ASCO™ Series 158/159 Electrically Actuated Safety Shut-Off Valve for Gas Burners

On/Off, High/Low/Off or Pressure Regulating | General Purpose or Watertight | 3/4" to 3" | Threaded or Flanged

SERIES 158/159

- ASCO series P159 actuator & series 158 valve are certified as gas safety shutoff valves when mounted together.
- Configurations include ON/OFF, High/Low/Off (2-stage opening), or Integrated Pressure Regulation.
- Operates with gas pressures up to 25 PSI (1.7 bar)
- Closes against pressures from 30 PSI (2.1 bar) to 75 PSI (5.2 bar).
- Fast responding and high-accuracy integrated electronic pressure regulation.
- User-friendly pressure-setting interface, set as a percentage of the sensor's measurement range.
- Offers multiple pressure sensor options, enabling a wide pressure control range.
- Optional watertight enclosure (Type 4 & IP65) and wide ambient temperature range -40˚F to 150˚F (-40˚C to 66˚C)
- Available with threaded or flanged end-connections in various sizes and types for easy installation and service.
- Mechanical position visual indicator on both sides of the valve, optional position switches available (including a Proof of Closure Switch).



Fluids Capability

- Clean conventional fuel gas (Natural Gas, Methane, Butane and Propane)
- H2S containing fuel gas: with maximum Hydrogen Sulfide (H2S) content up to a maximum of 0.1% (1,000 PPM) by volume of dry gas ①
- Pure Hydrogen (H2) for safety shut-off applications ②

① *See Emerson statement for H2S containing gas on Emerson.com, series 158/159.*

② *See KIWA H2 test report on Emerson.com, series 158/159.*

Valve Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals	Nitrile
Springs	Zinc-plated steel
Stem Bushing	Delrin
Valve Stem	303 stainless steel
Discs	NBR
Retaining Ring	303 stainless steel
Pipe Plugs	Zinc-plated steel
Stem Connector	303 stainless steel

Ambient and Fluid Temperature

-40˚F to 150˚F (-40˚C to 66˚C)

Approvals

ON/OFF & High/Low/Off Versions Series P159 Actuator (P159A1, P159B1, P159A2, P159B2) with Series 158 or V710B Valves

- UL listed to standard 429 "Electrically Operated Valves", Guide YIOZ, File MP932 Safety Shutoff Valves.
- FM Approved to Class 7400 "liquid and gas safety shutoff valves."
- CSA Certified: Automatic Gas Valves ANSI Z21.21 CSA 6.5, C/I, File 113070.
- Complies with RoHS directives.
- Automatic shut-off valves for gas burners and gas appliances as per EN 161 Class A, Group 2, for gas families 1, 2, and 3. ③

③ *Only when indicated "Class A" on the 158 valve series nameplate. Combination of 159 + V710B are not EN 161 certified, 158 former model without Class A indication on the label are not EN161 certified. P159B Actuator is not yet EN161 certified.*

Pressure Regulating Series P159 Actuator (P159A3) with Series 158 Valve

As Safety Shut-Off Valve:

- UL listed to standard 429 "Electrically Operated Valves", Guide YIOZ, File MP932 Safety Shutoff Valves.
- CSA Certified: Automatic Gas Valves ANSI Z21.21 CSA 6.5, Classes 3371-03 and 3371-83, File 113070.
- FM Approved to Class 7400 "liquid and gas safety shutoff valves."

As Pressure Regulator:

- UL listed 60730-1 "Burner Management Systems", Guide XAAF, File E549903, Electronic Gas Pressure Regulator. UL Listed as a Type 2 Control for the following combination ASCO series P159 actuator with pressure regulating function (P159A3) + ASCO 158 series valve with linear trim + ASCO supplied pressure sensors.
- CSA Certified: Gas Appliance Pressure Regulator ANSI Z21.18/CSA 6.3, Classes 3331-02 and 3331-82 File 113070. Including ASCO series P159 actuator with pressure regulating function (P159A3) + ASCO series 158 valve with linear trim.

General Note: *Pressure regulating valves (Series 158) & actuators (Series P159, P159A3) combinations are not yet certified for compliance with European standards.*
Series 158 was improved to better work with pressure regulating ASCO Series P159 Actuators P159A3, Only 158 valves with date code of 2547 or above are suitable for pressure regulating applications.
New generation actuators P159B are not yet available with pressure regulating function.

Actuator Specifications

Functions

On/Off:

- When energized, the actuator moves the valve to a fully open position.
- When de-energized, the actuator safely closes the valve in less than 1 second.

High/Low/Off:

- When energized, the actuator will move the valve to either a low firing position or fully open position.
- When de-energized, the actuator safely closes the valve in less than 1 second.

Note: *The low fire position is set via a low-fire switch, which can be adjusted in the field to any position between 15% and 100% of the stroke.*

Integrated Pressure Regulation:

- When energized, the actuator adjusts the valve position to regulate pressure until it matches the defined setpoint.
- When de-energized, the actuator safely closes the valve in less than 1 second.

Opening Time

Fast Opening Option:

- Typical time approximately 6 seconds with P159B and 9 seconds with P159A
- At temperatures below -30˚C, actuator may take as long as 30 seconds

To ensure a rapid response to sudden changes in upstream or downstream pressure, all pressure-regulating actuators are supplied with a fast-opening configuration.

Slow Opening Option:

- Typical time approximately 12 seconds with P159B and 18 seconds with P159A
- At temperatures below -30˚C, actuator may take as long as 60 seconds

Note: *Opening times above are typical and can vary based on ambient temperature, duty cycle, and damper arm options.*

Closing Time: 1 second max.

Electrical Enclosure:

- **Standard:** General Purpose Type 1 & IP10
- **Optional:** Watertight Type 4 & IP65

Actuator's Electrical Information

Standard Voltages: 120V/60Hz, 110V/50Hz, 240V/60Hz, 230V/50Hz, 100V/50-60Hz

Note: *100V/50-60Hz is not covered by UL, CSA, FM & CE approvals.*

Proof Of Closure Switch (POC): (optional)
A factory set, non-field adjustable SPDT switch. 120 or 240VAC Maximum Connected Load: 7A Resistive, 3A Inductive.

Auxiliary Position Switch: (optional)
One integral SPDT switch; field adjustable to actuate at any position of stroke. 120 or 240VAC Maximum Connected Load: 7A Resistive, 3A Inductive.

Note: *The combined load on the optional Proof Of Closure and Auxiliary Switches cannot exceed 1800 VA. Electrical options 4 and 5 (Auxiliary Switch + POC Switch & 2 Auxiliary Switches) are only available with the On/Off construction.*

Power Consumption:

Actuator	Function	Voltage	Current (Amps)		
			In-Rush	Opening	Holding
Legacy P159A	ON-OFF P159A1	110/50 - 120/60	11.5 - 11	2.1 - 2.0	0.065 - 0.06
		230/50 - 240/60	5.5 - 5	1 - 0.7	0.035 - 0.03
	HIGH-LOW-OFF P159A2	110/50 - 120/60	11.5 - 11	2.2 -1.8	0.13 -0.12
		230/50 - 240/60	5.5 - 5	1.0 - 0.7	0.07 - 0.06
New Generation P159B	ON-OFF P159B1	110/50 - 120/60	-	1.30 - 1.20	0.065 - 0.06
		230/50 - 240/60	-	0.62 - 0.57	0.035 - 0.03
		100/50-60	-	1.65 - 1.35	0.07 - 0.065
	HIGH-LOW-OFF P159B2	110/50 - 120/60	-	1.40 - 1.30	0.13 - 0.12
		230/50 - 240/60	-	0.7 - 0.67	0.07 - 0.06
		100/50-60	-	1.75 - 1.45	0.14 - 0.13

Optional Damper Arm

Series P159 electric actuator in ON/OFF or High/Low/Off can be configured with an optional damper arm & shaft. The damper arm & shaft option is typically used to mechanically link the ASCO Series 159 electric actuator to a 3rd party air damper.

The series P159 can drive the damper in one direction only (when opening). 20 lb (9 kg) max. at 2.85" radius at 20˚F to 150˚F (-7˚C to 66˚C) and 10 lb (4.5 kg) max. at -40˚F to 20˚F (-40˚C to -7˚C) Travel 1.9" (49 mm) max.

General Installation

Valve and Actuator Mounting Positions



The Series P159 electric actuator can be mounted in any position directly onto the Series 158 valve. Additionally, it is compatible with older generation V710(B) valves up to 3 inches, excluding pressure regulating actuators.

Double Valve Configuration

When using a double 158 ASCO Valve, High/Low/Off or Pressure Regulating Actuators shall be installed on the downstream position, near the outlet.

To create a double valve configuration with Valve 1 as a solenoid and Valve 2 with the P159 electric actuator. Series 158/159 single electrically actuated valve can be paired with ASCO Series 214 or 215 solenoid valves using the appropriate kit. For further information, refer to the dedicated catalog page.



Valve's Accessories & Installation

End-Connectors:
The Series 158 Valve is available in both double valve monoblock and single valve constructions. It features only two body sizes – mid-size and large-size – capable of connecting to seven different pipe sizes via an interchangeable end-connector system. End-connectors can be ordered with the valve or separately as kits, each including a 1/4" testing threaded port with plug for testing or pressure gauge/switch installation. For details on pressure taps, refer to **Annex 3.**

Pipe Connection Types:
End-connectors can be configured with various pipe connection types:
- Threaded Connections: NPT or ISO (ISO 228/1 "G" & ISO 7/1 "Rp") for all sizes.
- Flanged Connections: ANSI #150 or ISO (ISO 1092-1 & ISO 1092-4) for large sizes (2" HF, 2 1/2", and 3").

Double Valve Vent/Bypass Port:
Double valve configuration features two larger threaded ports with plugs for vent, bypass, or pilot line connections if needed. For mid-size valves, these ports are 1" wide, while for large-size valves, they are 1.5" wide. These larger ports are located between the two seats of the valves on each side. Additionally, there is a smaller 1/4" testing port with plug located next to each Vent/bypass/pilot port. For details on testing & vent ports, see **Annex 3.**

End-Connectors/Size Compatibility Table:

Valve Size	Size	Threaded End-Connector		Flanged End-Connector	
		NPT	ISO	ANSI	ISO
Mid-Size	3/4"	✓	✓	–	–
	1"	✓	✓	–	–
	1 1/4"	✓	✓	–	–
	1 1/2"	✓	✓	–	–
	2"	✓	✓	–	–
Large-Size	2" High Flow	✓	✓	✓	✓
	2 1/2"	✓	✓	✓	✓
	3"	✓	✓	✓	✓

Valve Trims and Actuator Compatibility

Standard Trim:
For ON/OFF applications, this trim is compatible with the ON/OFF ASCO series P159 electric actuator.

Standard w/ Overtravel Trim:
For ON/OFF applications where valve overtravel is needed for proof-of-closure requirements, as dictated by users or regulatory bodies. This trim should be used with an ON/OFF ASCO series P159 electric actuator equipped with a Proof-of-Closure Switch.

Linear Trim:
For High/Low/Off and Pressure Regulating functions, the linear trim design improves flow factor linearity across various stroke points. This trim should be used with High/Low/Off and Pressure Regulating ASCO series P159 electric actuators. It can also be paired with ON/OFF ASCO series P159 electric actuator for a smoother progressive flow increase.

Linear w/ Overtravel Trim:
For High/Low/Off and Pressure Regulating functions in applications where valve overtravel is needed for proof-of-closure requirements, as dictated by users or regulatory bodies. This trim should be used with High/Low/Off and Pressure Regulating ASCO series P159 electric actuators equipped with Proof-of-Closure Switch. It can also be paired with ON/OFF ASCO series P159 electric actuator equipped with Proof-of-Closure for a smoother, progressive flow increase.

Actuator/Valve Trim Compatibility Table:

Series P159 Actuator Function	Compatible Series 158 Valve's Trim
ON/OFF	Standard or Linear
ON/OFF w/ Proof Of Closure	Standard or Linear w/ Overtravel Trim
High/Low/Off	Linear Trim
High/Low/Off w/ Proof Of Closure	Linear w/ Overtravel Trim
Pressure Regulating	Linear Trim
Pressure Regulating w/ Proof Of Closure	Linear w/ Overtravel Trim

Pressure Regulating Configuration

Working Principles:

The ASCO series 158/159 can be configured to function as both a safety shutoff valve and a pressure regulator within the same unit. When equipped with the pressure regulating function, the ASCO series P159 actuator uses advanced electronics. By connecting to an external pressure sensor, it regulates pressure based on a user-defined set-point.

Actuator Installation:

The ASCO Series P159 actuator, with its integrated pressure regulator function, is compatible with any ASCO series 158 Gas Valves equipped with Linear Trim. When using a series 158 double gas valve, the pressure regulating actuator must always be mounted in the downstream position, closer to the outlet.



Pressure Setting:

Pressure adjustment is managed via two rotary switches (dials), SP1 and SP2, in conjunction with the pressure sensor's measuring range. Each switch can be set between 0 and 9. The combination of SP1 and SP2 determines a percentage of the sensor's measurement range that the actuator will use as a target to regulate the pressure.

Example: Using a pressure sensor with a measurement range of 0 to 5PSI (0-345mBar), if the desired output pressure is 1PSI (69mBar), SP1 needs to be set to "2" and SP2 to "0". This configuration corresponds to 20% of the 5PSI (345mBarI) range, resulting in an output pressure of 1PSI (69mBar).

Set-Point Modification

Upon powering the Actuator for the first time, an LED will start blinking green slowly (3sec ON & 3sec OFF). Adjusting the set-point is a user-friendly and secure process involving three steps:

1. Enter set-point mode by pressing the CAL button until the LED flashes blue (~5 sec). When the LED starts flashing blue, release the CAL button.
2. Set the desired value using the two numeral rotary switches.
3. Save the set-point by pressing the CAL button for about 7 seconds and release. Upon releasing the CAL button, the LED should go back to slowly blinking green (3sec ON & 3sec OFF).



Note: *when saving the set-point, if the LED is not changing to slowly blinking green upon releasing the CAL button, it means the CAL button was not pushed & held long enough.*

For more details, refer to **our guided animation** and to our ASCO Installation and Maintenance Sheets.

Pressure sensor selection

ASCO provides a range of WIKA brand sensors, each offering different pressure measurement ranges. When selecting a pressure sensor, consider the following key factors:

- Precision: The outlet pressure is calculated as a percentage of the sensor's measuring range. A wider measuring range results in larger intervals between percentage points, which can impact precision.
- Safety Concern: When choosing a sensor for the ASCO series 158/159 pressure regulating valve, it's crucial to ensure that the sensor's maximum mechanical pressure tolerance equals or surpasses the maximum operating or close-off pressure that may occur at the valve. ASCO also advises selecting a sensor with a top measuring range that matches or exceeds the valve's inlet pressure during normal operation. If the measured pressure goes beyond this measuring range, the valve will automatically shut down to prevent potential safety hazards. This precaution is essential to avoid system failures and maintain safe operational conditions.

For detailed information, refer to **Annex 1**: Outlet Pressure Setpoints by Sensor.

Pressure Sensor Specifications

Note: The ASCO Series 158/159 electronic pressure regulating valve is designed to be compatible with any sensor suitable for use with combustible gases that utilizes a 4-20mA signal. ASCO provides various sensors from the supplier WIKA (model A10) that have been tested, listed and validated for use with the ASCO series 158/159 electronic pressure regulating valve. If other sensors are used, it is the responsibility of the user to verify the performance and safety levels. Each sensor supplied by ASCO will undergo a specific quality inspection, in compliance with the standards to which the ASCO pressure regulating system is certified.

