HUBBELL®

Gas Connectors & Accessories

GasBreaker

Leading the way in EFVs

Automatic Safety Valves for Gas Service Lines

HUBBELL®

Gas Connectors & Accessories

Continental Industries

GasBreaker™

LYALL

AEC ADVANCE ENGINEERING CORPORATION

PPS PERFECT PIPE & SUPPLY

GasBreaker™

Excess Flow® Valves (EFVs)

Since their introduction, millions of GasBreaker EFVs have been sold (more than 5 times as many valves as all other US competitors combined) and installed worldwide, providing tens of billions of field service hours. Today the GasBreaker Excess Flow Valve is known as "The EFV of Choice." The GasBreaker EFV is manufactured in a wide variety of models that can accommodate service line capacities for both residential and commercial applications. The company's highly trained technical and production staff is experienced in all areas of EFV research, development,engineering and quality control.

All GasBreaker EFVs Feature:

Simplicity of Design

- Work with the flow of natural gas as the sensing source
- Activate when a line rupture causes an excess flow condition
- Automatically reset and resume normal operation after repairs are made using a slight gas bypass to re-pressurize the line
- Non-bypass models are also available. These models are reopened by correcting the excess flow condition and manually applying back pressure to the line and valve.
- Install in minutes with standard tools
- Operate within your normal service line sizing requirements to avoid tripping by snap-acting loads
- Higher capacity EFVs can accommodate future increases in gas loads.
- Maintain stability under turbulent flow conditions by using a unique, dynamically balanced float
- Available for virtually all pressures and service line capabilities
- In-line installation makes them tamper-proof
- Can be fabricated with fitting and piping materials from most manufacturers

Durable/Maintenance-Free Construction

- Made of plastic materials proven in use on natural gas systems
- Require no lubrication and are compatible with all types of pipe materials and configurations – plastic-to-plastic,steel-to-plastic, and steel-to-steel
- Constructed of maintenance-free materials that surpass stringent gas utility requirements

The World's Leading Automatic Safety Valves for Gas Service Lines

Cutaway of Series 700 EFV

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Why EFVs?

EFVs are similar to electrical circuit breakers that trip when electrical current exceeds design limits. They automatically trip when gas flow to a private residence or commercial facility exceeds design limits. This would be the case if a gas service line were to rupture because of ground movement, natural disasters or third party damage.

100% Tested and Quality Assured

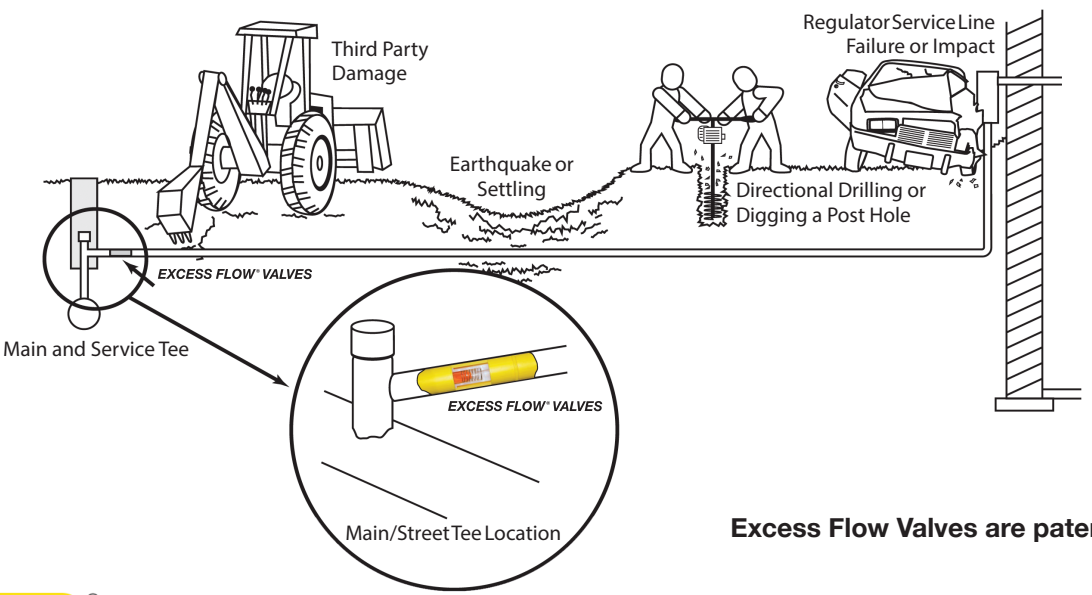
- GasBreaker EFVs are 100% factory tested in accordance with DOT 192.381
- Each valve is individually packaged with operating instructions and field identification tags
- Each valve capsule lot is coded with date and model number traceable back to all component parts
- EFV Models are Series identified by color-coded labels with directional arrows that meet the ASTM F2897 Bar Coding Standard
- Valves have passed rigid pre-acceptance testing by major utilities
- Meet or exceed DOT 192.381, MSS SP-115; MSS SP-142; ASTM F1802 and ASTM F2138 requirements

Benefits of EFVs:

- Turn emergency situations into standard leak service calls
- Save time and money by reducing the number of emergency situations
- Safeguard utilities against unwarranted negative publicity and excessive liabilities that result from gas leak emergencies
- Increase public confidence in gas
- Provide safe working conditions for gas utility personnel and first responders at the scene of a service line rupture
- EPA Natural Gas Star Program recommends the installation of EFVs to reduce methane emissions

Available Configurations

- GasBreaker EFVs are available prefabricated to your specifications in plastic, steel or in a wide range of tees,couplings and mechanical fittings
- GasBreaker No-Hole System "21"® EFVs are designed for installation on existing service lines without digging-up the line. A No-Hole EFV can be installed up to 150 feet upstream from the meter set, under live (pressurized) gas conditions in systems with normal operating pressures up to 150 psig. Sizes 1/2" CTS to 1" IPS; also available in 25 mm & 32 mm – contact GasBreaker for availability
- GasBreaker Auto Cock™Excess Flow Valves (EFVs) are designed for installation under live gas conditions at pressures up to 150 psig, in existing steel gas utility service lines or risers immediately upstream of the meter set. Sizes 3/4",1",1 1/4" IPS – contact GasBreaker for availability.



Excess Flow Valves are patented.

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3 Frequently Asked Questions about Sizing a GasBreaker EFV

For Standard High Pressure (>5psig) Service Line Applications

No Second Stage Regulation

1. **Will the EFV Trip when I don't want it to?**

   The Nominal Minimum Trip Point (SCFH) of the EFV must be greater than the Maximum anticipated customer gas load (SCFH) at the Minimum design Pressure of the system.

2. **Will the EFV starve the system if the system pressure drops to a minimum? Or, will I have pressure at the service regulator?**

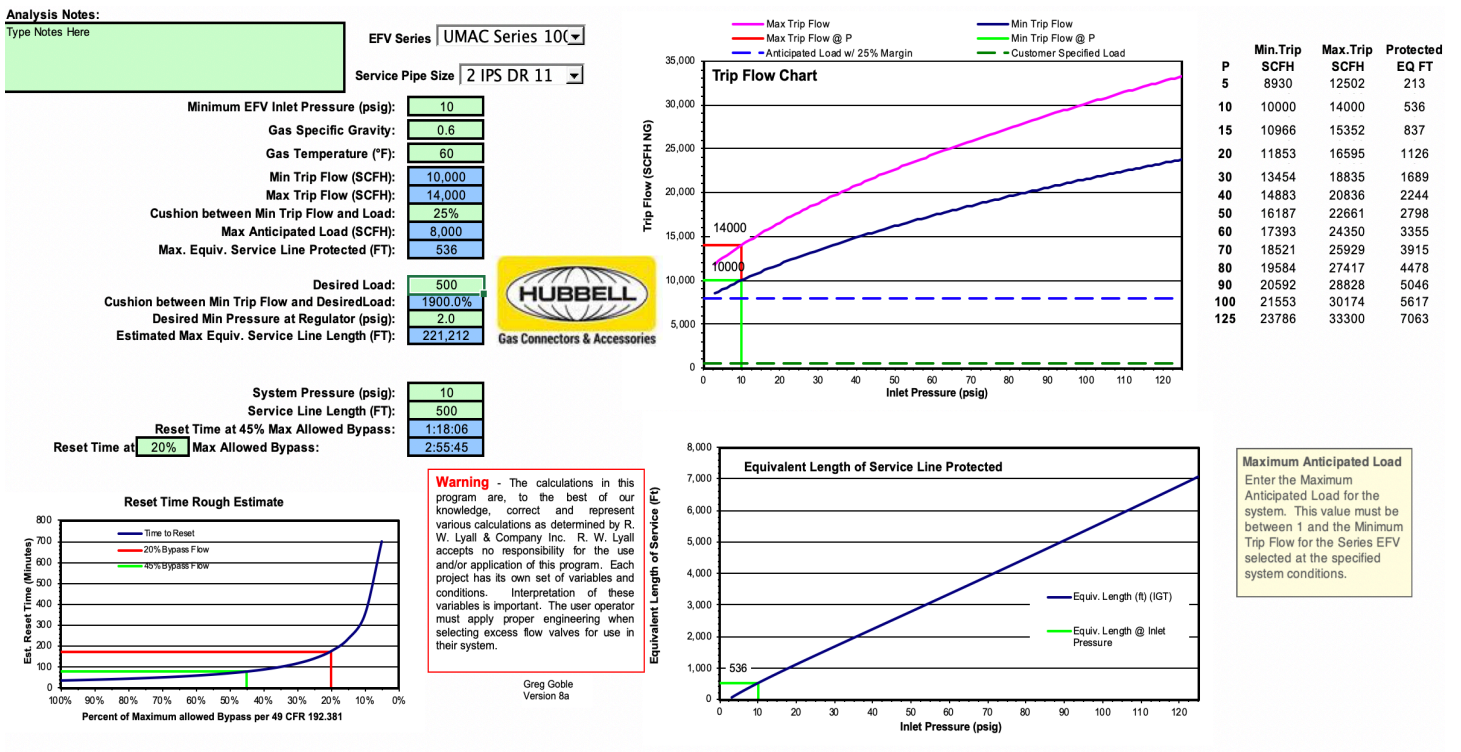
   Assure that the total pressure drop across the EFV and service piping at the Maximum anticipated customer load (SCFH) and Minimum Design Pressure will satisfy the minimum pressure requirements to the service regulator.

