

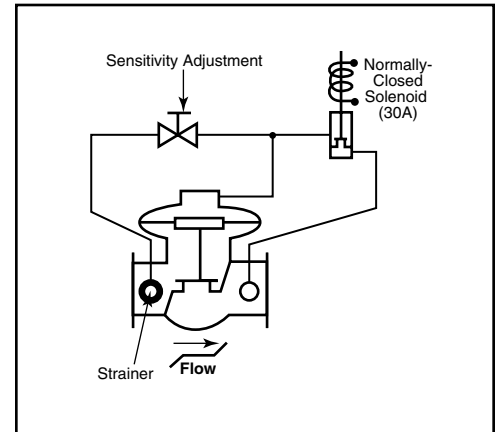
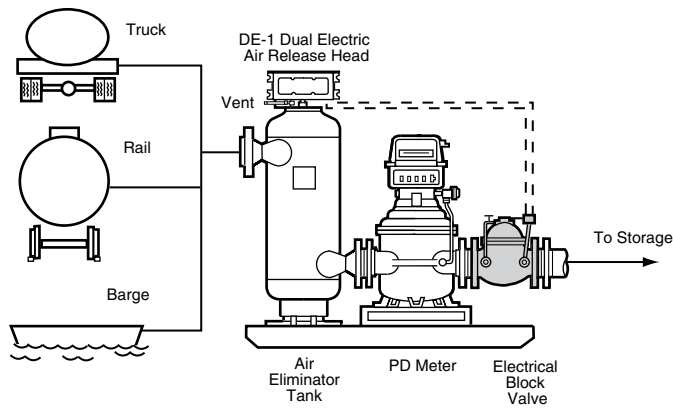
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## Electrical Block

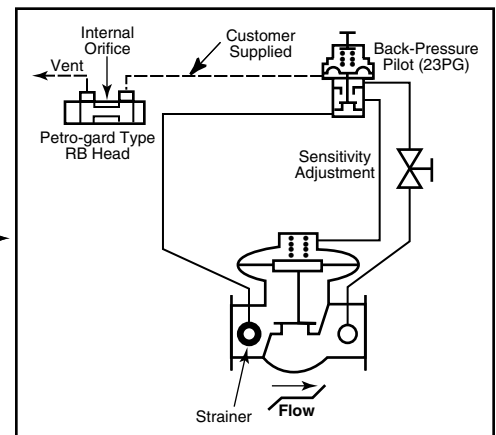
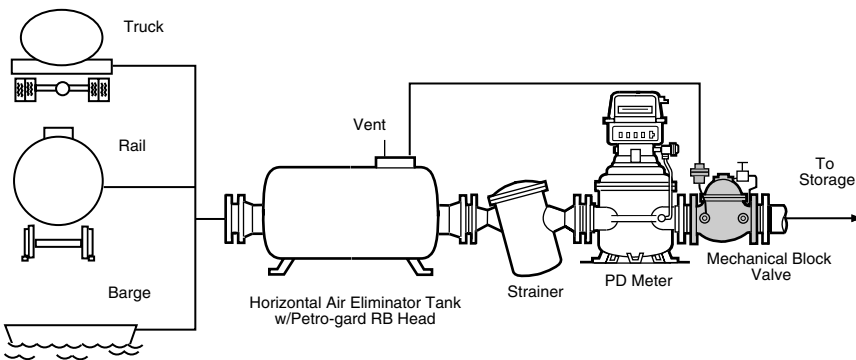
Used as a fail-closed system permissive for remote opening or closing by an electrical switch, manually- or automatically-actuated. Typically used with the Smith Meter™ Model DE-1 Dual Electric Air Release Head mounted on a system air eliminator.



Model 200-30A

## Mechanical Block

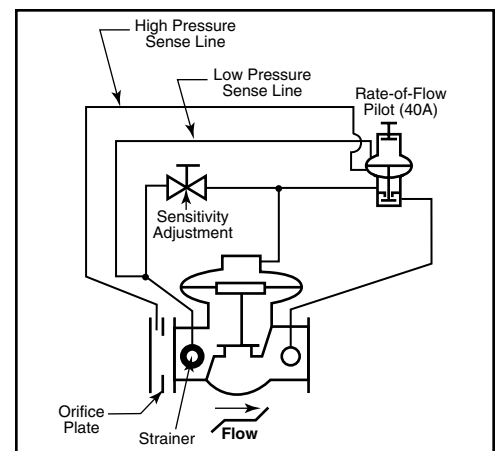
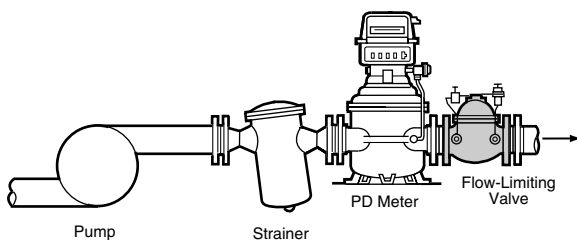
Typically used in off-loading flow measurement systems in conjunction with an air eliminator tank having a special Petro-gard-type air release head. It can be used in a fail-closed or fail-open mode.



