

# DVZ COMPACT VORTEX FLOWMETER



Flow  
Pressure  
Level  
Temperature  
Measurement  
Monitoring  
Control



- Measuring Ranges:  
0.13-1.2 GPM to 2.7-26 GPM
- Accuracy:  $\pm 2.5\%$  of F.S.
- Vortex Shedding Technology with No Moving Parts
- Ryton Body with Nickel Plated Brass or 316 SS Fittings
- Outputs: Analog, Frequency, Switching, Compact Electronics with Digital Displays, Batching and Totalizing Electronics
- Economically Priced



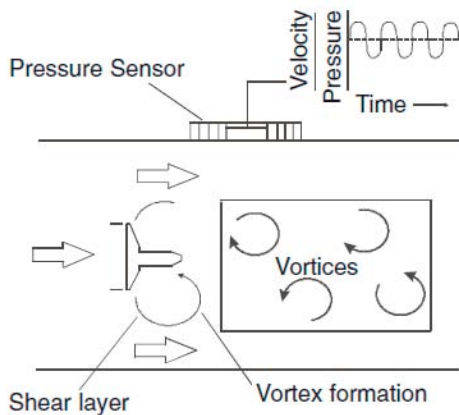
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Model:  
DVZ

**Description**

The KOBOLD DVZ series vortex flowmeters are the perfect solution for applications where reliability and low cost are desired. The DVZ senses the flowrate of low viscosity liquids using the vortex shedding principle. A small obstruction called a bluff body is placed in the flowpath. As fluid flows across the bluff body, a small low-pressure area called a vortices is created just behind the bluff body. The position of the vortices alternates to either side of the bluff body in a uniform pattern. The frequency of the vortices shift is directly proportional to flowrate. This shift in the vortices is detected by a very sensitive pressure sensor and processed as a flowrate signal.



The vortex flowmeter has no moving parts and thus is very reliable. The DVZ series is available with a Ryton body and a choice of either nickel plated brass or 316 stainless steel fittings. The bluff body is available in either ryton or ceramic, which has excellent long term wear characteristics. The available outputs are frequency, 4-20 mA, adjustable relay, and compact electronics with digital flowrate display, 4-20 mA output and adjustable transistor switch options. The device series is rounded off by an optionally available batching or totalizing electronic.

**Areas of Application**

- Monitoring the flow of low viscosity liquids
- Measuring of aggressive, high-purity, or salty solutions
- Not suitable for abrasive media or media containing a large proportion of fibers



**KOBOLD DVZ Vortex Flowmeter**

**Specifications**

<b>Available Ranges:</b>	0.13-1.2 through 2.7-26 GPM water
<b>Max. Liquid Viscosity:</b>	3 Centistoke
<b>Accuracy:</b>	± 2.5% of full scale
<b>Repeatability:</b>	± 1% of full scale
<b>Straight Pipe Requirement:</b>	10 X Diameter upstream and 2X downstream
<b>Oper. Temp. Range:</b>	32-176°F
<b>Maximum Pressure</b>	
<b>DVZ-1... &amp; DVZ-2...:</b>	145 PSIG
<b>DVZ-3... &amp; DVZ-4...:</b>	290 PSIG
<b>Max. Pressure Drop:</b>	3.6 PSI at 100% rated flow
<b>Wetted Parts</b>	
<b>Sensor Housing:</b>	PPS
<b>Sensing Diaphragm:</b>	PVDF
<b>Bluff Body:</b>	PPS or ceramic depending on model code
<b>Seals:</b>	NBR, EPDM, or FKM depending on model code
<b>Fittings:</b>	Nickel plated brass or 316 SS depending on model code

No responsibility taken for errors;  
subject to change without prior notice.

