

All-Metal Armored Flowmeter and Counter for Liquids and Gases



measuring
•
monitoring
•
analyzing

BGN



- 316 Stainless Steel, PTFE-Lined Stainless Steel, and Hastelloy® C-22 Measuring Tubes
- Line Sizes up to 6"
- Direct Reading Scales Calibrated for Media Viscosity, Density, Operating Pressure and Temperature
- Analog Output, HART®, and Profibus®-PA
- Connection: 1/4" ...2" NPT, ANSI 1/2" ...6", Others Available
- Special Versions Available for Process Temperatures up to 660 °F
- Special Materials: Monel®, Tantalum, Others on Request



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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 BGN armored variable area flowmeter is ideal for difficult applications that require high pressure capability, high temperature operation, or low pressure loss. The BGN's standard design is available in stainless steel, PTFE-clad stainless steel, or Hastelloy® C-22. The standard BGN is well suited for water, most viscous liquids, and compressed gases in line sizes up to 6". The direct reading scales are calibrated for media viscosity, density, operating pressure, and temperature. Electronic limit switches and an analog flow transmitter are available as options and are able to operate via intrinsically safe methods of protection and may be used in hazardous areas where intrinsically safe installations are permitted. Custom designs for high pressure, high temperature, special fittings, and special materials (such as Monel® and tantalum) are available. Other options include: self-draining flow bodies, gas or liquid damping, and a flow counter module.

Technical Details

Sensor

- Wetted Materials: 316 L SS / 316-Ti SS, Hastelloy® C-22/C4, PTFE, Other Materials on Request
Process Connection: ASME B16.5, NPT, Other Connections on Request
Nominal Pressure: 580 PSIG, ASME CI150 / 300 (Standard) (BGN-S/H), 230 PSIG, ASME CI150 (Standard) (BGN-P), Higher Pressures Upon Request (Max. 8700 PSIG)

- Process Temperature: -40...392 °F (BGN-S/H without Electr. Output), -40...300 °F (BGN-S/H with Electr. Output), -40...660 °F (BGN-S/H with Option V / H / W), -40...257 °F (BGN-P)

Ambient Temperature: -40...176 °F

Accuracy

- Liquid: ±1.6% of Full Scale (BGN-S/H), ±2.0% of Full Scale (BGN-P)
Gas: ±1.8% of Full Scale (BGN-S/H), ±2.2% of Full Scale (BGN-P)

Additional Inaccuracy with Transmitter (ES): ±0.2%

Repeatability: ±0.5% of Full Scale

Protection: IP 65 (Aluminum Housing), IP 67 (Stainless Steel Housing)

Certification

- Explosion Protection: BVS 03 ATEX H/B 112
CE-Marking: Pressure Equipment Directive 97/23/Eg



Display

- Material: Aluminum (Stove-Enameled), Stainless Steel (as Option)
Electrical Outputs: Inductive Switch, SJ 3,5-N NAMUR (Standard)*, Inductive Switch, SJ 3,5-SN NAMUR (Safety Design)* on Request, Microswitch*, Others on Request
Ambient Temperature: -40...176 °F (without Limit Switch), -40...149 °F (with Limit Switch)

* Using the segments of the slot-type initiators or the eccentric discs of the microswitches, any switching point between 10 % and 90 % of the flow rate can be set.

Transmitter

- ES with HART®-Protocol
ES with HART®-Protocol and 2 NAMUR-Switches*
ES with HART®-Protocol and 1 NAMUR-Switch* / 1 Pulse Output
ES with Profibus® PA
ES with HART®-Protocol and Counter Module
ES with Fieldbus® Foundation™

* Contact can be configured using HART®

- Power Supply: 14 - 30 VDC
Output: Passive, Galvanically Isolated
Current: 4-20 mA
Binary 1 and 2: U1 = 30 V, I1 = 20 mA, P1 = 100 mW
Input Binary: Counter Reset (only for ES with Counter Module)
Ambient Temperature: -40...158 °F

Certification

- Explosion Protection: DMT 00 ATEX E 075
Type of Protection: Ex II 2G EEx ia IIC T6
CE-Marking: Explosion Protection Directive 94/9/EG



Order Details for Low Flow Models: (Example: **BGN-S10 201R A 0000 S 1 0 0K**)

