

DOM POSITIVE DISPLACEMENT FLOWMETER



Flow
Pressure
Level
Temperature
Measurement
Monitoring
Control

CE



- Low, Medium and High Flow Series
- Flow Ranges From 0.13-9.5 GPH Through 40-660 GPM
- Line Sizes 1/8" Through 4"
- Aluminum, Stainless Steel and Ductile Iron Bodies
- Optional High-Viscosity Rotors on Some Models
- For Use with a Wide Range of Fuels, Hydraulic Oils. Chemicals and Other Viscous Media
- Electronics Packages Include Analog and Frequency Outputs, Mechanical or LCD Totalizers and Batch Controllers
- Bi-directional Flow Capability and Optional Quadrature Output

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Rev. 01/10



DOM - Low Flow Series Positive Displacement Flowmeter

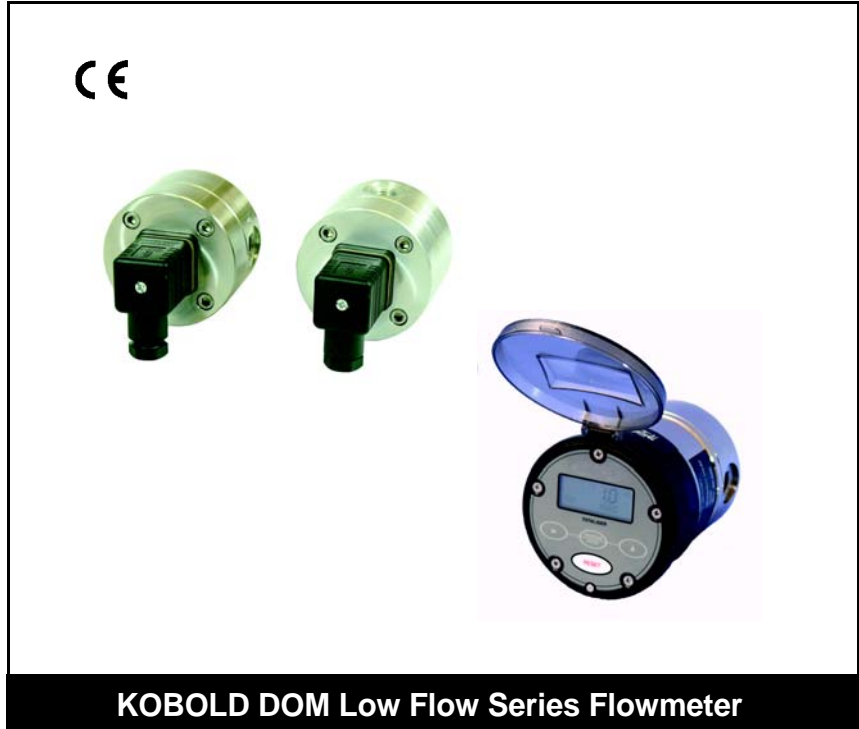
- **Low Flow Series Flow Ranges**
0.13-9.5 GPH Through 4-145 GPH
- **Line Sizes 1/8" Through 3/8"**
- **Aluminum or Stainless Steel Bodies**
- **Pressure ratings to 5800 PSIG**
- **Liquid Viscosity to 500,000 cPs**
- **Accuracy $\pm 1\%$ of Reading**
- **Electronics Packages Include Pulse Output and LCD Ratemeter/Totalizer or Batch Controller**
- **Bi-directional Flow Capability**

The DOM series positive displacement flowmeter is the preferred choice for measuring viscous liquids such as lubricating/hydraulic oils, diesel fuels, chemicals, solvents, resins and pastes. The DOM Series employs the oval gear principle. Two oval shaped gears inside the meter will rotate when system pressure forces liquid through the flowmeter. These precision machined gears allow only a very precise volume of liquid to pass through the meter with each rotation. Permanent magnets mounted in the gears are used to detect the rotational speed of the gear which is directly proportional to flowrate. The output provided is a variable frequency pulse which can be used directly to measure and totalize flow or is used as an input to optional direct-mounted LCD ratemeter/totalizers or batch controllers.

The oval gear design very precisely measures liquid flow over a very wide viscosity range. Low flow series meters are available with aluminum or stainless steel bodies which are chemically resistant to a wide variety of liquids.

