

OVZ ECONOMICAL OVAL-GEAR FLOW METER



Flow
Pressure
Level
Temperature
Measurement
Monitoring
Control



- Suitable for Viscous Liquids
- Maintains Precision with Viscosity Change
- Five Material Combinations Available
- Economically Priced
- Easy to Maintain
- Optional Analog Output, Frequency Output or Digital Indicating Output Options



S4



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Model:
OVZ

Description

KOBOLD OVZ flowmeters offer users the advantages of positive displacement technology at a rotameter price. Suitable for viscous media ranging from hydraulic oils to light gear oils, the OVZ eliminates problems associated with viscosity changes during operation.

The OVZ's cost conscious design allows for easy maintenance. Since the only wear components are the gears and their axles, the two step rebuild process can be performed in a few minutes with no recalibration required.

The OVZ is available with either Hall-effect, or inductive sensors, giving the user a selection of output signals. Available are NPN, PNP or Namur configurations ideal for connecting to a wide variety of controller devices, including KOBOLD's full line of frequency input devices. The OVZ is also available with analog, frequency, or digital indication output options.

Typical applications for the OVZ include central lubrication systems for paper machines, filling transmission fluid into gearboxes, and hydraulic systems.



KOBOLD OVZ Oval-Gear Flow Meter

Specifications

Accuracy:	±2.5% of f. s.
Turn-Down:	10:1
Viscosity Range:	10 to 800 cSt
Required Filtration:	30 micron filter recommended
Temp. Range:	14 to 176°F

Maximum Pressure Limits	
Differential:	15 PSI
Static	
Material I:	145 PSIG
Material II:	145 PSIG
Material III:	230 PSIG
Material IV:	230 PSIG
Material V:	580 PSIG

Wetted Parts

Oval Gears:	POM
Axle:	Stainless steel
Housing:	POM or aluminum
Housing Cover:	POM, plexiglass aluminum, or polysulfone
O-Ring:	NBR, FKM, or EPDM

Applications

- Batching Systems
- Lubrication Circuits
- Hydraulic Systems
- Soap/Wax Dispensing
- Painting Systems
- Printing Presses

Electronics

Frequency Output (...I401; ...I302; ...I303)

Power Supply: 5-24 V_{DC}
Power Consumption: Typically 10 mA
Pulse Output: Hall effect sensor NPN, asymmetrical, open collector, max. 15 mA

Electr. Connection: Connector socket DIN 43650 (...I401) aluminium adapter box with cable connection (...I302) aluminium cover box with circular connector M12x1 (...I303)

Frequency output (...I304)

Power Supply: 18-30 V_{DC}
Power Consumption: Typically 10 mA
Pulse Output: PNP, asymmetrical, open collector max. 120 mA

Electr. Connection: 2 m PVC cable

Frequency output (...I305)

Power Supply: Nominal 8.2 V_{DC}
Pulse Output: Namur, asymmetrical, max. approx. 3.5 mA (typ. 0.5 mA)

Electr. Connection: 2 m PVC cable

Frequency Output (...F300)

Power Supply: 12-28 V_{DC}
Power Consumption: 10 mA
Pulse Output: PNP, open collector, max. 25 mA
Electr. Connection: Connector M12x1

Frequency Output with Frequency Divider (...F390)

Power Supply: 24 V_{DC} ±20%
Power Consumption: 15 mA
Pulse Output: PNP, open collector, max. 25 mA
Electr. Connection: Connector M12x1
Divisional Factor: Acc. to customer specification

Analog Output (...L343, ...L443)

Power Supply: 24 V_{DC} ±20%
Output: 4-20 mA, 3-wire
Max. Load: 500 Ω
Electr. Connection: Connector M12x1 or DIN 43650
Option: Plug-on display AUF-3000 (with DIN connector only)

Compact Electronics

Display: 3-digit LED
Analog Output: 4...20 mA adjustable, max. 500 Ω
Switching Outputs: 1 (2) semiconductor PNP or NPN, factory setting
Contact Operation: N/C, N/O programmable
Setting: Via 2 keys
Power Supply: 24 V_{DC} ±20%, 3-wire, appr. 100 mA
Electr. Connection: Connector M12x1

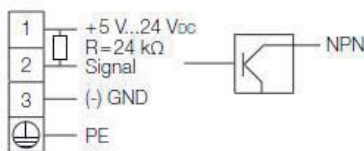
Pointer Indication with Analog Output

Housing: Aluminum
Indication: Moving coil instrum., 240° indication
Power Supply: 24 V_{DC} ±20%
Output: 4-20 mA, 3-wire
Max. Load: 250 Ω
Electr. Connection: Connector M12x1

