TYPICAL APPLICATIONS

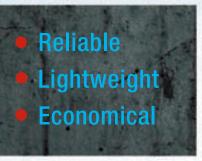
- -Turbine Meter Installations
- -Rotary Meter Installations
- -"In-Plant" Filtration Systems
- -City Gate Stations
- -Regulator Stations
- -Commercial Services

SAFECO BRAND GFC SERIES

Available in Flanged or NPT

2" 180 PSI MAOP

CAST IRON NATURAL GAS FILTER











- Dry Gas Filters
- Coalescent Filters
- Strainers
- Custom Fabrication

Green Country Filter Mfg. 1415 S. 70th E. Ave. Tulsa, OK 74112 918-455-0100

www.GreenCountryFilter.com



Number of Elements: One

Inner Shield: 22 Ga. CS Perforated Outer Shield: 18 Ga. CS Perforated

End Caps: 22 Ga CS EP MIN Collapse: 25 PSID

Cellulose Part #: 020040080-10C Retention: 10 Microns @ 99%

Polyester Part #: 020040080-5P Retention: 5 Microns @ 99%

CONSTRUCTION MATERIALS

Closure Type : Bolted

Davit Arm: None, Handle

Closure Bolts : Grade 8 Hex, Zinc Plated Closure Cap : A-536 Gr 65-45-12

Gasket Size: 0-Ring, 357

Gasket Mat'l: BUNA

Closure Hub : A-536 Gr 65-45-12

Body: A-536 Gr 65-45-12 Bottom: A-536 Gr 65-45-12 Inlet: A-536 Gr 65-45-12

Outlet: A-536 Gr 65-45-12 Drain: A-536 Gr 65-45-12

High-side DP Tap: A-536 Gr 65-45-12 Low-side DP Tap: A-536 Gr 65-45-12

Leg Supports: N/A Skirt: N/A

Base Plate: N / A Net Weight: 43 lbs

SCHEDULE OF OPENINGS

Inlet: 2" 125# ANSI Outlet: 2" 125# ANSI

Drain: 1/2" F-NPT, w/ Plug Vent: 1/4" F-NPT, w/ Plug

High-side DP Tap : 1/4" F-NPT, w/ Plug

Low-side DP Tap: 1/4" F-NPT, w/ Plug

DESIGN

Pressure Class: ASME / ANSI 125

Max Pressure: 180 psig

Max Temperature: 100 Degrees F

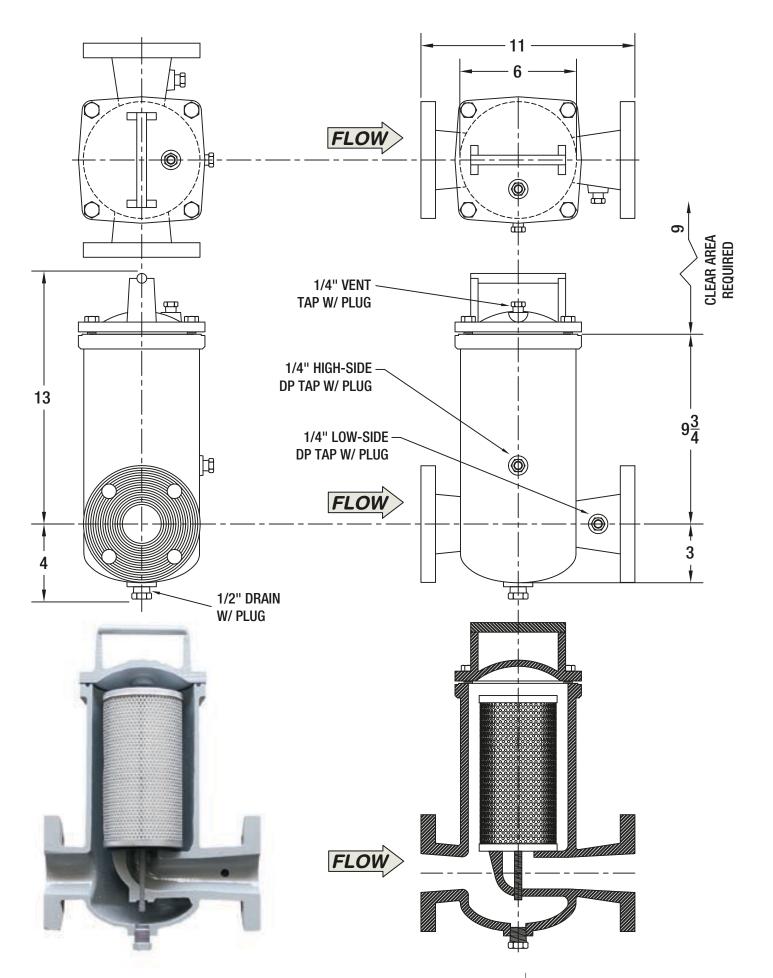
Corrosion Allowance : None CODE Stamped : N / A