Specifications

- Available Ranges:** 0.13-9.5 through 4-145 GPH
- Line Sizes:** 1/8" through 3/8"
- Liquid Types:** Clean, viscous liquids
- Liquid Viscosity Range**
- Standard:** 0.3 cPs to 1000 cPs
 - With Hi-Vis. Rotors:** 500,000 cPs
- Accuracy:** $\pm 1.0\%$ of reading
- Repeatability:** $\pm 0.03\%$ of reading
- Filtration Req:** 70 micron/200 mesh
- Oper. Temp. Range**
- Pulse Output:** -4°F to +250°F
 - LCD Displays:** -4°F to +180°F
 - LCD Displays w/ Cooling Fin:** -4° to +250°F



KOBOLD DOM Low Flow Series Flowmeter

Specifications (continued)

Wetted Materials

- Body:** Aluminum or 316L stainless steel
- Gears:** 316L stainless steel
- Seals:** Buna-N, EPDM, FFKM or teflon coated FFKM depending on model
- Bearing:** Ceramic

Maximum Pressure

- Aluminum Body:** 220 PSIG
- 316L Stainless Body:** 500 PSIG (1500 PSI Opt.)
- Hi-Pressure Stainless Body:** 5,800 PSIG
- Pressure Drop:** See Table

Electrical Specifications

Output H0, Standard Pulse

- Description:** Combined output with one reed switch pulser and one NPN Hall Effect pulser
- Reed Switch:** Max. 30 VDC, 200 mA
- Hall Sensor:** 3-wire, NPN open collector, 5-24 VDC 20 mA Max.

- Electrical Connection:** DIN 43650 PLug
- Electrical Protection:** NEMA 4X/IP 67

Output D0, Quadrature Pulse

- Description:** Dual Hall Effect NPN pulsers phase offset 90°
- Hall Sensors:** 3-wire, NPN open collector, 5-24 VDC 20 mA Max.
- Electrical Connection:** DIN 43650 PLug
- Electrical Protection:** NEMA 4X/IP 65

Output Z1, Battery Powered Dual Totalizer

- Display:** LCD 2-line, resettable and non-resettable total
- Battery:** 3.6 V Lithium
- External Power:** 8-24 VDC
- Output:** Scalable pulse NPN or PNP selectable

Programmable Features

- Lockout code, measuring units, pulse scale factor, totalizer reset
- Electrical Connection:** Cable Gland
- Electrical Protection:** NEMA 4X, IP67



DOM - Low Flow Series Positive Displacement Flowmeter

Electrical Specifications (Cont.)

Output Z3 Battery Powered Ratemeter/Totalizer

Display: LCD single line; toggles between rate, resettable and non -resettable total
Battery: 3.6 V Lithium
External Power: 8-24 VDC or 4-20 mA loop powered
Output: Scalable pulse and 4-20 mA flow rate output
Switches: NPN or PNP programmable setpoint
Programmable Features
 Lockout code, measuring units, pulse scale factor, totalizer reset, alarm setpoints
Electrical Connection: 1/2" NPT
Electrical Protection: NEMA 4X, IP67

Output B1 Programmable Batch Controller

Display: LCD single line; toggles between batch total and grand total
External Power: 12-24 VDC @ 50 mA
Control Switches: 2-NPN Open collector, 2-stage with programmable prewarn
Programmable Features
 Lockout code, measuring units, batch amount, Max. batch limit, prewarn setpoint,
Other Features: Remote start, stop and batch reset
Electrical Connection: 1/2" NPT
Electrical Protection: NEMA 4X, IP67

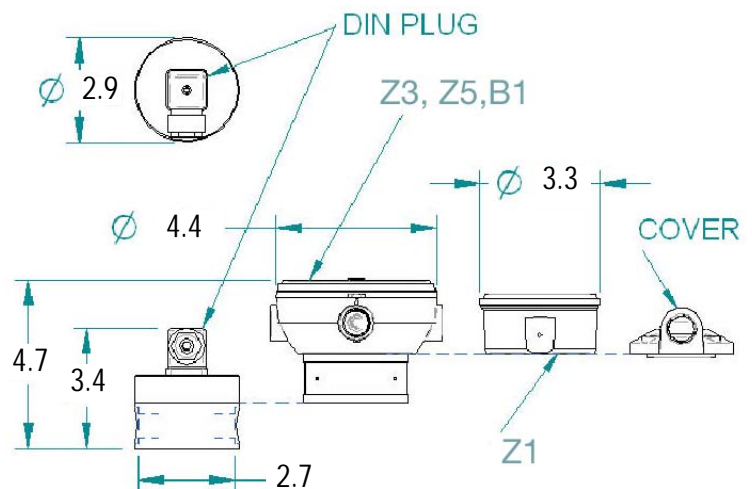
Ordering Information (Example: DOM-A10GN22H00)

