

ProCoat® Coated Stainless Steel Gas Connectors

SELECTION AND INSTALLATION INSTRUCTIONS

FOR COMPLETE EXCESS FLOW VALVE (EFV) INSTALLATION, PERFORMANCE, AND MAINTENANCE DETAILS, REFER TO THE BRASSCRAFT® EFV INSTRUCTION SHEET AVAILABLE ONLINE AND ALSO ATTACHED TO THIS DOCUMENT.

▲ CAUTION: DO NOT INSTALL THIS PRODUCT UNTIL YOU READ AND UNDERSTAND ALL INSTRUCTIONS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY, PROPERTY DAMAGE OR PRODUCT FAILURE.

Even an outstanding system can become a hazard due to poor installation, inspection or testing. Please read all precautions and installation instructions before beginning connector installation.

Manufacturer assumes no responsibility for failure due to improper installation.

Instructions are valid for all Safety+PLUS® and Safety+PLUS®2 products.

SAFETY PRECAUTIONS:

▲ WARNING: ANY HOLE, CRACK OR OTHER DAMAGE TO CONNECTOR OR ITS IMPROPER INSTALLATION COULD LEAD TO A POTENTIALLY EXPLOSIVE RELEASE OF GAS!

▲ WARNING: IF YOU SMELL GAS, LEAVE THE HOUSE IMMEDIATELY AND CALL 911 FROM A SAFE LOCATION.

▲ WARNING: THE USE AND LENGTH OF FLEXIBLE GAS CONNECTORS MAY BE RESTRICTED FOR SOME APPLICATIONS IN YOUR LOCAL JURISDICTION. INSTALL IN ACCORDANCE WITH ALL APPLICABLE CODES. IF YOU HAVE ANY QUESTIONS, PLEASE CONSULT WITH A LICENSED GAS PROFESSIONAL.

▲ WARNING: GASES CAN BE IGNITED BY A FLAME OR SPARK, WHICH MAY RESULT IN AN EXPLOSION. Please follow installation instructions carefully. When in doubt, call a licensed plumber or your local gas company.

▲ WARNING: An accessible manual gas shutoff valve must be present on the gas supply ahead of the connector. DO NOT proceed with this installation if a shutoff valve is not present – call a licensed plumber for assistance.

▲ WARNING: DO NOT use the connector in locations where temperatures can exceed 150°F/66°C.

▲ WARNING: DO NOT RE-USE THIS CONNECTOR. The connector and fittings are designed for use only on the original installation and are not to be reused for another appliance or at another location. Replace the connector if the house or connector has been energized by lightning, arcing or otherwise.

▲ WARNING: Replace connector if damaged or deteriorated. A damaged connector could result in a hazardous gas leak.

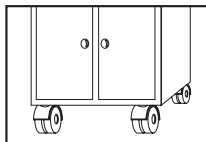
▲ WARNING: DO NOT use connector if it has been in a fire. Fire can cause damage to the connector and it may crack if moved or touched.

▲ WARNING: The protective coating helps protect against exposure to many common household chemicals. Replace connector if the protective coating is damaged (for example, from metal-to-metal contact or through excessive flexing or bending of connector). Avoid having the following materials in contact with the connector:

- Caustic chemical (e.g. ammonia, acids)
- Cleaning solutions (dish soap, cleanser, bleach)
- Solder flux and other chemicals used to etch metals
- Household chemicals (fungicides, insecticides)

Direct contact with these chemicals can cause pin hole leaks, cracks or other failures in the connector. Do not store these chemicals near the connector. Do not use a connector on any appliance located near a swimming pool or hot tub. Replace connector if connector comes in direct contact with any of these chemicals.

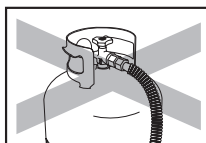
▲ WARNING: DO NOT use this connector on appliances equipped with rollers or casters. This connector is designed for limited movement after installation. Repeated bending, flexing or extreme vibration can cause metal fatigue. (Normal operation and movement of a clothes dryer or similar appliance is okay.)



▲ WARNING: This flexible gas connector is to be used on natural or LP/propane gas supply systems with operating pressures no higher than 1/2 lb. per square inch.

▲ WARNING: Use only on low pressure natural and LP gas piping systems. DO NOT use on pipelines or piping systems that transfer or move liquids, including high-pressure liquid propane.

▲ WARNING: DO NOT use this connector in direct connection to an LP gas container. Connection MUST be made to the regulator device only.

