From: Daly, Keith
To: Peppers, Nicki;
Subject: FW: FW: C8078 CRC Test Piles - (RAMS 3-7) Bubble Curtain
Date: Thursday, March 10, 2011 1:19:50 PM
Attachments: FW C8078 CRC Test Piles - (RAMS 3-7) Bubble Curtain.msg

---

Keith Daly
Budget Manager

Columbia River Crossing Project | mailto:dalyk@columbiarivercrossing.org
700 Washington St. Suite 300, Vancouver, WA 98660
office: 360.816.8870 | Office: 503.256.2726 Ext. 8870
Fax: 360.737.0294

-----Original Message-----
From: Green, Frank
Sent: Thursday, March 10, 2011 12:54 PM
To: Daly, Keith
Subject: Fwd: FW: C8078 CRC Test Piles - (RAMS 3-7) Bubble Curtain

Can you find out what assistance he needs?

From: Ablson, Maha
To: Green, Frank;
cc: Molohon, Rob;
Subject: FW: C8078 CRC Test Piles - (RAMS 3-7) Bubble Curtain
Date: Thursday, March 10, 2011 10:32:08 AM
Attachments: RE Materials Acceptance.msg
RAM-0003.pdf
RAM-0006.pdf

Good morning Frank,
Jesse Beaver asked me to work with you in regards of the 2 attached RAMs. I appreciate your help.
Thank you,

Maha Ablson

RAM Engineer
WSDOT, Materials Lab
Office: 360.709.5403
Fax: 360.709.5588
mahaab@wsdot.wa.gov

From: Beaver, Jesse
Sent: Thursday, March 10, 2011 8:50 AM
To: Ablson, Maha; Beaver, Jesse
Cc: Molohon, Rob
Subject: RE: C8078 CRC Test Piles - (RAMS 3-7) Bubble Curtain

Please work with Frank Green in the project office. I asked him to take the RAMs back to the bubble curtain system designer.

Jesse L. Beaver, PE
Assistant State Construction Engineer
Washington State Department of Transportation
360.705.7825
360.791.2855 (cell)

> **From:** Ablson, Maha
> **Sent:** Thursday, March 10, 2011 8:46 AM
> **To:** Beaver, Jesse
> **Cc:** Molohon, Rob
> **Subject:** FW: C8078 CRC Test Piles - (RAMS 3-7) Bubble Curtain
>
> Good morning Jesse,
> Any words on RAM #3 & 6 (gauges & flowmeters)?
> Thank you,
>
>
> ## *Maha Ablson*
>
> *RAM Engineer*
> *WSDOT, Materials Lab*
> *Office: 360.709.5403*
>

Fax: 360.709.5588
mahaab@wsdot.wa.gov

From: Beaver, Jesse
Sent: Monday, February 28, 2011 2:29 PM
To: Ablson, Maha
Subject: FW: C8078 CRC Test Piles - (RAMS 3-7) Bubble Curtain

FYI

From: Green, Frank [mailto:greenf@columbiarivercrossing.com]
Sent: Thursday, February 24, 2011 8:50 AM
To: Beaver, Jesse
Cc: Daly, Keith
Subject: RE: C8078 CRC Test Piles - (RAMS 3-7) Bubble Curtain

Jesse,

I had previously asked James Schufreider (bubble curtain designer) about the materials in these RAMs. The attached email is his response that states that the materials meet the specifications. I will follow up with him for the gauges and flowmeters.

Thank you.

From: Beaver, Jesse [mailto:BeaverJ@wsdot.wa.gov]
Sent: Wednesday, February 23, 2011 4:53 PM
To: Green, Frank; Beaver, Jesse
Subject: C8078 CRC Test Piles - (RAMS 3-7) Bubble Curtain
Importance: High

Frank,

Please get feedback from your bubble curtain designer on these submissions.

Jesse L. Beaver, PE
State Construction Office
360.705.7825
360.791.2855 (cell)

From: Ablson, Maha
Sent: Friday, February 11, 2011 7:22 AM
To: Niemi, Mike
Cc: Molohon, Rob
Subject: 008078 RAMS#3-7 Bubble Curtain
Importance: High

Good morning Mike,
Submitted for your evaluation.
Thank you,

Maha Ablson

RAM Engineer

WSDOT, Materials Lab
Office: 360.709.5403
Fax: 360.709.5588
mahaab@wsdot.wa.gov

From: Peppers, Nicki [mailto:peppersn@columbiarivercrossing.com]
Sent: Thursday, February 03, 2011 1:37 PM
To: Ablson, Maha
Cc: Daly, Keith
Subject: RAMS 3-7

Please find attached RAM-0003, RAM-0004, RAM-0005, RAM-0006, RAM-0007

High Priority.