Meas Range GPH	Fitting NPT	Base Model Number			O-ring Material	Output or Display	Options
		Aluminum	Stainless Steel	Hi-Press. Stainless Steel			
0.13-9.5	1/8"	DOM-A05GN1...	DOM-S05GN1...	DOM-H05GN1...	...1= FKM (standard)	...H0= Dual pulse, reed and NPN	...0= None
0.5-27	1/4"	DOM-A10GN2...	DOM-S10GN2...	DOM-H10GN2...	...2= EPDM	...D0= Quadrature NPN	...7= High Viscosity Gears (3/8" meters only)
4-145	3/8"	DOM-A15GN3...	DOM-S15GN3...	DOM-H15GN3...	...3= PTFE coated FKM	...Z1= Dual total	...C= Cooling fin for display, 250°F Max
					...4= Buna-N	...Z3= Rate/total	...H= 1500 PSIG Max. press. rating for DOM-S
						...B1= Batcher	

Flow De-rating for Hi-Viscosity Rotors

Viscosity cPs	Max. allowable % of Full Scale Flow
Up to 1,200	100
1,200-4,000	60
4,000-6,000	50
6,000-10,000	40
10,000-20,000	30
20,000-40,000	16
40,000-60,000	12
60,000-100,000	8
100,000-200,000	6
200,000-400,000	5
400,000-500,000	4

Dimensions (inches)





- **Medium Flow Series Flow Ranges**
0.26-10.6 GPM Through 9-150 GPM
- **Line Sizes** 1/2" Through 2"
- **Aluminum or Stainless Steel Bodies**
- **Pressure ratings to 5800 PSIG**
- **Liquid Viscosity to 1,000,000 cPs**
- **Accuracy ±0.5% of Reading**
- **Electronics Packages Include Pulse Output and LCD Ratemeter/Totalizer or Batch Controller**
- **All Mechanical Totalizing Display Available**

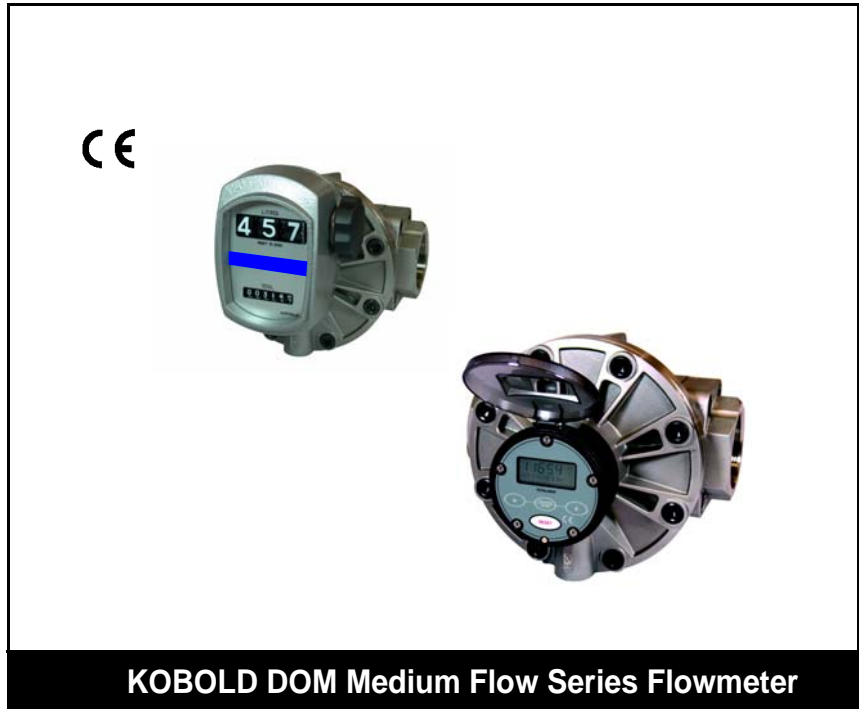
The DOM series positive displacement flowmeter is the preferred choice for measuring viscous liquids such as lubricating/hydraulic oils, diesel fuels, chemicals, solvents, resins and pastes.