**Electrical Specifications**

**DVZ-...S300, S30D**

**Power Supply:** 24 V<sub>DC</sub> ± 20%  
**Switching Output**  
**DVZ-...S300:** Relay change over, max.1A, 30 V<sub>DC</sub>  
**DVZ-...S30D:** PNP 24 V<sub>DC</sub>, N/C, N/O  
**Electrical Connection:** Micro-DC, 4-pin or 5-pin male  
**Electrical Protection:** NEMA 4/IP 65

**DVZ-...F300, F390**

**Power Supply:** 24 V<sub>DC</sub> ± 20%  
**Output:** PNP open collector, 200 mA Max.  
**Frequency at f.s.**  
**DVZ-...F300:** 500 Hz  
**DVZ-...F390:** 50...1000 Hz (user specified)  
**Electrical Connection:** Micro-DC, 4-pin male  
**Electrical Protection:** NEMA 4/IP 65

**DVZ-...L343, L443**

**Power Supply:** 24 V<sub>DC</sub> ± 20%  
**Output:** 4-20 mA, 3-wire  
**Max. Load:** 500 Ω  
**Electrical Connection:**  
**L343:** Micro-DC, 4-pin male  
**L443:** DIN 43650 Plug  
**Electrical Protection:** NEMA 4/IP 65

**DVZ-...L443 with optional AUF-3000**

**Power Supply:** 24 V<sub>DC</sub> ± 20%  
**Output:** 4-20 mA, 3-wire  
**Max. Load:** 250 Ω with AUF-3000  
**Electrical Connection:** DIN 43650 Plug  
**Electrical Protection:** NEMA 4/IP 65

**DVZ-...C30R, C30M**

**Power Supply:** 24 V<sub>DC</sub> ± 20%, 3- wire techn.  
**Output**  
**C30M:** 2-NPN open collector switches  
**C30R:** 2-PNP open collector switches  
**Switch Ratings:** 300 mA Max.  
**Programming:** Switch setpoint, reset point, switching logic, dampening, lock out code via 2-button keypad

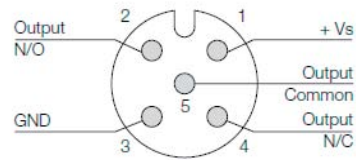
**Power consumption:** Approx. 100 mA  
**Electronic Connection:** Micro-DC, 5-pin, male  
**Electronic Protection:** NEMA 4/IP 65

**DVZ-...C34P, C34N**

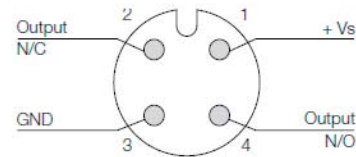
**Power Supply:** 24 VDC ± 20%  
**Output**  
**C34N:** 4-20mA, 3-wire and 1-NPN open collector  
**C30P:** 4-20mA, 3-wire and 1-PNP open collector  
**Switch Rating:** 300 mA Max.  
**Programming:** Switch setpoint, reset point, switching logic, 4-20 mA span and zero, dampening and lockout code via 2 button keypad  
**Electronic Connection:** Micro-DC, 5-pin, male  
**Electronic Protection:** NEMA 4/IP 65