Thanks,
Nicki
360-816-2167

From: Schufreider, James
To: Green, Frank;
Subject: RE: Materials Acceptance
Date: Saturday, January 01, 4501 12:00:00 AM

All four submitted components, ball valve, globe valve, hose and hose fittings meet the material list specifications.

James Schufreider

From: Green, Frank [mailto:greenf@columbiarivercrossing.com]
Sent: Thursday, February 03, 2011 12:32 PM
To: Schufreider, James
Subject: Materials Acceptance

James,

Attached are several materials that the construction manual designates as a "PE Approval". I am not that familiar with valves and hoses/fittings. Can you let me know if you think these meet the requirements of the contract?

Thank you.

Frank Green
Structures Engineering Manager
Columbia River Crossing
360.816.8855 (d)
360.600.2632 (m)

RAM- 0003

Washington State Department of Transportation

Request for Approval of Material

Contract	FA Number	SR	Date
8078		I-5	2/3/11

Section	County
I-5 Columbia River Bridge (WA 0.3 to OR MP 308)	WA AND OR States

Contractor	Subcontractor
AMERICAN CONSTRUCTION COMPANY, INC.	

This form shall be completed prior to submittal. If this form is not complete at time of submittal it may be returned for information that was omitted.
For assistance in completing, see Instructions and Example

For WSDOT Use Only
RAM # 3

Bid Item No.	Material or Product/Type	Name and Location of Fabricator, Manufacturer or Pit Number	Specification Reference	PE/QPL Code	Hdqtr./QPL Code
2&3	Furnish manifold	AshcroFt, Inc.	SPECIAL PROVISIONS		
	for both CONFINED	250 East Main Street	page 98	7	
	AND UNCONFINED	Stratford, CT 06614			
	BUBBLE CURTAINS				
2.12	PRESSURE GAUGES	www.ashcroft.com			
3.12					

Project Engineer	Date	State Materials Engineer	Date
Nicki Peppers for Frank Green	2/3/11		

Acceptance Action Codes for use by Project Engineer and State Materials Laboratory

1. Acceptance Criteria: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
2. Acceptance Criteria: Mfg. Cert. of Compliance for 'Acceptance' prior to use of material.
3. Acceptance Criteria: Catalog Cuts for 'Acceptance' prior to use of material. Catalog Cut Approved ☐ Yes ☐ No
4. Acceptance Criteria: Submit Shop Drawings for 'Approval' prior to fabrication of material.
5. Acceptance Criteria: Only 'Approved for Shipment', 'WSDOT Inspected' or 'Fabrication Approved Decal' material shall be used.
6. Acceptance Criteria: Submit Certificate of Materials Origin to Project Engineer Office.
7. Acceptance Criteria: Request Transmitted to State Materials Laboratory for Approval Action.
8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
11. Miscellaneous Acceptance Criteria.

Remarks:

cc: American Construction, Peppers

Project Engineer Distribution
☐ Contractor
☐ Region Operations Engineer
☐ Fabrication Inspection
☐ Region Materials
☐ State Materials Lab M/S 47365

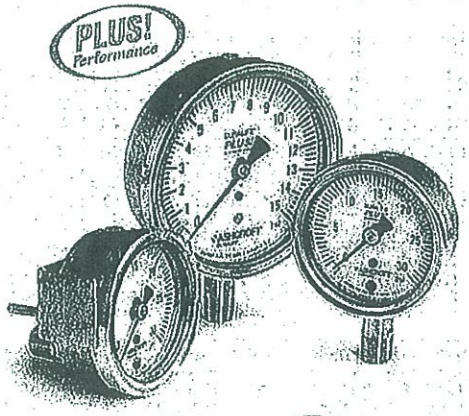
State Materials Engineer Distribution
☐ General File
☐ Signing Inspection
☐ Other

DOT Form 350-071 EF
Revised 12/2008

CAT – 0002

ASHCROFT®

Type 1009SW Stainless Case Gauge with Stainless Steel System



FEATURES

- *Patented PowerFlex™ movement*
- *All stainless steel welded construction*
- *True Zero™ pointer indication*
- *NEW ventable plug*
- *NEW patent pending through-dial calibration*
- *NEW MSL helium leak tested to 1X10⁻⁶ ATM cc/sec*
- *Meets ASME B40.100 standard*
- *RoHS Compliant*
- *CRN Approved*
- *5 year limited warranty*

Ashcroft is pleased to reintroduce the 1009SW Duralife® pressure gauge. This gauge has been upgraded with many new features outlined above while maintaining the tried and true performance and quality you have come to expect.

