



Safety+PLUS®

EXCESS FLOW VALVES

for Residential and Commercial Gas Appliances



The next generation in gas safety products.

BrassCraft®

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DO NOT INSTALL THIS PRODUCT UNTIL YOU HAVE READ AND UNDERSTAND ALL INSTRUCTIONS!

The Safety+PLUS excess flow valve (EFV), an automatic safety valve for gas, utilizes a patented magnet-based excess flow technology. In the event of a gas line rupture or disconnection at the appliance, the Safety+PLUS valve immediately restricts gas flow to a non-hazardous level (a bypass flow) to avert the potential for a dangerous release of gas into the home. Only after the gas line has been properly repaired, the bypass flow automatically resets the valve, resuming gas flow to the appliance.

- 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 stub out and manual gas shut-off valve.
- Use only with gas line pressures at a minimum of 4" water column (W.C.) and not greater than 14" W.C. (1/2 psig) at the stub out.

TOOLS NEEDED FOR INSTALLATION:

- (2) 10" adjustable wrenches
- Pipe dope or gas pipe thread tape
- Leak detection solution

SIZING THE Safety+PLUS VALVE TO THE APPLIANCE

- (1) Identify the maximum (gas) input rating (also referred to as "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.
- (2) 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, may activate prematurely restricting gas flow during normal operation of the appliance.

- (3) If the piping system leading to the appliance stub out is **CSST pipe** (Corrugated Stainless Steel Tubing), install a Safety+PLUS valve with a closing flow of 95 KBTU/Hr (Series 1540). A larger capacity Safety+PLUS valve (Series 1560 w/ closing flow of 195 KBTU/HR) may only be used when [1] the CSST pipe is 3/4" EHD (Equivalent Hydraulic Diameter), [2] the CSST pipe run upstream of the Safety+PLUS valve is less than 25' in length, and [3] you have tested the Safety+PLUS valve once installed pursuant to installation instruction # 6.

NOTE: Always refer to CSST manufacturer's sizing chart for appropriate length of CSST pipe in the gas service line. Always test the Safety+PLUS valve after installation is complete per installation instruction #6.

EXAMPLE*: 30" free standing gas range

- maximum (gas) input rating of appliance = 54,500 BTU/Hr
- 1/2" female iron pipe outlet on the gas ball valve
- 1/2" black piping gas system upstream of EFV

Example installation requires a 1540 Series Safety+PLUS valve with a 1/2" MIP inlet; therefore, the best Safety+PLUS valve for the installation is EU2-8L.

*BTU ratings are hypothetical for the purpose of this example only

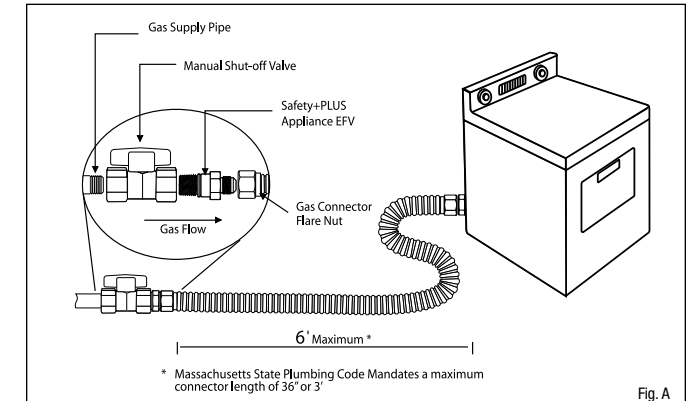


Fig. A

INSTALLATION INSTRUCTIONS

⚠ 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. (Figure A)

⚠ WARNING: DO NOT USE matches, candles, open flames or other sources of ignition during product installation. (Figure B) 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.

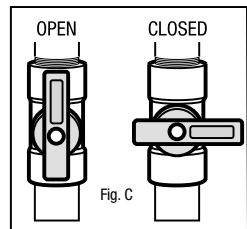
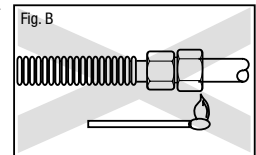


Fig. C

INSTALLATION:

- (1) Turn off gas supply at the appliance before disconnecting the appliance. The manual gas shut-off valve, located near the appliance, is closed and gas is shut off when the valve handle is perpendicular to the valve body (Figure C). In absence of a manual valve near appliance location gas MUST be shut off at main valve, before the meter.
NOTE: Fuel Gas Codes require installation of a manual gas shut-off valve in the same room, within easy reach of the appliance.
- (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 apply pipe thread sealant or tape to flare ends of fittings or valves. Sealant and tape will prevent this connection from sealing properly. (Figure D)

(4) If not already installed, thread manual gas shut-off valve onto gas supply pipe. Using one adjust able 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.