Model 200-23PG

## Flow-Limiting

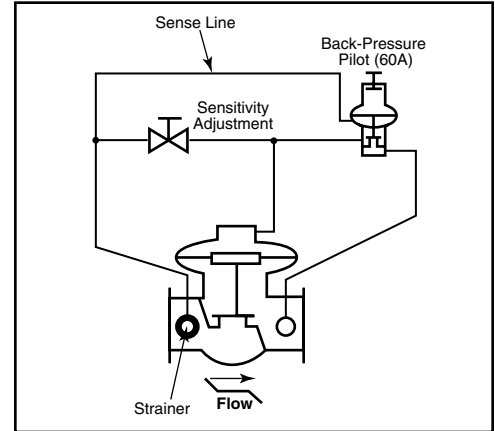
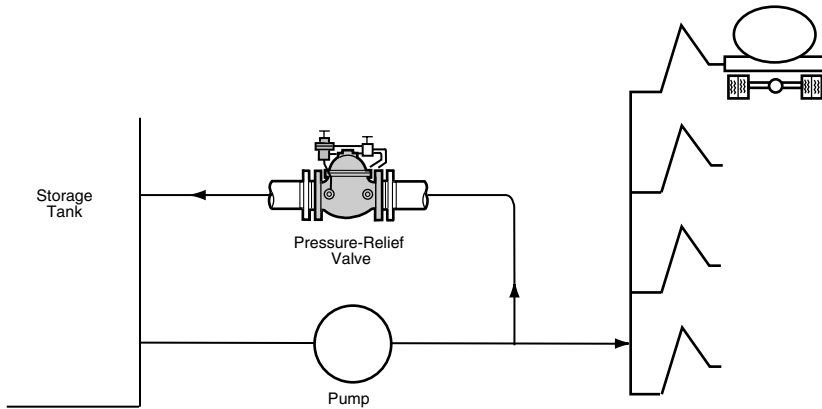
Used primarily in systems with parallel meter runs to protect the meters against excessive flow rate when less than the maximum number of meter runs are operating.



Model 200-40A

## Pressure-Relief

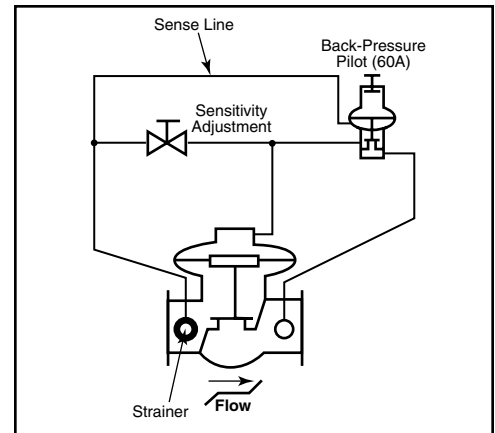
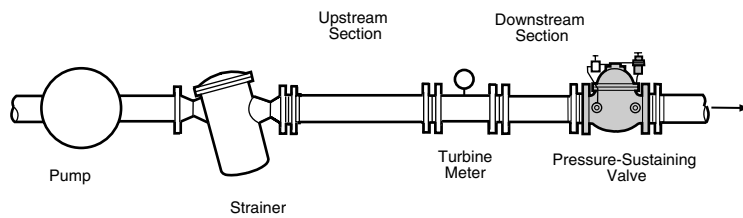
Normally a fail-open valve, installed in a pump bypass line to control pump discharge pressure.



Model 201-60A

## Pressure-Sustaining

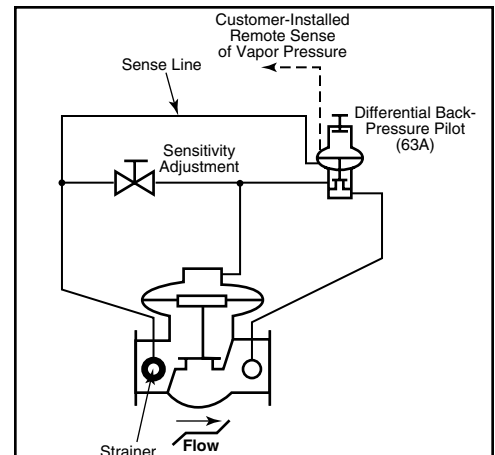
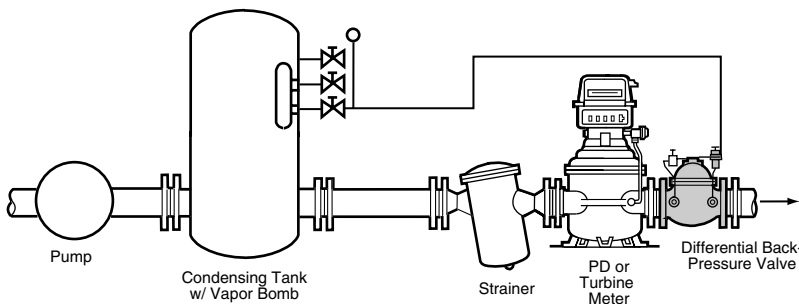
Maintains a predetermined minimum back-pressure when installed downstream of the pump. Commonly used to provide minimum back-pressure for turbine meter runs.