Duralife 1009SW gauges provide significant features and benefits. New features include a ventable plug that can be sealed or vented depending on your environment and a patent pending through-dial recalibration that reduces recalibration time.

The combination of features including the patented Power*Flex™* movement and optional *PLUS!™* Performance dampening system in the 1009SW is the finest gauge technology for vibration, shock and pulsation applications. Available in pressure ranges from vacuum to 15,000 psi, including compound and metric ranges.

PRODUCT SPECIFICATIONS

Ashcroft Type No.:	1009SW
Sizes:	2½", 3½"
Case:	304SS
Ring:	304SS polished bayonet
Window:	Polycarbonate
Dial:	Black figures on white background, aluminum
Pointer:	Friction adjust, black, aluminum
Bourdon Tube:	316L stainless steel C-Shaped (Vacuum-600 psi and compound) Helical (1000-15,000 psi)
Socket:	316L Stainless Steel
Movement:	300 series stainless steel, Power*Flex™*, polyester segment, overload/underload stops
Connections:	⅛ and ¼ NPT, lower or lower back, ½ NPT lower (3½") only.
Ranges:	Vac-15,000 psi and compound
Accuracy:	1% full scale. ASME Grade 1A[1]
Fill Plug:	Ventable
Protection:	Nema 4X / IP65 plug sealed Nema 3 / IP54 plug vented
Ambient Temperature Limitations: (based on standard polycarbonate window)	–40°F to 200°F dry +20°F to 150°F glycerin filled –40°F to 150°F silicone filled

OPTIONAL FEATURES

Liquid fill:	Glycerin, Silicone, Halocarbon (includes throttle plug)
Dampening:	*PLUS!™* Performance (LL) (includes throttle plug)
Window:	Safety Glass (SG)
Pointer:	Micrometer (MP)
Connections:	Metric and SAE on request
Mounting:	U-clamp (UC), Front flange (FF), Back flange (FW)
Dials:	Receiver ranges, refrigerant ranges. Custom dials

[1] When these gauges are liquid filled the total gauge accuracy may be as much as 1.5%

HOW TO ORDER (Typical example)

35 1009 SW (L) 02L XXX 100#

- Dial Size: 2½" (25), 3½" (35)
- Case Type: 1009
- Tube and Socket Material: 316L SS
- Liquid Filled: (glycerin) leave blank if dry
- Connection Size: ⅛ (01), ¼ (02), ½ (04) 3½" only
- Connection Location: Lower (L), Lower Back (B)
- Options:
- Range: 0/100 psi

ISO 9001 REGISTERED FIRM

BULLETIN GS-3

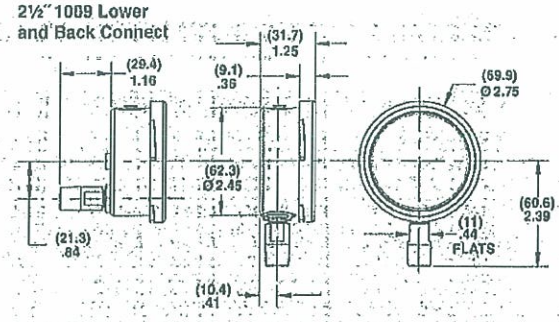
Ashcroft Inc., 250 East Main Street, Stratford, CT 06614 USA
Tel: 203-378-8281 • Fax: 203-385-0408
email: info@ashcroft.com • www.ashcroft.com