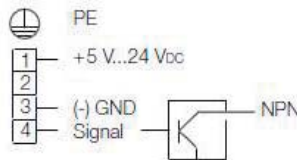
** Totalizing and Batching Electronics available upon request**

Electrical Connection

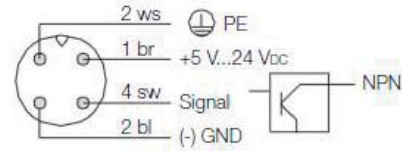
OVZ-...I401



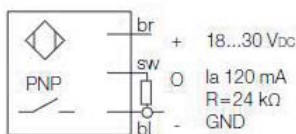
OVZ-...I302



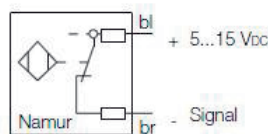
OVZ-...I303



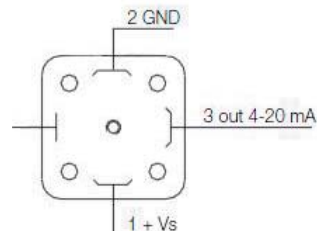
OVZ-...I304



OVZ-...I305

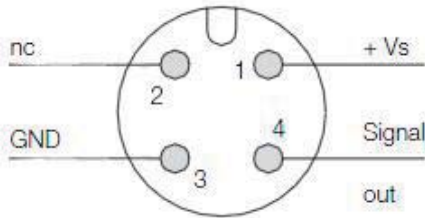


OVZ-...L443

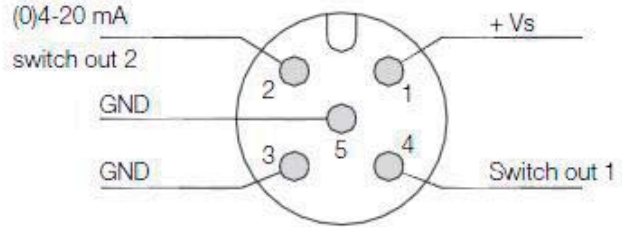


Electrical Connection

OVZ-...F., OVZ-...Z., OVZ-...L3..

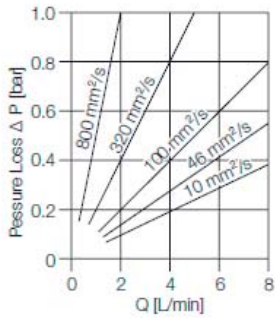


OVZ-...C..

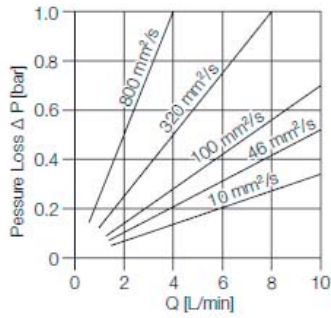


Pressure Losses (POM PLastic Housing)

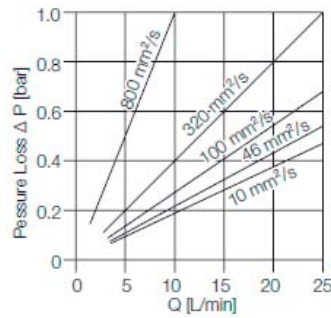
OVZ-02..



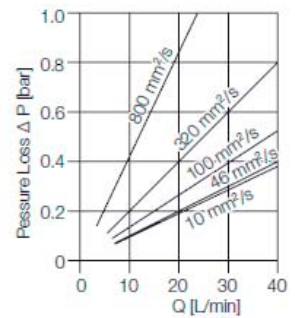
OVZ-04..



OVZ-15..

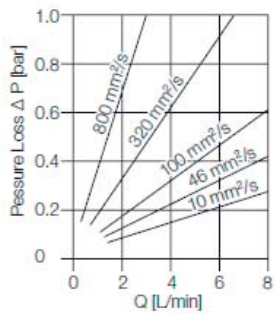


OVZ-30..