TESTING

Hydrostatic Test : 375 PSIG Pneumatic Test : 80 PSIG Radiography : N / A

COATING







Number of Elements: One

Inner Shield: 22 Ga. CS Perforated Outer Shield: 18 Ga. CS Perforated

End Caps: 22 Ga CS EP MIN Collapse: 25 PSID

Cellulose Part #: 020040080-10C Retention: 10 Microns @ 99%

Polyester Part #: 020040080-5P Retention: 5 Microns @ 99%

CONSTRUCTION MATERIALS

Closure Type : Bolted

Davit Arm: None, Handle

Closure Bolts : Grade 8 Hex, Zinc Plated

Closure Cap : A-536 Gr 65-45-12

Gasket Size: 0-Ring, 357 Gasket Mat'l: BUNA

Closure Hub : A-536 Gr 65-45-12

Body: A-536 Gr 65-45-12 Bottom: A-536 Gr 65-45-12 Inlet: A-536 Gr 65-45-12

Outlet: A-536 Gr 65-45-12 Drain: A-536 Gr 65-45-12

High-side DP Tap : A-536 Gr 65-45-12

Low-side DP Tap: N/A Leg Supports: N/A

> Skirt: N / A Base Plate: N / A Net Weight: 38 lbs

SCHEDULE OF OPENINGS

Inlet: 2" F-NPT Outlet: 2" F-NPT

Drain: 1/2" F-NPT, w/ Plug Vent: 1/4" F-NPT, w/ Plug

High-side DP Tap: 1/4" F-NPT, w/ Plug

Low-side DP Tap: N/A

DESIGN

Pressure Class: ASME / ANSI 125

Max Pressure : 180 psig Max Temperature : 100 Degrees F

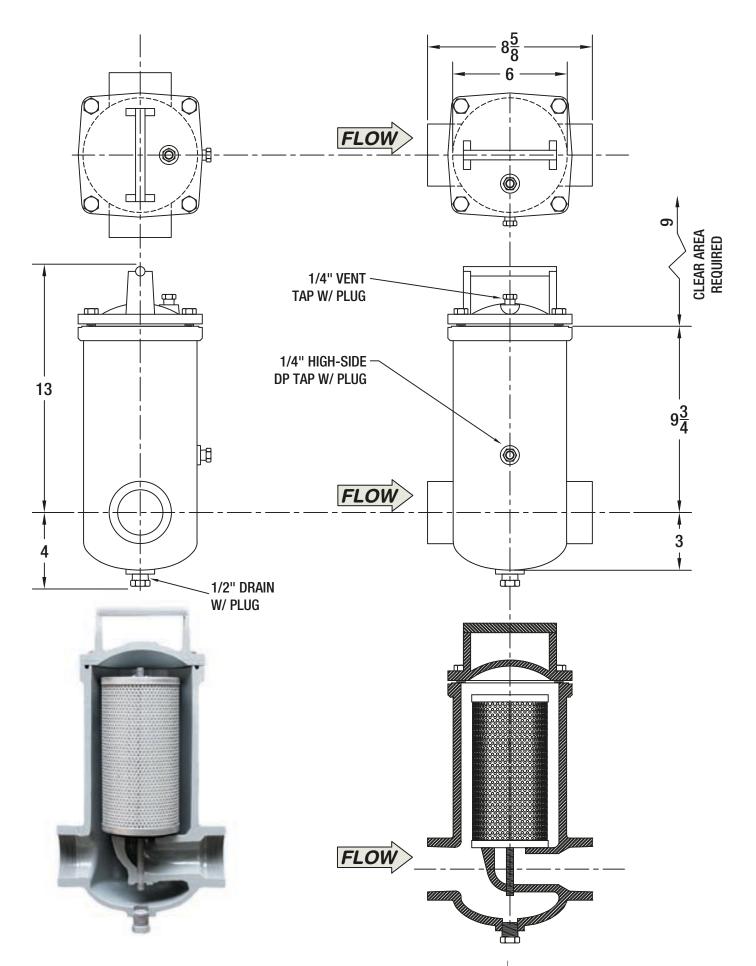
Corrosion Allowance : None CODE Stamped : N / A

TESTING

Hydrostatic Test : 375 PSIG Pneumatic Test : 80 PSIG Radiography : N / A

COATING





SAFECO Model: GFC

2" 180# MAOP Flat-Faced Flanged or Threaded



Temperature : 60 Degrees F Gas Specific Gravity : 0.6 Pore Size : 5 Micron Cartridge # : 020040080-5P

5 Micror

Calculated from DP Tap to DP Tap PRESSURE DROP (PSI)

