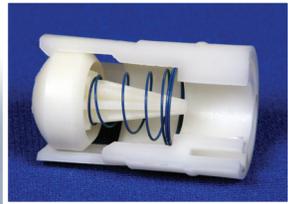
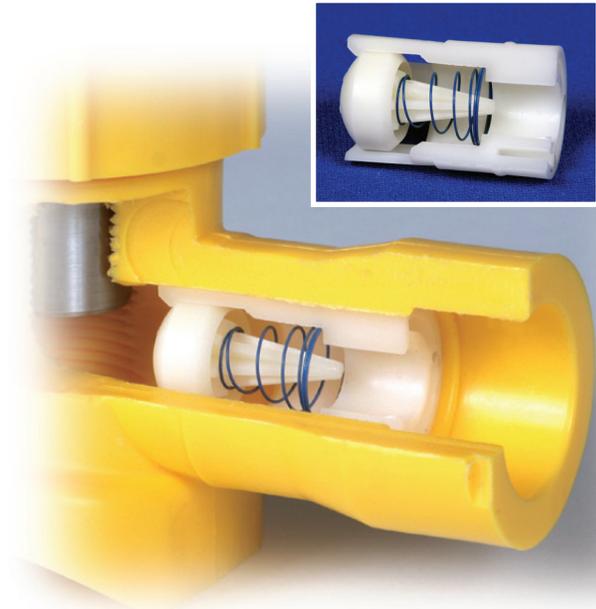


Style 480 Excess Flow Valves (EFV)

A reliable, economical choice for safety in the event of a catastrophic gas service line rupture



What is an Excess Flow Valve?

An Excess Flow Valve (EFV) is a device that automatically limits the flow of gas when a condition of excess flow may occur. It is generally used for residential natural gas service lines to minimize escaping gas in the event of third party damage and other types of line ruptures.

Dresser Excess Flow Valve Features:

- Simplicity of Design...Only two moving parts - the poppet and spring
- Maintenance-free...No lubrication or monitoring required
- 100% Production-tested...per ASTM F1802 test method assuring trip and bypass flow rates per CFR Title 49 DOT 192.381, MSS-SP-115 and ASTM F2138 governing standards
- Valve Resets Automatically...no need to excavate or manually repressurize line
- Low Pressure Loss...maximizes gas flow
- Self-cleaning Design...resists particulate build-up
- Integrated Seal & Restraint Rib...provides gas-tight seal and positive restraint

EFV Materials of Construction:
Body, Retainer & Poppet: Molded Chemical-Resistant Thermoplastic
Spring: 18-8 Stainless Steel; Spring Temper

EFV Sizing Guide

Dresser has developed an Electronic EFV Sizing Guide to help the customer select the best EFV for the conditions present in their gas service system. This selection guide offers a step-by-step application process to help you determine the appropriate EFV configuration. To get an electronic copy simply contact your nearest Dresser sales representative or call 814.362.9300.

Oil & Gas
Dresser Pipeline Solutions
EFV Calculation Sheet
March 11, 2016

PIPETUBING SIZE:
3/4" CTS (1/2" O.D.) (MPP) (MCL)
0.701 in. Maximum Inside Diameter
EFV SIZE AND CAPACITY:
3/4" CTS Low Capacity
52 in. w.c. pressure drop at min. trip rate

Inlet Pressure (PSIG)	Trip Flow Rate (SCFH @ 14.7 PSIA)		Line Length Protected (ft)
	Minimum	Maximum	
5	538	807	243
10	602	902	461
15	661	976	639
20	717	1076	1251
25	770	1155	1559
30	820	1230	1863
35	868	1300	2165
40	915	1366	2469
45	961	1430	2776
50	991	1487	3085
55	1023	1543	3400
60	1064	1596	3707
65	1098	1647	4004
70	1131	1696	4373
75	1167	1743	4765
80	1192	1789	5060
85	1222	1833	5378
90	1251	1877	5716
95	1280	1920	6053
100	1309	1963	6387
105	1337	2006	6716
110	1367	2050	7059
115	1396	2094	7382
120	1427	2140	7693
125	1458	2187	7993

Line Length Equation:

$$L = \left[\frac{2826 \cdot ID^{2.725}}{G^{0.425} \cdot Q} \right]^{1.74} \cdot (P_1^2 - P_2^2)$$