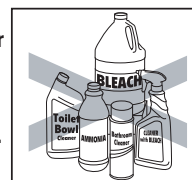


▲ WARNING: DO NOT use this connector with infrared (radiant tube) heaters. Infrared heaters expand and contract (cycle) during use which may cause connector to fail.



▲ WARNING: DO NOT use connector on appliances in moving vehicles (such as RVs, trailers, etc.) This does not include manufactured housing (permanent residence mobile homes.)

▲ WARNING: Keep cleaning solvents containing ammonia or chlorine away from an uncoated or damaged gas connector. DO NOT store these solutions near connector or use the connector near a swimming pool or hot tub. Water rinse the connector thoroughly if exposed to these chemical products.



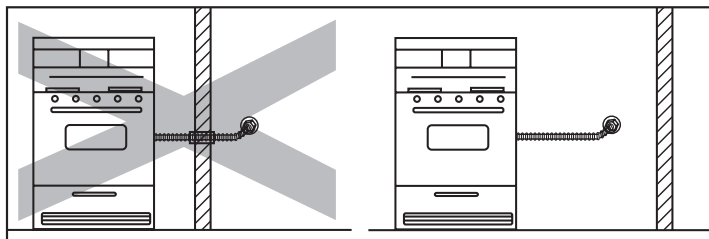
▲ WARNING: DO NOT join this connector to another connector. Use this connector only if it is long enough to allow the appliance to be positioned at its farthest anticipated connected distance from the gas supply without stretching, twisting or bending smaller than a 1-1/2 in. internal diameter (the diameter of a golf ball). Be careful when installing to avoid scratching, cutting, pinching or kinking the connector. Do not allow connector to make contact with or to become trapped against sharp edges, corners, hard contacts, etc.

▲ WARNING: DO NOT stretch connector to make it fit. Connector must be at least 2 to 3 inches longer than the distance from the gas supply line to appliance when pulled out from the supply at its maximum length.

▲ WARNING: Connector is for use in accessible locations only. DO NOT conceal connector or run connector through enclosed outdoor BBQ pits, walls, partitions, floors or appliance panels.

▲ WARNING: To avoid corrosion, do not allow connector to come in contact with foreign objects such as wall studs, wiring, copper or iron pipe, paneling, sheet metal, etc.

▲ WARNING: DO NOT use the gas connector or gas supply line for the appliance ground.



▲ WARNING: DO NOT attach connector nuts directly to pipe threads. Failure to use gas flare fittings will result in an improper seal. Attach adapter (or valve) to pipe and appliance first. Gas-rated sealing compounds (tape, pipe dope, etc.) are required for pipe threads. Apply to male pipe threads only.

▲ WARNING: Only the fittings supplied with this connector or those manufactured and recommended by BrassCraft Manufacturing Company should be used.

▲ WARNING: The maximum gas input rating of the appliance must be within the flow capacity range of the connector. If the Safety+PLUS® gas connector is not properly sized to the application, the Safety+PLUS® connector may not activate in the event of a gas line rupture or disconnect. If the Safety+PLUS® gas connector is undersized for the appliance, it may activate prematurely restricting gas flow during normal operation of the appliance.

Use only with gas line pressures at a minimum of 5 in. water column (W.C.) and not greater than 14 in. W.C. (1/2 psig) at stub out.

Use only in connection with residential and commercial gas appliances, where installation is immediately downstream of the gas supply pipe and manual gas shut-off valve. DO NOT CONNECT the Safety+PLUS® VALVE DIRECTLY TO THE APPLIANCE.

ProCoat® Coated Stainless Steel Gas Connectors

SELECTION AND INSTALLATION INSTRUCTIONS (CONTINUED)

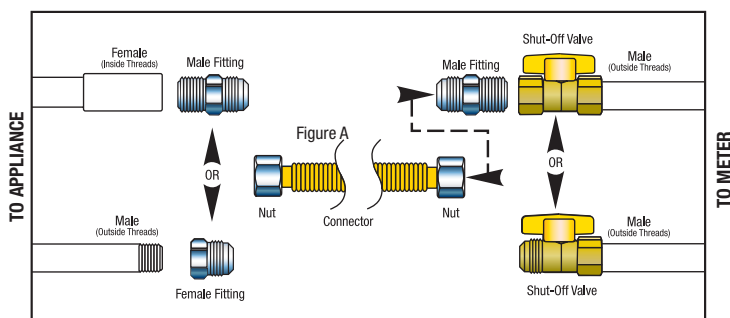
⚠ WARNING: Electrical arcing from live wire contact or lightning near installation can damage connector, resulting in a gas leak. Reduce risk of arc damage to connector by ensuring appliance it services is grounded. For additional protection, use an NFPA 780 or CAN/CSA-B72-M87 lightning protection system.

