



Filtration Group®
Hydraulics

Hydraulic Oil Filtration

17TH EDITION



ZINGA
Filtration Group®



Corrosion Never Sleeps



Zinga has been manufacturing high quality filtration systems and accessories for more than 30 years. ZingaTect™ coating is stronger than conventional anodizing, providing the best corrosion protection available. If your application requires the toughest protection for the harshest environments, specify ZingaTect coating. Need more information? Contact us.



If you have corrosive salt applications requiring a proven coating for your exposed hydraulic filter, ZingaTect Coating is now a viable option.

ZingaTect™ Coating Performance Benefits:

- Improves product aesthetics
- Resists deterioration from acid and alkaline solutions
- Fights filiform corrosion
- Is RoHS, ELV, and WEEE compliant
- Combines conventional anodizing with a proprietary sealing process to produce a finish coating that resists creep corrosion while exhibiting superior adhesion qualities
- Highly recommended when corrosion resistance conditions are demanding

Property	Aluminum Alloys
Appearance	Gloss to semi-gloss
Hardness (pencil) (ASTM B 3363)	3H-5H
Thickness (Eddie Current)	0.5 – 2.0 mils
Salt Spray (with cross hatch)	> 1000 hours
Acid Resistance (H2SO4 5% @ 68°F)	> 300 hours
Alkaline Resistance (NaOH 5% @ 68°F)	> 300 hours
Solvent Resistance (MIBK)	> 20 double rubs
QUV UVB Test (w/ no visible changes)	500 hours



Minimum orders apply for ZingaTect™ Coating.



Quality, high-performance cost-effective
filtration systems since 1976

608.524.4200
Zinga.com

Zinga Filtration Group 17th Edition **TABLE OF CONTENTS**

CONTENTS	SERIES	DESCRIPTION	PAGE
----------	--------	-------------	------

SPIN-ONS

Spin-On Heads — Single Elements	BF	Ports: 3/8" NPTF; 9/16"-18 UN (SAE-6); Flows up to 7 GPM - 200 PSI Max; Spin-on Filters: BE (3.1" Dia. x 3/4"-16)	1
Filter Elements	BE & ZBE	10, 25 & 40 Micron (3.1" Dia. x 3/4"-16); Heads: BF Series	2
Spin-On Heads — Single Elements	ZAF05, 07, 10	Ports: 1/2" NPTF Thru 1 5/16"-12 UN (SAE-16); Flows up to 32 GPM - 250 PSI Max.; Spin-on Filters: AE (3.7" Dia. x 1"-12)	3 - 5
Filter Elements	AE	3, 10 & 25 Micron (3.7" Dia. x 1"-12); Heads: ZAF Series	6
Filter Elements	ZAE	3 & 10 Micron (3.8" Dia. x 1"-12); Heads: ZAF Series	7
Spin-On Heads — Single Elements	VAF & VE-10	Port: 1" NPTF; Flows Up To: 32 GPM — 250 PSI Max.	8
Spin-On Heads — Single Elements	SF100, 120, 122, 150	Ports: 1" NPTF Thru 1 5/8"-12 UN (SAE-24); Flows up to 80 GPM - 200 PSI Max	9 - 12
Spin-On Heads — Multiple Elements	MF	Modular Inline; Ports: 1 1/2" NPTF, 1 7/8"-12UN (SAE-24); 2" 4-Bolt Flange; Flows up to 120 GPM - 200 PSI Max; Spin-On Filters: SE & LE (5.1" Dia. x 1 1/2"-16)	13 - 14
Spin-On Heads — Multiple Elements	ZDF	Modular Side-by-Side; Ports: 1 1/2" NPTF, 1 7/8"-12UN (SAE-24); 2" 4-Bolt Flange	15 - 16
Spin-On Heads — Single Elements	DHF	Ports: 3/4" NPTF Thru 1 5/16"-12UN (SAE-16); Flows up to 35 GPM - 500 PSI Max.; Spin-on Filters: ME (3.7" Dia. x 1 3/8"-12)	17 - 18
Spin-On Heads — Multiple Elements	DF15	Over/Under; Ports: 1 1/2" NPTF, 1 7/8"-12UN (SAE-24); 2" 4-Bolt Flange; Flows up to 120 GPM - 200 PSI Max.; Spin-On Filters: SE & LE (5.1" Dia. x 1 1/2"-16)	19
Filter Elements	SE & LE	3, 10 & 25 Micron (5.1" Dia. x 1 1/2"-16); Heads: SF, DF, MF, MFT, & ZDF Series	20
Filter Elements	ZSE & ZLE	3 & 10 Micron (5.1" Dia. x 1 1/2"-16); Heads: SF, DF, MF, MFT, & ZDF Series	21
Spin-On Heads — Single Elements	HF	Ports: 3/4" NPTF Thru 1 5/16"-12UN (SAE-16); Flows up to 40 GPM - 400 PSI Max.; Spin-on Filters: HE (3.7" Dia. x 1 1/2"-16)	22
Filter Elements	HE	3 & 10 Micron (3.7" Dia. x 1 1/2"-16); Heads: HF Series	23
Filter Elements	ZME	5 & 16 Micron (3.7" Dia. x 1 3/8"-12); Heads: DHF Series	24

PRESSURE

Cartridge Filter	C16	Cartridge Filter for Common Cavity C16-2; Flows up to 12 GPM, 3,000 PSI	25
Manifold Cartridge Filters	CF & CE	Cartridge Element with By-pass Plug; Flows up to 30 GPM, 3,000 PSI	26
High-Pressure Filter	CF90	Flows up to 12 GPM, 3,000 PSI; Ports: 1/2" NPTF & SAE-8	27
Pressure Filter Elements	G	Zinga Synthetic Z-Glass Media; Application: P3000 Series Pressure Filters	28
In-Line Pressure Filters	HP3000	Flows up to 60 GPM, 3,000 PSI; Ports: 1" NPTF, 1 1/16"-12 UN (SAE - 12) & 1 5/16"-12 UN (SAE - 16)	29 - 30
Pressure Filter	P3000	Flows up to 30 GPM, 3,000 PSI; Port: 1 1/16"-12 UN (SAE - 12)	31 - 32
Pressure Filter	W1200	Flows up to 120 GPM, 1,200 PSI; Ports: 1 1/4" NPTF, 1 5/8"-12 UN (SAE-20), 1 7/8"-12 UN (SAE-24)	33 - 34



II

TABLE OF CONTENTS Zinga Filtration Group 17th Edition

CONTENTS	SERIES	DESCRIPTION	PAGE
TANK-TOP			
Tank-Top Filter	SLF1	Flows up to 25 GPM, 100 PSI; Ports: 1/2" & 3/4" NPTF; SAE & BSP	35
Filter Elements	SLE1 & ZSLE1	Cellulose and Z-Glass Media, Ports: 1/2" & 3/4" NPTF; SAE-8 & SAE-12	36
Tank-Top Filter	SLF2	Flows up to 40 GPM, 100 PSI; Ports: 3/4" & 1" NPTF; SAE-12 & SAE-16	37
Filter Elements	SLE2 & ZSLE2	Cellulose & Z-Glass Media; 3, 10 & 25 Micron	38
Tank-Top Filters	TR & TS	Flows up to 96 GPM, 100 PSI; Ports: 1 1/4" & 1 1/2" NPTF, 1 5/8" - 12 UN (SAE - 20), 1 7/8" - 12 UN (SAE - 24) & 1 1/4" BSP	39 - 40
Tank-Top Filter	SRF	Flows up to 83 GPM, 100 PSI; Ports: 1 1/4" & 1 1/2" NPTF, 1 5/8" - 12 UN (SAE - 20), 1 7/8" - 12 UN (SAE - 24) & 1 1/4" BSP	41 - 42
Tank-Top Filter	RF & WF	Flows up to 96 GPM, 100 PSI / 500 PSI; Ports: 1 1/4" & 1 1/2" NPTF, 1 5/8" - 12 UN (SAE - 20), 1 7/8" - 12 UN (SAE - 24) & 1 1/4" BSP	43 - 44
Filter Elements	SRE & ZSRE	Cellulose, SS Mesh, Aqua-Zorb & Z-Glass; 3, 10, 25 & 141 Micron	45
Filter Elements	RE & ZRE	Cellulose, SS Mesh, Aqua-Zorb & Z-Glass; 3, 10, 25 & 141 Micron	46
Tank-Top Filter	WF2	Flows up to 300 GPM, 300 PSI; Ports: 2" NPTF, 2" to 3" 4-Bolt SAE Flange	47 - 48
Filter Elements	WE & ZWE	Cellulose, SS Mesh, Aqua-Zorb & Z-Glass; 3, 10, 25 & 141 Micron	49
Filters & Elements	SRF, RF, WF-2	Typical Installations	50

STRAINERS

Tank Filter	SS & MS	Internal Bushing Mount; Ports: 3/8" to 6" NPTF	51
Tank Filter	TF	External Reducer Bushing Mount; Ports: 3/8" to 4" NPTF	52
Tank Filter	TFS	External Steel Reducer Bushing Mount; Ports: 1/2" to 3" NPTF	53
Tank Strainer (O-Ring)	TF & TFS	External O-Ring Seal Mount; Ports: SAE-20 to SAE-32	54
Tank Filter (Male)	TF	External Nipple Mount; Ports: 2" to 2 1/2" NPTF	55
Tank Filter	BTF	External Bushing Mount; Ports: 3/4" to 1 1/4" Hose	56

TANK DIFFUSERS

Tank Diffusers	TD-PMI	Internal Bushing Mount; Ports: 3/8" to 6" NPTF	57
Tank Diffusers (O-Ring)	TD-PME	External Reducer Bushing Mount; Ports: SAE-20 & SAE-24	58

ACCESSORIES

Breather	RB	Aluminum Body, 10 Micron; 3/4" NPT Male Mount; Options: Relief Valve, Plastic Cap	59
Breather	WSFB	Stamped Steel Construction, 10 Micron; Weather Resistant Cap (Black), Dipstick, Basket; Bayonet Mount, Stamped Steel	60
Breather	FB	Aluminum Body, 10 Micron; Bayonet Mount w/ Integral Lock Tab; Options: Relief Valve, Dipstick, Basket, Nylon Cap	61

Zinga Filtration Group 17th Edition TABLE OF CONTENTS

III

CONTENTS	SERIES	DESCRIPTION	PAGE
Breather	FBR	1 1/2" & 3" Raised Aluminum Body, 10 Micron; Bayonet Mount; Options: Relief Valve, Dipstick, Basket, Nylon Cap	62
Breather	TB	BE & AE Spin-On Series Steel Adapter Fittings; Convert Spin-On Element to Tank Breather; 3/4" to 1 1/4" NPT Male Mount	63
Breather	TBN310	3-Micron Spin-On Element; 3/4" NPT Plastic Male Mount (Integral); Interchange for Competitor 310 Products	64
Filter Gauges	GV & CI	Filter Condition Indicator - Color Vacuum Gauge; 2" Dia, 1/8 NPTF Male Mount; Suction Line Filters with 3 & 5 PSI By-pass	65
Filter Gauges	GVL & CIL	Stainless Steel Glycerin-Filled Filter Gauges with 3 & 5 PSI By-pass	66
Filter Gauges	LG	Pressure Gauges, Glycerin Filled; 2.5" Dia., 1/4" NPTF Male, 4 Mount Options; Gauge Pressures up to 10,000 PSI	67
Sight-Level Guages	SG	Sight Level Gauge, UV Resistant Polymer; Options: Thermometer, Aluminum & Plastic Guards; 3", 5", & 10" Lengths, SAE & Metric Hardware	68
Oil Eye	OE-1	Oil Level Indicator; Steel Weld Collar; High-Temperature, UV-Resistant Polymer Window	68
Indicators	DP03, 04, 05, 06	Filter Condition Indicator - Differential Pressure; Cartridge Style, Visual & Electrical; In-Line Filter Applications with ΔP Ports in Filters	69 - 70
Adapter	FT	Male NPT to Hose Barb Adapters; Steel with Zinc Plate Finish St&ard; 1/2" to 4" NPT	71
Clamp	HC	T-Bolt Type Hose Clamps; Self-Locking Nut; 1.19" to 4.81" Clamping Ranges	71

VALVES

Check Valves	BRV	Back Pressure Inducing Valve; 3, 5, 15, & 25 PSI Settings; 3/4"x 1 1/4" NPTF up to 2" x 3" NPTF Reducers	72
Check Valves	LRV	In-Line Check Valves; 2, 6, 20, 40, & 60 PSI Settings; 3/4" up to 3" NPTF & SAE-12 up to SAE-24	73
Check Valves	RV	In-Tank Return Line Check Valves; 1/2 PSI Setting	74

MISC.