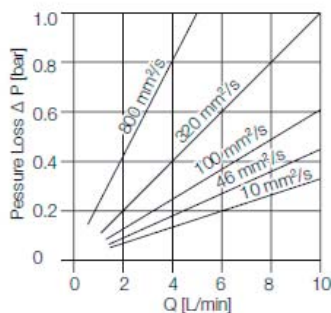


Pressure Losses (Aluminum Housing)

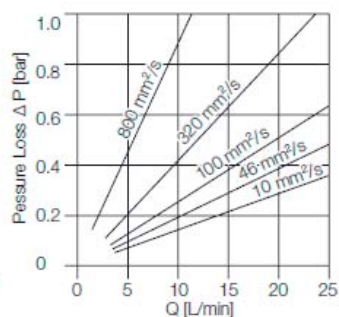
OVZ-02..



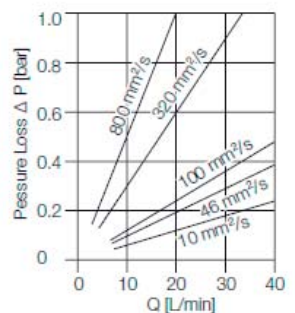
OVZ-04..



OVZ-15..



OVZ-30..





Order Details for POM Plastic Housing (Example: OVZ-02 1 N2 N I304)

Rated Measuring Range ¹⁾ [GPM]				Imp./ Gallon ²⁾	Model Number	Cover Material	Connection	O-ring Material
10 cSt	100 cSt	320 cSt	800 cSt					
0.08 - 2.1	0.08 - 2.1	0.05 - 1.3	0.03 - 0.53	1623	OVZ-02..	1 = POM 2 = PMMA	G2 = G 1/4 N2 = 1/4" NPT	N = NBR V = FKM E = EPDM
0.11 - 2.6	0.11 - 2.6	0.08 - 2.1	0.04 - 1.1	847	OVZ-04..		G2 = G 1/4 N2 = 1/4" NPT	
0.26 - 6.6	0.26 - 6.6	0.26 - 6.6	0.11 - 2.6	199	OVZ-15..		G4 = G 1/2 N4 = 1/2" NPT	
0.42 - 10.6	0.42 - 10.6	0.42 - 10.6	0.25 - 6.34	106	OVZ-30..		G5 = G 3/4 N5 = 3/4" NPT	

¹⁾ Maximum pressure loss at maximum rated flow is 14.5 PSIG

²⁾ Hz = Imp./Gallon x Gallon/min/60

Order Details for Aluminum Housing (Example: OVZ-02 5 N2 V I303)

Rated Measuring Range ¹⁾ [GPM]				Imp./ Gallon ²⁾	Model Number	Cover Material	Connection	O-ring Material
10 cSt	100 cSt	320 cSt	800 cSt					
0.08 - 2.1	0.08 - 2.1	0.07 - 1.74	0.03 - 0.79	1379	OVZ-02..	3 = PMMA 4 = PSU 5 = ALU	G2 = G 1/4 N2 = 1/4" NPT	N = NBR V = FKM E = EPDM
0.11 - 2.6	0.11 - 2.6	0.11 - 2.64	0.07 - 1.19	768	OVZ-04..		G2 = G 1/4 N2 = 1/4" NPT	
0.26 - 6.6	0.26 - 6.6	0.24 - 6.08	0.13 - 3.30	176	OVZ-15..		G4 = G 1/2 N4 = 1/2" NPT	
0.42 - 10.6	0.42 - 10.6	0.34 - 8.85	0.21 - 5.28	98	OVZ-30..		G5 = G 3/4 N5 = 3/4" NPT	

¹⁾ Maximum pressure loss at maximum rated flow is 14.5 PSIG

²⁾ Hz = Imp./Gallon x Gallon/min/60

Output/Electronic
<p>Frequency Output</p> <p>I401 = Frequency output NPN, DIN connector 43650 I302 = Frequency output NPN, cable connection I303** = Frequency output NPN, connector M12x1 I304*** = Frequency output PNP, 2 m PVC cable F300 = Frequency output PNP, connector M12x1 F390 = Frequency divider adjusted PNP, connector M12x1</p> <p>Analog Output</p> <p>L343 = 4-20 mA output, 3-wire, M12x1 plug connector L443 = 4-20 mA output, 3-wire, DIN4 connector 43650</p> <p>Compact Electronics*</p> <p>C30R = LED display, 2x open collector, PNP, plug connector M12x1 C30M = LED display, 2x open collector, NPN, plug connector M12x1 C34P = LED display, 4-20 mA, 1x open coll., PNP, plug con. M12x1 C34N = LED display, 4-20 mA, 1x open coll., NPN, plug con. M12x1</p> <p>Pointer indication*</p> <p>Z340 = 240° pointer indication, 4-20 mA, plug connector M12x1</p>

