

Diaphragm Meters

Residential, Commercial and Industrial

Technical Bulletin



elster
American Meter

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Diaphragm Meters

American Meter is the industry's leading supplier of diaphragm meters with models for applications from domestic service to large industrial users. The housing consists of a one-piece cast aluminum alloy body and aluminum alloy top and covers. American Meter diaphragm meters have an outstanding record for durability and reliability. Features include:

- light, compact profiles
- durable valve material to minimize wear
- one-piece body design to eliminate the need for machined joints and gaskets, and the possibility of internal leakage
- molded, convoluted diaphragms for smooth operation and long life
- low-friction seals
- adjustable tangents
- rugged flag rods for positive alignment and sustained accuracy
- large, self-lubricating bearings
- two-part epoxy primer and acrylic finish coat
- automatic meter reader compatibility

Diaphragm Meter Options

All diaphragm meters can be supplied with temperature compensation. This feature converts the volume of gas measured at actual (line) temperatures from -30° to +140° F (-34° to 60° C) to the equivalent volume at standard 60° F (15° C) base temperature.

Meters can also be supplied with your choice of a circle-type, odometer index, or pressure-compensating index.

Meter Accessories

Meters can be supplied with the following accessories (see pages 15-17).

- index types
- security seals
- index box (non-yellowing)
- meter bar
- vent elbow
- offset valve body

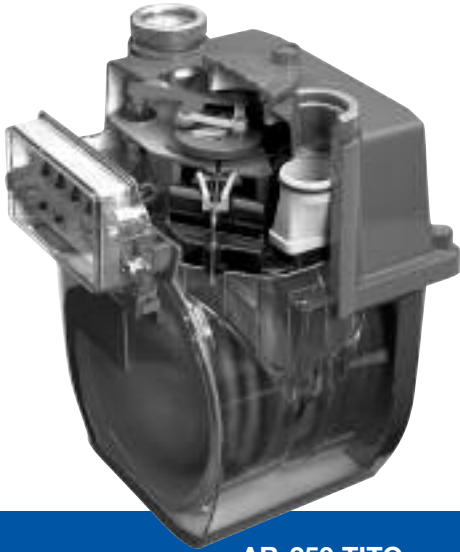
Meter Capacities

Diaphragm Meter Capacities *									
scfh (Sm ³ /h)									
Line Pressure	AT-210	AT-250 AC-250 AM-250 AR-250	AL-425	AC-630	AL-800	AL-1000	AL-1400	AL-2300	AL-5000
0.25 psig (17 mBarg)	210 (5.9)	250 (7.1)	425 (12.0)	630 (17.8)	800 (22.7)	1000 (28.3)	1400 (39.6)	2300 (65.1)	5000 (141.6)
2 psig (14 mBarg)	424 (12.0)	550 (15.6)	955 (27.0)	1390 (39.4)	1850 (52.4)	2400 (68.0)	3265 (92.5)	5440 (154.0)	12000 (339.8)
5 psig (345 mBarg)	462 (13.1)	593 (16.8)	1100 (31.1)	1515 (42.9)	2100 (59.5)	2700 (76.5)	3700 (104.8)	6200 (175.6)	13500 (382.3)
10 psig (690 mBarg)	-	-	1350 (38.2)	1710 (48.4)	2600 (73.6)	3400 (96.3)	4600 (130.3)	7700 (218.1)	1700 (481.4)
20 psig (1.4 Barg)	-	-	1700 (48.1)	2010 (56.9)	3200 (90.6)	4100 (116.1)	5600 (158.6)	9400 (266.2)	20600 (583.4)
25 psig (1.7 Barg)	-	-	1880 (53.2)	2160 (61.2)	3500 (99.1)	4600 (130.3)	6200 (175.6)	10400 (294.5)	23000 (654.4)
50 psig (3.4 Barg)	-	-	-	-	5100 (144.4)	6600 (186.9)	9000 (254.9)	15000 (424.8)	33000 (934.6)
75 psig (5.2 Barg)	-	-	-	-	6600 (186.9)	8540 (241.8)	11650 (329.9)	19400 (549.4)	42700 (1209.1)
100 psig (6.9 Barg)	-	-	-	-	7800 (220.9)	10100 (286.0)	13800 (390.8)	23000 (651.4)	50500 (1,430.2)

* Capacity data based upon natural gas with specific gravity of 0.60.