Reservoir Cover	RCA	Reservoir Covers with Integral Filler Breather, Tank-Top Filter, & Drain Ports	75
Reservoir Cover	RCB	Reservoir Covers with Integral Filler Breather, Tank-Top Filter, & Drain Ports	76 - 77

APPENDIX

Particle Size & Measurement of Filter Efficiency	78
ISO Cleanliness Level Codes	79
Zinga Media Types	80
Filter Application Guidelines	81
Guideline / Formulas / Conversions	82
Velocity Chart for Pipe-Tube-Hose	83



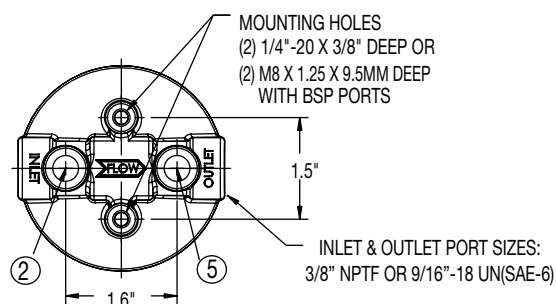
NOTES

SPIN-ONS	1
PRESSURE	25
TANK-TOP	35
STRAINERS	51
TANK DIFFUSERS	57
ACCESSORIES	59
VALVES	72
MISC.	75
APPENDIX	79



BF SERIES SPIN-ON FILTER HEADS

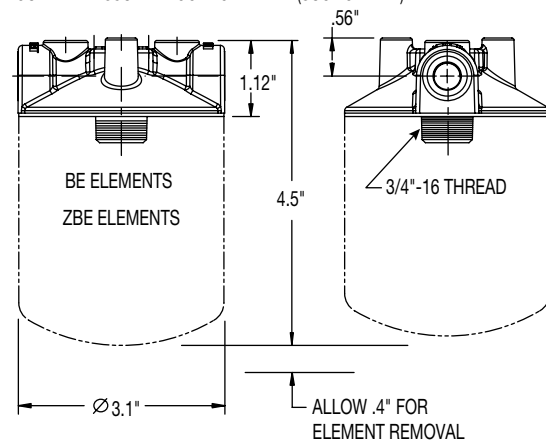
Flows Up To: 7 GPM (Return) 2 GPM (Suction)
 Port Sizes: 3/8" NPTF; 9/16"-18 UN (SAE-6)
 Pressure: 200 PSI Max. Operating
 Temperature: Up to +250°F Operating
 Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



1/8" NPTF GAUGE PORTS (OPTIONAL)

INLET PRESSURE LOCATION: ② (RETURN LINE)

OUTLET PRESSURE LOCATION: ⑤ (SUCTION LINE)



BE & ZBE Element: See Page 2

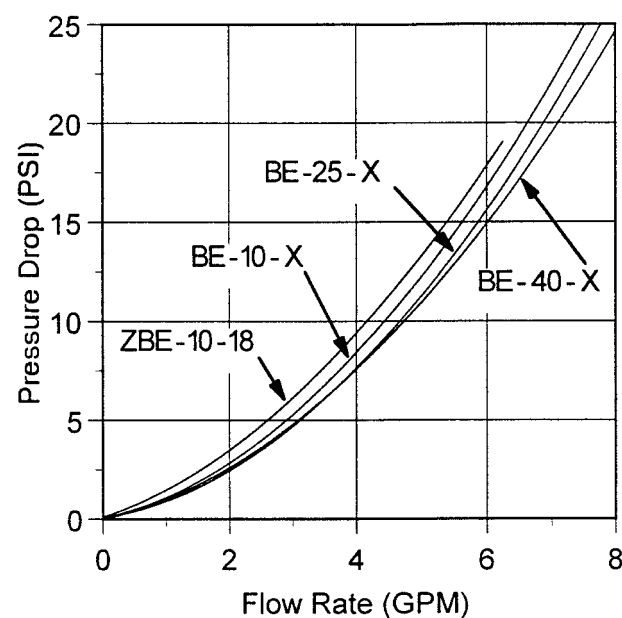
Commonly Ordered Configurations

BF030
 BF060



BE & ZBE SERIES SPIN-ON FILTER ELEMENTS FOR USE WITH BF SERIES FILTER HEADS

Diameter: 3.1"
 Mounting Thread: 3/4" - 16 UN
 Overall Height: 3.4"
 Operating Pressure: 200 PSI Max. Operating
 ΔP_{max} Cellulose: 50 PSID without by-pass valve
 Temperature: Up to +250°F Operating
 Applications: Petroleum-based fluids.



**Average Pressure Drop Through Clean Filter
 Assembly With 150 SUS Oil At 105°F.**

Part Number	Particle Size	Efficiency (See Below)	Can Color / Imprint	Media Type	Internal By-pass
BE100	10 Micron	$\beta_{9\mu(c)} = 2$	White / Red	Cellulose	None
BE1018	10 Micron	$\beta_{9\mu(c)} = 2$	White / Red	Cellulose	18 PSID
BE2525	25 Micron	$\beta_{17\mu(c)} = 2$	White / Black	Cellulose	25 PSID
BE400	40 Micron	$\beta_{22\mu(c)} = 2$	White / Black	Cellulose	None

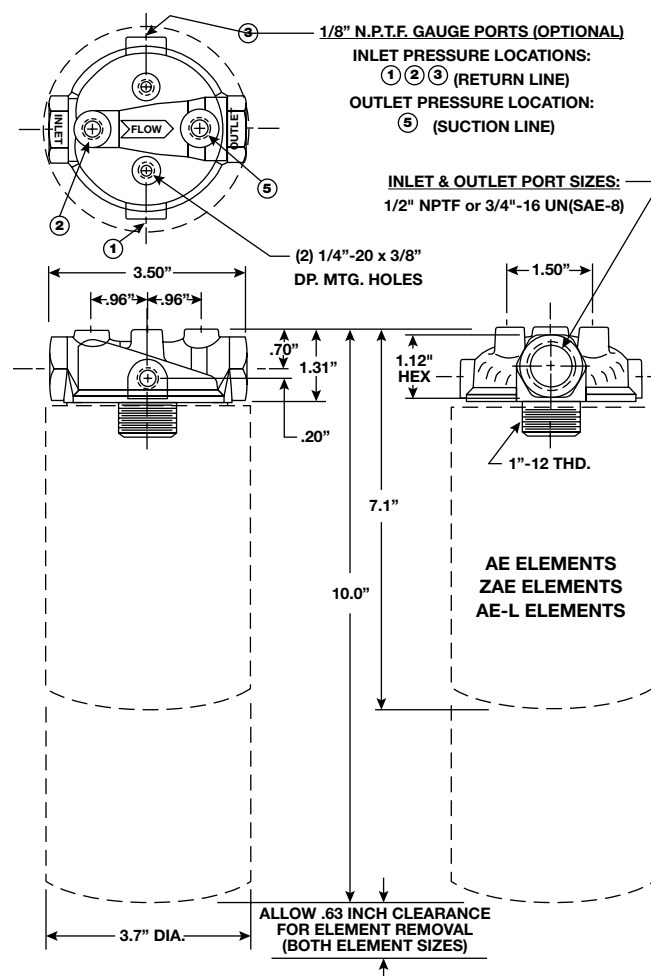
Application Data:

- Reference:
 - $\beta_{x\mu(c)} = 2$ represents 50% efficiency at Particle Size (Nominal Rating)
 - $\beta_{x\mu(c)} = 75$ represents 98.7% efficiency at Particle Size (Absolute Rating)
- Application: Petroleum-based fluids. Consult factory for synthetic fluids.
- Caution: Do not use BE Series filter elements on internal combustion engines.



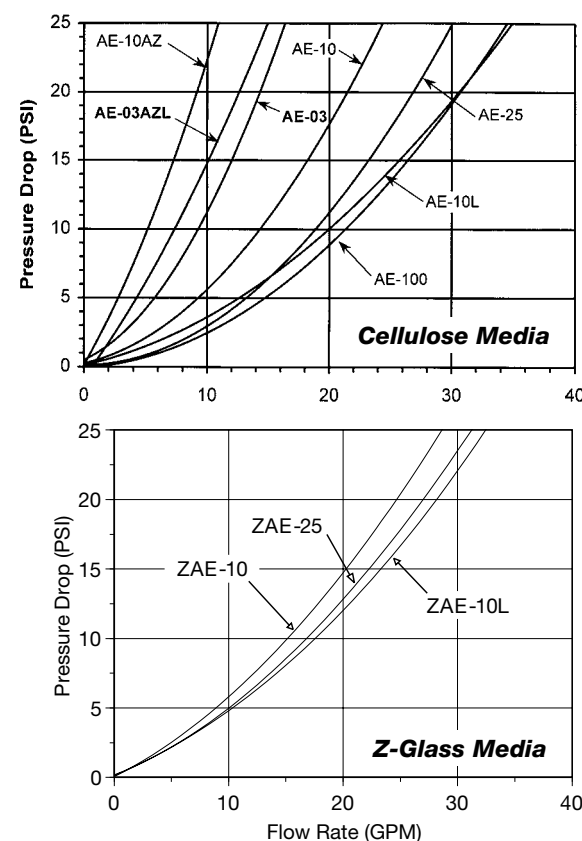
ZAF05 SERIES SPIN-ON FILTER HEADS

Flows Up To: 22 GPM (Return) 5 GPM (Suction)
 Port Sizes: 1/2" NPTF; 3/4"-16 UN (SAE-8)
 Pressure: 250 PSI Max.
 Temperature: Up to +250°F Operating
 Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