Model 200-60A

## Differential Back-Pressure Sustaining

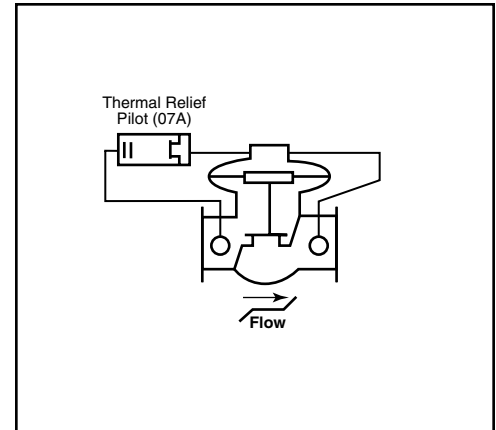
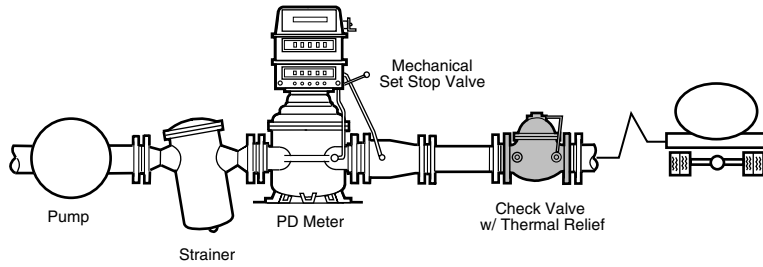
Used in LPG metering applications to maintain system pressure above the product vapor pressure in order to prevent flashing.



Model 200-63A

## Check with Thermal Relief

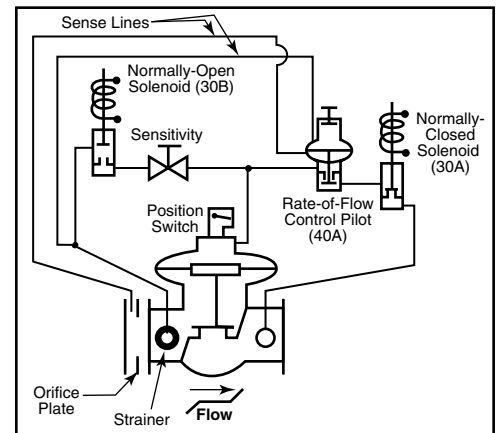
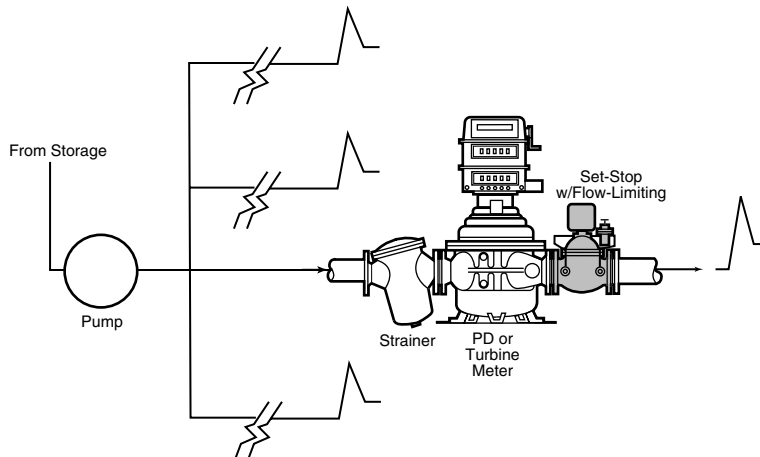
The check features prevents reverse flow should valve outlet pressure exceed inlet pressure. The thermal relief feature automatically provides relief upstream for downstream thermal expansion.



Model 202CH-07A

## Two-Stage Electro-Hydraulic Set-Stop with Flow-Limiting

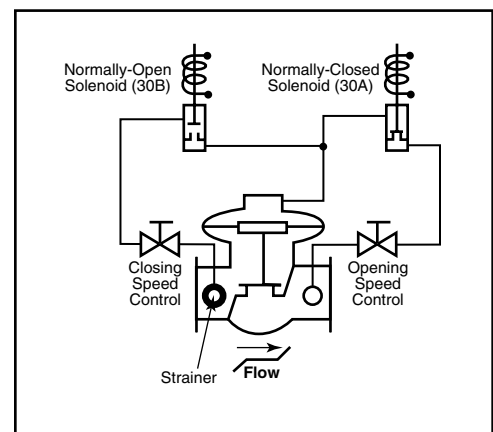
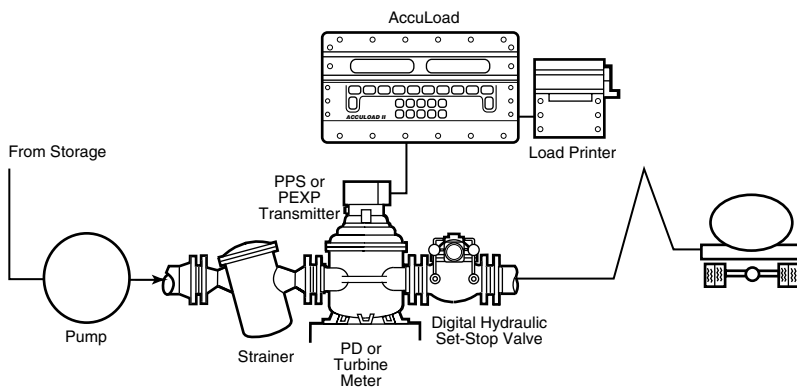
A set-stop valve commonly used for **low viscosity** petroleum loading rack applications. Provides electrically-actuated, two-stage closure when operating in conjunction with positive displacement meters equipped with electro-mechanical preset counters. Meter protection against overspeed is provided by a flow-limiting pilot sensing pressure drop across a valve inlet-mounted orifice plate.