⚠ WARNING: This product meets national building codes and the ANSI standard for gas connectors (ANSI Z21.24 and ANSI Z21.75). However, local codes and regulations prevail. Contact your local municipality to verify applicable codes.

The appliance must be installed according to ANSI Z223.1 | NFPA54 "National Fuel Gas Code" and/or CSA B149.1 – Natural gas and propane installation code as applicable per your location. Do not use this connector on applications where the fuel gas pressure exceeds 1/2 psig.

⚠ WARNING: Additional requirements for the Commonwealth of Massachusetts

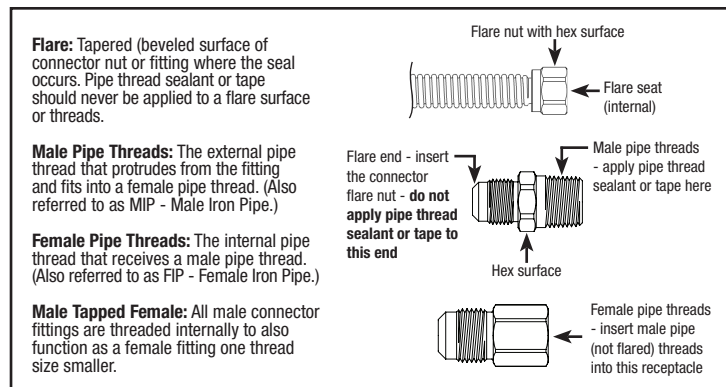
- Installations must be performed by a qualified or licensed contractor, plumber, or gasfitter qualified by the state, province, or region where this appliance is being installed.
- Only use gas shutoff valves approved for use within the state, province, or region where this appliance is being installed.
- A flexible gas connector, when used, must not exceed 4 ft.



For Excess Flow Valve (EFV) used in the system, refer to the BrassCraft® EFV installation instructions sheet available online and also attached to this document to ensure proper function and safety compliance.

CODES AND REGULATIONS:

Gas appliance and connector installation MUST conform with all local codes and regulations including municipal and state building codes, and to all local utility regulations. In the absence of local code, the installation must conform with the National Fuel Gas Code ANSI Z223.1/ NFPA No. 54, Uniform Plumbing Code, or International Fuel Gas Code. Contact your local gas company for details.



INSTALLATION INSTRUCTIONS:

⚠ WARNING: Turn off gas supply before disconnecting old appliance. In absence of manual shut-off valve near appliance location, gas MUST be shut off at main valve, near meter.

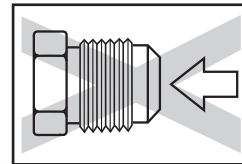
NOTE: Gas codes require use of shut-off valves within 6 ft. upstream of all appliances. The gas shut off valve must be in the same room as the connector and within easy reach. Connector must be located between the valve and appliance.

⚠ CAUTION: Connector is for use in accessible locations only. DO NOT conceal connector or run connector through enclosed outdoor BBQ pits, walls, partitions, floors or appliance panels.

INSTALLATION INSTRUCTIONS (CONTINUED):

Tools Needed for Installation: (2) 10 in. adjustable wrenches • Pipe dope or gas pipe thread tape • Leak detection solution

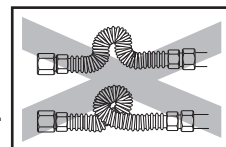
- Remove existing/old connector and fittings (if present) from the gas supply and appliance. Do not reuse.
- Uncoil new connector, do not twist or kink the connector sharply. Remove fittings if attached to new connector.
- Clean all pipe threads with a wire brush and rag to ensure connections are free of any debris such as metal shavings, rust, dirt, oil or water.
- Apply pipe thread sealant to the male pipe threads of connection. DO NOT apply sealant or tape to flare ends of fittings or shut-off valve.



⚠ WARNING: DO NOT use pipe dope, thread seal tape, grease or plumbers putty on the flare fitting when installing this connector. These products can prevent flare joint from sealing properly.

- If necessary, thread new manual shut-off valve onto gas supply pipe, wrench tighten.
- Thread steel fitting to manual shut-off valve and other steel fitting onto appliance regulator.
- Thread flare nuts of gas connector onto shut-off valve and steel fitting. Wrench tighten all connections.

