

North American Limiting Orifice Gas Valves

Bulletin 1807



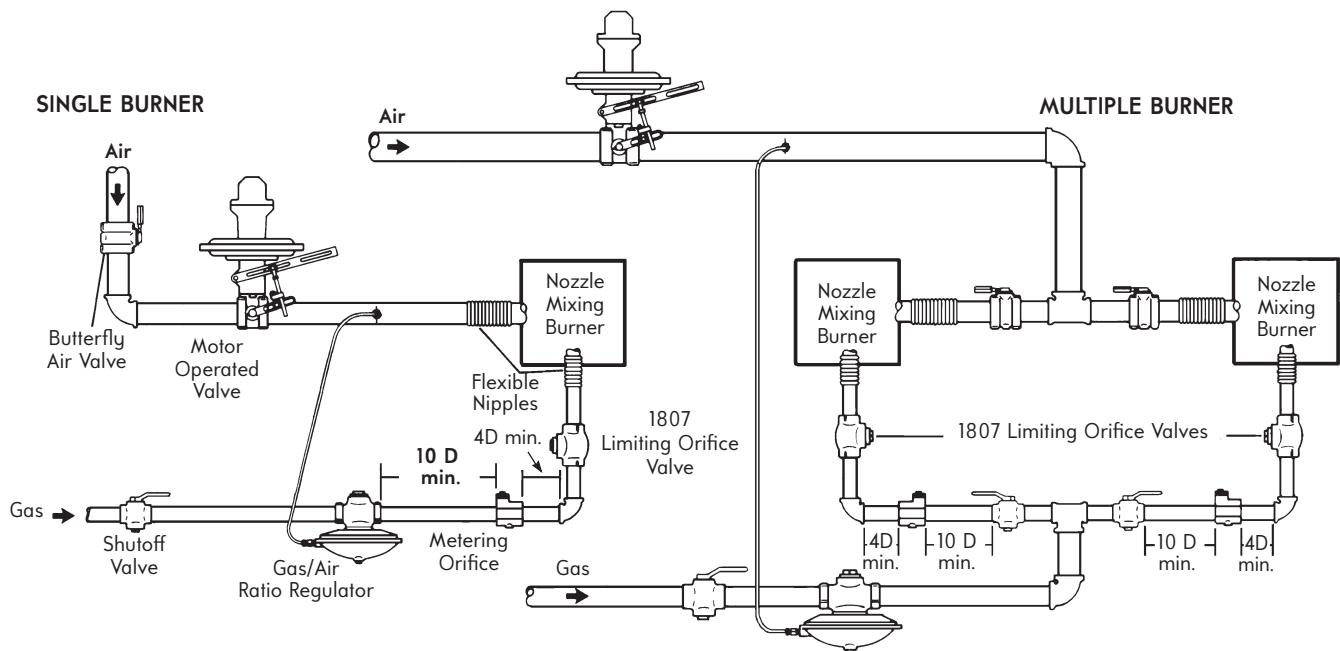
An 1807 Limiting Orifice Valve is used to set air/gas ratio on a nozzle-mix burner. It has a V-port plug that can be adjusted sensitively and accurately with an Allen wrench. Turning the screw counterclockwise increases flow. A cap conceals the adjustment and discourages tampering with the setting. After adjustment always replace top cap on valve body to reduce air or gas leaks.

The V-port adjustment is in a removable gas cartridge assembly, simplifying inspection or replacement. 1807 Valves have brass internals; 1807- -K Valves have iron internals for coke gas and others corrosive to brass; 1807- -TK Valves are for hot gases. Valves with the pre-fix "M" have ISO 7 Rp threaded end connections.

1807 Limiting Orifice Valves provide "fine tuning" for air/gas ratio adjustment.

Limiting Orifice Valves are not designed for shutting off gas. Use an approved ball valve, plug valve or cock.

TWO TYPICAL PIPING ARRANGEMENTS FOR LIMITING ORIFICE VALVES



Install 1807 Valve as close as possible to burner. Normal practice is to select limiting orifice valve pipe size same as ratio regulator (North American #7218 or #7216), or as burner gas connection if several burners are fed by one regulator. There is no performance advantage in using the smallest possible 1807 for the flow and pressure drop available.

CAPACITIES scfh Natural Gas (0.6 s.g.)