Type 1009SW Stainless Case Gauge with Stainless Steel System

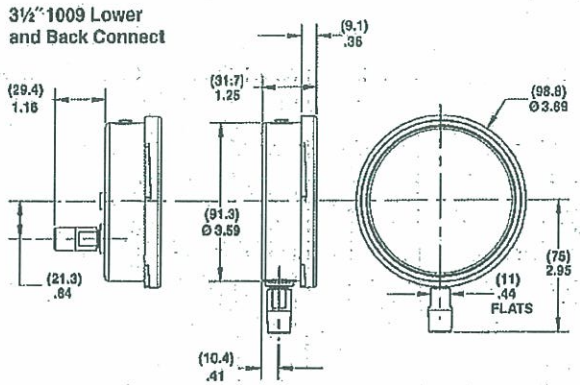
ASHCROFT®

DIMENSIONS

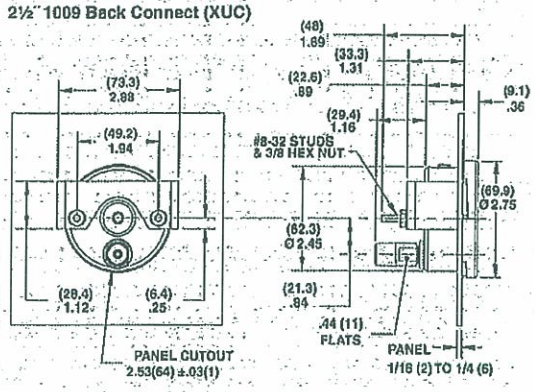
2½" 1009 Lower and Back Connect



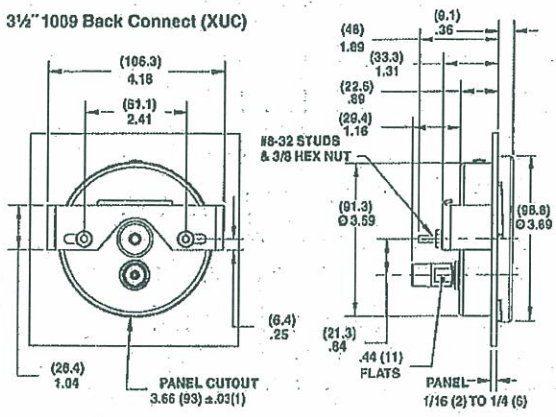
3½" 1009 Lower and Back Connect



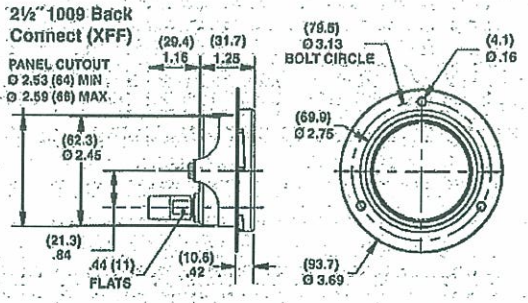
2½" 1009 Back Connect (XUC)



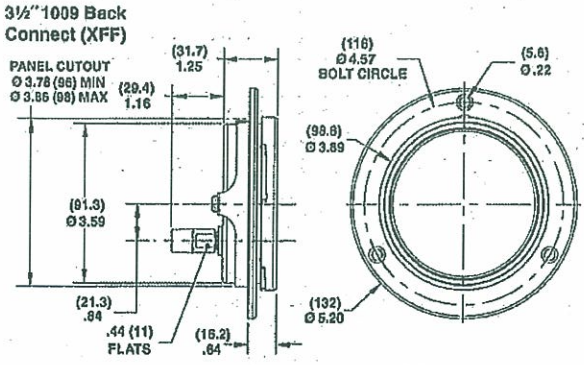
3½" 1009 Back Connect (XUC)



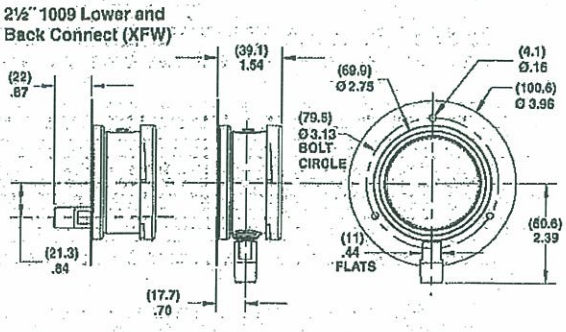
2½" 1009 Back Connect (XFF)



