

North American 1599 Electro-Hydraulic Gas Shutoff Valve

Bulletin 1599

1599 valves are normally closed safety shutoff valves which are controlled by an electro-hydraulic actuator. 1599's can be ordered as single shutoff valves or double shutoff valves for use in industrial and thermal process applications.

FEATURES

- FM, CSA, UL Approvals
- Stainless Steel mesh inlet filter
- Pressure taps on inlet and outlet, ¼" NPT
- Slow opening, fast closing
- Proof of closure switch (POC) optional
- Optional AUX switch
- Visual indication (VI) standard
- Power indication light
- Quick connect wiring terminals
- Rotatable actuator allows for easy install and field wiring
- Replacement actuators can be mounted while the valve is in line and under pressure
- Low power consumption, 13.5VA
- NEMA 4



1½" to 2" NPT Double Valve

SPECIFICATIONS

Body Material	Aluminum/Cast Iron See Table 1
Internals	Buna N seat, SST stem
Max. inlet pressure	See Table 1
Max. back pressure (differential)	See Table 1
Acceptable media	Natural gas, propane, butane, air, other non-corrosive gases
Gas temp range	5F to 140F (-15C to 60C)
Operating temp range	5F to 140F (-15C to 60C) -20F (-29C) with optional heater
Voltage	110-120 Vac +10% to -15% 220-240 Vac +10% to -15%
Frequency	50 to 60 Hz +/-6%
Power consumption	13.5 VA
Conduit connection	1/2" NPSM thread knock-outs (two per actuator)
Electrical connection	Spring loaded terminals for 14AWG wires
Closing force	100 lb. (450N)
Max. opening time	14 sec.
Closing time	<0.8 sec.
Switch type	SPDT
Switch rating	6A/250 Vac resistive 3A/120 Vac pilot duty
Cycle life @ 7.25 psi (500 mbar)	3 million for ½" - 1" 2 million for 1½" - 2" 1 million for 2½" - 6"



½" to 3" NPT Single Valve



2½" to 6" Flanged Double Valve

Table 1. Valve Size Specifications

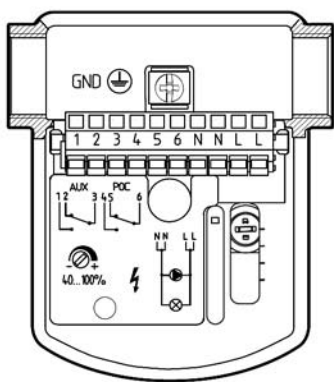
Valve Type	Size	② Max. Oper. Pressure psi (mbar)	① Close-off Pressure psi (mbar)	③ Max. Diff. Back Pressure psi (mbar)	Number of Test Points		Body Materials	Cv
					Inlet	Outlet		
Single	½" NPT	20 (1379)	75 (5171)	2.5 (172)	2	2	Aluminum	6.5
	¾" NPT	20 (1379)	75 (5171)	2.5 (172)	2	2		11.7
	1" NPT	20 (1379)	75 (5171)	2.5 (172)	2	2		17.0
	1½" NPT	20 (1379)	75 (5171)	2.5 (172)	2	2		40.5
	2" NPT	15 (1034)	75 (5171)	2.5 (172)	2	2		60.7
	2½" NPT	10 (689)	25 (1724)	2.5 (172)	1	1	Cast Iron	89
3" NPT	10 (689)	25 (1724)	2.5 (172)	1	1	113.3		
Double	1½" NPT	20 (1379)	30 (2068)	2.5 (172)	One inlet, one outlet and one between valves		Aluminum	33.2
	2" NPT	15 (1034)	30 (2068)	2.5 (172)	One inlet, one outlet and one between valves		Aluminum	40.5
	2½" NPT & Flanged	10 (689)	75 (5171)	4 (276)	One inlet, one outlet and one between valves		Aluminum	73.2
	3" NPT & Flanged	10 (689)	75 (5171)	4 (276)	One inlet, one outlet and one between valves			110.5
	4" Flanged	10 (689)	30 (2068)	4 (276)	One inlet, one outlet and one between valves			171.6
6" Flanged	10 (689)	30 (2068)	4 (276)	One inlet, one outlet and one between valves		324.9		

Notes:

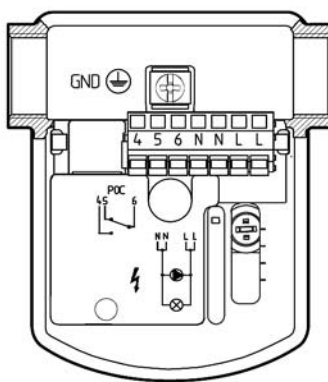
- ① The close-off pressure is the maximum pressure the valve can close against. This pressure will need to be relieved below the maximum operating pressure for the valve to open.
- ② The maximum operating pressure is the maximum inlet pressure the valve can open against.
- ③ The maximum differential back pressure is the maximum allowable downstream pressure increase above the inlet pressure.

