Measuring the volume flow of gases and liquids

# V30

- Housing in 1.4301
- Borosilicate glass
- Only 4 Sealing
- Service kind construction
- Replace V16 / V15
- Limit switches (Options)
- Chip guard

**Operating principle**

The measuring element is composed of a float and a conical glass tube.

A medium flows from the bottom to the top through the measuring ring, lifting the float until the buoyancy force and the weight of the float establish equilibrium. The height of the float in the measuring ring is the measure of the flow. The flow rate is read directly from a scale inscribed on the glass.

The readings obtained apply solely to the medium for which the device has been calibrated or for a medium with the same density and viscosity.

**Applications**

The V30 metering device is used for flow metering, dosing, monitoring, and control of liquid and gas media in pipes. The scale on the device shows the flow rate expressed as volume or mass per unit of time.

Applications: flow metering, dosing, monitoring, and control of liquid and gas media.

- The device can be fitted with up to two limit switches for purposes of process monitoring.

# Technical Data

| | | |
|---|---|---|
| Measuring range | Measuring span | 10-100% |
| | Smallest measuring range | 10 - 100 l/h of water |
| | Largest measuring range | 1000 - 10000 l/h of water |
| Measuring span | | 10 : 1 |
| Accuracy class | | 1,6 |
| Flow direction | | from bottom to top |
| Display | | Flow rate units on glass cone |
| Ambient conditions | Ambient temperature | 0 - 60 °C |
| | Storage temperature | -20 - 60 °C |
| | Climatic category | Weatherproof and/or unheated operation site, class C pursuant to DIN IEC 654 part 1 |
| | Shock resistance/vibration resistance | The device should be protected against extreme shock and vibration, either of which could cause damage. |
| Fluid conditions | Fluid temperature | 0 - 80 °C |
| | Inlet and outlet sections | No inlet or outlet sections are required for linear flow profiles. In the case of extremely non-linear flow profiles (e.g. caused by shut-off/control valves in front of the device), we recommend that a 250 mm inlet section be installed (see VDI/VDE 3513 guidelines). |
| | Physical state | Liquid or gas |
| | Density | Liquids: up to a maximum of 2.0 kg/l<br>Gases: no restrictions |
| | Viscosity | The viscosity of the medium determines measuring results. |
| | Gas measuring pressure | The results apply solely to the calibrated measuring data shown on the scale. Any changes or deviations from this will yield false readings. |
| | Fluid pressure | See Section 6 |
| | Pressure loss | See Section 6 |
| Options | Limit switches<br><br>The device can be outfitted with up to two limit switches.<br><br>The switching point can range from 10 to 90 percent of throughput.<br><br>Chip guard | Limit switch KER 1 or KER 2:<br>Reed switch (make contact)<br>ASA - Switching technology.<br>Model: MA 28 SO 80,<br>48VAC, 1,5 A, 80 VA<br>IP 67 |
| Connection * | V30-4020 | Threaded connection |
| | V30-104C or V30-201R | Flange connection |
| | V30-6210 | Hose clip |
| | V30-4200 | Bonded connection |