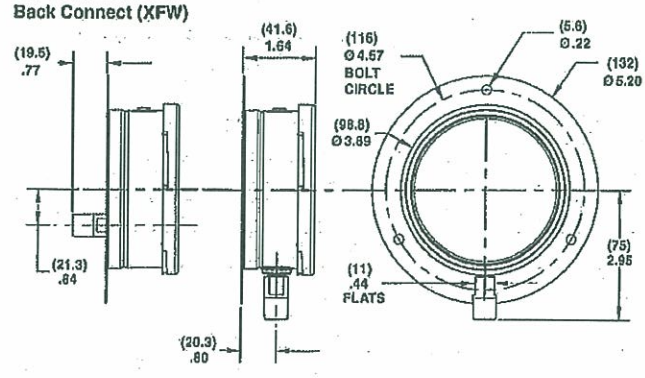
3½" 1009 Back Connect (XFF)



2½" 1009 Lower and Back Connect (XFW)



3½" 1009 Lower and Back Connect (XFW)



RAM-0006

Washington State Department of Transportation

Request for Approval of Material

Contract	FA Number	SR	Date
8078		I-5	2/3/11

Section	County
I-5 Columbia River Bridge (WA 0.3 to OR MP 308)	WA AND OR states

Contractor	Subcontractor
AMERICAN CONSTRUCTION COMPANY, INC.	

This form shall be completed prior to submittal. If this form is not complete at time of submittal it may be returned for information that was omitted.
For assistance in completing, see Instructions and Example

For WSDOT Use Only
RAM # 6

Bid Item No.	Material or Product/Type	Name and Location of Fabricator, Manufacturer or Pit Number	Specification Reference	PE/QPL Code	Hdqtr./QPL Code
2&3	FURNISH MANIFOLD FOR BOTH CONFINED AND UNCONFINED BUBBLE CURTAINS	RCM Industries, Inc. 110 Mason Circle Concord, CA 94520	SPECIAL PROVISIONS page 98	7	
2.11	FLOWMETERS	www.flo-gage.com			
3.11					

Project Engineer	Date	State Materials Engineer	Date
Nicki Peppers for Frank Green	2/3/11		

Acceptance Action Codes for use by Project Engineer and State Materials Laboratory

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8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
11. Miscellaneous Acceptance Criteria.

Remarks:

cc: American Construction, Peppers

Project Engineer Distribution
☐ Contractor
☐ Region Operations Engineer
☐ Fabrication Inspection
☐ Region Materials
☐ State Materials Lab M/S 47365

State Materials Engineer Distribution
☐ General File
☐ Signing Inspection
☐ Other

DOT Form 350-071 EF
Revised 12/2008

FLO-GAGE

CAT-0005

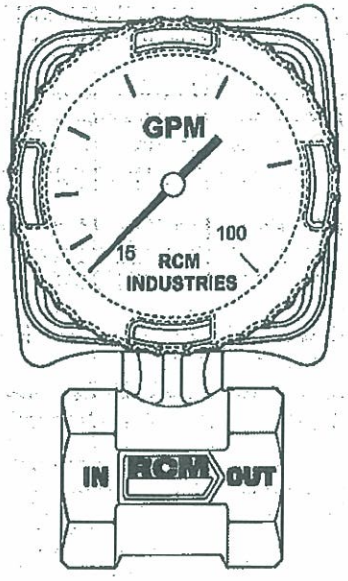
Description

The **RCM Flo-Gage™** is a direct reading flow meter with a large, easy to read dial calibrated in engineering units (GPM, SCFM, l/min, etc.).The **Flo-Gage™** measures flow based on a pressure differential created across a built-in calibrated nozzle. The flow meter is self contained and complete. It does not require external power connections, separate orifices, or blocking, purging or equalizing valves.

The **Flo-Gage™** is suitable for measuring **water, oil and most other low viscosity liquids** which do not deposit out and which are compatible with the materials of construction.

The **Flo-Gage™** is also suitable for measuring **compressed air, oxygen, carbon dioxide, and many other nontoxic compressed gases** (specify option I). **Saturated steam** can also be measured up to 120 psig (specify option K).

The **Flo-Gage™** can be fitted with 2 or 4 wire transmitters to provide a current output for remote indication, recording or totalization, or with reed switch contacts for signaling high or low flows.