3. **How long a service line can I have and assure the EFV will trip if there is a pipe break?**

   At the Minimum Design Pressure of the system, the maximum anticipated length of service pipe must not be longer than the Maximum Recommended Length of Service to be used downstream of the EFV for the given diameter pipe. (Contact GasBreaker for Maximum Recommended Lengths of PE Service Tubing to be used Downstream of a GasBreaker EFV)

EFV Calculator

https://bit.ly/2YiNwXb



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EFV Assembly Guide

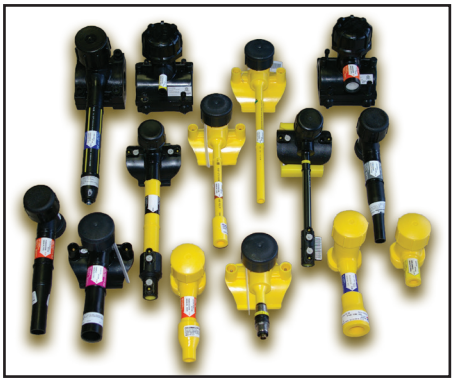
Sizes 1/2” CTS to 2” IPS

Models shown are a sampling of available units

GasBreaker™

STICK UNITS FOR DIRECT SERVICE LINE INSTALLATION

PREFABRICATED UNITS WITH MECHANICAL & FUSION COUPLINGS



EFVS PREFABRICATED IN & ATTACHED TO ELECTROFUSION & SIDEWALL FUSION TEES

STEEL UNITS & TRANSITION UNITS FOR STEEL TO PLASTIC APPLICATIONS

MODELS SHOWN ARE A SAMPLING OF OUR PREFABRICATED & STICK UNITS THAT ARE MOST COMMONLY USED IN THE GAS INDUSTRY

HUBBELL®
Gas Connectors & Accessories

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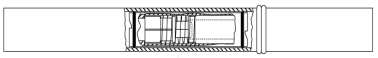
EFV All Plastic Models

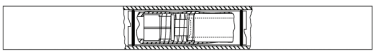
Sizes 1/2” CTS to 2” IPS

Models shown are a sampling of available units

PLASTIC STICKS



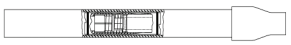
Model 41 Universal Stick – All Applications



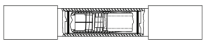
Model 32 – Butt Fusion and Mechanical Applications only

PLASTIC ASSEMBLIES

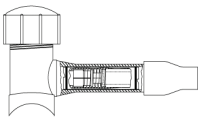
Socket Fusion Applications



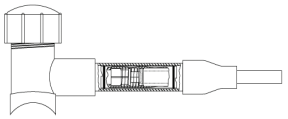
Model 58 – Model 32 with coupling on outlet



Model 33 – Model 32 with coupling on inlet & outlet

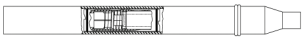


Model 44 – Tee with valve inserted & coupling on outlet

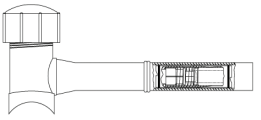


Model 46 – Tee with Model 32 attached & coupling on outlet with pigtail

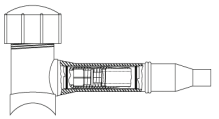
Butt Fusion Applications



Model 42 – Model 32 with coupling on outlet



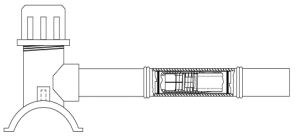
Model 62 – Tee with Model 32 on outlet



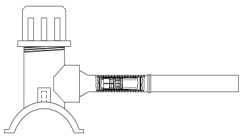
Model 39 – Tee with valve inserted & coupling on outlet

Electrofusion Applications

Model 81 Model 82
Valve machined for insertion into electrofusion tee or pipe

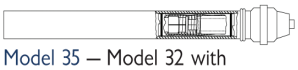


Model 70 – Tee with Model 41 attached

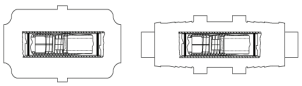


Model 71 – Tee with valve inserted & pigtail

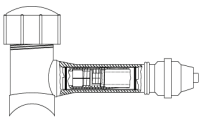
Mechanical Applications



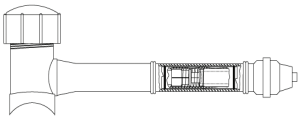
Model 35 – Model 32 with mechanical fitting



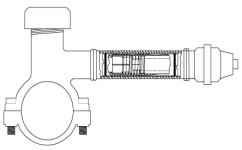
Model 75 Model 76
Valve in stiffener for Continental & Metfit couplings



Model 40 – Tee with valve inserted & mechanical outlet



Model 31 – Tee with Model 35 attached



Model 65 – Mechanical tee with Model 35 attached

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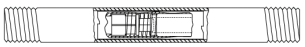
EFV ALL STEEL & STEEL TO PLASTIC MODELS

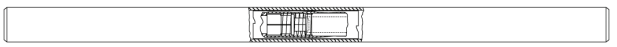
Sizes 1/2” CTS to 2” IPS

Models shown are a sampling of available units

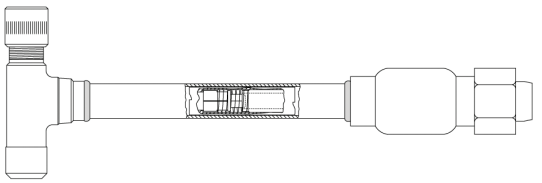
All Steel



Model 11 — Steel pipe nipple threaded both ends with valve inserted

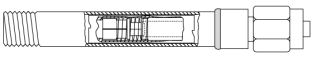


Model 14 — Steel pipe nipple with weld ends with valve inserted

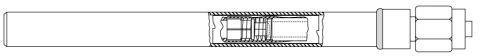


Model 12 — Steel tee & steel compression outlet with valve installed

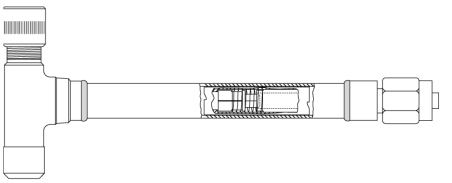
Steel to Plastic



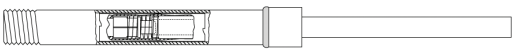
Model 29 — Steel pipe nipple threaded on inlet & compression adapter for plastic on outlet with valve installed



Model 25 — Steel pipe nipple weld inlet & compression adapter for plastic on outlet with valve installed



Model 13 — Steel tee with Model 35 installed



Model 18 — Transition fitting steel to plastic with valve installed

Steel to Plastic standard outlet sizes available in 1/2 CTS and 1 CTS. Other sizes available on request.

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GasBreaker™

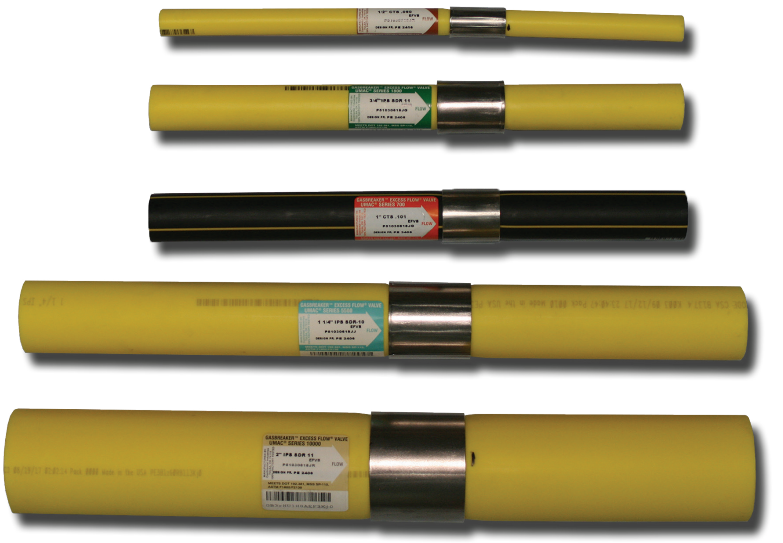
Model 51 EFV
Sizes 1/2” CTS to 2” IPS

GasBreaker Model 51 EFV

GasBreaker’s newest EFV, the Model 51, was developed as a solution for a major LDC in the northeast region. Polyethylene service and EFV installations were being delayed by inspectors strict interpretation of acceptable visual criteria for butt fusion joints. The Model 51 was developed as an alternate method to retain the EFV in the PE pipe. The stainless steel sleeve is crimped over the PE pipe, reducing the inner diameter slightly to prevent the EFV from moving downstream.