Model 296-40A

## Digital Electro-Hydraulic Set-Stop

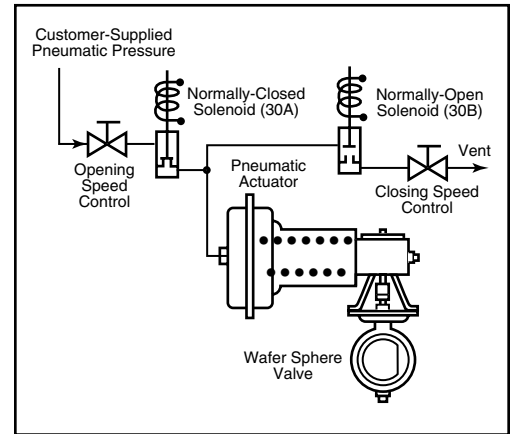
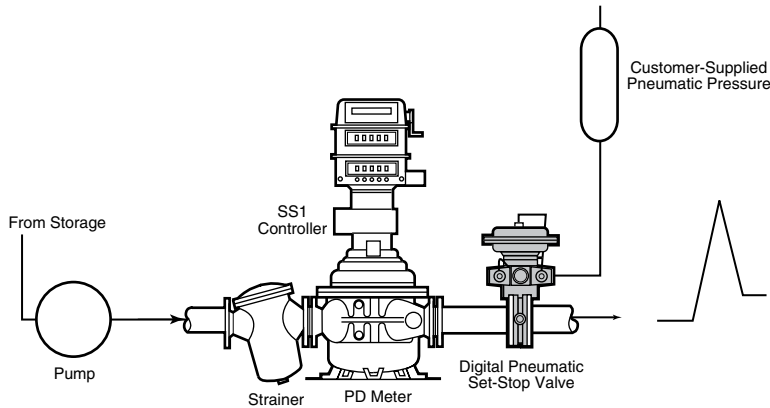
Used in conjunction with a Smith SS1 Controller, AccuLoad, or MiniLoad to provide electrically-actuated, multi-stage closure and rate-of-flow limiting in **low viscosity** loading rack applications. Works equally well with positive displacement or turbine meters.



Model 210

## Digital Electro-Pneumatic Set-Stop

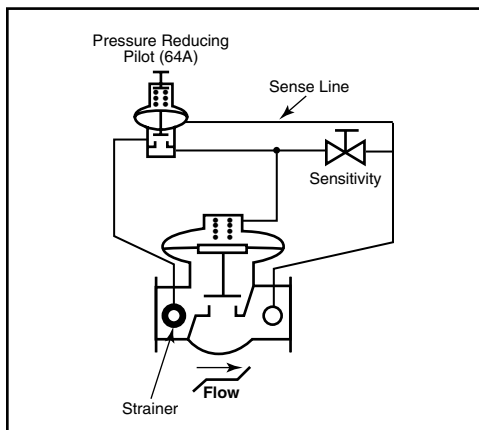
Used in conjunction with a Smith Meter™ SS1 Controller, AccuLoad, or MiniLoad to provide electrically-actuated, multi-stage closure and rate-of-flow control in **high viscosity** batching applications. External air pressure is utilized to actuate the opening and closing of the valve.



Model 215

## Pressure-Limiting

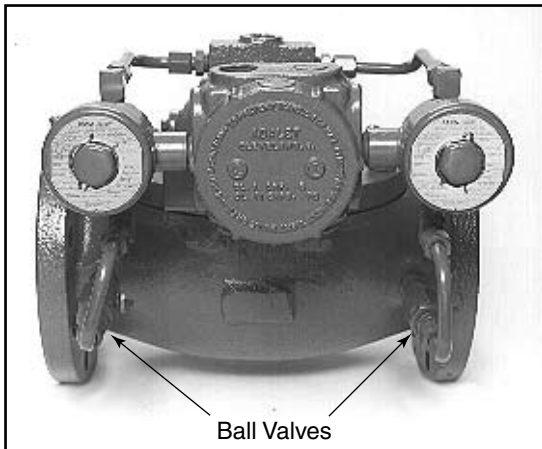
Used in nondead-end service where it is necessary to limit downstream pressure (during flow) to protect lower pressure rated equipment. This valve was not designed to be a systems main pressure relief.