Features and Benefits

- Sturdy in-line metal construction to withstand piping stresses without breaking
- Black on white dial won't crack glaze or become hard to read with age
- Expanded 3.5" (90mm) 270° analog dial for reading at a glance
- Suitable for use with opaque and clear fluids.
- Measures 6:1 range with ± 3% F.S. accuracy
- Dial and case factory configured for quick installation – but easily field re-configured if needed
- Liquid flow ranges from 4 GPH (15 l/h) in 1/2" flow meter to 3000 GPM (12000 l/m) in 8" flow meter
- Gas flow ranges from 40 SCFH (1 Nm³/h) in 1/2" flow meter to 20,000 SCFM (600 Nm³/m) in 8" flow meter.

Applications

The **Flo-Gage™** flow meter has been developed for industrial applications where durability and reliability are important considerations in the monitoring flow. The **Flo-Gage™** has accuracy for most industrial processes and is particularly suited for applications where compactness, low cost, minimal maintenance and resistance to accidental damage are important factors. Typical application include: lube oil monitoring, blending processes, cooling water, reverse osmosis systems, and compressed air measurement.

Specifications

	Standard	Options
Housing	Polycarbonate	Aluminum
Body	Bronze	Monel 316 SS
Bellows	Bronze	Monel 316 SS Inconel
Seals	Buna-N	Viton EPR Teflon
Crystal	Polycarbonate	Glass Plastic
Gear Movement	Bronze	316 SS
Accuracy	± 3% F.S.	
Repeatability	± 1% F.S.	
Pressure		
Maximum	180 psig	400 psig
Minimum	10 psig	10 psig
Temperature		
Maximum	212°F	350°F
Minimum	-30 °F	-80 °F

Specifications (continued)

Transmitter Option	W,X,Y,Z (4-wire)	W2,W3 (2-wire)
Accuracy		
Horizontal	± 3% F.S.	± 3% F.S.
Vertical	± 5% F.S.	± 3% F.S.
Minimum Flow Rate	± 30% F.S.	± 15% F.S.
Ambient Temp Limit	120°F, 50°C	120°F, 50°C
Current Output	4-20mA	4-20mA
Ohms max	800Ω	650Ω 350Ω (RW 3)
Contact Rating (Hi / Lo)	3.0 amp @ 24V 1.0 amp @ 117V 0.5 amp @ 230V	
Frequency Output	1000 Hz F.S. 5V Peak 270 ms on time	
Electrical Rating	General Purpose	
Power Input *(customer furnished)*	100mA 24Vdc	25mA 24Vdc

Reed Switches	1S2, 2S2
Setability	± 5% F.S.
Hysteresis	7-13% F.S.
Contact Rating	10 watts
Voltage	175Vdc max 125Vac max
Switching	350mA max
Carry	1.0 amp max

How to order

Select a) body size, b) series, c) body material, d) direction of flow, e) full scale flow rate, f) options (if required) and g) switches.

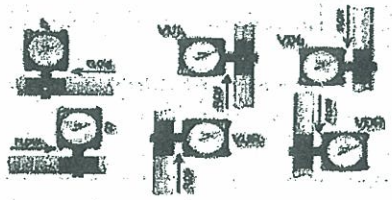
a) **BODY SIZE** – The pipe size at the meter inlet.

b) **SERIES** – End Connections

7 – Threaded units provided with FNPT connections standard. FBSP parallel connection bronze and monel
8 – Wafer unit mount between 150 or 300 class flanges

c) **MATERIALS**
1 = Bronze
2 = Monel
3 = Stainless Steel 316

d) **FLOW DIRECTION (L, R, VUL, VUR, VDL, VDR)**



e) **FLOW RATE** *(full scale GPM for liquid meters, SCFM for compressed gas meters) – Prefix full scale with "M" for metric units. Non-standard flow rates use option "E"*

f) **OPTIONS** *(if required) – Select from "Table of Options" below.*

g) **SWITCHES** *(if required) 1S2 or 2S2 Option*

Example below is the catalog model number for a 3/4" FNPT series 7000, material is Bronze (1), flow direction left to right (R), flow range of 20 GPM full scale, optional Viton seals (A), and gasketed case option (D) and optional reed switch 1S2.