(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 (Figure C). 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 “pop”) when the shut-off valve is completely open. If the Safety+PLUS valve does not activate, immediately shut off the manual gas valve. The EFV is improperly sized or installed.

c) Review sizing instructions and correct installation as necessary. Repeat 6A & 6B test instructions. If Safety+PLUS valve still does not activate when tested, remove the device and call customer service at 248-305-6000.

(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 (Figure C). 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 ARE 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. (Figure E)

DANGER: DO NOT USE matches, candles, open flames or other sources of ignition to leak test gas connections. (Figure B) A spark or flame may ignite gas leaks potentially causing personal injury and/or property damage.

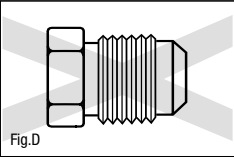


Fig. D

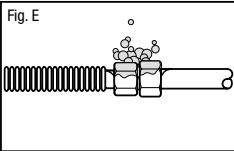


Fig. E

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 ignition 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. (Figure F)

DANGER: Fuel gases are colorless, tasteless and in their pure state, odorless vapors. They are odorized (rotten egg smell) so that their presence can be detected. LP gases are heavier than air and dissipate slower than natural or manufactured gases. LP gas, if released into the home, 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.

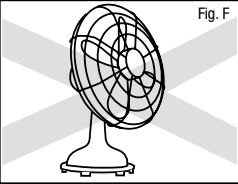


Fig. F

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.

Part #	Inlet	Outlet	Minimum Flow Capacity (BTU/HR)	Maximum Flow Capacity (BTU/HR)	Closing Flow Rate (BTU/HR)	Maximum Bypass Rate (SCFH)
3/8" OD Flare (Series 1540) - Low Demand Appliances						
EU2-6	3/8" MIP	3/8" OD Flare	-----	48,000	95,000	5
EU2-6-8	1/2" MIP	3/8" OD Flare	-----	48,000	95,000	5
EU2-6-12	3/4" MIP (tapped 1/2" FIP)	3/8" OD Flare	-----	48,000	95,000	5
EU4-6-8	3/8" Female Flare (1/2" MIP)	3/8" OD Flare	-----	48,000	95,000	5
EU4-6-12	1/2" Female Flare (3/4" MIP)	3/8" OD Flare	-----	48,000	95,000	5
1/2" OD Flare (Series 1540) - Low to Moderate Demand Appliances						
EU1-8-12L	3/4" FIP	1/2" OD Flare	-----	75,000	95,000	5
EU2-8L	1/2" MIP	1/2" OD Flare	-----	75,000	95,000	5
EU2-8-12L	3/4" MIP (tapped 1/2" FIP)	1/2" OD Flare	-----	75,000	95,000	5
EU4-8-12L	1/2" Female Flare (3/4" MIP)	1/2" OD Flare	-----	75,000	95,000	5
EU5-8-10L	5/8" Female Flare	1/2" OD Flare	-----	75,000	95,000	5
1/2" OD Flare (Series 1560) - Large Demand Appliances						
EU1-8-12	3/4" FIP	1/2" OD Flare	75,001	102,000	195,000	5
EU2-8	1/2" MIP	1/2" OD Flare	75,001	102,000	195,000	5
EU2-8-12	3/4" MIP (tapped 1/2" FIP)	1/2" OD Flare	75,001	102,000	195,000	5
5/8" OD Flare [15/16-16 Thread] (Series 1560) - Large Demand Appliances						
MEU1-10-12	3/4" FIP	5/8" OD Flare	75,001	135,000	195,000	5
MEU2-10-8	1/2" MIP	5/8" OD Flare	75,001	135,000	195,000	5
MEU2-10-12	3/4" MIP (tapped 1/2" FIP)	5/8" OD Flare	75,001	135,000	195,000	5
MEU5-10	5/8" Female Flare	5/8" OD Flare	75,001	135,000	195,000	5

Note: All Safety+PLUS valves require minimum inlet pressure of 4" W.C. and are rated at a maximum inlet pressure of 1/2 psig. (14" W.C.). Flow rates given are for 0.6 specific gravity natural gas with an average heating value of 1000 BTU per cubic foot; therefore, 1,000 BTU/Hr 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