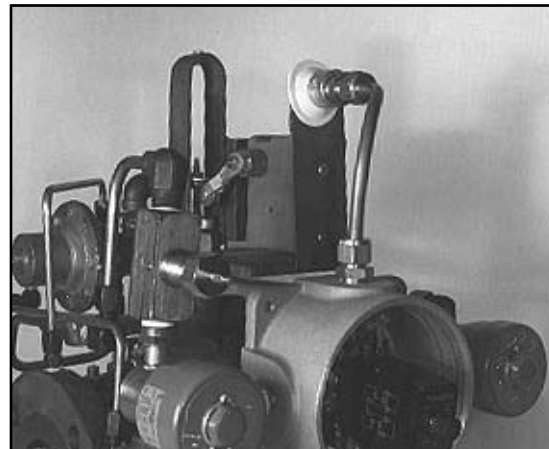
Model 200-64A

## Options

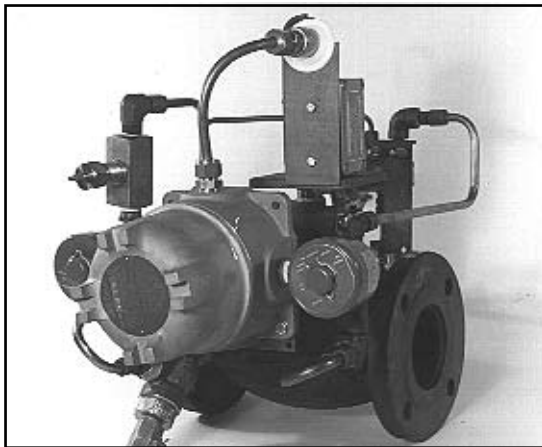
Smith 200 Series Control Valves are available with a variety of optional accessories which are used to enhance overall valve performance. Options include **opening and closing speed controls, mechanical position indicators, position switches**, and, where applicable, **low-flow start timers** and **pre-wired junction boxes**.



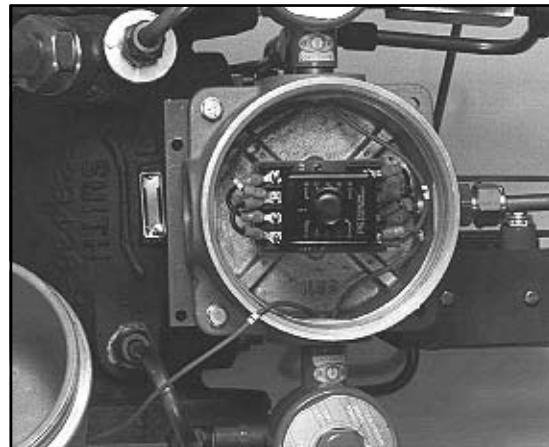
Model 03A Opening/Closing Speed Controls



Model 04A Mechanical Position Indicator and Switch



Pre-Wired Junction Box on Model 296-40A-15AX Valve



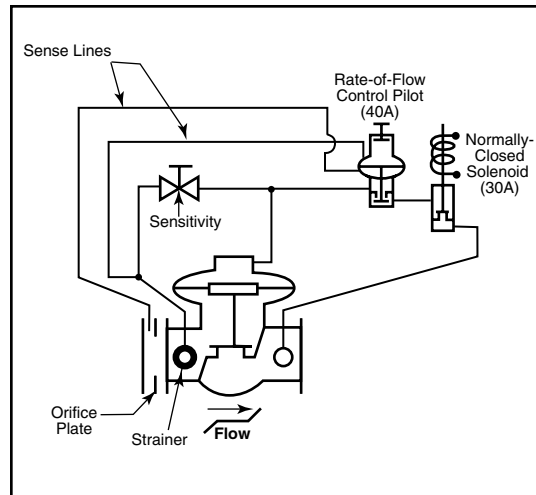
Model 15AX Low-Flow Start Timer

**Note:** These products have been designed for petroleum applications, where corrosion/erosion is normally minimum. The design of the pressure containing housings have adequate material allowance for typical petroleum applications. Consult the factory for other applications or for the actual material allowances.

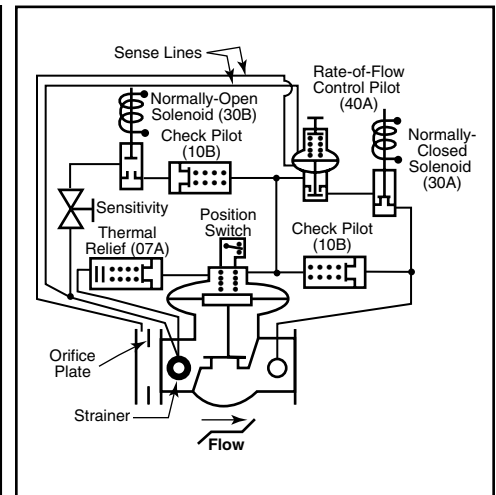
## Valve Function Combinations

Most Smith 200 Series Valves are capable of performing multiple control functions. A typical single valve arrangement, for example, combines flow-limiting control with electrical block. Another common arrangement is that of a set-stop valve with flow-limiting in combination with check and thermal-relief.

The available options and possible control function combinations are tabulated below.