Capacity, scfh (Nm ³ /h)	Valve designation and pipe size							
	1807-01 ½"	1807-0 ¾"	1807-1 1"	1807-2 1¼"	1807-3 1½"	1807-4 2"	1807-5 2½"	1807-6 3"
0.1	86 (2.4)	121 (3.4)	222 (6.3)	327 (9.3)	414 (11.7)	990 (28.0)	1491 (42.2)	2600 (73.6)
0.2	122 (3.5)	172 (4.9)	315 (8.9)	470 (13.3)	584 (16.5)	1400 (39.6)	2110 (59.7)	3675 (104.1)
0.3	149 (4.2)	210 (5.9)	386 (10.9)	564 (16.0)	715 (20.2)	1720 (48.7)	2580 (73.1)	4500 (127.4)
0.4	172 (4.9)	243 (6.9)	446 (12.6)	650 (18.4)	830 (23.5)	1980 (56.1)	2982 (84.4)	5200 (147.2)
0.5	192 (5.4)	272 (7.7)	500 (14.2)	730 (20.7)	925 (26.2)	2230 (63.1)	3340 (94.6)	5820 (164.8)
1.0	272 (7.7)	385 (10.9)	705 (20.0)	1030 (29.2)	1310 (37.1)	3150 (89.2)	4720 (133.7)	8220 (232.8)
2.0	384 (10.9)	542 (15.3)	990 (28.0)	1460 (41.3)	1850 (52.4)	4450 (126.0)	6660 (188.6)	11590 (328.2)
3.0	470 (13.3)	665 (18.8)	1210 (34.3)	1780 (50.4)	2270 (64.3)	5440 (154.0)	8200 (232.2)	14220 (402.7)
4.0	544 (15.4)	770 (21.8)	1410 (39.9)	2060 (58.3)	2620 (74.2)	6300 (178.4)	9440 (267.3)	16440 (465.5)
5.0	610 (17.3)	860 (24.4)	1580 (44.7)	2320 (65.7)	2930 (83.0)	7040 (199.4)	10560 (299.0)	18400 (521.0)
6.0	666 (18.9)	940 (26.6)	1720 (48.7)	2550 (72.2)	3210 (90.9)	7700 (218.0)	11570 (327.6)	20150 (570.6)

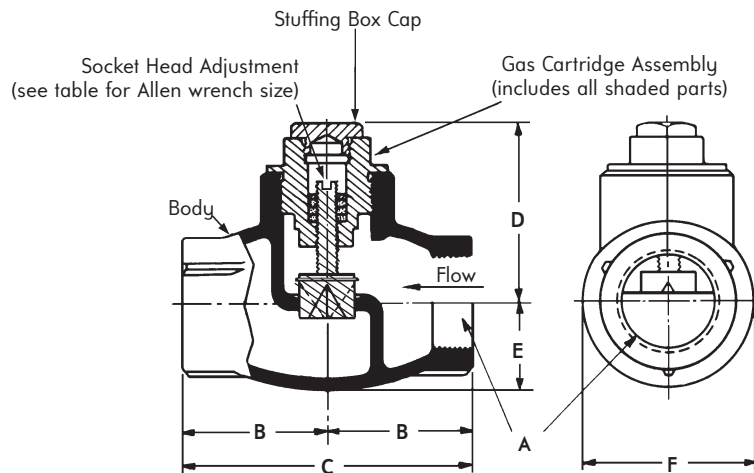
Capacities shown with 1 psi (70 mbar) inlet pressure.
Maximum Pressure: 25 psig (1.7 bar)

1807 Pressure and Temperature Ratings

Specific Gravity	Capacity Factor
0.4	1.22
0.6	1.00
0.8	0.866
1.5	0.632
2.0	0.547

Valve Designation	Max Inlet Pressure	Min. Temp.	Max. Temp.
1807	25 psi (1.7 bar)	-20F (-28C)	225F (107C)
1807- -K	25 psi (1.7 bar)	-20F (-28C)	225F (107C)
1807- -TK	25 psi (1.7 bar)	-20F (-28C)	600F (316C)
1807- -H	125 psi (8.6 bar)	-20F (-28C)	225F (107C)

DIMENSIONS



Valve designation	dimensions in inches (mm)						Wt, lb (kg)	Allen* wrench size mm
	A	B	C	D	E	F		
1807-01 (M1807-01)	½" NPT (ISO 7-Rp ½)	1 ¹¹ / ₁₆ (43)	3 ³ / ₈ (86)	2 ¹¹ / ₃₂ (63)	7 ⁷ / ₈ (22)	1 ³ / ₄ (44)	1 ¹ / ₂ (.68)	2.5
1807-0 (M1807-0)	¾" NPT (ISO 7-Rp ¾)	1 ¹¹ / ₁₆ (43)	3 ³ / ₈ (86)	2 ¹¹ / ₃₂ (63)	1 (25)	2 (51)	1 ³ / ₄ (.79)	4
1807-1 (M1807-1)	1" NPT (ISO 7-Rp 1)	2 ¹ / ₈ (54)	4 ¹ / ₄ (108)	2 ²¹ / ₃₂ (67)	1 ⁵ / ₃₂ (29)	2 ⁵ / ₁₆ (59)	2 ³ / ₄ (1.25)	4
1807-2 (M1807-2)	1¼" NPT (ISO 7-Rp 1¼)	2 ⁷ / ₁₆ (62)	4 ⁷ / ₈ (124)	2 ⁷ / ₈ (73)	1 ⁷ / ₁₆ (37)	2 ⁷ / ₈ (73)	4 ¹ / ₄ (1.93)	4
1807-3 (M1807-3)	1½" NPT (ISO 7-Rp 1½)	2 ⁵ / ₈ (73)	5 ¹ / ₄ (133)	3 ³ / ₁₆ (81)	1 ⁵ / ₈ (41)	3 ¹ / ₄ (83)	5 ¹ / ₂ (2.5)	4
1807-4 (M1807-4)	2" NPT (ISO 7-Rp 2)	2 ¹⁵ / ₁₆ (75)	5 ⁷ / ₈ (149)	3 ¹¹ / ₁₆ (94)	1 ⁷ / ₈ (48)	3 ³ / ₄ (95)	7 ¹ / ₂ (3.4)	6
1807-5 (M1807-5)	2½" NPT (ISO 7-Rp 2½)	3 ³ / ₈ (98)	7 ³ / ₄ (197)	4 ⁷ / ₃₂ (107)	2 ⁷ / ₁₆ (62)	4 ⁷ / ₈ (124)	12 ¹ / ₂ (5.6)	6
1807-6 (M1807-6)	3" NPT (ISO 7-Rp 3)	4 ⁷ / ₈ (124)	9 ³ / ₄ (248)	5 ⁹ / ₁₆ (141)	2 ¹⁵ / ₁₆ (75)	5 ⁷ / ₈ (149)	20 (9.07)	6

DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

* Valves purchased before 2017 use standard US Allen wrench sizes.

1807 and 1807- -K (All Iron Valve) PARTS LIST

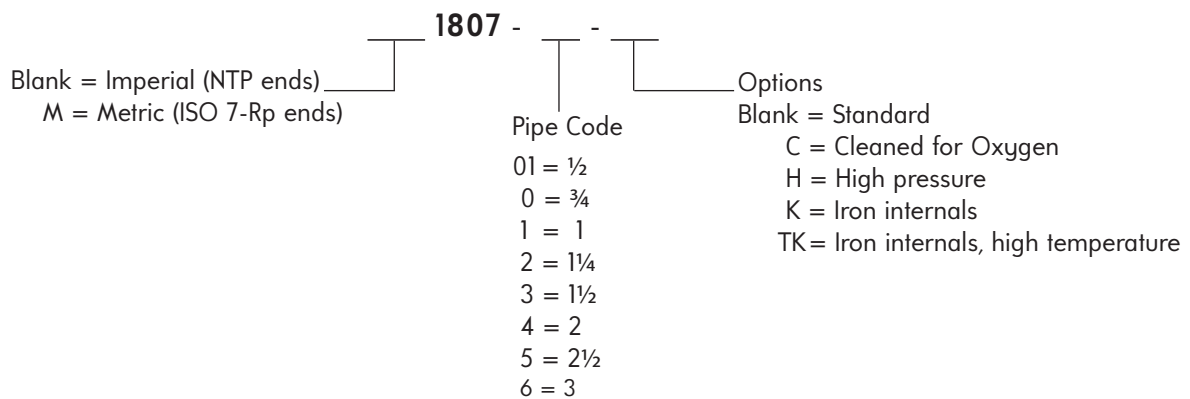
Part Name		Valve designation							
		1807-01 1807-01-K M1807-01	1807-0 1807-0-K M1807-0	1807-1 1807-1-K M1807-1	1807-2 1807-2-K M1807-2	1807-3 1807-3-K M1807-3	1807-4 1807-4-K M1807-4	1807-5 1807-5-K M1807-5	1807-6 1807-6-K M1807-6
Body	(1807 & 1807- -K) (M1807)	2-3618-3 2-3618-5	2-1676-3 2-1676-5	2-1702-3 2-1702-5	2-1677-3 2-1677-5	2-1680-3 2-1680-5	2-1682-3 2-1682-5	2-3465-3 2-3465-5	2-3468-3 2-3468-5
Gas Cartridge Assembly ^①	(1807) (M1807) (1807- -K)	4-6063-01 4-6064-01K	4-6063-0 4-6064-0K	4-6063-1 4-6064-1K	4-6063-2 4-6064-2K	4-6063-3 4-6064-3K	4-6063-4 4-6064-4K	4-6063-5 4-6064-5K	4-6063-6 4-6064-6K
Stuffing Box Cap ^②	(1807) (M1807) (1807- -K)	4-6085-1 4-6085-2	4-6086-1 4-6086-2	4-6086-1 4-6086-2	4-6086-1 4-6086-2	4-6086-1 4-6086-2	4-6087-1 4-6087-2	4-6087-1 4-6087-2	4-6087-1 4-6087-2

① Recommended spare part.

② Included in Gas Cartridge Assembly, or can be ordered separately.

ORDERING INFORMATION

To order complete valve:



Example: 1807-01-TK ½ high temperature limiting orifice valve with iron internals.

TO ORDER PARTS, SPECIFY: Part number, part name, and valve designation

Example: 4-6063-2 Gas Cartridge Assembly for 1807-2

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., is 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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