Inlet										
Pressure	.50 WC	1.00 WC	5.00 WC	10.00 WC	20.00 WC	1	2	3	4	5
(PSI)										
0.25	2512	3554	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
0.5	2533	3583	8014	Χ	Χ	Χ	Χ	Χ	Χ	Χ
0.75	2554	3612	8079	11425	Χ	Χ	Χ	Χ	Χ	Χ
1	2574	3642	8144	11517	16289	Χ	Χ	Χ	Χ	Χ
1.5	2615	3699	8273	11699	16546	19470	Χ	Χ	Χ	Χ
2	2656	3756	8400	11879	16800	19769	Χ	Χ	Χ	Χ
3	2734	3866	8647	12229	17295	20352	28782	Χ	Χ	Χ
4	2810	3974	8888	12571	17777	20919	29584	36234	Χ	Χ
5	2884	4079	9122	12902	18246	21471	30365	37189	42943	Χ
10	3230	4567	10215	14447	20431	24042	34001	41642	48085	53760
15	3542	5009	11201	15841	22404	26363	37284	45663	52727	58951
20	3828	5414	12108	17124	24217	28496	40300	49358	56993	63721
25	4095	5791	12951	18315	25903	30481	43106	52794	60962	68157
30	4345	6145	13743	19435	27486	32343	45739	56020	64686	72322
40	4807	6798	15202	21499	30405	35778	50598	61971	71558	80003
50	5228	7394	16533	23382	33067	38911	55030	67398	77823	87010
60	5617	7944	17765	25125	35532	41810	59129	72419	83622	93492
70	5981	8459	18917	26753	37835	44522	62964	77114	89044	99554
80	6325	8945	20002	28289	40006	47076	66576	81539	94153	105267
90	6650	9405	21032	29745	42066	49500	70003	85736	99000	110685
100	6961	9844	22014	31133	44029	51809	73270	89737	103620	115851
120	7543	10669	23857	33738	47714	56145	79401	97247	112291	125545
140	8084	11433	25566	36156	51133	60169	85093	104217	120339	134543
160	8591	12150	27168	38422	54338	63941	90426	110749	127882	142976
180	9069	12826	28682	40562	57364	67502	95462	116917	135004	150939

SAFECO Model: GFC

2" 180# MAOP Flat-Faced Flanged or Threaded



Temperature : 60 Degrees F Gas Specific Gravity : 0.6

Pore Size: 10 Micron Cartridge #: 020040080-10C

Calculated from DP Tap to DP Tap PRESSURE DROP (PSI)

Inlet Pressure (PSI)	.50 WC	1.00 WC	5.00 WC	10.00 WC	20.00 WC	1	2	3	4	5
0.25	2538	3590	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
0.5	2559	3620	8095	X	X	X	X	X	X	X
0.75	2580	3649	8161	11541	X	X	X	X	X	X
1	2601	3679	8227	11634	16454	X	Χ	X	Χ	X
1.5	2642	3737	8357	11818	16714	19667	Χ	Χ	Χ	X
2	2683	3794	8485	11999	16970	19969	Χ	Χ	Χ	Χ
3	2762	3906	8735	12353	17470	20558	29073	Χ	Χ	Χ
4	2839	4015	8978	12698	17957	21131	29883	36600	Χ	Χ
5	2914	4121	9215	13033	18431	21688	30672	37565	43377	Χ
10	3263	4614	10319	14593	20638	24285	34345	42063	48571	54304
15	3578	5060	11315	16002	22631	26630	37661	46125	53260	59547
20	3867	5469	12231	17297	24462	28784	40708	49857	57569	64365
25	4137	5850	13082	18501	26165	30789	43542	53328	61578	68846
30	4389	6208	13882	19632	27764	32670	46202	56586	65340	73053
40	4856	6867	15356	21717	30713	36140	51110	62597	72281	80812
50	5281	7469	16701	23619	33402	39305	55586	68079	78610	87889
60	5674	8025	17945	25379	35891	42233	59727	73151	84467	94437
70	6042	8545	19109	27024	38218	44972	63600	77893	89944	100560
80	6389	9036	20205	28575	40411	47552	67249	82363	95105	106331
90	6718	9501	21245	30046	42491	50000	70711	86603	100001	111804
100	7032	9944	22237	31448	44474	52333	74011	90644	104667	117022
120	7620	10777	24098	34079	48196	56713	80204	98230	113426	126814
140	8166	11549	25825	36522	51650	60777	85953	105270	121555	135903
160	8678	12273	27443	38811	54887	64587	91340	111868	129174	144421
180	9161	12956	28972	40972	57944	68184	96427	118098	136368	152464