Example: For a 1", if the inlet pressure is 10 psi the outlet pressure can't be higher than 12.5 psi.

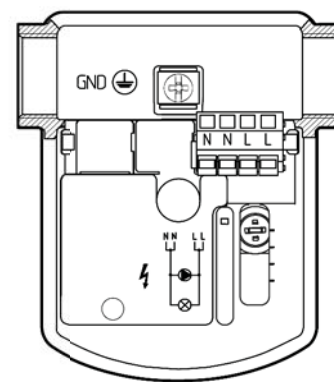
WIRING



POC + AUX SWITCH



POC ONLY



NO POC or AUX SWITCH

Notes:

- Installations are to be completed by qualified personnel only.
- Wiring must meet all relevant electrical codes.
- Flexible conduit must be used when conduit routing is connected.
- The GND terminal must be connected to electrical ground. This is located above the wiring terminals.

VALVE SIZING

Figure 1. Single Valve Body NPT

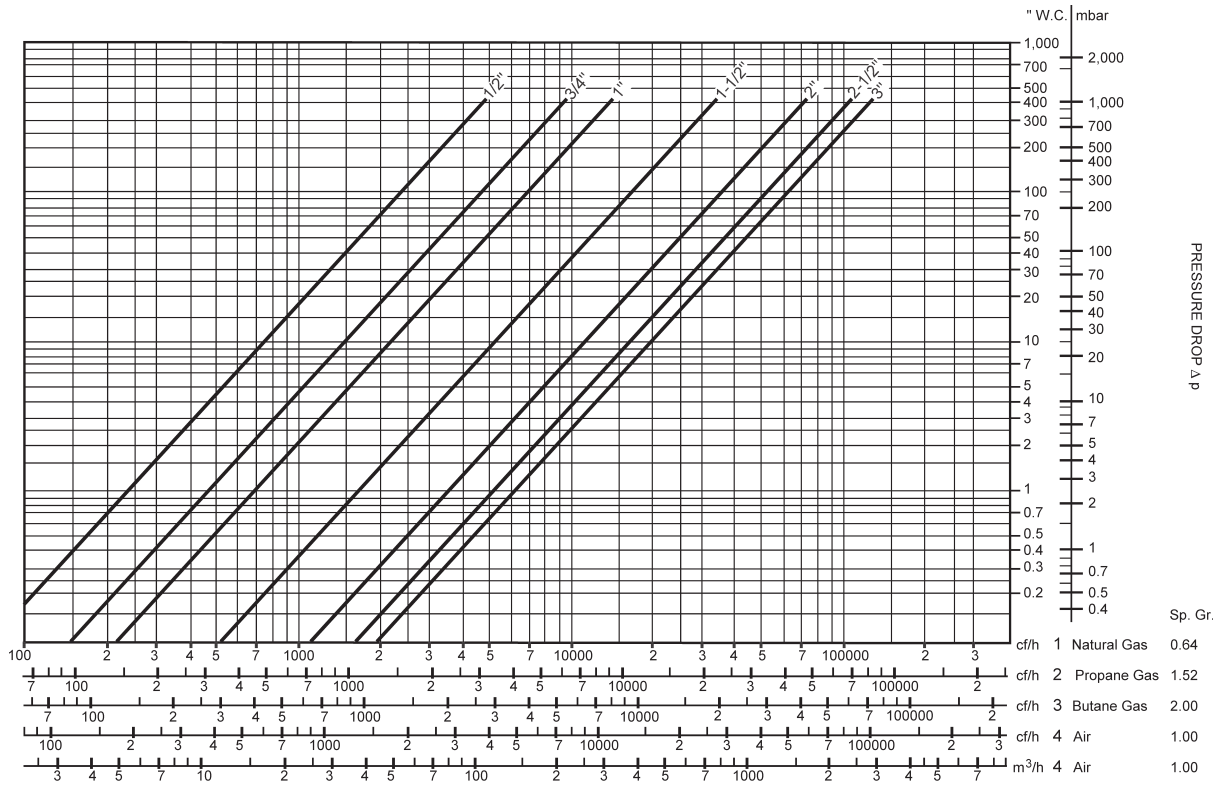


Figure 2. Double Valve Body NPT

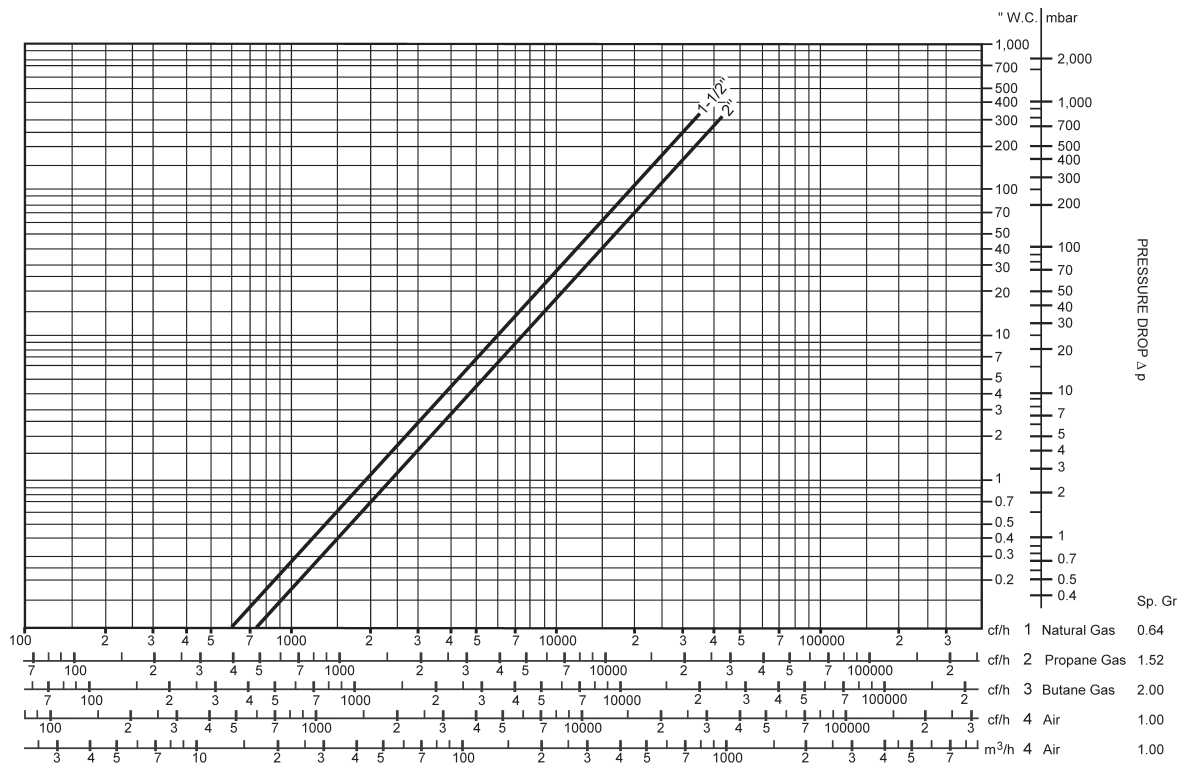


Figure 3. Double Valve Body Flanged

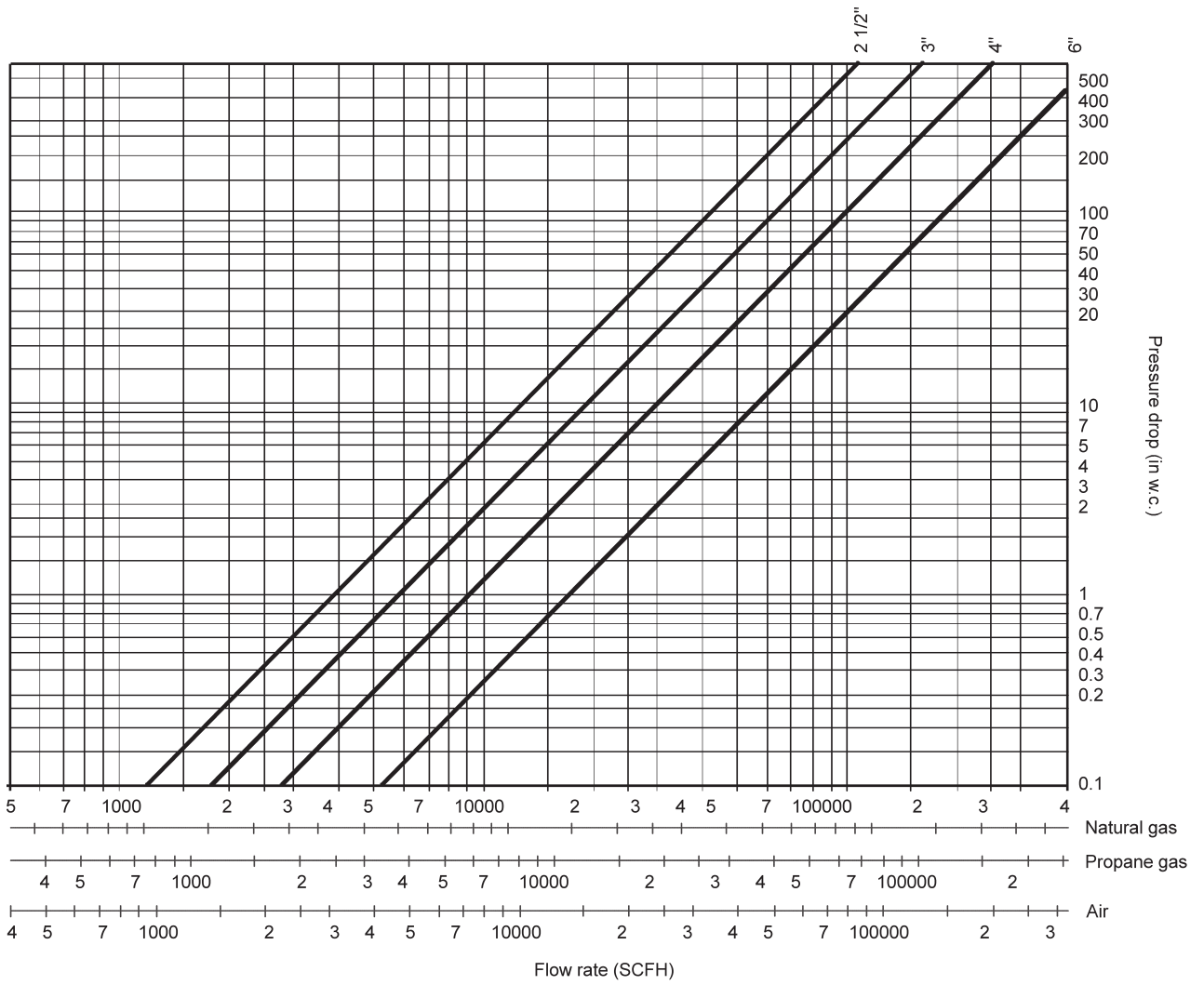
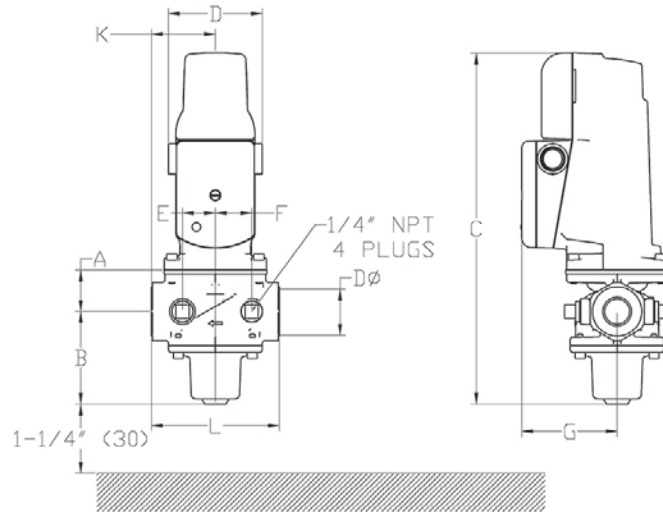
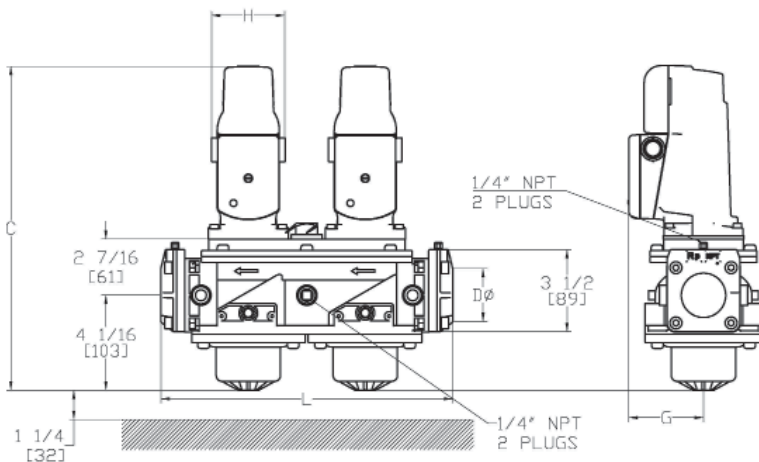


