



# Oil Solutions

## GA/BGAH Series

*Medium Pressure Filters*



Filtration

***Global Filtration Technology***

# Medium Pressure Filters

GA/BGAH Series

## Features/Applications for Medium Pressure Inline Filters – GA Series

- Pressures to 750 PSI
- Flows to 100 GPM
- BetaMaze Elements - 3 to 20 Micron Absolute
- Disposable or Recleanable Elements
- Visual and Electrical DP Indicators
- BetaMaze long life elements
- Magnetic prefiltration
- Full flow bypass valve
- No internal leakage paths
- Inside-to-out flow thru element
- Complete contaminant removal during element service
- Optional LEIF® element

## Specifications - GA Series

### Housing Data:

#### Material:

Housing – Aluminum Alloy  
 Top Closure – Gray Iron  
 Internals – Carbon Steel and Aluminum  
 Seals – Nitrile – Standard Viton – Optional

#### Pressure Ratings:

Static – GA-30/120, 750 psi (52 bar)  
 GA-170/230, 600 psi (41 bar)  
 Burst – GA-30/120, 2800 psi (193 bar)  
 GA-170/230, 2200 psi (152 bar)

#### Weight:

GA-30 – 4.7 lbs (2.1 kg)  
 GA-60 – 5.4 lbs (2.5 kg)  
 GA-90 – 6.2 lbs (2.8 kg)  
 GA-120 – 7.4 lbs (3.4 kg)  
 GA-170 – 16.6 lbs (7.5 kg)  
 GA-230 – 18.2 lbs (8.3 kg)

### Indicator Data:

#### Visual/Switch Setting:

17 psi (1.2 bar) Standard  
 10 psi (0.7 bar)  
 3 psi (0.2 bar)

**DE Indicators:** N.O. (Std.), N.C. (Optional)

#### Electrical Rating:

120 VAC – 5 Amp  
 28 VDC – .3 Amp Resistive

#### Temperature Range:

Operating -40°F to +250°F (-40°C to +120°C)

#### Bypass Valve Setting:

22 psi (1.5 bar) Standard  
 12 psi (0.8 bar)  
 4.5 psi (0.3 bar)  
 No Bypass

## Element Data

Media Type	Absolute Rating	Multipass Test Results To ISO 4572 (Time Weighted Averages)						
		B <sub>3</sub>	B <sub>6</sub>	B <sub>10</sub>	B <sub>12</sub>	B <sub>20</sub>	B <sub>25</sub>	B <sub>36</sub>
GDL	3	≥100	800	2000	>5000	∞	∞	∞
GDL	6	8	≥100	1000	2000	>5000	∞	∞
GDL	10	6	22	≥100	≥200	>5000	∞	∞
GDL	20	–	2	8	20	≥100	≥200	>5000
TXX	36	–	–	2	3.5	6	23	≥100

**Hardware** = Plated Carbon Steel

**GDL** = Glass Micro-fiber, Epoxy End Cap Adhesive, Suitable for all Conventional Hydraulic Fluids except Phosphate Esters

**TXX** = Cellulose Fiber, Epoxy End Cap Adhesive, Suitable for Petroleum Base Fluids, Silicon and Phosphate Base Esters

**ST** = Stainless Steel Mesh, Epoxy End Cap Adhesive, Suitable for all Conventional Hydraulic Fluids

**Burst Pressure** = 150 psid

## Flow Pressure Drop Data

Fluid conditions: Viscosity 140 SSU and Sp. Gr. 0.88

Clean Element Pressure Drop (ΔP) Factors						
Code	3	6	10	20	TXX	ST40
GA-30	1.863	.708	.546	.434	.077	.075
GA-60	.905	.345	.280	.214	.040	.036
GA-90	.603	.236	.187	.137	.029	.025
GA-120	.452	.168	.127	.107	.021	.018
GA-170	.286	.103	.074	.049	.018	.014
GA-230	.205	.079	.052	.038	.013	.010