Number of Elements: One

Inner Shield: 22 Ga. CS Perforated Outer Shield: 18 Ga. CS Perforated

End Caps: 22 Ga CS EP MIN Collapse: 25 PSID

Cellulose Part #: 020040110-10C Retention: 10 Microns @ 99%

Polyester Part #: 020040110-5P Retention: 5 Microns @ 99%

CONSTRUCTION MATERIALS

Closure Type: Bolted

Davit Arm: None, Handle

Closure Bolts : Grade 8 Hex, Zinc Plated

Closure Cap: A-536 Gr 65-45-12 Gasket Size: O-Ring, 357

Gasket Mat'l : BUNA

Closure Hub : A-536 Gr 65-45-12

Body: A-536 Gr 65-45-12 Bottom: A-536 Gr 65-45-12 Inlet: A-536 Gr 65-45-12

Outlet: A-536 Gr 65-45-12 Drain: A-536 Gr 65-45-12

High-side DP Tap: A-536 Gr 65-45-12 Low-side DP Tap: A-536 Gr 65-45-12

Leg Supports : N / A Skirt : N / A

Base Plate: N / A Net Weight: 46 lbs

SCHEDULE OF OPENINGS

Inlet: 2" 125# ANSI Outlet: 2" 125# ANSI

Drain: 1/2" F-NPT, w/ Plug

Vent: 1/4" F-NPT, w/ Plug

High-side DP Tap: 1/4" F-NPT, w/ Plug Low-side DP Tap: 1/4" F-NPT, w/ Plug

DESIGN

Pressure Class: ASME / ANSI 125

Max Pressure : 180 psig

Max Temperature: 100 Degrees F

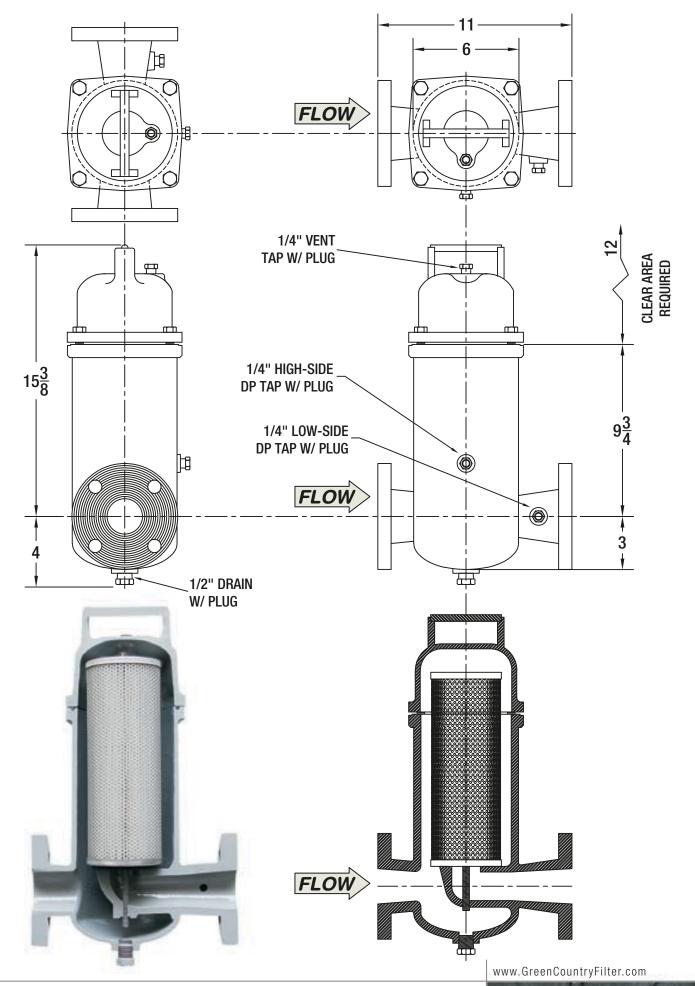
Corrosion Allowance : None CODE Stamped : N / A