Symbols:
G: Specific Gravity of Line Content - 0.6 for natural gas (dimensionless)
ID: Inside diameter of service line - minimum per ASTM D2513 Tolerances (in)
Q: Maximum trip flow rate at given inlet pressure (SCFH)
P₁: Distribution main pressure less pressure loss across EFV corresponding to maximum trip flow rate, Q (PSIA)
P₂: Outlet pressure - atmospheric (14.7 PSIA)
L: Length of service line protected by the selected EFV (ft)

NOTES:

Application Considerations for Excess Flow Valve Selection:

- Minimum pressure of the distribution main (PSIG)
- Service line length (Feet)
- Service line flow capacity - Maximum gas consumption rate (SCFH)
- Service line material and diameter
- Type required - Threaded, Weld, Mechanical Fitting, Butt Fusion, Socket Fusion, Electrofusion

NOTE: EFV's use the kinetic energy of flowing gas to operate. On small diameter service lines at relatively low inlet pressures, conditions may exist that prevent the EFV from activating in the event of a line rupture.

Minimum Trip Flow Rate

At the minimum system pressure expected, the Minimum Trip Flow Rate of the EFV must be greater than the system demand. NOTE: If the actual flow rate in the line exceeds the Trip Flow Rate of the EFV, a false trip will occur.

Minimum Protected Line Length

The minimum length of line protected is the distance as measured along the pipeline at which a line break will result in an excess flow condition. This calculation takes into account all variables in the system components and flow conditions. The protected line length formula was adapted from the Mueller formula for high pressure installations of smooth pipe carrying gas at pressures greater than 1 psig.

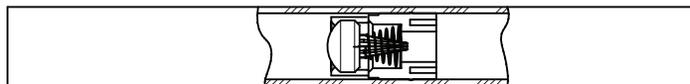
Dresser Excess Flow Valve Product Configurations

EFV's are easily integrated with other supplier's fittings.

Polyethylene Sticks

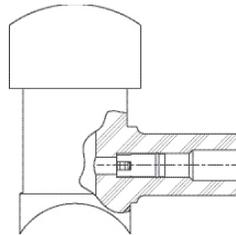
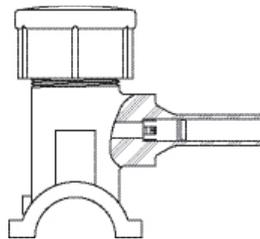
For use with...

- Mechanical Fittings
- Butt Fusion
- Socket Fusion
- Electrofusion



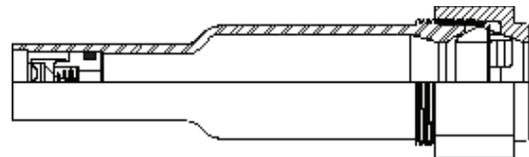
Tapping Tees

- Saddle Fusion
- Electrofusion
- Plain Outlet
- Socket Fusion Outlet



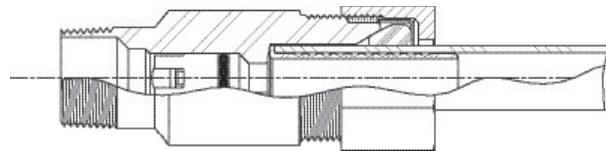
Dresser Style 90 Universal Cut-in Adapter

- For installing EFV's in existing steel service lines



Special Applications

Shown at right is a Dresser 1" MIPS x 3/4" IPS steel transition fitting designed to add an EFV for polyethylene service renewal



CAUTION

ALWAYS READ ALL OF THE INSTALLATION AND OPERATION INSTRUCTIONS, CAUTIONS AND WARNINGS WHEN INSTALLING EXCESS FLOW VALVES! FAILURE TO FOLLOW THE INSTRUCTIONS & WARNINGS COULD RESULT IN IMPROPER OPERATION AND ESCAPING LINE CONTENT THAT COULD CAUSE PROPERTY DAMAGE, SERIOUS INJURY OR DEATH!

WARNING

Proper selection of Excess Flow Valves is required. Also, proper orientation of the Excess Flow Valve when installed in the service line is critical. Improper selection or installation of EFV's could create the potential for a dangerous condition if the line is severed. This condition could result in escaping line content that could cause property damage, serious injury or death!

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