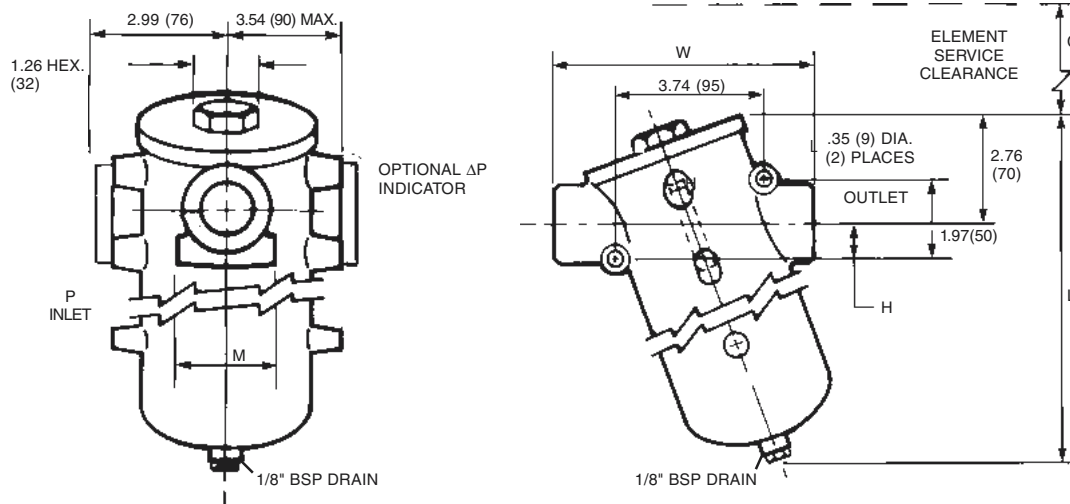
### Element Pressure Drop (ΔP):

Multiply the actual flow rate times the applicable ΔP factor to determine the pressure drop with 140 SSU fluid viscosity. Correct for a different viscosity by applying the following formula:

Flow Rate (GPM) x (New viscosity in SSU/140 SSU).

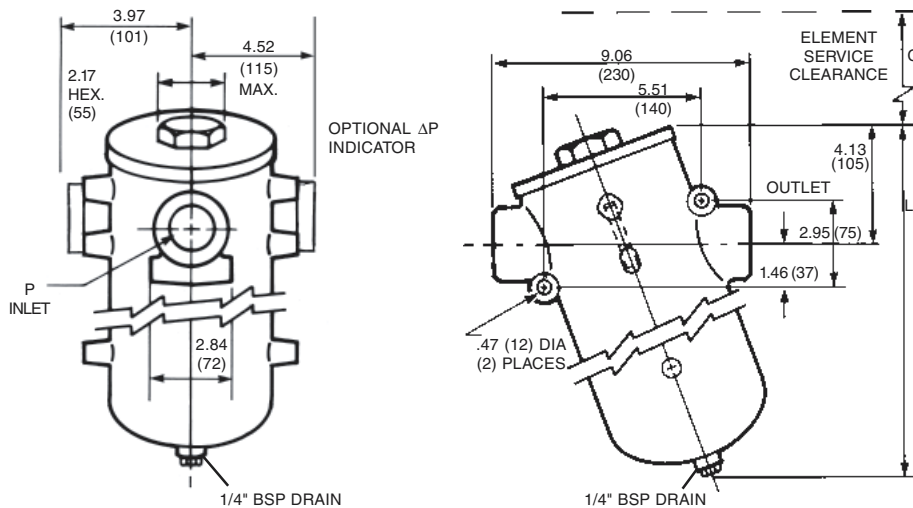


### Dimensions GA-30, 60, 90, 120



Dimensions Inches (mm)	GA Filter Model			
	30	60	90	120
H	.98 (25)	.95 (24)		
M	1.73 (44)	2.13 (54)	2.52 (64)	
W	5.91 (150)	6.30 (160)		
L	7.09 (180)	9.25 (235)	10.85(275)	12.8(325)
C	4.2 (107)	5.9 (150)	7.5 (191)	9.5 (241)
P	SAE 12	SAE 16		SAE 20

