

FLOWMETER DFM 165-350

Nominal size DN 10-65

Nominal size 3/8"–2 1/2"

Nominal pressure PN 10 bar



Features

- Measuring range 3 to 50,000 l/h
- suitable for a wide range of applications for gaseous medium types, water, lyes, acids
- direct visualisation of the measured values
- accuracy class 4
- integrated mounting rail for flow data sensors

Additional options on request

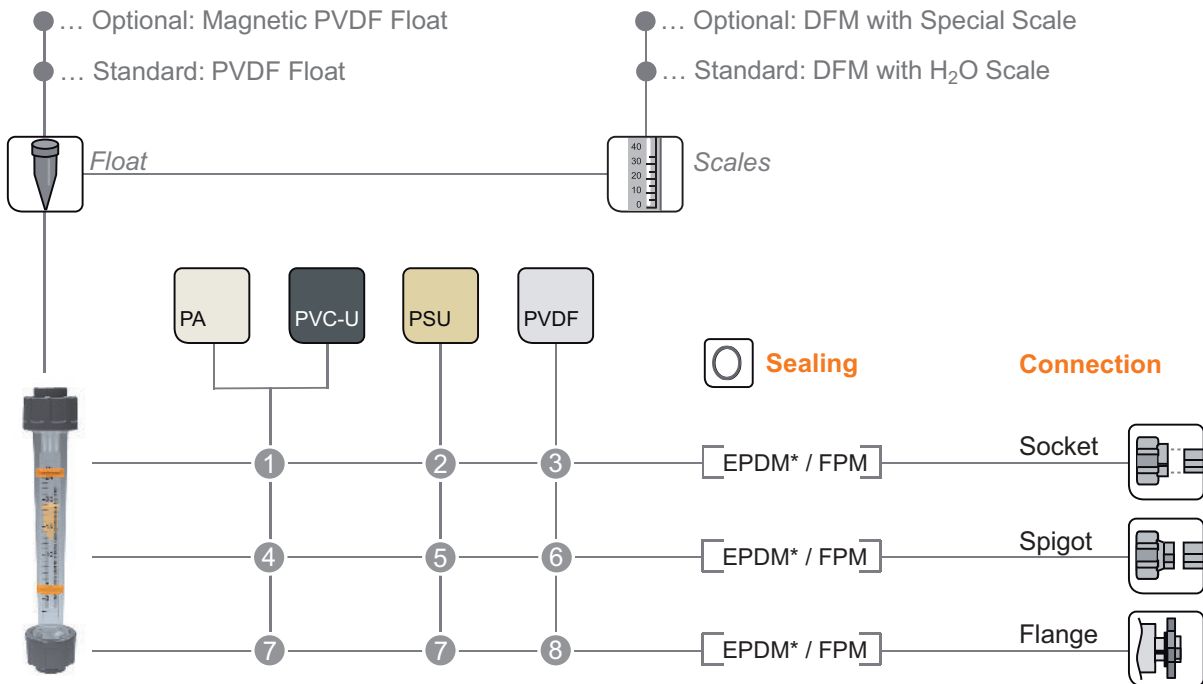
- Free of paint wetting impairment substances
- Flow data sensor
- special scales

Note

Flow data sensor only in combination with magnetic float

www.asv-stuebbe.com/products/instrumentation

Flowmeter DFM 165-350



Basic Nominal Sizes:

| | | | | | | | | | | | | | | | | | |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| DN 8 | DN 10 | DN 15 | DN 20 | DN 25 | DN 32 | DN 40 | DN 50 | DN 65 | DN 80 | DN 100 | DN 125 | DN 150 | DN 200 | DN 250 | DN 300 | DN 350 | DN 400 |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|