Low Flow Models						Part Number Continued
Measuring Ranges: 0.0022...0.022 GPM to 0.0176...0.176 GPM						
Model	Measuring Tube Material	Connection	Measuring Range*			
			Code	Water	Air	
BGN--	..S10.. = Stainless Steel, Process Temp. ≤ 660 °F	..201R ^{5) 11)} .. = 1/2" Class 150 RF ASME	..A..	BGN-S10: 0.0022...0.022 GPM BGN-P10: 0.0031...0.031 GPM	0.008...0.08 SCFM	To complete part number, please go directly to order table on page 7.
		..221R ^{5) 11)} .. = 1/2" Class 300 RF ASME	..B..	BGN-S10: 0.0044...0.044 GPM BGN-P10: 0.0053...0.053 GPM	0.018...0.18 SCFM	
		..202R.. = 3/4" Class 150 RF ASME	..C..	BGN-S10: 0.0071...0.071 GPM BGN-P10: 0.0088...0.088 GPM	0.085...0.282 SCFM	
		..222R ¹⁾ .. = 3/4" Class 300 RF ASME	..D ⁵⁾ ..	0.011...0.11 GPM	0.044...0.44 SCFM	
		..203R.. = 1" Class 150 RF ASME	..E ⁵⁾ ..	0.0176...0.176 GPM	0.077...0.77 SCFM	
		..223R ¹⁾ .. = 1" Class 300 RF ASME				

*Reference Conditions: Water at 68 °F @ 1 mPas, Air at 68 °F @ 0 PSIG (Range Values for Other Media Upon Request)

Order Details for DN15 Models: (Example: **BGN-S15 201R F 0000 S 1 0 0K**)

DN15 Models						Part Number Continued
Measuring Ranges: 0.022...0.22 GPM to 0.264...2.64 GPM						
Model	Measuring Tube Material	Connection	Measuring Range*			
			Code	Water	Air	
BGN--	..S15.. = Stainless Steel, Process Temp. ≤ 660 °F	..201R ^{5) 11)} .. = 1/2" Class 150 RF ASME	..F..	0.022...0.22 GPM	0.088...0.88 SCFM	To complete part number, please go directly to order table on page 7.
		..221R ^{5) 11)} .. = 1/2" Class 300 RF ASME	..G..	0.031...0.31 GPM	0.118...1.24 SCFM	
	..P15.. = Stainless Steel Measuring Tube, PTFE-Lining, Process Temp. ≤ 257 °F, Max. Pressure 230 PSIG	..202R.. = 3/4" Class 150 RF ASME	..H..	0.044...0.44 GPM	0.176...1.76 SCFM	
		..222R ¹⁾ .. = 3/4" Class 300 RF ASME	..I..	0.071...0.71 GPM	0.294...2.71 SCFM	
	..H15.. = Hastelloy® C-22, Process Temp. ≤ 660 °F	..203R.. = 1" Class 150 RF ASME	..J..	0.11...1.1 GPM	0.412...4.12 SCFM	
		..223R ¹⁾ .. = 1" Class 300 RF ASME	..K..	0.176...1.76 GPM	0.589...6.47 SCFM	
		..6010 ^{5) 6)} .. = 1/4" NPT	..L..	0.264...2.64 GPM	1.0...10.0 SCFM	
		..6020 ^{5) 6)} .. = 3/8" NPT				
		..6030 ^{5) 6)} .. = 1/2" NPT				
		..6040 ^{5) 6)} .. = 3/4" NPT				

*Reference Conditions: Water at 68 °F @ 1 mPas, Air at 68 °F @ 0 PSIG (Range Values for Other Media Upon Request)

- ¹⁾ Pressure stated for models BGN-S and BGN-H
- ²⁾ Damping / spring not available
- ³⁾ Only available with forward advanced indicating housing
- ⁴⁾ Not available with heating / cooling
- ⁵⁾ Not for model BGN-P
- ⁶⁾ Not for model BGN-H
- ⁷⁾ Not for model BGN-S
- ⁹⁾ Cannot be converted for other media
- ¹⁰⁾ IEC 61508-2:2010 conformity confirmed by EXIDA
- ¹¹⁾ Reduced raised face



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Order Details for DN25 Models: (Example: **BGN-S25 202R M 0000 S 1 0 0K**)