### Dimensions GA-170, GA-230

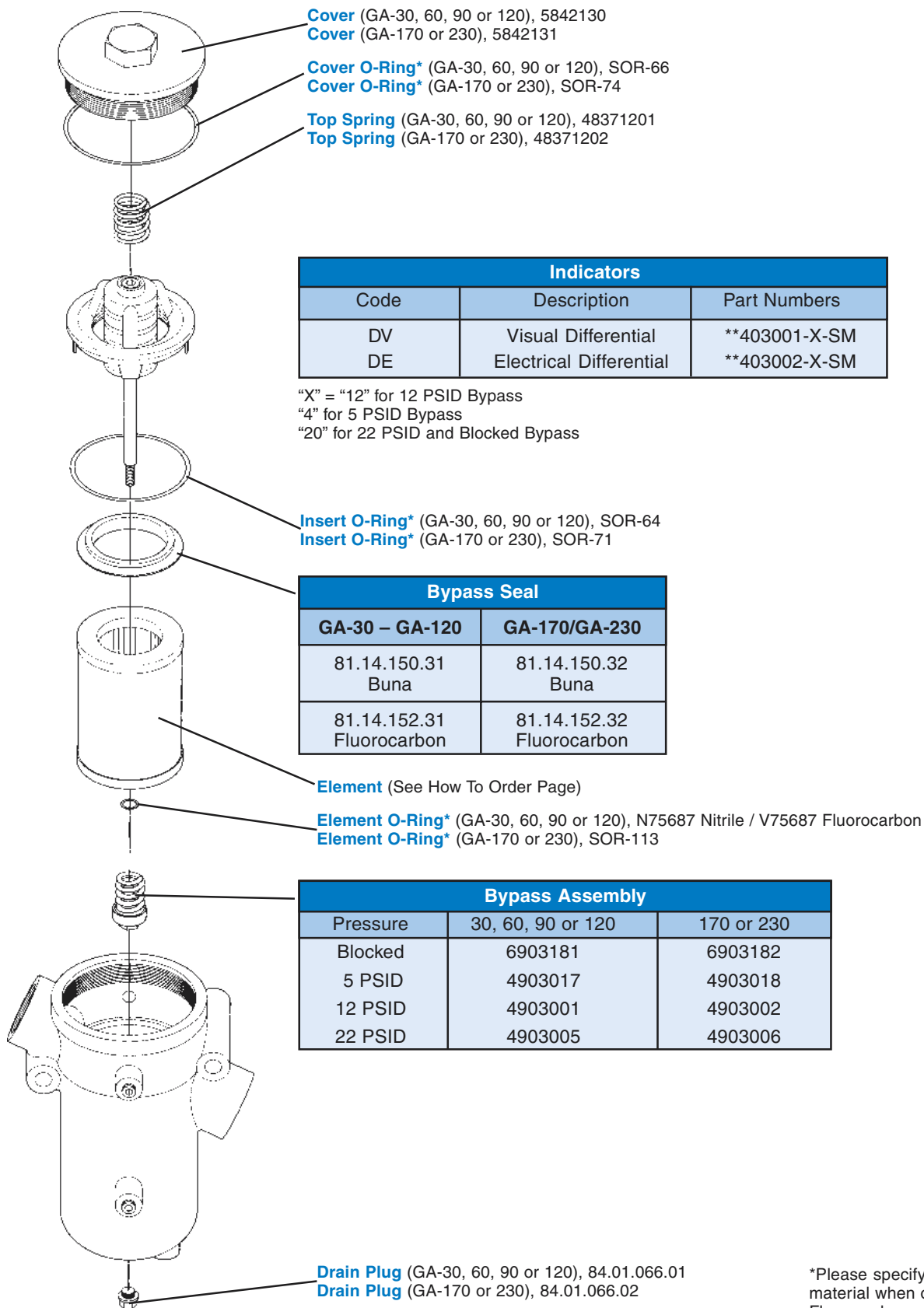


Dimensions Inches (mm)	GA Filter Series	
	170	230
C	10.4 (264)	12.7 (323)
L	15.35 (390)	18.11 (460)
P	SAE 24	

# Medium Pressure Filters

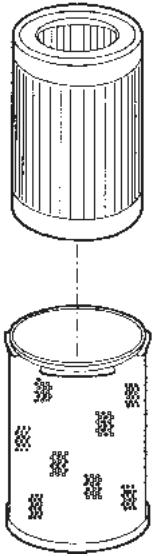
GA/BGAH Series

## Parts Breakdown - GA Series



\*Please specify seal suffix material when ordering  
 Fluorocarbon seals: "-V".