**Electrical Connections**

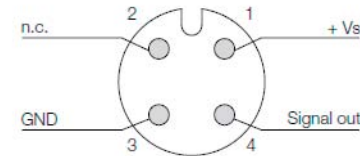
**DVZ-...S300**



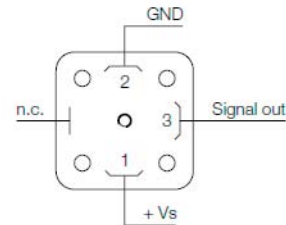
**DVZ-...S30D**



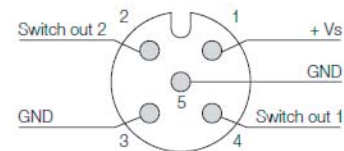
**DVZ-...F300, F390, L343**



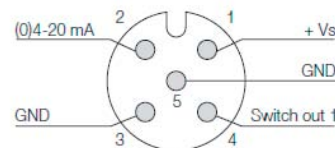
**DVZ-...L443**



**DVZ-...C30R, C30M**



**DVZ-...C34P, C34N**





**Electrical Specifications (continued)**

**DVZ-...E14R**

**Display:** LCD, 2 x 8 digit, illuminated total, part and flow quantities, units selectable

**Quantity Meter:** 8-digit

**Analog Output:** 4-20 mA adjustable

**Load:** Max. 500 Ω

**Switching Output:** 2 relays, max. 250 V, 5 A, 1000 VA

**Settings:** Via 4 buttons

**Functions:** Reset, MIN/MAX memory, flow monitor, monitoring for part and total quantity, language

**Power Supply:** 24 V<sub>DC</sub> ±20 %, 3-wire

**Power Consumption:** Approx. 150 mA

**Electrical Connection:** Cable connection

**DVZ-...G14R**

**Display:** LCD, 2 x 8 digit, illuminated, batching-, total-, and flow quantity, units selectable

**Quantity Meter:** 8-digit

**Batcher:** 5-digit

**Analog Output:** 4-20 mA adjustable

**Load:** Max. 500 Ω

**Switching Output:** 2 relays, max. 250 V, 5 A, 1000 VA

**Settings:** Via 4 buttons

**Functions:** Batching (relay S2), start, stop, reset, fine batching, correction amount, flow switch, total quantity, language

**Power Supply:** 24 V<sub>DC</sub> ±20 %, 3-wire

**Power Consumption:** Approx. 150 mA

**Electrical Connection:** Cable connection

**DVZ-...E14R, G14R Cable Connections**

Wire Number	DVZ-...E14R Totalizer	DVZ-G14R Batcher
1	24 VDC	24 VDC
2	GND	GND
3	4-20 mA	4-20 mA
4	n.c.	control 1*
5	GND	GND
6	reset part quantity	control 2*
7	relay S1 open without current	relay S1 open without current
8		
9	relay S2 open without current	relay S2 open without current
10		

\*Control 1 <-> GND: Start-batching  
 Control 2 <-> GND: Stop-batching  
 Control 1 <-> Control 2 <-> GND: Reset-batching

**Approximate Weight**

Model	Fixed Connections	Rotatable Connections
DVZ...S300, S30D DVZ...F300, F390 DVZ...L303,L343,L443	1.1 LBS	2.0 LBS
DVZ...C34P, C34N,C30M,C30R DVZ...E14R, G14R	1.5 LBS	2.5 LBS



Order Details (Example: DVZ-34U6P5L343)