⚠ WARNING: DO NOT stretch the connector to make it fit. Connector must be long enough to allow the appliance to be positioned at its farthest anticipated connected distance from the gas supply without stretching, twisting or bending smaller than a 1-1/2 in. internal diameter (diameter of a golf ball).



⚠ WARNING: DO NOT trap connector against sharp edges or corners.

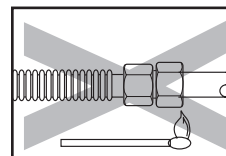
⚠ WARNING: DO NOT kink, twist or bend connector sharply.

- Turn manual shut-off valve on to allow gas to enter system.

⚠ WARNING: DO NOT TURN ON APPLIANCE until all connections have been leak tested!

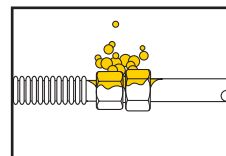
⚠ WARNING: DO NOT USE MATCHES, CANDLES, FLAMES OR OTHER SOURCES OF IGNITION FOR LEAK TESTING CONNECTORS OR FITTINGS.

- Test all connections with leak test solution provided, or with clear soap and water solution; bubbles will indicate a leak. If a leak is detected, turn off gas supply before further tightening connections.



⚠ WARNING: DO NOT get soap, water or leak detection solution inside the Safety+PLUS® valve or connector. Direct contact with any of these fluids could cause the Safety+PLUS® thermal excess flow valve to not function properly in the event of a fire.

Rinse connector with water and towel dry after leak testing connections. Soap and test solutions may cause an uncoated connector to corrode.



- Wait at least 10 minutes to be certain that all vapors have dissipated. If leak test confirms connections do not leak gas and you do not smell any gas, THEN light pilot(s) and turn on appliance.

⚠ DANGER: DO NOT USE motorized equipment or other sources of combustion to dissipate gas vapors. Motorized equipment can ignite gas vapors causing fire or explosion which may result in property damage and/or personal injury including death.

⚠ DANGER: Fuel gases are colorless, tasteless, and in their pure state, odorless. They are odorized (rotten egg smell) so that their presence can be detected. LP gases are heavier than air and dissipate more slowly than natural or manufactured gases. LP gas, if released in quantity, will accumulate in low-lying areas such as a basement or crawl space.

⚠ WARNING: If you smell gas, turn off the gas at the main valve and call a licensed plumber to test for leaks and fix any problems.

ProCoat® Coated Stainless Steel Gas Connectors

SELECTION AND INSTALLATION INSTRUCTIONS (CONTINUED)

NOTE: Connectors should be sized based upon the appliance gas consumption rate. Select a connector with a capacity equal to or greater than appliance input rate.

CONNECTOR WITH FITTING OR BALL VALVE

Connector Series	Nom. O.D.	Nom. I.D.	STRAIGHT LENGTH CAPACITY (BTU PER HOUR) - FOR NATURAL GAS							
			12"	18"	24"	30"	36"	48"	60"	72"
CSSL / CSST	3/8"	1/4"	48,000	43,800	40,000	36,400	33,400	28,300	24,900	23,100
CSSD	1/2"	3/8"	102,000	93,100	85,000	77,100	71,100	60,500	53,200	49,100
CSSC	5/8"	1/2"	180,000	164,200	150,000	136,000	125,000	106,000	93,200	86,000
CSSB	7/8"	3/4"	290,900	290,900	290,900	270,500	255,900	215,000	197,400	173,900

0.64 Sp Gr, 1000 BTU per Cu. Ft. (37.2 MJ/m³) gas at 0.5 in. water column (124Pa) pressure drop. Per ANSI Z21.24 / CSA 6.10 and ANSI Z21.75 / CSA 6.27 for use with pressures not to exceed 1/2 PSI.

LISTINGS AND CERTIFICATIONS:

Components CSA listed to ANSI Z21.24 / CSA 6.10 standard "Connectors for Gas Appliances"

Components CSA listed to ANSI Z21.75 / CSA 6.27 standard "Connectors for Outdoor Gas Appliances & Manufactured Homes"

NOTE: This connector meets or exceeds the minimum allowable capacity as determined under test conditions specified in ANSI Z21.24 / CSA 6.10 and ANSI Z21.75 / CSA 6.27. Straight length capacity rated in BTU per hr. using: 0.64 SP. Gr., 1000 BTU per Cu Ft. Gas at 0.50 in. Water Column Pressure Drop. The capacity at 50 Pa (0.2 in. water column) pressure drop can be determined by multiplying the BTU per hr. listed in the table above by 0.632.