Output signal: 4-20mA

Non-Linearity: 0.5% BFSL

Electrical Connection: DIN Form A per DIN 175301-803-A

Media temperature:

UL (US & CANADA) rated to -30°C to +100°C (-22°F to 212°F)

CSA rated to: -40°C to 100°C (-40°F to 212°F)

Approvals: UL (US & CANADA) & CSA

Note: *for CSA approval – see note from WIKA*

Pressure Sensor Installation:

For optimal reliability and precision, industry best practices recommend installing the pressure sensor at a distance of at least five times the pipe diameter from the valve. For example, if the valve has a pipe diameter of 2 inches (DN50), the sensor should be positioned 10 inches (250 mm) from the valve outlet.

However, internal laboratory tests have shown that ASCO pressure regulating units can still perform reliably when the sensor is installed directly on the end-connector's test port. It is the responsability of the user to verify the safe and proper product functions if it is used beyond standard best practices.

Valve Constraint when Using Pressure Regulation Function:

For pressure regulating applications, correct valve sizing is crucial. The ASCO 158/159 electrically actuated Valve features a significantly higher flow factor at the fully open position compared to most other suppliers; for the same size, it can be up to twice the flow factor. Oversizing the valve may result in pressure instability and system failure. Therefore, it's essential to consult the flow curves provided in **Annex 2** to ensure proper sizing and safe operation.

⚠ ***Oversizing the valve may result in pressure instability and system failure.***

Pressure Sensors for use with Pressure Regulating Function						
Code	Measuring Range			Overpressure limit		
	PSI	Mbar	WC	PSI	Mbar	WC
576901-1	0-1	0-69	0-28	3	206	83
576901-2	0-2.3	0-160	0-64	14.5	1,000	388
576901-3	0-5	0-345	0-139	14.5	1,000	388
576901-4	0-10	0-689	0-277	45	3,000	1,247
576901-5	0-15	0-1,034	0-416	45	3,000	1,247
576901-6	0-25	0-1,724	0-693	50	3,447	1,385



Codification

Actuator Codification

P159 A 1 1 0 X1 X0 1 F0

Product Series
P159 = ASCO Series P159 Electric Actuator for use with ASCO Series 158 Gas Valve and ASCO Series V710B

Revision
A = Legacy P159 Actuator
B = New Generation Actuator (improved performance)

New generation actuator (B) are not yet available with pressure regulating function (3)

Function
1 = On/Off Actuator
2 = Hi/Low/Off Actuator
3 = Pressure Regulating Actuator.

If Pressure regulating function is selected, a pressure sensor is necessary. (see pressure sensor ordering information)
Hi/Low/Off & Pressure regulating functions need to be combines with ASCO series 158 models with Linear Trim.

Enclosure
1 = Watertight (IP65 & Type 4)
2 = General Purpose (IP10 & Type 1)

Pressure regulating function is only available with watertight enclosure.

Opening Time
0 = Slow Opening
1 = Fast Opening

Pressure regulating function is only available with fast opening time.

Voltage
F0 = 120/60, 110/50
CU = 240/60, 230/50
CJ = 100/50-60

Electrical Options
1 = None
2 = Auxiliary Switch
3 = Proof-of-Closure Switch
4 = Auxiliary Switch & Proof-of-Closure Switch
5 = Two Auxilarity Switches

Electrical option 4 & 5 are not available with High/Low/Off or pressure regulating functions.
Actuators with electrical options Proof-of-Closure switch needs to be combines with ASCO Series 158 models with overtravel.

Mechanical Options
X0 = None
X1 = Damper Shaft with Arm
X2 = Damper Shaft

Electrical Connection Type
X1 = ½": For use with ½" fittings
X2 = M20: For use with M20 fittings

Valve Codification

8 158 A 1 00 X1 X0000

Connection Type
8 = NPT Body Connection (Inches)
E = ISO 228/1 & ISO 7/1 "Rp" body connections (combination thread, G)
T = Flanged Connections ANSI Class 150
0 = Flanged Connections ISO 1092-1 and ISO 1092-4

T and 0 flanged connection types are only available for the following pipe sizes: 2" High Flow, 2-1/2" and 3"

Product Series
158 = Valve Body

Revision
A = Initial Release

Model Type
Single
1 = Standard Trim
2 = Standard w/ Seal Overtravel Trim
3 = Linear Trim
4 = Linear w/ Seal Overtravel Trim
Double Valve
5 = Valve 1 & 2: Standard Trim
6 = Valve 1 & 2: Standard with Seal Overtravel Trim
7 = Valve 1: Standard Trim / Valve 2: Linear Trim
8 = Valve 1: Standard with Seal Overtravel Trim / Valve 2: Linear with Seal Overtravel Trim
A = Valve 1: Standard Trim / Valve 2: Standard with Seal Overtravel Trim
C = Valve 1: Standard Trim / Valve 2: Linear with Seal Overtravel Trim

Option List
X0000 = None
X0100 = Strainer
X0800 = Strainer + Silicon Free
X1500 = Silicon Free

Vent Port Connection Type
If body connection type 8 or T is chosen, the vent port connection type will default to NPT, denoted by code X1.

If body connection type E or 0 is chosen, the vent port connection type will default to ISO, denoted by code X2.

Pipe Size
00 = No End-Connector (Mid Size Body)
01 = No End-Connector (Large Body)
11 = 3/4" (20mm)
12 = 1" (25mm)
13 = 1-1/4" (32mm)
14 = 1-1/2" (40mm)
16 = 2" (50mm)
36 = 2" - High Flow (50mm)
18 = 2-1/2" (65mm)
20 = 3" (80mm)

To order valve bodies without end connections:
select code "00" in Pipe Size for sizes 3/4" (20mm) to 2" (50mm)
select code "01" in Pipe Size for sizes 2" (50mm) High Flow to 3" (80mm)

End-Connection Kits

For valves ordered with no end-connectors Pipe size "00" and "01".
3/4", 1", 1.25", 1.5" and 2" end-connectors can be mounted on Mid Size Valves (Pipe size option "00").
2" High Flow, 2.5" and 3" end-connectors can be mounted on Big Size Valves (Pipe size option "01").

Pipe Size in (mm)	Adapter - Hardware Kit			
	NPT Threaded	ISO Threaded (Rp and G combination)	ANSI Flanged	ISO Flanged
3/4 (20)	M200687	M200688	-	-
1 (25)	M200685	M200686	-	-
1 1/4 (32)	M200683	M200684	-	-
1 1/2 (40)	M200681	M200682	-	-
2 (50)	M200679	M200680	-	-
2 High Flow (50)	M200836	M200694	M200872	M200875
2 1/2 (65)	M200835	M200692	M200873	M200876
3 (80)	M200834	M200690	M200874	M200877

Other Kits

Strainer Mid-size body (3/4" to 2"): M200830
Strainer Big-size body (2" HF to 3"): M200831
O-Ring replacement kit (2 units) for Mid-size body (3/4" to 2"): M200832
O-Ring replacement kit (2 units) for Big-size body (2" HF to 3"): M200833

Valve Specifications English (Metric)

Double Valve

Base Catalog Number	Pipe Size (Main) in (mm)	Flow Factor Cv (Kv = m^3/h)	Flow Capacity Ft^3/Hr (m^3/h) ①	Gas Capacity BTU/Hr ①	Heat Output Capacity kW ①	Operating Pressure Differential		Close-Off Pressure psi (bar)
						Minimum psi (bar)	Maximum psi (bar)	
Valve 1: Standard or Overtravel | Valve 2: Standard or Overtravel NO LINEAR TRIM								
_158A(5/6/A)11... or _158A(5/6/A)00... + 3/4" end-connectors	3/4 (20)	17.4 (15.0)	932 (26.4)	932,000	273	0	25 (1.7)	30 (2.1)
_158A(5/6/A)12... or _158A(5/6/A)00... + 1" end-connectors	1 (25)	27.8 (24.0)	1,490 (42.2)	1,490,000	437	0	25 (1.7)	30 (2.1)
_158A(5/6/A)13... or _158A(5/6/A)00... + 1 1/4" end-connectors	1-1/4 (32)	39.2 (33.9)	2,103 (59.6)	2,103,000	616	0	25 (1.7)	30 (2.1)
_158A(5/6/A)14... or _158A(5/6/A)00... + 1 1/2" end-connectors	1-1/2 (40)	46.7 (40.4)	2,503 (70.9)	2,503,000	734	0	25 (1.7)	30 (2.1)
_158A(5/6/A)16... or _158A(5/6/A)00... + 2" end-connectors	2 (50)	53.6 (46.4)	2,874 (81.4)	2,874,000	842	0	25 (1.7)	30 (2.1)
_158A(5/6/A)36... or _158A(5/6/A)01... + 2" end-connectors	2 High Flow (50)	84.6 (73.2)	4,539 (128.5)	4,538,500	1,330	0	25 (1.7)	30 (2.1)
_158A(5/6/A)18... or _158A(5/6/A)01... + 2 1/2" end-connectors	2-1/2 (65)	99.7 (86.2)	5,349 (151.5)	5,349,000	1,568	0	25 (1.7)	30 (2.1)
_158A(5/6/A)20... or _158A(5/6/A)01... + 3" end-connectors	3 (80)	112.9 (97.6)	6,057 (171.5)	6,057,000	1,775	0	25 (1.7)	30 (2.1)
Valve 1: Standard or Overtravel | Valve 2 with LINEAR TRIM: Standard or Overtravel								
_158A(7/8/C)11... or _158A(7/8/C)00... + 3/4" end-connectors	3/4 (20)	15.4 (13.3)	826 (23.4)	826,000	242.0	0	25 (1.7)	30 (2.1)
_158A(7/8/C)12... or _158A(7/8/C)00... + 1" end-connectors	1 (25)	22.3 (19.3)	1,196 (33.9)	1,196,000	350.4	0	25 (1.7)	30 (2.1)
_158A(7/8/C)13... or _158A(7/8/C)00... + 1 1/4" end-connectors	1-1/4 (32)	32.7 (28.3)	1,754 (49.7)	1,754,000	513.9	0	25 (1.7)	30 (2.1)
_158A(7/8/C)14... or _158A(7/8/C)00... + 1 1/2" end-connectors	1-1/2 (40)	39 (33.7)	2,092 (59.2)	2,092,000	613.0	0	25 (1.7)	30 (2.1)
_158A(7/8/C)16... or _158A(7/8/C)00... + 2" end-connectors	2 (50)	47 (40.6)	2,521 (71.4)	2,521,000	738.7	0	25 (1.7)	30 (2.1)
_158A(7/8/C)36... or _158A(7/8/C)01... + 2" end-connectors	2 High Flow (50)	73 (63.1)	3,916 (110.9)	3,916,000	1,147.4	0	25 (1.7)	30 (2.1)
_158A(7/8/C)18... or _158A(7/8/C)01... + 2 1/2" end-connectors	2-1/2 (65)	88 (76.1)	4,721 (133.7)	4,721,000	1,383.3	0	25 (1.7)	30 (2.1)
_158A(7/8/C)20... or _158A(7/8/C)01... + 3" end-connectors	3 (80)	94 (81.3)	5,043 (142.8)	5,043,000	1,477.6	0	25 (1.7)	30 (2.1)

① Capacity value is based on a gas having a heating value of 1000 Btu/Cu. ft. and a specific gravity of 0.64 at 2" W.C. inlet pressure per 1.0" W.C. Pressure Drop. (per CSA Approval)

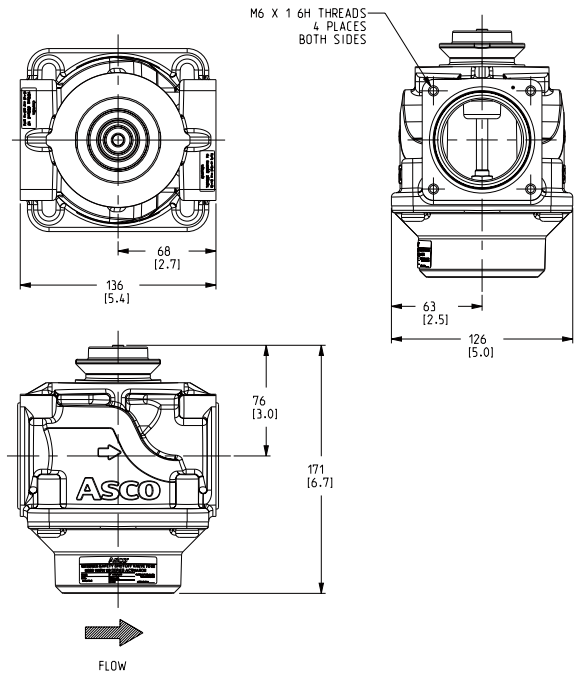
Single Valve

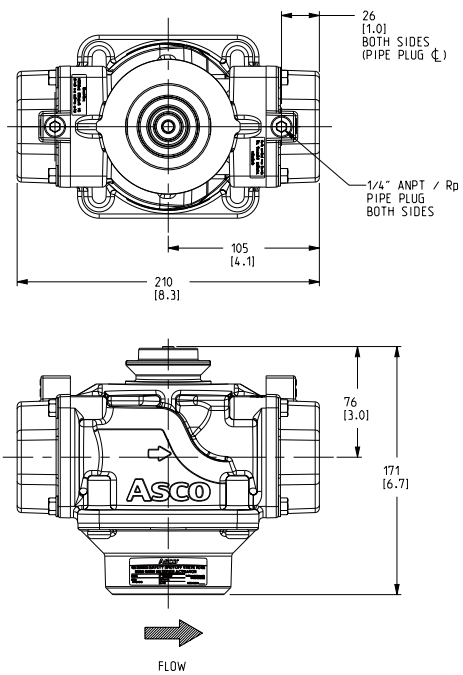
Base Catalog Number	Pipe Size (Main) in (mm)	Flow Factor Cv (Kv = m^3/h)	Flow Capacity Ft^3/Hr (m^3/h) ①	Gas Capacity BTU/Hr ①	Heat Output Capacity kW ①	Operating Pressure Differential		Close-Off Pressure psi (bar)
						Minimum psi (bar)	Maximum psi (bar)	
Standard or Overtravel , NO LINEAR TRIM								
_158A(1/2)11... or _158A(1/2)00... + 3/4" end-connectors	3/4 (20)	18.2 (15.7)	974 (27.6)	974,000	285	0	25 (1.7)	75 (5.2)
_158A(1/2)12... or _158A(1/2)00... + 1" end-connectors	1 (25)	30.1 (26.0)	1,613 (45.7)	1,613,000	473	0	25 (1.7)	75 (5.2)
_158A(1/2)13... or _158A(1/2)00... + 1 1/4" end-connectors	1-1/4 (32)	49.8 (43.1)	2,671 (75.6)	2,671,000	783	0	25 (1.7)	75 (5.2)
_158A(1/2)14... or _158A(1/2)00... + 1 1/2" end-connectors	1-1/2 (40)	58.6 (50.7)	3,143 (89.0)	3,143,000	921	0	25 (1.7)	75 (5.2)
_158A(1/2)16... or _158A(1/2)00... + 2" end-connectors	2 (50)	72.3 (62.5)	3,878 (109.8)	3,878,000	1,137	0	25 (1.7)	75 (5.2)
_158A(1/2)36... or _158A(1/2)01... + 2" end-connectors	2 High Flow (50)	95.4 (82.5)	5,118 (144.9)	5,118,000	1,500	0	25 (1.7)	50 (3.4)
_158A(5/6/A)18... or _158A(5/6/A)01... + 2 1/2" end-connectors	2-1/2 (65)	124.7 (107.9)	6,690 (189.5)	6,690,000	1,961	0	25 (1.7)	50 (3.4)
_158A(1/2)20... or _158A(1/2)01... + 3" end-connectors	3 (80)	145.8 (126.1)	7,822 (221.5)	7,822,000	2,292	0	25 (1.7)	50 (3.4)
Standard or Overtravel , with LINEAR TRIM								
_158A(3/4)11... or _158A(3/4)00... + 3/4" end-connectors	3/4 (20)	15.8 (13.7)	847 (24)	847,000	248.2	0	25 (1.7)	75 (5.2)
_158A(3/4)12... or _158A(3/4)00... + 1" end-connectors	1 (25)	24.5 (21.2)	1,314 (37.2)	1,314,000	385.0	0	25 (1.7)	75 (5.2)
_158A(3/4)13... or _158A(3/4)00... + 1 1/4" end-connectors	1-1/4 (32)	37.5 (32.4)	2,012 (57)	2,012,000	589.5	0	25 (1.7)	75 (5.2)
_158A(3/4)14... or _158A(3/4)00... + 1 1/2" end-connectors	1-1/2 (40)	46.5 (40.2)	2,494 (70.6)	2,494,000	730.7	0	25 (1.7)	75 (5.2)
_158A(3/4)16... or _158A(3/4)00... + 2" end-connectors	2 (50)	59 (51)	3,165 (89.6)	3,165,000	927.3	0	25 (1.7)	75 (5.2)
_158A(3/4)36... or _158A(3/4)01... + 2" end-connectors	2 High Flow (50)	87 (75.2)	4,667 (132.2)	4,667,000	1,367.4	0	25 (1.7)	50 (3.4)
_158A(3/4)18... or _158A(3/4)01... + 2 1/2" end-connectors	2-1/2 (65)	110 (95.1)	5,901 (167.1)	5,901,000	1,729.0	0	25 (1.7)	50 (3.4)
_158A(3/4)20... or _158A(3/4)01... + 3" end-connectors	3 (80)	120 (103.8)	6,437 (182.3)	6,437,000	1,886.0	0	25 (1.7)	50 (3.4)