**Model 200-40A-30A  
Combination Flow-Limiting  
and Electrical Block**



**Model 296-80B/07A-40A Set-Stop  
with Flow-Limiting in Combination  
with Check and Thermal-Relief**

## Smith Meter™ Control Valve Function Intermix

Basic Type	Function															
	Electrical Block	Mechanical Block	Flow-Limiting	Pressure-Limiting	Pressure-Relief	Back Pressure Sustaining	Differential Back-Pressure Sustaining	Check with Thermal-Relief	Two-Stage Set-Stop with Flow Limiting	Digital Hydraulic Set-Stop, 210	Digital Pneumatic Set-Stop, 215	Opening/Closing Speed Option	Low-Flow Start Option	Position Indicator	Position Switch	Junction Box
Electrical Block	A	C	B	B	C	B	B	D	D	D	D	B,A	D	B	B	B
Mechanical Block	C	A	B	B	C	B	C	D	D	D	D	A,B	D	B	B	C
Flow-Limiting	B	B	A	B	B	B	B	B	D	D	D	B,A	D	B	B	C
Pressure-Limiting	B	B	B	A	D	B	C	B	D	D	D	B,A	D	B	B	C
Pressure-Relief	B	C	C	C	A	D	C	B	D	D	D	B,A	D	B	B	C
Back-Pressure Sustaining	B	B	B	B	D	A	C	B	D	D	D	B,A	D	B	B	C
Differential Back-Pressure Sustaining	B	B	B	B	C	C	A	B	D	D	D	B,A	D	B	B	C
Check with Thermal-Relief	D	D	B	B	B	B	B	A	D	D	D	B,B	D	B	B	C
Two-Stage Set-Stop with Flow Limiting	A	C	A	B	B	B	B	B	A	D	D	B,A	B	A	A	B
Digital Hydraulic Set-Stop, 210	A	B	A	B	C	B	B	B	D	A	D	A,A	A	B	B	A
Digital Pneumatic Set-Stop, 215	A	B	A	D	D	D	D	D	D	D	A	A,A	A	A	B	A