DN25 Models						Part Number Continued
Measuring Ranges: 0.44...4.4 GPM to 1.76...17.6 GPM						
Model	Measuring Tube Material	Connection	Measuring Range*			
			Code	Water	Air	
BGN--	..S25.. = Stainless Steel, Process Temp. ≤ 660 °F	..202R ^{5) 11)} .. = 3/4" Class 150 RF ASME	..M..	0.44...4.4 GPM	1.76...17.6 SCFM	To complete part number, please go directly to order table on page 7.
		..222R ^{5) 11)} .. = 3/4" Class 300 RF ASME				
	..P25.. = Stainless Steel Measuring Tube, PTFE-Lining, Process Temp. ≤ 257 °F, Max. Pressure 230 PSIG	..203R.. = 1" Class 150 RF ASME	..N..	0.705...7.05 GPM	2.35...27.1 SCFM	
		..223R ¹⁾ .. = 1" Class 300 RF ASME				
	..H25.. = Hastelloy® C-22, Process Temp. ≤ 660 °F	..6010 ^{5) 6)} .. = 1/4" NPT	..P..	1.1...11 GPM	4.12...41.2 SCFM	
		..6020 ^{5) 6)} .. = 3/8" NPT				
	..6030 ^{5) 6)} .. = 1/2" NPT	..Q ^{5) 9)} ..	1.76...17.6 GPM	6.47...64.7 SCFM		
	..6040 ^{5) 6)} .. = 3/4" NPT					

*Reference Conditions: Water at 68 °F @1 mPas, Air at 68 °F @ 0 PSIG (Range Values for Other Media Upon Request)

Order Details for DN40 Models: (Example: **BGN-S40 205R P 0000 S 1 0 0K**)

DN40 Models						Part Number Continued
Measuring Ranges: 1.1...11 GPM to 2.64...26.4 GPM						
Model	Measuring Tube Material	Connection	Measuring Range*			
			Code	Water	Air	
BGN--	..S40.. = Stainless Steel, Process Temp. ≤ 660 °F	..205R ⁵⁾ .. = 1-1/2" Class 150 RF ASME	..P..	1.1...11 GPM	4.12...41.2 SCFM	To complete part number, please go directly to order table on page 7.
		..225R ^{1) 5)} .. = 1-1/2" Class 300 RF ASME				
	..P40.. = Stainless Steel Measuring Tube, PTFE-Lining, Process Temp. ≤ 257 °F, Max. Pressure 230 PSIG	..6040 ^{5) 6)} .. = 3/4" NPT	..Q..	1.76...17.6 GPM	6.47...64.7 SCFM	
		..6050 ^{5) 6)} .. = 1" NPT				
	..H40.. = Hastelloy® C-22, Process Temp. ≤ 660 °F	..6060 ^{5) 6)} .. = 1-1/4" NPT	..R..	2.64...26.4 GPM	10...100 SCFM	

*Reference Conditions: Water at 68 °F @1 mPas, Air at 68 °F @ 0 PSIG (Range Values for Other Media Upon Request)

- ¹⁾ Pressure stated for models BGN-S and BGN-H
- ²⁾ Damping / spring not available
- ³⁾ Only available with forward advanced indicating housing
- ⁴⁾ Not available with heating / cooling
- ⁵⁾ Not for model BGN-P
- ⁶⁾ Not for model BGN-H
- ⁷⁾ Not for model BGN-S
- ⁹⁾ Cannot be converted for other media
- ¹⁰⁾ IEC 61508-2:2010 conformity confirmed by EXIDA
- ¹¹⁾ Reduced raised face



Order Details for DN50 Models: (Example: BGN-S50 206R Q 0000 S 1 0 0K)

DN50 Models						Part Number Continued
Measuring Ranges: 1.76...17.6 GPM to 11...110 GPM						
Model	Measuring Tube Material	Connection	Measuring Range*			
			Code	Water	Air	
BGN--	..S50.. = Stainless Steel, Process Temp. ≤ 660 °F	..206R.. = 2" Class 150 RF ASME ..226R ¹⁾ .. = 2" Class 300 RF ASME ..6070 ⁵⁾⁶⁾ .. = 1-1/2" NPT ..6080 ⁵⁾⁶⁾ .. = 2" NPT	..Q..	1.76...17.6 GPM	6.47...64.7 SCFM	To complete part number, please go directly to order table on page 7.
	..P50.. = Stainless Steel Measuring Tube, PTFE-Lining, Process Temp. ≤ 257 °F, Max. Pressure 230 PSIG		..R..	2.64...26.4 GPM	10...100 SCFM	
	..H50.. = Hastelloy® C-22, Process Temp. ≤ 660 °F		..S..	4.4...44 GPM	17.07...170.7 SCFM	
			..T..	7.05...70.5 GPM	27.07...270.7 SCFM	
			..U ⁹⁾ ..	11...110 GPM	41.19...411.9 SCFM	