TESTING

Hydrostatic Test : 375 PSIG Pneumatic Test : 80 PSIG Radiography : N / A

COATING







Number of Elements: One

Inner Shield: 22 Ga. CS Perforated Outer Shield: 18 Ga. CS Perforated

End Caps: 22 Ga CS EP MIN Collapse: 25 PSID

Cellulose Part #: 020040110-10C Retention: 10 Microns @ 99%

Polyester Part #: 020040110-5P Retention: 5 Microns @ 99%

CONSTRUCTION MATERIALS

Closure Type : Bolted

Davit Arm: None, Handle

Closure Bolts: Grade 8 Hex, Zinc Plated

Closure Cap : A-536 Gr 65-45-12 Gasket Size : O-Ring, 357

Gasket Size : U-Ring, 35 Gasket Mat'l : BUNA

Closure Hub : A-536 Gr 65-45-12

Body: A-536 Gr 65-45-12 Bottom: A-536 Gr 65-45-12

Inlet: A-536 Gr 65-45-12 Outlet: A-536 Gr 65-45-12 Drain: A-536 Gr 65-45-12

High-side DP Tap : A-536 Gr 65-45-12

Low-side DP Tap: N / A Leg Supports: N / A

Skirt: N / A

Skirt: N / A

Base Plate: N / A

Net Weight: 43 lbs

SCHEDULE OF OPENINGS

Inlet: 2" F-NPT Outlet: 2" F-NPT

Drain: 1/2" F-NPT, w/ Plug Vent: 1/4" F-NPT, w/ Plug

High-side DP Tap: 1/4" F-NPT, w/ Plug

Low-side DP Tap: N/A

DESIGN

Pressure Class: ASME / ANSI 125

Max Pressure : 180 psig Max Temperature : 100 Degrees F

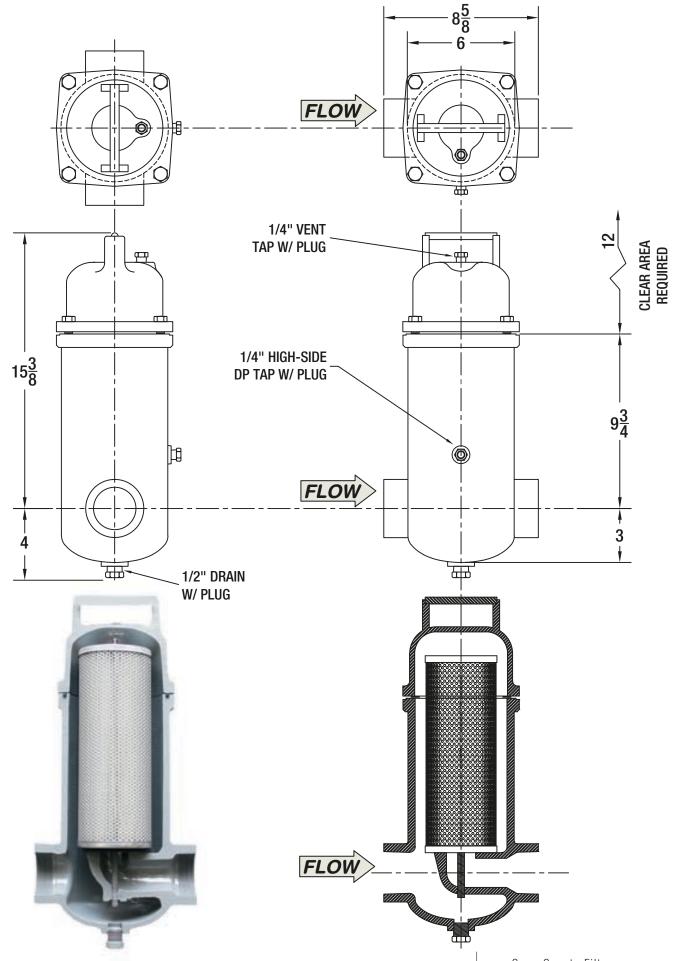
Corrosion Allowance : None CODE Stamped : N / A

TESTING

Hydrostatic Test: 375 PSIG Pneumatic Test: 80 PSIG Radiography: N / A

COATING





SAFECO Model: GFCX

2" 180# MAOP Flat-Faced Flanged or Threaded



Temperature : 60 Degrees F Gas Specific Gravity : 0.6 Pore Size : 5 Micron Cartridge # : 020040110-5P

5 Micror

Calculated from DP Tap to DP Tap PRESSURE DROP (PSI)

Inlet Pressure (PSI)	.50 WC	1.00 WC	5.00 WC	10.00 WC	20.00 WC	1	2	3	4	5
0.25	2832	4005	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
0.5	2856	4039	9032	X	Χ	X	X	X	X	X
0.75	2878	4071	9106	12878	Χ	X	X	X	X	X
1	2902	4105	9180	12982	18360	X	X	Χ	Χ	X
1.5	2948	4169	9324	13187	18650	21946	X	X	Χ	X
2	2993	4234	9467	13389	18935	22281	Χ	Χ	Χ	Χ
3	3081	4358	9747	13784	19495	22939	32442	Χ	Χ	Χ
4	3168	4479	10018	14168	20037	23578	33346	40840	Χ	Χ
5	3251	4598	10283	14543	20566	24201	34226	41917	48403	Χ
10	3641	5148	11514	16283	23029	27099	38323	46936	54198	60595
15	3992	5645	12626	17856	25252	29715	42024	51469	59431	66446
20	4315	6103	13648	19301	27296	32119	45424	55633	64240	71822
25	4616	6528	14597	20644	29196	34355	48587	59506	68711	76823
30	4897	6927	15489	21906	30980	36454	51555	63142	72910	81516
40	5418	7662	17134	24233	34270	40327	57031	69849	80655	90175
50	5892	8333	18635	26355	37272	43858	62026	75966	87718	98072
60	6332	8954	20024	28318	40049	47126	66647	81626	94253	105379
70	6742	9535	21322	30155	42646	50182	70968	86918	100365	112211
80	7128	10083	22546	31885	45093	53062	75041	91906	106124	118650
90	7496	10601	23706	33526	47414	55793	78903	96636	111586	124757
100	7846	11096	24813	35091	49626	58397	82585	101146	116794	130580
120	8503	12025	26889	38027	53779	63283	89496	109610	126567	141507
140	9111	12886	28816	40753	57634	67818	95911	117467	135638	151649
160	9683	13694	30622	43307	61246	72070	101922	124829	144141	161154
180	10222	14457	32328	45720	64657	76083	107599	131780	152167	170123

SAFECO Model: GFCX

2" 180# MAOP Flat-Faced Flanged or Threaded



Temperature : 60 Degrees F Gas Specific Gravity : 0.6 Pore Size : 10 Micron

Pore Size : 10 Micron
Cartridge # : 020040110-10C

Calculated from DP Tap to DP Tap PRESSURE DROP (PSI)