Features

- Eliminates a butt fusion joint in the service line
- Does not reduce the service line or EFV capacity
- Alternate to Model 41 universal EFV stick, suitable for all applications
- Sleeve is made from corrosion resistant 304 stainless steel
- PE2708 or PE4710
- Available sizes; ½ CTS, ½ IPS, ¾ IPS, 1 CTS, 1 IPS, 1 ¼ IPS, & 2 IPS



Size	PE Material	EFV Series Catalog Number								
		350	550	700	800	1100	1800	2600	5500	10000
1/2" CTS .090 X 12" LG	2708	20379GB	20380GB	N/A	20381GB	N/A	N/A	N/A	N/A	N/A
	4710	25344GB	25345GB	N/A	25346GB	N/A	N/A	N/A	N/A	N/A
1" CTS .101 X 12" LG	2708	N/A	N/A	50238GB	N/A	20382GB	20383GB	20384GB	N/A	N/A
	4710	N/A	N/A	50241GB	N/A	25347GB	25348GB	25349GB	N/A	N/A
1/2" IPS DR-9.3 X 12" LG	2708	20385GB	20386GB	N/A	Inquire	N/A	N/A	N/A	N/A	N/A
	4710	25350GB	25351GB	N/A	Inquire	N/A	N/A	N/A	N/A	N/A
3/4" IPS DR-11 X 12" LG	2708	N/A	N/A	50239GB	N/A	20387GB	20388GB	20389GB	N/A	N/A
	4710	N/A	N/A	50242GB	N/A	25352GB	25353GB	25354GB	N/A	N/A
1" IPS DR-11 X 12" LG	2708	N/A	N/A	50240GB	N/A	20390GB	20391GB	20392GB	N/A	N/A
	4710	N/A	N/A	50243GB	N/A	25355GB	25356GB	25357GB	N/A	N/A
1 1/4" IPS DR-10 X 16" LG	2708	N/A	N/A	Inquire	N/A	Inquire	20393GB	20394GB	20395GB	N/A
	4710	N/A	N/A	Inquire	N/A	Inquire	25358GB	25359GB	25360GB	N/A
2" IPS DR-11 X 16" LG	2708	N/A	N/A	Inquire	N/A	Inquire	Inquire	20396GB	20397GB	20398GB
	4710	N/A	N/A	Inquire	N/A	Inquire	Inquire	25361GB	25362GB	25363GB

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ALL STEEL & STEEL TO PLASTIC MODEL EFV

Sizes 3/4” IPS to 2” IPS

GasBreaker All Steel and Steel to Plastic Model EFVs

Since their introduction, millions of GasBreaker EFVs have been sold (more than 5 times as many valves as all other US competitors combined) and installed worldwide, providing tens of billions of field service hours. Today the GasBreaker Excess Flow Valve is known as “The EFV of Choice.”

Our steel and steel to plastic EFVs are available in a variety of fabrications from steel sticks to steel to plastic transitions, with thereaded or welded ends. They are now available in 1-1/4” IPS and 2” IPS in 28” long weld x weld lengths. We have sizes ranging from 3/4” IPS to 2” IPS.

Contact GasBreaker for additional pipe schedules.

MODEL DESCRIPTION	SLEEVE SIZE	EFV SERIES	LENGTH (IN)	CATALOG NUMBER
EFV #S14	3/4” IPS SCH. 40, WELD X WELD	1800	18	40002GB
EFV #S14	1” IPS SCH. 40, WELD X WELD	2600	18	40107GB
EFV #S14	1-1/4” IPS SCH. 40, WELD X WELD	5500	28	40177GB
EFV #S14	2” IPS SCH. 40, WELD X WELD	10000	28	40179GB
EFV #S11	2” IPS SCH. 40, THREAD X THREAD	10000	14	40162GB
EFV #S11	1” IPS SCH. 40, THREAD, X THREAD	700	9	50110GB
EFV#S22	1” IPS SCH. 80 GRADE B W/1” IPS SOCK. CPLG. IN/OUT	1100	N/A	40151GB
EFV #029	3/4”IPSTHREADX1/2”CTSCONTINENTALCOMP.ADAPTER	300	N/A	40036GB
EFV #S18	3/4” IPS WELD TRANS X 1” CTS .099 PIPE, 2406	1100	N/A	40119GB

Series: 300, 400, 700, 1100, 1800, 2600 are available In all pipe sizes Series 5500 is available in 1-1/4” & 2” IPS Series 10000 is available only in 2” IPS

GasBreaker™

EFV ASSEMBLY GUIDE

The following pipe sizes can be utilized with the indicated EFV series list in the charts below.

Plastic pipe available in PE 2406/2708, PE 3408/4710/PE 100							
S/A= Sticks and Assemblies A= Assemblies Only							
EFV Series	1/2" CTS		3/4" CTS	1" CTS			1 1/4" CTS
	062 wall	090 wall	090 wall	090 wall	099 wall	101 wall	SDR 15.3
300	A	A	A	S/A	S/A	S/A	S/A
350	S/A	S/A	S/A	-	-	-	-
400	A	A	A	S/A	S/A	S/A	S/A
550	S/A	S/A	S/A	-	-	-	-
700	A	A	A	S/A	S/A	S/A	S/A
800	S/A	S/A	A	-	-	-	-
1100	A	A	A	S/A	S/A	S/A	S/A
1800	-	-	A	S/A	S/A	S/A	S/A
2600	-	-	-	S/A	S/A	S/A	A
5500	-	-	-	-	-	-	A

Plastic pipe available in PE 2406/2708, PE 3408/4710/PE 100								
S/A= Sticks and Assemblies A= Assemblies Only								
EFV Series	1/2" IPS	3/4" IPS		1" IPS		1 1/4" IPS	1 1/2" IPS	2" IPS
	SDR 9.3	SDR 11.0	SDR 9.0	SDR 11.0	SDR 9.33	SDR 10.0	SDR 9.33	SDR 11.00
300	A	S/A	S/A	S/A	S/A	S/A	S/A	S/A
350	S/A	-	-	-	-	-	-	-
400	A	S/A	S/A	S/A	S/A	S/A	S/A	S/A
550	S/A	-	-	-	-	-	-	-
700	A	S/A	S/A	S/A	S/A	S/A	S/A	S/A
800	A	-	-	-	-	-	-	-
1100	A	S/A	S/A	S/A	S/A	S/A	S/A	S/A
1800	-	S/A	S/A	S/A	S/A	S/A	S/A	S/A
2600	-	S/A	S/A	S/A	S/A	A	A	A
5500	-	A	A	A	A	S/A	S/A	S/A
10000	-	-	-	-	-	-	-	S

HUBBELL® Gas Connectors & Accessories | Continental Industries | GasBreaker™ | LYALL | AEC ADVANCE ENGINEERING CORPORATION | PPS PERFECT PIPE & SUPPLY

Performance Characteristics

Series 300

Black Label Excess Flow Valves

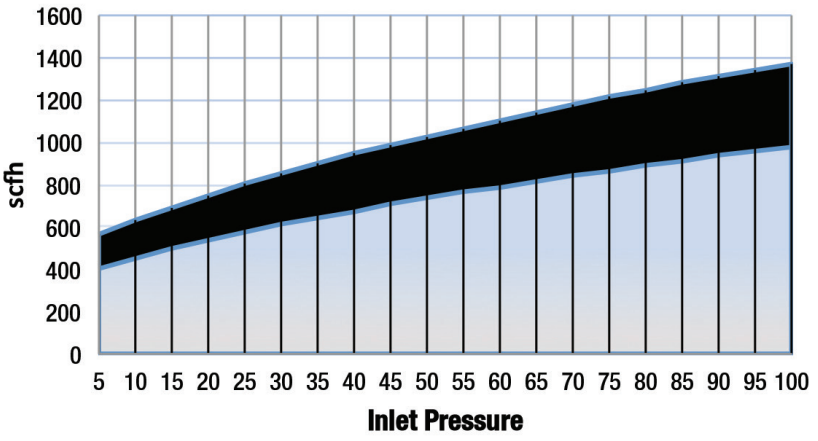
5 psig to 1,000 psig – inlet Pressure

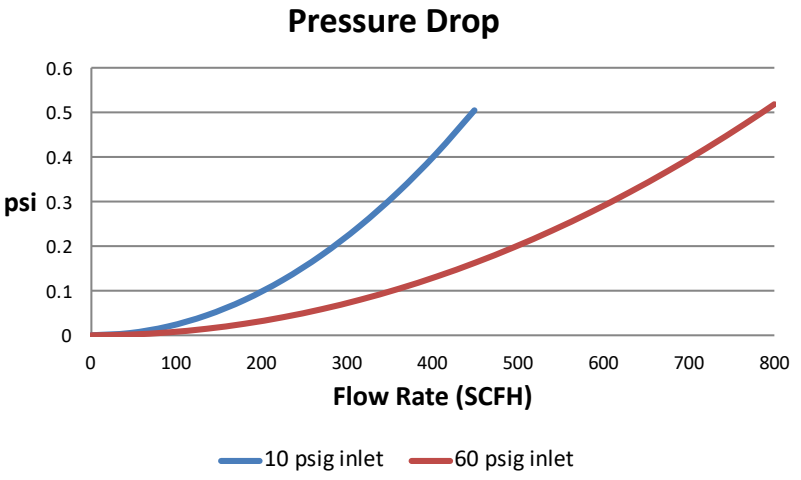
INLET PRESSURE	SERIES 300 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
5	400	18
10	450	20
15	490	23
20	540	25
30	620	28
40	680	32
50	740	35
60	800	37
70	860	39
80	910	41
90	950	46
100	1,000	50
150	1,190	75

PROTECTED LENGTH (ft)

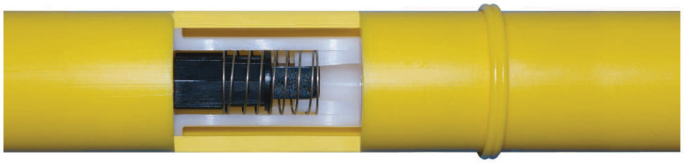
INLET PRESSURE (psig)	1 CTS (0.915)	3/4 IPS 0.849	1 IPS 1.061
10	5113	3570	10407
20	9959	6953	20269
40	19120	13348	38914
60	28209	19693	57412
80	37390	26103	76097

TRIP RANGE CHART





Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 300 EFVs available in 3⁄4 IPS - 2 IPS sticks and prefabricated models in other sizes (see page 4 for examples).

COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

GasBreaker™

Performance Characteristics
Series 350
Yellow Label Excess Flow Valves

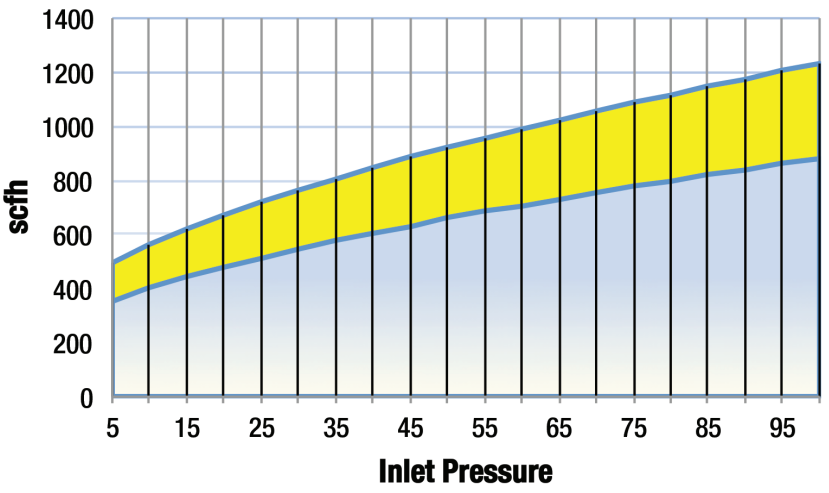
5 psig to 150 psig – inlet Pressure

INLET PRESSURE	SERIES 350 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
5	350	18
10	400	20
15	430	23
20	460	25
30	530	28
40	600	32
50	650	35
60	700	37
70	730	39
80	780	41
90	820	46
100	860	50
150	1,000	75

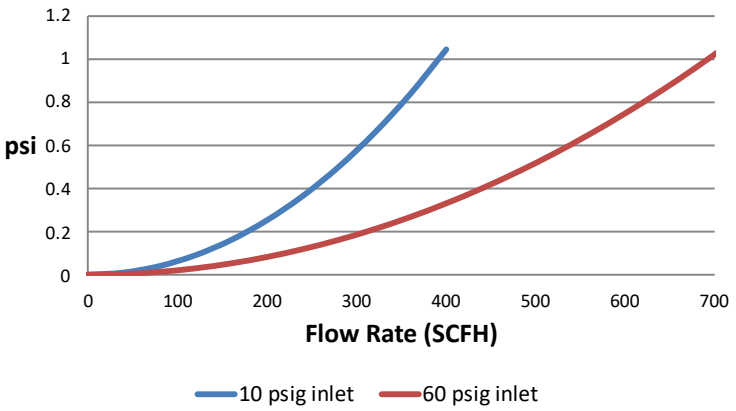
PROTECTED LENGTH (ft)

INLET PRESSURE (psig)	1/2" CTS 0.436	1/2" IPS 0.649
10	145	979
20	304	2049
40	604	4078
60	903	6095
80	1205	8134

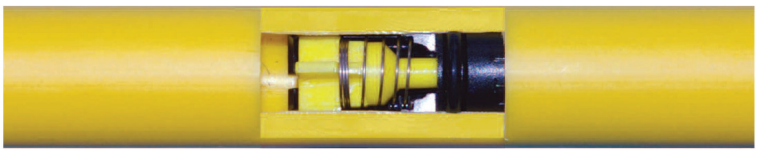
TRIP RANGE CHART



Pressure Drop



Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 350 EFVs available in 1⁄2 CTS, 1⁄2 IPS & 3⁄4 CTS sticks and other prefabricated models. (see page 4 for examples)

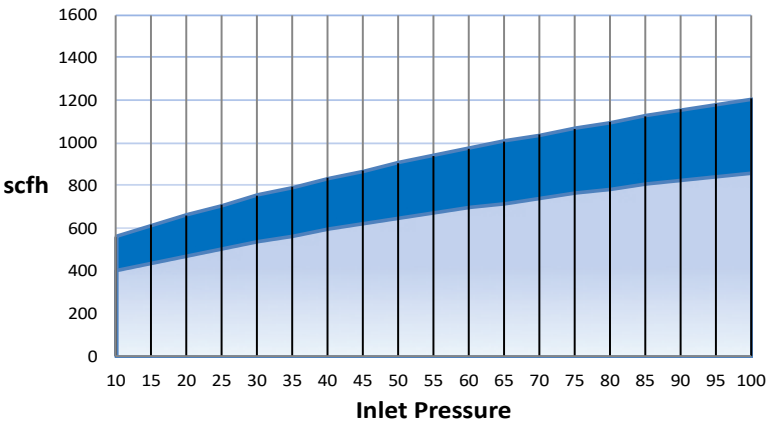
COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

Performance Characteristics
Series 400
Blue Label Excess Flow Valves

Donkin Flow limitor® 10 psig to 1,000 psig – inlet Pressure

INLET PRESSURE	SERIES 400 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
10	400	20
15	430	23
20	490	25
30	560	28
40	640	32
50	700	35
60	760	37
70	810	39
80	860	41
90	910	46
100	970	50
150	1,160	75

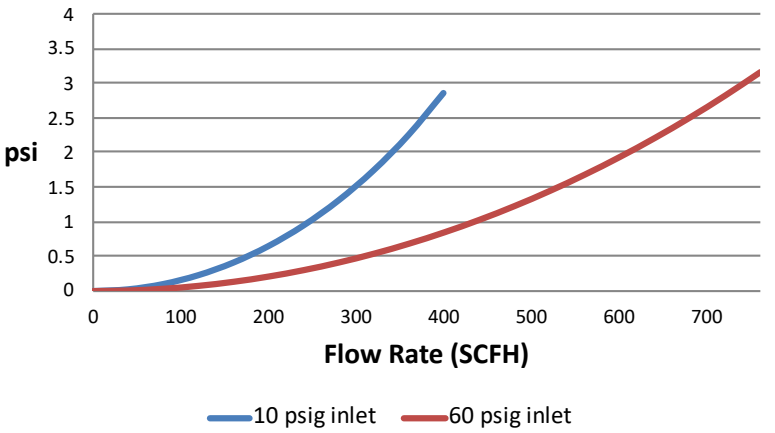
TRIP RANGE CHART



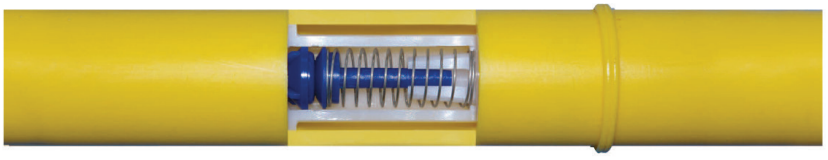
PROTECTED LENGTH (ft)

INLET PRESSURE (psig)	1 CTS (.099) 0.915	3/4 IPS 0.849	1 IPS 1.061
10	2921	2039	5945
20	8301	5799	16907
40	18649	13020	37956
60	29007	20251	59036
80	39517	27588	80426

Pressure Drop



Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 400 EFVs available in 3⁄4 IPS – 2 IPS sticks and prefabricated models in other sizes. (see page 4 for examples)

COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

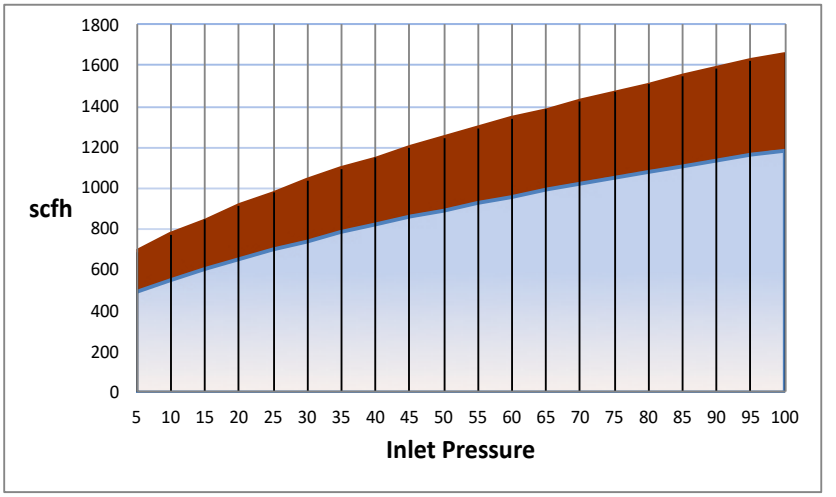
GasBreaker™

Performance Characteristics
Series 550
Brown Label Excess Flow Valves

5 psig to 150 psig – inlet Pressure

INLET PRESSURE	SERIES 550 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
5	470	18
10	550	20
15	600	23
20	660	25
30	760	28
40	840	32
50	920	35
60	990	37
70	1,070	39
80	1,120	41
90	1,190	46
100	1,240	50
150	1,430	75

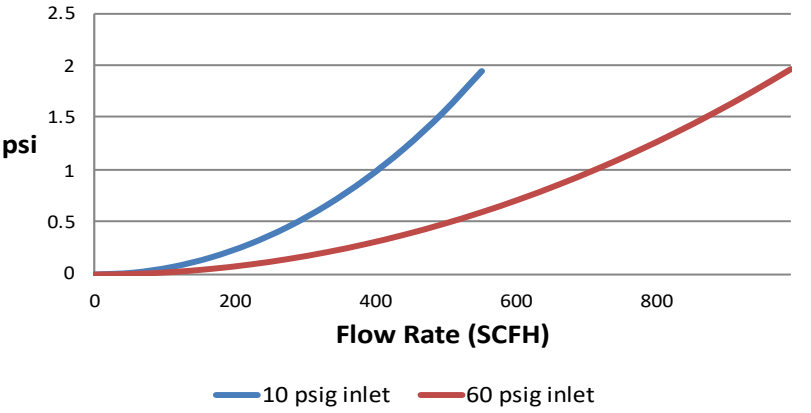
TRIP RANGE CHART



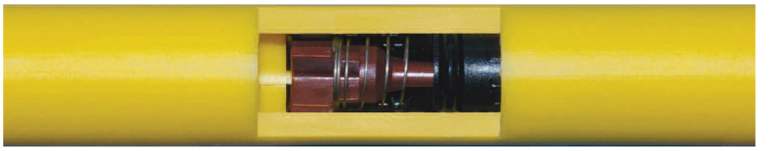
PROTECTED LENGTH (ft)

INLET PRESSURE (psig)	1/2 CTS 0.436	1/2 IPS 0.649
10	63	426
20	151	1021
40	319	2154
60	487	3284
80	656	4428

Pressure Drop



Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 550 EFVs available in 1⁄2 CTS, 1⁄2 IPS & 3⁄4 CTS sticks and other prefabricated models. (see page 4 for examples)

COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

Performance Characteristics

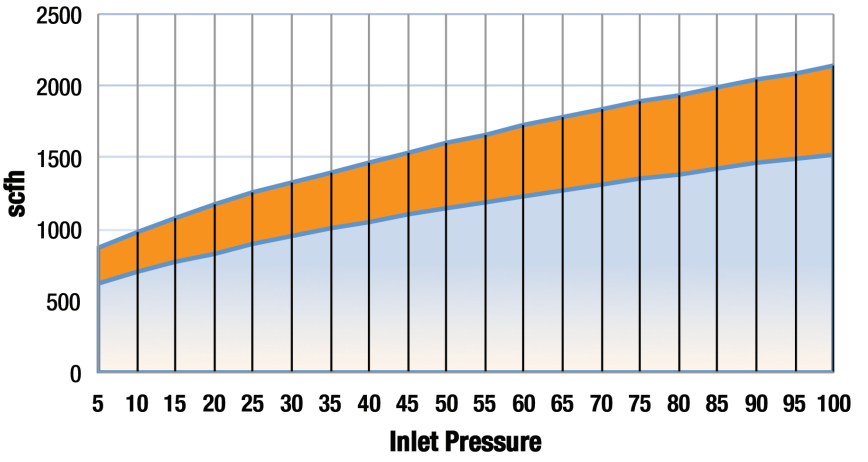
Series 700

Orange Label Excess Flow Valves

5 psig to 1,000 psig – inlet Pressure

INLET PRESSURE	SERIES 700 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
5	600	18
10	700	20
15	760	23
20	830	25
30	960	28
40	1,060	32
50	1,200	35
60	1,300	37
70	1,410	39
80	1,480	41
90	1,540	46
100	1,600	50
150	1,780	75

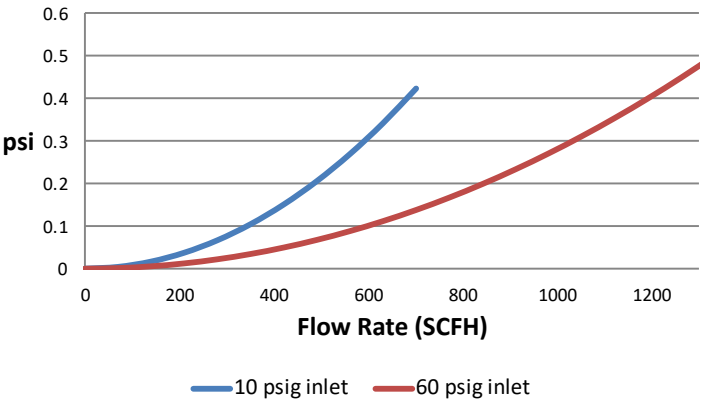
TRIP RANGE CHART



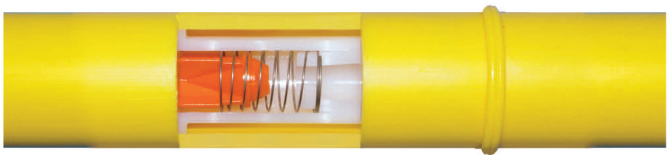
PROTECTED LENGTH (ft)

INLET PRESSURE (psig)	1 CTS (.099) 0.915	3/4 IPS 0.849	1 IPS 1.061	1 1/4 IPS DR10 1.308	2 IPS 1.917
10	2187	1527	4451	12156	76145
20	4237	2958	8624	23549	147520
40	8112	5663	16510	45086	282431
60	11956	8347	24334	66450	416261
80	15839	11058	32236	88030	551441

Pressure Drop



Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 700 EFVs available in 3⁄4 IPS – 2 IPS sticks and prefabricated models in other sizes. (see page 4 for examples)

COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

GasBreaker™

Performance Characteristics
Series 800
Purple Label Excess Flow Valves

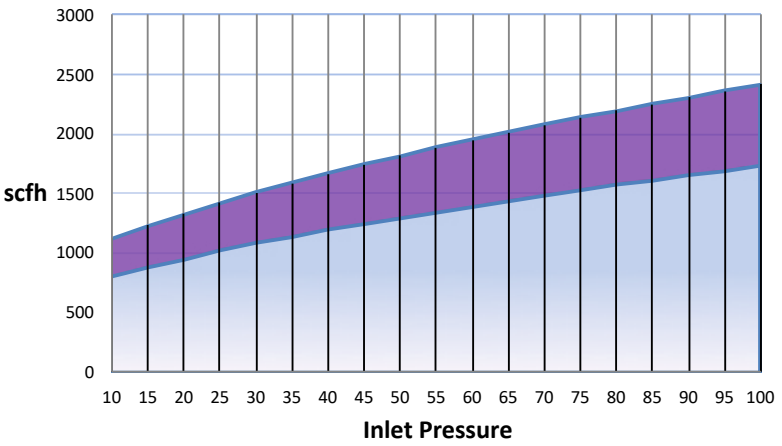
10 psig to 150 psig – inlet Pressure

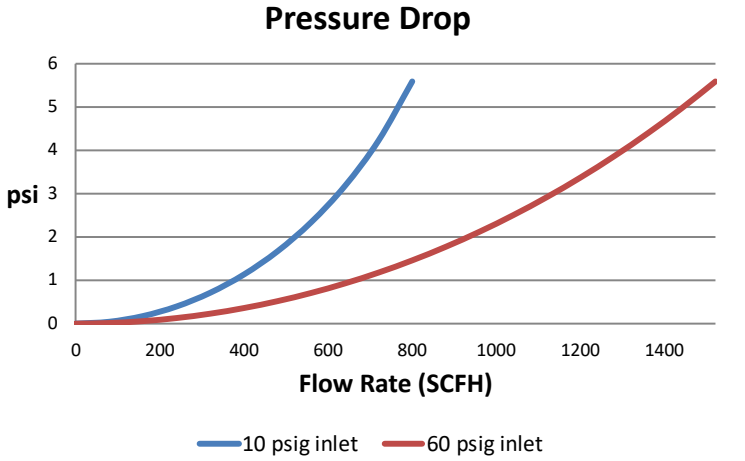
INLET PRESSURE	SERIES 800 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
10	800	20
15	900	23
20	980	25
30	1,130	28
40	1,310	32
50	1,420	35
60	1,530	37
70	1,660	39
80	1,770	41
90	1,860	46
100	1,950	50
150	2,240	75

Protected Length (ft)

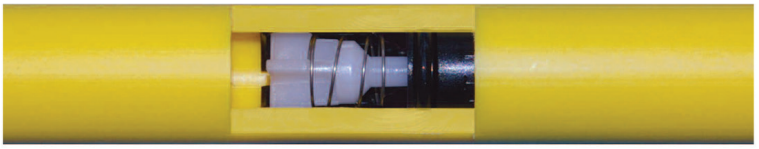
Inlet Pressure (psig)	1/2 CTS 0.436	1/2 IPS 0.649
10	7	44
20	48	324
40	130	877
60	213	1438
80	298	2011

TRIP RANGE CHART





Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 800 EFVs available in 1⁄2 CTS sticks and other prefabricated models. (see page 4 for examples)

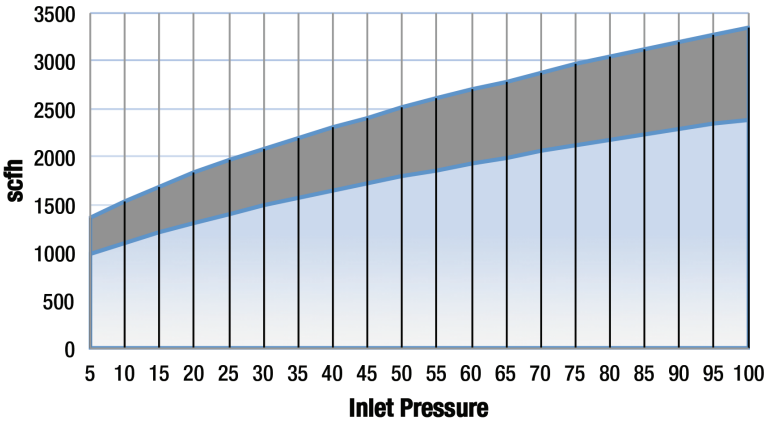
COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

Performance Characteristics
Series 1100
Gray Label Excess Flow Valves

5 psig to 1,000 psig – inlet Pressure

INLET PRESSURE	SERIES 1100 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
5	1,000	18
10	1,100	20
15	1,230	23
20	1,310	25
30	1,530	28
40	1,670	32
50	1,870	35
60	2,030	37
70	2,180	39
80	2,300	41
90	2,450	46
100	2,550	50
150	2,859	75

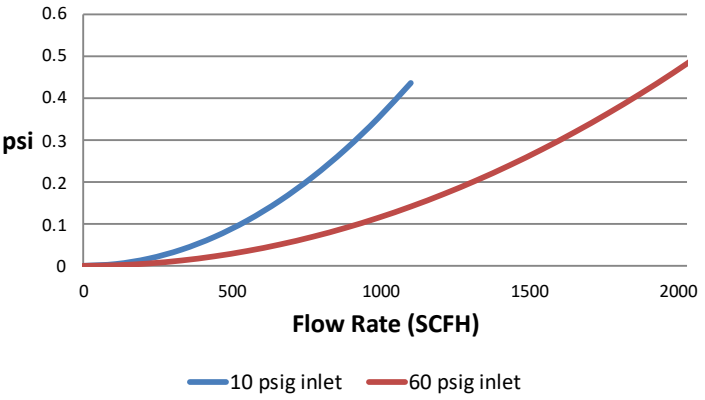
TRIP RANGE CHART



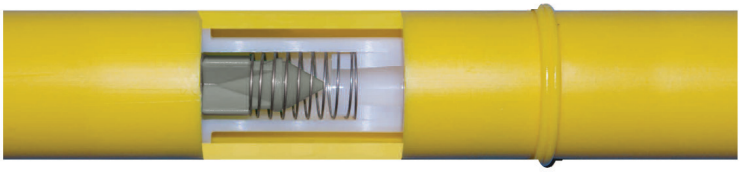
PROTECTED LENGTH (ft)