Figure 4. Single Valve Body NPT



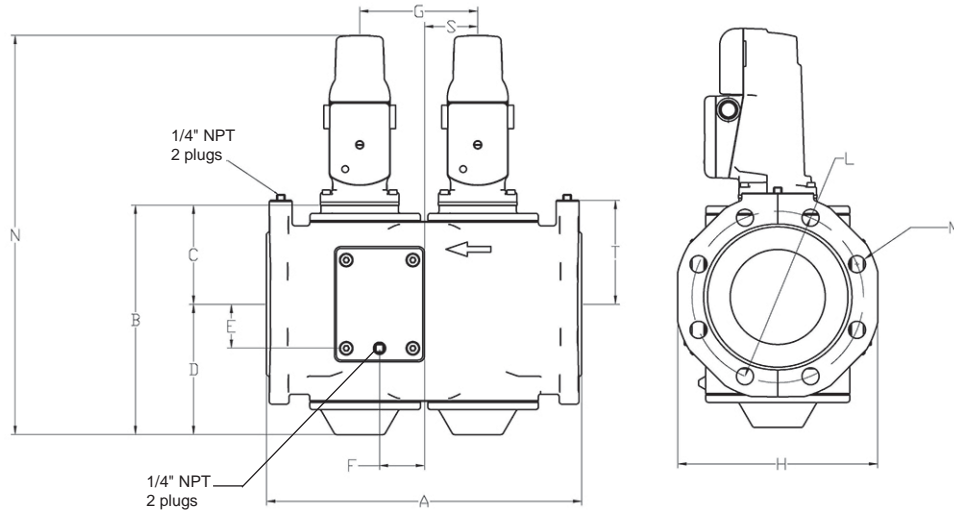
Pipe Size D inch (mm)	A inch (mm)	B inch (mm)	C inch (mm)	D inch (mm)	E inch (mm)	F inch (mm)	G inch (mm)	K inch (mm)	L inch (mm)	Weight lbs (kg)
1/2 (12.7)	1.25 (32)	3.13 (79)	11.78 (299)	3.15 (80)	1.13 (28)	1.22 (31)	3.20 (81)	2.19 (55)	4.38 (110)	4.05 (1.84)
3/4 (19.05)	1.25 (32)	3.13 (79)	11.78 (299)	3.15 (80)	1.13 (28)	1.22 (31)	3.20 (81)	2.19 (55)	4.38 (110)	4.05 (1.84)
1 (25.4)	1.25 (32)	3.13 (79)	11.78 (299)	3.15 (80)	1.13 (28)	1.22 (31)	3.20 (81)	2.19 (55)	4.38 (110)	3.9 (1.79)
1 1/2 (38.1)	1.63 (41)	4 (102)	13.03 (331)	3.15 (80)	1.31 (34)	1.31 (34)	3.20 (81)	3 (75)	5.94 (150)	5.7 (2.59)
2 (50.8)	2 (50)	4.25 (107)	13.65 (346.7)	3.15 (80)	1.31 (34)	1.31 (34)	3.20 (81)	3.38 (85)	6.75 (170)	8.4 (3.81)
2 1/2 (63.5)	3.63 (92)	6.44 (163)	17.46 (443.5)	3.15 (80)	—	2.48 (62)	3.20 (81)	5.69 (145)	11.48 (290)	34.9 (15.83)
3 (76.2)	3.94 (100)	6.44 (163)	17.78 (451.6)	3.15 (80)	—	2.48 (62)	3.20 (81)	6.06 (155)	12.19 (310)	36.4 (16.51)