Housing/Bluff Body	Fitting/Seals	Flow Ranges	Connections		Output
			Fixed	Rotatable	
<b>DVZ-1.. =</b> PPS/PPS  <b>DVZ-2.. =</b> PPS/Ceramic  <b>DVZ-3.. =</b> PPS/PPS High Pressure Design **  <b>DVZ-4.. =</b> PPS/Ceramic High Pressure Design **	..1.. = Brass/NBR	..04.. = 0.5 - 4.5 LPM ..07.. = 0.8 - 6.5 LPM ..10.. = 1.3 - 10 LPM ..U1.. = 0.13 - 1.2 GPM ..U2.. = 0.2 - 1.7 GPM ..U3.. = 0.4 - 2.6 GPM	..G2.. = G 1/4 ..G3.. = G 3/8 ..G4.. = G 1/2 ..N2.. = 1/4" NPT ..N3.. = 3/8" NPT ..N4.. = 1/2" NPT	..B2.. = G 1/4 ..B3.. = G 3/8 ..B4.. = G 1/2 ..P2.. = 1/4" NPT ..P3.. = 3/8" NPT ..P4.. = 1/2" NPT	<b>Switching Output</b> ..S300 = Relay, M12-plug ..S30D = PNP 24 V <sub>DC</sub> , M12-plug  <b>Frequency Output</b> ..F300 = M12-plug, 500 Hz ..F390 = M12-plug, 50...1000 Hz *  <b>Analog Output</b> ..L343 = M12-plug, 4-20 mA ..L443 = DIN-plug, 4-20 mA  <b>Compact Electronics</b> ..C30R = 2x Open Coll., PNP ..C30M = 2x Open Coll., NPN ..C34P = 4-20 mA, 1x Open Coll., PNP ..C34N = 4-20 mA, 1x Open Coll., NPN  <b>Totalizer Electronics</b> ..E14R = LCD, 4-20 mA, 2x relays, 1 m cable  <b>Batching Electronics</b> ..G14R = LCD, 4-20 mA, 2x relays, 1 m cable
	..2.. = SS/NBR	..16... = 2.0 - 16 LPM ..U4.. = 0.6 - 4.2 GPM	..G3.. = G 3/8 ..G4.. = G 1/2 ..G5.. = G 3/4 ..N3.. = 3/8" NPT ..N4.. = 1/2" NPT ..N5.. = 3/4" NPT	..B3.. = G 3/8 ..B4.. = G 1/2 ..B5.. = G 3/4 ..P3.. = 3/8" NPT ..P4.. = 1/2" NPT ..P5.. = 3/4" NPT	
	..4.. = Brass/EPDM	..22.. = 3.2 - 22 LPM ..32.. = 4.0 - 32 LPM ..U5.. = 0.9 - 5.8 GPM ..U6.. = 1.1 - 8.5 GPM	..G4.. = G 1/2 ..G5.. = G 3/4 ..G6.. = G 1 ..N4.. = 1/2" NPT ..N5.. = 3/4" NPT ..N6.. = 1" NPT	..B4.. = G 1/2 ..B5.. = G 3/4 ..B6.. = G 1 ..P4.. = 1/2" NPT ..P5.. = 3/4" NPT ..P6.. = 1" NPT	
	..5.. = SS/EPDM	..40.. = 4 - 40 LPM ..50.. = 5 - 50 LPM ..63.. = 6.5 - 63 LPM ..80.. = 8 - 80 LPM ..99.. = 10 - 100 LPM ..U7.. = 1.1 - 10.5 GPM ..U8.. = 1.3 - 13 GPM ..U9.. = 1.7 - 16 GPM ..UA.. = 2.1 - 21 GPM ..UB.. = 2.7 - 26 GPM	..G5.. = G 3/4 ..G6.. = G 1 ..N5.. = 3/4" NPT ..N6.. = 1" NPT	..B5.. = G 3/4 ..B6.. = G 1 ..P5.. = 3/4" NPT ..P6.. = 1" NPT	
	..7.. = Brass/FKM				
	..8.. = SS/FKM				

**Accessories:**  
 807.037 = Mating 4-Pin Micro-DC plug with 6 Ft. cable for output F300, F390, S30D & L343  
 807.007 = Mating 5-pin Micro-DC plug with 6 Ft. cable for output C30M, C30R, C34N, C34P, & S300

\*Please specify frequency out at max. flow when ordering  
 \*\*High Pressure Design only available with Fixed Connections



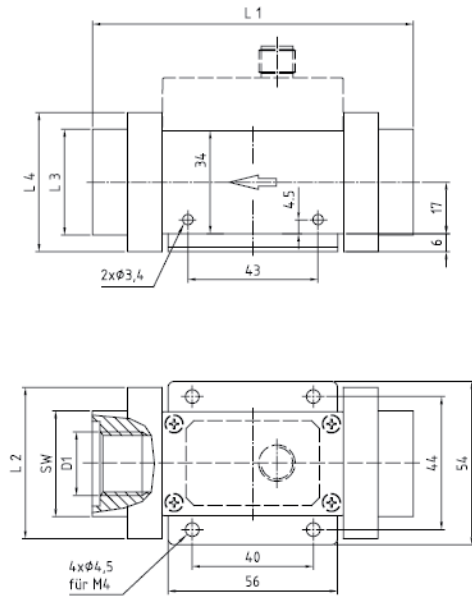
DVZ-...S30x  
 DVZ-...F3x0  
 DVZ-...L3x3