### LEIF® BetaMaze™ Replacement Elements



LEIF® Disposable BetaMaze™ Elements only				
Model	3 Micron Absolute Beta 3 ≥ 100	6 Micron Absolute Beta 6 ≥ 100	10 Micron Absolute Beta 10 ≥ 100	20 Micron Absolute Beta 20 ≥ 100
GA-30	TXWL-3	TXWL-6	TXWL-10	TXWL-20
GA-60	TXWL2-3	TXWL2-6	TXWL2-10	TXWL2-20
GA-90	TXWL3-3	TXWL3-6	TXWL3-10	TXWL3-20
GA-120	TXWL3D-3	TXWL3D-6	TXWL3D-10	TXWL3D-20
GA-170	TXWL4-3	TXWL4-6	TXWL4-10	TXWL4-20
GA-230	TXWL5-3	TXWL5-6	TXWL5-10	TXWL5-20

Outer Sleeve						
Model	GA-30	GA-60	GA-90	GA-120	GA-170	GA-230
Part No.	TXSL	TXSL2	TXSL3	TXSL3D	TXSL4	TXSL5

# Medium Pressure Filters

GA/BGAH Series

## Features/Applications for Medium Pressure Inline Filters – BGAH

- Pressures to 500 PSI
- Flows to 200 GPM
- BetaMaze™ Elements  
3 to 20 Micron Absolute
- Disposable or Recleanable Elements
- Visual and Electrical DP Indicators
- BetaMaze long life elements
- Magnetic prefiltration
- Full flow bypass valve
- No internal leakage paths
- Inside-to-out flow thru element
- Complete contaminant removal during element service
- Optional LEIF® element

## Element Data

Media Type	Absolute Rating	Multipass Test Results To ISO 4572 (Time Weighted Averages)						
		B <sub>3</sub>	B <sub>6</sub>	B <sub>10</sub>	B <sub>12</sub>	B <sub>20</sub>	B <sub>25</sub>	B <sub>36</sub>
GDL	3	≥100	800	2000	≥5000	∞	∞	∞
GDL	6	8	≥100	1000	2000	>5000	∞	∞
GDL	10	6	22	≥100	≥200	>5000	∞	∞
GDL	20	–	2	8	20	≥100	≥200	>5000
TXX	36	–	–	2	3.5	6	23	≥100

Hardware = Plated Carbon Steel

GDL = Glass Micro-fiber, Epoxy End Cap Adhesive, Suitable for all Conventional Hydraulic Fluids except Phosphate Esters

TXX = Cellulose Fiber, Epoxy End Cap Adhesive, Suitable for Petroleum Base Fluids, Silicon and Phosphate Base Esters

ST = Stainless Steel Mesh, Epoxy End Cap Adhesive, Suitable for all Conventional Hydraulic Fluids

Burst Pressure = 150 psid

## Flow/Pressure Drop Down Data

Fluid Conditions: Viscosity 140 SSU and Sp. Gr. 0.88

Clean Element Pressure Drop (ΔP) Factors						
Code	3	6	10	20	TXX	ST40
BGAH-400	.122	.045	.032	.022	.007	.006
BGAH-500	.097	.037	.024	.017	.006	.0044

### Element Pressure Drop (ΔP):

Multiply the actual flow rate times the applicable ΔP factor to determine the pressure drop with 140 SSU fluid viscosity. Correct for a different viscosity by applying the following formula: Flow Rate (GPM) x ΔP Factor x (New viscosity in SSU/140 SSU).

