

DESCRIPTION

The Vision Turbine Meters comply with the lead-free provisions of the Safe Drinking Water Act. Available models include meters that are:

- Bisphenol A (BPA)-free
- BV1000 and BV2000 certified to NSF/ANSI/CAN 61 and 372

The meters are designed for flow measurement of low-viscosity, aggressive and non-aggressive liquids alike, including demineralized water, alkaline solutions, oils, salad oil, fuel/fuel consumption, beverages, water solutions and coolants.

- The BV1000 flow range is 0.026–0.65 gpm (0.1–2.5 lpm)
- The BV2000 flow range 0.13–9.2 gpm (0.5–35 lpm)
- The BV3000 flow range 1.32–17.17 gpm (5–65 lpm)

The meter is especially suitable for washing machines, dishwashers, coffee machines, laser cooling plants, solar solutions, bakery machines, steam cooking machines in large kitchen plants, and CD or DVD cleaning.

APPLICATIONS

- **Food Industry:** Coffee machines, vending machines, dispensing systems, bakery machines and steamers
- **Medical Applications:** Sterilizers, slide staining, dental water jets and dialysis machines
- **Chemical and Pharma Industry:** Dosing systems and bottling plants
- **Industrial applications:** Cooling systems, washing machines and plants, dosing systems, water treatment units, filter monitoring systems, solar plants, data center cooling, instantaneous water heater and reverse osmosis systems

FEATURES

- Compact size
- Measurement in any meter orientation
- Operating pressure up to 362.50 psi (25 bar)
- Temperature range of –4 to 212 °F (–20 to 100 °C)
- Accuracy of $\pm 3\%$
- Resolution up to 83,000 ppg (22,000 ppl), depending on the model



MEASURING PRINCIPLE

The rotor is turned by the liquid force proportional to flow. A Hall effect sensor supplies pulses that can be used for digital or analog signal processing. The generated pulses are specified as a K-factor.

OPERATING PRINCIPLE

Liquid flow causes a bladed turbine inside the meter housing to turn at an angular velocity directly proportional to the velocity of the liquid measured. As the blades pass beneath a magnetic pickup coil, a frequency signal is generated.

Each pulse is equivalent to a discrete volume of liquid. The frequency pulse is directly proportional to the turbine angular velocity and the flow rate.

The large number of pulses provides high resolution. As the mass of the turbine is small, the response time is fast. It is not necessary to install a straight length of pipeline upstream of the meter.

The simple mechanical construction of the Vision meter provides a long lifespan without any loss of accuracy. Pressure spikes less than the burst pressure rating do not affect the measurements.

SPECIFICATIONS

Model		BV1000	BV2000						BV3000
		025*	050	075	100	150	250	350	650
Flow Range		0.026–0.65 gpm	0.13–1.3 gpm	0.13–2.0 gpm	0.26–2.7 gpm	0.26–4.0 gpm	0.26–6.6 gpm	0.53–9.2 gpm	1.32–17.17 gpm
		0.1–2.5 lpm	0.5–5 lpm	0.5–7.5 lpm	1–10 lpm	1–15 lpm	1–25 lpm	2–35 lpm	5–65 lpm
K-factor for Trogamid Housing		83,270 ppg	26100 ppg	17800 ppg	12500 ppg	8300 ppg	3785 ppg	2840 ppg	795 ppg
		22,000 ppl*	6900 ppl	4700 ppl	3300 ppl	2200 ppl	1000 ppl	750 ppl	210 ppl
DN mm		5 mm	6 mm	8 mm	6 mm	8 mm	8 mm	8 mm	12 mm
Operating Pressure		362.5 psi (25 bar)							
Burst Pressure		1450 psi (100 bar)							
Inlet / Outlet Ports		1/4 in. NPT G 1/4 in. (BSPP) Push-fit 6 mm	3/8 in. NPT G 3/8 in. (BSPP) O-ring						3/4 in. NPT or G 3/4 in. (BSPP)
Operating Temperature		–4 to 212 °F (–20 to 100 °C)							
Accuracy		± 3% of reading							
Repeatability		< 0.50 % under the same operating conditions							
Viscosity		up to 16 cSt							
Electrical Connection		Round cable LiYY 3 x 0.25 mm ² with free cable ends or *3-pin (2.8 × 0.5) mini DIN connector, EN 60529 * Mating connector is included.							
Filter		20–40 microns recommended							
Input Power		5–24V DC							
Power Consumption		~ 1.6 mA							
Output (Hz)		NPN sinking open collector							
Output Current		Max. 20 mA (Pull-up resistor required. See wiring diagram in User Manual.)							
Materials	Housing	Trogamid Grilamid reinforced fiberglass	Trogamid (NSF/ANSI/CAN 61 and 372 certified)						
		—	Brass CuZn38Al-C (complies with lead-free provisions of the Safe Drinking Water Act)						—
	Turbine Bearings	PPS Ferrite							
		Graphite/PTFE							
Weight		~0.35 oz (10 g)	~ 0.53 oz (15 g)						~ 1.23 oz (35 g)
Approvals		KTW-BWGL; NSF/ANSI/CAN 61 and 372 for BV1000 and BV2000							
Certifications		RoHS and CE compliant							

