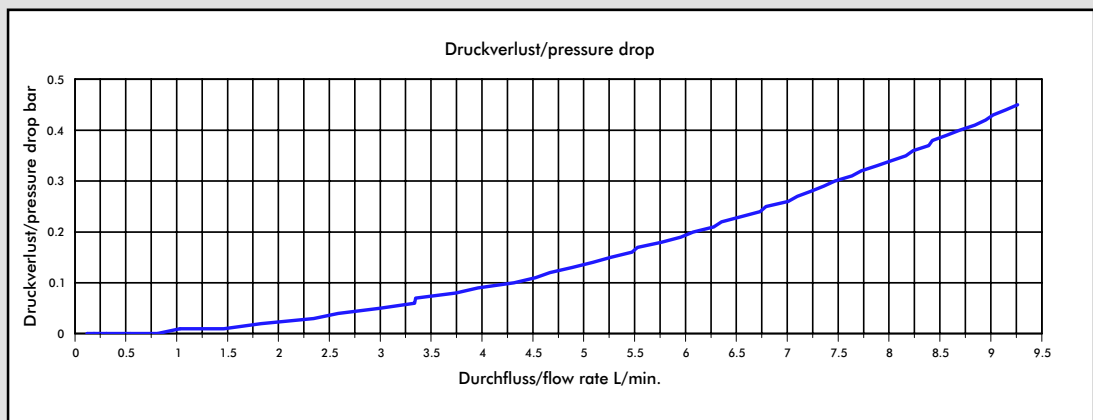
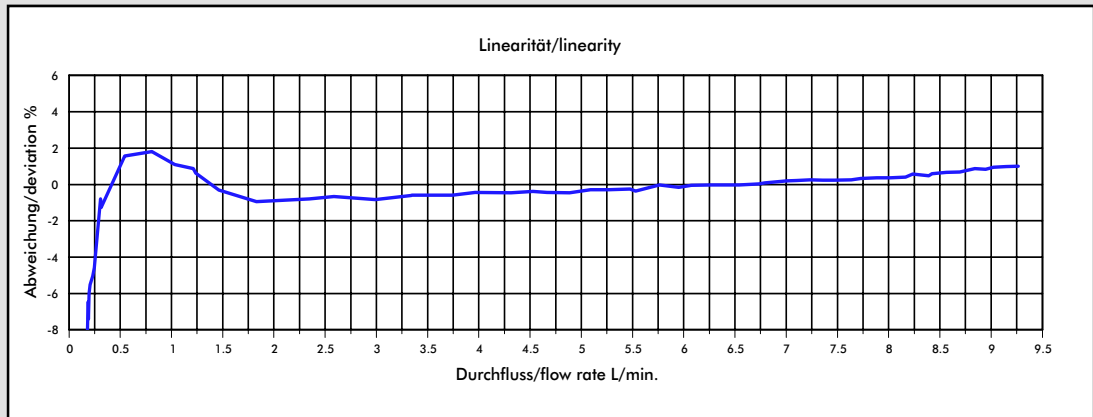
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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 FHKU 5.60 mm



Medium: Water / max. Pressure: 3.3 bar

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	2063	0.4846	0.0410	0.5670	1.00
Ø 1.20 mm	1700	0.5880	0.0505	0.8225	1.00
Ø 1.50 mm	1314	0.7608	0.0427	1.2504	1.00
Ø 2.00 mm	988	1.0117	0.0911	2.4055	1.00
Ø 2.50 mm	760	1.3153	0.1503	3.7478	1.00
Ø 3.00 mm	565	1.7677	0.1022	5.6310	1.00
Ø 4.00 mm	381	2.6215	0.1235	8.3893	0.80
Ø 5.60 mm	236	4.2266	0.3088	9.2647	0.45