Inlet	.50 WC	1.00 WC	5.00 WC	10.00 WC	20.00 WC	1	2	3	4	5
Pressure (PSI)	.50 996	1.00 990	5.00 WG	10.00 996	20.00 WG	· ·	۷.	J	4	J
	0001	40.40	V	V	V	V	V	V	V	V
0.25	2861	4046	X	X	X	X	X	X	X	X
0.5	2885	4080	9124	X	X	X	X	X	Χ	X
0.75	2908	4113	9198	13009	χ	X	X	X	X	X
1	2932	4147	9273	13114	18546	X	X	X	X	X
1.5	2978	4212	9419	13321	18839	22168	X	X	X	X
2	3024	4277	9563	13525	19127	22507	Χ	X	Χ	X
3	3113	4403	9846	13924	19692	23171	32770	Χ	X	X
4	3200	4525	10120	14312	20240	23817	33683	41253	Χ	X
5	3284	4645	10387	14690	20774	24446	34572	42341	48892	Χ
10	3678	5201	11631	16448	23262	27373	38711	47411	54746	61208
15	4033	5703	12754	18037	25508	30016	42449	51989	60032	67118
20	4359	6165	13786	19496	27572	32444	45883	56195	64889	72548
25	4663	6594	14745	20853	29491	34703	49078	60108	69406	77599
30	4947	6997	15646	22128	31293	36823	52076	63780	73647	82340
40	5473	7740	17308	24478	34617	40735	57608	70555	81470	91086
50	5952	8418	18824	26622	37649	44302	62653	76734	88605	99063
60	6396	9045	20227	28605	40454	47603	67321	82451	95206	106444
70	6811	9632	21538	30460	43077	50689	71685	87796	101379	113345
80	7201	10185	22774	32208	45549	53598	75799	92835	107196	119849
90	7572	10709	23946	33865	47893	56357	79701	97613	112714	126018
100	7926	11209	25064	35446	50128	58987	83420	102168	117974	131899
120	8589	12147	27161	38412	54323	63923	90401	110718	127846	142937
140	9204	13017	29108	41165	58217	68504	96880	118654	137009	153181
160	9781	13833	30932	43745	61865	72798	102952	126090	145597	162782
180	10326	14604	32655	46182	65311	76852	108686	133112	153705	171848

SAFECO CARTRIDGES

FOR GFC AND GFCX SERIES

Natural Gas Filters

Manufactured By Green Country Filter

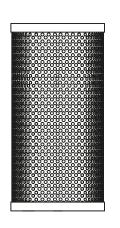


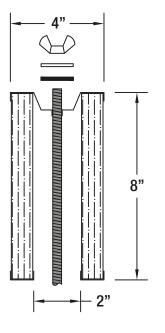
GFC SERIES

5 MICRON 020040080-5P

10 MICRON 020040080-10C



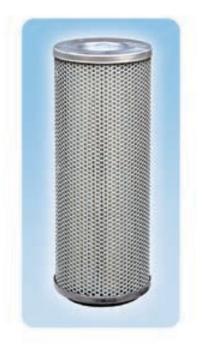




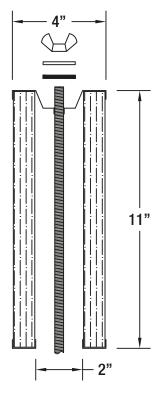
GFCX SERIES

5 MICRON 020040110-5P

10 MICRON 020040110-10C







SAFECO GFC / GFCX SERIES NATURAL GAS FILTERS

INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS

1. Inspect gasket facing on Inlet and Outlet flanges, if so equipped.

SAFECO Provides a shipping blind for every flange, but a precautionary check of all gasket facings is recommended. Also, it may be necessary to remove the paint from the machined facings for good sealing.

2. Install the filter in the pipeline using standard pipeline assembly methods.

Be certain to observe the proper flow direction as indicated on the filter housing.

3. Bring the unit pressure up slowly.

Inspect for leaks and loose connections. If any problems are detected, depressurize the unit before beginning any repairs.

4. Monitor the pressure drop.

After placing the unit in service, the differential pressure should be routinely checked. Blocked or dirty elements should be changed immediately. Pleated media cartridges should never be subjected to a differential pressure greater than 15 psid. For maximum reliability, SAFECO recommends that cartridge replacement should be scheduled as early as possible after an observed pressure drop greater than 10 psid.