*The previous generation of Model 025 had a K-factor of 18,500 ppl.

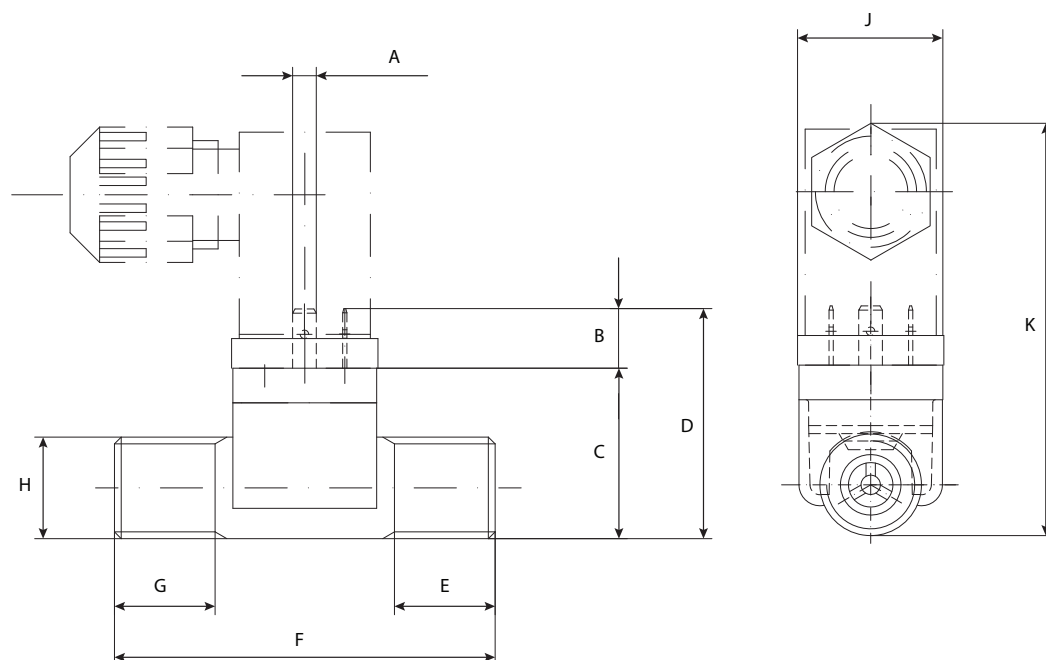
Pressure Drop Chart

	Type		Part Number															
	gpm	lpm	025		050		075		100		150		250		350		650	
	—	—	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar
Pressure Drop Δp with Water Flow at 68 °F (20 °C)	0.13	0.5	0.29	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0.26	1	0.73	0.05	<0	<0	<0	<0	<0	<0	<0	<0	<0	<0	<0	<0	—	—
	0.40	1.5	2.18	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0.53	2	3.63*	0.25*	<0	<0	0.87	0.06	<0	<0	0.73	0.05	<0	<0	<0	<0	—	—
	1.32	5	—	—	1.74	0.12	2.90	0.20	0.73	0.05	2.90	0.20	0.73	0.05	0.73	0.05	0.00	0.00
	2.64	10	—	—	5.80	0.40	10.15	0.70	2.90	0.20	5.80	0.40	2.47	0.17	2.18	0.15	0.14	0.01
	3.96	15	—	—	13.05	0.90	—	—	5.80	0.40	—	—	3.92	0.27	3.63	0.25	0.29	0.02
	5.28	20	—	—	18.85	1.30	—	—	10.15	0.70	—	—	6.96	0.48	6.53	0.45	0.72	0.05
	6.60	25	—	—	—	—	—	—	—	—	—	—	9.43	0.65	8.70	0.60	1.02	0.07
	7.93	30	—	—	—	—	—	—	—	—	—	—	—	—	13.34	0.92	1.59	0.11
		35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.03	0.14
		40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.61	0.18
		45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.34	0.23
		50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.06	0.28
		55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.93	0.34
		60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.80	0.40
		65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.82	0.47