DVZ-...L443  
 with AUF-3000

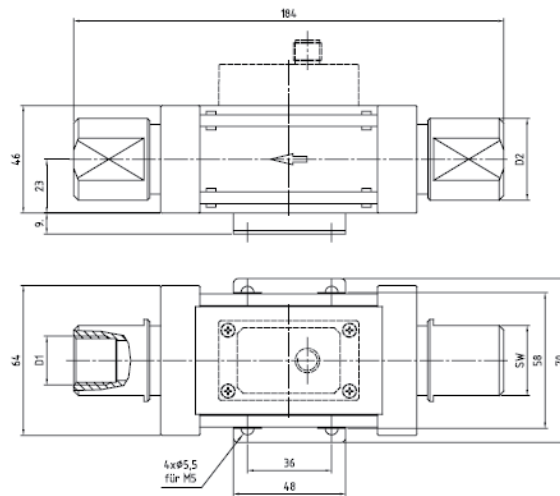
DVZ-...C3xx

Dimensions

DVZ Flowmeters with fixed connections  
Flow Range up to 8.5 GPM



DVZ Flowmeters with fixed connections  
Flow Range from 10.5 GPM

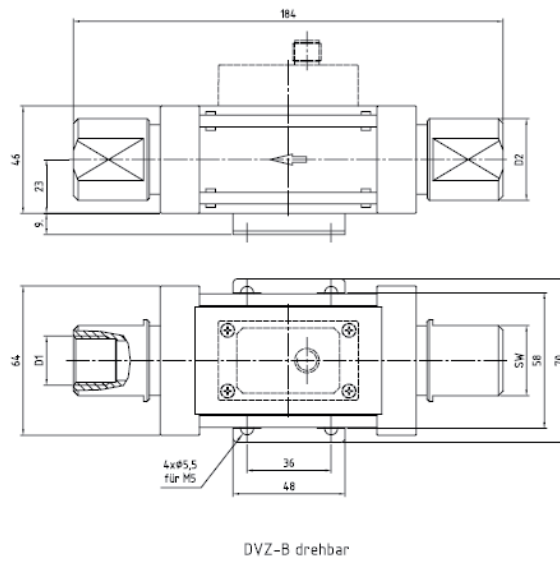
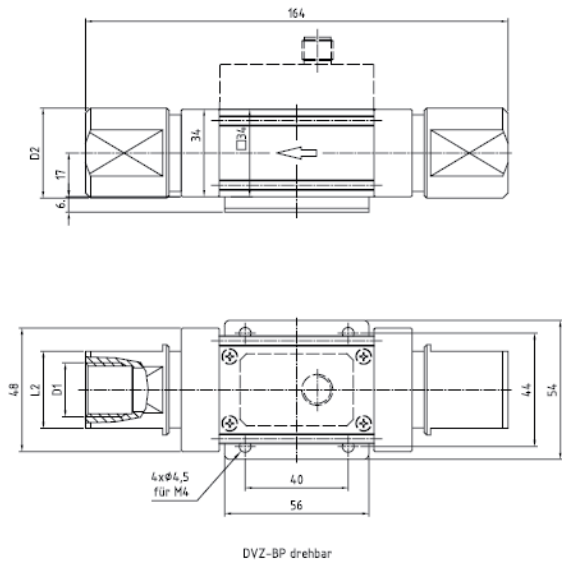


MB	..U1/..U3/..U3	..U1/..U2/ ..U3/..U4	..U1/..U2/..U3/ ..U4/.. U5/..U6	..U4/..U5/..U6	..U5/..U6
D1	1/4"	3/8"	1/2"	3/4"	1"
SW	35 mm	35 mm	35 mm	34 mm	-
L1	100 mm	100 mm	106 mm	120 mm	128 mm
L2	-	-	-	50 mm	50 mm
L3	35 mm	35 mm	35 mm	34 mm	-
L4	-	-	-	-	46 mm