Commonly Ordered Configurations

ZAF05000
 ZAF05300
 ZAF05500
 ZAF08000
 ZAF08300
 ZAF08500



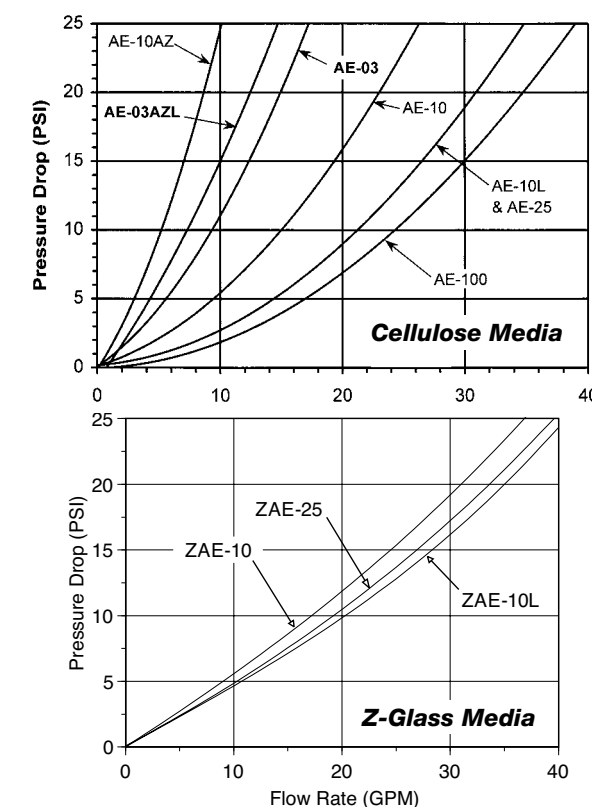
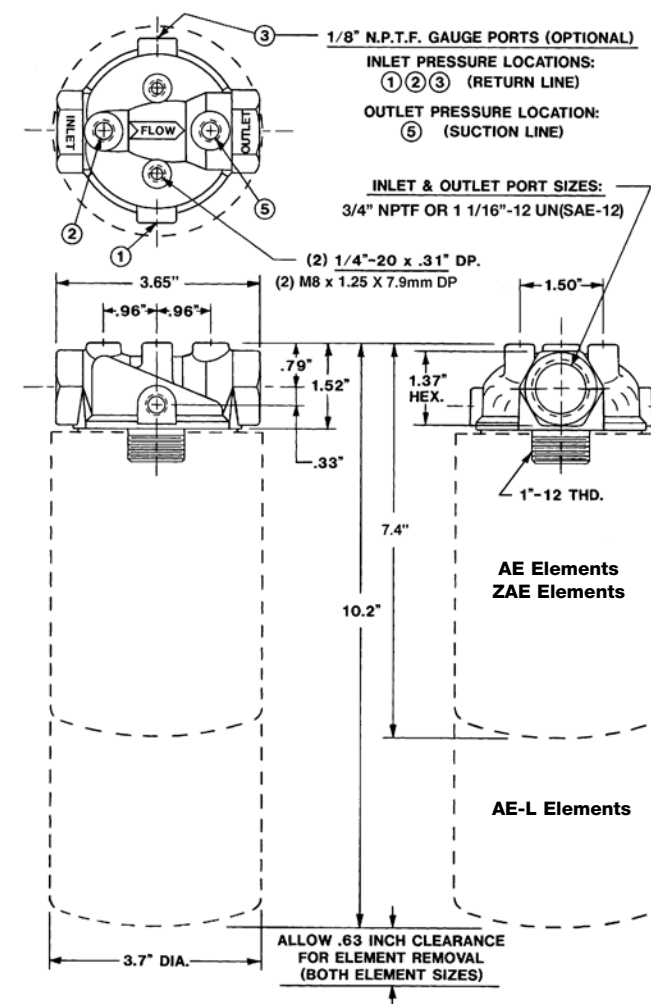
Average Pressure Drop Through Clean Filter Assembly With 150 SUS Oil At 105° F.

AE & ZAE Element Data: See Pages 6 & 7



ZAF07 SERIES SPIN-ON FILTER HEADS

Flows Up To: 25 GPM (Return) 9 GPM (Suction)
 Port Sizes: 3/4" NPTF; 1 1/16"-12 UN (SAE-12)
 Pressure: 250 PSI Max. Operating
 Temperature: Up to +250°F Operating
 Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



Average Pressure Drop Through Clean Filter Assembly With 150 SUS Oil At 105° F.

AE & ZAE Element Data: See Pages 6 & 7

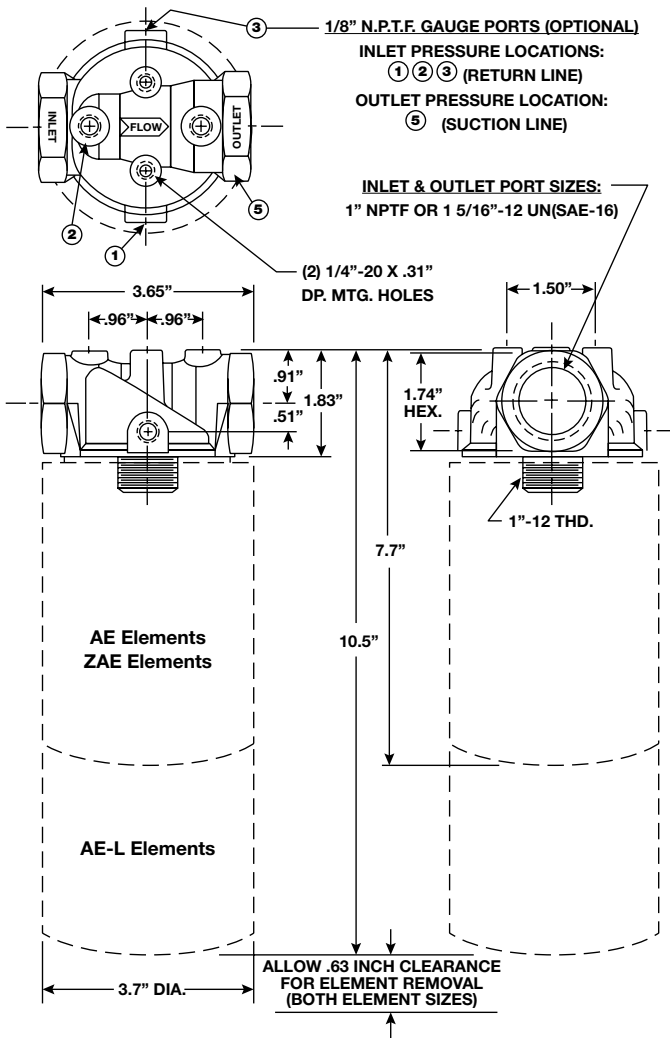
Commonly Ordered Configurations

ZAF07000
 ZAF072513
 ZAF11000
 ZAF112513



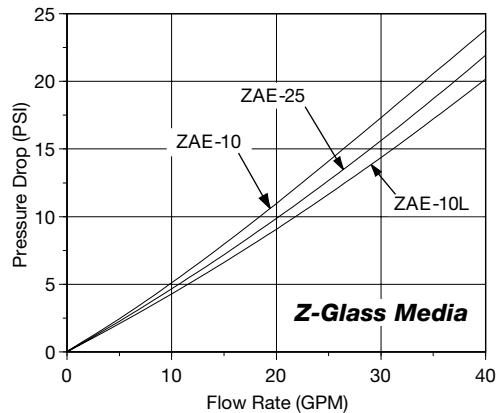
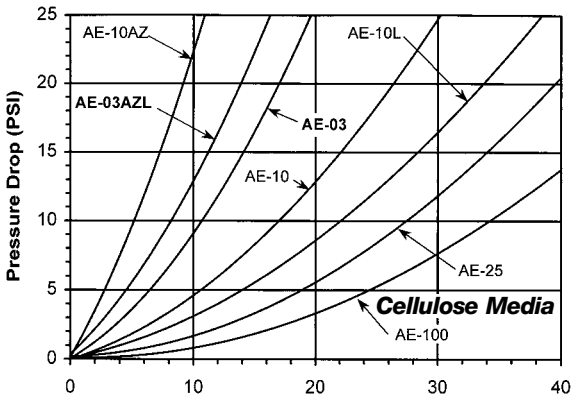
ZAF10 SERIES SPIN-ON FILTER HEADS

Flows Up To: 32 GPM (Return) 14 GPM (Suction)
 Port Sizes: 1" NPTF; 1 5/16"-12 UN (SAE-16)
 Pressure: 250 PSI Max. Operating
 Temperature: Up to +250°F Operating
 Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



Commonly Ordered Configurations

ZAF10000
 ZAF102513
 ZAF13000
 ZAF132513



**Average Pressure Drop Through Clean Filter
 Assembly With 150 SUS Oil At 105° F.**

**AE & ZAE Element Data: See Pages
 6 & 7**

Consult Manufacturer for Ordering Information



AE SERIES SPIN-ON FILTER ELEMENTS FOR USE WITH ZAF SERIES FILTER HEADS

Diameter: 3.8"
 Mounting Thread: 1" - 12 UN
 Operating Pressure: 250 PSI Max. Operating
 ΔP_{max} : 50 PSID
 Temperature: Up to +250°F Operating
 Applications: Petroleum-based fluids.

Part Number	Particle Size	Nominal Rating	Absolute Rating	Can Color / Imprint	Media Type	Free Water Absorption	Overall Height
AE03	3 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 75$	White / Green	Cellulose		5.8"
AE03AZL	3 Micron	$\beta_{5\mu(c)} = 2$	$\beta_{24\mu(c)} = 75$	White / Orange	Aqua-Zorb	7.2 oz	8.5"
AE10	10 Micron	$\beta_{11\mu(c)} = 2$	$\beta_{25\mu(c)} = 75$	White / Red	Cellulose		5.8"
AE10AZ	10 Micron	$\beta_{8\mu(c)} = 2$	$\beta_{30\mu(c)} = 75$	White / Orange	Aqua-Zorb	4.1 oz	5.8"
AE10L	10 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	White / Red	Cellulose		8.5"
AE100	141 Micron	-	-	White / Blue	Stn. Steel Mesh		5.8"
AE25	25 Micron	$\beta_{16\mu(c)} = 2$	$\beta_{31\mu(c)} = 75$	White / Black	Cellulose		5.8"

Application Data:

- Reference:
 - $\beta_{x\mu(c)} = 2$ represents 50% efficiency at Particle Size
 - $\beta_{x\mu(c)} = 75$ represents 98.7% efficiency at Particle Size
- Buna-N Gasket standard. Fluorocarbon Gasket optional, consult factory.
- Caution:** Do **not** use AE Series filter elements on internal combustion engines.
- Aqua-Zorb filter medias absorb and retain free water. Any absorbed water cannot be liberated from the Aqua-Zorb media. As the element becomes saturated with water, the Aqua-Zorb media continues to swell, and will ultimately curtail flow through the filter. Not for use with water-glycols.