*Value applies to 0.66 gpm (2.50 lpm)

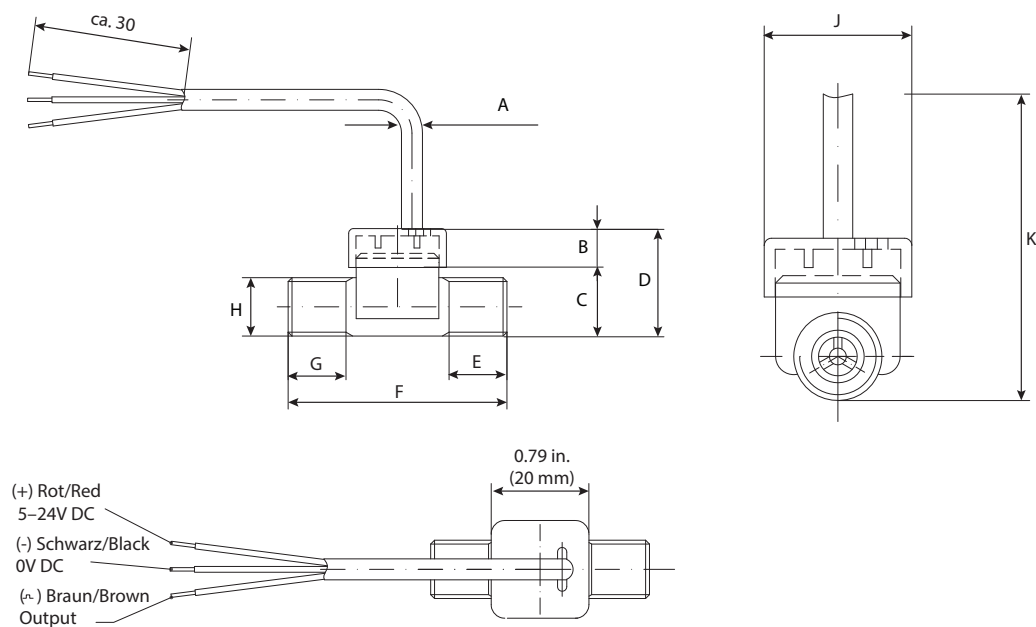
PHYSICAL DIMENSIONS

BV1000 (G 1/4 in. or 1/4 in. NPT with Mini-DIN Connector)