① Capacity value is based on a gas having a heating value of 1000 Btu/Cu. ft. and a specific gravity of 0.64 at 2" W.C. inlet pressure per 1.0" W.C. Pressure Drop. (per CSA Approval)

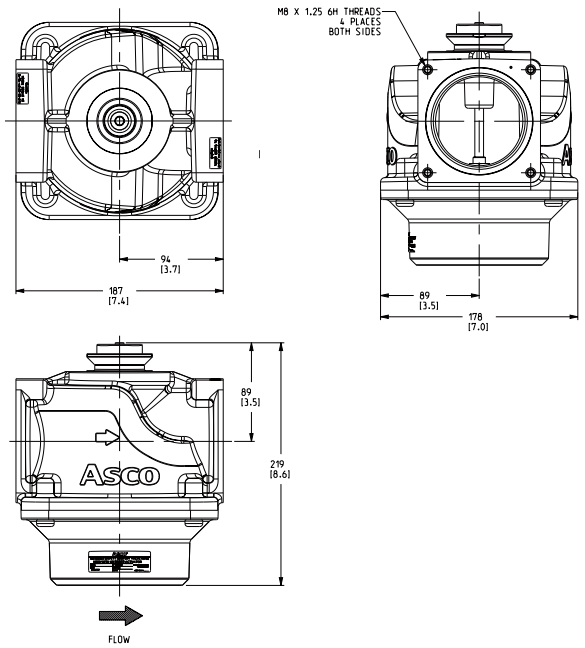
Dimensions: mm (inches)

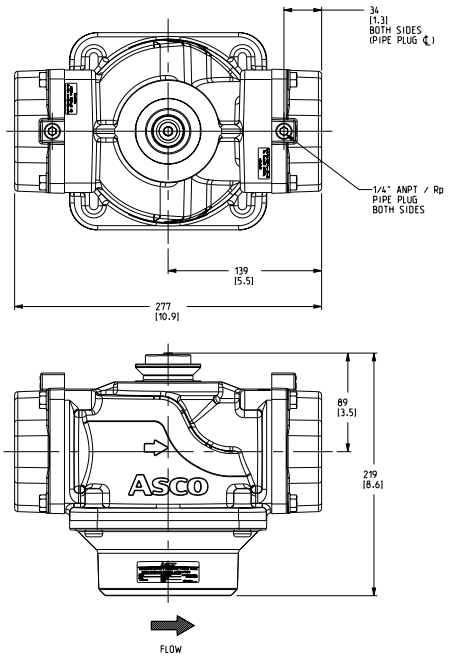
Single Valve - ¾", 1", 1 ¼", 1 ½" and 2"





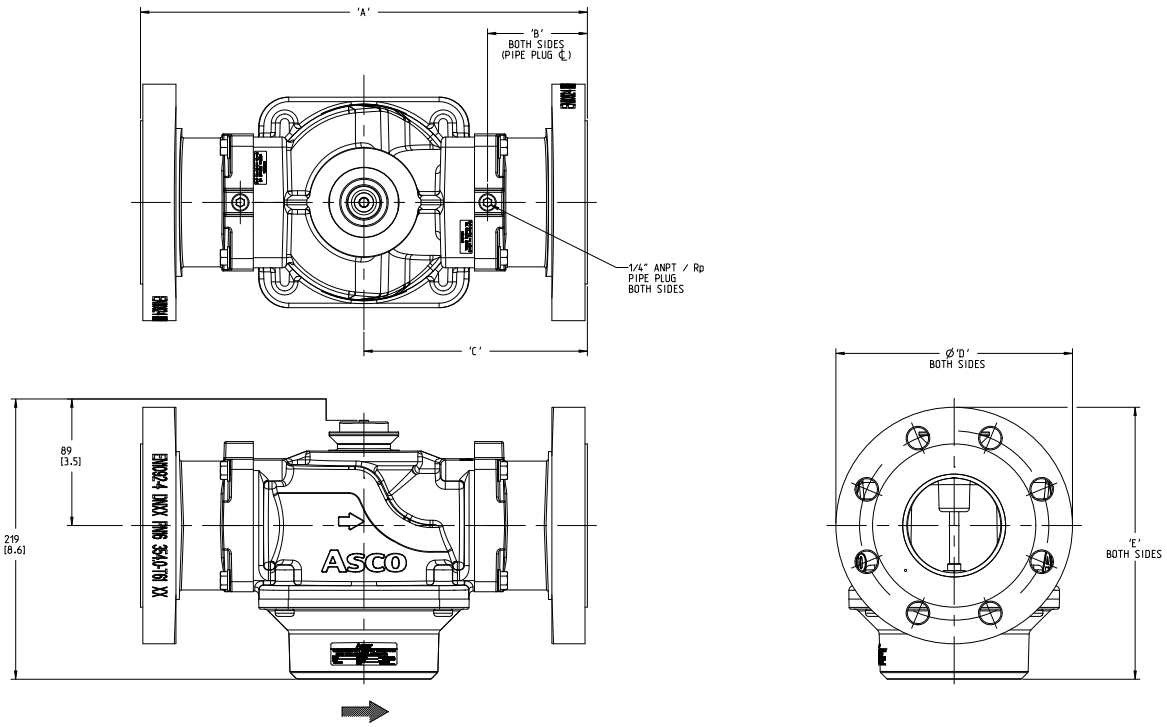
Single Valve - 2" High Flow, 2 ½" and 3"





Dimensions: mm (inches)

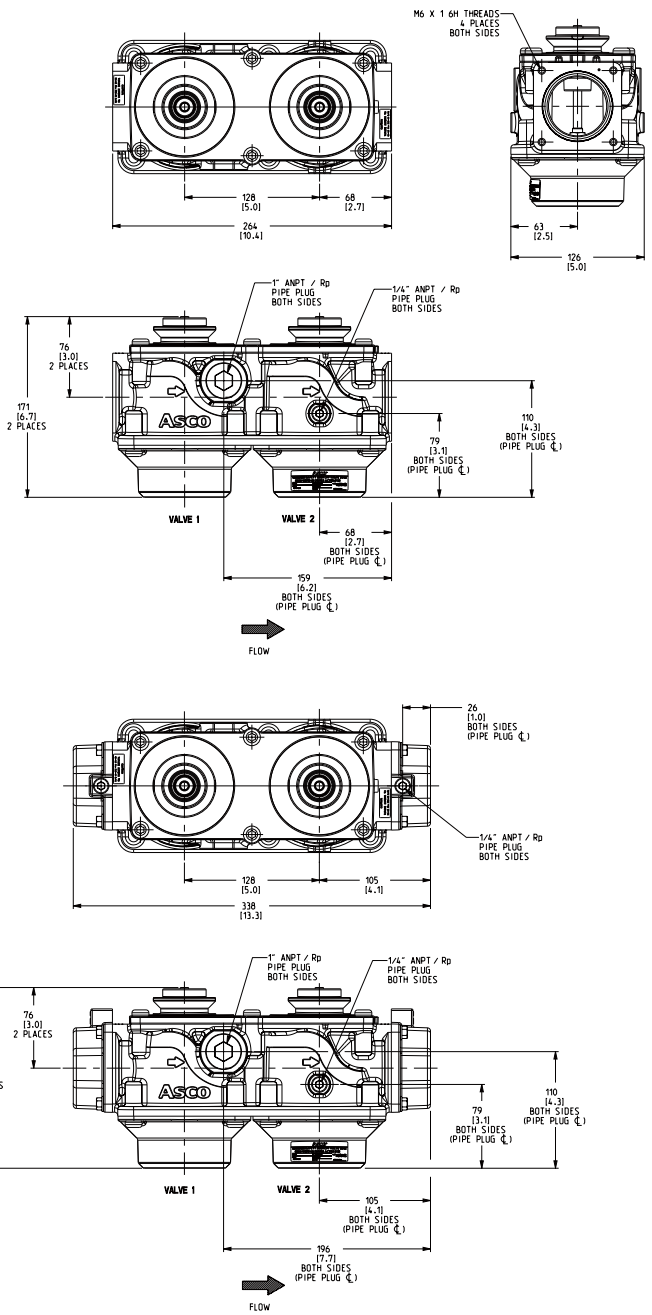
Single Valve with Flanges - 2" High Flow, 2 1/2" and 3"



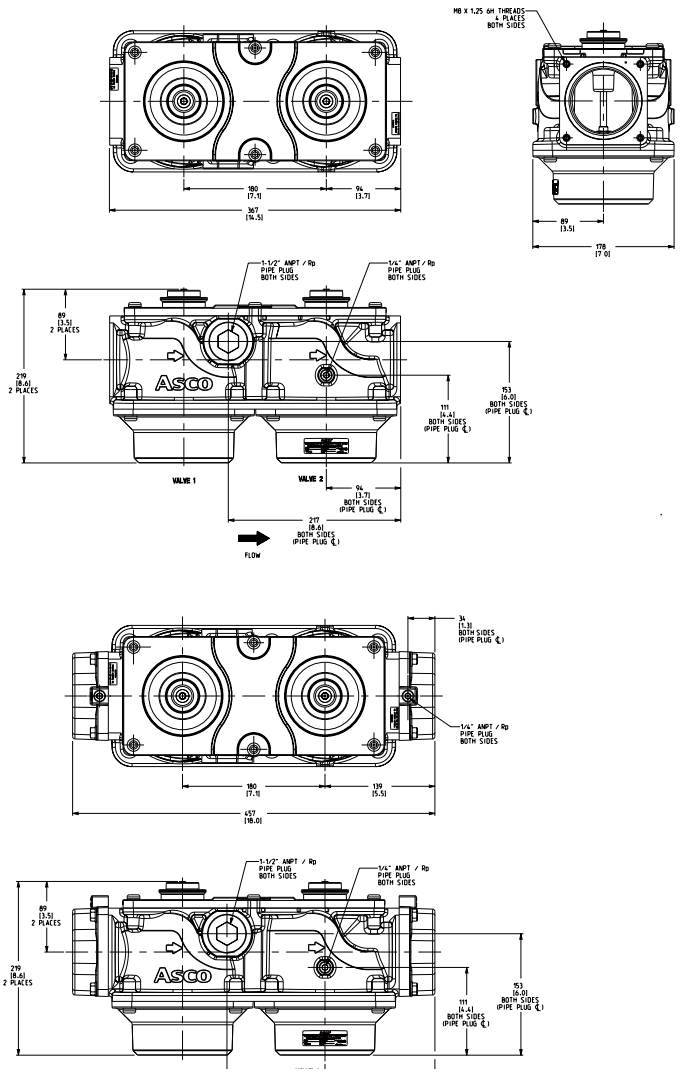
Flange Std.	DN Size	Nominal Pipe Size	A	B	C	Ø D	E
EN-1092-4	80	-	378 [14.9]	84 [3.3]	189 [7.4]	200 [7.9]	230 [9.1]
	65	-	389 [15.3]	90 [3.5]	194 [7.6]	185 [7.3]	223 [8.8]
	50	-	389 [15.3]	90 [3.5]	194 [7.6]	165 [6.5]	213 [8.4]
ASME B16.5	-	3"	377 [14.8]	84 [3.3]	188 [7.4]	190 [7.5]	225 [8.9]
	-	2-1/2"	388 [15.3]	89 [3.5]	194 [7.6]	180 [7.1]	220 [8.7]
	-	2"	388 [15.3]	89 [3.5]	194 [7.6]	152 [6.0]	206 [8.1]

Dimensions: mm (inches)

Double Valve - ¾", 1", 1 ¼", 1 ½" and 2"

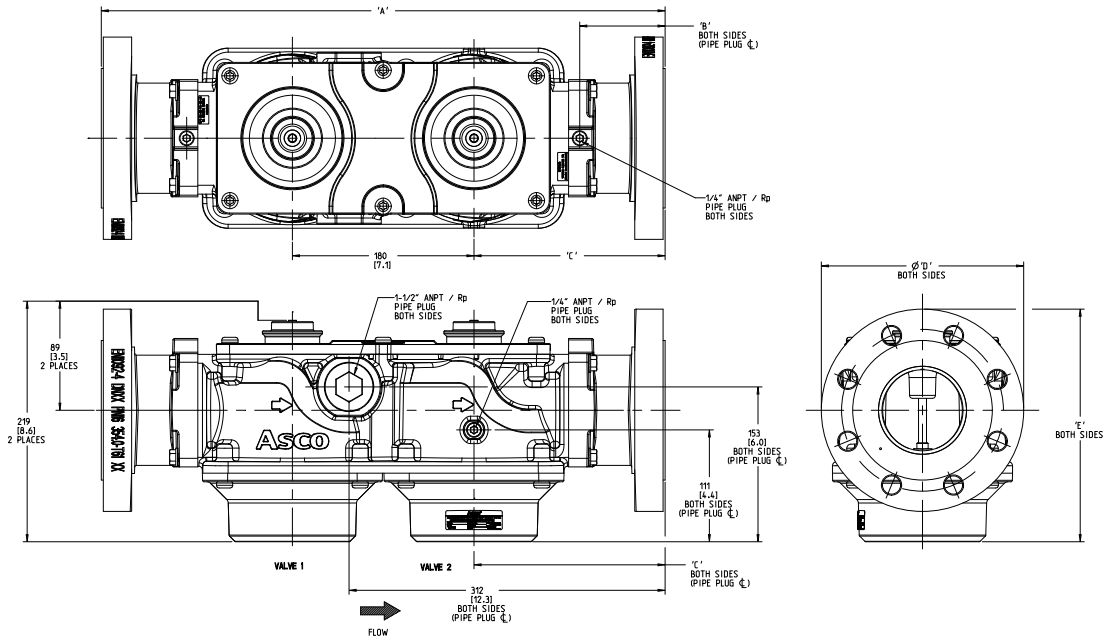


Double Valve - 2" High Flow, 2 ½" and 3"



Dimensions: mm (inches)

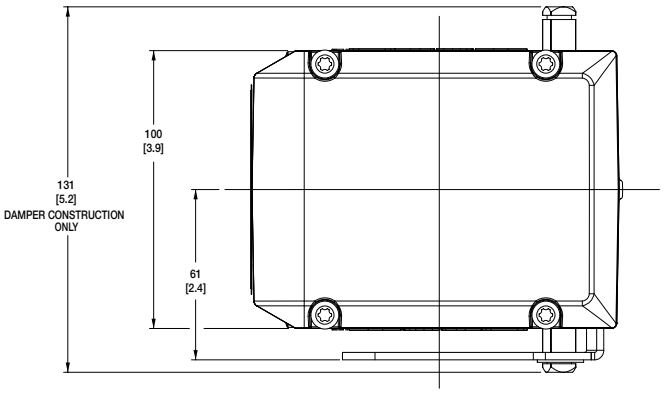
Double Monoblock Valve with Flanges - 2" High Flow, 2 1/2" and 3"