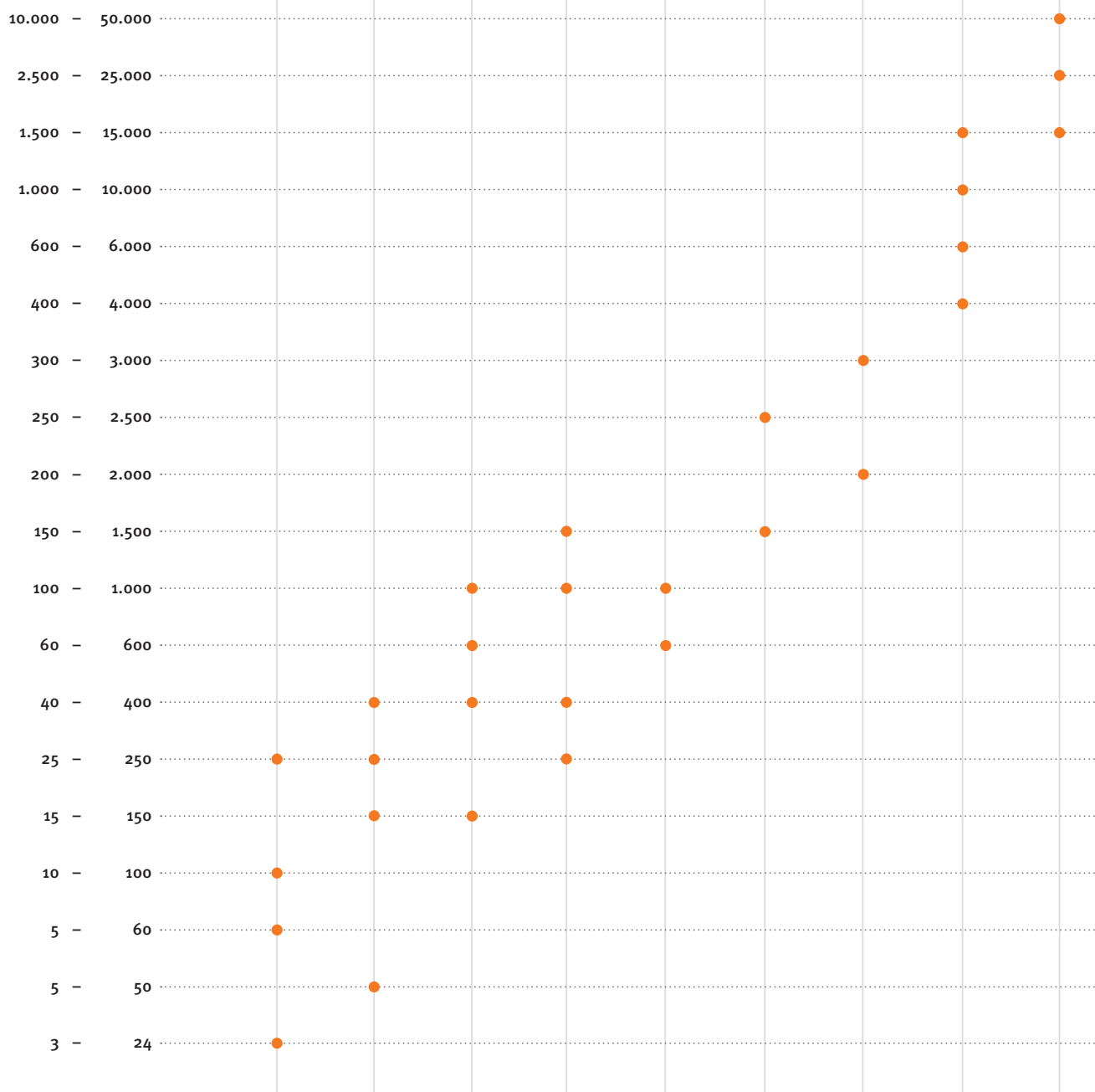
Connection Material (process connection)

| | |
|---|--|
| <p>1 PVC-U socket DIN, ANSI, BS, JIS* female thread Rp. 1.4571 male thread R.* female thread Rp. MS female thread Rp. PP socket DIN</p> <p>2 PVC-U socket DIN, ANSI, BS, JIS* female thread Rp. 1.4571 male thread R.* female thread Rp. MS female thread Rp. PP socket DIN. female thread Rp.*</p> <p>3 PVDF socket DIN</p> | <p>4 PE spigot DIN (95mm).** PP spigot IR</p> <p>5 PP spigot IR.** PE spigot DIN (95mm).**</p> <p>6 PVDF spigot IR.***</p> <p>7 PP-St. flange DIN, ANSI** GFK flange DIN**</p> <p>8 PP-St. flange DIN, ANSI**</p> <p>* available up to DN 50. ** available from DN 15. *** available in DN 15-50.</p> |
|---|--|