**Zinga ProTect Shroud
 Harsh Environment Protection
 FG03Q** combines filter gasket
 with a protective shroud top.
 (Please Order Separately)

Consult Manufacturer for Ordering Information





ZAE SERIES Z-GLASS MEDIA SPIN-ON FILTER ELEMENTS FOR USE WITH ZAF SERIES FILTER HEADS

Diameter: 3.8"
Mounting Thread: 1" - 12 UN
Pressure: 250 PSI Max. Operating
 ΔP_{max} : 80 PSID
Temperature: Up to +250°F Operating
Applications: Petroleum-based fluids.

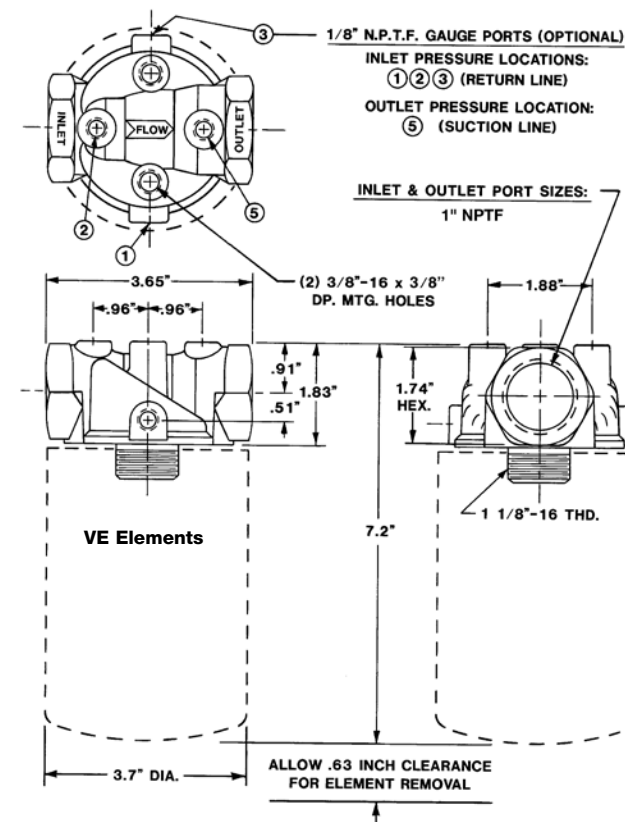
Part Number	Particle Size	Nominal Rating	Absolute Rating		Can Color / Imprint	Overall Height
ZAE03	3 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{5\mu(c)} = 75$	$\beta_{6\mu(c)} = 200$	White / Green	5.8"
ZAE10	10 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{10\mu(c)} = 75$	$\beta_{14\mu(c)} = 200$	White / Red	5.8"
ZAE10L	10 Micron	$\beta_{6\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	$\beta_{15\mu(c)} = 200$	White / Red	8.5"

Application Data:

- Reference:
 - $\beta_{X\mu(c)} = 2$ represents 50% efficiency at Particle Size
 - $\beta_{X\mu(c)} = 75$ represents 98.7% efficiency at Particle Size
 - $\beta_{X\mu(c)} = 200$ represents 99.5% efficiency at Particle Size
- Z-Glass Media
- Buna-N gasket standard. Fluorocarbon gasket optional, consult factory.
- Caution:** Do **not** use ZAE Series filter elements on internal combustion engines.



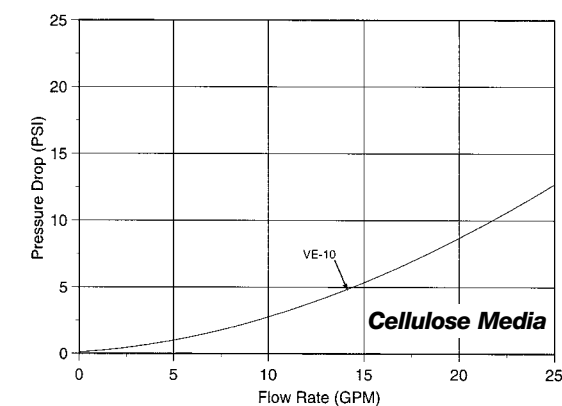
**Zinga ProTect Shroud
Harsh Environment Protection
FG03Q** combines filter gasket
with a protective shroud top.
(Please Order Separately)



VAF SERIES SPIN-ON FILTER HEADS VE-10 SERIES SPIN-ON FILTER ELEMENTS

VAF Heads:
Flows Up To: 32 GPM (Return) 14 GPM (Suction)
Port Size: 1" NPTF
Pressure: 250 PSI Max. Operating
Temperature: Up to +250°F Operating
Applications: Petroleum-based fluids.
Consult factory for synthetic fluids.

VE-10:
Mounting Thread: 1 1/8" - 16
 ΔP_{max} : 50 PSID
Efficiency: $\beta_{<4\mu(c)} = 2$ / $\beta_{19\mu(c)} = 75$
Can Color / Imprint: White / Red
Seals: Buna-N Gasket Standard
Caution: Do not use VE Elements on internal combustion engines.

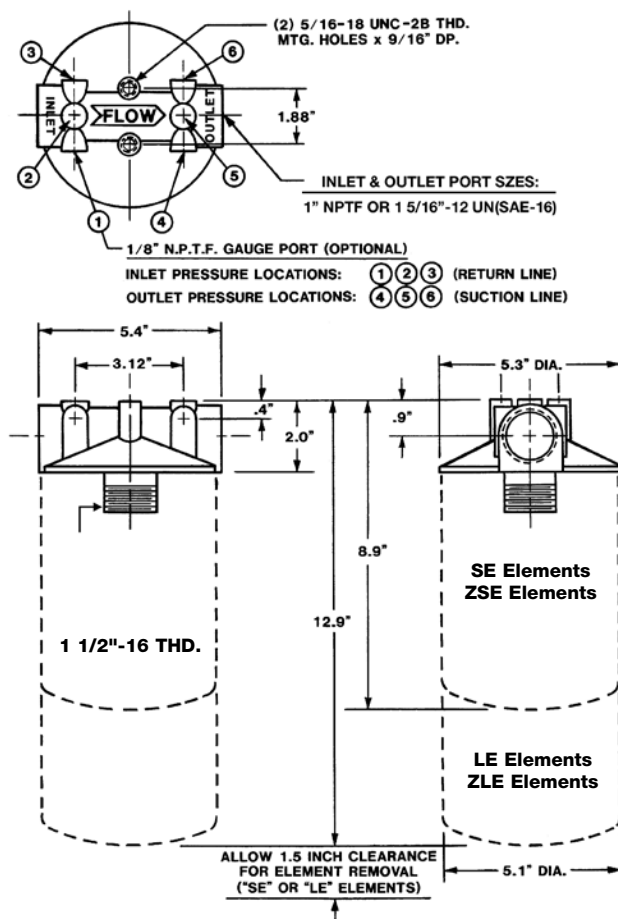


**Average Pressure Drop Through Clean Filter Assembly
With 150 SUS Oil At 105° F.**



SF100 SERIES SPIN-ON FILTER HEADS

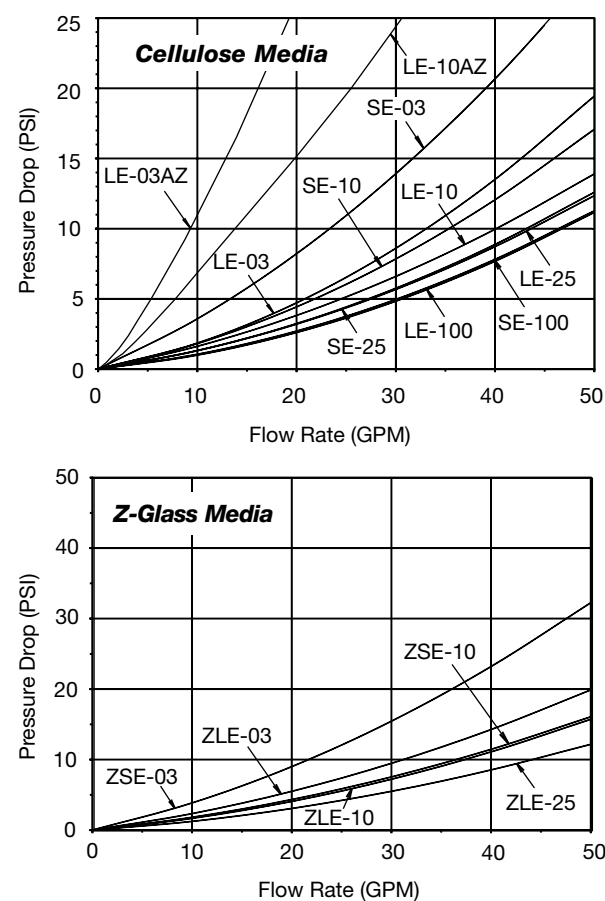
Flows Up To: 40 GPM (Return) 15 GPM (Suction)
 Port Sizes: 1" NPTF; 1 5/16"-12 UN (SAE-16)
 Pressure: 200 PSI Max. Operating
 Temperature: Up to +250°F Operating
 Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



Commonly Ordered Configurations

SF100000
 SF130000
 SF1002513
 SF1302513

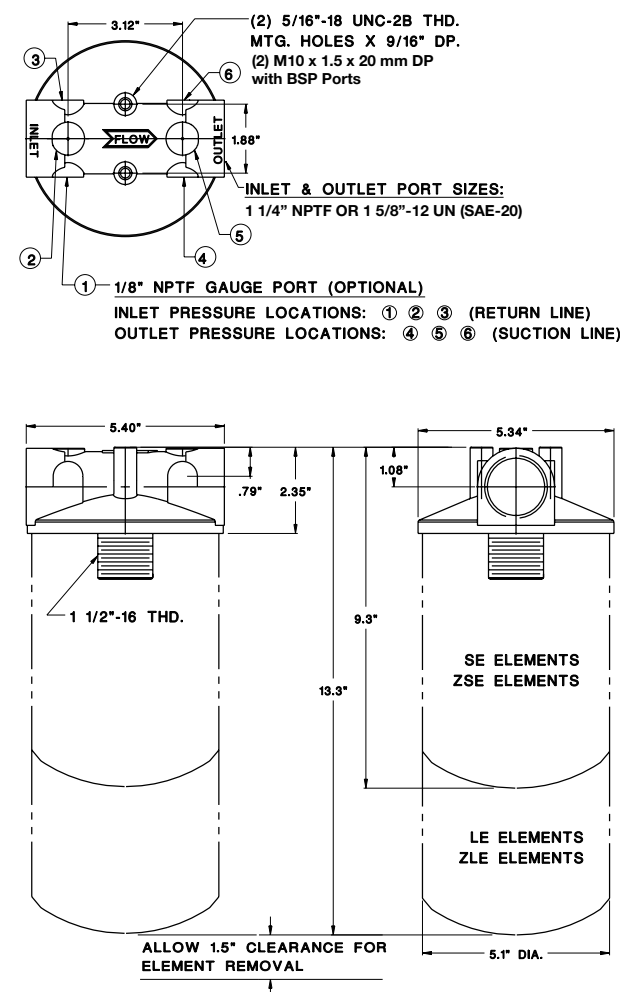
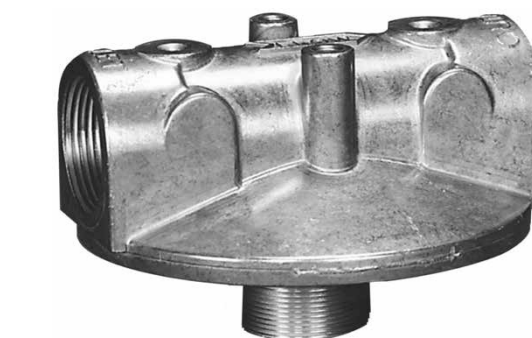
SE, LE, ZSE, & ZLE Element Data: See
 Pages 20 & 21



Average Pressure Drop Through Clean Filter
 Assembly With 150 SUS Oil At 105° F.