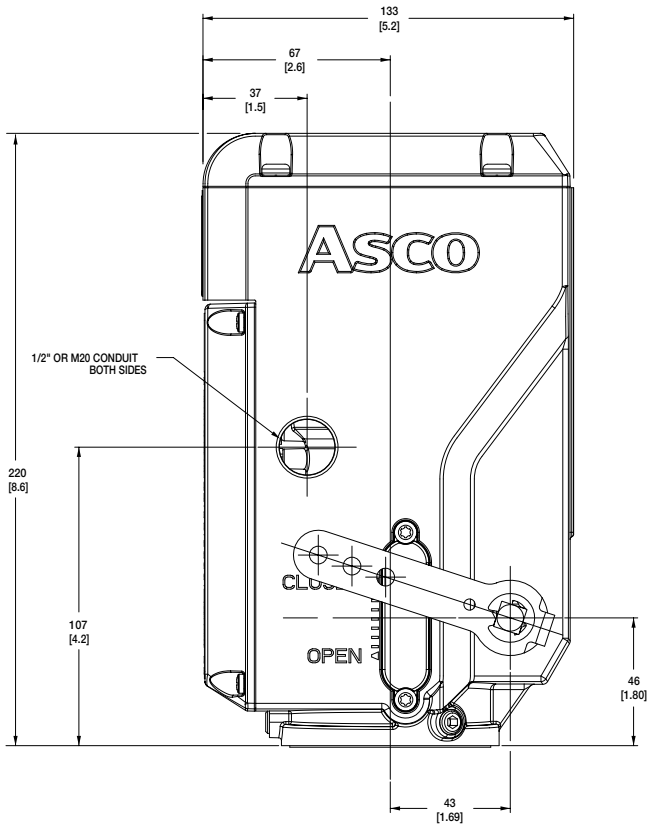


Flange Std.	DN Size	Nominal Pipe Size	A	B	C	Ø D	E
EN-1092-4	80	-	557 [21.9]	84 [3.3]	189 [7.4]	200 [7.9]	230 [9.1]
	65	-	568 [22.4]	90 [3.5]	194 [7.6]	185 [7.3]	223 [8.8]
	50	-	568 [22.4]	90 [3.5]	194 [7.6]	165 [6.5]	213 [8.4]
ASME B16.5	-	3"	556 [21.9]	84 [3.3]	188 [7.4]	190 [7.5]	225 [8.9]
	-	2-1/2"	567 [22.3]	89 [3.5]	194 [7.6]	180 [7.1]	220 [8.7]
	-	2"	567 [22.3]	89 [3.5]	194 [7.6]	152 [6.0]	206 [8.1]

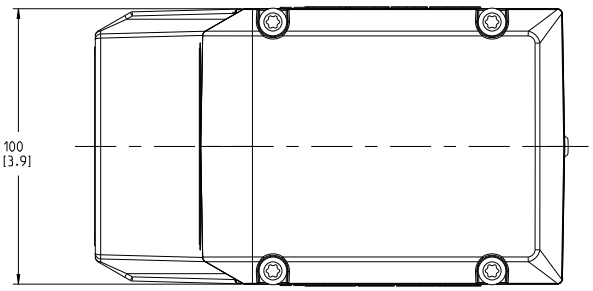
Dimensions: mm (inches)

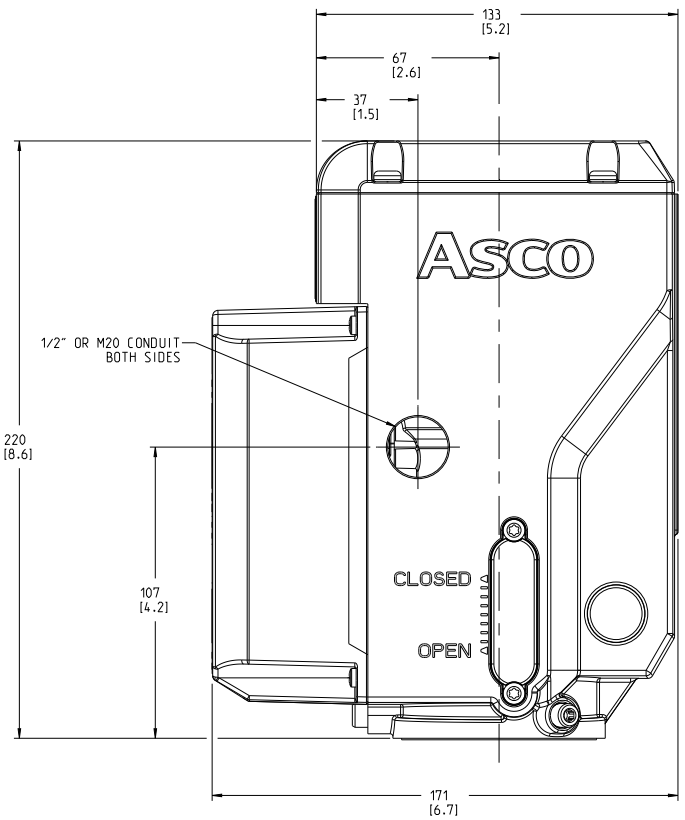
Series P159 ON/OFF & HIGH/LOW/OFF with damper Shaft & Arm





Series P159 Pressure Regulating Actuator

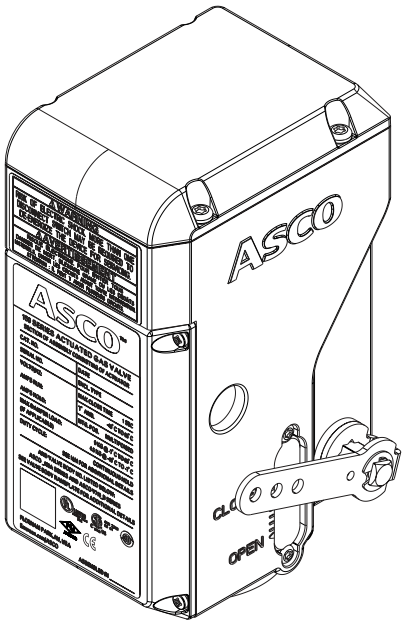




Actuator View



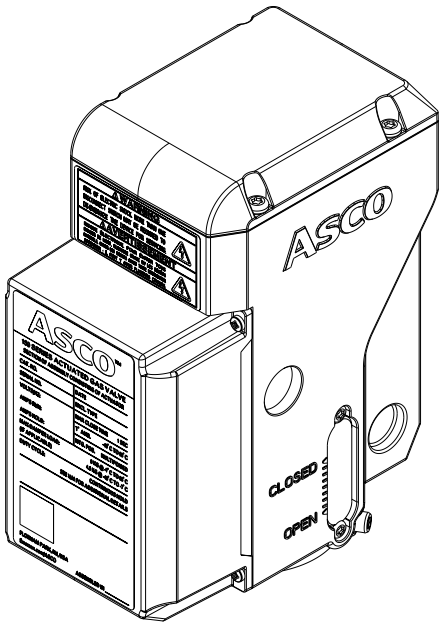
CONSTRUCTION 1 - MECHANICAL OPTION X0
CONSTRUCTION WITHOUT DAMPER



CONSTRUCTION 2 - MECHANICAL OPTION X1
CONSTRUCTION WITH DAMPER SHAFT WITH ARM



CONSTRUCTION 3 - MECHANICAL OPTION X2
CONSTRUCTION WITH DAMPER SHAFT



CONSTRUCTION 4 - ACTUATOR WITH PRESSURE REGULATING FUNCTION

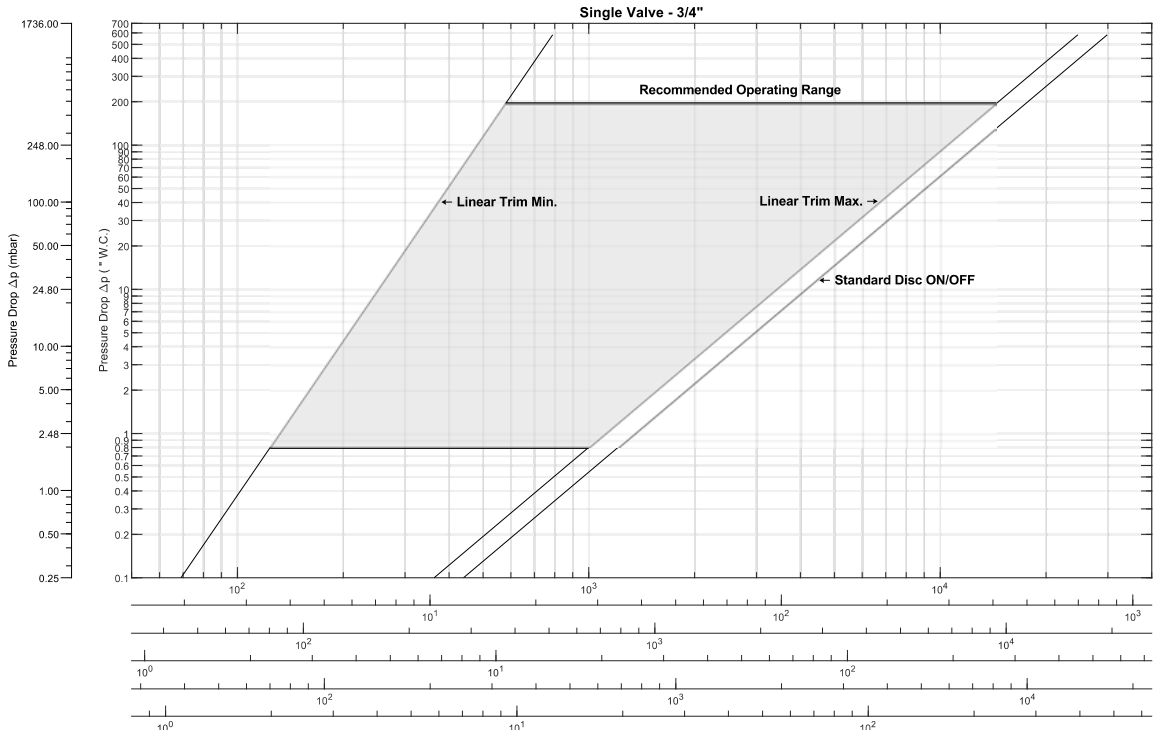
Annex 1: Sensor Selection

	576901-1			576901-2			576901-3			576901-4			576901-5			576901-6		
Sensor Measuring Range →	**0 to 1 PSI (69 Mbar)**			**0 to 160 Mbar (2.3 PSI)**			**0 to 5 PSI (345 Mbar)**			**0 to 10 PSI (689 Mbar)**			**0 to 15 PSI (1,000 Mbar)**			**0 to 25 PSI (1,700 Mbar)**		
Max Safety Pressure →	**Max 3 PSI (206 Mbar)**			**Max 14.5 PSI (1,000 Mbar)**			**Max 14.5 PSI (965 Mbar)**			**Max 45 PSI (3 Mbar)**			**Max 45 PSI (3 Mbar)**			**Max 50 PSI (3.4 Mbar)**		
Set Point ↓	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**
1%	0.01	0.7	0.3	0.02	1.6	0.6	0.05	3.4	1.4	0.1	6.9	2.8	0.2	10.3	4.2	0.3	17.2	6.9
2%	0.02	1.4	0.6	0.05	3.2	1.3	0.10	6.9	2.8	0.2	13.8	5.5	0.3	20.7	8.3	0.5	34.5	13.9
3%	0.03	2.1	0.8	0.07	4.8	1.9	0.15	10.3	4.2	0.3	20.7	8.3	0.5	31.0	12.5	0.8	51.7	20.8
4%	0.04	2.8	1.1	0.09	6.4	2.6	0.20	13.8	5.5	0.4	27.6	11.1	0.6	41.4	16.6	1.0	68.9	27.7
5%	0.05	3.4	1.4	0.12	8.0	3.2	0.25	17.2	6.9	0.5	34.5	13.9	0.8	51.7	20.8	1.3	86.2	34.6
6%	0.06	4.1	1.7	0.14	9.6	3.9	0.30	20.7	8.3	0.6	41.4	16.6	0.9	62.1	24.9	1.5	103.4	41.6
7%	0.07	4.8	1.9	0.16	11.2	4.5	0.35	24.1	9.7	0.7	48.3	19.4	1.1	72.4	29.1	1.8	120.7	48.5
8%	0.08	5.5	2.2	0.19	12.8	5.1	0.40	27.6	11.1	0.8	55.2	22.2	1.2	82.7	33.2	2.0	137.9	55.4
9%	0.09	6.2	2.5	0.21	14.4	5.8	0.45	31.0	12.5	0.9	62.1	24.9	1.4	93.1	37.4	2.3	155.1	62.3
10%	0.1	6.9	2.8	0.23	16.0	6.4	0.50	34.5	13.9	1.0	69.0	27.7	1.5	103.4	41.6	2.5	172.4	69.3
11%	0.11	7.6	3.0	0.26	17.6	7.1	0.55	37.9	15.2	1.1	75.8	30.5	1.7	113.8	45.7	2.8	189.6	76.2
12%	0.12	8.3	3.3	0.28	19.2	7.7	0.60	41.4	16.6	1.2	82.7	33.2	1.8	124.1	49.9	3.0	206.8	83.1
13%	0.13	9.0	3.6	0.30	20.8	8.4	0.65	44.8	18.0	1.3	89.6	36.0	2.0	134.4	54.0	3.3	224.1	90.1
14%	0.14	9.7	3.9	0.32	22.4	9.0	0.70	48.3	19.4	1.4	96.5	38.8	2.1	144.8	58.2	3.5	241.3	97.0
15%	0.15	10.3	4.2	0.35	24.0	9.6	0.75	51.7	20.8	1.5	103.4	41.6	2.3	155.1	62.3	3.8	258.6	103.9
16%	0.16	11.0	4.4	0.37	25.6	10.3	0.80	55.2	22.2	1.6	110.3	44.3	2.4	165.5	66.5	4.0	275.8	110.8
17%	0.17	11.7	4.7	0.39	27.2	10.9	0.85	58.6	23.6	1.7	117.2	47.1	2.6	175.8	70.7	4.3	293.0	117.8
18%	0.18	12.4	5.0	0.42	28.8	11.6	0.90	62.1	24.9	1.8	124.1	49.9	2.7	186.2	74.8	4.5	310.3	124.7
19%	0.19	13.1	5.3	0.44	30.4	12.2	0.95	65.5	26.3	1.9	131.0	52.6	2.9	196.5	79.0	4.8	327.5	131.6
20%	0.2	13.8	5.5	0.46	32.0	12.9	1.00	69.0	27.7	2.0	137.9	55.4	3.0	206.8	83.1	5.0	344.7	138.5
21%	0.21	14.5	5.8	0.49	33.6	13.5	1.05	72.4	29.1	2.1	144.8	58.2	3.2	217.2	87.3	5.3	362.0	145.5
22%	0.22	15.2	6.1	0.51	35.2	14.1	1.10	75.8	30.5	2.2	151.7	61.0	3.3	227.5	91.4	5.5	379.2	152.4
23%	0.23	15.9	6.4	0.53	36.8	14.8	1.15	79.3	31.9	2.3	158.6	63.7	3.5	237.9	95.6	5.8	396.4	159.3
24%	0.24	16.5	6.6	0.56	38.4	15.4	1.20	82.7	33.2	2.4	165.5	66.5	3.6	248.2	99.7	6.0	413.7	166.2
25%	0.25	17.2	6.9	0.58	40.0	16.1	1.25	86.2	34.6	2.5	172.4	69.3	3.8	258.6	103.9	6.3	430.9	173.2
26%	0.26	17.9	7.2	0.60	41.6	16.7	1.30	89.6	36.0	2.6	179.3	72.0	3.9	268.9	108.1	6.5	448.2	180.1
27%	0.27	18.6	7.5	0.63	43.2	17.4	1.35	93.1	37.4	2.7	186.2	74.8	4.1	279.2	112.2	6.8	465.4	187.0
28%	0.28	19.3	7.8	0.65	44.8	18.0	1.40	96.5	38.8	2.8	193.1	77.6	4.2	289.6	116.4	7.0	482.6	194.0
29%	0.29	20.0	8.0	0.67	46.4	18.6	1.45	100.0	40.2	2.9	200.0	80.4	4.4	299.9	120.5	7.3	499.9	200.9
30%	0.3	20.7	8.3	0.70	48.0	19.3	1.50	103.4	41.6	3.0	206.9	83.1	4.5	310.3	124.7	7.5	517.1	207.8
31%	0.31	21.4	8.6	0.72	49.6	19.9	1.55	106.9	42.9	3.1	213.8	85.9	4.7	320.6	128.8	7.8	534.3	214.7
32%	0.32	22.1	8.9	0.74	51.2	20.6	1.60	110.3	44.3	3.2	220.7	88.7	4.8	330.9	133.0	8.0	551.6	221.7
33%	0.33	22.8	9.1	0.77	52.8	21.2	1.65	113.8	45.7	3.3	227.5	91.4	5.0	341.3	137.2	8.3	568.8	228.6
34%	0.34	23.4	9.4	0.79	54.4	21.9	1.70	117.2	47.1	3.4	234.4	94.2	5.1	351.6	141.3	8.5	586.1	235.5
35%	0.35	24.1	9.7	0.81	56.0	22.5	1.75	120.7	48.5	3.5	241.3	97.0	5.3	362.0	145.5	8.8	603.3	242.4
36%	0.36	24.8	10.0	0.84	57.6	23.1	1.80	124.1	49.9	3.6	248.2	99.7	5.4	372.3	149.6	9.0	620.5	249.4
37%	0.37	25.5	10.3	0.86	59.2	23.8	1.85	127.6	51.3	3.7	255.1	102.5	5.6	382.7	153.8	9.3	637.8	256.3
38%	0.38	26.2	10.5	0.88	60.8	24.4	1.90	131.0	52.6	3.8	262.0	105.3	5.7	393.0	157.9	9.5	655.0	263.2
39%	0.39	26.9	10.8	0.90	62.4	25.1	1.95	134.5	54.0	3.9	268.9	108.1	5.9	403.3	162.1	9.8	672.2	270.2
40%	0.4	27.6	11.1	0.93	64.0	25.7	2.00	137.9	55.4	4.0	275.8	110.8	6.0	413.7	166.2	10.0	689.5	277.1
41%	0.41	28.3	11.4	0.95	65.6	26.4	2.05	141.4	56.8	4.1	282.7	113.6	6.2	424.0	170.4	10.3	706.7	284.0
42%	0.42	29.0	11.6	0.97	67.2	27.0	2.10	144.8	58.2	4.2	289.6	116.4	6.3	434.4	174.6	10.5	723.9	290.9
43%	0.43	29.6	11.9	1.00	68.8	27.6	2.15	148.3	59.6	4.3	296.5	119.1	6.5	444.7	178.7	10.8	741.2	297.9
44%	0.44	30.3	12.2	1.02	70.4	28.3	2.20	151.7	61.0	4.4	303.4	121.9	6.6	455.1	182.9	11.0	758.4	304.8
45%	0.45	31.0	12.5	1.04	72.0	28.9	2.25	155.1	62.3	4.5	310.3	124.7	6.8	465.4	187.0	11.3	775.7	311.7
46%	0.46	31.7	12.7	1.07	73.6	29.6	2.30	158.6	63.7	4.6	317.2	127.5	6.9	475.7	191.2	11.5	792.9	318.6
47%	0.47	32.4	13.0	1.09	75.2	30.2	2.35	162.0	65.1	4.7	324.1	130.2	7.1	486.1	195.3	11.8	810.1	325.6
48%	0.48	33.1	13.3	1.11	76.8	30.9	2.40	165.5	66.5	4.8	331.0	133.0	7.2	496.4	199.5	12.0	827.4	332.5
49%	0.49	33.8	13.6	1.14	78.4	31.5	2.45	168.9	67.9	4.9	337.9	135.8	7.4	506.8	203.7	12.3	844.6	339.4
50%	0.5	34.5	13.9	1.16	80.0	32.1	2.50	172.4	69.3	5.0	344.8	138.5	7.5	517.1	207.8	12.5	861.8	346.4