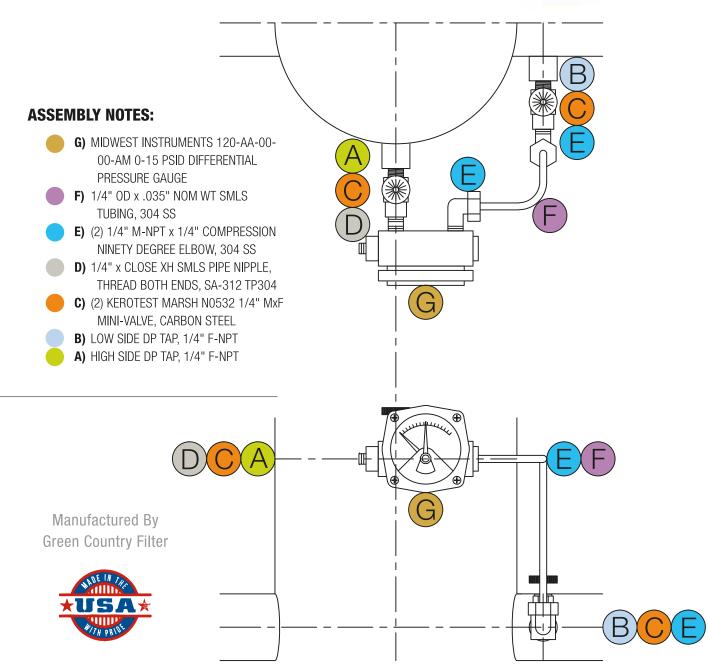
5. Changing Elements.

- a. Isolate and depressurize the unit.
- b. Unbolt and remove the top cover from the unit, being careful to avoid damage to the O-ring groove and facing.
- **c.** Remove the old cartridge, retaining the wing nut and both washers.
- d. Clean the filter body, if required.
- e. Carefully insert the new cartridge. **SAFECO does not recommend the re-use of filter cartridges,** even if they appear clean. The bottom seal may have taken a "set" and may not seal when re-installed.
- f. Be certain to place the bottom of the cartridge around the centering cone at the bottom of the housing. Failure to center the cartridge will destroy the cartridge seal and allow blow-by. Visually verify proper centering before replacing the wing nut and washers.
- g. Replace the washers and wing nut. The rubber washer goes on first. The wing nut should be hand-tightened only.
- h. Carefully inspect the O-ring and all of the cap screws. Replace as necessary. Be certain to re-lubricate the O-ring with O-ring lube.
- i. Replace the top cover, and tighten the cap screws in a four bolt pattern.
- j. Restore unit to service as specified above.

DIFFERENTIAL PRESSURE GAUGE

For Natural Gas Filters





DP KITS ON SAFECO NATURAL GAS FILTERS

INSTALLATION INSTRUCTIONS

1. Isolate and de-pressurize the unit.

The DP Kit is part of the pressure boundary, as are the plugs supplied in the Differential Pressure Connections.

2. Locate the DP Taps.

Most units are equipped with DP Taps installed on the front of the housing and nozzle. The high-side DP tap is usually on the front of the housing, but may be on the front of the inlet or on top of the inlet. Some units, especially the very small ones, may not be equipped with a high-side DP tap. If no high-side DP Tap is provided, any compatible tap upstream of the unit may be used. Because a DP Gauge does not require any flow, a hot-tap may be used. Remember to account for any additional differential pressure when analyzing the readings from the DP Gauge. The low-side DP tap is normally located on the front of the outlet nozzle, but may be located on the top of the outlet nozzle. Some units, especially those provided with threaded or socket welding nozzles, may not have a low-side DP tap installed on the filter housing. If there is no low-side DP tap present, pressure can be obtained from any tap downstream of the unit. Remember to account for any additional differential pressure when analyzing the readings from the DP Gauge.

3. Remove the plugs from the DP Taps.

Most units are equipped with 1/4" NPT DP Taps. If the DP Taps are 1/2" NPT, bushings will be required. If bushings are required, install the bushings before continuing to the next step.

4. Use Pipe Dope or Thread Tape.

All threaded connections should be made using either pipe dope or thread tape. Be certain to use a product approved for use with natural gas. Always follow the manufacturer's instructions in the use of thread sealing compounds and tape.

5. Install the shut-off valves in the DP Taps.

The shut-off valve should always be connected directly to the DP Tap, except that a reducing bushing may be required, or, in the case of some small filters, a short 1/4" pipe nipple and coupling may be required to elevate the low-side DP Tap enough to permit the installation of the shut-off valve.

6. Install the DP Gauge.

Loosely install the $1/\overline{4}$ " NPT-M x 1/4" Compression Elbow in the "Low" side connection on the back of the DP Gauge. Loosely install the 1/4" x Close Pipe Nipple in the "High" side. Then install the pipe nipple into the shut-off valve on the high-side DP tap. Use a wrench to tighten the gauge, gripping only the aluminum block.

7. Install the Manometer Tube.

Loosely install the other NPT x Compression Elbow into the Low-Side Shut-off valve. Usually, two bends will be required. Only tighten the tubing elbows after confirming the proper fit of the tube. The compression fittings should be the last components tightened.

8. Restore the Unit to Pressure Slowly.

Check for leaks. Isolate and de-pressurize the unit before beginning any repairs.

STANDARD TERMS AND CONDITIONS

GREEN COUNTRY FILTER MFG.



1. ACCEPTANCE

- 1.1 All orders are subject to final acceptance by GREEN COUNTRY FILTER MFG., hereinafter referred to as GCF.
- 1.2 No order is binding on GCF until a written acceptance has been sent to the buyer by GCF.