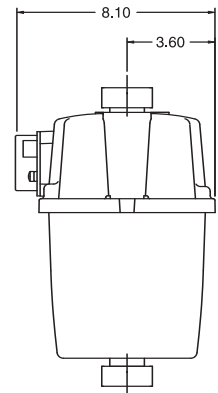
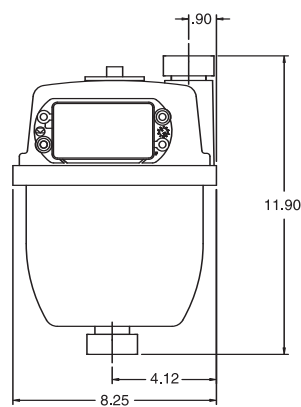
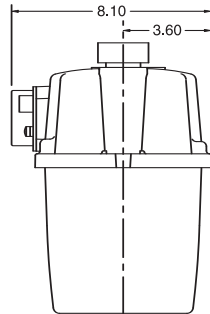
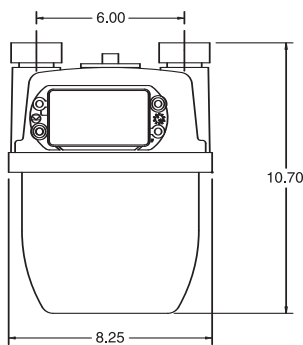
AR-250

- Nominal capacity = 250 scfh (7.1 Sm³/h)
- Maximum pressure rating = 5 psig (345 mBarg)
- Top In-Top Out (TITO) or Bottom In-Top Out (BITO) Connections



AR-250 TITO

AR-250 BITO



WEIGHT = 7 lbs.

Reference Materials

Handling and Installation IM-3715

Parts List PL-3880

AT-210 and AT-250

AT-210

- Nominal capacity = 210 scfh (5.9 Sm³/h)
- Maximum pressure rating = 5 psig or 10 psig (345 or 690 mBarg)
- Connections suited for tin case meter replacement
- 5 LT connection size

AT-250

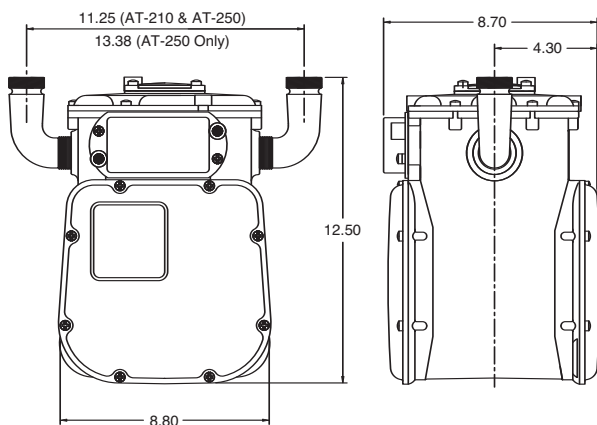
- Nominal capacity = 250 scfh (7.1 Sm³/h)
- Maximum pressure rating = 5 psig or 10 psig (345 or 690 mBarg)
- Connections suited for tin case meter replacement
- 10 LT connection size

Applications

The AT-210 and AT-250 were designed specifically for the field replacement of older meters. Center-to-center connections of 11.25" and 13.38" respectively, fit existing meter set assemblies, saving the costs of repiping.



AT-210 and AT-250



WEIGHT = 12 lbs.