	576901-1			576901-2			576901-3			576901-4			576901-5			576901-6		
Sensor Measuring Range →	**0 to 1 PSI (69 Mbar)**			**0 to 160 Mbar (2.3 PSI)**			**0 to 5 PSI (345 Mbar)**			**0 to 10 PSI (689 Mbar)**			**0 to 15 PSI (1,000 Mbar)**			**0 to 25 PSI (1,700 Mbar)**		
Max Safety Pressure →	**Max 3 PSI (206 Mbar)**			**Max 14.5 PSI (1,000 Mbar)**			**Max 14.5 PSI (965 Mbar)**			**Max 45 PSI (3 Mbar)**			**Max 45 PSI (3 Mbar)**			**Max 50 PSI (3.4 Mbar)**		
Set Point ↓	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**	**PSI**	**Mbar**	**WC**
51%	0.51	35.2	14.1	1.18	81.6	32.8	2.55	175.8	70.7	5.1	351.7	141.3	7.7	527.4	212.0	12.8	879.1	353.3
52%	0.52	35.8	14.4	1.21	83.2	33.4	2.60	179.3	72.0	5.2	358.6	144.1	7.8	537.8	216.1	13.0	896.3	360.2
53%	0.53	36.5	14.7	1.23	84.8	34.1	2.65	182.7	73.4	5.3	365.5	146.9	8.0	548.1	220.3	13.3	913.6	367.1
54%	0.54	37.2	15.0	1.25	86.4	34.7	2.70	186.2	74.8	5.4	372.4	149.6	8.1	558.5	224.4	13.5	930.8	374.1
55%	0.55	37.9	15.2	1.28	88.0	35.4	2.75	189.6	76.2	5.5	379.2	152.4	8.3	568.8	228.6	13.8	948.0	381.0
56%	0.56	38.6	15.5	1.30	89.6	36.0	2.80	193.1	77.6	5.6	386.1	155.2	8.4	579.2	232.7	14.0	965.3	387.9
57%	0.57	39.3	15.8	1.32	91.2	36.6	2.85	196.5	79.0	5.7	393.0	157.9	8.6	589.5	236.9	14.3	982.5	394.8
58%	0.58	40.0	16.1	1.35	92.8	37.3	2.90	200.0	80.4	5.8	399.9	160.7	8.7	599.8	241.1	14.5	999.7	401.8
59%	0.59	40.7	16.3	1.37	94.4	37.9	2.95	203.4	81.7	5.9	406.8	163.5	8.9	610.2	245.2	14.8	1017.0	408.7
60%	0.6	41.4	16.6	1.39	96.0	38.6	3.00	206.9	83.1	6.0	413.7	166.2	9.0	620.5	249.4	15.0	1034.2	415.6
61%	0.61	42.1	16.9	1.42	97.6	39.2	3.05	210.3	84.5	6.1	420.6	169.0	9.2	630.9	253.5	15.3	1051.5	422.5
62%	0.62	42.7	17.2	1.44	99.2	39.9	3.10	213.8	85.9	6.2	427.5	171.8	9.3	641.2	257.7	15.5	1068.7	429.5
63%	0.63	43.4	17.5	1.46	100.8	40.5	3.15	217.2	87.3	6.3	434.4	174.6	9.5	651.6	261.8	15.8	1085.9	436.4
64%	0.64	44.1	17.7	1.48	102.4	41.1	3.20	220.7	88.7	6.4	441.3	177.3	9.6	661.9	266.0	16.0	1103.2	443.3
65%	0.65	44.8	18.0	1.51	104.0	41.8	3.25	224.1	90.1	6.5	448.2	180.1	9.8	672.2	270.2	16.3	1120.4	450.3
66%	0.66	45.5	18.3	1.53	105.6	42.4	3.30	227.5	91.4	6.6	455.1	182.9	9.9	682.6	274.3	16.5	1137.6	457.2
67%	0.67	46.2	18.6	1.55	107.2	43.1	3.35	231.0	92.8	6.7	462.0	185.6	10.1	692.9	278.5	16.8	1154.9	464.1
68%	0.68	46.9	18.8	1.58	108.8	43.7	3.40	234.4	94.2	6.8	468.9	188.4	10.2	703.3	282.6	17.0	1172.1	471.0
69%	0.69	47.6	19.1	1.60	110.4	44.4	3.45	237.9	95.6	6.9	475.8	191.2	10.4	713.6	286.8	17.3	1189.3	478.0
70%	0.7	48.3	19.4	1.62	112.0	45.0	3.50	241.3	97.0	7.0	482.7	194.0	10.5	723.9	290.9	17.5	1206.6	484.9
71%	0.71	48.9	19.7	1.65	113.6	45.6	3.55	244.8	98.4	7.1	489.6	196.7	10.7	734.3	295.1	17.8	1223.8	491.8
72%	0.72	49.6	19.9	1.67	115.2	46.3	3.60	248.2	99.7	7.2	496.5	199.5	10.8	744.6	299.2	18.0	1241.1	498.7
73%	0.73	50.3	20.2	1.69	116.8	46.9	3.65	251.7	101.1	7.3	503.4	202.3	11.0	755.0	303.4	18.3	1258.3	505.7
74%	0.74	51.0	20.5	1.72	118.4	47.6	3.70	255.1	102.5	7.4	510.3	205.0	11.1	765.3	307.6	18.5	1275.5	512.6
75%	0.75	51.7	20.8	1.74	120.0	48.2	3.75	258.6	103.9	7.5	517.2	207.8	11.3	775.7	311.7	18.8	1292.8	519.5
76%	0.76	52.4	21.1	1.76	121.6	48.9	3.80	262.0	105.3	7.6	524.1	210.6	11.4	786.0	315.9	19.0	1310.0	526.5
77%	0.77	53.1	21.3	1.79	123.2	49.5	3.85	265.5	106.7	7.7	530.9	213.4	11.6	796.3	320.0	19.3	1327.2	533.4
78%	0.78	53.8	21.6	1.81	124.8	50.1	3.90	268.9	108.1	7.8	537.8	216.1	11.7	806.7	324.2	19.5	1344.5	540.3
79%	0.79	54.5	21.9	1.83	126.4	50.8	3.95	272.4	109.4	7.9	544.7	218.9	11.9	817.0	328.3	19.8	1361.7	547.2
80%	0.8	55.2	22.2	1.86	128.0	51.4	4.00	275.8	110.8	8.0	551.6	221.7	12.0	827.4	332.5	20.0	1379.0	554.2
81%	0.81	55.8	22.4	1.88	129.6	52.1	4.05	279.3	112.2	8.1	558.5	224.4	12.2	837.7	336.7	20.3	1396.2	561.1
82%	0.82	56.5	22.7	1.90	131.2	52.7	4.10	282.7	113.6	8.2	565.4	227.2	12.3	848.1	340.8	20.5	1413.4	568.0
83%	0.83	57.2	23.0	1.93	132.8	53.4	4.15	286.2	115.0	8.3	572.3	230.0	12.5	858.4	345.0	20.8	1430.7	574.9
84%	0.84	57.9	23.3	1.95	134.4	54.0	4.20	289.6	116.4	8.4	579.2	232.7	12.6	868.7	349.1	21.0	1447.9	581.9
85%	0.85	58.6	23.6	1.97	136.0	54.6	4.25	293.1	117.8	8.5	586.1	235.5	12.8	879.1	353.3	21.3	1465.1	588.8
86%	0.86	59.3	23.8	2.00	137.6	55.3	4.30	296.5	119.1	8.6	593.0	238.3	12.9	889.4	357.4	21.5	1482.4	595.7
87%	0.87	60.0	24.1	2.02	139.2	55.9	4.35	299.9	120.5	8.7	599.9	241.1	13.1	899.8	361.6	21.8	1499.6	602.6
88%	0.88	60.7	24.4	2.04	140.8	56.6	4.40	303.4	121.9	8.8	606.8	243.8	13.2	910.1	365.7	22.0	1516.8	609.6
89%	0.89	61.4	24.7	2.06	142.4	57.2	4.45	306.8	123.3	8.9	613.7	246.6	13.4	920.4	369.9	22.3	1534.1	616.5
90%	0.9	62.0	24.9	2.09	144.0	57.9	4.50	310.3	124.7	9.0	620.6	249.4	13.5	930.8	374.1	22.5	1551.3	623.4
91%	0.91	62.7	25.2	2.11	145.6	58.5	4.55	313.7	126.1	9.1	627.5	252.1	13.7	941.1	378.2	22.8	1568.6	630.4
92%	0.92	63.4	25.5	2.13	147.2	59.1	4.60	317.2	127.5	9.2	634.4	254.9	13.8	951.5	382.4	23.0	1585.8	637.3
93%	0.93	64.1	25.8	2.16	148.8	59.8	4.65	320.6	128.8	9.3	641.3	257.7	14.0	961.8	386.5	23.3	1603.0	644.2
94%	0.94	64.8	26.0	2.18	150.4	60.4	4.70	324.1	130.2	9.4	648.2	260.5	14.1	972.2	390.7	23.5	1620.3	651.1
95%	0.95	65.5	26.3	2.20	152.0	61.1	4.75	327.5	131.6	9.5	655.1	263.2	14.3	982.5	394.8	23.8	1637.5	658.1
96%	0.96	66.2	26.6	2.23	153.6	61.7	4.80	331.0	133.0	9.6	662.0	266.0	14.4	992.8	399.0	24.0	1654.7	665.0
97%	0.97	66.9	26.9	2.25	155.2	62.4	4.85	334.4	134.4	9.7	668.9	268.8	14.6	1003.2	403.2	24.3	1672.0	671.9
98%	0.98	67.6	27.2	2.27	156.8	63.0	4.90	337.9	135.8	9.8	675.7	271.5	14.7	1013.5	407.3	24.5	1689.2	678.8
99%	0.99	68.3	27.4	2.30	158.4	63.6	4.95	341.3	137.2	9.9	682.6	274.3	14.9	1023.9	411.5	24.8	1706.5	685.8
100%	1	68.9	27.7	2.32	160.0	64.3	5.00	344.8	138.5	10.0	689.5	277.1	15.0	1034.2	415.6	25.0	1723.7	692.7

Annex 2: Gas flow curves

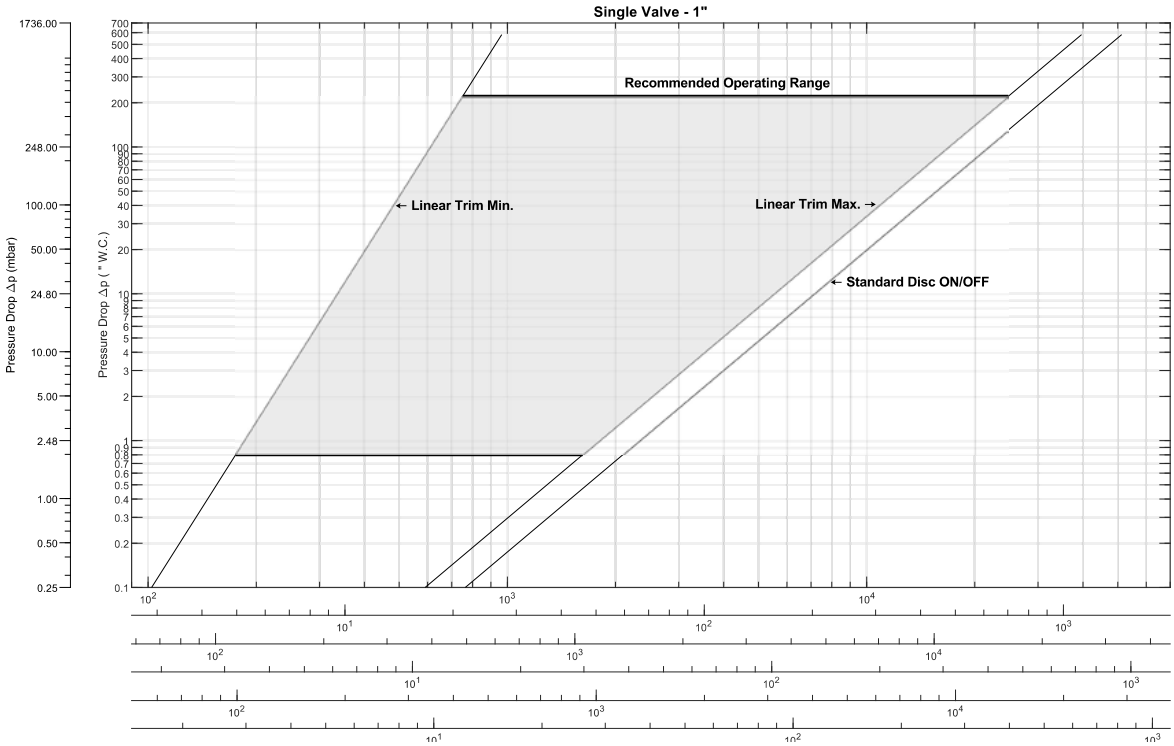
Single Valve



We recommend sizing the valve so the targeted pressure drop point lies toward the middle of the operating range (grey area). If the point is very close to the left boundary, select a smaller valve or reduce the inlet pressure; if it is close to the right boundary, select a larger valve.