Safety+PLUS® Excess Flow Valves

INSTALLATION INSTRUCTIONS

▲ **CAUTION:** DO NOT INSTALL THIS PRODUCT UNTIL YOU READ AND UNDERSTAND ALL INSTRUCTIONS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY, PROPERTY DAMAGE OR PRODUCT FAILURE.

Manufacturer assumes no responsibility for failure due to improper installation.

Instructions are valid for all Safety+PLUS® and Safety+PLUS®2 products.

▲ **WARNING:** ANY HOLE, CRACK OR OTHER DAMAGE TO CONNECTOR OR ITS IMPROPER INSTALLATION COULD LEAD TO A POTENTIALLY EXPLOSIVE RELEASE OF GAS!

▲ **WARNING:** IF YOU SMELL GAS, LEAVE THE HOUSE IMMEDIATELY AND CALL 911 FROM A SAFE LOCATION.

▲ **WARNING:** THE USE AND LENGTH OF FLEXIBLE GAS CONNECTORS MAY BE RESTRICTED FOR SOME APPLICATIONS IN YOUR LOCAL JURISDICTION. INSTALL IN ACCORDANCE WITH ALL APPLICABLE CODES. IF YOU HAVE ANY QUESTIONS, PLEASE CONSULT WITH A LICENSED GAS PROFESSIONAL.

▲ **WARNING:** The protective coating helps protect against exposure to many common household chemicals. Replace connector if the protective coating is damaged (for example, from metal-to-metal contact or through excessive flexing or bending of connector). Avoid having the following materials in contact with the connector:

- Caustic chemical (e.g. ammonia, acids)
- Cleaning solutions (dish soap, cleanser, bleach)
- Solder flux and other chemicals used to etch metals
- Household chemicals (fungicides, insecticides)

Direct contact with these chemicals can cause pin hole leaks, cracks or other failures in the connector. Do not store these chemicals near the connector. Do not use a connector on any appliance located near a swimming pool or hot tub. Replace connector if connector comes in direct contact with any of these chemicals.

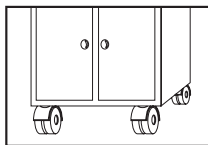
▲ **WARNING:** Replace connector if damaged or deteriorated. A damaged connector could result in a hazardous gas leak.

▲ **WARNING:** Electrical arcing from live wire contact or lightning near installation can damage connector, resulting in a gas leak. Reduce risk of arc damage to connector by ensuring appliance it services is grounded. For additional protection, use an NFPA 780 or CAN/CSA-B72-M87 lightning protection system.

▲ **WARNING:** DO NOT RE-USE THIS CONNECTOR. The connector and fittings are designed for use only on the original installation and are not to be reused for another appliance or at another location. Replace the connector if the house or connector has been energized by lightning, arcing or otherwise.

▲ **WARNING:** DO NOT use connector if it has been in a fire. Fire can cause damage to the connector and it may crack if moved or touched.

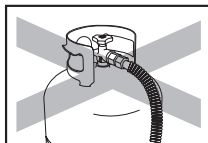
▲ **WARNING:** DO NOT use this connector on appliances equipped with rollers or casters. This connector is designed for limited movement after installation. Repeated bending, flexing or extreme vibration can cause metal fatigue. (Normal operation and movement of a clothes dryer or similar appliance is okay.)



▲ **CAUTION:** Connector is for use in accessible locations only. DO NOT conceal connector or run connector through enclosed outdoor BBQ pits, walls, partitions, floors or appliance panels.

▲ **WARNING:** DO NOT use this connector in direct connection to an LP gas container.

▲ **WARNING:** DO NOT use this connector on appliances in moving vehicles (such as RVs, trailers, etc.) This does not include manufactured housing (permanent residence mobile homes.)



▲ **WARNING:** DO NOT use this connector with infrared (radiant tube) heaters. Infrared heaters expand and contract (cycle) during use which may cause connector to fail.

▲ **WARNING:** DO NOT use the connector in locations where temperatures can exceed 150°F/66°C.

▲ **WARNING:** DO NOT attach connector nuts directly to pipe threads. Failure to use gas flare fittings will result in an improper seal. Attach adapter (or valve) to pipe and appliance first. Gas-rated sealing compounds (tape, pipe dope, etc.) are required for pipe threads. Apply to male pipe threads only.

▲ **WARNING:** DO NOT join this connector to another connector. Use this connector only if it is long enough to allow the appliance to be positioned at its farthest anticipated connected distance from the gas supply without stretching, twisting or bending smaller than a 1-1/2 in. internal diameter (the diameter of a golf ball). Be careful when installing to avoid scratching, cutting, pinching or kinking the connector. Do not allow connector to make contact with or to become trapped against sharp edges, corners, hard contacts, etc.