Flowmeter DFM 165–350



| Type | DFM 165 | DFM 170 | DFM 185 | DFM 200 | DFM 350 | | | | |
|-----------------------|---------|---------|---------|---------|---------|-------|-------|----|-------|
| d (mm) | 16 | 20 | 25 | 32 | 32 | 40 | 50 | 63 | 75 |
| DN (mm) | 10 | 15 | 20 | 25 | 25 | 32 | 40 | 50 | 65 |
| DN (inch) | 3/8 | 1/2 | 3/4 | 1 | 1 | 1 1/4 | 1 1/2 | 2 | 2 1/2 |
| Measuring range (l/h) | | | | | | | | | |



Application

- Measurement of the flow in pipe systems with visual display of the measured values

Use

- Chemical plant manufacture
- Water treatment

Function

- The medium – water, air, fluid or gaseous chemicals – flows vertically through the flowmeter from the bottom to the top.

The float is lifted with no friction by the flow forces and directly indicates the flow volume specified on the measuring tube scale with its top read-off edge (maximum diameter). The measuring tube contains the float, made of PVDF as a standard, as well as the float trap.

Version

- Equipped with measuring range scale l/h for water 20°C as a standard.
- two displaceable set-point value indicators
- floats made of PVDF, optionally with magnet
- optionally flow data sensors ZE 3000/3075 for process automation for continuous measuring
- optionally limit reed switches ZE 950/ZE 951 for electric signalling of min./max values

Measuring range

- see measuring range overview

Measuring accuracy

- Class 4 according to VDI/VDE 3513, page 2
VDI = Verein Deutscher Ingenieure (Association of German Engineers)
VDE = Verband Deutscher Elektrotechniker (Association for Electrical, Electronic & Information Technologies)

Flow medium

- Technically pure, neutral or aggressive fluid or gaseous medium types, provided that the valve components coming into contact with the medium are resistant at the operating temperature according to the ASV resistance guide.

Operating note

A PVC-U measuring tube cannot be used for gaseous medium types.

Flow direction

- from bottom to top

ASV resistance guide

www.asv-stuebbe.de/pdf_resistance/300051.pdf

Viscosity

- for medium types differing from H₂O
- DN 10–40: maximum 200–350 mPa
- DN 50–65: maximum 500 mPa

Process temperature

- see pressure/temperature diagram

Process pressure

- see pressure/temperature diagram

Nominal pressure (H₂O, 20 °C)

- PN 10 bar

Size

- DN 10–65

Device connection

- measuring tube made of PVC-U, PA, PSU:
DIN 8063 union with union socket ends for solvent welding DIN ISO (PVC-U)
- measuring tube made of PVDF:
union (special thread) with union socket end for fusion welding DIN ISO (PVDF)

On request:

- union end with female thread (GTW/VA)
- union socket end for fusion welding DIN ISO (PP/PE) on request

Flowmeter DFM 165–350

Material with medium contact

Measuring tube:

- PA
- PVC-U
- PSU
- PVDF

Float:

- PVDF without magnet
- PVDF with liquid-tight sealed magnet for electronic measurement

Insert/stop:

- PVDF

Sealing:

- FPM
- EPDM

Union nut/union ends:

- PVC
- PP
- PVDF

Material, no medium contact

Set-point indicator:

- PE

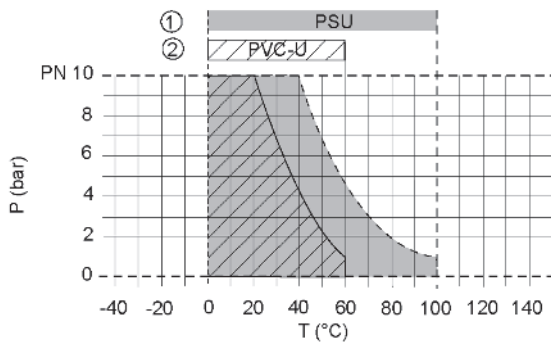
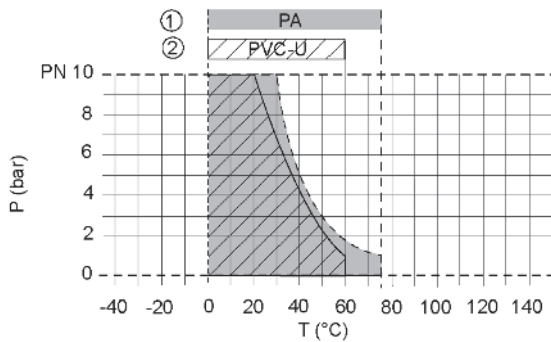
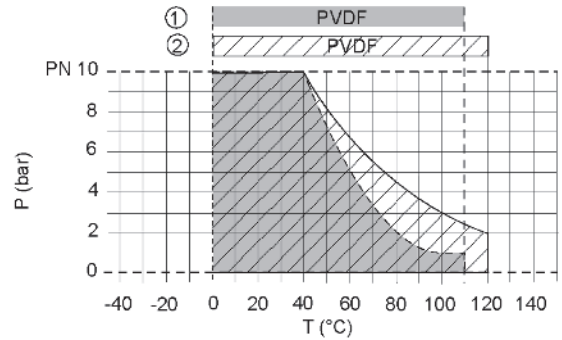
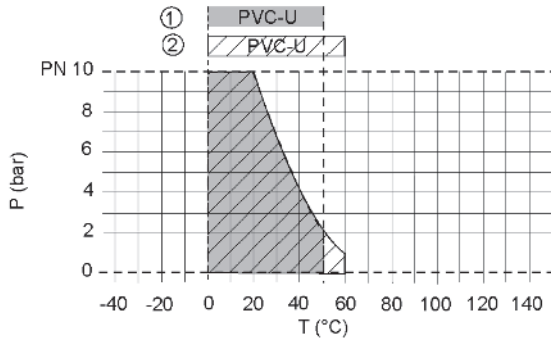
Mounting position

- vertical

Accessories

- Special scales for:
 - Medium air (Nm³/h) at 20 °C and 0-3 bar
 - Medium NaOH (l/h) at 30 °C
 - Medium HCl (l/h) at 30/50 °C
 - Medium FeCl₃ (l/h) at 40–41 °C
 - Medium US GPMfurther special scales on request
- Flow data sensors ZE 3000/ZE 3075 for process automation
- optionally limit reed switches ZE 950/ZE 951 for electric signalling of min./max values

Pressure/temperature diagram



| Description | |
|-------------|--------------------|
| P | Operating pressure |
| T | Temperature |
| 1 | Measuring tube |
| 2 | Connection |

The pressure/temperature limits of the materials are applicable for the stated nominal pressures and a computed operating life factor of 25 years. The values are a guide for flow medium types (DIN 2403) to which the valve material is resistant. For other flow medium types please refer to the ASV resistance guide; reduction ratios may have to be taken into account. The operating life of the wear parts depends on the conditions of use. The rated pressure (PN) depends on the size and material of the measuring tube/connection.