The DOM Series employs the oval gear principle. Two oval shaped gears inside the meter will rotate when system pressure forces liquid through the flowmeter. These precision machined gears allow only a very precise volume of liquid to pass through the meter with each rotation. Permanent magnets mounted in the gears are used to detect the rotational speed of the gear which is directly proportional to flowrate. The output provided is a variable frequency pulse which can be used directly to measure and totalize flow or is used as an input to optional direct-mounted LCD ratemeter/totalizers or batch controllers. An all mechanical totalizing display is available as an option. The mechanical totalizing displays have a resettable and non-resettable counter.

The oval gear design very precisely measures liquid flow over a very wide viscosity range.

Specifications

- Available Ranges:** 0.26-10.6 through 9-150 GPM
- Line Sizes:** 1/2" through 2"
- Liquid Types:** Clean, viscous liquids
- Liquid Viscosity Range**
Standard: 0.3 cPs to 1000 cPs
With Hi-Vis. Rotors: 1,000,000 cPs
- Accuracy:** ±0.5% of reading
- Repeatability:** ±0.03% of reading
- Oper. Temp. Range**
Pulse Output & Mech. Totalizer: -4°F to +250°F
- LCD Displays:** -4°F to +180°F
- LCD Displays w/ Cooling Fin:** -4° to +250°F



Specifications (continued)

- Filtration Req:** 150 micron/100 mesh
- Wetted Materials**
Body: Aluminum or 316L stainless steel
- Gears:** Aluminum for aluminum bodies (316L SS optional), and 316L SS for stainless steel bodies
- Seals:** Buna-N, EPDM, FFKM or teflon coated FFKM depending on model
- Bearing:**
Alum. Meters: Hardened steel
SS Meters: Ceramic
- Pressure Drop:** See Table

Electrical Specifications

- Output H0, Standard Pulse**
Description: Combined output with one reed switch pulser and one NPN Hall Effect pulser
- Reed Switch:** Max. 30 VDC, 200 mA
- Hall Sensor:** 3-wire, NPN open collector, 5-24 VDC 20 mA Max.
- Electrical Connection:** DIN 43650 PLug
Electrical Protection: NEMA 4X/IP 67

Output D0, Quadrature Pulse

- Description:** Dual Hall Effect NPN pulsers phase offset 90°
- Hall Sensors:** 3-wire, NPN open collector, 5-24 VDC 20 mA Max.

Electrical Connection: DIN 43650 PLug
Electrical Protection: NEMA 4X/IP 65

Output Z1, Battery Powered Dual Totalizer

- Display:** LCD 2-line, resettable and non-resettable total
- Battery:** 3.6 V Lithium
- External Power:** 8-24 VDC
- Output:** Amplified pulse NPN or PNP selectable

Programmable Features

- Lockout code, measuring units, pulse scale factor, totalizer reset
- Electrical Connection:** Cable Gland
Electrical Protection: NEMA 4X, IP67

Pressure Rating w/NPT Thread (PSIG)

	1/2"	1"	1-1/2"	2"
Aluminum body	1000	1000	440	300
Stainless body	1500	1500	1500	560
Hi-press. stainless body	5800	5800	5800	5800



DOM - Medium Flow Series Positive Displacement Flowmeter

Electrical Specifications (Cont.)