APPLICATIONS:

Use only on low pressure natural and LP gas piping systems. **DO NOT USE** on pipelines or piping systems that transfer or move liquids, including high-pressure liquid propane.

Use only in connection with residential and commercial gas appliances, where installation is immediately downstream of the gas supply pipe and manual gas shut-off valve. **DO NOT CONNECT the Safety+PLUS® VALVE DIRECTLY TO THE APPLIANCE.** (Any excess flow and thermal shutoff valve with a bypass flow rate greater than 2.5 SCFH is NOT for residential use.)

Use only with gas line pressures at a minimum of 5 in. water column (W.C.) and not greater than 14 in. W.C. (1/2 psig) at stub out.

The Excess Flow Valve is not designed to protect against small leaks or cracks on the supply line or in the event that an oven, stove burner, or other gas appliance is inadvertently left operating.

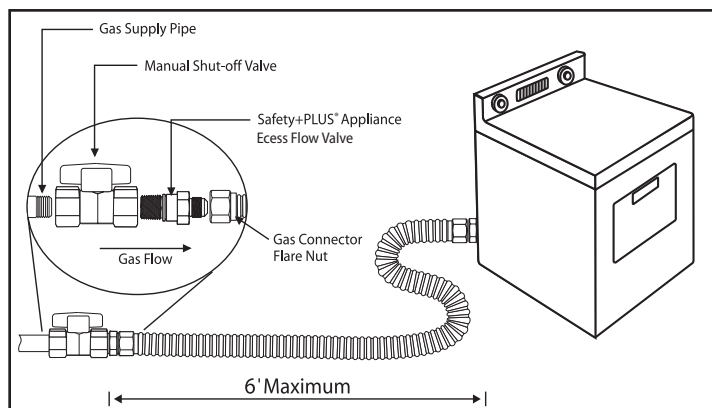
Mounting position for valve can be: Horizontal, Vertical UP and Vertical DOWN.

LOCATING, SELECTING AND SIZING THE SAFETY+PLUS® VALVE TO THE APPLIANCE:

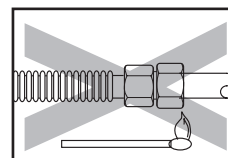
1. The Safety+PLUS® valve must be installed between the gas supply pipe and the flexible gas connector.
2. Identify the maximum (gas) input rating of the appliance. This information can be found on the manufacturer's label located on the back of the appliance near the gas inlet. Contact the appliance manufacturer if you are unsure of the correct rating for the appliance.
3. Using Chart 1, select the Safety+PLUS® valve with the maximum flow capacity that is HIGHER than the input rating of the appliance. However, select the Safety+PLUS® valve with the maximum flow capacity that is CLOSEST TO the input rating of the appliance.

▲ **WARNING:** The maximum gas input rating of the appliance must be within the flow capacity range of the excess flow valve. If the Safety+PLUS® valve is not properly sized to the application, the Safety+PLUS® valve may not activate in the event of a gas line rupture or disconnection. If the Safety+PLUS® valve is undersized for the appliance, it may activate prematurely restricting gas flow during normal operation of the appliance.

▲ **WARNING:** DO NOT CONNECT Safety+PLUS® EXCESS FLOW VALVE DIRECTLY TO THE APPLIANCE. The Safety+PLUS® valve must be installed between the gas supply pipe and the flexible gas connector. If installed at the gas inlet of the appliance, the Safety+PLUS® valve will not operate.



▲ **DANGER:** DO NOT use matches, candles, open flames or other sources of ignition during product installation. A spark or flame may ignite gas vapors causing property damage and/or personal injury including death. Extinguish all pilot lights within 50 ft. before proceeding with appliance installation.



Safety+PLUS® Excess Flow Valves

INSTALLATION INSTRUCTIONS (CONTINUED)

CHART 1: It is important to properly size the Safety+PLUS® valve for the appliance application and piping system. Read all installation instructions contained within this brochure for complete sizing requirements.