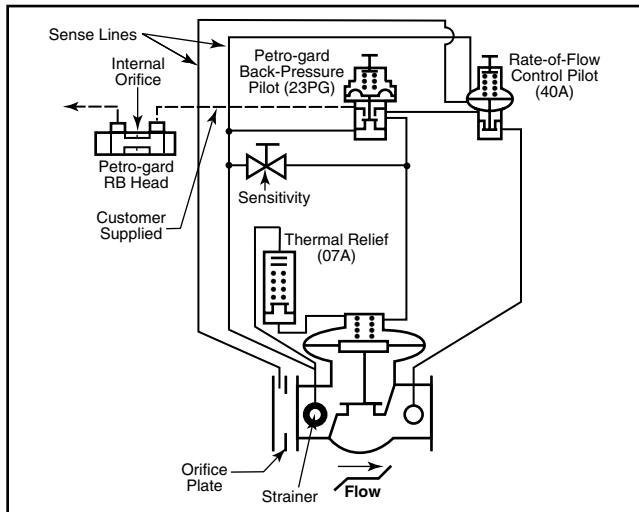
A - Standard function

C - Atypical

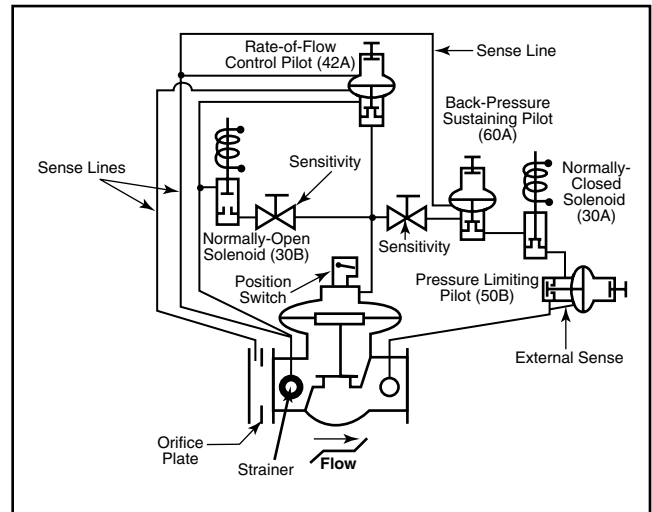
B - Typical

D - Not possible

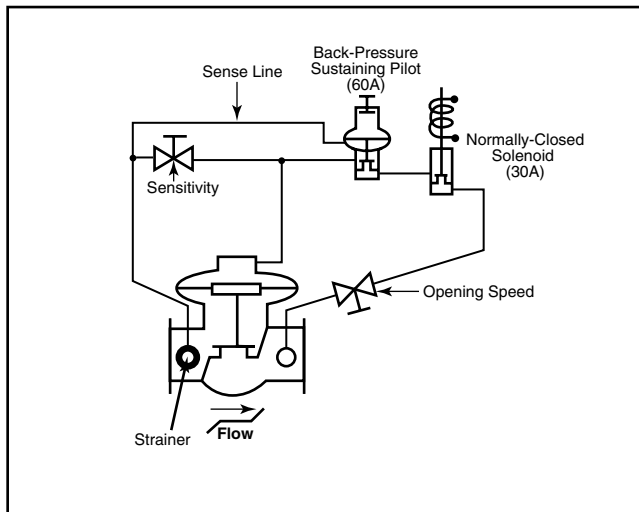
## Other Configurations



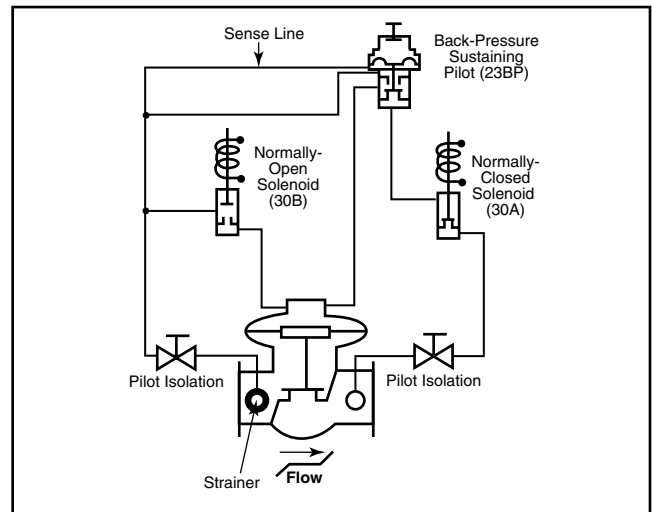
**Model 200-40A-23PG-07A**  
**Combination Flow-Limiting and Back Pressure Sustaining (Petro-gard) with Thermal-Relief**



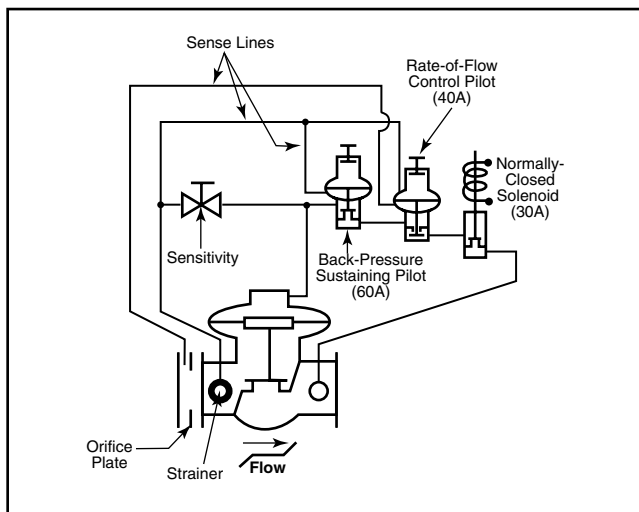
**Model 296-60A-50B-42A**  
**Combination Two-Stage Set-Stop with Flow-Limiting, Back-Pressure Sustaining, and Pressure-Limiting**



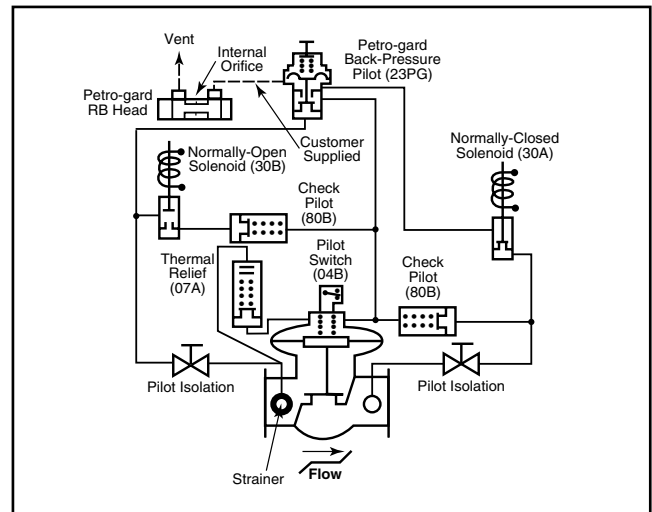
**Model 200-185A-60A-30A**  
**Combination Back-Pressure Sustaining and Electrical Block with Opening Speed Control**