For any application with pressure drops out of this recommended range, please contact your ASCO representative.

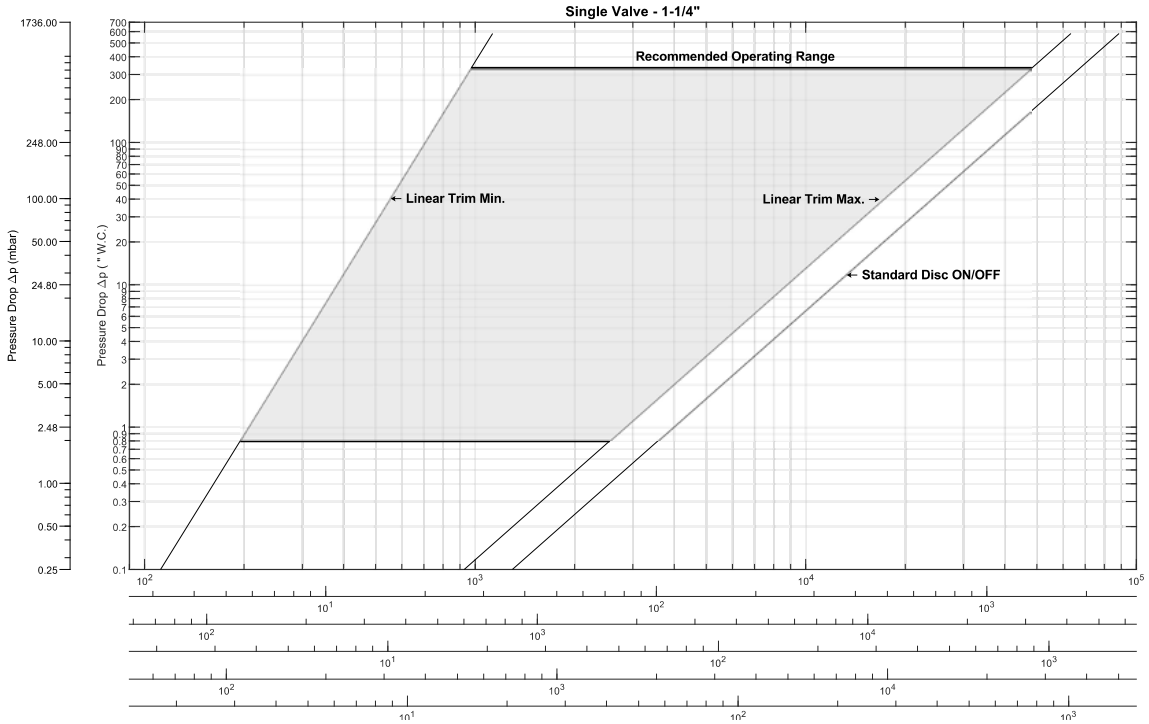
	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



We recommend sizing the valve so the targeted pressure drop point lies toward the middle of the operating range (grey area). If the point is very close to the left boundary, select a smaller valve or reduce the inlet pressure; if it is close to the right boundary, select a larger valve.

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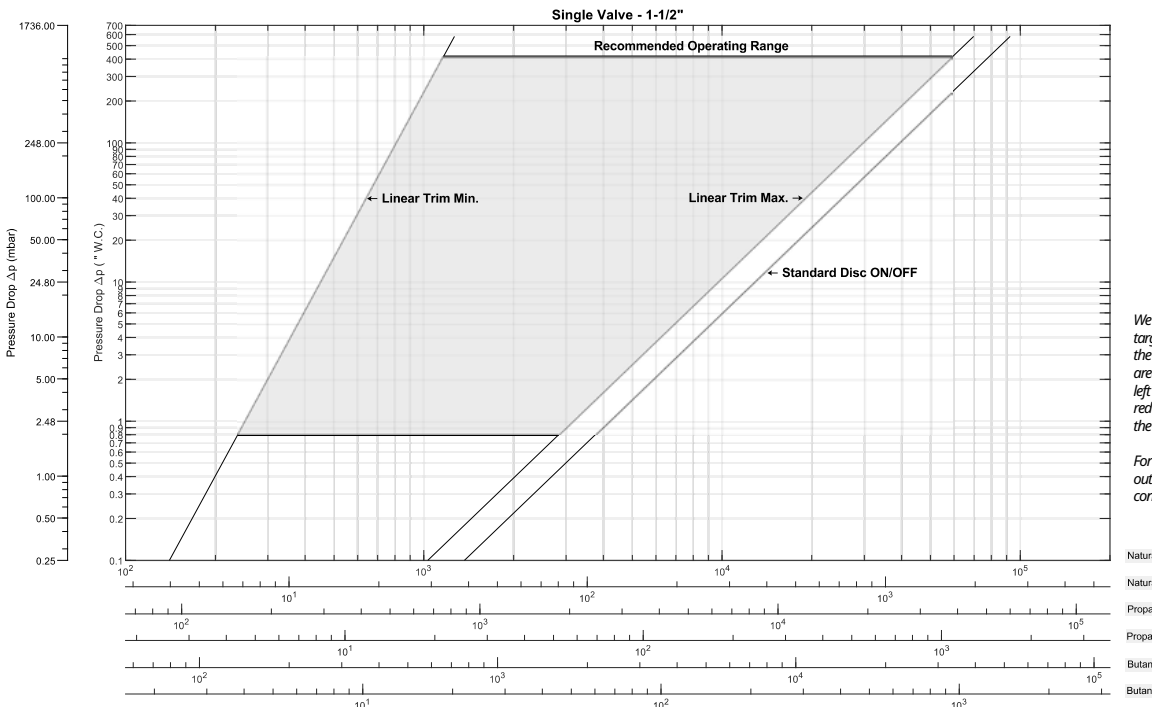
	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



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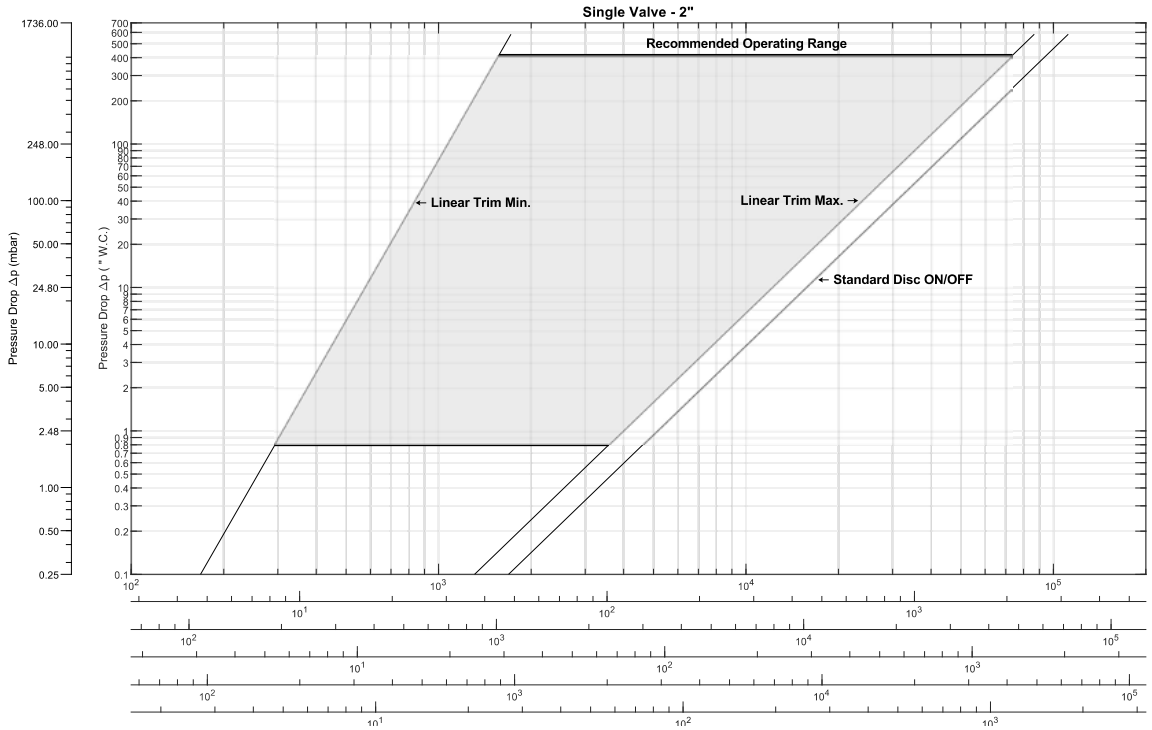
	Spec. Grav.
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Natural Gas m3/h	
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Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



We recommend sizing the valve so the targeted pressure drop point lies toward the middle of the operating range (grey area). If the point is very close to the left boundary, select a smaller valve or reduce the inlet pressure; if it is close to the right boundary, select a larger valve.

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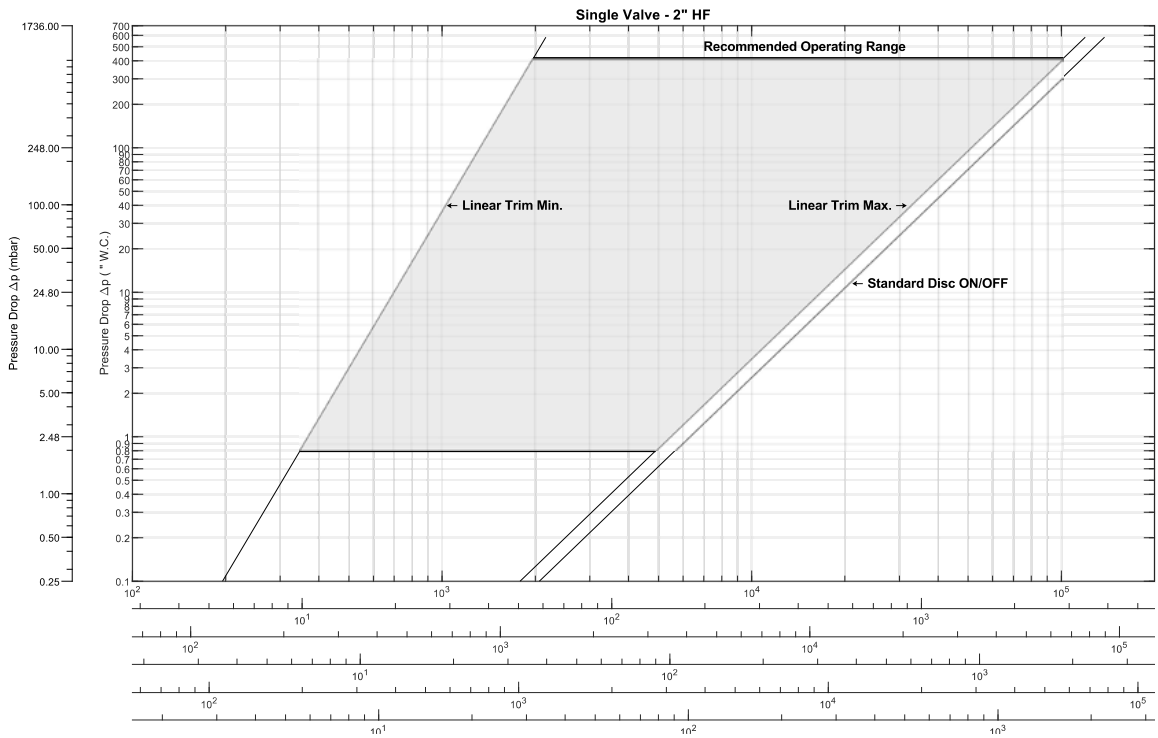
	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
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Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



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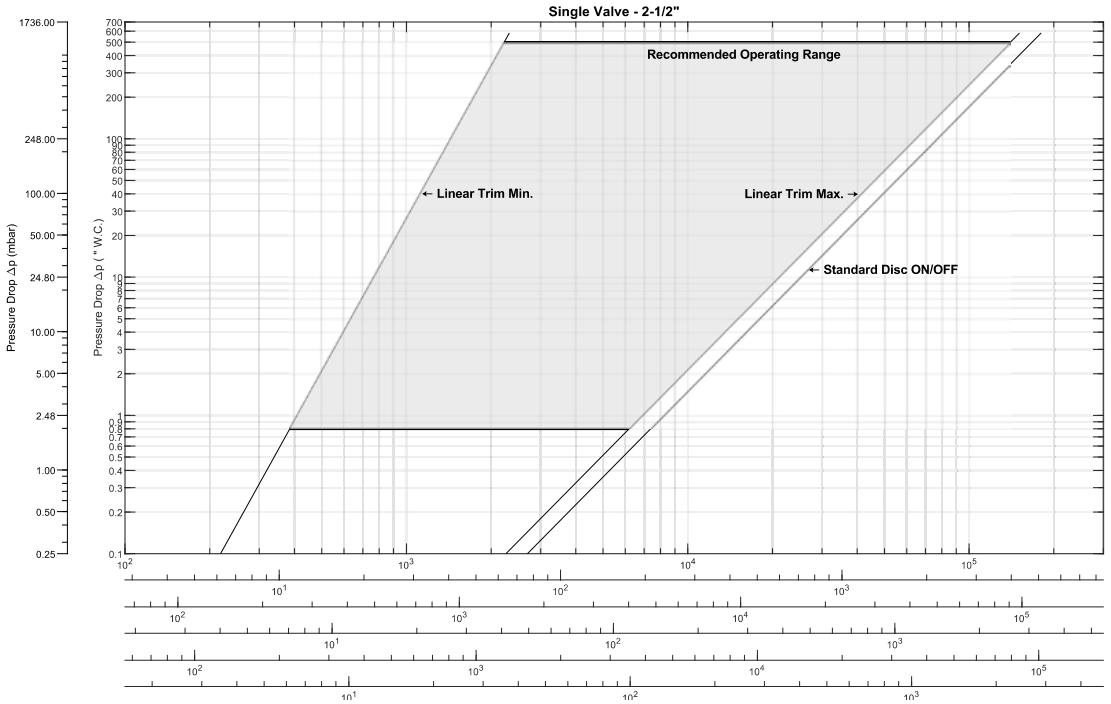
	Spec. Grav.
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Propane Gas m3/h	
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Butane Gas m3/h	