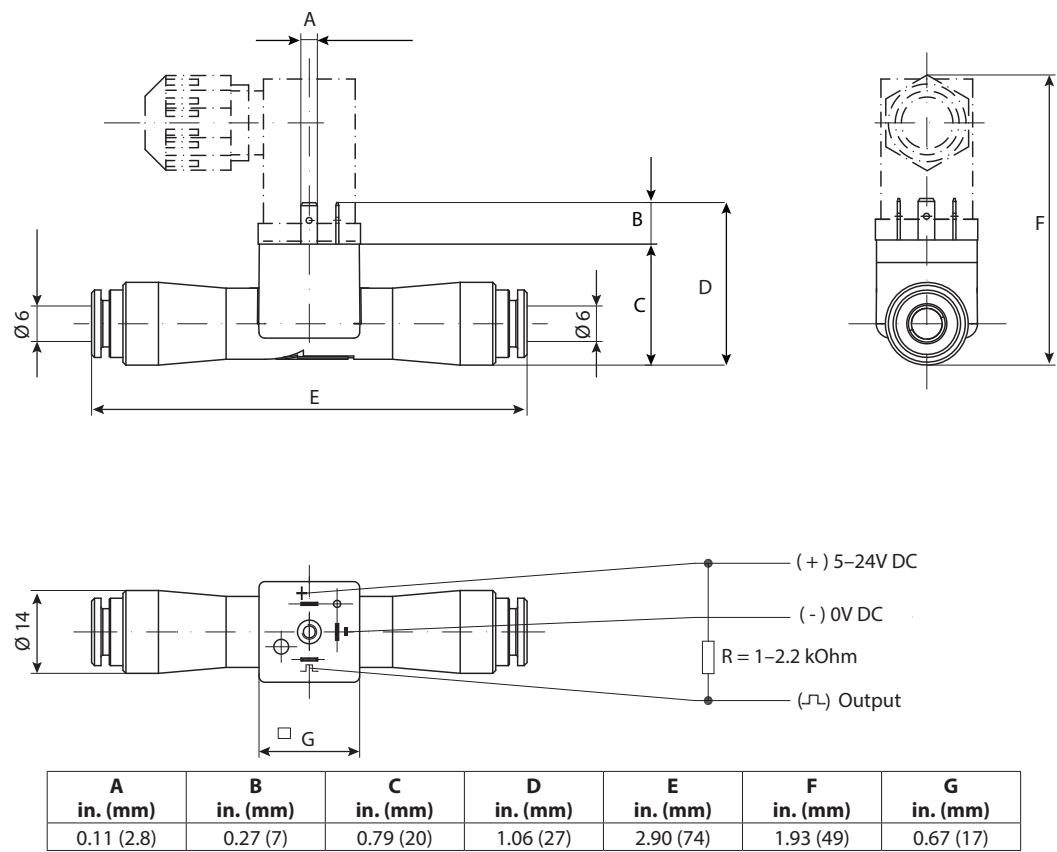
A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	K in. (mm)
0.11 (2.8)	0.27 (7)	0.79 (20)	1.06 (27)	0.43 (11)	1.77 (45)	0.43 (11)	G 1/4 in. or 1/4 in. NPT	0.67 (17)	1.93 (49)

BV1000 (G 1/4 in. or 1/4 in. NPT with Round Cable LiYY 3 x 0.25mm² and Free Cable Ends)