SF120 SERIES SPIN-ON FILTER HEADS

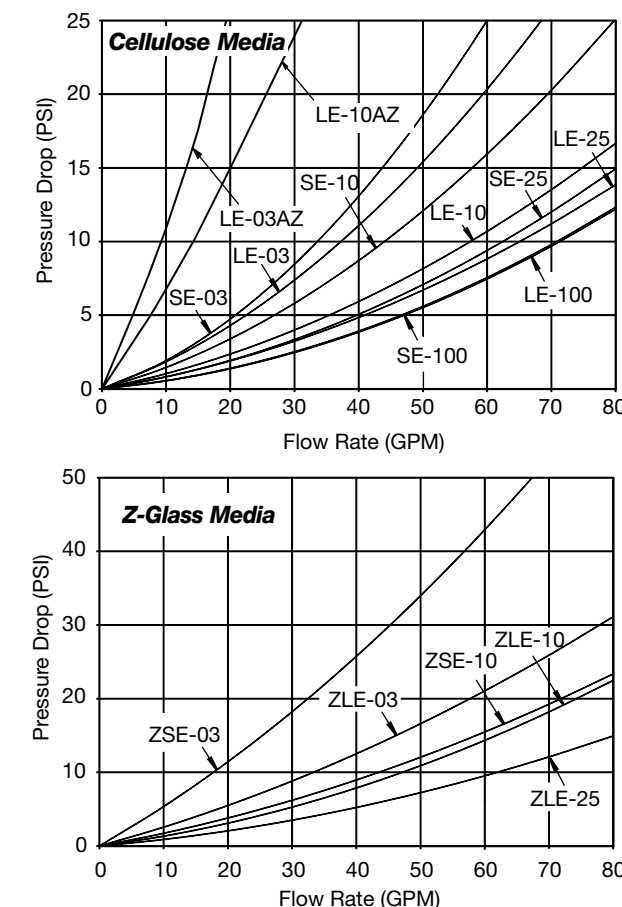
Flows Up To: 70 GPM (Return) 25 GPM (Suction)
 Port Sizes: 1 1/4" NPTF; 1 5/8"-12 UN (SAE-20)
 Pressure: 200 PSI Max. Operating
 Temperature: Up to +250°F Operating
 Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



Commonly Ordered Configurations

SF120000
 SF160000
 SF1202513
 SF1602513

SE, LE, ZSE, & ZLE Element Data: See
 Pages 20 & 21



Average Pressure Drop Through Clean Filter
 Assembly With 150 SUS Oil At 105° F.

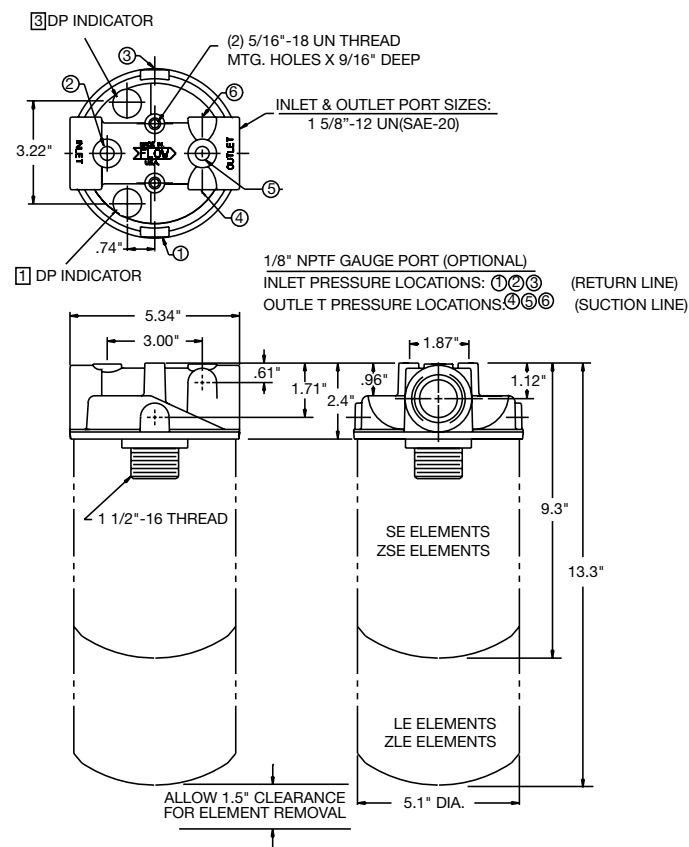
Consult Manufacturer for Ordering Information

Consult Manufacturer for Ordering Information



SF122 SERIES SPIN-ON FILTER HEADS WITH ΔP INDICATOR OPTION

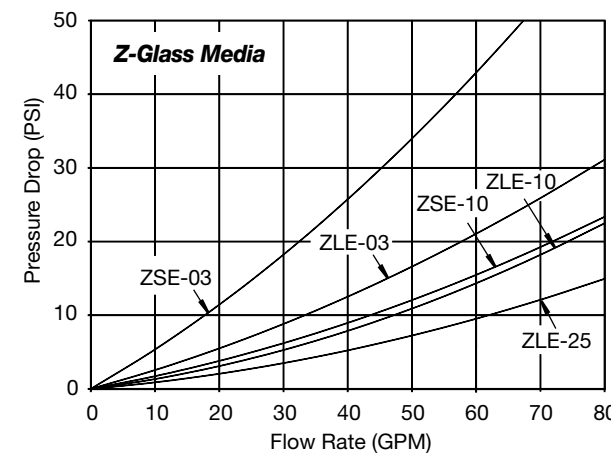
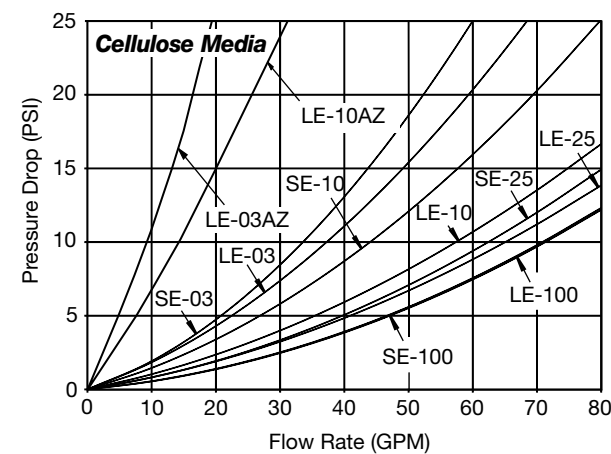
Flows Up To: 70 GPM (Return) 25 GPM (Suction)
 Port Sizes: 1 5/8"-12 UN (SAE-20)
 Pressure: 200 PSI Max. Operating
 Temperature: Up to +200°F
 Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.
 Features: Socket design in some models
 allows machining for custom stems



SE, LE, ZSE, & ZLE Element Data: See
Pages 20 & 21

Commonly Ordered Configurations

SF162XX*
 SF122XX*

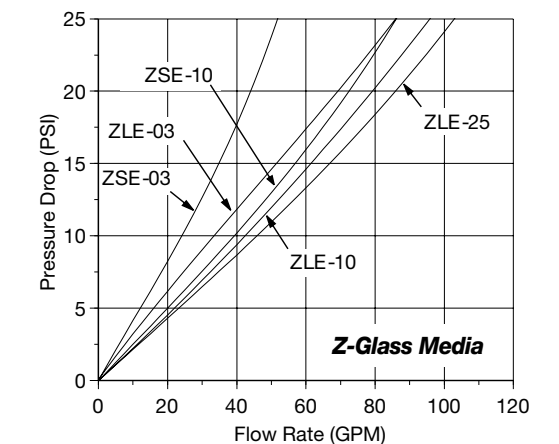
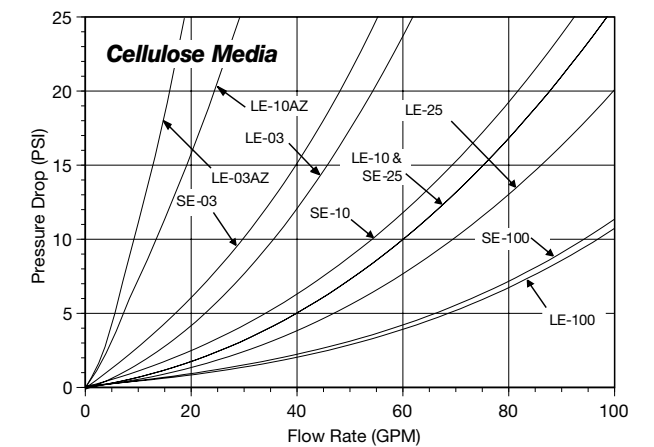
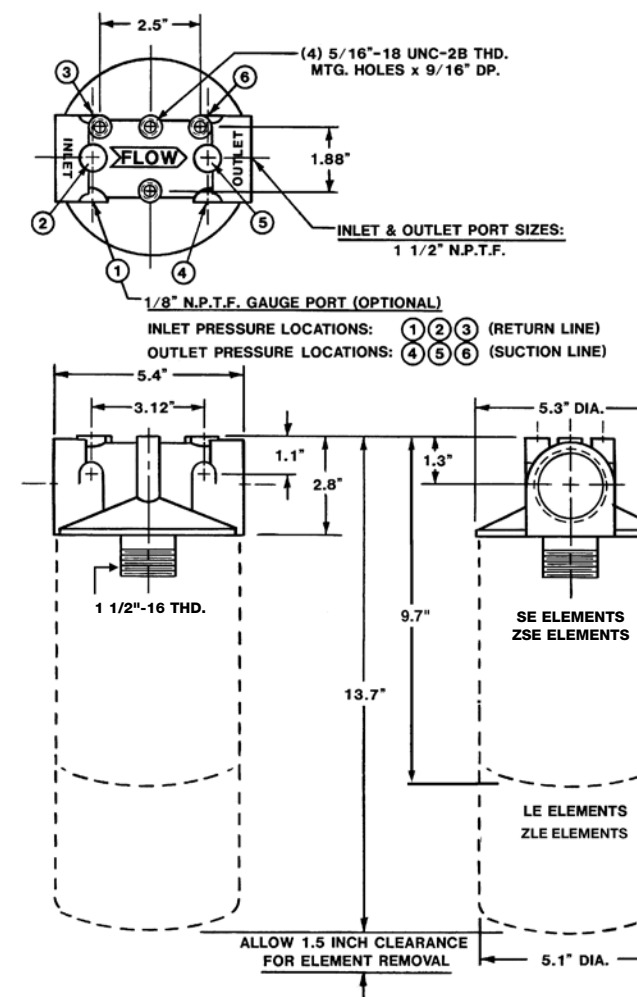


Average Pressure Drop Through Clean Filter
Assembly With 150 SUS Oil At 105° F.