Figure 5. Double Valve Body NPT



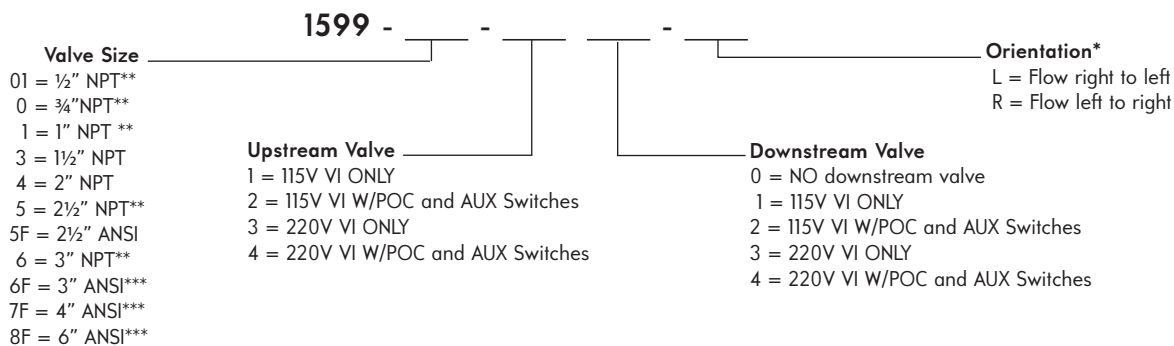
Pipe Size D inch (mm)	C inch (mm)	G inch (mm)	H inch (mm)	L inch (mm)	Weight lbs (kg)
1 1/2 (38.1)	13.9 (353)	3.20 (81)	3.15 (80)	12.19 (310)	9.4 (4.26)
2 (50.8)	13.9 (353)	3.20 (81)	3.15 (80)	12.63 (320)	6.4 (2.90)

Figure 6. Double Valve Body Flanged



Pipe Size inch (mm)	A inch (mm)	B inch (mm)	C inch (mm)	D inch (mm)	E inch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	L inch (mm)	M inch (mm)	S inch (mm)	T inch (mm)	Weight lbs (kg)
2½ (63.5)	11.42 (260)	8.54 (217)	3.25 (82.5)	4.63 (117.5)	2.09 (53.1)	1.46 (37)	4.02 (102)	7.01 (178)	5.5 (139.7)	0.75 (19)	1.77 (45)	3.64 (92.5)	20.9 (9.48)
3 (76.2)	12.20 (310)	9.39 (238.5)	3.64 (92.5)	5.18 (131.5)	2.09 (53.1)	0.79 (20)	4.21 (107)	7.56 (192)	6 (152.4)	0.75 (19)	3.54 (90)	3.94 (100)	23.4 (10.61)
4 (101.6)	13.78 (350)	10.52 (267.3)	4.33 (110)	5.70 (144.8)	1.93 (49)	1.95 (49.5)	5.16 (131)	8.74 (222)	7.5 (190.5)	0.75 (19)	2.34 (60)	4.55 (115.5)	31.4 (14.24)
6 (152.4)	18.90 (480)	13.29 (337.5)	5.71 (145)	7.40 (188)	2.09 (53.1)	2.30 (58.5)	6.61 (168)	10.63 (270)	9.5 (241)	0.91 (23)	2.34 (60)	5.61 (142.5)	55.4 (25.13)

ORDERING INFORMATION



* Orientation when viewing the valve from the visual indication (VI) side.
 ** Available in single valve only.
 *** Available in double valve only.

Example:

1599-3-12-R

1½" NPT double automatic reset gas shutoff valve, upstream valve with VI, downstream valve with VI POC and AUX switches, 115Vac, Nema4, UL, FM, CSA, flow left to right.

1599-4-20-L

2" NPT single automatic gas shutoff valve, VI POC and AUX switches, 115Vac, Nema4, UL, FM, CSA, flow right to left.

ACCESSORIES/SPARE PARTS

If operating temperatures lower than 5F (-15C) are expected the use of an actuator heater can improve the minimum allowable temperature to -20F (-29C).

Actuator Heater: R950-11260

Actuator W/POC: R950-11200

Actuator W/POC + AUX switch: R950-11209

WARNING: Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American Combustion, Inc. urges compliance with National Safety Standards and Insurance Underwriters' recommendations, and care in operation.



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