*Please specify flow direction in writing

**Available only with Aluminum Housing

***Available only with POM Plastic Housing

Plug-on Display

for model OVZ...L443

(with 4 -20 mA output and DIN plug connector)

Description	Order Number
3-position LED, Plug connector DIN 43 650, 3-wire, Power supply through analogue output	AUF-3000

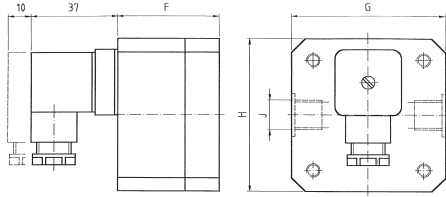
Note: To place an order

1. Select the flow meter order no.
2. Select the desired output/electronic



Dimensions

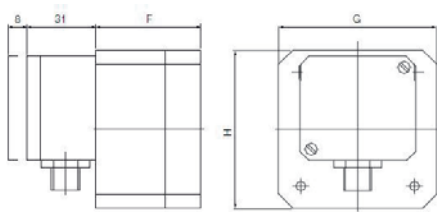
OVZ-...I401



Dimensions (mm)

Range	G	H	F (per Body Materials)			
			1	2	3/4	5
OVZ-02	2.67"	2.67"	1.77"	1.77"	1.71"	1.61"
OVZ-04	2.67"	2.67"	1.93"	1.93"	1.85"	1.75"
OVZ-15	3.90"	3.90"	2.80"	2.87"	2.80"	2.60"
OVZ-30	4.59"	4.59"	3.33"	3.44"	3.39"	3.13"

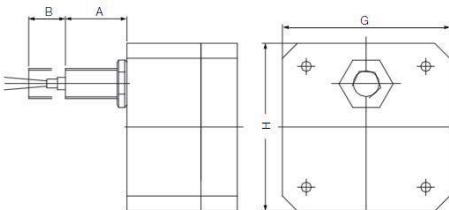
OVZ-...I302, OVZ-...I303



Dimensions (mm)

Range	G	H	F (per Body Materials)			
			1	2	3/4	5
OVZ-02	2.67"	2.67"	1.77"	1.77"	1.71"	1.61"
OVZ-04	2.67"	2.67"	1.93"	1.93"	1.85"	1.75"
OVZ-15	3.90"	3.90"	2.80"	2.87"	2.80"	2.60"
OVZ-30	4.59"	4.59"	3.33"	3.44"	3.39"	3.13"

OVZ-...I304, OVZ-...I305

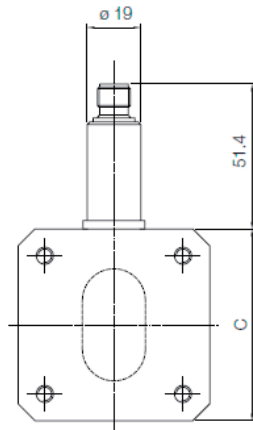


Range	PNP		NAMUR		PNP/NAMUR	
	A	B	C	D	G	H
OVZ-02	0.85"	0.53"	0.65"	0.53"	2.67"	2.67"
OVZ-04	0.83"	0.55"	0.63"	0.55"	2.67"	2.67"
OVZ-15	0.75"	0.63"	0.55"	0.63"	3.90"	3.90"
OVZ-30	0.67"	0.71"	0.47"	0.71"	4.59"	4.59"

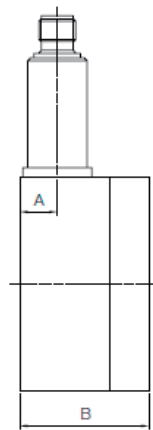
OVZ with Frequency or Analog Output

Dimensions

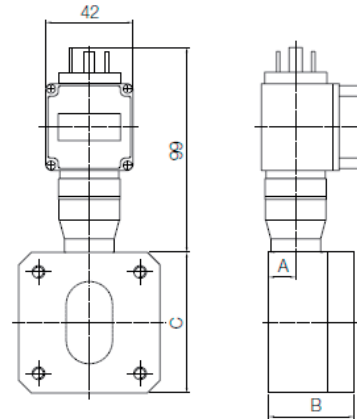
OVZ-...L3..



OVZ-...F3..