Example 3/4 - 71 - R - 20 – AD – 1S2
a bc d e f g

Table of Options

A	Viton Seals
B	EPR Seals
B2	Teflon Seals
C	Calibrated for Specific Gravity
D	Gasketed Case
D2	Gasketed Case with Condulet
E	Non-Standard Flow Rate
ES	Low Flow Rate (Below 2 GPM)
F	Aluminum Housing with Plastic Dial Crystal
F2	Aluminum Housing with Glass Dial Crystal
G	Custom Scales and Dials
H	High Pressure Service (400 psig max.)
I	Compressed Gas Service
J	Peak Flow Indicator
K	Saturated Steam Service (120 psig max.)
N	Ammonia Service
P	Panel Mount
R2	Remote Readout, Brass (Mechanical Indication)
R3	Remote Readout, 316 SS (Mechanical Indication)
T	Expanded Temperature (-80°F to 350°F max.)
V	High Viscosity Service (5-500 cps)
	TRANSMITTERS
W	4-20mA DC 4-Wire Transmitter
W2	4-20mA DC 2-Wire Transmitter
W3	4-20mA DC 2-Wire Transmitter *(output only)*
RW3	Digital Display Readout (Rate and Total)
X	Hi / Lo Alarm Relays
Y	0-1000 Hz Frequency Transmitter
Z	Combination of Options W, X, & Y
	REED SWITCHES
-1S2	1 Single Pole Double Throw Reed Switch
-2S2	2 Single Pole Double Throw Reed Switches
-LED	Light Emitting Diodes *Coming Soon!*
	APPROVALS
-EM	Electromagnetic Compatibility 89/336/EEC
-IS	Intrinsically Safe 94/9/EC

Standard Flow Rates & Body Sizes

Series 7000 (Threaded) and 8000 (Wafer)

Size		Full Scale Flow Range				
		Liquids		*Gas*		*Steam*
In	mm	GPM	l/m	SCFM	Nm³/h	#/h
1/4	08	2	8	10	15	40
		3	15	20	30	60
		4	25	30	50	80
1/2	15	2	8	10	15	40
		3	10	20	30	60
		4	15	30	50	80
		6	25	40	80	120
		10	40	60	100	200
3/4	20	6	25	60	100	120
		10	40	100	150	200
		15	60	150	200	300
		20	80	200	300	400
1	25	15	60	150	250	300
		20	80	200	300	400
		30	120	300	500	600
		40	150	400	600	800
1 1/2	40	30	120	300	500	600
		40	150	400	600	800
		60	240	600	1000	1000
		100	400	800	1200	2000
2	50	40	150	400	600	800
		60	240	600	1000	1000
		100	400	800	1200	2000
		150	600	1000	1500	3000
		200	800	1200	2000	4000
3	80	200	800	1000	1500	4000
		300	1000	2000	3000	6000
		400	1500	3000	5000	8000
		500	2000	4000	6000	10000

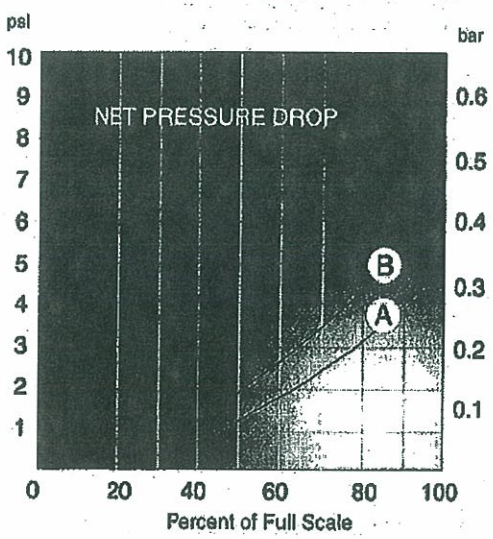
Optional low Flow Range (option ES)

Size		Full Scale Flow Range				
		Liquids			*Gas*	
In	mm	GPH	l/h	cc/m	SCFH	Nm³/h
1/2	15	4	15	200	40	1
		6	20	300	60	2
		10	40	400	100	3
		15	60	600	150	4
		20	80	1000	200	6
		30	120	2000	300	8
		40	150	3000	400	10
		60	240	4000		
		100	400	6000		

Series 8000 (Wafer)

Size		Full Scale Flow Range				
		Liquids		*Gas*		*Steam*
In	mm	GPM	l/m	SCFM	Nm³/h	#/h
2 1/2	65	60	240	600	1000	1000
		100	400	800	1200	2000
		150	600	1000	1500	3000
		200	800	1200	2000	4000
4	100	300	1000	1500	50	6000
		400	1500	3000	100	8000
		600	2400	5000	150	10000
		800	3000	6000	200	15000
5	125	300	1000	1500	50	6000
		400	1500	3000	100	8000
		600	2400	5000	150	10000
		800	3000	6000	200	15000
6	150	600	2400	3000	100	10000
		800	3000	5000	150	15000
		1000	4000	8000	250	20000
		2000	8000	15000	400	40000
8	200	600	2400	5000	100	10000
		1000	4000	8000	150	20000
		2000	8000	15000	400	40000
		3000	12000	20000	600	60000

