

# Piston Flowmeters

for Viscous Media



measuring  
•  
monitoring  
•  
analyzing

DRZ



- Flow Range: 1.6...110 GPH  
6...420 LPH
- Connection: 1/8" NPT, 1/4" NPT,  
G 1/8, G 1/4
- Max. Temperature: 176 °F
- Max. Pressure: 580 PSIG
- Viscosity Range: 5...100 cSt
- Economical Brass Construction
- Accuracy:  $\pm 1\%$  Reading



KOBOLD companies worldwide:

ARGENTINA, AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHILE, CHINA, COLOMBIA, CZECH REPUBLIC, EGYPT, FRANCE, GERMANY, HUNGARY, INDIA, INDONESIA, ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, REPUBLIC OF KOREA, ROMANIA, SINGAPORE, SPAIN, SWITZERLAND, TAIWAN, THAILAND, TUNISIA, TURKEY, UNITED KINGDOM, USA, VIETNAM

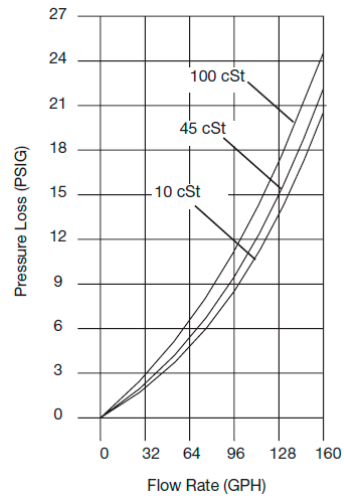
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Description

The KOBOLD DRZ series rotary piston positive displacement flowmeter combines economy with high performance. It is designed to measure any clean, free-flowing liquid with lubricating properties and viscosity ranging from 5 to 100 centistokes. The unique design uses a single piston rotating on a camshaft to measure a very precise volume with each rotation. The rotation is detected by a Hall effect sensor and is processed by electronics into: a blind pulse output (PNP or NPN based on model ordered) or a full featured controller with flowrate indication, analog output, and switches. Unlike other piston type meters, the DRZ piston rotates in an orbital fashion which minimizes flow pulsations. The rugged brass body provides a pressure rating to 580 PSIG and a low pressure drop of 20 PSI maximum. Typical media includes: lubricating oil, diesel fuel, glycol mixtures, waxes, paint, latex polymers, sugar solutions and detergents.

DP vs. Flowrate



Specifications

- Area of Application: Low and Medium Viscosity Liquids which have Lubricating Properties
Measuring Range: 1.6...110 GPH, 6...420 LPH
Max. Throughput: 160 GPH
Accuracy: ±1.0% of Reading
Repeatability: ±0.2% of Reading
Viscosity Range: 5...100 cSt
Process Temp. Range: -10...176 °F
Ambient Temp. Range: -10...140 °F
Max. Pressure: 580 PSIG
Max. Differential Pressure: 20 PSI
Wetted Materials: Brass, Titanium, POM, FKM
Req. Filtration: 150 Mesh

Electrical Specifications

- Output Type 0000 = OEM NPN Pulse
Power Requirement: 5-24 VDC at 10 mA Max.
Output: NPN Open Collector
Max. Output Load: 15 mA
K-Factor: 1633 pulses/gal.
Elec. Protection: NEMA 4X/IP65
Elec. Connection: DIN 43650 Plug

Note: May be combined with AUF-4000 to provide LED display with 3-wire 4-20 mA output

AUF-4000 Pulse to 4-20 mA Converter with Display

- Power Requirement: 14-30 VDC
Input: Pulse
Output: 4-20 mA, 3-wire
Max. Output Load: 250 ohms
Elec. Protection: NEMA 4X/IP65
Elec. Connection: DIN 43650 Plug

Output Type F300 = PNP Pulse

- Power Requirement: 24 VDC ±20% at 10 mA Max.
Output: PNP Open Collector
Max. Output Load: 25 mA
K-Factor: 1633 pulses/gal.
Elec. Protection: NEMA 4X/IP65
Elec. Connection: Micro-DC, 4 Pin Male

Output Type F3X0 = PNP Pulse with Frequency Divider

- Power Requirement: 24 VDC ±20% at 10 mA Max.
Output: PNP Open Collector
Max. Output Load: 25 mA
Elec. Protection: NEMA 4X/IP65
Elec. Connection: Micro-DC, 4 pin Male

Output Type L343 = 4-20 mA

- Power Requirement: 24 VDC ±20% at 10 mA Max.
Output: 4-20 mA, 3-wire
Max. Output Load: 500 ohms
Elec. Protection: NEMA 4X/IP65
Elec. Connection: Micro-DC, 4 pin Male

Output Type C30M, C30R, C34N, C34P Compact Electronics

- Housing Material: 303 Stainless Steel
Power Supply: 24 VDC ±20%
Display: 3 Digit LED
Output Types: Analog Output, 1 or 2 Switches, Based on Model Code
Analog Output: 4-20 mA, 3-wire, Rloop<500 ohms
Switch: PNP or NPN Open Collector, 300 mA Max.
Elec. Protection: NEMA 4X/IP65
Elec. Connection: Micro-DC, 5 pin Male