INLET PRESSURE (psig)	1 CTS (.099) 0.915	3/4 IPS 0.849	1 IPS 1.061	1 1/4 IPS DR10 1.308	2 IPS 1.917
10	967	675	1968	5375	33668
20	1876	1309	3817	10425	65302
40	3593	2509	7313	19970	125100
60	5297	3698	10781	29440	184419
80	7018	4900	14284	39005	244338

Pressure Drop



Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 1100 EFVs available in 3⁄4 IPS – 2 IPS sticks and prefabricated models in other sizes. (see page 4 for examples)

COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

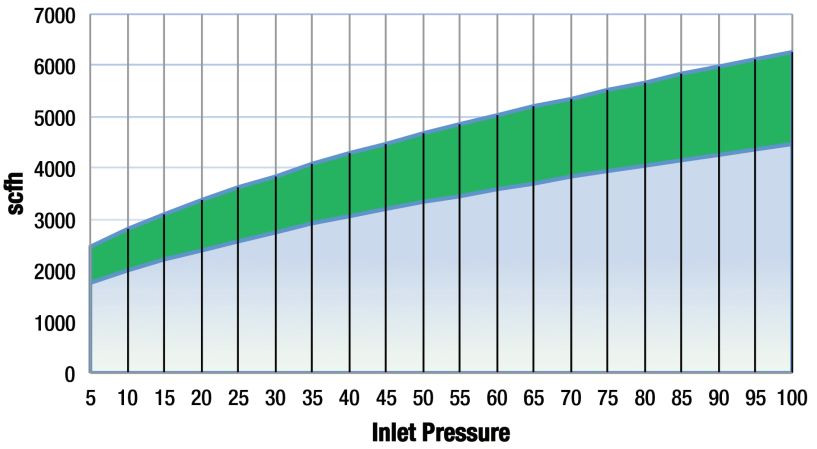
GasBreaker™

Performance Characteristics
Series 1800
Green Label Excess Flow Valves

5 psig to 1,000 psig – inlet Pressure

INLET PRESSURE	SERIES 1800 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
5	1,800	18
10	2,000	20
15	2,250	23
20	2,500	25
30	2,800	28
40	3,100	32
50	3,400	35
60	3,800	37
70	4,100	39
80	4,300	41
90	4,500	46
100	4,700	50
150	5,270	75

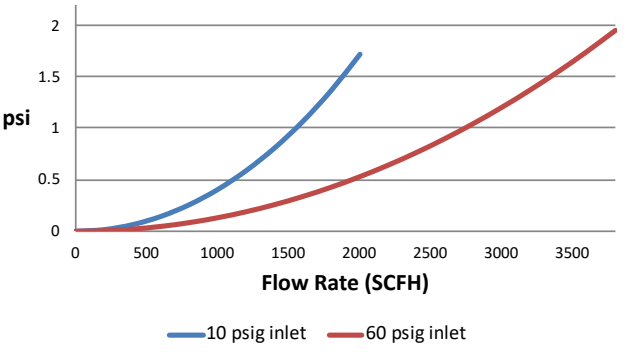
TRIP RANGE CHART



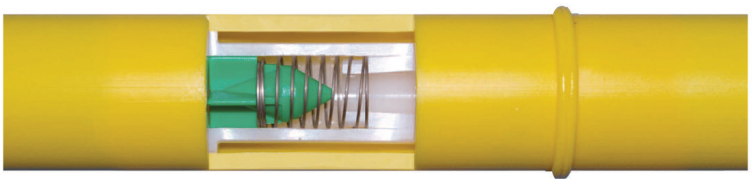
PROTECTED LENGTH (ft)

INLET PRESSURE (psig)	1 CTS (.099) 0.915	3/4 IPS 0.849	1 IPS 1.061	1 1/4 IPS DR10 1.308	2 IPS 1.917
10	232	162	472	1289	8072
20	536	374	1090	2977	18650
40	1114	778	2267	6191	38783
60	1690	1180	3440	9394	58844
80	2273	1587	4627	12635	79151

Pressure Drop



Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 1800 EFVs available in 3⁄4 IPS - 2 IPS sticks and prefabricated models in other sizes. (see page 4 for examples)

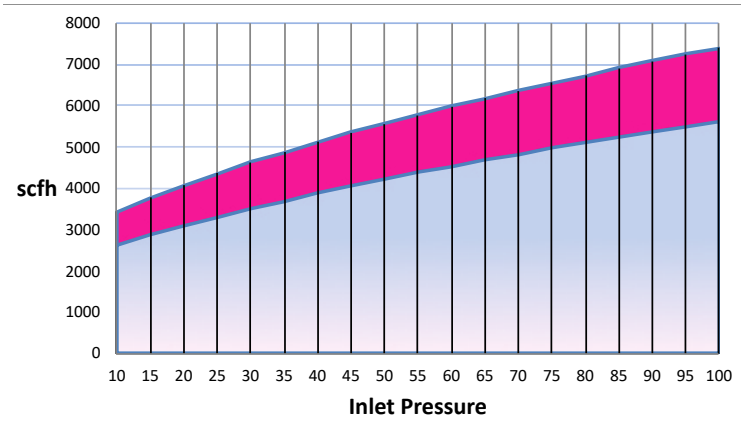
COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

Performance Characteristics
Series 2600
Pink Label Excess Flow Valves

10 psig to 1,000 psig – inlet Pressure

INLET PRESSURE	SERIES 2600 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
10	2,600	20
15	2,700	23
20	3,000	25
30	3,600	28
40	4,000	32
50	4,400	35
60	4,900	37
70	5,300	39
80	5,700	41
90	6,000	46
100	6,200	50
150	6,952	75

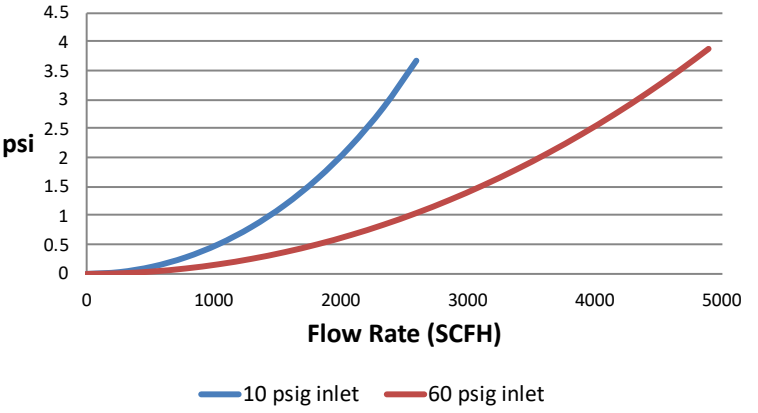
TRIP RANGE CHART



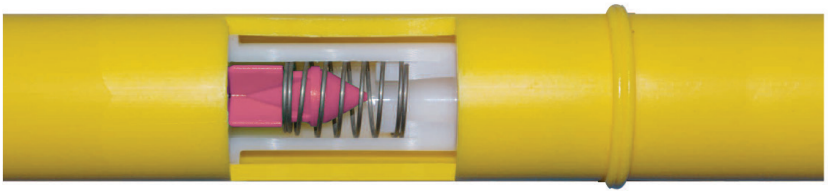
PROTECTED LENGTH (ft)

INLET PRESSURE (psig)	1 CTS .099 0.915	3/4 IPS 0.849	1 IPS 1.061	1 1/4 IPS DR10 1.308	2 IPS 1.917
10	100	70	204	557	3489
20	305	213	621	1695	10617
40	699	488	1423	3886	24342
60	1095	764	2228	6084	38109
80	1496	1044	3045	8315	52087

Pressure Drop



Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 2600 EFVs available in 3⁄4 IPS – 2 IPS sticks and prefabricated models in other sizes. (see page 4 for examples)

COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

GasBreaker™

Performance Characteristics
Series 5500
Turquoise Label Excess Flow Valves

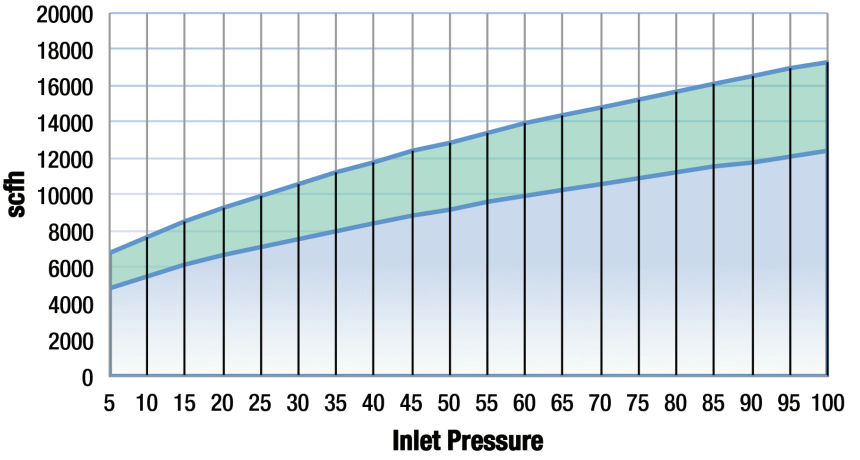
5 psig to 150 psig – inlet Pressure

INLET PRESSURE	SERIES 5500 MINIMUM TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
5	4,800	18
10	5,500	20
15	6,100	23
20	6,700	25
30	7,700	28
40	8,500	32
50	9,300	35
60	10,100	37
70	11,003	39
80	11,933	41
90	12,882	46
100	13,843	50
150	15,643	75

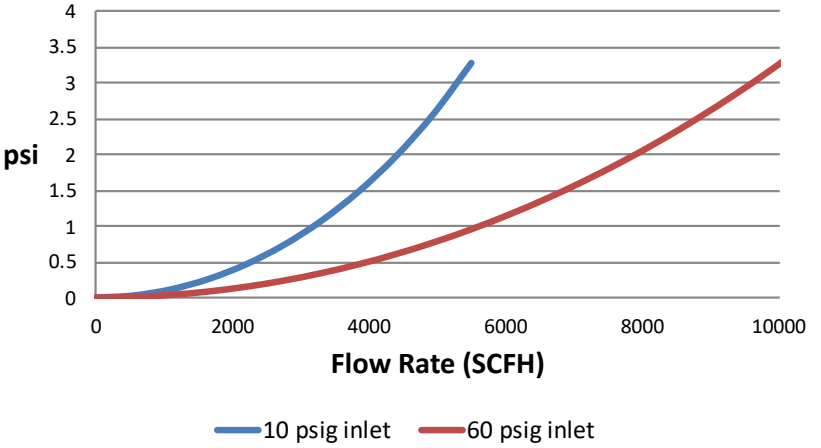
PROTECTED LENGTH (ft)