**Model 210-23BP**  
**Digital Hydraulic Set-Stop with Back-Pressure Sustaining Control**

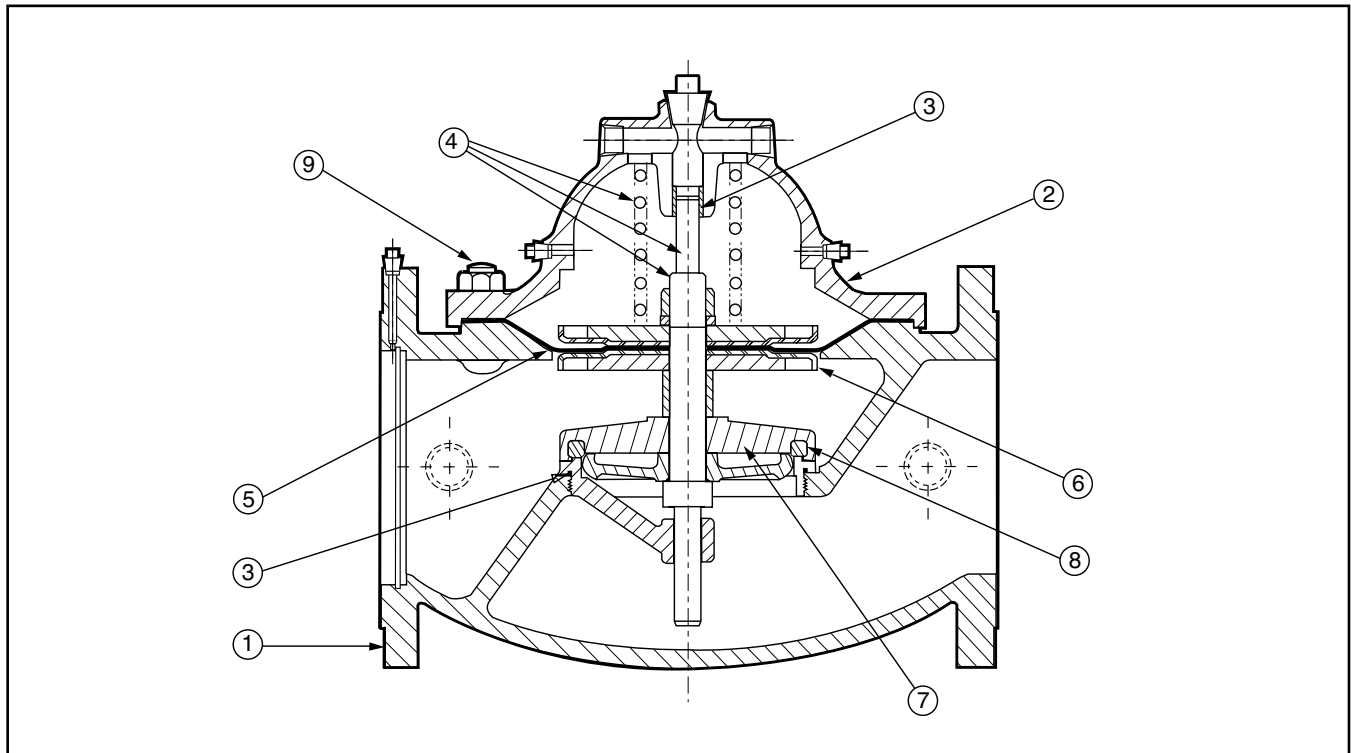


**Model 200-60A-40A-30A**  
**Combination Back-Pressure Sustaining, Flow-Limiting, and Electrical Block**



**Model 210-80B/07A-23PG-04B**  
**Combination Digital Hydraulic Set-Stop and Back-Pressure Sustaining (Petro-gard) with Check, Thermal-Relief, and Position Switch**

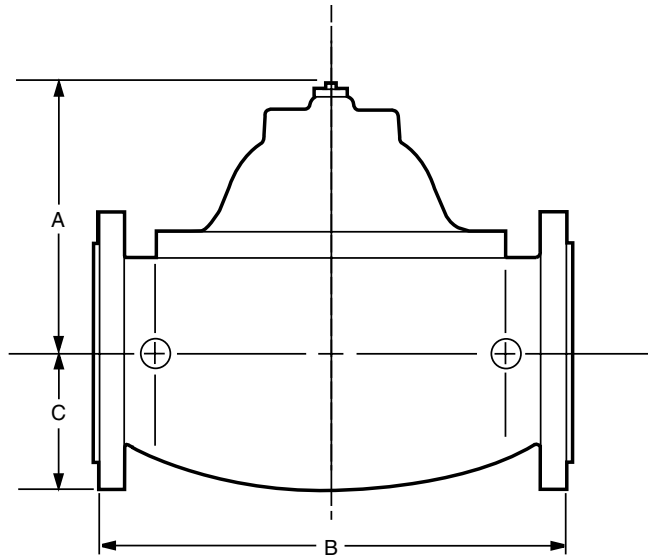
## Standard Materials of Construction



	2"	3" through 6"
1. Body	Cast Steel	Cast Steel
2. Cover	Cast Steel	Cast Steel
3. Seat	316 Stainless Steel with Ni-Resist	316 Stainless Steel with Ni-Resist
4. Spring, Stem, and Stem Nut	Stainless Steel	Stainless Steel
5. Diaphragm	Low Swell Buna or Viton (Buna Optional for Low Temperature)	Low Swell Buna or Viton (Buna Optional for Low Temperature)
6. Diaphragm Washer	Carbon Steel	Stainless Steel
7. O-Ring Retainer	Ductile Iron	Ductile Iron
8. O-Rings	Low Swell Buna or Viton (Buna Optional for Low Temperature)	Low Swell Buna
9. Nuts/Studs	Alloy Steel	Alloy Steel

\*Low Swell Buna-N available for diaphragm and dynamic seals.

## Dimensions



Size	A	Class 150 ASME			Class 300 ASME		
		B	C	Weight lb (kg)	B	C	Weight lb (kg)
2"	5.5" (140)	8.0" (203)	3.0" (76)	37 (17)	8.5" (216)	3.3" (84)	41 (19)
3"	7.0" (178)	11.0" (279)	3.8" (97)	74 (34)	11.8" (300)	4.1" (104)	86 (39)
4"	8.0" (203)	13.5" (343)	4.5" (114)	127 (58)	14.1" (358)	5.0" (127)	148 (67)
6"	10.8" (274)	17.0" (432)	5.5" (140)	249 (113)	17.9" (455)	6.3" (160)	287 (130)

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

Revisions included in AB03004 Issue/Rev. 0.2 (4/07):  
Page 8: Revised control valve function intermix chart.  
Page 9: Revised model 210-80B/07A-23P6-04B diagram.

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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