OVZ-...L443 with AUF-3000



Plastic Housing (POM)

Description	A	B	C
OVZ-02 1 = POM	0.51"	1.77"	2.68"
OVZ-02 2 = PMMA	0.51"	1.77"	2.68"
OVZ-04 1 = POM	0.54"	1.93"	2.68"
OVZ-04 2 = PMMA	0.54"	1.93"	2.68"
OVZ-15 1 = POM	0.62"	2.80"	3.90"
OVZ-15 2 = PMMA	0.62"	2.87"	3.90"
OVZ-30 1 = POM	0.69"	3.33"	4.69"
OVZ-30 2 = PMMA	0.69"	3.44"	4.69"

Aluminum Housing (ALU)

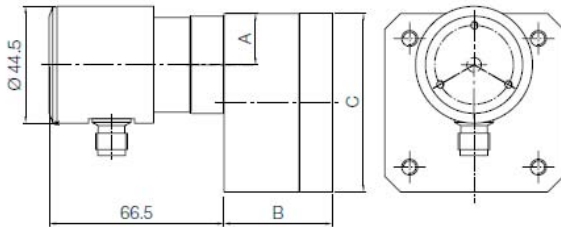
Description	A	B	C
OVZ-02 3 = PMMA	0.45"	1.72"	2.68"
OVZ-02 4 = PSU	0.45"	1.72"	2.68"
OVZ-02 5 = ALU	0.45"	1.62"	2.68"
OVZ-04 3 = PMMA	0.45"	1.85"	2.68"
OVZ-04 4 = PSU	0.45"	1.85"	2.68"
OVZ-04 5 = ALU	0.45"	1.75"	2.68"
OVZ-15 3 = PMMA	0.53"	2.80"	3.90"
OVZ-15 4 = PSU	0.53"	2.80"	3.90"
OVZ-15 5 = ALU	0.53"	2.60"	3.90"
OVZ-30 3 = PMMA	0.62"	3.39"	4.69"
OVZ-30 4 = PSU	0.62"	3.39"	4.69"
OVZ-30 5 = ALU	0.62"	3.13"	4.69"

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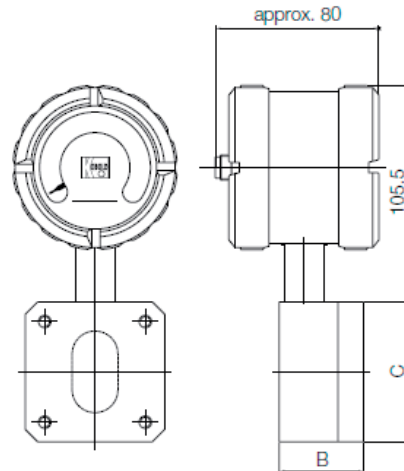
OVZ with Compact Electronic and Pointer Indication

Dimensions

OVZ-...C3..



OVZ-...Z3..



Plastic Housing (POM)

Description	A	B	C
OVZ-02 1 = POM	0.77"	1.77"	2.68"
OVZ-02 2 = PMMA	0.77"	1.77"	2.68"
OVZ-04 1 = POM	0.67"	1.93"	2.68"
OVZ-04 2 = PMMA	0.67"	1.93"	2.68"
OVZ-15 1 = POM	0.83"	2.80"	3.90"
OVZ-15 2 = PMMA	0.83"	2.87"	3.90"
OVZ-30 1 = POM	0.91"	3.33"	4.69"
OVZ-30 2 = PMMA	0.91"	3.44"	4.69"

Aluminum Housing (ALU)

Description	A	B	C
OVZ-02 3 = PMMA	0.77"	1.72"	2.68"
OVZ-02 4 = PSU	0.77"	1.72"	2.68"
OVZ-02 5 = ALU	0.77"	1.62"	2.68"
OVZ-04 3 = PMMA	0.77"	1.85"	2.68"
OVZ-04 4 = PSU	0.77"	1.85"	2.68"
OVZ-04 5 = ALU	0.77"	1.75"	2.68"
OVZ-15 3 = PMMA	0.83"	2.80"	3.90"
OVZ-15 4 = PSU	0.83"	2.80"	3.90"
OVZ-15 5 = ALU	0.83"	2.60"	3.90"
OVZ-30 3 = PMMA	0.91"	3.39"	4.69"
OVZ-30 4 = PSU	0.91"	3.39"	4.69"
OVZ-30 5 = ALU	0.91"	3.13"	4.69"