Output Z3 Battery Powered Ratemeter/Totalizer

Display: LCD single line; toggles between rate, resettable and non -resettable total
Battery: 3.6 V Lithium
External Power: 8-24 VDC or 4-20 mA loop powered
Output: Scalable and 4-20 mA flow rate output
Switches: NPN or PNP programmable setpoint

Programmable Features

Lockout code, measuring units, pulse scale factor, totalizer reset, alarm setpoints

Electrical Connection: 1/2" NPT

Electrical Protection: NEMA 4X, IP67

Output B1 Programmable Batch Controller

Display: LCD single line; toggles between batch total and grand total

External Power: 12-24 VDC @ 50 mA

Control Switches: 2-NPN Open collector, 2-stage with programmable prewarn

Programmable Features

Lockout code, measuring units, batch amount, Max. batch limit, prewarn setpoint,

Other Features: Remote start, stop and batch reset

Electrical Connection: 1/2" NPT

Electrical Protection: NEMA 4X, IP67

Ordering Information (Example: DOM-A30GN82H00)

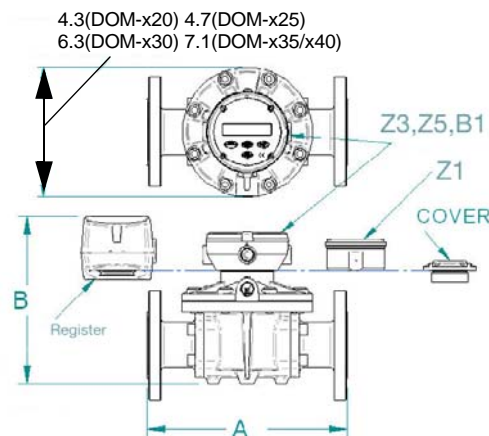
Meas. Range GPM	Fitting NPT	Base Model Number			O-ring Material	Output or Display	Options
		Aluminum	Stainless Steel	Hi-Press. Stainless Steel			
0.26-10.6	1/2"	DOM-A20GN4...	DOM-S20GN4...	DOM-H20GN4...	...1= FKM (standard) ...2= EPDM ...3= PTFE coated FKM ...4= Buna-N	...H0= Dual pulse, reed and NPN ...D0= Quadrature NPN ...Z1= Dual total ...Z3= Rate/total ...B1= Batcher ...M2= 3-digit Mech. totalizer ...M4= 4-digit Mech. totalizer	...0= None ...5= SS gears in Alum. meter ...6= High viscosity Alum. gears ...7= High viscosity SS gears ...C= cooling fin for LCD displays 250°F temp rating
2.6-40	1"	DOM-A25GN6...	DOM-S25GN6...	DOM-H25GN6...			
4-66	1-1/2"	DOM-A30GN8...	DOM-S30GN8...	DOM-H30GN8...			
8-120	2"	DOM-A35GN9...	DOM-S35GN9...	----			
9-150	2"	DOM-A40GN9...	----	----			

For optional 150 LB ANSI flanged fittings change DOM-xxxxNx to DOM-xxxxAx; For 300 LB ANSI flanged fittings change DOM-xxxxNx to DOM-xxxxTx. Hi-Pressure Stainless Steel models are only available with threaded connections.

Flow De-rating for Hi-Viscosity Rotors

Viscosity cPs	Max. allowable % of Full Scale Flow
Up to 1,200	100
1,200-4,000	60
4,000-6,000	50
6,000-10,000	40
10,000-20,000	30
20,000-40,000	16
40,000-60,000	12
60,000-100,000	8
100,000-200,000	6
200,000-400,000	5
400,000-600,000	4
600,000-1,000,000	3

Dimensions (inches)



	A	A	A	A		B	B	B	B
Fitting Size	1/2"	1"	1-1/2"	2"	Config.	1/2"	1"	1-1/2"	2"
ANSI FL.	--	9.6	10.7	10.9	Z3, Z5, B1	5.7	6.1	7.9	8.2
NPT/BSPP	4.4	6.7	8.2	8.3	Z1	5.3	5.7	7.6	7.8
DIN FL.	--	9.6	10.7	10.9	H0, D0	4.2	4.6	6.4	6.7
					M2, M4	6.6	7.0	8.8	11.5



- **High Flow Series Flow Ranges**
10-200 GPM Through 40-660 GPM
- **Line Sizes 3" and 4"**
- **Aluminum or Ductile Iron Bodies**
- **Pressure ratings to 180 PSIG**
- **Liquid Viscosity to 1,000,000 cPs**
- **Accuracy $\pm 0.5\%$ of Reading**
- **Electronics Packages Include Pulse Output and LCD Ratemeter/Totalizer or Batch Controller**
- **All Mechanical Totalizing Display Available**

The DOM series positive displacement flowmeter is the preferred choice for measuring viscous liquids such as lubricating/hydraulic oils, diesel fuels, resins and pastes.