Dimensions

DVZ Flowmeters with rotatable connections  
Flow Range up to 8.5 GPM

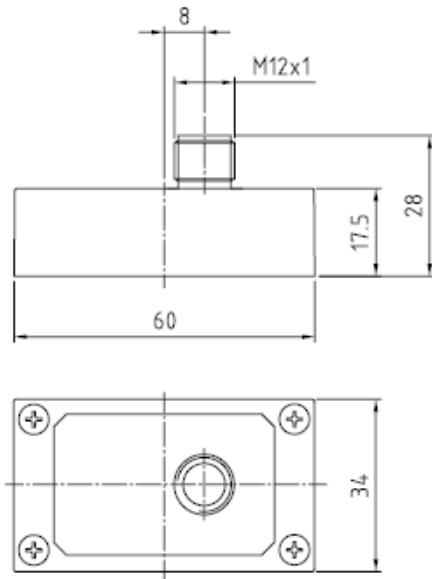
DVZ Flowmeters with rotatable connections  
Flow Range from 10.5 GPM



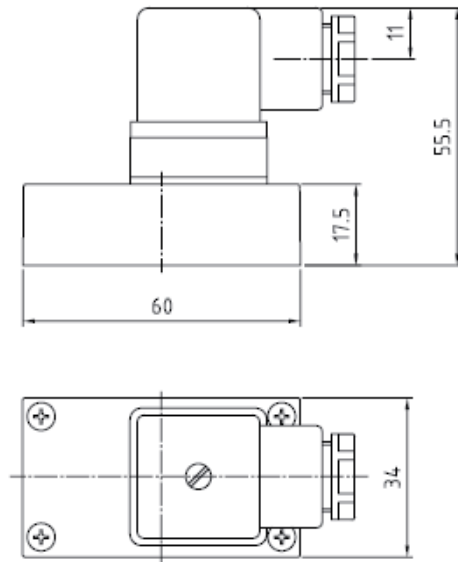
MB	..U1/..U3/..U3	..U1/..U2/ ..U3/..U4	..U1/..U2/..U3/ ..U4/..U5/..U6	..U4/..U5/..U6	..U5/..U6	..U7/..U8/..U9/ ..UA/..UB	..U7/..U8/..U9/ ..UA/..UB
D1	1/4"	3/8"	1/2"	3/4"	1"	3/4"	1"
D2	24 mm	28 mm	35 mm	40 mm	45 mm	40 mm	45 mm
SW	19 mm	24 mm	30 mm	36 mm	41 mm	36 mm	41 mm

Electrical Dimensions

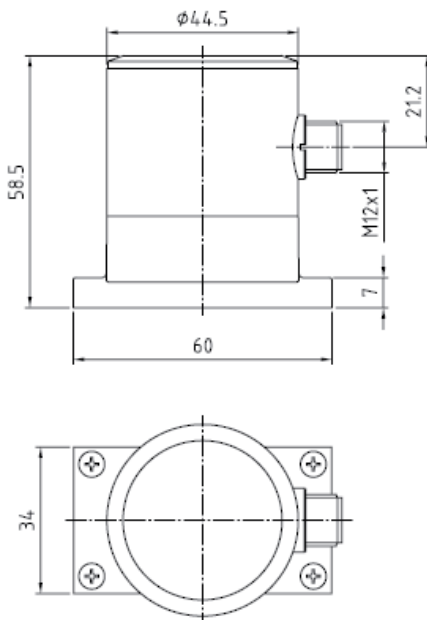
DVZ-...S30x, F3x0, L3x3



DVZ-...L443



DVZ-...C3xx



DVZ-...E14R, G14R

