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

- Reliable
- Lightweight
- Economical

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

Green Country Filter Mfg.
1415 S. 70th E. Ave.
Tulsa, OK 74112
918-455-0100
SAFECO BRAND
GFC-FF
2" 125# ANSI FLAT-FACED
DUCTILE CAST IRON NATURAL GAS FILTER

FILTER ELEMENT
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: O-Ring, 357
Gasket Mat’tl: 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
2 mils Oxidating Primer,
Sand Blasting and
Other Coatings Available
1/4" HIGH-SIDE DP TAP W/ PLUG

1/4" LOW-SIDE DP TAP W/ PLUG

1/4" VENT TAP W/ PLUG

1/2" DRAIN W/ PLUG

FLOW

FLOW

FLOW

CLEAR AREA REQUIRED

9

9 3/4

3
SAFECO BRAND
GFC-NPT
2” 125# ANSI FEMALE THREADED
DUCTILE CAST IRON NATURAL GAS FILTER

FILTER ELEMENT
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: O-Ring, 357
Gasket Mat’t: 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
2 mils Oxidating Primer,
Sand Blasting and
Other Coatings Available
### 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

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*Estimated Gas Flow Rate (in SCFH) through SAFECO Model: GFC*

Calculated from DP Tap to DP Tap

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Revision: November 2011
## Estimated Gas Flow Rate (in SCFH) Through

### 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

---

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Estimated Gas Flow Rate (in SCFH) through SAFECO Model: GFC 2" 180# MAOP Flat-Faced Flanged or Threaded.
SAFECO BRAND
GFCX-FF
2" 125# ANSI FLAT-FACED
DUCTILE CAST IRON NATURAL GAS FILTER

FILTER ELEMENT
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
2 mils Oxidating Primer,
Sand Blasting and
Other Coatings Available
1/2" DRAIN W/ PLUG

1/4" VENT TAP W/ PLUG

1/4" HIGH-SIDE DP TAP W/ PLUG

1/4" LOW-SIDE DP TAP W/ PLUG

FLOW

CLEAR AREA REQUIRED
SAFECO BRAND
GFCX-NPT
2" 125# ANSI FEMALE THREADED
DUCTILE CAST IRON NATURAL GAS FILTER

FILTER ELEMENT
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’t: 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: 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
2 mils Oxidating Primer,
Sand Blasting and
Other Coatings Available
**ESTIMATED GAS FLOW RATE (IN SCFH) THROUGH**

**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

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### SAFECO Model: GFCX

**2" 180# MAOP**

Flat-Faced Flanged or Threaded

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**ESTIMATED GAS FLOW RATE (IN SCFH) THROUGH**

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**Calculated from DP Tap to DP Tap**

**PRESSURE DROP (PSI)**


**Revision: November 2011**
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.

   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

ASSEMBLY NOTES:

G) MIDWEST INSTRUMENTS 120-AA-00-00-AM 0-15 PSID DIFFERENTIAL PRESSURE GAUGE
F) 1/4" OD x .035" NOM WT SMLS TUBING, 304 SS
E) (2) 1/4" M-NPT x 1/4" COMPRESSION NINETY DEGREE ELBOW, 304 SS
D) 1/4" x CLOSE XH SMLS PIPE NIPPLE, THREAD BOTH ENDS, SA-312 TP304
C) (2) KEROTEST MARSH NO532 1/4" MxF MINI-VALVE, CARBON STEEL
B) LOW SIDE DP TAP, 1/4" F-NPT
A) HIGH SIDE DP TAP, 1/4" F-NPT
**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 1/4” 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 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
Tanks
Straightening Vanes & Tubes
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