### Specifications: BGAH

#### Housing Data:

##### Material:

Housing – Aluminum Alloy  
Internals – Carbon Steel and Aluminum  
Seals – Nitrile - Standard  
Viton - Available

##### Pressure Ratings:

Static – 500 psi (34 bar)  
Burst – 2000 psi (138 bar)

##### Weight:

BGAH-400 – 39 lbs (17.7 kg)  
BGAH-500 – 45 lbs (20.5 kg)

#### Indicator Data:

##### Visual/Switch Setting:

17 psi (1.2 bar) Standard  
10 psi (0.7 bar)  
3 psi (0.02 bar)

##### Electrical Rating:

110 VAC – 10 Amp  
250 VAC – 5 Amp  
228 VDC – 3 Amp Inductive  
5 Amp Resistive

##### DE Indicators: N.O. (Std.), N.C. (Optional)

##### Temperature Range:

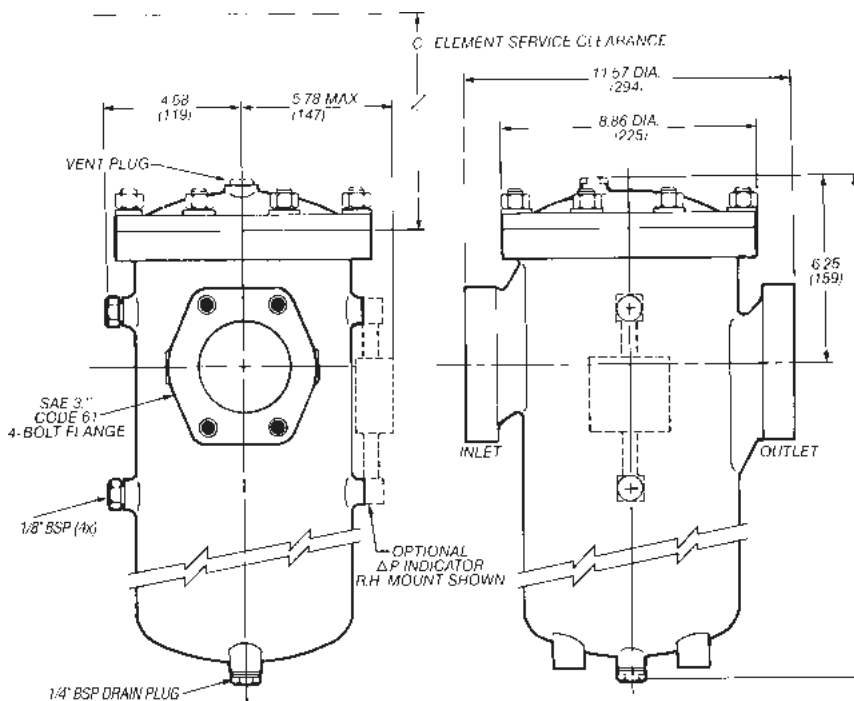
Operating -40°F to +250°F (-40°C to +120°C)