The DOM Series employs the oval gear principle. Two oval shaped gears inside the meter will rotate when system pressure forces liquid through the flowmeter. These precision machined gears allow only a very precise volume of liquid to pass through the meter with each rotation. Permanent magnets mounted in the gears are used to detect the rotational speed of the gear which is directly proportional to flowrate. The output provided is a variable frequency pulse which can be used directly to measure and totalize flow or is used as an input to optional direct-mounted LCD ratemeter/totalizers or batch controllers. An all mechanical totalizing display is available as an option. The mechanical totalizing displays have a resettable and non-resettable counter.

The oval gear design very precisely measures liquid flow over a very wide viscosity range.

Specifications

- Available Ranges:** 10-200 through 40-660 GPM
- Line Sizes:** 3" and 4"
- Liquid Types:** Clean, viscous liquids
- Liquid Viscosity Range**
- Standard:** 0.3 cPs to 1000 cPs
 - With Hi-Vis. Rotors:** 1,000,000 cPs
- Accuracy:** $\pm 0.5\%$ of reading
- Repeatability:** $\pm 0.03\%$ of reading



KOBOLD DOM High Flow Series Flowmeter

Specifications (continued)

- Oper. Temp. Range**
- Pulse Output & Mech. Totalizer:** -4°F to +250°F
- LCD Displays:** -4°F to +180°F
- LCD Displays w/ Cooling Fin:** -4° to +250°F
- Filtration Req:** 150 micron/100 mesh
- Wetted Materials**
- Body:** Aluminum or ductile iron
- Gears:** Aluminum
- Seals:** Buna-N, EPDM, FFKM or teflon coated FFKM depending on model
- Bearing:** Hardened steel
- Maximum Pressure**
- 3 inch meters:** 180 PSIG
 - 4 inch meters:** 150 PSIG
- Pressure Drop:** See Table

Electrical Specifications

- Output H0, Standard Pulse**
- Description:** Combined output with one reed switch pulser and one NPN Hall Effect pulser
- Reed Switch:** Max. 30 VDC, 200 mA
- Hall Sensor:** 3-wire, NPN open collector, 5-24 VDC 20 mA Max.
- Electrical Connection:** DIN 43650 PPlug
- Electrical Protection:** NEMA 4X/IP 67

Output D0, Quadrature Pulse

- Description:** Dual Hall Effect NPN pulsers phase offset 90°
- Hall Sensors:** 3-wire, NPN open collector, 5-24 VDC 20 mA Max.
- Electrical Connection:** DIN 43650 PPlug
- Electrical Protection:** NEMA 4X/IP 65

Output Z1, Battery Powered Dual Totalizer

- Display:** LCD 2-line, resettable and non-resettable total
- Battery:** 3.6 V Lithium
- External Power:** 8-24 VDC
- Output:** Amplified pulse NPN or PNP selectable

Programmable Features

- Lockout code, measuring units, pulse scale factor, totalizer reset
- Electrical Connection:** Cable Gland
- Electrical Protection:** NEMA 4X, IP67



DOM - High Flow Series Positive Displacement Flowmeter

Electrical Specifications (Cont.)

Output Z3 Battery Powered Ratemeter/Totalizer

Display: LCD single line; toggles between rate, resettable and non -resettable total
Battery: 3.6 V Lithium
External Power: 8-24 VDC or 4-20 mA loop powered
Output: Scalable pulse and 4-20 mA flow rate output
Switches: NPN or PNP programmable setpoint

Programmable Features

Lockout code, measuring units, pulse scale factor, totalizer reset, alarm setpoints

Electrical Connection: 1/2" NPT

Electrical Protection: NEMA 4X, IP67

Output B1 Programmable Batch Controller

Display: LCD single line; toggles between batch total and grand total
External Power: 12-24 VDC @ 50 mA
Control Switches: 2-NPN Open collector, 2-stage with programmable prewarn

Programmable Features

Lockout code, measuring units, batch amount, Max. batch limit, prewarn setpoint,

Other Features: Remote start, stop and batch reset

Electrical Connection: 1/2" NPT

Electrical Protection: NEMA 4X, IP67

Ordering Information (Example: DOM-D55GAC2Z30)