SF150 SERIES SPIN-ON FILTER HEADS

Flows Up To: 80 GPM (Return) 32 GPM (Suction)
 Port Sizes: 1 1/2" NPTF
 Pressure: 200 PSI Max. Operating
 Temperature: Up to +200° F Operating
 Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



Average Pressure Drop Through Clean Filter
Assembly With 150 SUS Oil At 105° F.

SE, LE, ZSE, & ZLE Element Data: See
Pages 20 & 21

Commonly Ordered Configurations

SF150000
 SF1502513

*Additional information required to place an order. Contact factory for assistance.

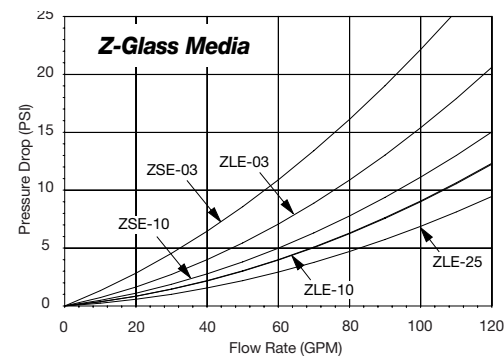
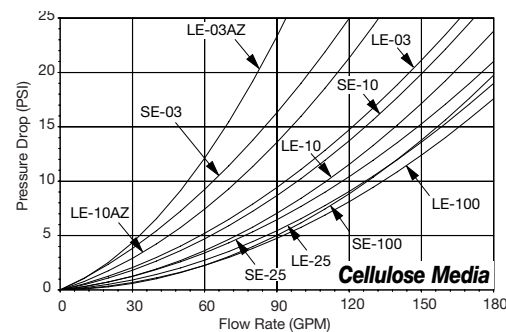
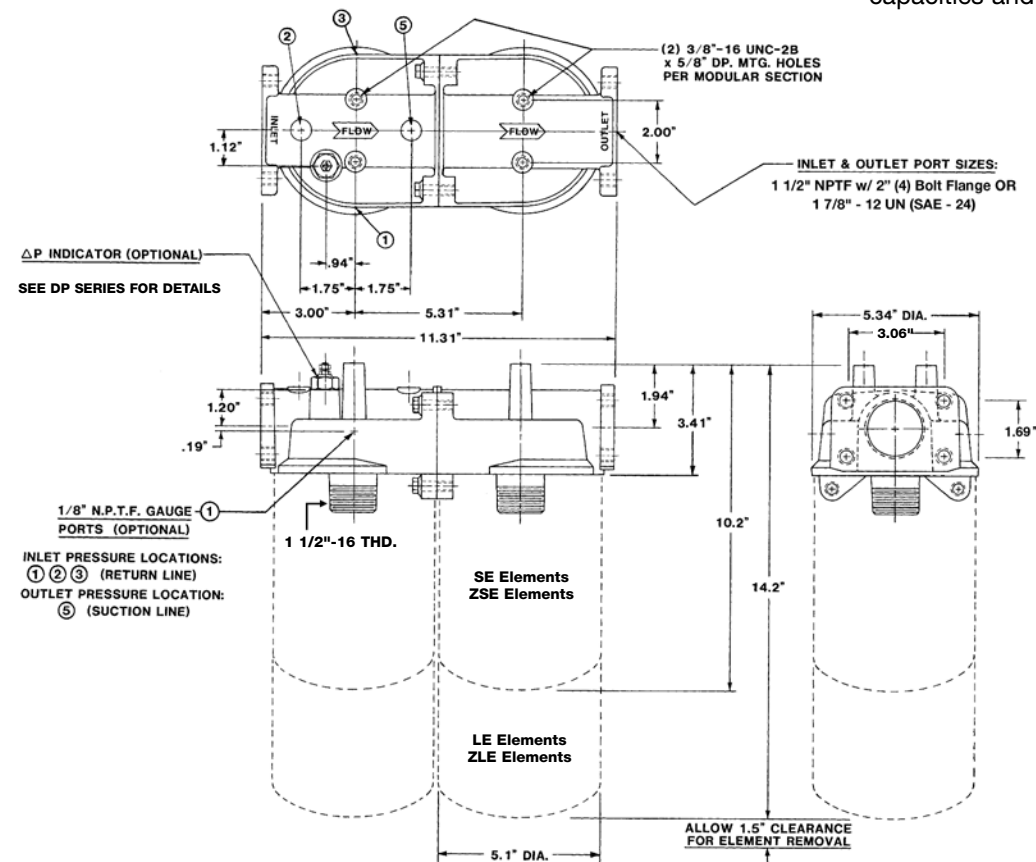
Consult Manufacturer for Ordering Information

Consult Manufacturer for Ordering Information

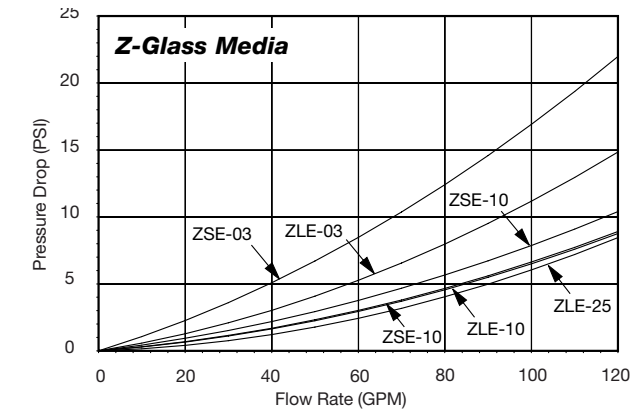
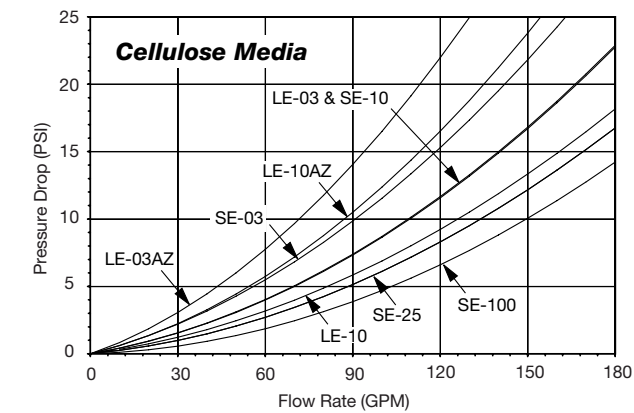


MF SERIES MODULAR LINE TYPE SPIN-ON FILTER HEADS WITH ΔP INDICATOR OPTION

Flows Up To: 120 GPM (Return) 50 GPM (Suction)
 Port Sizes: 1 1/2" NPTF w/ 2" 4-Bolt Flange
 1 7/8" - 12 UN (SAE - 24)
 Pressure: 200 PSI Max. Operating
 Temperature: Up to +200° F Operating
 Applications: Petroleum-based fluids.
 Features: Multiple modular heads bolted together.
 Inlet flow is equally divided among all elements
 (parallel flow) providing greater flow
 capacities and longer service life.



Average Pressure Drop Through Clean Filter Assembly
 With 150 SUS Oil At 105° F.



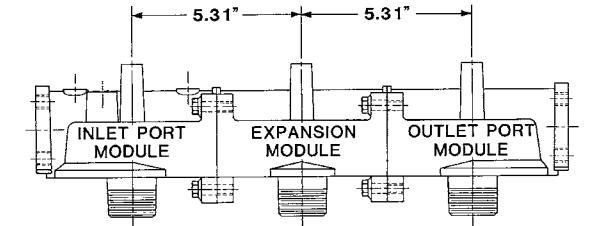
NOTES:

Flow data for a MF-Series 4-element filter head is identical to the 3-element filter above. MF-Series filter heads with 4 or more elements will not significantly reduce pressure drop or allow greater flow through the assembly. The MF Series will lengthen the time periods between element servicing.

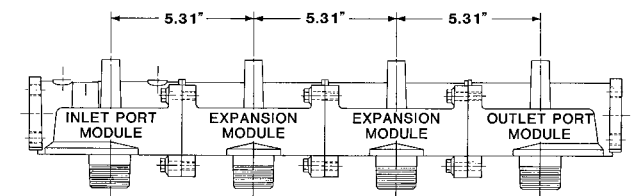
Multiple unit head assemblies may require additional mounting support for your application.

SE, LE, ZSE, & ZLE Element Data: See Pages 20 & 21

3-ELEMENT SPIN-ON FILTER HEAD ASSEMBLY



4-ELEMENT SPIN-ON FILTER HEAD ASSEMBLY



Consult Manufacturer for Ordering Information

Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17



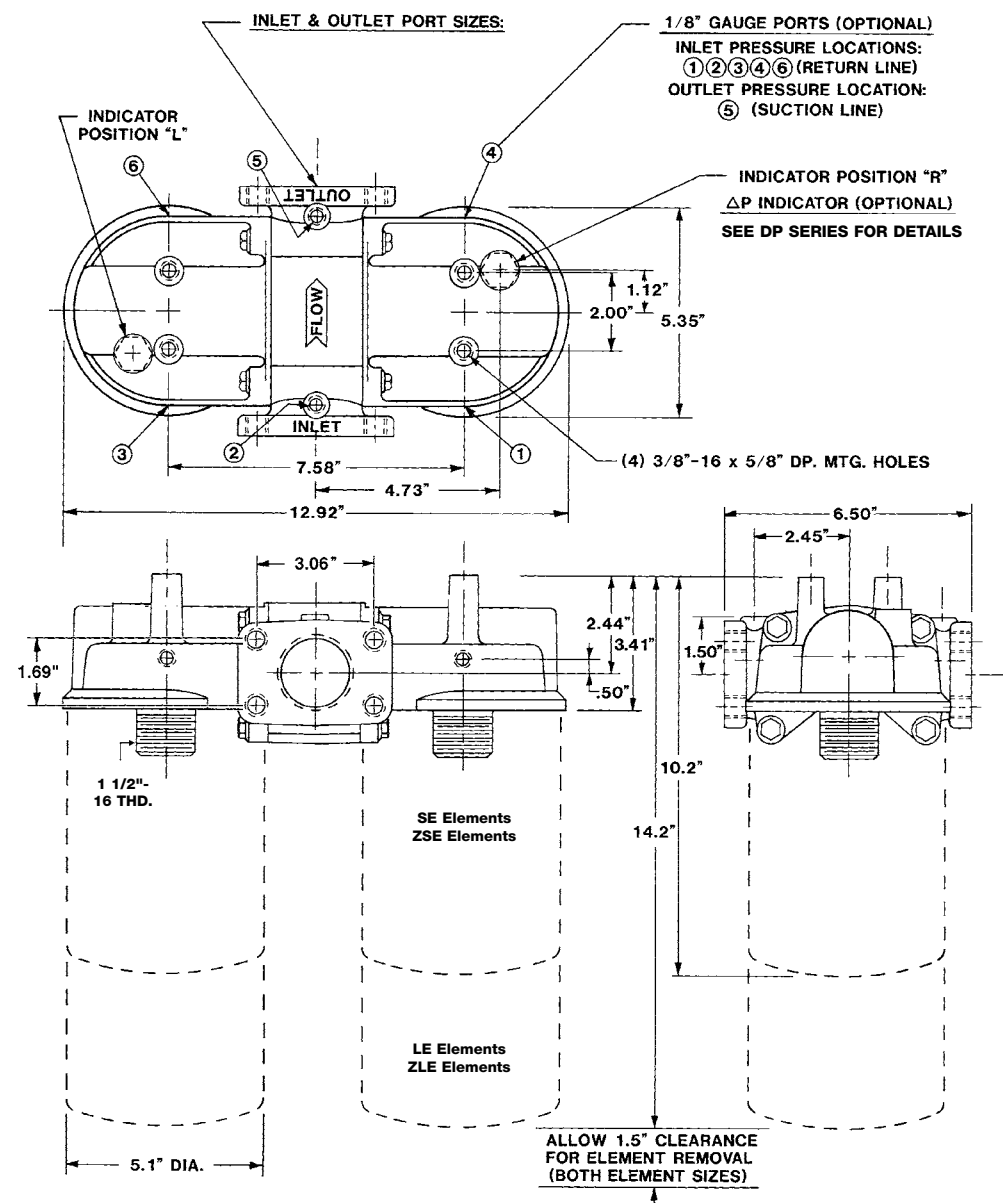
Consult Manufacturer for Ordering Information

Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17

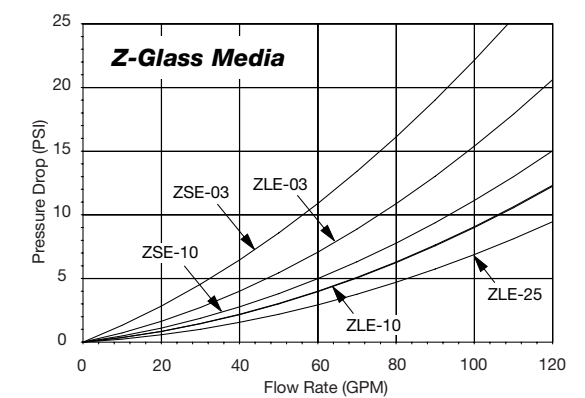
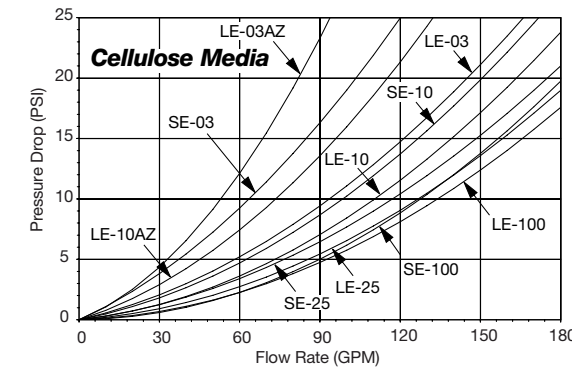


ZDF SERIES SIDE-BY-SIDE SPIN-ON FILTER HEADS WITH ΔP INDICATOR OPTION

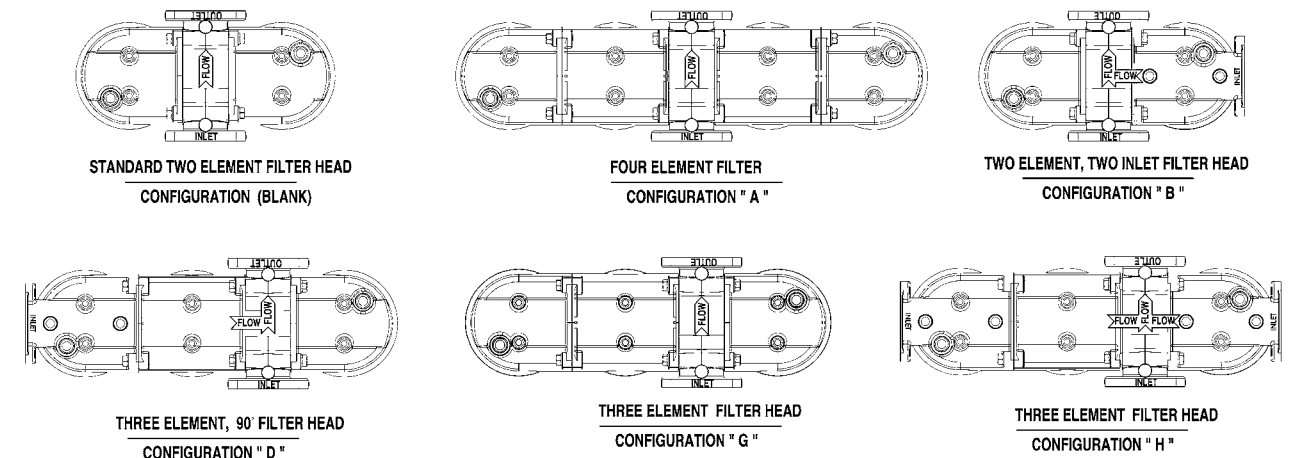
Flows Up To: 120 GPM (Return) 50 GPM (Suction)
 Port Sizes: 1 1/2" NPTF w/ 2" 4-Bolt Flange
 1 7/8" - 12 UN (SAE - 24)
 Pressure: 200 PSI Max. Operating
 Temperature: Up to +200° F Operating
 Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



Average Pressure Drop Through Clean Filter Assembly With 150 SUS Oil at 105° F. Temperature.



ZDF, MF, & MFT parallel flow modular components can be combined into filter head assemblies such as these. Other combinations are available to meet specific filter applications. For technical advice contact your local distributor or the factory. **NOTE:** Some multiple-head units may require additional mounting support.



SE, LE, ZSE, & ZLE Element Data: See Pages 20 & 21

Consult Manufacturer for Ordering Information

Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17



Consult Manufacturer for Ordering Information

Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17

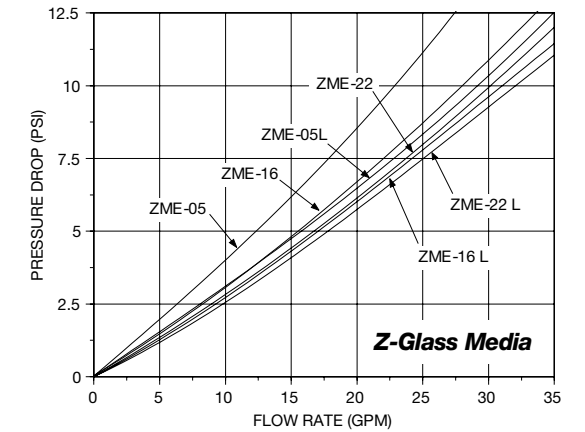
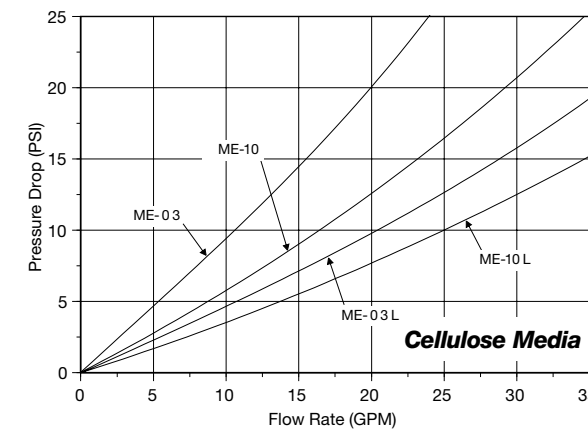
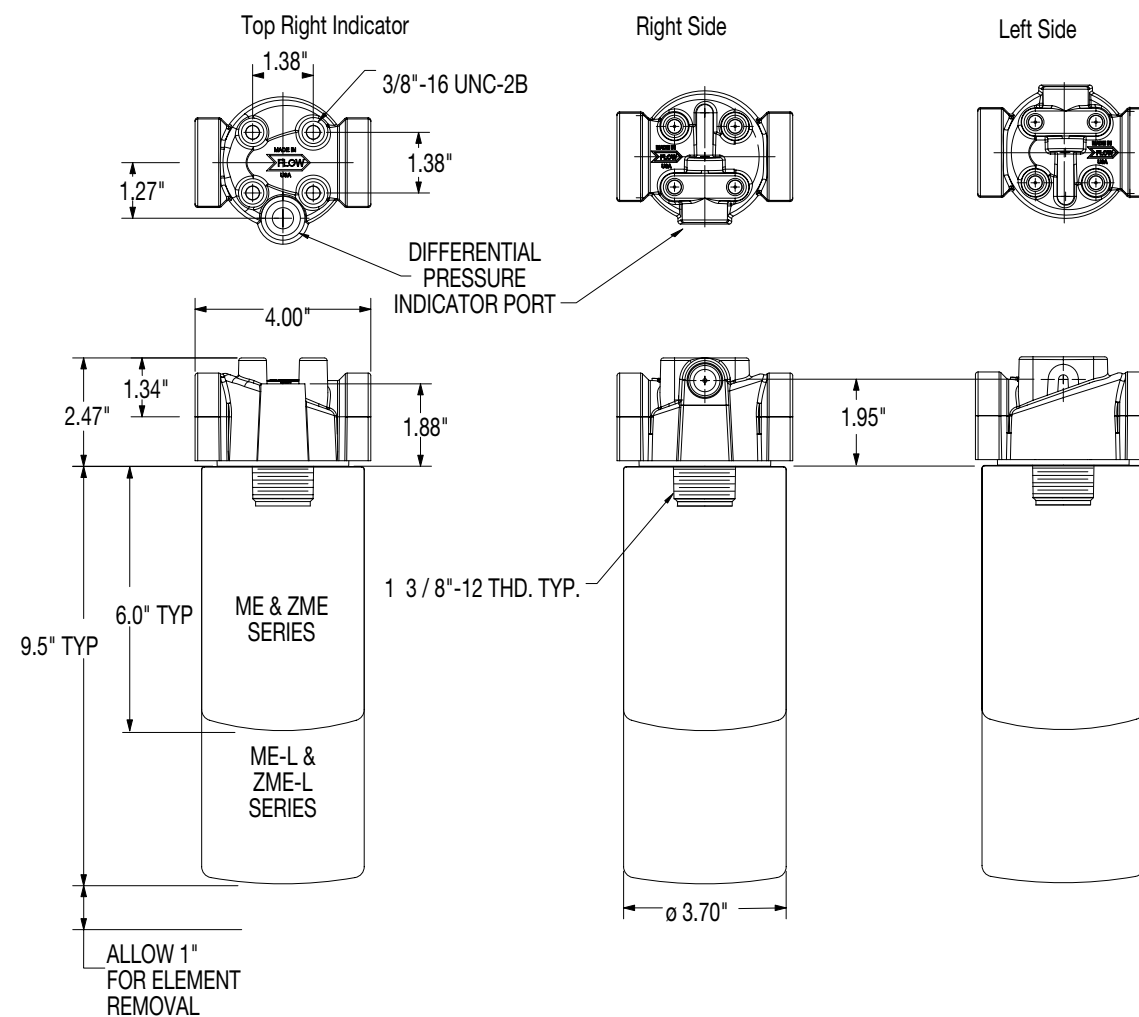