##### Bypass Valve Setting:

22 psi (1.5 bar) Standard  
12 psi (0.8 bar)  
4.5 psi (0.3 bar)  
No Bypass

### Dimensions: BGAH-400, 500

#### Inches (mm)

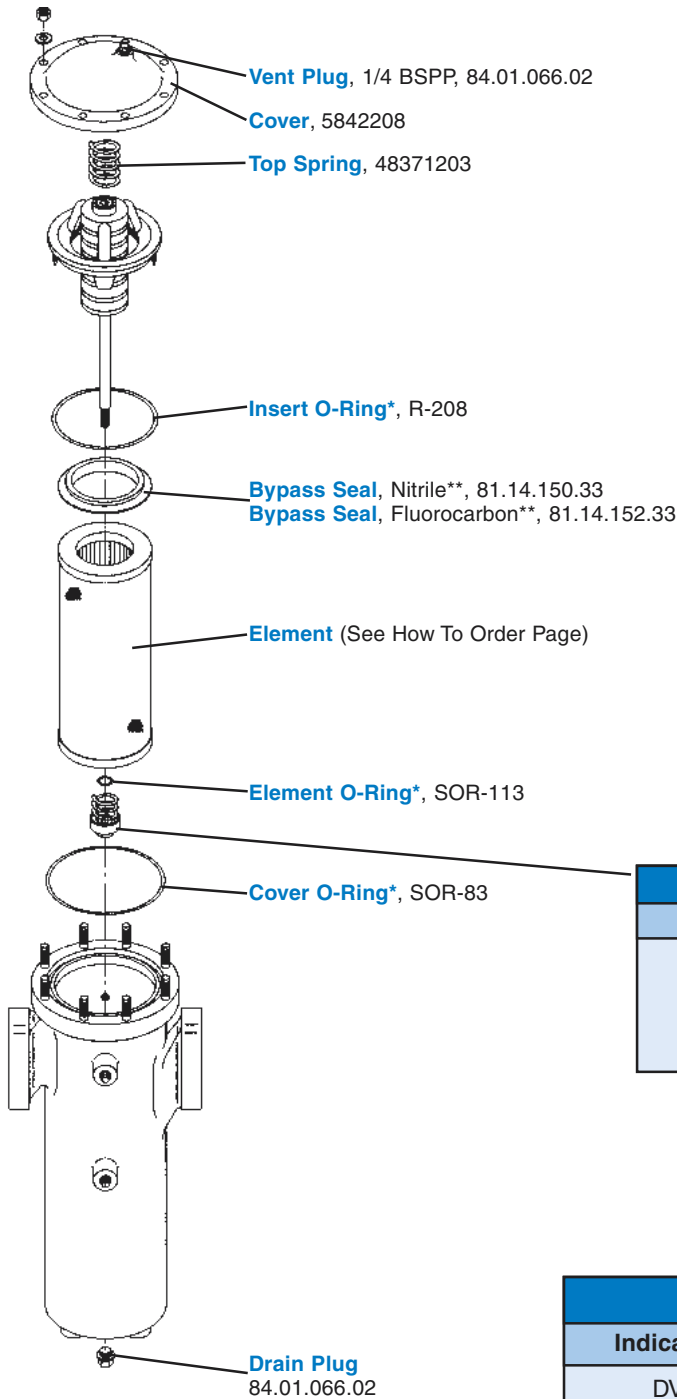


Dimensions Inches (mm)	BGAH Filter Model	
	400	500
C	15.75 (400)	23.25 (590)
L	21.65 (550)	29.13 (740)

# Medium Pressure Filters

GA/BGAH Series

## Parts Breakdown - BGAH Series



Bypass Assembly	
Bypass Pressure Setting	BGAH-400 or 500
Blocked	6903183
5 PSID	4903019
12 PSID	4903003
22 PSID	4903007

Indicators		
Indicator	Description	Part Numbers
DV	Visual Differential	†402950-X-IL
DE	Electrical Differential	†402951-X-IL

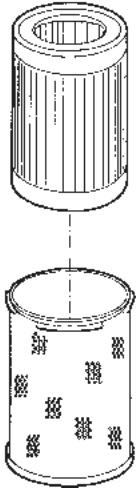
- \* Please specify seal material suffix when ordering Fluorocarbon seals: “-V”.
- \*\* Not required for assemblies using the LEIF® element.

† “X” = “12” for 12 PSID Bypass  
 “4” for 3 PSID Bypass  
 “20” for 22 PSID and Blocked Bypass



## Parts Breakdown: BGAH (cont.)

### Leif® Betamaze™ Replacement Elements



LEIF® Disposable Betamaze™ ELEMENTS ONLY				
Model	3 Micron Absolute Beta 3 ≥ 100	6 Micron Absolute Beta 6 ≥ 100	10 Micron Absolute Beta 10 ≥ 100	20 Micron Absolute Beta 20 ≥ 100
BGAH-400	TXWL8A-3	TXWL8A-6	TXWL8A-10	TXWL8A-20
BGAH-500	TXWL8C-3	TXWL8C-6	TXWL8C-10	TXWL8C-20