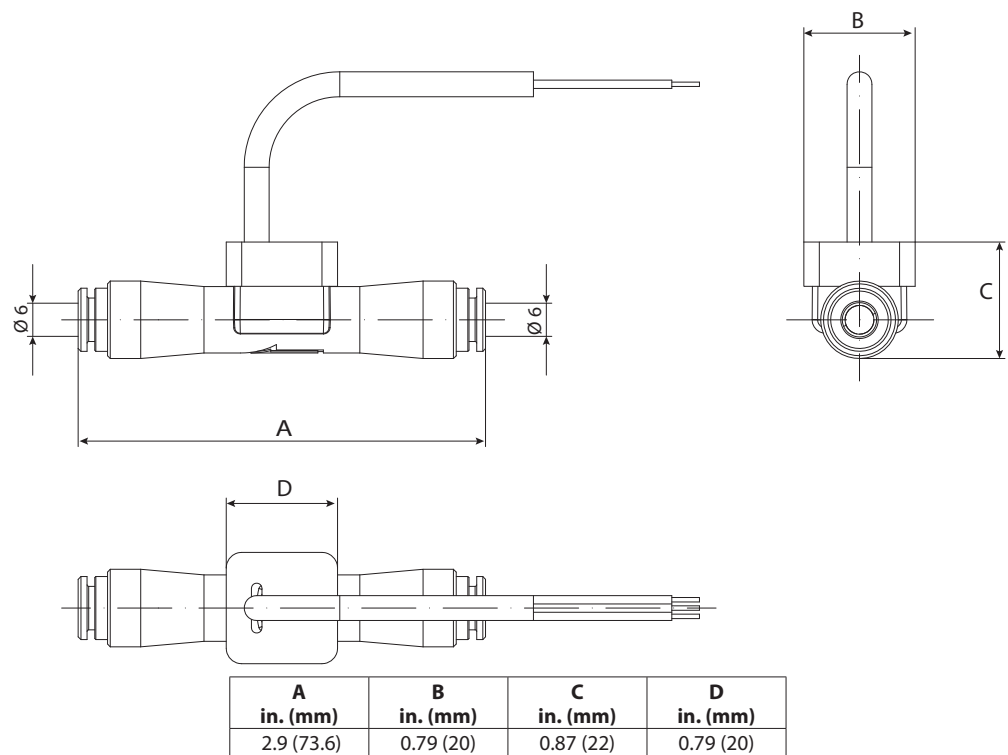


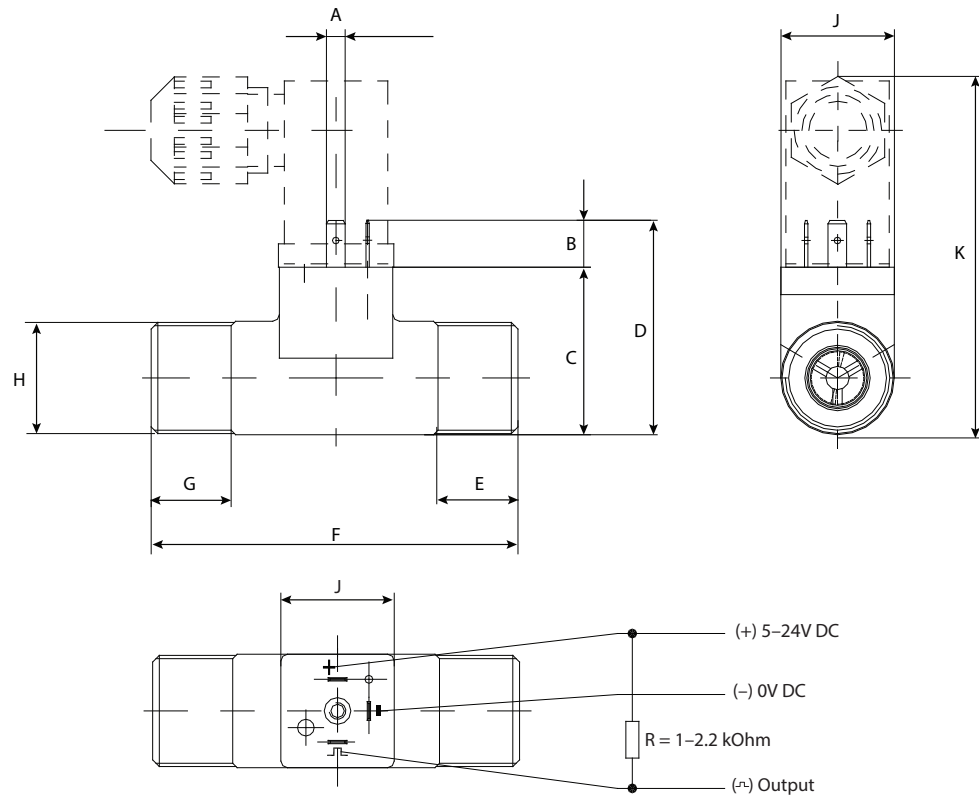
A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	K in. (mm)
0.11 (2.8)	0.27 (7)	0.79 (20)	1.06 (27)	0.43 (11)	1.77 (45)	0.43 (11)	G 1/4 in. or 1/4 in. NPT	0.67 (17)	1.93 (49)

BV1000 (with Push-Fit Connection and Mini-DIN Connector)

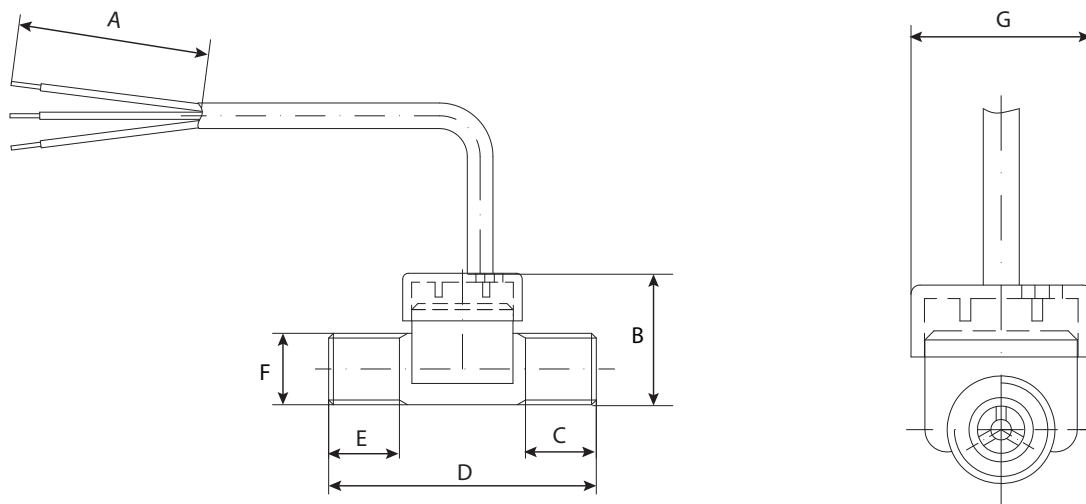


BV1000 (with Push-Fit Connection and Round Cable LiYY 3 × 0.25 mm² and Free Cable Ends)