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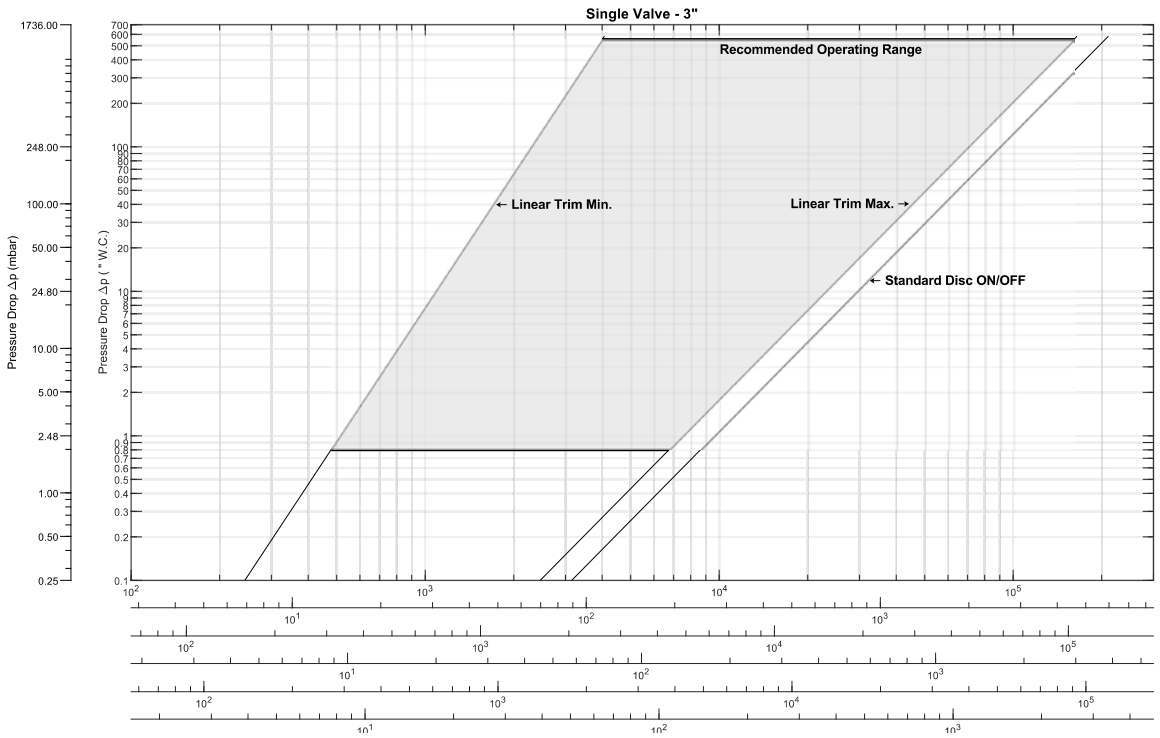
	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



We recommend sizing the valve so the targeted pressure drop point lies toward the middle of the operating range (grey area). If the point is very close to the left boundary, select a smaller valve or reduce the inlet pressure; if it is close to the right boundary, select a larger valve.

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	Spec. Grav.
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Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



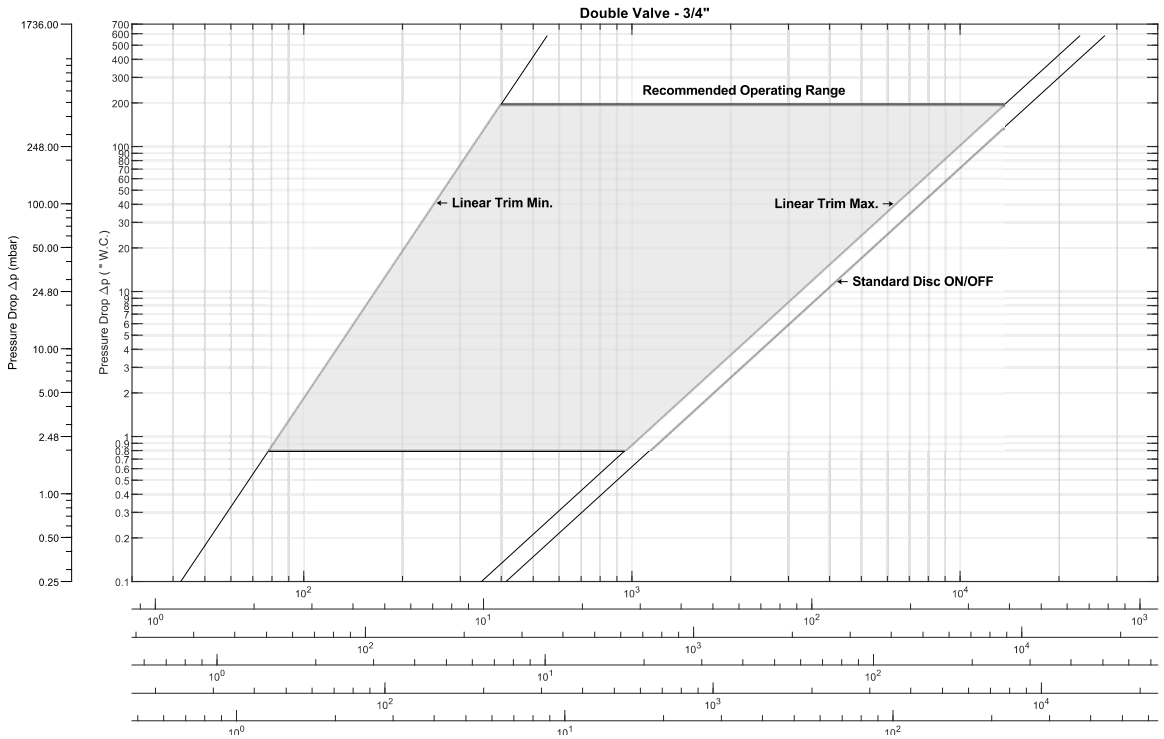
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	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	

Annex 2: Gas flow curves

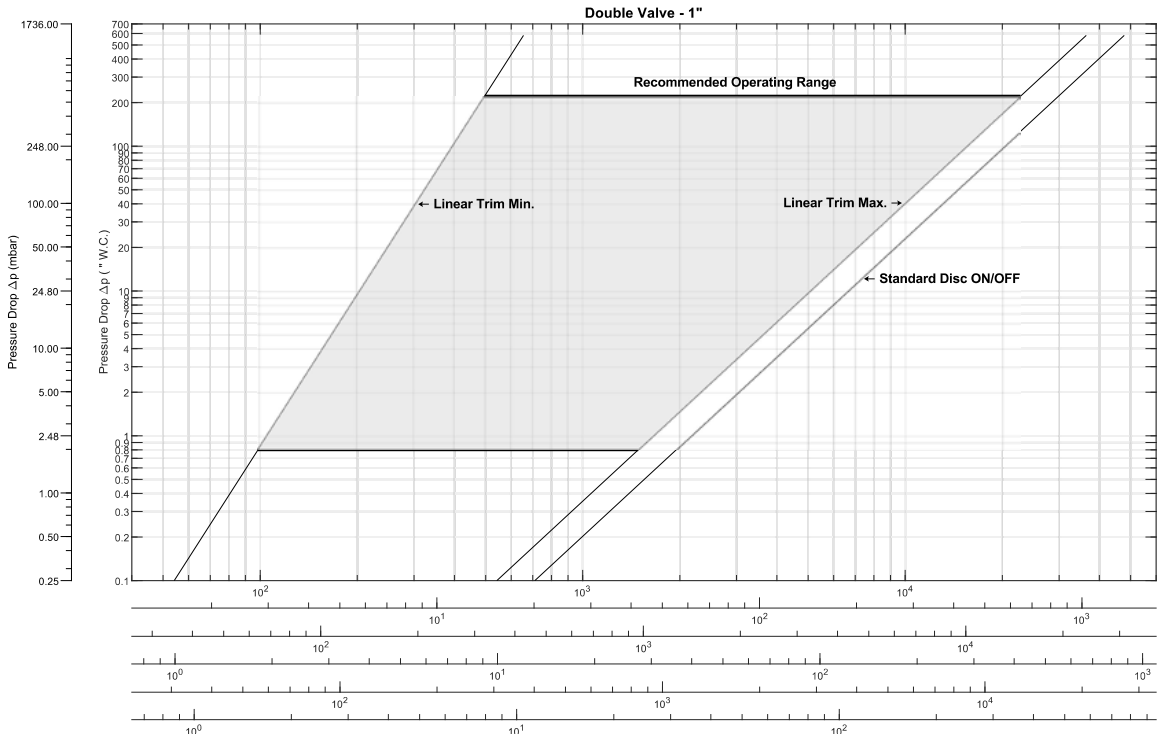
Double Valve



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For any application with pressure drops out of this recommended range, please contact your ASCO representative.

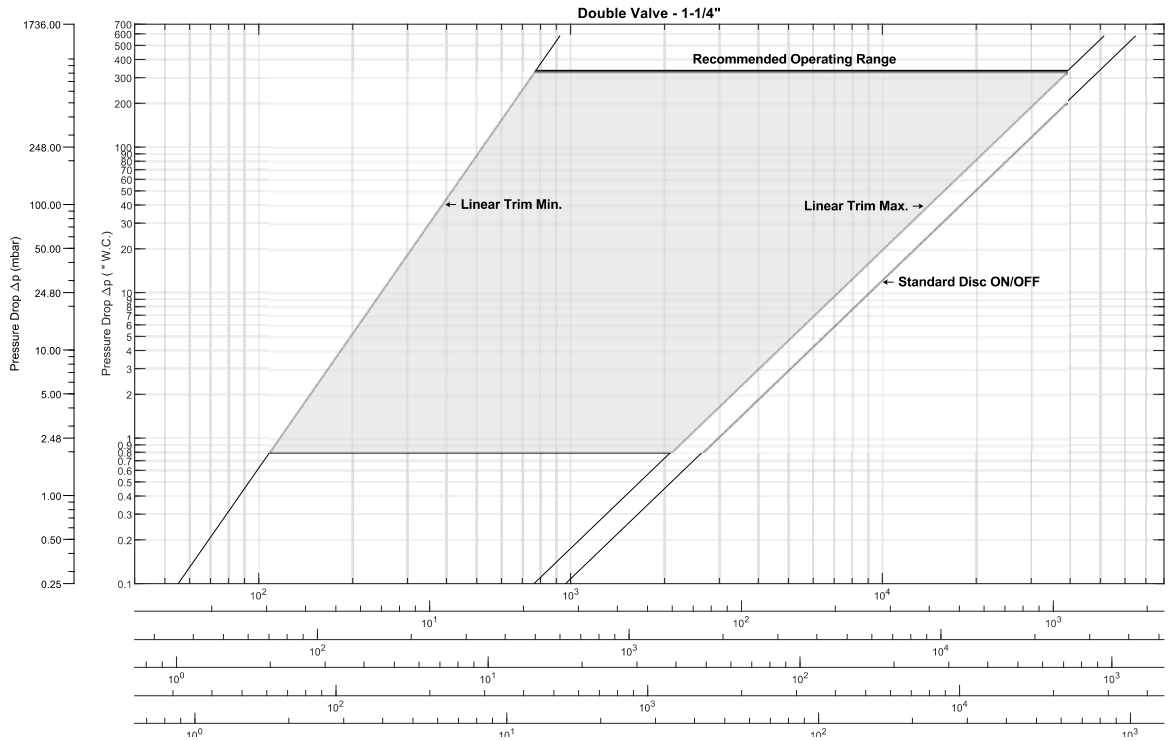
	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



We recommend sizing the valve so the targeted pressure drop point lies toward the middle of the operating range (grey area). If the point is very close to the left boundary, select a smaller valve or reduce the inlet pressure; if it is close to the right boundary, select a larger valve.

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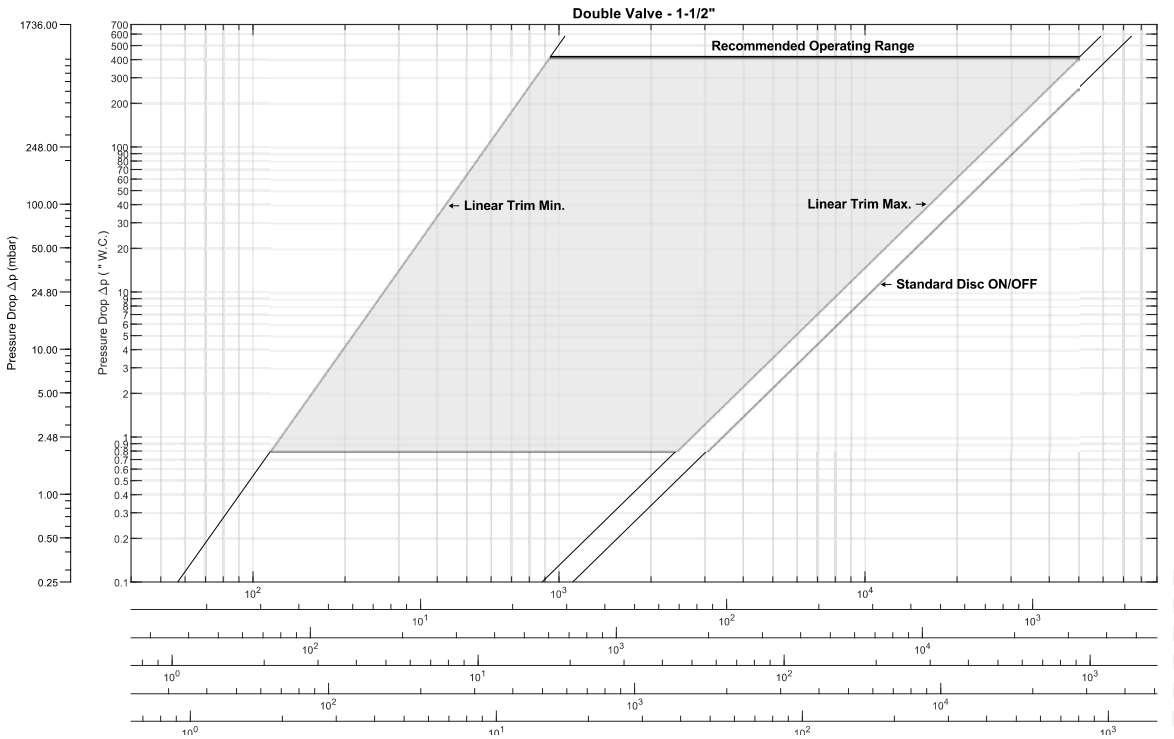
	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



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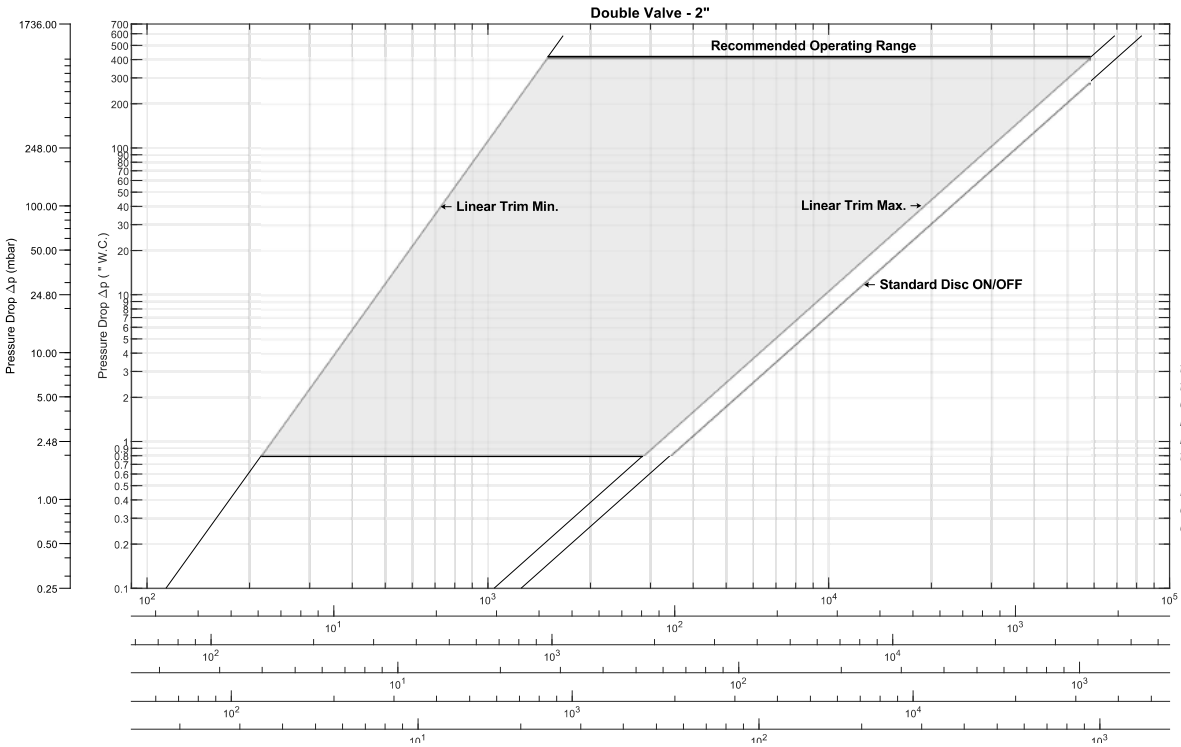
	Spec. Grav.
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Propane Gas m3/h	
Butane Gas cf/h	2.00
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We recommend sizing the valve so the targeted pressure drop point lies toward the middle of the operating range (grey area). If the point is very close to the left boundary, select a smaller valve or reduce the inlet pressure; if it is close to the right boundary, select a larger valve.