Outer Sleeve	
Model	Part Number
BGAH-400	TXSL8A
BGAH-500	TXSL8C

# Medium Pressure Filters

## GA/BGAH Series

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### Operating And Maintenance Instructions Model GA And BGAH

#### A. Mounting

1. Install utilizing proper fittings.
2. Support filter where appropriate. When using flexible hose or when using piping that cannot support the weight of the filter filled with oil, a mounting bracket is recommended.
3. Insure drain plug, fittings and connectors are secure and tight.
4. Fill housing with fluid and purge the filter to remove entrapped air.

#### B. Start-Up

1. Check for and eliminate leaks upon system start-up.
2. Check differential pressure indicator (if so equipped) to monitor element condition.

#### C. Service

1. An element must be serviced when the differential pressure indicator indicates service is required.

**NOTE:** If the filter is not equipped with a differential pressure indicator, the element should be serviced according to the machine manufacturer's instructions.

#### D. Servicing Dirty Elements

1. Shut the system down to assure that there is NO PRESSURE OR FLOW in the filter housing.
2. Remove the drain plug to drain the oil from the housing.  
Save the drained oil for reuse – drained oil has been filtered.
3. Remove the cover.
  - a. On GA models, the cover is removed by turning the cover counter-clockwise.
  - b. On BGAH models, the cover is removed by first removing the cover nuts and washers, then the cover.
4. Remove the insert (bridge which holds the element in place).
5. Remove the bypass spring assembly or blocking plate from the stud.
6. Remove the contaminated cartridge with a twisting motion.
7. Discard disposable element cartridge or clean the mesh element cartridge.
  - a. Wash in a non-caustic solvent using care not to damage the element.
  - b. Compressed air may be used to facilitate cleaning.

**NOTE:** Elements finer than 150 microns (100 mesh) may require special ultrasonic cleaning.  
Consult factory for recommendations.

#### E. Before Installing Cartridges

1. Clean magnet core with a lint-free cloth.
2. Check all seals and replace if necessary.

#### F. To Install New Or Cleaned Cartridge

1. Lubricate all seals.
2. Mount new or recleaned Arlon filter cartridge.

**NOTE:** For ease of mounting, hold the cartridge away from the magnetic core until the stud is through the hole in the bottom of the element. Then slide it up to securely seat it against the top of the bridge

3. Install bypass spring assembly or blocking plate (tighten until snug).

**NOTE:** Older versions may have a cotter pin/castellated nut retained bypass spring. In these cases, the nut should be turned down the shaft until the cross drilled hole is visible in the base of the castellation. The cotter pin is then inserted and the ends flared to lock the bypass assembly in place.

4. Reinstall insert into the filter housing (make sure the top spring is secure).
5. Reinstall the cover, reverse procedure D.3.a or D.3.b (on BGAH models, torque cover nuts to 15 ft./lbs.).
6. Follow procedure A.4 and A.5
7. Follow procedure B.1 and B.2

# Medium Pressure Filters

GA/BGAH Series

## HOW TO ORDER:

Select the desired symbol (in the correct position) to construct a model code.

Assembly Example:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
<b>GA230</b>	<b>S24</b>	<b>TXW510</b>	<b>B</b>	<b>22</b>	<b>DV</b>

Element Example:

BOX 3	BOX 4
<b>TXW510</b>	<b>B</b>

BOX 1: MODEL		
Symbol	Description	
	<b>FULL FLOW</b>	<b>SURGE FLOW</b>
<b>GA30</b>	8 GPM (30 l/min)	20 GPM (75 l/min)
<b>GA60</b>	16 GPM (60 l/min)	30 GPM (115 l/min)
<b>GA90</b>	24 GPM (90 l/min)	40 GPM (150 l/min)
<b>GA120</b>	32 GPM (120 l/min)	50 GPM (190 l/min)
<b>GA170</b>	50 GPM (190 l/min)	80 GPM (300 l/min)
<b>GA230</b>	65 GPM (245 l/min)	100 GPM (380 l/min)
<b>BGAH400</b>	110 GPM (415 l/min)	150 GPM (565 l/min)
<b>BGAH500</b>	135 GPM (510 l/min)	200 GPM (755 l/min)

