

Accurate Measurement and Control Solutions for the Propane Industry



Technology for an intelligent world

Accurate Measurement and Control Solutions for Propane from Invensys Energy Metering, a Leader in the Global Energy Industry

We help you gain a competitive advantage.

- **Individual measurement points**

- ...allow you to manage deliveries and inventory, and reduce your number of delivery vehicles

- Schedule your deliveries ahead of time
 - No more emergency dispatches to will-call customers

- ...help your customers overcome fears of large bulk delivery billing

- Offer actual usage billing by the month
 - Provide the flexibility of estimated or actual billing
 - Provides you and your customers confidence with a means to track usage through actual meter reading

- **Meters are built and calibrated to accurately measure propane**

- ...requiring no complicated formulas or correction factors (at 11" w.c. delivery)

- ...offering reliable measurement and many years of trouble-free service

- ...allowing flexible installation options with 3/4" NPT or top connections (in all industry standard ferrule sizes)

- **Meters compatible with most automatic meter reading (AMR) devices**

- ...eliminate high meter reading costs

- ...take the place of unreliable customer reading responses

- **Invensys Energy Metering propane meters are easy to install and replace**

- ...with new universal mounting brackets

- Factory-installed, saving you installation time
 - Easily mount to wall or post with flexible mounting arrangements and extra room to access bolts
 - Heavy-duty – stronger construction ensures a secure meter installation
 - Can replace existing mounting brackets (requires pressure leak testing of meter)

- ...saving you time and money

- With our single-joint modular design, you add new life to worn meters with a one-step module replacement, reducing your repair inventory and standardizing repairs

- **Regulator options offer flexibility and convenience**

- ...available in angle or straight bodies

- ...inlet and outlet pressure taps with easy frontal access put an end to difficult, hard-to-connect taps

- ...143-6 models available for applications requiring increased flow capacity

- **Regulators are built to strict safety and quality requirements, with the user in mind**

- ...providing you peace of mind with overpressure protection

- ...offering convenient access to new inlet and outlet pressure taps on the front of the regulator

- ...submitted to Underwriters Laboratories for approval

- **Reliable meters and regulators**

- ...provide you peace-of-mind – they're built by a proven leader that has been in the energy industry since 1886

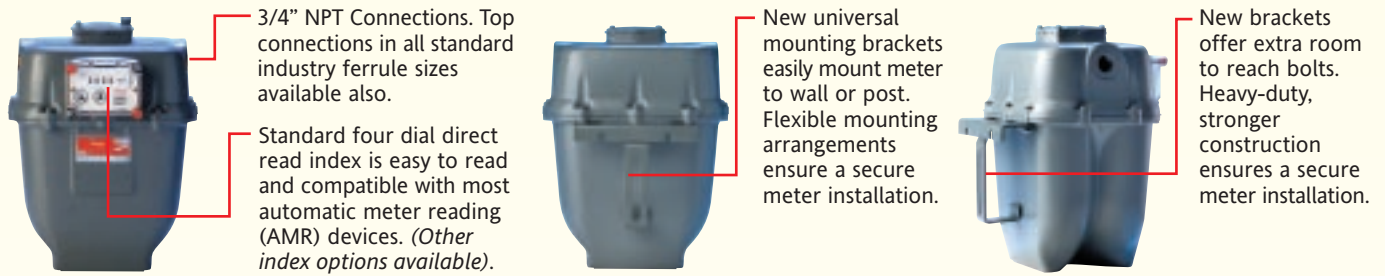
- ...are maintenance-free*

- ...packaged together, affording you a single source solution

*Inspection of regulators must be conducted with frequency determined by severity of service and applicable laws and regulations.



The S-275 Meter



• Meter Pressure Multiplier

- If the delivery pressure to the meter is 11" w.c., no correction to the meter index volume readings are necessary.
- If the delivery pressure to the meter is 2 psig, index readings must be multiplied by 1.1075 to convert the volumes to equivalent 11" w.c. pressure values. That is,
 $Q (@ 11" \text{ w.c., pressure}) = 1.1075 \times Q (@ 2 \text{ psig pressure})$

• Meter Capacity Ratings

- @ 11" w.c. - The propane service capacity rating for the S-275 Meter at 1/2 w.c. differential and ANSI B109.1 base conditions (base pressure of 14.73 psia) is 155 scfh. This capacity rating converted to 11" w.c. base pressure is the same, rounded to the nearest 5 cfh. Therefore, the meter capacity rating to the 11" w.c. base pressure conditions above is,

$C (@ 11" \text{ w.c. base pressure}) = 155 \text{ scfh}$

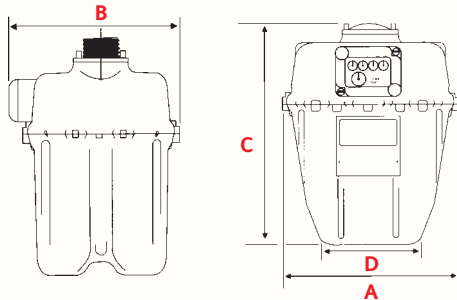
Using an energy conversion factor of 2500 BTU/ft³, this capacity can be expressed as,

$C (@ 11" \text{ w.c. base pressure}) = 387,500 \text{ BTU/hr}$

- @ 2 psig - The capacity rate at the meter (i.e. dial rate) for a meter delivery pressure of 2 psig:
 $C (@ 2 \text{ psig meter delivery pressure and } 1/2" \text{ w.c. differential}) = 147 \text{ acfh or } 407,800 \text{ BTU/hr}$

Base (standard) Conditions for 11" w.c. Base Pressure: Temperature = 60 deg F
 Atmospheric Pressure = 14.48 psia
 Base Pressure = 11" w.c. (14.88 psia)

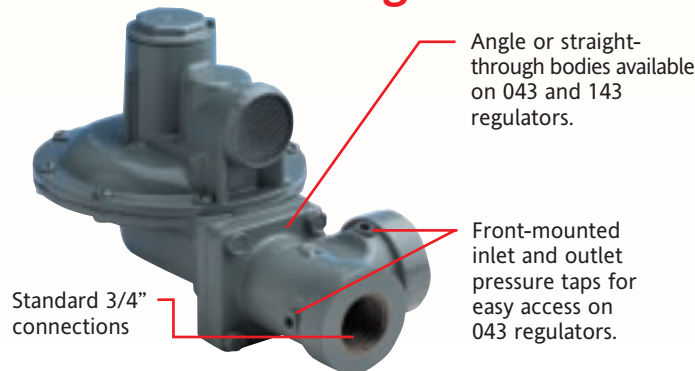
Other Definitions: Q = volume flow rate (cfh)
 C = meter flow rate @ 1/2" w.c. differential (capacity)



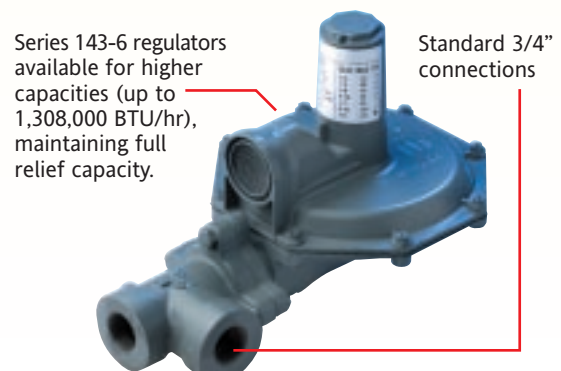
Meter Model	A	B	C	D
S-275	10 1/8"	8 1/2"	13 1/4"	5 1/4"

Note:
 The S-275 has a 5 psig maximum allowable working pressure (MAOP). The meter must be handled and mounted in an upright position. A leak test using an internal pressure of 10 psig shall be performed on any meter where hanger bracket mounting bolts have been loosened or removed. See Invensys Energy Metering bulletin M-1002 for additional information on residential meters. See Invensys Energy Metering bulletin MP-1002A for part numbers, illustrations and descriptions.

043 and 143-6 Regulators



Model 043 angle-body regulator



Model 143-6 angle-body regulator

Regulator specifications on back cover.

Propane Regulator Specifications

Model 043 Propane Capacity in BTU/hr		
Inlet Pressure	Outlet Pressure	
	11" w.c.	2 psig
5 psig	475,000	200,000
10 psig	710,000	315,000

Capacities are based upon a 2" w.c. droop for 11" w.c. set point at 100% capacity, and 10% droop for 2 psig set point at 100% capacity.

Model 043 Spring Ranges		
Outlet pressure	Spring	Spring Range
11" w.c.	Green	6" - 14" w.c.
2 psig	Black	1 - 2 psig

Model 043 Maximum Inlet Pressure Rating		
Body	Orifice Size	Maximum Inlet Pressure
3/4" x 3/4"	3/16"	60 psig

Full Capacity Internal Relief

With an orifice size of 3/16", the internal relief valve-equipped model 043 regulator will provide full open capacity relief with inlet pressure up to 20 psig.

Model 143 Propane capacity in BTU/hr	
Inlet Pressure	Propane capacity BTU/hr
5 psig	882,000
7.5 psig	1,103,000
10 psig	1,308,000

Capacities provided are for both 11" w.c. and 2 psig set pressure. They are based upon a 2" w.c. droop for 11" w.c. set point at 100% capacity, and 10% droop for 2 psig set point at 100% capacity.

Model 143 Spring Ranges		
Outlet pressure	Spring	Spring Range
11" w.c.	Green	6" - 14" w.c.
2 psig	Black and White	1 - 2 psig

Model 143 Maximum Inlet Pressure Rating		
Body	Orifice Size	Maximum Inlet Pressure
3/4" x 3/4"	3/16"	125 psi

Full Capacity Internal Relief

With an orifice size of 1/4", the internal relief valve-equipped model 143 regulator will provide full open capacity relief with inlet pressures up to 60 psig.

See Invensys Energy Metering bulletin R-1300 for additional 043 regulator specifications.

See Invensys Energy Metering bulletin RM-1300 for detailed 043 regulator installation and maintenance instructions, and part numbers, descriptions and illustrations.

See Invensys Energy Metering bulletin R-1303 for additional 143-6 regulator specifications.

See Invensys Energy Metering bulletin RM-1306 for detailed 143-6 regulator installation and maintenance instructions, and part numbers, descriptions and illustrations.

Authorized Distributor:



Energy Metering

805 Liberty Boulevard
P.O. Box 528
DuBois, PA 15801
800-375-8875
+1 814-371-8000
www.invensysenergymetering.com

LIMITED WARRANTY Seller warrants the Goods to be free from defects in materials manufactured by Seller and in Seller's workmanship for a period of (one (1) year) after tender of delivery (the "Warranty Period"). **THIS LIMITED WARRANTY (a) IS IN LIEU OF, AND SELLER DISCLAIMS AND EXCLUDES, ALL OTHER WARRANTIES, STATUTORY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR OF CONFORMITY TO MODELS OR SAMPLES;** (b) does not apply to any Goods which have been (i) repaired, altered or improperly installed, (ii) subjected to improper use or storage; (iii) used or incorporated with other materials or equipment; after Buyer or anyone using the Goods has, or reasonably should have, knowledge of any defect or nonconformance of the Goods; or (iv) manufactured, fabricated or assembled by anyone other than the Seller; (c) shall not be effective unless Buyer notifies Seller in writing of any purported defect or nonconformance within **(thirty (30) days)** after Buyer discovers or should have reasonably discovered such purported defect or nonconformance; and (d) shall only extend to Buyer and not to any subsequent buyers or users of the Goods. Buyer shall provide Seller access to the Goods to which Buyer claims a purported defect or nonconformance; upon request by Seller, Buyer shall, at its own risk and expense, promptly return the Goods in question to Seller's Plant.