**Order Details** (Example: **DRZ-1120 N2 C34P**)

Measuring Range	Fittings	Output Type
6...420 LPH = <b>DRZ-1110..</b>	..N1.. = 1/8" NPT ..N2.. = 1/4" NPT	..0000 = OEM NPN Pulse  ..F300 = PNP Pulse ..F320 = PNP Pulse, 1:2 Freq. Divider ..F340 = PNP Pulse, 1:4 Freq. Divider ..F390 = PNP Pulse, Custom Freq. Divider
1.6...110 GPH = <b>DRZ-1120..</b>	..G1.. = 1/8" BSP ..G2.. = 1/4" BSP	..L343 = 4-20 mA, 3-wire, Micro-DC Plug  ..C30M = LED Display w/ 2 NPN Switches, Micro-DC Plug ..C30P = LED Display w/ 2 PNP Switches, Micro-DC Plug ..C34N = LED Display w/ 4-20 mA + 1 NPN Switch Micro-DC Plug ..C34P = LED Display w/ 4-20 mA + 1 PNP Switch Micro-DC Plug

**Accessories:**

**Part Number 807.037** = Mating 4-pin Micro-DC Plug with 6 feet of Cable for Output Type F300, 320, 340, 390 and L343

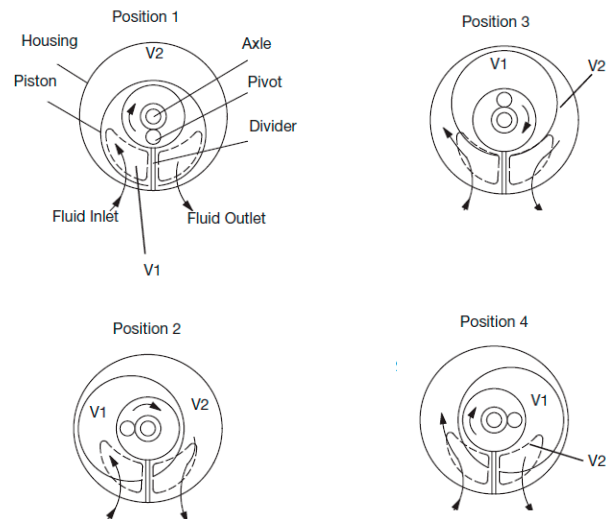
**Part Number 807.007** = Mating 5-pin Micro-DC plug with 6 feet of Cable for Output Type C30M, C30P, C34N and C34P

**Part Number AUF-4000** = Snap-on Display, Pulse Input to 3-wire 4-20 mA for Output Type 0000



**DRZ Principle of Operation**

1. Liquid enters the meter through the inlet port. Liquid momentum causes the internal piston to rotate about the cammed axle.
2. As the piston rotates, a known volume fills the meter cavity V2.
3. The liquid volume is sealed inside the meter cavity by the piston and a partition which separates the inlet port from the outlet port.
4. When the piston rotates past the outlet port, the known liquid volume V2 exits the meter. The piston rotation is detected by a Hall effect sensor and an output pulse is generated. Each pulse correlates to a precisely measured volume for liquid flow.

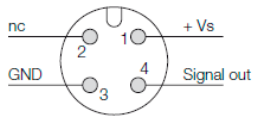




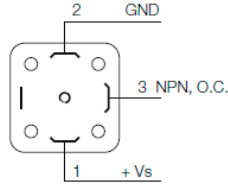
Piston Flowmeters Model DRZ

Electrical Connection

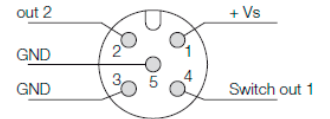
DRZ-..F3.. and DRZ-..L343



DRZ-..0000

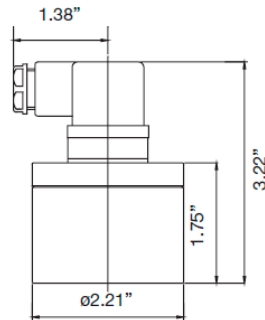


DRZ-..C3..

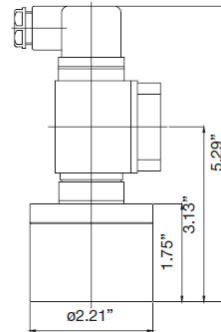


Dimensions

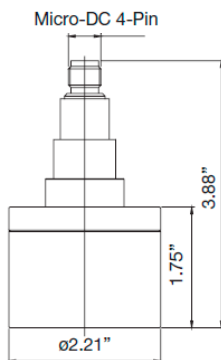
DRZ with Output Type 0000 (OEM Pulse)



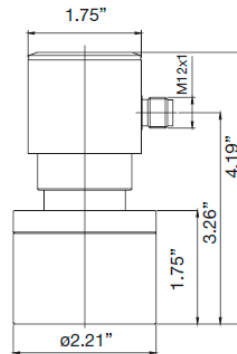
DRZ with Output Type 0000 and AUF-4000



DRZ with Output Type F3.. or L343



DRZ with Output Type C3..



DRZ Bottom View