*Reference Conditions: Water at 68 °F @1 mPas, Air at 68 °F @ 0 PSIG (Range Values for Other Media Upon Request)

Order Details for DN80 Models: (Example: BGN-S80 208R T 0000 S 1 0 0K)

DN80 Models						Part Number Continued
Measuring Ranges: 7.05...70.5 GPM to 17.61...176.1 GPM						
Model	Measuring Tube Material	Connection	Measuring Range*			
			Code	Water	Air	
BGN--	..S80.. = Stainless Steel, Process Temp. ≤ 660 °F	..208R.. = 3" Class 150 RF ASME ..228R ¹⁾ .. = 3" Class 300 RF ASME	..T..	7.05...70.5 GPM	27.07...270.7 SCFM	To complete part number, please go directly to order table on page 7.
	..P80.. = Stainless Steel Measuring Tube, PTFE-Lining, Process Temp. ≤ 257 °F, Max. Pressure 230 PSIG		..U..	11...110 GPM	41.19...411.9 SCFM	
	..H80.. = Hastelloy® C-22, Process Temp. ≤ 660 °F		..V ⁹⁾ ..	17.61...176.1 GPM	64.74...647.4 SCFM	

*Reference Conditions: Water at 68 °F @1 mPas, Air at 68 °F @ 0 PSIG (Range Values for Other Media Upon Request)

- ¹⁾ Pressure stated for models BGN-S and BGN-H
- ²⁾ Damping / spring not available
- ³⁾ Only available with forward advanced indicating housing
- ⁴⁾ Not available with heating / cooling
- ⁵⁾ Not for model BGN-P
- ⁶⁾ Not for model BGN-H
- ⁷⁾ Not for model BGN-S
- ⁹⁾ Cannot be converted for other media
- ¹⁰⁾ IEC 61508-2:2010 conformity confirmed by EXIDA



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Order Details for DN100 Models: (Example: BGN-S1H 210R V 0000 S 1 0 0K)

DN100 Models						Part Number Continued
Measuring Ranges: 17.61...176.1 GPM to 44.03...440.3 GPM						
Model	Measuring Tube Material	Connection	Measuring Range*			
			Code	Water	Air	
BGN-..	..S1H.. = Stainless Steel, Process Temp. ≤ 660 °F	..210R.. = 4" Class 150 RF ASME	..V..	17.61...176.1	64.74...647.4	To complete part number, please go directly to order table on page 7.
	..P1H.. = Stainless Steel Measuring Tube, PTFE-Lining, Process Temp. ≤ 257 °F, Max. Pressure 230 PSIG		..W..	BGN-S/H: 26.42...264.2 GPM BGN-P: 24.21...242.1 GPM	on Request	
	..H1H.. = Hastelloy® C-22, Process Temp. ≤ 660 °F		..X ⁵⁾ ..	35.23...352.3 GPM	on Request	
			..2 ²⁾⁵⁾ ..	44.03...440.3 GPM	on Request	

*Reference Conditions: Water at 68 °F @1 mPas, Air at 68 °F @ 0 PSIG (Range Values for Other Media Upon Request)

Order Details for DN150 Models: (Example: BGN-SH5 212R 2 0000 V 1 0 0K)

DN150 Models						Part Number Continued
Measuring Ranges: 17.61...176.1 GPM to 44.03...440.3 GPM						
Model	Measuring Tube Material	Connection	Measuring Range*			
			Code	Water	Air	
BGN-..	..SH5.. = Stainless Steel, Process Temp. ≤ 660 °F	..212R ¹⁾ .. = 6" Class 150 RF ASME	..2 ⁵⁾ ..	44.03...440.3 GPM	on Request	To complete part number, please go directly to order table on page 7.
	..HH5.. = Hastelloy® C-22, Process Temp. ≤ 660 °F	..232R ⁹⁾¹¹⁾ .. = 6" Class 300 RF ASME	..4 ⁵⁾ ..	57.24...572.2 GPM	on Request	

*Reference Conditions: Water at 68 °F @1 mPas, Air at 68 °F @ 0 PSIG (Range Values for Other Media Upon Request)

- ¹⁾ Pressure stated for models BGN-S and BGN-H
- ²⁾ Damping / spring not available
- ³⁾ Only available with forward advanced indicating housing
- ⁴⁾ Not available with heating / cooling
- ⁵⁾ Not for model BGN-P
- ⁶⁾ Not for model BGN-H
- ⁷⁾ Not for model BGN-S
- ⁹⁾ Cannot be converted for other media
- ¹⁰⁾ IEC 61508-2:2010 conformity confirmed by EXIDA
- ¹¹⁾ Models from 4" Class 300 and up require selection of display "assembled at distance". Choose display option codes: "V", "H", or "W"