Reference Materials

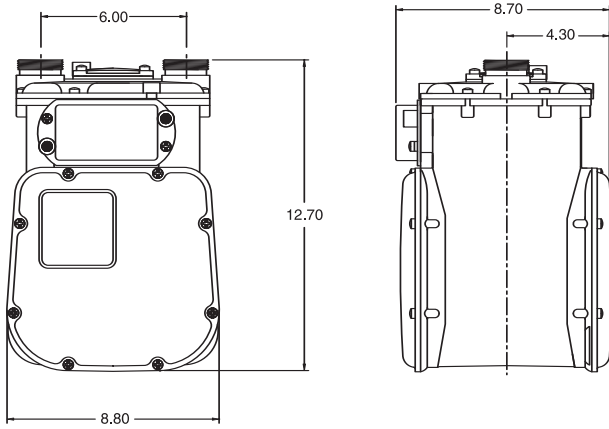
Handling and Installation	IM-3715
Operation/Maintenance	
Manual & Video	52722P002
Parts List	PL-3835

AC-250

- Nominal capacity = 250 scfh (7.1 Sm³/h)
- Maximum pressure rating = 5 psig or 10 psig (345 or 690 mBarg)
- Top connections



AC-250



WEIGHT = 12 lbs.

Reference Materials

Handling and Installation IM-3715
Parts List PL-3835

AM-250

- Nominal capacity = 250 scfh (7.1 Sm³/h)
- Maximum pressure rating = 5 psig or 10 psig (345 or 690 mBarg)
- Side connections: (3/4"-14 NPT)

Applications

The ideal meter for measuring gas to mobile-home parks, for LPG applications, or wherever US standard pipe thread connections are desirable. Properly installed, this meter will accurately measure gas loads ranging from one pilot light to its full, recommended capacity.

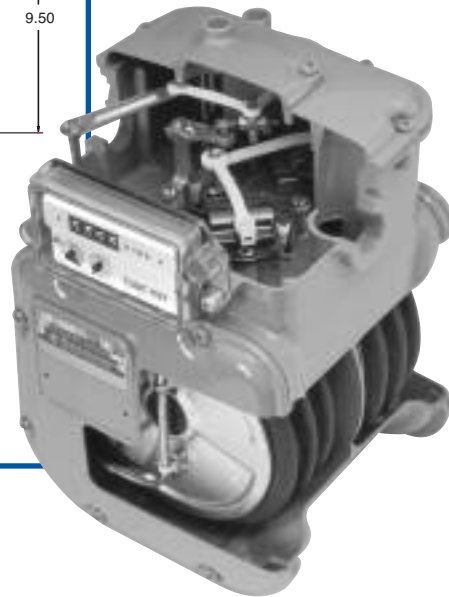


AM-250

WEIGHT = 12 lbs.

Reference Materials

Handling and Installation	IM-3715
Operation/Maintenance	
Manual & Video	52722P002
Parts List	PL-3835

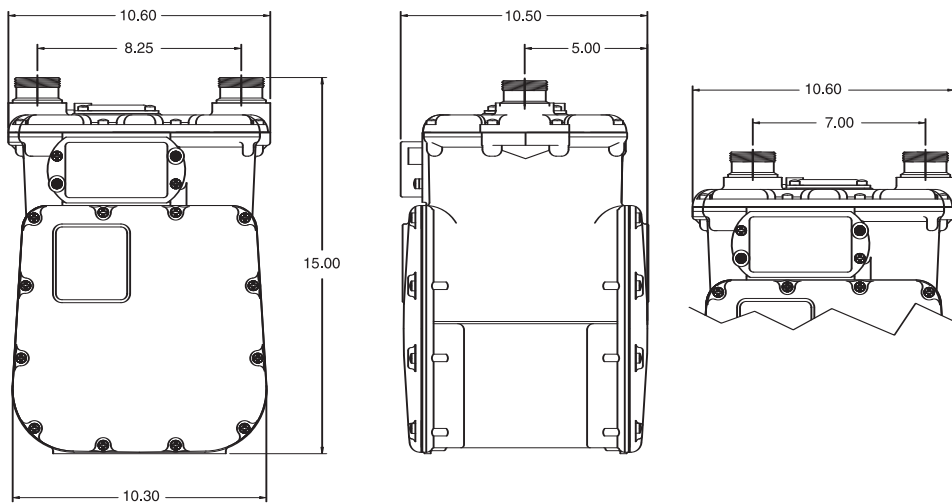


AL-425

- Nominal capacity = 425 scfh (12.0 Sm³/h)
- Maximum pressure rating = 10 psig or 25 psig (690 mBarg or 1.7 Barg)
- Top connections



AL-425



WEIGHT = 21 lbs.

Reference Materials

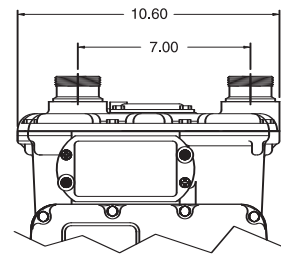
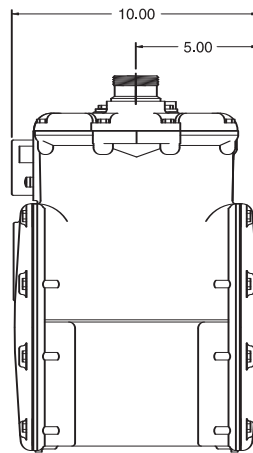
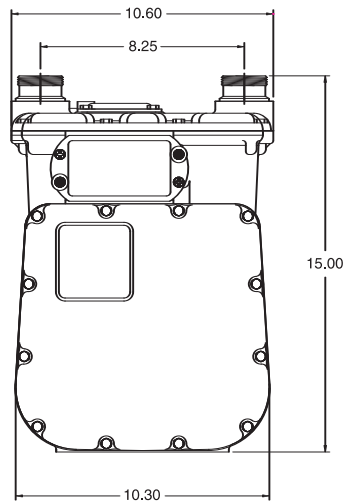
Handling and Installation IM-3715
Operation/Maintenance
Manual & Video 52722P002
Parts List PL-3806

AC-630

- Nominal capacity = 630 scfh (17.8 Sm³/h)
- Maximum pressure rating = 25 psig (1.7 Barg)
- Top connections



AC-630



WEIGHT = 21 lbs.

Reference Materials

Handling and Installation IM-3715
Operation/Maintenance
Manual & Video 52722P002
Parts List PL-3850

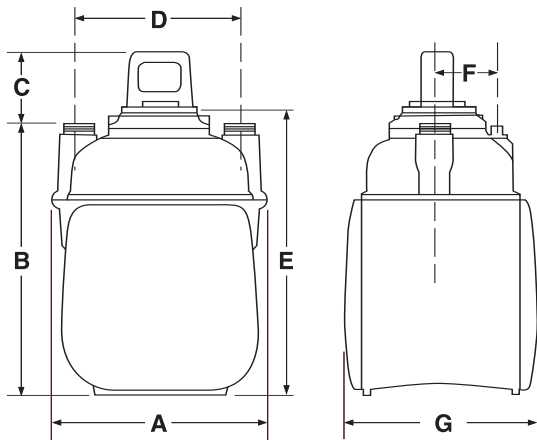
AL-800 and AL-1000

AL-800

- Nominal capacity = 800 scfh (22.6 or Sm³/h)
- Maximum pressure rating = 20 psig or 100 psig (1.4 or 6.9 Barg)
- Top connections

AL-1000

- Nominal capacity = 1,000 scfh (28.3 or Sm³/h)
- Maximum pressure rating = 25 psig or 100 psig (1.7 or 6.9 Barg)
- Top connections



MAOP (psig)	Dimensions (inches)							Weight lbs.	Connections
	A	B	C	D	E	F	G		
AL-800									
20	14.12	18.50	4.81	11.00	19.12	4.38	13.25	50	1-1/4"-30 LT 1-1/2"-45 LT #3-4 Sprague
20	14.12	19.19	4.19	11.00	19.12	4.38	13.25	50	1-1/2" NPT (F)
100	14.62	18.75	5.19	11.00	19.75	4.38	16.62	70	1-1/2" NPT (F)
100	14.62	19.81	4.12	11.00	19.75	4.38	16.62	70	#3-4 Sprague
AL-1000									
25	14.12	18.50	4.81	11.00	19.12	4.38	13.25	54	1-1/2"-45 LT 1-1/2" NPT (F)
25	14.12	19.25	4.06	11.00	19.12	4.38	13.25	54	2"-100 LT
25	14.12	20.25	3.06	11.00	19.12	4.38	13.25	54	#5 Sprague
100	14.62	18.75	5.19	11.00	19.75	4.38	16.62	78	1-1/2" NPT (F)

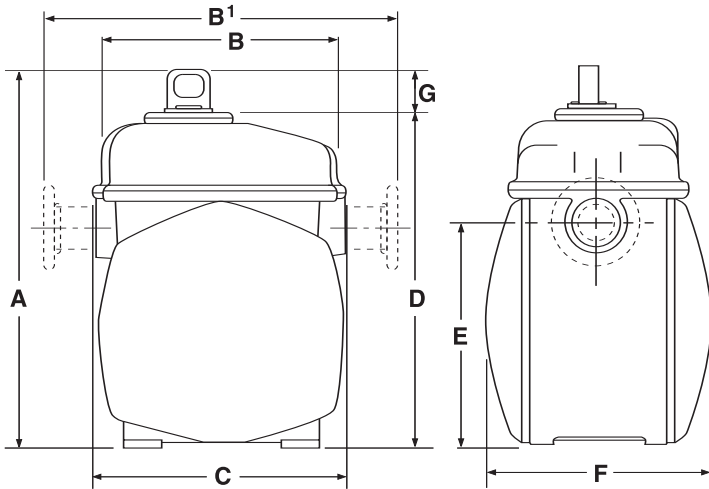
Reference Materials

Handling and Installation IM-3701

Parts List PL-3807

AL-1400

- Nominal capacity = 1,400 scfh (39.6 Sm³/h)
- Maximum pressure rating = 100 psig (6.9 Barg)
- Side connections
- *Available as remanufactured meter only*



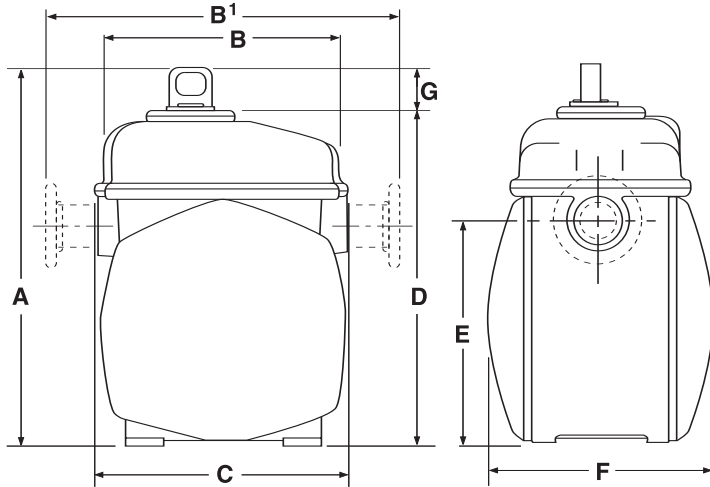
MAOP (psig)	Dimensions (inches)								Weight lbs.	Connections
	A	B	B'	C	D	E	F	G		
AL-1400										
100	28.88	17.25	–	17.38	24.62	15.00	15.88	4.25	120	2" NPT(F)
100	28.88	17.25	–	15.75	24.62	15.00	15.88	4.25	120	3" NPT (F)
100	28.88	–	28.00	–	24.62	15.00	15.88	4.25	132	3" Flanged

Reference Materials

Handling and Installation IM-3701
 Parts List PL-3808

AL-2300

- Nominal capacity = 2,300 scfh (65.1 Sm³/h)
- Maximum pressure rating = 100 psig (6.9 Barg)
- Side connections
- *Available as remanufactured meter only*



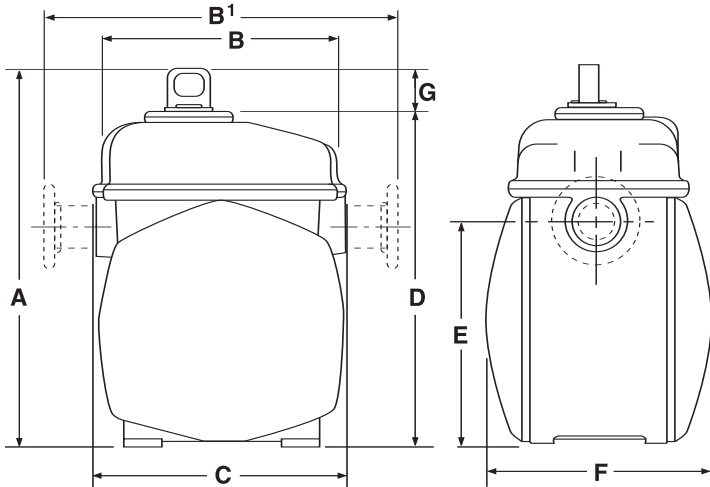
MAOP (psig)	Dimensions (inches)								Weight lbs.	Connections
	A	B	B'	C	D	E	F	G		
AL-2300										
100	33.31	21.00	–	21.62	29.06	17.88	18.25	4.25	175	4" NPT(F)
100	–	–	32.00	–	–	–	–	–	192	4" Flanged

Reference Materials

Handling and Installation IM-3701
 Parts List PL-3809

AL-5000

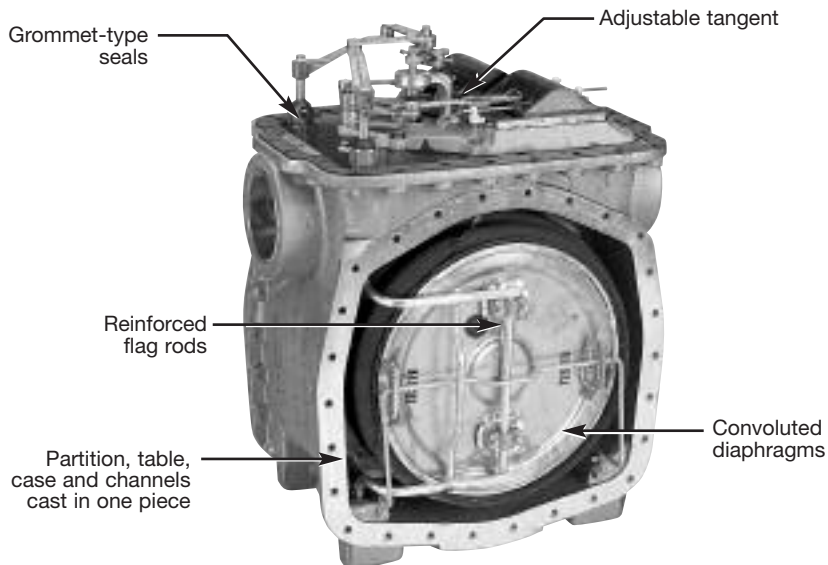
- Nominal capacity = 5,000 scfh (141.6 Sm³/h)
- Maximum pressure rating = 100 psig (6.9 Barg)
- Side connections
- *Available as remanufactured meter only*



MAOP (psig)	Dimensions (inches)								Weight lbs.	Connections
	A	B	B'	C	D	E	F	G		
AL-5000										
100	40.00	26.25	–	26.00	35.75	23.38	23.62	4.25	310	4" NPT(F)
100	–	–	32.00	–	–	–	–	–	327	4" Flanged

Reference Materials

Handling and Installation IM-3701
 Parts List PL-3810



AL-800 THROUGH AL-5000

Meter Accessories

INDEX TYPES

Location Indication Only

American Meter offers various index types for local totalization of gas flow. Shown below are a standard circle-type index, a metric-odometer index, and a pressure-compensating index. See bulletin PL 3800 for a complete listing of indexes available.



Standard, circle-type index



Metric-odometer index



Pressure-compensating index

SECURITY SEALS

- Protect against unauthorized entry, meter bypassing and vandalism
- No special tools required – fits all meters

American Meter’s security seals provide a deterrent to meter tampering that goes beyond seal wires and cover fasteners. The Security Seals are located at the index box, handhole plates and top cover.

The seal must be broken to remove the bolts. So you can see at-a-glance if any attempt has been made to tamper with the meter.

The unique “one-piece” bolt/seal design allows for easy removal and/or retrofit. The retrofit security seal system is available by kit or pieces.



Security Seal # 52548 PO10



Receptacle # 55542 PO19
Screw # 19316 PO85-AC-250
Screw # 19316 PO86-AL-425



Receptacle turns freely after assembly. No stress from screw head.



Screw is recessed in retainer collar then covered by replacement of security seal.



Security seals press fit into specifically designed screw retainer collars to deter tampering.



Screwdriver blade must break security seal to remove cover.



Broken security seal showing evidence of tampering.

Meter Accessories *continued*

METER BARS


The advantages that made meter bars indispensable for use with old-fashioned tin-case meters still apply today when installing modern cast-aluminum gas meters. Using American Meter's meter bars provides a rock-solid installation that prevents stress from being transferred from piping to the meter itself. Thus, the chance for leakage or damage to the meter is substantially reduced. Additionally, the use of a meter bar facilitates fast and positive location of the regulator.

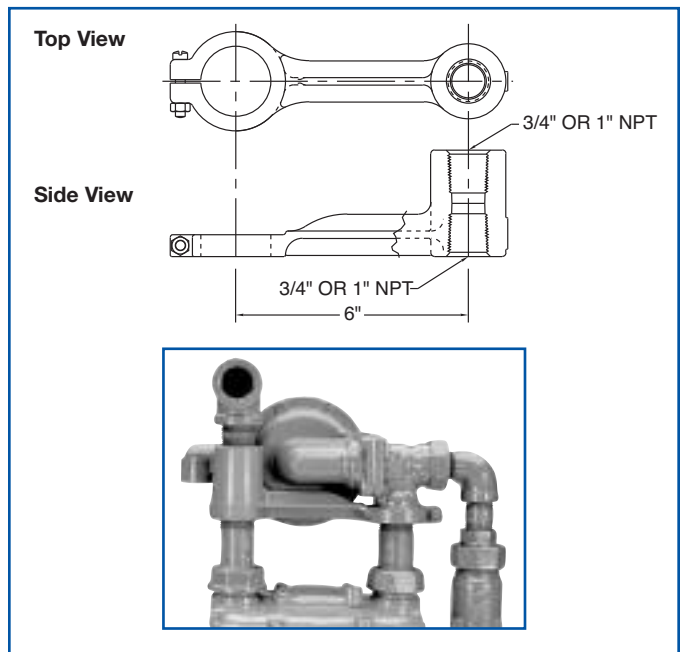
For long-lasting protection from environmental hazards, American Meter's meter bars receive the same exclusive, seven-step conversion coating as our regulators.

Easy Installation

The meter bar clamps around the outside of the outlet side of the regulator body. The pipe connection is internally threaded to accept 3/4" x 3/4", 3/4" x 1", or 1" x 1" NPT downstream pipe sizes. The meter bars can be used with all American Meter 1200 Series pressure regulators in 90° valve-body configuration.



	Connection Size	Part Number
	METER BAR	
	3/4" x 3/4" NPT	72476G001
	3/4" x 1" NPT	72476G003
	1" x 1" NPT	72476G004
	VENT ELBOW	
	3/4" NPT SCREEN	78041P025 70400P017



Index Box (Non-Yellowing)

One of the problems utilities across the country encounter every day is yellowed and hazed index boxes that cannot be read by Meter Readers. This causes misreads, no reads, and the expense of replacing the index box with gasket. Until now, the polycarbonate technology available to the industry wasn't available to offer a solution.

American Meter Company now offers an index box with a protective hard coating to eliminate this yellowing problem. The half-coated index box below illustrates the effectiveness of this new technology. For more information on this unique, cost-saving feature, contact your local American Meter Company representative.



Problem



Solution

About Elster Group

Elster Group is the world's leading manufacturer and supplier of highly accurate, high quality, integrated metering and utilization solutions to the gas, electricity and water industries. In addition, through its subsidiary Ipsen International, it is the leading global manufacturer of high level thermo-chemical treatment equipment.

The group has over 8,500 staff, operations in 38 countries and serves over 115 markets around the world. Elster's high quality products and systems reflect the wealth of knowledge and experience gained from over 170 years of dedication to measuring precious resources and energy.

ISO 9001: 2000



Certificate No. 009659

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EAM-TB3500.2-EN-P - January 2008
Supersedes SB 3500