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

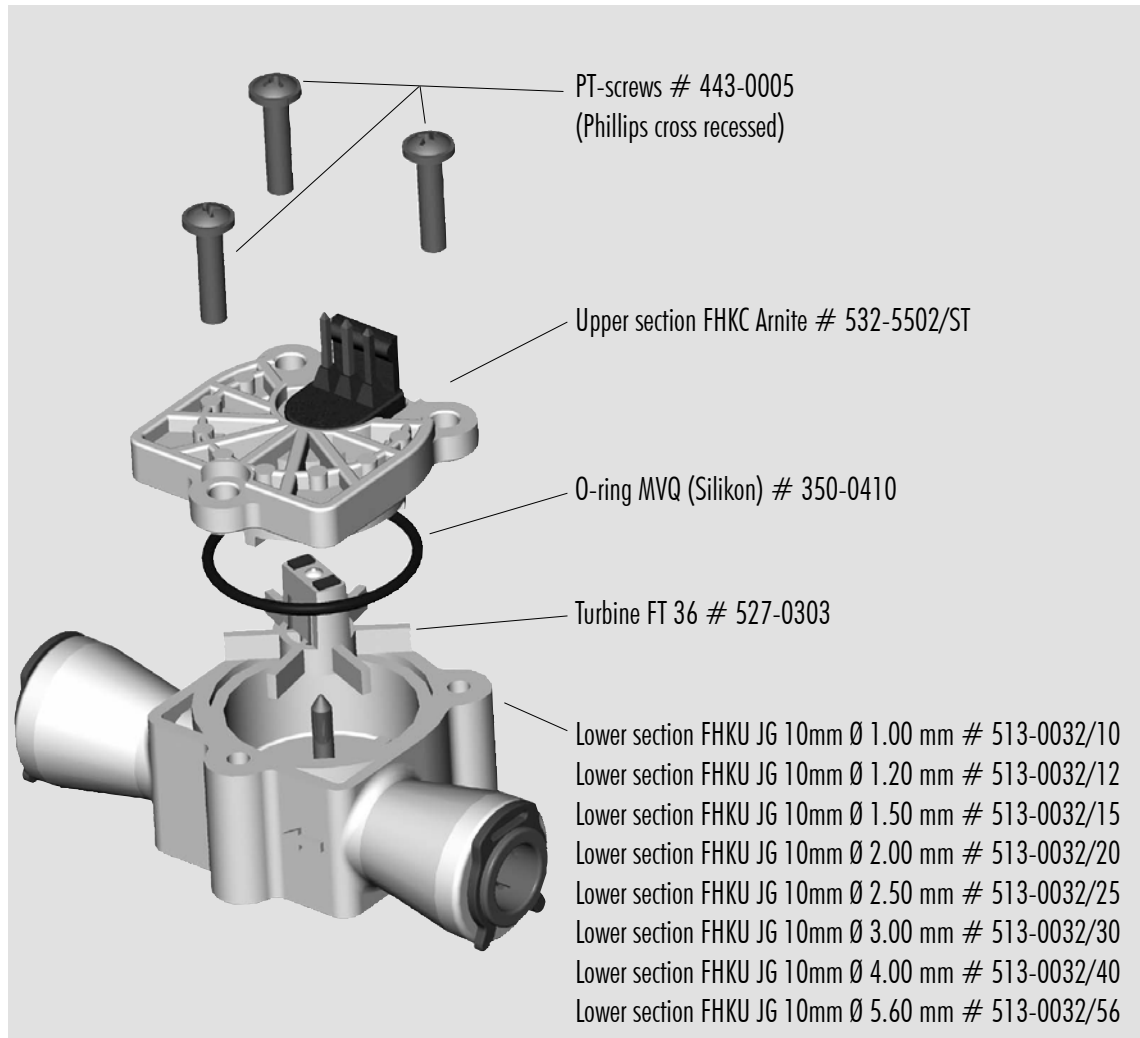
**The number of pulses per litre may differ depending on medium and installation.**

**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
- 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:



**Notes:**