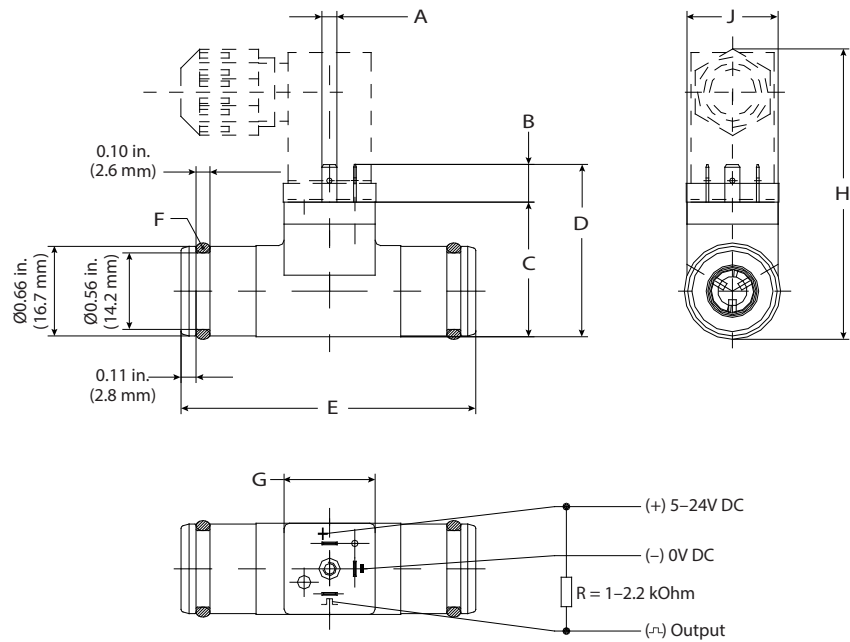
BV2000 (G 3/8 in. or 3/8 in. NPT with Mini-DIN Connector)

A	B	C	D	E	F	G	H	J	K
in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
0.11 (2.8)	0.27 (7)	0.98 (25)	1.26 (32)	0.67 (17)	2.17 (55)	0.67 (17)	G 3/8 in. or 3/8 in. NPT	0.67 (17)	2.13 (54)

BV2000 (G 3/8 in. or 3/8 in. NPT with Round Cable LiYY 3 x 0.25 mm² and Free Cable Ends)

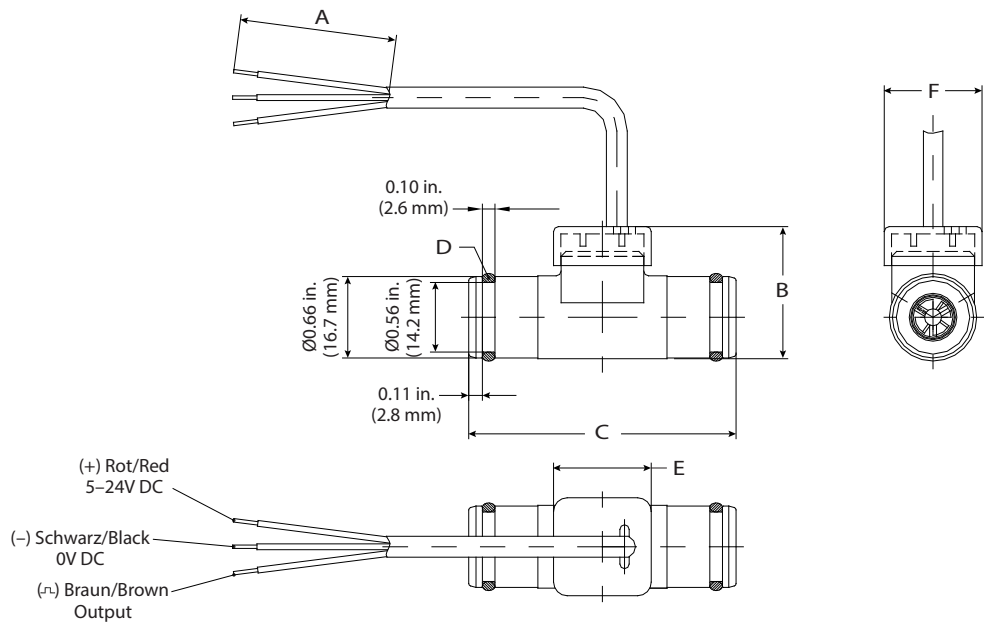
A	B	C	D	E	F	G
in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
1.18 (30)	1.06 (27)	0.47 (12)	2.17 (55)	0.47 (12)	G 3/8 in. or 3/8 in. NPT	0.79 (20)