Pressure Drop Characteristics



Curve A – Bronze Bellows
Curve B – Monel, SS, Inconel Bellows

Selecting Meters for Liquid Service

The **Flo-Gage™** can be used to meter flow rates of a wide variety of liquids including water, fuel oils (#2 through #6), lubricants, solvents and many chemical compounds.

For best accuracy, select a flow rate which will permit normal operation in the upper half of the meter scale.

To choose the proper meter, select pipe size and full scale flow rate from the chart of "Standard Flow Rates and Body Sizes".

Selecting Meters for Compressed Gas Service

The **Flo-Gage™** can be used to measure flow rates of various gases such as **air, nitrogen, oxygen, carbon dioxide, hydrogen, propane, methane (natural gas), argon, helium, sulfur dioxide,** etc.

To insure satisfactory operation, pressure should be not less than **10 psig** at the meter inlet.

Minimum Flow Rates

The minimum flow rate which can be read is **approximately 15% of the full scale flow rate** for all meters. For best accuracy, select a flow rate which will permit normal operation in the upper half of the meter scale.

Installation Guidelines

Provide 10 diameters of straight pipe in front of meter. Install control valves or solenoid valves downstream of meter if possible.

Services Not Recommended

Flo-Gages are **not** recommended for the following kinds of service:

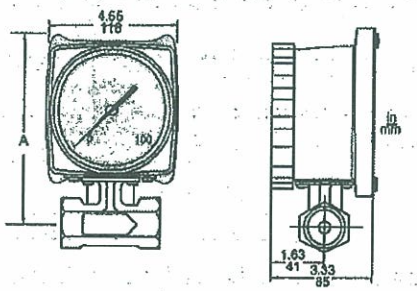
a) Resins, paints or monomers which can form solid deposits in the piping system.
b) "Super-solvents" which attack most available elastomers.
c) Sulfuric acid in any concentration.
d) Foams which tend to have inconsistent densities.
e) Toxic substances requiring hermetically sealed enclosures.
f) Fluids with viscosity above 500 centipoise.
g) Pumping systems using piston pumps which produce non-steady flow conditions.
h) Gravity-fed systems having less head than the pressure loss across the meter at normal operating conditions.

Dimensions

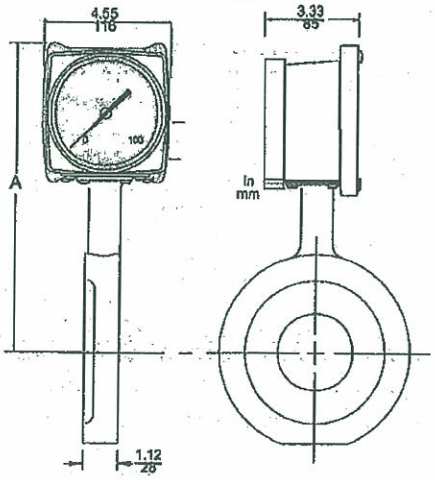
Nominal Size		Series 7000 A		Series 8000 A	
in	mm	in	mm	in	mm
1/4	08	5.95	151	n/a	n/a
1/2	15	5.95	151	6.62	168
3/4	20	5.95	151	7.06	179
1	25	6.07	154	7.25	184
1-1/2	40	6.39	162	7.81	198
2	50	6.80	172	8.00	203
2 1/2	65	n/a	n/a	8.54	217
3	80	7.48	190	8.87	225
4	100	n/a	n/a	9.95	252
5	125	n/a	n/a	10.36	263
6	150	n/a	n/a	11.05	280
8	200	n/a	n/a	12.30	311

Note: Dimensions are based on bronze meter.

Series 7000 Flo-Gage



Series 8000 Flo-Gage



RCM Industries, Inc.

110 Mason Circle Concord, CA 94520-1238 USA
Ph. 925.687.8363 Toll Free 888-flo-gage Fax 925.671.9636
e-mail : sales@flo-gage.com http://www.flo-gage.com