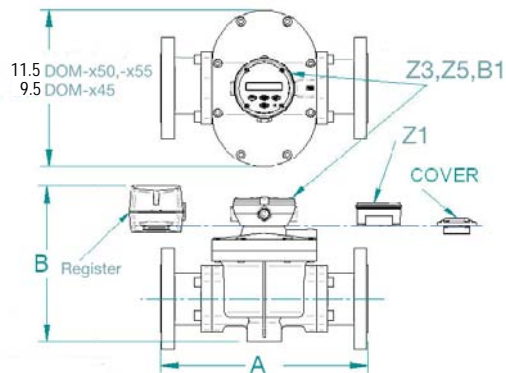
Meas. Range GPM	Fitting	Base Model Number		O-ring Material	Output or Display	Options
		Aluminum	Ductile Iron			
10-200	3" NPT	DOM-A45GNB...	DOM-D45GNB...	...1= FKM (standard) ...2= EPDM ...3= PTFE coated FKM ...4= Buna-N	...H0= Dual pulse, reed and NPN ...D0= Quadrature NPN ...Z1= Dual total ...Z3= Rate/total ...B1= Batcher ...M2= 3-digit Mech. totalizer ...M4= 4-digit Mech. totalizer	...0= None ...6= High viscosity Alum. gears ...C= cooling fin for LCD displays 250°F temp rating
13-260	3" NPT	DOM-A50GNB...	DOM-D50GNB...			
20-400	4" ANSI Flange	DOM-A55GAC...	DOM-D55GAC...			
40-660	4" ANSI Flange	DOM-A60GAC...	DOM-D60GAC...			

For optional 150 LB ANSI flanged fittings on 3 inch meters, change DOM-xxxxNB to DOM-xxxxAB; **Note:** 150 LB ANSI flanged fittings are standard on 4 inch meters.

Flow De-rating for Hi-Viscosity Rotors

Viscosity cPs	Max. allowable % of Full Scale Flow
Up to 1,200	100
1,200-4,000	60
4,000-6,000	50
6,000-10,000	40
10,000-20,000	30
20,000-40,000	16
40,000-60,000	12
60,000-100,000	8
100,000-200,000	6
200,000-400,000	5
400,000-600,000	4
600,000-1,000,000	3

Dimensions (inches)



Fitting Size	A		Config.	B		
	DOM-x45	DOM-x50/x55		DOM-x45	DOM-x50	DOM-x55
ANSI FL.	13.9	15.0	Z3, Z5, B1	9.9	10.6	12.3
NPT/BSPP	10.2	11.6	Z1	9.5	10.2	12.0
DIN FL.	13.9	15.0	H0, D0	8.4	9.1	10.8
			M2, M4	10.9	11.6	13.3



DOM Series Flowmeters Application Guide

Phone # _____

Customer Name: _____

Fax # _____

Company Name: _____

E-mail _____

Design Conditions

Accurate design pressure and temperature are essential to ensure the flowmeter will be built to operate without damage. Please fill out accurately and completely.

List Design Conditions

- 1. **Pressure:** Maximum _____ PSIG
- 2. **Temperature:** Maximum _____ °F

Process Conditions

- 1. **Type of Liquid:** _____
- 2. **Normal Operating Temperature:** _____ °F
- 3. **Line Size:** _____
- 4. **Desired Measuring Range:** _____ **GPM**
- 5. **Maximum Liquid Viscosity:** _____

Body Materials

Low Flow Series:

- Aluminum
- 316L SS
- Hi-Pressure 316L SS

Medium Flow Series

- Aluminum
- 316L SS
- Hi-Pressure 316L SS

High Flow Series:

- Aluminum
- Ductile Iron

O-ring Materials

- FKM (standard)
- EPDM
- PTFE coated FKM
- Buna-N

Fittings

- NPT Thread
- 150 LB ANSI Flange
- 300 LB ANSI Flange
- Other (specify)

Output/Display Options

- H0 = Dual pulse, reed & NPN
- D0 = Quadrature NPN
- Z1 = Dual totalizer
- Z3 = Ratemeter/Totalizer
- B1 = Batch controller
- M3 = 3-digit mechanical totalizer
- M4 = 4-digit mechanical totalizer

Other Options

- Hi-viscosity rotors (not available on all models)
- Cooling fin for LCD displays (250°F rating)
- Special requirement Specify: