

The **Smith Meter® Petro-gard Valve** is typically used in off-loading flow measurement systems in conjunction with an air eliminator tank having a special petro-gard-type air release head. The petro-gard valve automatically stops flow whenever air is being exhausted from the air eliminator and slowly re-opens when air is no longer being exhausted.

Applications

Applications include truck, rail car, barge, and tanker off-loading flow measurement systems where protection against the metering of air is required.

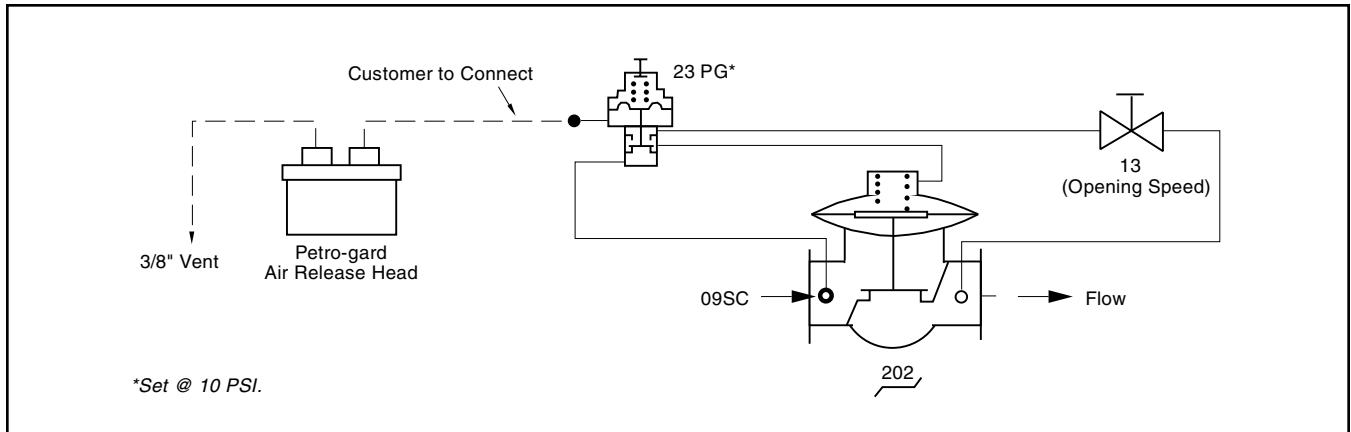


Figure 1 – Typical Valve #200-23PG for Kerosene, Gasoline, No. 2 Fuel Oil

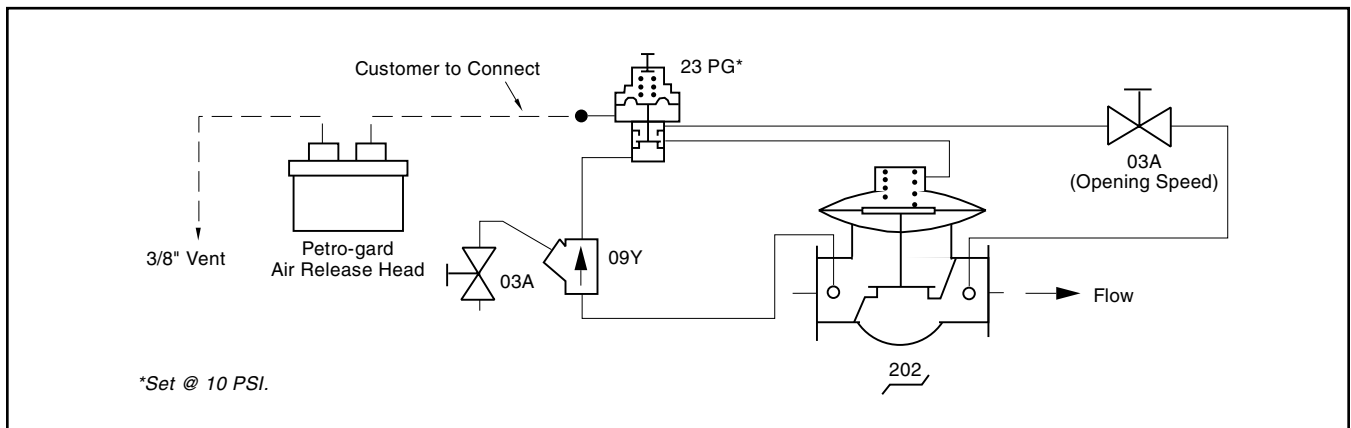


Figure 2 – Typical Valve #202-23PG-09Y/03A-03A for No. 6 Fuel Oil (2,000 SSU Maximum Viscosity)

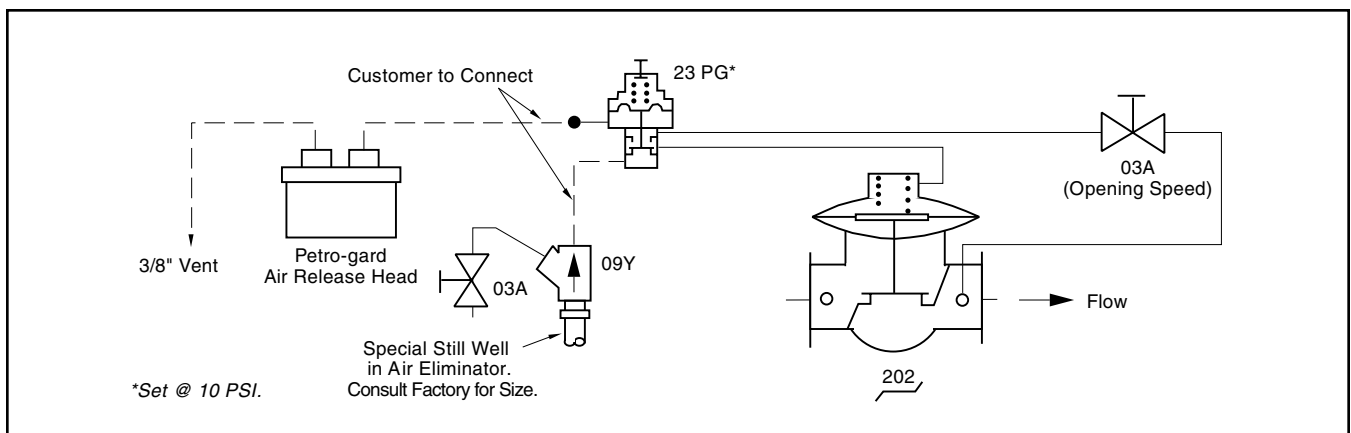


Figure 3 – Typical Valve #202-23PG-03A for Light Crude Oil

Operation

A Smith Meter® Petro-gard Valve is a Smith Meter 200 Series Valve with a Model 23PG three-way pilot. See Figures 1-3 (schematics of valve).

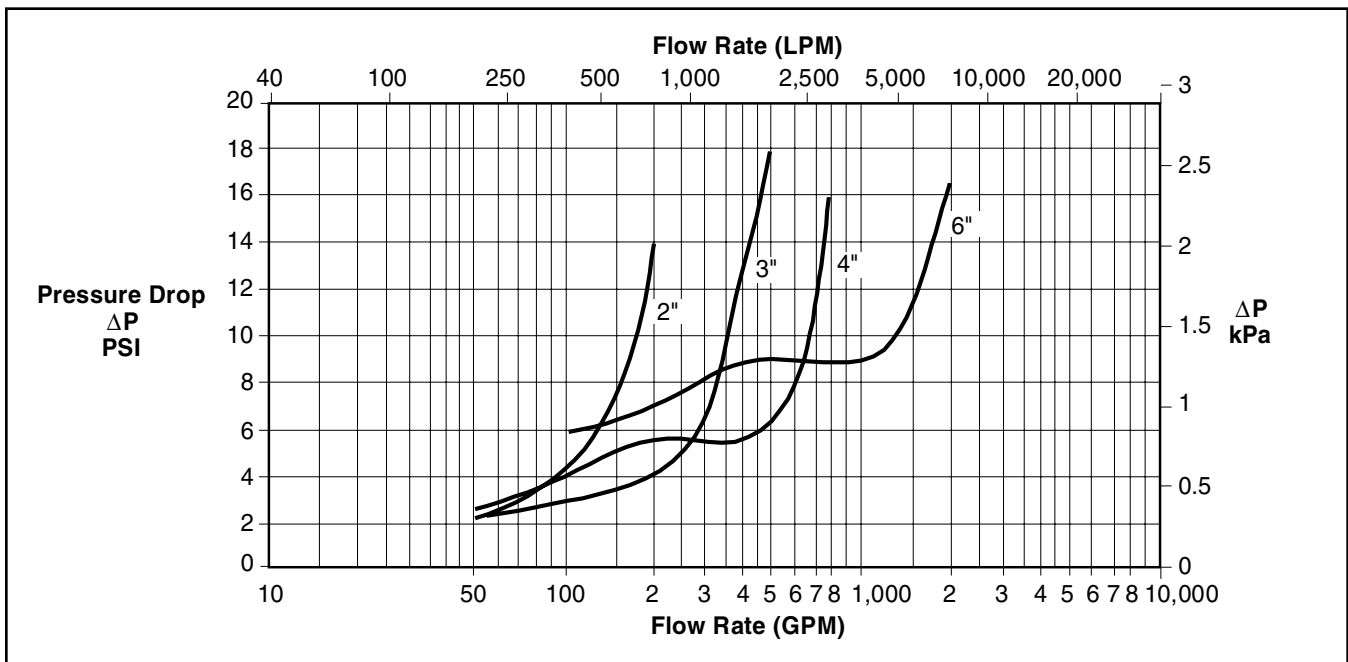
The Model 23PG Pilot is a three-way, spring-loaded, diaphragm-operated pilot valve. In its normal unpressurized condition, it opens the cover chamber of the main valve to low (downstream) pressure, blocking high (upstream) pressure, allowing the main valve to open. When pressurized by air (at system pressure) from the petro-gard air release head, the 23PG shifts position, opening the cover chamber of the main valve to high (upstream) pressure, thereby, closing the main valve. When the air pressure signal (from the petro-gard air release head) ceases, the main valve slowly re-opens as air pressure in the 23PG pilot bleeds off through the small orifice in the petro-gard air release head. The 23PG pilot is factory-set to shift at 10 psig. Screwing the adjusting screw in will raise this pressure setting. Located in the downstream portion of the control

loop (see Figures 1-3) is the opening speed adjustment needle valve used to tune the main valve opening rate. Ideally, a petro-gard valve will be fast-closing (when air is sensed) and slow-opening (when no air is sensed). Fast-closing is important to prevent the metering of air. Slow valve opening is desirable to minimize valve cycling when air is being eliminated in “gulps.” Note that the vapor or air is bled off through the air release vent. The vent is to be plumbed to a safe point of discharge (back at storage tank) at atmospheric pressure.¹

Materials of Construction

	Housing	Internals	Seals
Valve	Cast Steel	Bronze, Stainless Steel, Ductile Iron, Carbon Steel, Options: No Bronze Epoxy Coating	LS (Low Swell) Buna ⁺ , Buna-N or Viton
Pilot	Steel	Stainless Steel	Viton

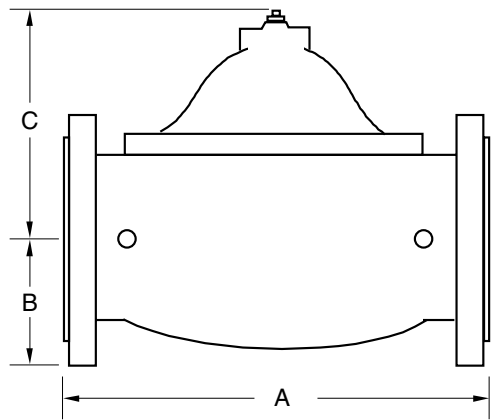
+Standard.



¹ Note: Follow all local, state and federal regulations.

Dimensions – Inches (mm)

Size	A Class 150 ASME Flange	A Class 300 ASME Flange	B Class 150 ASME Flange	B Class 300 ASME Flange	C	Weight (lb)
2"	8.0" (203)	8.5" (216)	3.0" (76)	3.3" (84)	5.5" (140)	42
3"	11.0" (279)	11.8" (300)	3.8" (97)	4.1" (104)	7.0" (178)	79
4"	13.5" (343)	14.1" (358)	4.5" (114)	5.0" (127)	8.0" (203)	132
6"	17.0" (432)	17.9" (455)	5.5" (140)	6.3" (160)	10.8" (274)	254



Note: Dimensions – Inches to the nearest tenth (millimeters to the nearest whole mm), each independently dimensioned from respective engineering drawings.

Revisions included in SS03003 Issue/Rev. 0.2 (9/09):
Note added, page 2.

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

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