2. FOB POINT

2.1 All shipments are FOB GCF unless otherwise specified on the written acknowledgment.

3. PRICES

- **3.1** All quotations are made for prompt acceptance and any terms quoted therein are subject to change without notice after thirty (30) days from the date of quotation unless specifically stated otherwise on the quotation.
- **3.2** Prices are FOB Point of Origin. GCF reserves the right to invoice customer for any and all finished material ready for shipment, when held at customer's request, or for other reasons beyond GCF's control. Seller reserves the right to place a service charge on past due accounts at the highest rate allowable by law. Every Sales, Use, Excise, or other tax and any charge imposed by law or common practice to include custom duties, consular fees, insurance charges, and other comparable charges to be borne by customer. Prices are in U.S. dollars.
- **3.3** All orders are subject to any Federal, State, or other Government Regulation that may be in effect or later become effective.

4. DELIVERIES

- **4.1** All promises of shipment are estimated as closely as possible based on the availability of materials and capacity at the time and are expressly subject to change due to delays beyond GCF's reasonable control.
- **4.2** If additional information or drawing approval is required, promise of shipment will date from receipt of same.

5. DESIGN

5.1 GCF reserves the right to make minor changes in design without notice.

6. CANCELLATION

6.1 Orders accepted by GCF are not subject to cancellation by customer except with the written consent of GCF and upon terms which will indemnify GCF against any expense, loss, or damage occasioned by such cancellation.

7. INSPECTION

- 7.1 Final Inspection and acceptance of products must be made at GCF's plant and shall be conclusive except as regards latent defects.
- **7.2** Customer's representative may inspect at the plant during working hours prior to shipment in such a manner as will not interfere with operations.

8. ENGINEERING AND SERVICE

8.1 Upon request, GCF may provide engineering and / or technical information about its products and their uses.

8. ENGINEERING AND SERVICE cont.

8.2 Such information, or assistance so provided, whether with or without charge, shall be advisory only, and buyer agrees to hold GCF harmless from claims for loss from any cause resulting from such advisory or service activity.

9. WARRANTY

- 9.1 THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS
- 9.2 GCF warrants that all pressure vessels and pressure vessel components manufactured by it to be free from defects in materials and workmanship when these products are used within the service and pressure range for which they were manufactured. Such warranty shall be binding upon GCF in respect to pressure vessels only (excluding any and all removable components) for a period of ten (10) years from shipment. Such warranty shall be binding upon GCF in respect to all other products manufactured by GCF for a period of one (1) year from the date of shipment.
- 9.3 If, at any time within such periods, it is established to the satisfaction of GCF that any product manufactured by GCF was defective at the time of shipment, GCF, at its option, shall repair or exchange such item, FOB Destination, or refund the price paid.
- 9.4 It is understood that the liability of GCF shall be limited to such repair or replacement and that GCF shall not be liable for any direct, indirect, incidental, or consequential damages arising out of any defects or from any cause whatsoever.
- **9.5** This warranty does not cover deterioration by corrosion or aging of any component, including stress corrosion or any other cause of failure other than defects in materials and workmanship.
- **9.6** Unless repairs to, alterations of, or work done on said products by the buyer shall be specifically authorized in writing by GCF, any warranty applicable thereto shall become null and void.

10. FREIGHT

10.1 Any freight allowance applies to materials manufactured by GCF. Delivery by carrier will be at customer's risk.

11. PATENT INFRINGEMENT

11.1 The seller shall not be liable for any damage or costs for any infringement of patents for any products which are produced to buyer's specifications and buyer shall assume all responsibility for, and save seller harmless from any and all damages, costs, royalties, and all other claims arising out of any charges of infringement.

12. ACCEPTANCE

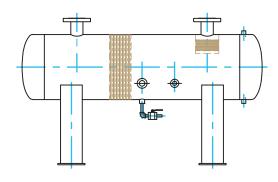
12.1 Acceptance of buyer's order is expressly conditional upon buyer's acceptance of the foregoing terms and conditions of sale. Any additional or different terms proposed by customer are not acceptable unless expressly agreed to in writing by an officer of the company.

CUSTOM FABRICATION

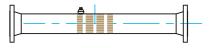
FROM CONCEPT TO COMPLETED PRODUCT



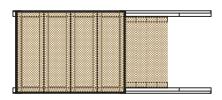
Scrubbers

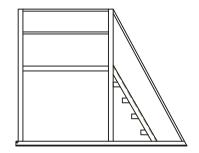


Straightening Vanes & Tubes

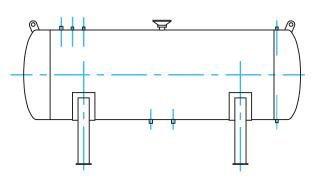


Maintenance Platforms

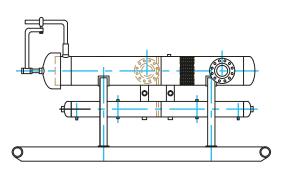






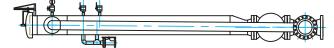


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