# Measuring ranges

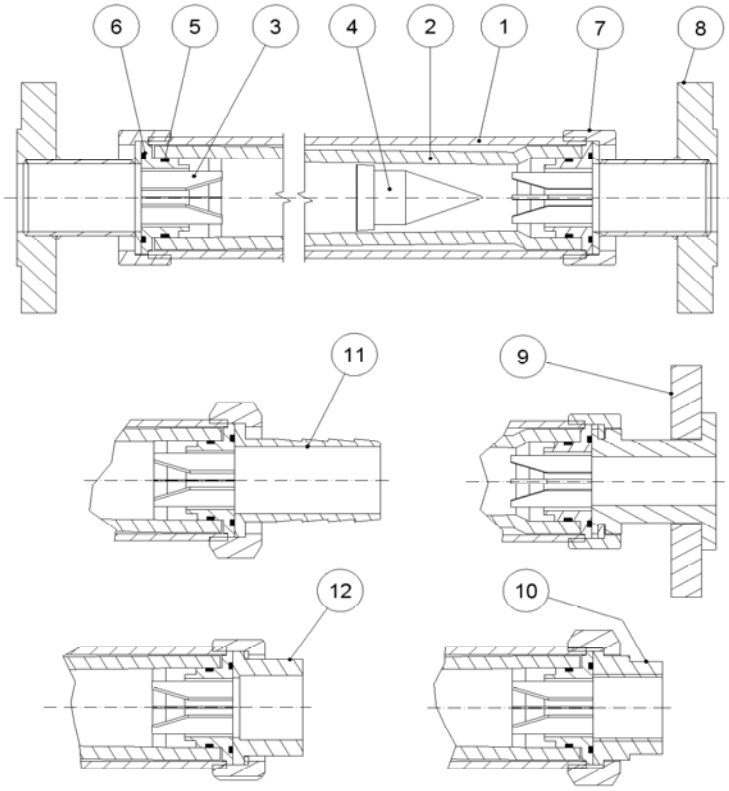
| V 30 | Model | Stainless steel float (7,95) | | Aluminium float (2,85) | | PTFE float | | PVDF float (6,5) | |
|---|---|---|---|---|---|---|---|---|---|
| | | Water [l/h] at 20°C | Air*[Nm3/h | Water [l/h] at 20°C | Air*[Nm3/h | Water [l/h] at 20°C | Air*[Nm3/h | Water [l/h] at 20°C | Air*[Nm3/h |
| ½“ | J | 10 - 100 | 0,3 – 3 | 5-50 | 0,17-1,7 | 5-64 | | 8,8-88 | 0,25-2,5 |
| | K | 16 - 160 | 0,45 – 4,5 | 8-80 | 0,25-2,5 | 8-104 | | 14-140 | 0,4-4 |
| | L | 25 - 250 | 0,7 – 7 | 12,5-125 | 0,4-4 | 13-164 | | 22-220 | 0,65-6,5 |
| ¾“ | M | 40 - 400 | 1,1 – 11 | 20-200 | 0,7-7 | 15-280 | | 35-350 | 1-10 |
| | N | 60 - 630 | 1,8 – 18 | 30-300 | 1-10 | 30-440 | | 50-500 | 1,6-16 |
| | P | 100 - 1000 | 3 – 30 | 50-500 | 1,7-17 | 60-720 | | 88-880 | 2,5-25 |
| 1“ | P | 100 - 1000 | 3 – 30 | 50-500 | 1,7-17 | 60-720 | | 88-880 | 2,5-25 |
| | Q | 160 - 1600 | 4,5 – 45 | 80-800 | 2,5-25 | 120-1230 | | 140-1400 | 14702 |
| | R | 250 - 2500 | 7 – 70 | 125-1250 | 4-40 | 190-1900 | | 220-2200 | 6,5-65 |
| 2“ | S | 400 - 4000 | 11 – 110 | 200-2000 | 7-70 | 310-3100 | | 350-3500 | 10-100 |
| | T | 630 - 6300 | 18 – 180 | 300-3000 | 10-100 | 490-4900 | | 550-5500 | 16-160 |
| | U | 1000 - 10000 | 30 – 300 | 500-5000 | 17-170 | 780-7800 | | 880-8800 | 25-250 |

* of standard conditions 1,013 bar abs; 20°C

# Pressure resistance and pressure loss

| Device size | Model | Max. process pressure [bar] | Pressure loss | | |
|---|---|---|---|---|---|
| | | | Stainless steel float rD [mbar] | Aluminium float rD [mbar] | PTFE float rD [mbar] |
| ½“ | J | 15 | 9 | 3,5 | |
| | K | | | | |
| | L | | | | |
| ¾“ | M | 15 | 12,5 | 5 | |
| | N | | | | |
| | P | | | | |
| 1“ | P | 10 | 17,5 | 7,5 | |
| | Q | | | | |
| | R | | | | |
| 2“ | S | 6 | 30 | 12,5 | |
| | T | | | | |
| | U | | | | |

# Construction details




| Item | pieces | Name | V 30-V PVC | V 30-F PVDF | V 30-K PP | V 30-S stainless steel |
|---|---|---|---|---|---|---|
| 1 | 1 | Device/housing | 14.301 | | | |
| 2 | 1 | Glass tube | Borosilicate glass | | | |
| 3 | 2 | Float stop | PP / PVDF | | | |
| 4 | 1 | Float | 1.4404, AL, PVDF, PTFE | | | |
| 5 | 2 | Sealing – Ring | Perbunan, Viton, FEP/FFKM, PFA | | | |
| 6 | 2 | Sealing - Ring | Perbunan, Viton, FEP/FFKM, PFA | | | |
| 7 | 2 | Sleeve nut | Steel | | | |
| 8 | 2 | Flange | | | | X |
| 9 | 2 | Flange | | X | X | |
| 10 | 2 | Threaded connection | X | X | | X |
| 11 | 2 | Hose clip connection | | X | | X |
| 12 | 2 | Bonded connection | X | | | |

For further information see device description V30
Revision 3.4

file: V30_FL_03_eng_rev 4

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