INLET PRESSURE (psig)	1 1/4 IPS DR10 1.308	2 IPS 1.917
10	125	780
20	390	2441
40	900	5641
60	1413	8853
80	1934	12115

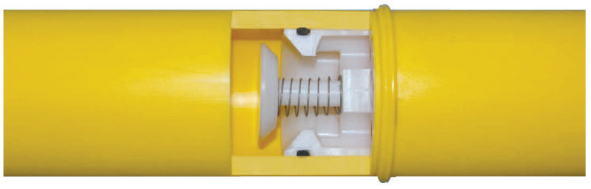
TRIP RANGE CHART



Pressure Drop



Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY
Series 5500 EFVs available in 1¼ IPS - 2 IPS sticks and other prefabricated models. (see page 4 for examples)

COMPLIANCE
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

Performance Characteristics

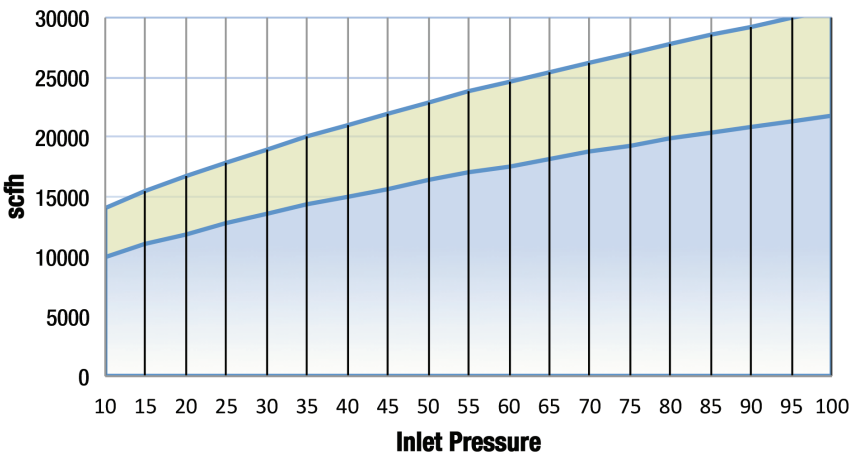
Series 10000

Tan Label Excess Flow Valves

10 psig to 150 psig – inlet Pressure

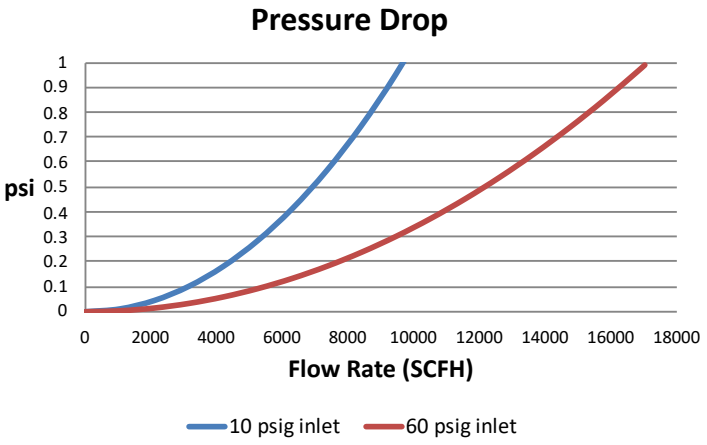
INLET PRESSURE	SERIES 10000 MINIMUM. TRIP POINT	BYPASS FLOW AFTER TRIP (NOM. MAX)
psig	SCFH	SCFH
10	10,000	20
15	10,500	23
20	11,000	25
30	12,500	28
40	14,000	32
50	15,000	35
60	16,000	37
70	17,286	39
80	18,629	41
90	20,026	46
100	21,474	50
150	24,265	75

TRIP RANGE CHART

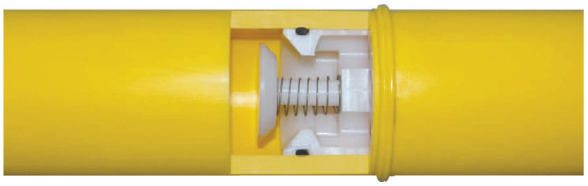


PROTECTED LENGTH (ft)

INLET PRESSURE (psig)	1 1/4 IPS DR10 1.308	2 IPS 1.917
10	86	536
20	180	1126
40	358	2244
60	536	3356
80	715	4480



Note:
Calculate service line capacities from given flow and pressure drop data to ensure adequate flow capacity is available to operate valve. Tables and Charts developed for standard conditions: 60° and 0.6 specific gravity gas. For additional assistance with sizing and technical information on GasBreaker Excess Flow Valves, please contact GasBreaker.



AVAILABILITY

Series 10,000 EFVs available in 2 IPS sticks and other prefabricated models. (see page 4 for examples).

COMPLIANCE

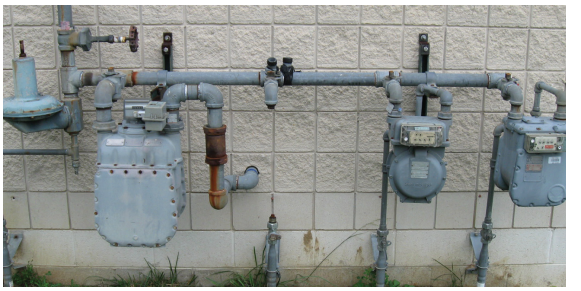
All valves comply with: DOT Part 192.381, ASTM F 2138 and MSS SP-115: Excess Flow Valves Tested to, or in accordance with, ASTM F 1802.

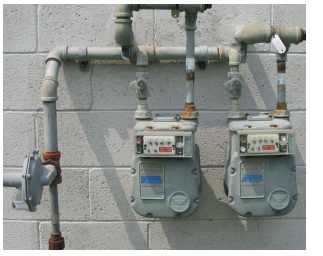
GasBreaker™

COMMERCIAL/INDUSTRIAL EXCESS FLOW VALVES

Large Residential, Commercial, Industrial and Multi Meter EFV Applications:





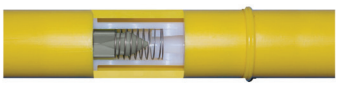



Specifications

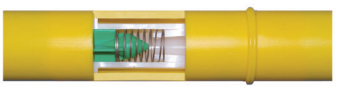
- Accommodates pressures from 5 psi to 1000 psi (Depending on Series of EFV)
- Flow Ranges from 1,000,000 to 24,000,000 BTU
- Meet DOT 192.381 and MSS-SP-115; MSS-SP-142 for excess flow valves for use in natural gas system
- Tested to, or in accordance with, ASTM F 1802
- Compatible with steel or plastic fittings and piping materials from most manufacturers

Large Volume EFVs

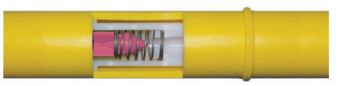
Series 1100



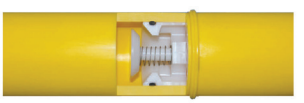
Series 1800



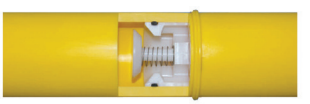
Series 2600



Series 5500



Series 10000



HUBBELL®
Gas Connectors & Accessories

Continental Industries

GasBreaker™

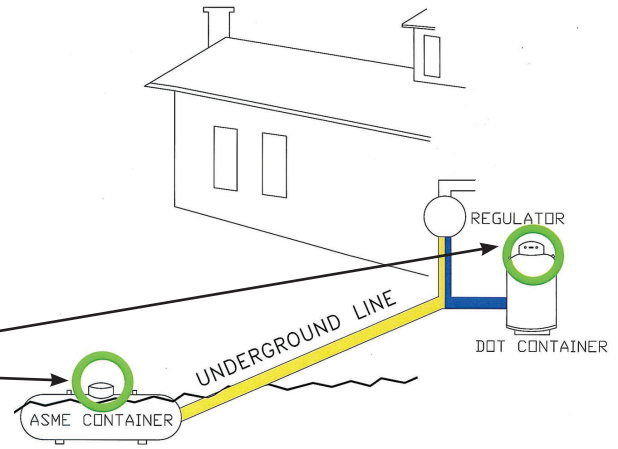
LYALL

AEC ADVANCE ENGINEERING CORPORATION

PPS PERFECT PIPE & SUPPLY

PROPANE SERVICE APPLICATIONS
Excess Flow Valves for Propane Service Applications

GasBreaker™



Performance Characteristics

Inlet Pressure psig	Flow Prior to Closure (Trip), SCFH 1.55 SG Gas (Nominal Minimum)			Bleed-By Flow After Closure (Trip) SCFH 1.55 SG Gas (Nom. Max.)
	SERIES 300 (Black Label	SERIES 700 (Orange Label)	SERIES 1800 (Green Label)	
5	249	373	1120	11
10	280	435	1244	12
15	305	473	1400	14
20	336	516	1555	16
30	386	597	1742	17
40	423	659	1928	20
50	460	746	2115	22
60	498	809	2364	23
70	535	877	2550	24
80	566	921	2675	26
90	591	958	2799	29
100	622	995	2923	31
150	740	1107	3278	47
200	753	1219	3816	53
250	840	1331	4292	72
300	927	1443	4749	81

Flow prior to trip values in chart represent Nominal Minimum values. Bleed-By flow after trip values represent Nominal Maximum values Minimum service size for Series 1800 is ¾" IPS