Flowmeter DFM 165–350

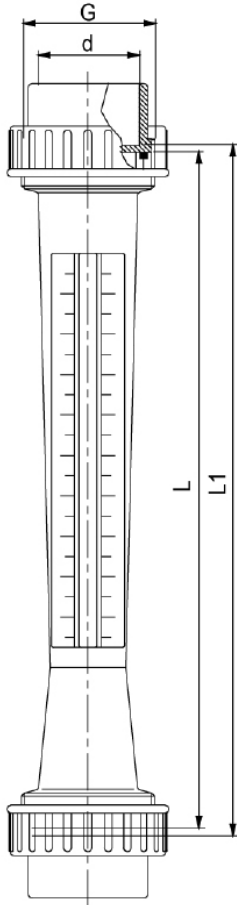
Conversion of flow rate units

| | m ³ /s | m ³ /h | l/min | GPM (GB) | GPM (US) | ft ³ /s |
|----------------------|--------------------------|-------------------|--------|----------|----------|--------------------------|
| 1 m ³ /s | 1 | 3600 | 60 000 | 13 198 | 15 850 | 36.3 |
| 1 m ³ /h | 2.788 · 10 ⁻⁴ | 1 | 16.667 | 3.663 | 4.405 | 9.803 · 10 ⁻³ |
| 1 l/min | 1.667 · 10 ⁻⁵ | 6 102 | 1 | 0.219 | 0.264 | 0.163 |
| 1 GPM (GB) | 7.577 · 10 ⁻⁵ | 0.273 | 4.55 | 1 | 0.833 | 2.676 · 10 ⁻³ |
| 1 GPM (US) | 6.309 · 10 ⁻⁵ | 0.227 | 3.783 | 1.203 | 1 | 2.225 · 10 ⁻³ |
| 1 ft ³ /s | 2.833 · 10 ⁻² | 102 | 1700 | 373.69 | 444.44 | 1 |

Pressure loss values DFM 165–350

| | d (mm) | DN (mm) | DN (inch) | Δp water 20 °C (mbar) | Δp air 20 °C (mbar) |
|---------|-----------|------------|--------------|--------------------------|------------------------|
| DFM 165 | 16 | 10 | 3/8 | 3.3 | 4.8 |
| DFM 170 | 20 | 15 | 1/2 | 2.5 | 4.3 |
| DFM 185 | 25 | 20 | 3/4 | 6.1 | 8.3 |
| DFM 200 | 32 | 25 | 1 | 6.1 | 8.3 |
| DFM 350 | 32 | 25 | 1 | 12.3 | 15.9 |
| | 40 | 32 | 1 1/4 | 12.3 | 15.9 |
| | 50 | 40 | 1 1/2 | 12.3 | 15.9 |
| | 63 | 50 | 2 | 22.2 | 27.1 |
| | 75 | 65 | 2 1/2 | 33.7 | 40.0 |

Connection socket

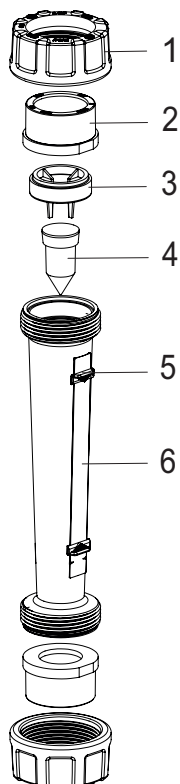


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| d (mm) | 16 | 20 | 25 | 32 | 32 | 40 | 50 | 63 | 75 |
| DN (mm) | 10 | 15 | 20 | 25 | 25 | 32 | 40 | 50 | 65 |
| DN (inch) | 3/8 | 1/2 | 3/4 | 1 | 1 | 1 1/4 | 1 1/2 | 2 | 2 1/2 |
| G* | 3/4 | 1 | 1 1/4 | 1 1/2 | 1 1/2 | 2 | 2 1/4 | 2 3/4 | 3 1/2 |
| L | 165 | 170 | 185 | 200 | 350 | 350 | 350 | 350 | 350 |
| L1 | 171 | 176 | 191 | 206 | 356 | 356 | 356 | 356 | 356 |

all dimensions in mm / * dimensions in inch

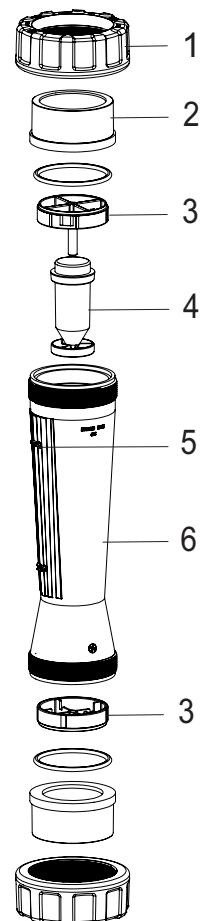
Flowmeter DFM 165-350

Components DFM 165-200



| Position | Designation |
|----------|---------------------|
| 1 | Union nut |
| 2 | Union end |
| 3 | Insert/stop |
| 4 | Float |
| 5 | Set-point indicator |
| 6 | Measuring tube |

Components DFM 350



| Position | Designation |
|----------|---------------------|
| 1 | Union nut |
| 2 | Union end |
| 3 | Insert/stop |
| 4 | Float |
| 5 | Set-point indicator |
| 6 | Measuring tube |