BV2000 (O-Ring Assembly with DIN Connector)

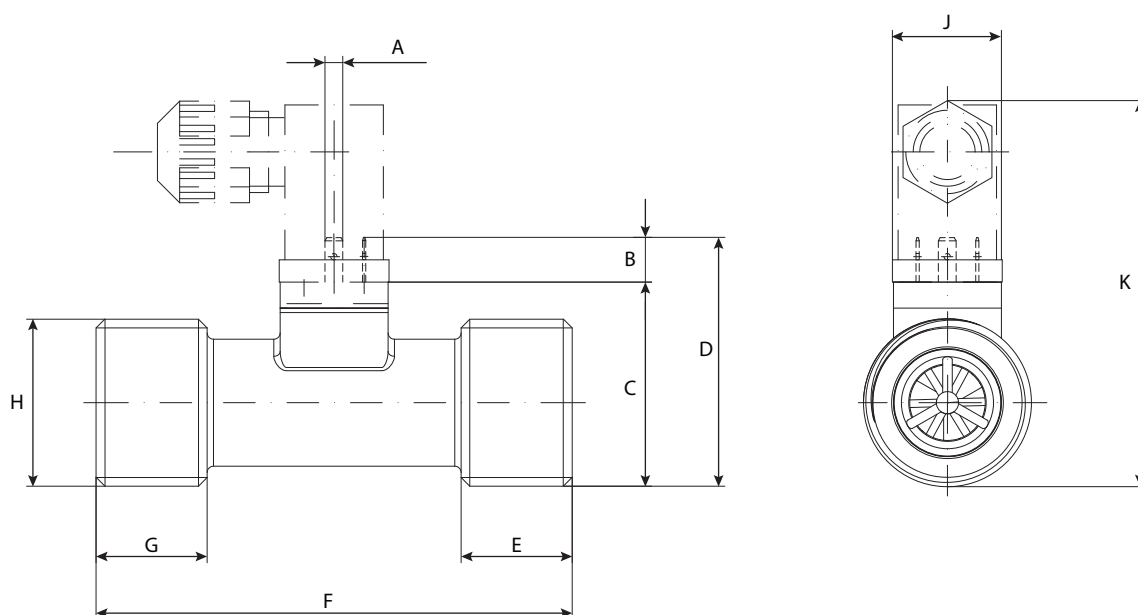


A	B	C	D	E	F	G	H
in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
0.11 (2.8)	0.27 (7)	0.98 (25)	1.26 (32)	2.17 (55)	O-Ring (14 × 1.78)	0.67 (17)	2.13 (54)