For any application with pressure drops out of this recommended range, please contact your ASCO representative.

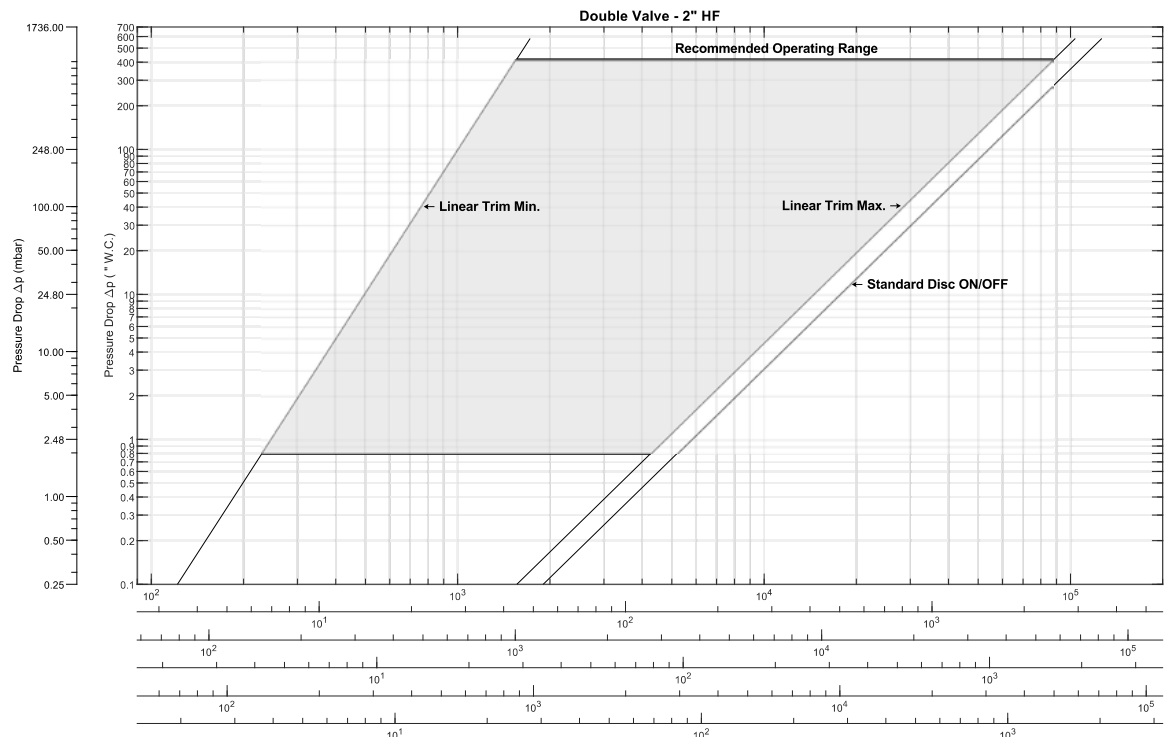
	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



We recommend sizing the valve so the targeted pressure drop point lies toward the middle of the operating range (grey area). If the point is very close to the left boundary, select a smaller valve or reduce the inlet pressure; if it is close to the right boundary, select a larger valve.

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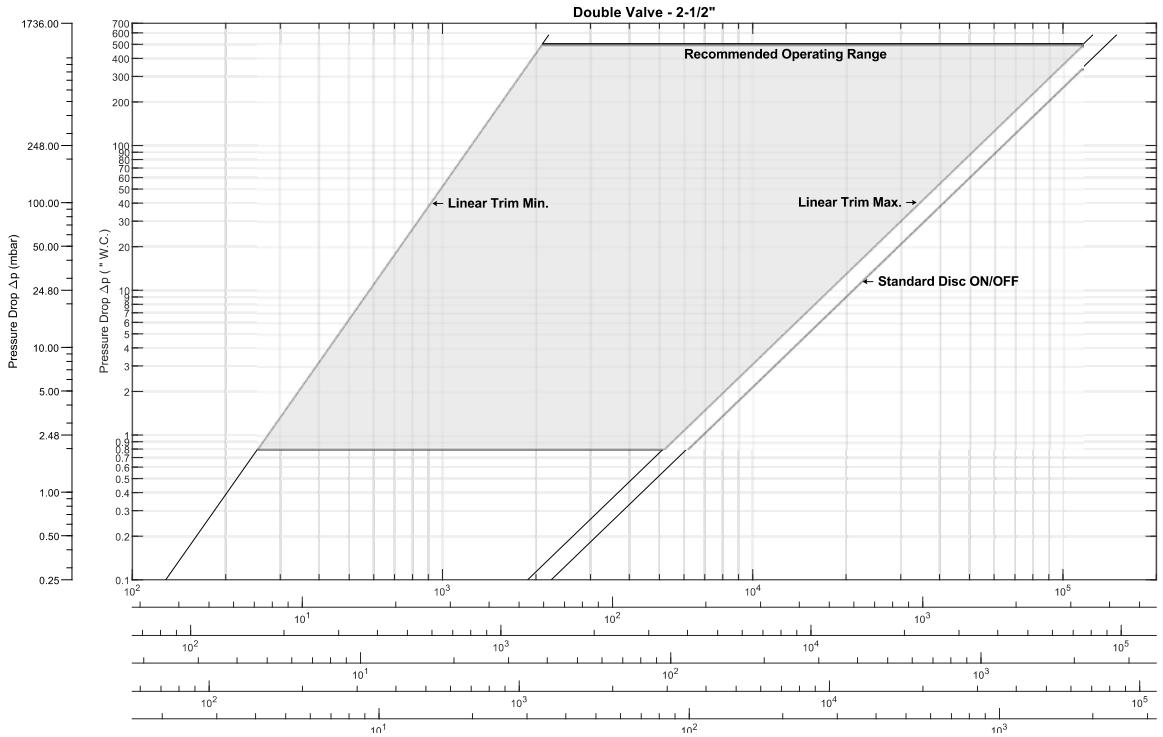
	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
Butane Gas m3/h	



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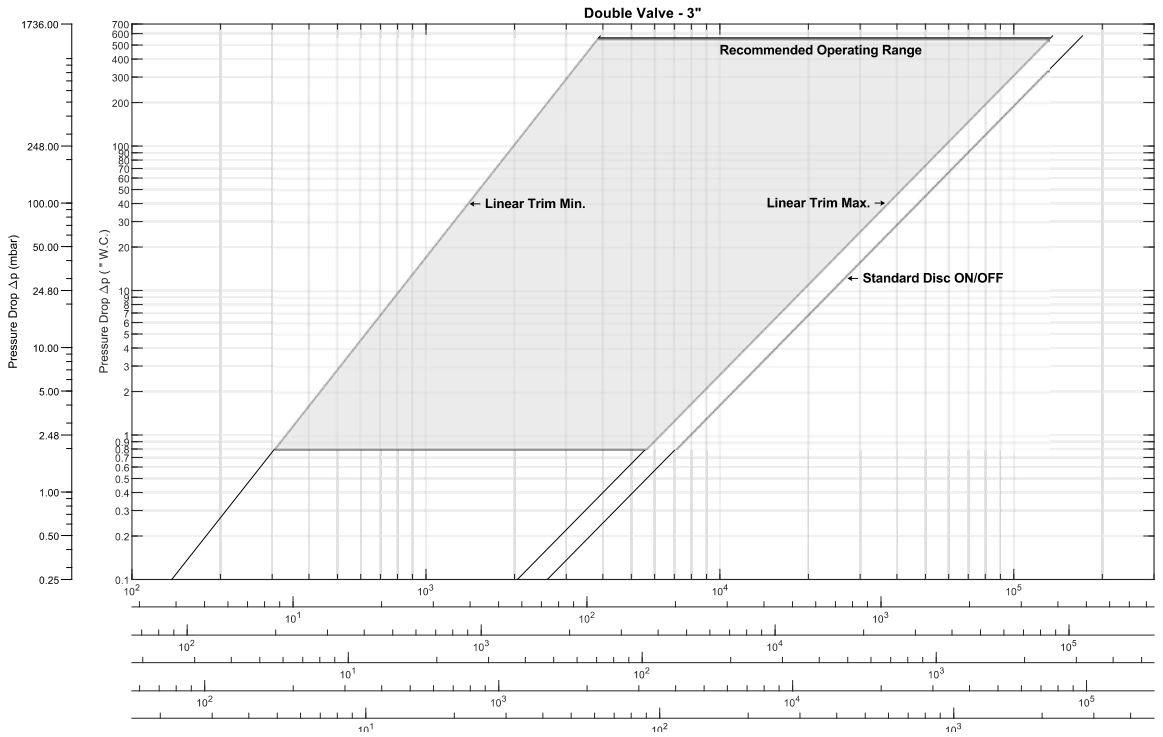
	Spec. Grav.
Natural Gas cf/h	0.64
Natural Gas m3/h	
Propane Gas cf/h	1.52
Propane Gas m3/h	
Butane Gas cf/h	2.00
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Butane Gas m3/h	



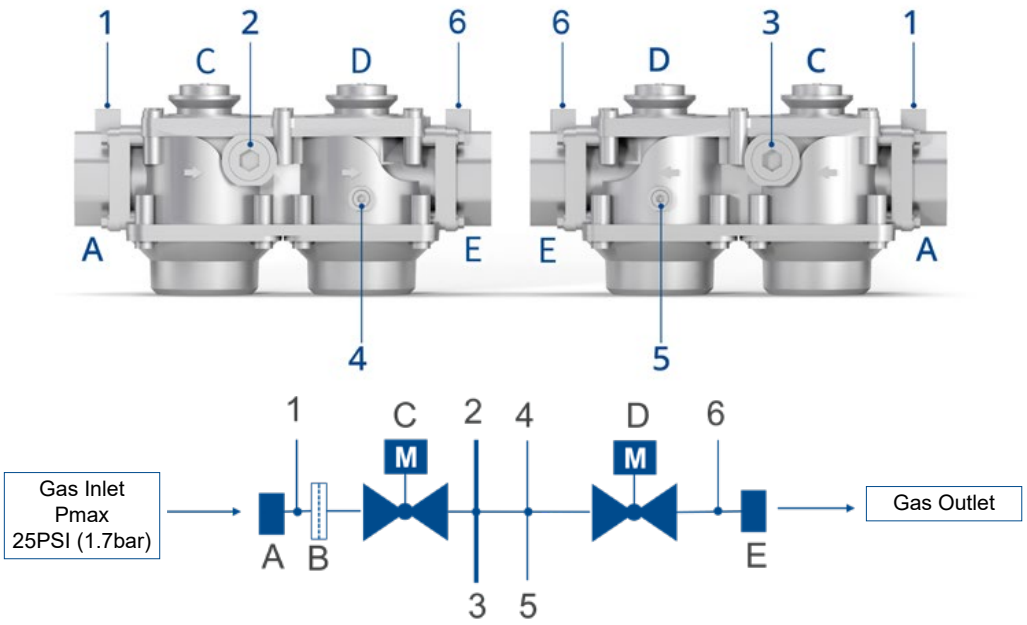
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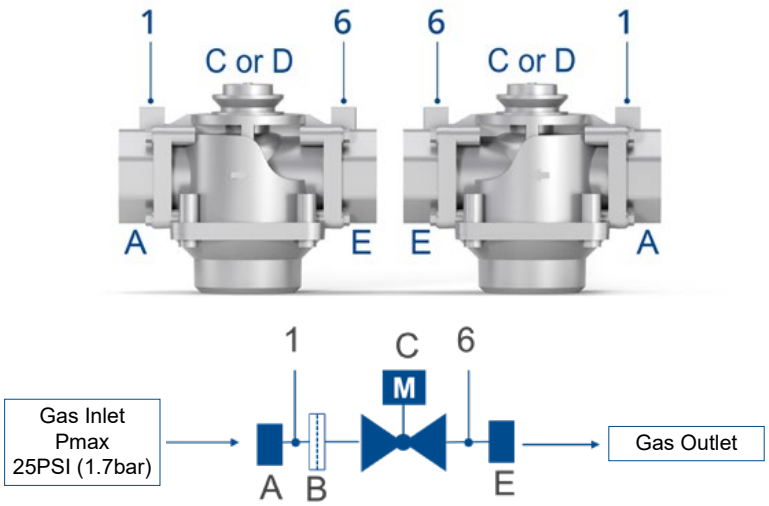
	Spec. Grav.
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Natural Gas m3/h	
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Annex 3: Testing Ports & Vent/Bypass Details

Threaded Ports Details, Double Valves



Threaded Ports Details, Single Valves



A = Inlet Pipe End-Connector, Threaded (NPT or ISO) for all sizes or Flanged (ANSI or ISO) for sizes 2" HF, 2.5" and 3"
B = Optional inlet strainer
C = Valve 1: to be used with ON/OFF actuator
D = Valve 2: to be used with ON/OFF, HIGH/LOW/OFF or Pressure Regulating Actuator, depending on valve trim selected.
E = Outlet Pipe End-Connector, Threaded (NPT or ISO) for all sizes or Flanged (ANSI or ISO) for sizes 2" HF, 2.5" and 3"
1 = Threaded port 1/4" with plug (ISO or NPT) - for Gas Inlet Testing
2 = Threaded port (ISO or NPT) 1" (Mid Size, 3/4" to 2") or 1.5" (Big size, 2" highflow to 3") - for Gas Testing, Bypass, Vent or Pilot line connection between Valve 1 & 2 depending on application
3 = Threaded port (ISO or NPT) 1" (Mid Size, 3/4" to 2") or 1.5" (Big size, 2" highflow to 3") - for Gas Testing, Bypass, Vent or Pilot line connection between Valve 1 & 2 depending on application
4 = Threaded port 1/4" with plug (ISO or NPT) - for Gas Testing between Valve 1 & 2
5 = Threaded port 1/4" with plug (ISO or NPT) - for Gas Testing between Valve 1 & 2
6 = Threaded port 1/4" with plug (ISO or NPT) - for Gas Outlet Testing

2026-07-02 - Availability, design and specifications are subject to change without notice.
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