BOX 2 : PORTS	
Symbol	Description
<b>S12</b>	<b>GA-30</b> SAE-12 (1 1/16"-12)
<b>S16</b>	<b>GA-60/90</b> SAE-16 (1 5/16"-12)
<b>S20</b>	<b>GA-120</b> SAE-20 (1 5/8"-12)
<b>S24</b>	<b>GA-170/230</b> SAE-24 (1 5/26"-12)
	<b>BGAH-400/500</b>
<b>F3</b>	3" Code 61 SAE Flange

BOX 3 : ELEMENT*							
Model	Symbol						
	10μ Nom. $\beta_{10} \geq 2$	3μ Abs. $\beta_3 \geq 100$	6μ Abs. $\beta_6 \geq 100$	10μ Abs. $\beta_{10} \geq 100$	20μ Abs. $\beta_{20} \geq 100$	40μ Stainless Steel Mesh	120μ Stainless Steel Mesh
<b>GA-30</b>	<b>TXX-10</b>	<b>TXW-3</b>	<b>TXW-6</b>	<b>TXW-10</b>	<b>TXW-20*</b>	<b>ST-40</b>	<b>ST-120</b>
<b>GA-60</b>	<b>TXX2-10</b>	<b>TXW2-3</b>	<b>TXW2-6</b>	<b>TXW2-10</b>	<b>TXW2-20</b>	<b>ST2-40</b>	<b>ST2-120</b>
<b>GA-90</b>	<b>TXX3-10</b>	<b>TXW3-3</b>	<b>TXW3-6</b>	<b>TXW3-10</b>	<b>TXW3-20</b>	<b>ST3-40</b>	<b>ST3-120</b>
<b>GA-120</b>	<b>TXX3D-10</b>	<b>TXW3D-3</b>	<b>TXW3D-6</b>	<b>TXW3D-10</b>	<b>TXW3D-20</b>	<b>ST3D-40</b>	<b>ST3D-120</b>
<b>GA-170</b>	<b>TXX4-10</b>	<b>TXW4-3</b>	<b>TXW4-6</b>	<b>TXW4-10</b>	<b>TXW4-20</b>	<b>ST4-40</b>	<b>ST4-120</b>
<b>GA-230</b>	<b>TXX5-10</b>	<b>TXW5-3</b>	<b>TXW5-6</b>	<b>TXW5-10</b>	<b>TXW5-20</b>	<b>ST5-40</b>	<b>ST5-120</b>
<b>BGAH-400</b>	<b>TXX8A-10</b>	<b>TXW8A-3</b>	<b>TXW8A-6</b>	<b>TXW8A-10</b>	<b>TXW8A-20</b>	<b>ST8A-40</b>	<b>ST8A-120</b>
<b>BGAH-500</b>	<b>TXX8C-10</b>	<b>TXW8C-3</b>	<b>TXW8C-6</b>	<b>TXW8C-10</b>	<b>TXW8C-20</b>	<b>ST8C-40</b>	<b>ST8C-120</b>

\*For LEIF® elements, replace "TXW" with "TXWL". Example: TXW4-10 becomes TXWL4-10

BOX 4 : SEALS	
Symbol	Description
<b>B</b>	<b>Nitrile (Buna)</b>
V	Fluorocarbon (FKM)

BOX 5 : BYPASS	
Symbol	Description
B	Blocked
05	4.5 PSID (0.3 Bar)
12	12 PSID (0.8 Bar)
<b>22</b>	<b>22 PSID (1.2 Bar)</b>

BOX 6 : INDICATOR	
Symbol	Description
<b>DV</b>	<b>Visual Differential</b>
<b>DE</b>	<b>Electrical Differential</b>
<b>OMIT</b>	<b>If not required</b>

Please note the bolded options reflect standard options with a reduced lead-time. Consult factory on all other lead-time options.