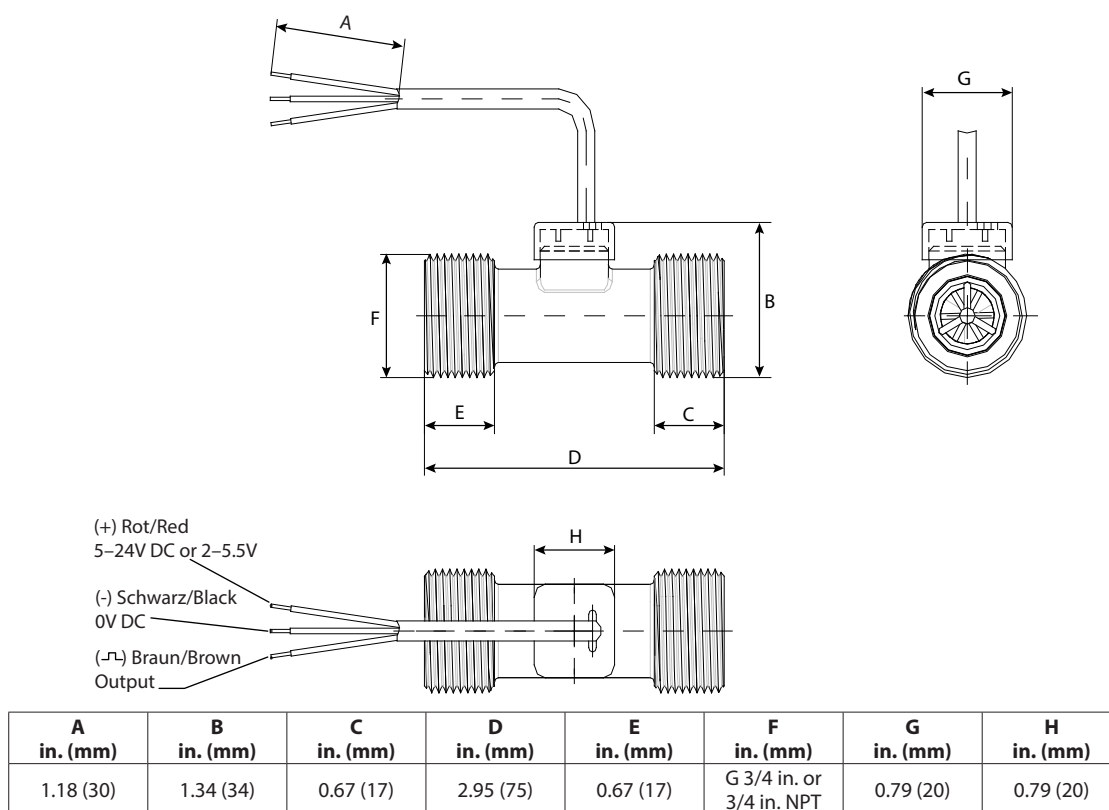
BV2000 (O-Ring Assembly with Round Cable LiYY 3 × 0.25 mm² and Free Cable Ends)



A	B	C	D	E	F
in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
1.18 (30)	1.06 (27)	2.17 (55)	O-Ring (14 × 1.78)	0.79 (20)	0.79 (20)

BV3000 (G 3/4 in. or 3/4 in. NPT)

A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	K in. (mm)
0.11 (2.8)	0.27 (7)	1.3 (33)	1.57 (40)	0.67 (17)	2.95 (75)	0.67 (17)	G 3/4 in. or 3/4 in. NPT	0.67 (17)	2.44 (62)

BV3000 (G 3/4 in. or 3/4 in. NPT with Round Cable LiYY 3 x 0.25 mm² and Free Cable Ends)

A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)
1.18 (30)	1.34 (34)	0.67 (17)	2.95 (75)	0.67 (17)	G 3/4 in. or 3/4 in. NPT	0.79 (20)	0.79 (20)

PART NUMBERING CONSTRUCTION

Vision Meter BV1000



MODEL		
BV1000	BV1000	
MATERIAL		
Trogamid	TR	
Grilamid, reinforced fiberglass*	GF	
END CONNECTION		
1/4" NPT	N	
1/4" G	G	
Push-fit connection for OD = 6 mm	P	
FLOW RANGE		
0.026 ... 0.65 gpm (0.1 ... 2.5 lpm) and k-factor 83,270 ppg (22,000 ppl)	025	
ELECTRICAL CONNECTION		
3 Pin (2.8 x 0.5) Mini DIN Connector, EN 60529		A
Cable (3 x AWG24) w/ Free Ends, 1 meter long		B

* Only available with Push-fit connection (P)

Vision Meter BV2000

Vision Meter BV2000



MODEL		
BV2000	BV2000	
MATERIAL		
Trogamid	TR	
END CONNECTION		
3/8" NPT	N	
3/8" G	G	
O-Ring	R	
FLOW RANGE		
0.13 ... 1.3 gpm (0.5 ... 5 lpm)	050	
0.13 ... 2.0 gpm (0.5 ... 7.5 lpm)	075	
0.26 ... 2.7 gpm (1 ... 10 lpm)	100	
0.26 ... 4.0 gpm (1 ... 15 lpm)	150	
0.26 ... 6.6 gpm (1 ... 25 lpm)	250	
0.53 ... 9.2 gpm (2 ... 35 lpm)	350	
ELECTRICAL CONNECTION		
3 Pin (2.8 x 0.5) Mini DIN Connector, EN 60529		A
Cable (3 x AWG24) w/ Free Ends, 1 meter long		B

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