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Order Details** Continued (Example: BGN-S 10201R A 0000 S 1 0 0 K)

Heating ⁵⁾ / Cooling	Damping ⁵⁾ / Spring Stop	Draining Body	Certificates	Display	Scale	Electrical Output	Accessories
<p>..0.. = without</p> <p>..3.. = with Heating ANSI-Flange 1/2" Class 150</p> <p>..4.. = with Heating 1/2" NPT Conn.</p>	<p>..0.. = without</p> <p>..R⁸⁾.. = with Flow Restrictor for Gas Measuring</p> <p>..F¹¹⁾.. = with Liquid Damping</p> <p>..G¹¹⁾.. = with Gas Damping</p> <p>..A¹¹⁾.. = with Spring Stop</p> <p>..S¹¹⁾.. = with Gas Damping and Spring Stop</p>	<p>..0.. = without</p> <p>..L¹²⁾.. = with Self Draining Body</p>	<p>..0.. = without Certificate</p> <p>..1.. = Certificate of Compliance with the Order 2.1</p> <p>..2.. = Test Report 2.2</p> <p>..B.. = Inspection Certificate with Material Certificate 3.1</p> <p>..C.. = Inspection Certificate with Material Certificate 3.2</p>	<p>..S¹³⁾.. = Aluminum</p> <p>..V.. = Aluminum, Assembled at Distance, up to 660 °F</p> <p>..E¹³⁾.. = Stainless Steel</p> <p>..H.. = Stainless Steel, Assembled at Distance, up to 660 °F</p> <p>..T¹³⁾.. = Aluminum with Pressure Compensation</p> <p>..W.. = Aluminum with Pressure Compensation, Assembled at Distance, up to 660 °F</p>	<p>Water</p> <p>..1.. = %-Scale</p> <p>..2.. = Measuring Range</p> <p>Media</p> <p>..4.. = %-Scale</p> <p>..5.. = Measuring Range</p> <p>..F.. = Dual Scale</p> <p>**Please specify media data in plain text (see below)</p>	<p>..0.. = without</p> <p>..1.. = 1 Inductive Limit Switch, SIL-1¹⁰⁾</p> <p>..2.. = 2 Inductive Limit Switches, SIL-1¹⁰⁾</p> <p>..C.. = 1 Micro Switch</p> <p>..D.. = 2 Micro Switches</p> <p>..6.. = Transmitter ES with HART[®], EEx ia, 4-20 mA, SIL-1⁹⁾</p> <p>..7.. = Transmitter ES with HART[®], EEx ia, 4-20 mA and 2 NAMUR-Switches, SIL-1¹⁰⁾</p> <p>..8.. = Transmitter ES with HART[®], EEx ia, 4-20 mA, 1 NAMUR-Switch and 1 Pulse Output, SIL-1¹⁰⁾</p> <p>..9.. = Electrical Transmitter ES with Profibus[®] PA, EEx ia</p> <p>..I.. = 4-20 mA with HART[®] and Counter Module</p> <p>..K.. = Electrical Transmitter ES with Fieldbus[®] Foundation[™]</p>	<p>..0K = Without</p> <p>..XK = Special (Please Specify)</p>

¹⁾ Pressure stated for models BGN-S and BGN-H

²⁾ Damping / spring not available

³⁾ Only available with forward advanced indicating housing

⁴⁾ Not available with heating / cooling

⁵⁾ Not for model BGN-P

⁶⁾ Not for model BGN-H

⁷⁾ Not for model BGN-S

⁸⁾ Only available up to range code "E" (0.077...0.77 SCFM)