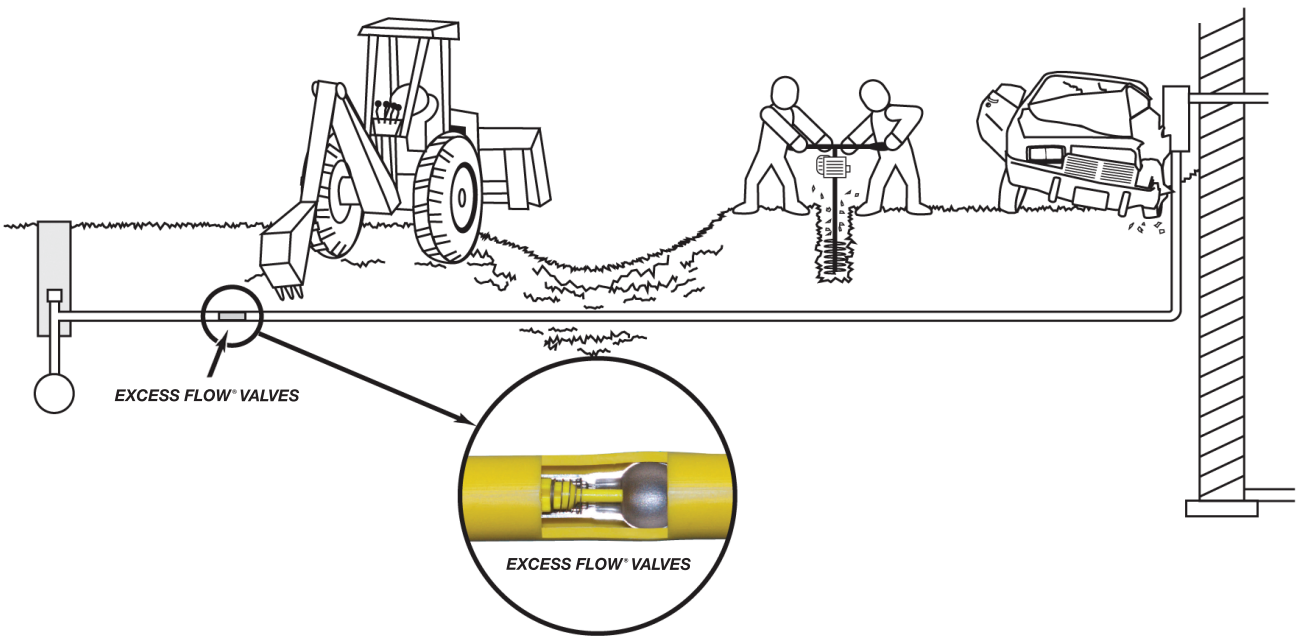
GasBreaker™

NO-HOLE SYSTEM "21"®

GasBreaker EFVs are the leader in Excess Flow® Valve (EFV) technology. The No-Hole System "21" allows insertion of a special No-Hole EFV, up to 150 feet from the meter set, under live (pressurized) gas conditions in systems with normal operating pressures up to 150 psig without an excavation.

When gas flow exceeds design limits, the No-Hole EFV automatically trips, affording the same protection and benefits as standard GasBreaker EFVs including:

- Saving time and money by reducing the number of emergency situations
- Turning emergency situations into routine service calls
- Safeguarding utilities against unwarranted negative publicity and excessive liabilities that result from gas leak emergencies
- Increasing public confidence in gas
- Provide safe working conditions for gas utility personnel and first responders at the scene of a service line rupture
- EPA Natural Gas Star Program recommends the installation of EFVs to reduce methane emissions



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NO-HOLE SYSTEM "21"®

GasBreaker™

Like other GasBreaker EFVs no-Hole EFVs:

- Meet or exceed DOT 192.381, MSS SP-115 ASTM F 1802 and ASTM F2138 requirements.
- Are 100% factory tested in accordance with DOT 192.381.
- Are individually packaged with operating instructions and field identification tags.
- Are lot coded with date and model # traceable back to all component parts.
- Have valve series identified on the valve by color coded labels with directional flow arrows.

Installation

1. The meter set is removed from the service line.
2. If necessary a valve changing apparatus is used to change the meter shut-off valve to a full-port ball valve.
3. The No-Hole System "21" gland assembly is attached to the ball valve.
4. The ball valve is opened and the No-Hole EFV is inserted to the desired distance – up to 150 feet.
5. The EFV is anchored in place using proprietary No-Hole System "21" technology.
6. Then the apparatus is removed and the original meter valve reinstalled if desired.
7. The meter set is reattached and service is restored to the customer.

* For exact installation and recommissioning procedures follow instructions included with each valve.

Standard Equipment includes:

- Hand pump with pressure gauge and reservoir (Pump has detachable handle for more compact storage).
- 150 foot insertion hose (Longer hose available – see options).
- Plug ends to prevent fluid loss.
- Replacement parts for high-wear components.
- Foot counter so that an approximate EFV location can be noted on the service card.

Optional Equipment:

- 200 foot insertion hose
- Maximum indicating pressure gauge
- Bare pipe installation adapter (available in various sizes)

TOOL PACKAGE	CATALOG NO.
150' Complete Package W/Cart	60105GB

SLEEVE SIZE	EFV SERIES	ORDER/ KIT#
½" IPS Sleeve	Series 350	60139GB
	Series 550	60140GB
¾" CTS Sleeve	Series 350	60122GB
	Series 550	60071GB
¾" IPS Sleeve	Series 350	60123GB
	Series 550	60106GB
1" CTS Sleeve	Series 350	60124GB
	Series 550	60087GB
1" IPS Sleeve	Series 350	60125GB
	Series 550	60107GB
1 ¼" IPS Sleeve	Series 350	60133GB
	Series 550	60134GB
1 ¼" CTS Sleeve	Series 350	60137GB
	Series 550	60138GB

GasBreaker™

EFV's LEADING THE WAY

1974
UMAC introduces the Donkin Flow Limitor®, the first spring loaded EFV to the natural gas utility industry.
1975
UMAC prefabricates the first steel to plastic EFV for a gas utility in Ohio.
1976
UMAC prefabricates the first plastic to plastic EFV for a gas utility in Massachusetts
1979
UMAC introduces the first low pressure gravity ball style EFV to the natural gas industry.
1988
UMAC Introduces the first all plastic high capacity series 1800 EFV In response to a gas utility customer in New York that wants to protect branch natural gas service lines for multi-family applications.
1990
UMAC introduces a medium capacity series 700 EFV to meet a higher flow volume meter demand for a gas utility customer in Ohio.
1993
UMAC introduces the first commercially available 1⁄2 CTS EFV in response to a gas industry demand for same size in-line 1⁄2 CTS service line applications.
1994
UMAC introduces the first EFV built into the stiffeners of mechanical couplings used to join plastic pipe service lines.
1996
UMAC introduces the first residential EFV for installation in customer owned fuel gas piping systems in California.
2000
UMAC introduces the most comprehensive range of EFVs for residential and commercial applications in sizes from 1/2" CTS through 2" IPS.
2002
UMAC is the first to develop an EFV for live insertion into steel services from the meter set for a gas utility in Canada.
2006
UMAC develops the first no-hole EFV for live insertion from the meter set into PE piping up to 150 feet in length for a gas utility in New Jersey.
2009
UMAC excess flow valves joined the family of EFVs available from GasBreaker.
TODAY
The GasBreaker EFV's long track record of field service in the gas industry is unparalleled. GasBreaker, a part of the Hubbell Gas Connectors and Accessories group continues to lead the way in assisting the gas utility industry in meeting the demanding needs for service line applications with GasBreaker EFVs.

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OTHER PRODUCTS FROM HGCA

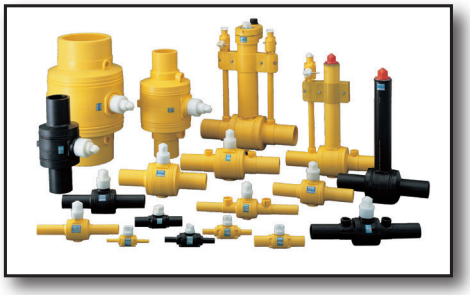
Hubbell Gas Connectors & Accessories, headquartered in Tulsa, Oklahoma with locations California, Wisconsin and Illinois We engineer and manufacture, with a commitment to providing our customers the highest quality products at the best value.
For gas distribution, Hubbell Gas Connectors & Accessories (HGCA) supplies a full line of specialty products, offering turnkey solutions for main-to-meter connections. No other single manufacturer can offer the variety of fittings that HGCA provides. Whether you need to connect PE to PE, PE to PVC , PE to Steel, PE to Copper or Steel to Steel, chances are HGCA has one to do the job. HGCA is an ISO 9001 certified company. Our products meet or exceed all ASTM and D.O.T. requirements and make safe, reliable and economical connections.

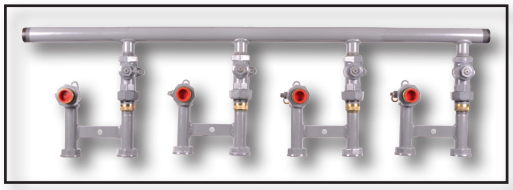
Advance Engineering is a National Leader in providing the Gas Utility Industry and other related markets with fabricated meter sets and high grade pipe nipples for 75 plus years. Together with our sister company Perfect Pipe and Supply, our turnkey operations provides the Gas Utilities Industry with fabrications starting in the Residential 250 Class arena and going up to Gate Station fabrication. We have a complete line of fabricated Bypass sets for all Diaphragm and Rotary Meter configurations.

Continental Industries, headquartered in Tulsa, Oklahoma since 1958 – with manufacturing facilities in both Tulsa and Broken Arrow. We are committed to providing our customers with the highest quality products at the best value.

Our commitment to quality is evident in every step of our business processes. Renowned for our design and development of technologically advanced products, we provide our customers with reliable, cost-effective solutions to their “main to meter” service line installation, repair, or renewal projects.

As one of the most trusted names in gas pipeline components manufacturing since 1973, the Lyall Corporation has an undisputed reputation for quality. The Lyall mission is to consistently manufacture the safest, most reliable and installer-friendly gas pipeline products available. From midstream to local distribution and all points between, Lyall keeps the gas industries moving.





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