Series	Type	Inlet	Outlet	Flow Capacity .5" Water Column (W.C.) (BTU/HR)	Maximum Flow Capacity (BTU/HR)	Max Pressure Drop at Max Flow Capacity (IN. W.C.)	Rated Trip Flow Rate (BTU/HR)	Maximum Bypass Rate (SCFH)
Low to Moderate Demand Appliance								
1540	TEFV	1/2" MIP (3/8" F Flare)	3/8" OD Flare	38,000	53,100	1.6	59,000	2.5
Moderate to Large Demand Appliances								
1550	TEFV/EFV	1/2" MIP	1/2" OD Flare	102,000	126,000	0.9	140,000	2.5
Large Demand Appliances								
1560	TEFV/EFV	3/4" MIP (1/2" FIP)	5/8" OD Flare	110,000	169,200	2.6	188,000	2.5
1560	TEFV	1/2" MIP	5/8" OD Flare	110,000	169,200	2.6	188,000	2.5
1560	TEFV	3/4" FIP	5/8" OD Flare	110,000	169,200	2.6	188,000	2.5

NOTE: All Safety+PLUS® valves require minimum inlet pressure of 5 in. W.C. and are rated at a maximum inlet pressure of 1/2 psig. (14 in. W.C.). Flow rates given are for 0.64 specific gravity natural gas with a nominal heating value of 1000 Btu per cubic foot; therefore, 1,000 Btu/h is equal to 1 SCFH (standard cubic foot per hour). Chart to be used in accordance with the local plumbing codes and with reference to IAPMO/ANSI UPC 1-2003; NFPA 54/ANSI Z223.1 - National Fuel Gas Code.

- A minimum of 5 in. W.C. inlet pressure is required with a maximum inlet pressure of 14 in. W.C. (1/2 psig).
- Operating temperature: -20°F to 150°F (-29°C to 66°C).
- Bypass rate: MAX 2.5 SCFH at 0.5 PSI.
- EFV (Excess Flow Valve) Safety+PLUS® Type: EFVB (Bypass with automatic reset).
- Maximum trip flow is 1.4 times the rated trip flow.
- TEFV (Thermal Excess Flow Valve) Safety+PLUS®2 Reaction Temperature: at or above 400°F (204.5°C).

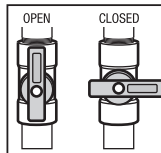
INSTALLATION INSTRUCTIONS:

Installation, testing and service MUST be performed by a licensed plumber/qualified installer.

The appliance must be installed according to ANSI Z223.1 | NFPA54 "National Fuel Gas Code" and/or CSA B149.1 – Natural gas and propane installation code as applicable per your location. Do not use this connector on applications where the fuel gas pressure exceeds 1/2 psig.

Tools Needed for Installation: (2) 10 in. adjustable wrenches • Pipe dope or gas pipe thread tape • Leak detection solution

1. Turn off gas supply at the appliance before disconnecting the appliance. The manual gas-off valve, located near the appliance, is closed and gas is shut off when the valve handle is perpendicular to the valve body. In absence of a manual valve near appliance location, gas MUST be shut off at main valve, before the meter.

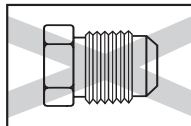


NOTE: Gas codes require use of shut-off valves within 6 ft. upstream of all appliances. The gas shut off valve must be in the same room as the connector and within easy reach. Connector must be located between the valve and appliance.

CAUTION: Connector is for use in accessible locations only. DO NOT conceal connector or run connector through enclosed outdoor BBQ pits, walls, partitions, floors or appliance panels.

2. Clean ALL pipe threads with a wire brush and rag to ensure connections are free of any debris such as metal shavings, rust, dirt, oil or water.
3. Apply pipe thread sealant to male pipe threads.

CAUTION: DO NOT use pipe dope, thread seal tape, grease or plumbers putty on the flare fitting when installing this connector. These products can prevent flare joint from sealing properly.



INSTALLATION INSTRUCTIONS (CONTINUED):

4. If not already installed, thread manual gas shut-off valve onto gas supply pipe. Using one adjustable wrench to stabilize the gas stub out, wrench tighten valve with second wrench.
5. Inspect the Safety+PLUS® valve before installing to be certain it has not been damaged. Then, thread brass Safety+PLUS® valve to manual gas shut-off valve. Using one adjustable wrench to stabilize the manual shut-off valve, wrench tighten the Safety+PLUS® valve with second wrench. Tighten all connections in the same manner.

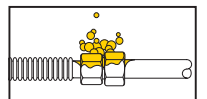
WARNING: ALWAYS install Excess Flow Valve in easily accessible and well-ventilated location. NEVER install in concealed location.