⁹⁾ Cannot be converted for other media

¹⁰⁾ IEC 61508-2:2010 conformity confirmed by EXIDA

¹¹⁾ Not for "Low Flow" or DN150 (6") models

¹²⁾ Not for "Low Flow" models

¹³⁾ Not for DN100 4" with 300lb ANSI, all DN100 5" ANSI, or all DN150 6" models

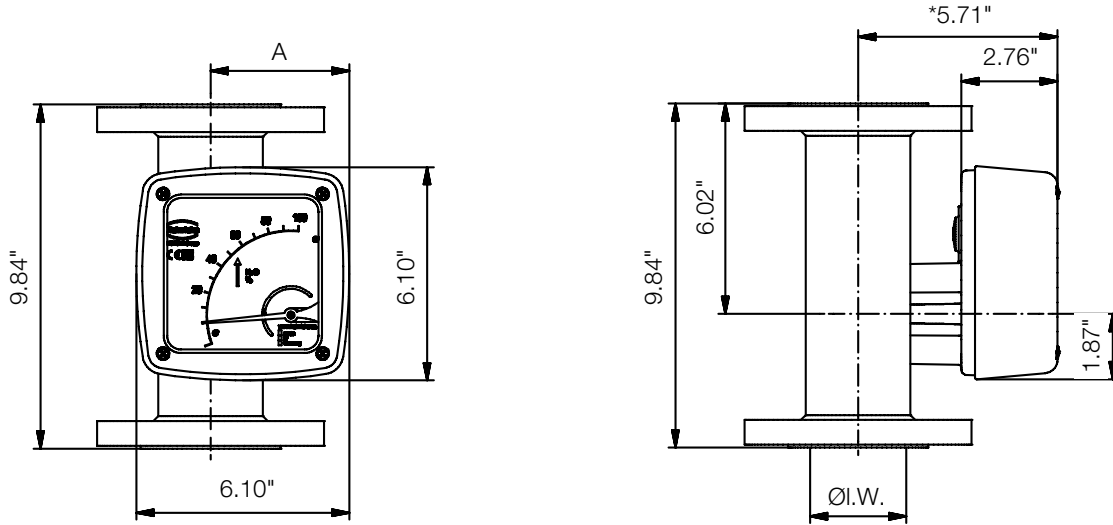
***Additional Information Required for Order:**

To ensure proper operation, this product requires a completed application guide form to be submitted with any order. Please refer to the 'documentation' tab on the bottom of the product page for this product on our website in order to obtain the correct form. You can also contact your KOBOLD representative for this form.

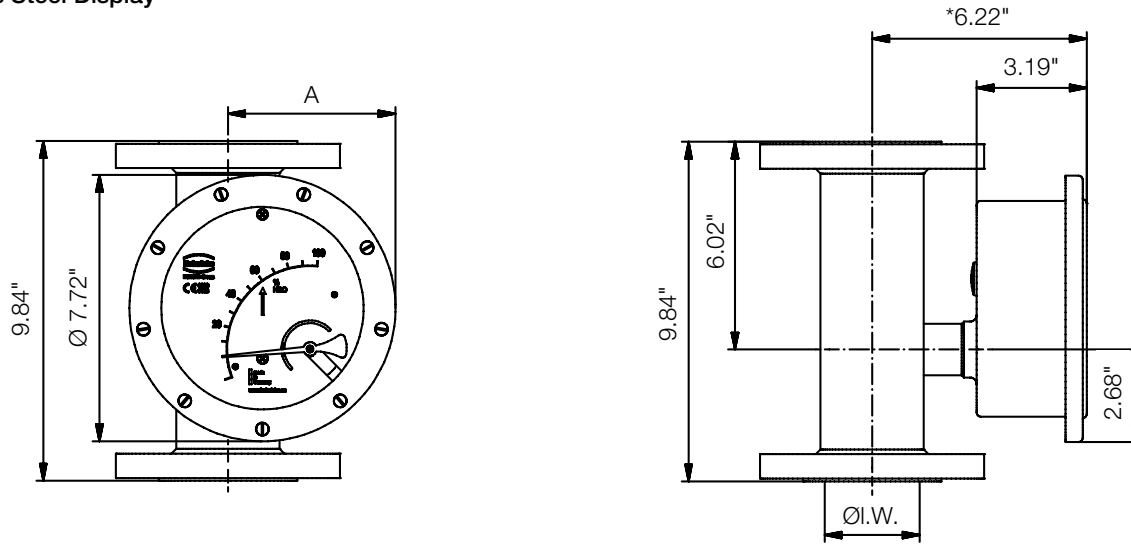


Dimensions

Aluminum Display



Stainless Steel Display



DN	PN	I. W. (Inner Width)	A	
			Aluminum Display	Stainless Steel Display
15	40	1.02"	2.91"	3.94"
25	40	1.26"	3.03"	4.06"
40	40	1.81"	3.35"	4.33"
50	40	2.76"	3.86"	4.84"
80	40	4.02"	4.62"	5.51"
100	16	4.92"	5.00"	6.02"
125	16	5.91"	5.59"	6.54"
150	16	6.26"	5.83"	6.73"

Dimensional Deviations:

* + 3.94" with forward advanced display and generally at DN 150