6. TEST the Safety+PLUS® valve as follows:
 - A. Make sure the manual gas shut-off valve located before the Safety+PLUS® valve is in the closed position. Valve is closed when valve handle is perpendicular to the valve body. Turn on main valve at meter to allow gas or compressed air to enter system.
 - B. Next, slowly open the manual gas shut-off valve located before the Safety+PLUS® valve. Safety+PLUS® valve will activate (you will hear a soft "click") when the shut-off valve is completely open. If the Safety+PLUS® valve does not activate, immediately shut off the manual gas valve as the EFV is improperly sized or installed.
 - C. Review sizing instructions and correct installation as necessary. Repeat 6A and 6B test instructions. If Safety+PLUS® valve still does not activate when tested, remove the device and call Customer Service TOLL-FREE: 877-272-7755.
7. Shut off the gas supply and install gas connector per manufacturer's installation instructions OR thread a flare cap onto flared end of Safety+PLUS® valve. Wrench tighten all connections.
8. For new appliance installations, SLOWLY open the manual gas shut-off valve to allow gas to enter the system. The valve is open and gas is flowing when the valve handle is parallel to the valve body.

NOTE: If gas enters system too quickly, the Safety+PLUS® valve may activate prematurely. If this occurs, the Safety+PLUS® valve will re-open in less than 60 seconds (you will hear a soft "click").

WARNING: DO NOT TURN ON APPLIANCE until all connections have been leak tested!

9. Leak test all connections with a clear soap and water solution or a leak detection solution; bubbles will indicate a leak in the connection. If a leak is detected, turn off gas supply before further tightening connections.



WARNING: DO NOT get soap, water or leak detection solution inside the Safety+PLUS® valve or connector. Direct contact with any of these fluids could cause the Safety+PLUS® thermal excess flow valve to not function properly in the event of a fire.

DANGER: DO NOT USE MATCHES, CANDLES, FLAMES OR OTHER SOURCES OF IGNITION FOR LEAK TESTING CONNECTORS OR FITTINGS. A spark or flame can ignite gas vapors causing fire or explosion which may result in property damage and/or personal injury including death.

Safety+PLUS® Excess Flow Valves

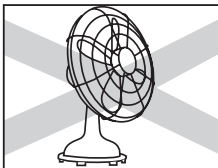
INSTALLATION INSTRUCTIONS (CONTINUED)

▲ **WARNING:** DO NOT REUSE EFV VALVE.

▲ **CAUTION:** Rinse connector with water and towel dry after leak testing connections. Soap and test solutions may cause an uncoated connector to corrode.

10. Wait at least 10 minutes once you have leak-tested all connections and have found no leaks, to be certain that all vapors have dissipated.

▲ **DANGER:** DO NOT USE motorized equipment or other sources of combustion to dissipate gas vapors. Motorized equipment can ignite gas vapors causing fire or explosion which may result in property damage and/or personal injury including death.



▲ **DANGER:** Fuel gases are colorless, tasteless, and in their pure state, odorless. They are odorized (rotten egg smell) so that their presence can be detected. LP gases are heavier than air and dissipate more slowly than natural or manufactured gases. LP gas, if released in quantity, will accumulate in low-lying areas such as a basement or crawl space.

THIS SAFETY+PLUS® EXCESS FLOW VALVE IS NOT DESIGNED TO ACTIVATE IF ANY OF THE FOLLOWING CONDITIONS ARE PRESENT:

- There are small leaks such as pin hole leaks or lesser leaks caused by cracks or loose connections that do not increase the gas flow above normal operating capacity of the appliance.
- The gas appliance malfunctions or the user fails to shut off gas burners.
- There is foreign matter, such as pipe thread sealant, lodged in the valve.
- The manual gas shut-off valve is partially opened, or there is a pipe break or damage that has occurred upstream of the Safety+PLUS® valve that prevents sufficient gas flow through the valve.
- There is insufficient gas flow from an improperly sized gas piping system upstream of the Safety+PLUS® valve.
- The gas flow through the valve is in the wrong direction. The Safety+PLUS® valve responds to gas flow in one direction only (see product label). The Safety+PLUS® valve must be installed so that the arrows point in the direction of gas flow.
- The Safety+PLUS® valve is damaged, exposed to fire or improperly installed.

▲ **WARNING:** Replace all Safety+PLUS® valves that have been damaged or exposed to fire.

- Must not be installed in a concealed location.
- Excess flow valve with bypass flow rates greater than 2.5 SCFH are not for residential use.
- The above testing should be performed in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54, Section 8.2, Piping system, appliance and equipment leakage test, and Section 8.3, Purging.

▲ **WARNING:** The open end of piping systems being tested shall not discharge into confined spaces or areas where there are ignition sources unless precautions are taken to perform this operation in a safe manner by ventilation of the space and elimination of all hazardous conditions.