DHF SERIES SPIN-ON FILTER HEADS WITH ΔP INDICATOR OPTION

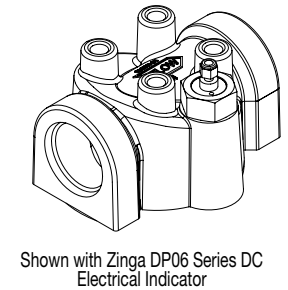
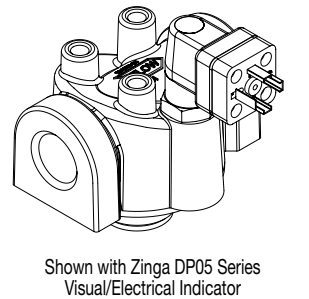
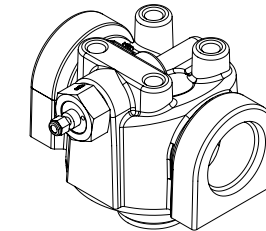
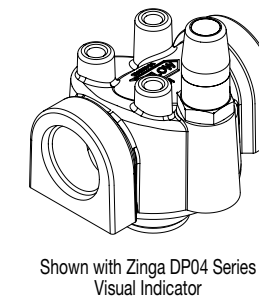
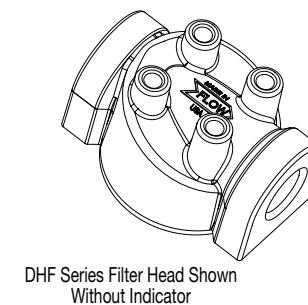
Flows Up To: 35 GPM
 Port Sizes: 3/4" NPTF; 1" NPTF
 1 1/16"-12UN (SAE-12); 1 5/16"-12UN (SAE-16)
 Pressure: 500 PSI Maximum Operating
 1000 PSI Static Burst
 Temperature: Up to +200°F
 Filters: ME & ZME Series

Assembly Fatigue Strength: 100,000 cycles @ 0-500 PSI
 300,000 cycles @ 0-400 PSI
 1,000,000 cycles @ 0-350 PSI

Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



**Average Pressure Drop Through Clean Filter Assembly
With 150 SUS Oil At 105°F**



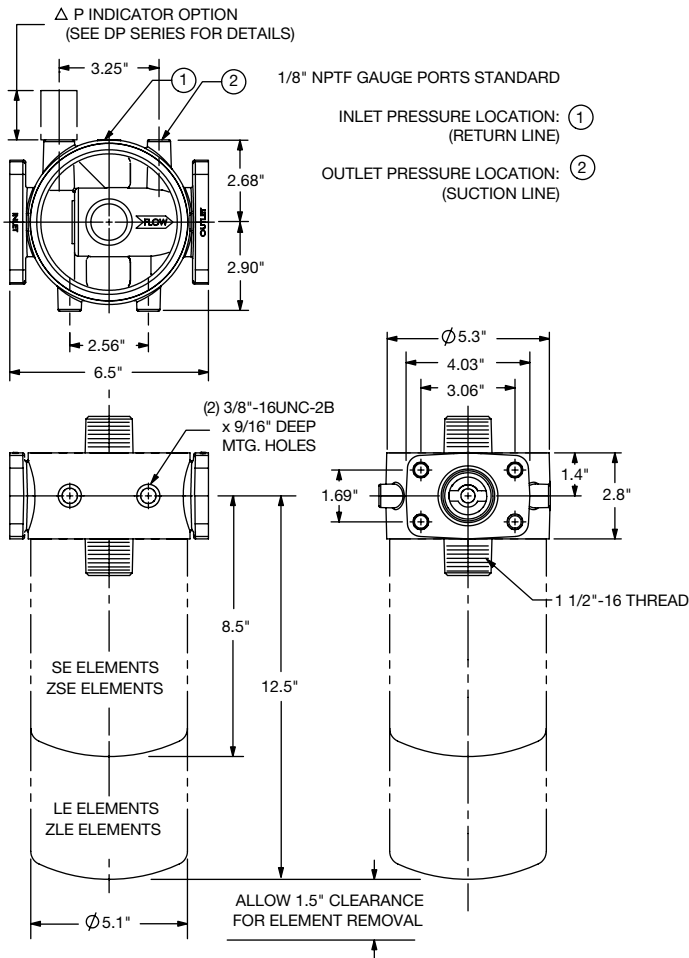
ZME Element Data: See Page 24



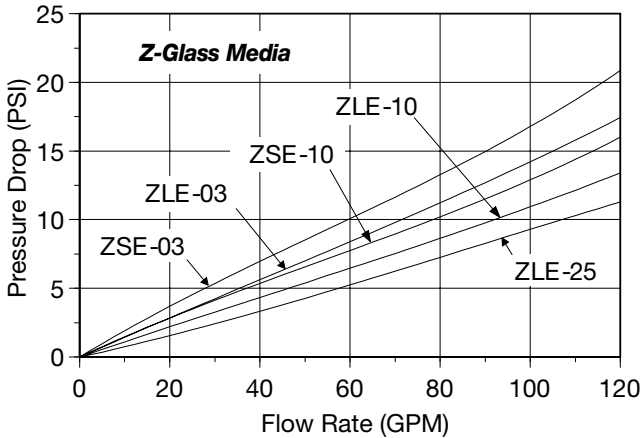
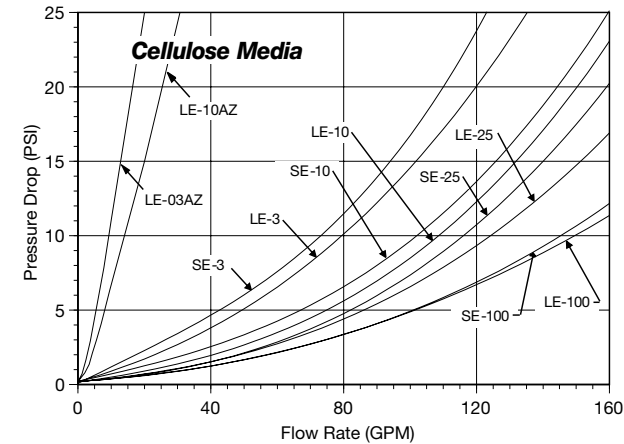
Gauge not included – must be ordered separately.

DF15 SERIES
OVER / UNDER
SPIN-ON FILTER HEADS
WITH ΔP INDICATOR OPTION

Flows Up To: 120 GPM (Return) 50 GPM (Suction)
Port Sizes: 1 1/2" NPTF w/ 2" 4-Bolt Flange
Pressure: 200 PSI Max. Operating
Temperature: Up to +200°F Operating
 Limited by Indicator Selection
Applications: Petroleum-based fluids.
 Consult factory for synthetic fluids.



SE, LE, ZSE, & ZLE Element Data: See
Pages 20 & 21



Average Pressure Drop Through Clean Filter
Assembly With 150 SUS Oil At 105° F.

SE & LE SERIES
SPIN-ON FILTER ELEMENTS
FOR USE WITH SF, DF, MF, MFT & ZDF
SERIES FILTER HEADS



Diameter: 5.1"
Mounting Thread: 1-1/2"-16 UN
Pressure: 200 PSI Max. Operating
ΔP_{max}: 50 PSID
Temperature: Up to +250°F Operating
Applications: Petroleum-based fluids.

Part Number	Particle Size	Nominal Rating	Absolute Rating	Can Color / Imprint	Media Type	Free Water Absorption	Overall Height
SE03	3 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	White / Green	Cellulose		6.9"
SE10	10 Micron	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	White / Red	Cellulose		6.9"
SE100	141 Micron	-	-	White / Blue	Stn. Steel Mesh		6.9"
SE25	25 Micron	$\beta_{19\mu(c)} = 2$	$\beta_{36\mu(c)} = 75$	White / Black	Cellulose		6.9"
LE03	3 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	White / Green	Cellulose		10.9"
LE03AZ	3 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	White / Orange	Aqua-Zorb	15 oz.	10.9"
LE10	10 Micron	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	White / Red	Cellulose		10.9"
LE100	141 Micron	-	-	White / Blue	Stn. Steel Mesh		10.9"
LE10AZ	10 Micron	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	White / Orange	Aqua-Zorb	15 oz.	10.9"
LE25	25 Micron	$\beta_{19\mu(c)} = 2$	$\beta_{36\mu(c)} = 75$	White / Black	Cellulose		10.9"

Application Data:

- Reference:
 - $\beta_{X\mu(c)} = 2$ represents 50% efficiency at Particle Size
 - $\beta_{X\mu(c)} = 75$ represents 98.7% efficiency at Particle Size
- Buna-N FG01 gasket standard. Fluorocarbon gasket FG01V optional, consult factory.
- Caution:** Do not use SE/LE Series filter elements on internal combustion engines.
- Aqua-Zorb filter medias absorb and retain free water. Any absorbed water cannot be liberated from the Aqua-Zorb media. As the element becomes saturated with water, the Aqua-Zorb media continues to swell, and will ultimately curtail flow through the filter. Not for use with water-glycols.





ZSE & ZLE SERIES
Z-GLASS MEDIA
SPIN-ON FILTER ELEMENTS
FOR USE WITH SF, DF, MF, MFT & ZDF
SERIES FILTER HEADS

Diameter: 5.1"
Mounting Thread: 1-1/2"-16 UN
Pressure: 200 PSI Max. Operating
 ΔP_{max} : 80 PSID
Temperature: Up to +250°F Operating
Applications: Petroleum-based fluids.

Part Number	Particle Size	Nominal Rating	Absolute Rating			Can Color / Imprint	Overall Height
ZSE03	3 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{<4\mu(c)} = 75$	$\beta_{<7\mu(c)} = 1000$		White / Green	6.9"
ZSE10	10 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{8\mu(c)} = 75$	$\beta_{12\mu(c)} = 1000$		White / Red	6.9"
ZLE03	3 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{<4\mu(c)} = 75$	$\beta_{<7\mu(c)} = 1000$		White / Green	10.9"
ZLE10	10 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{8\mu(c)} = 75$	$\beta_{12\mu(c)} = 1000$		White / Red	10.9"

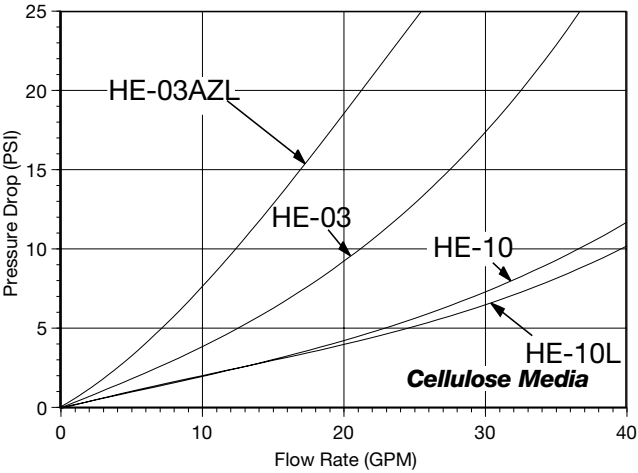
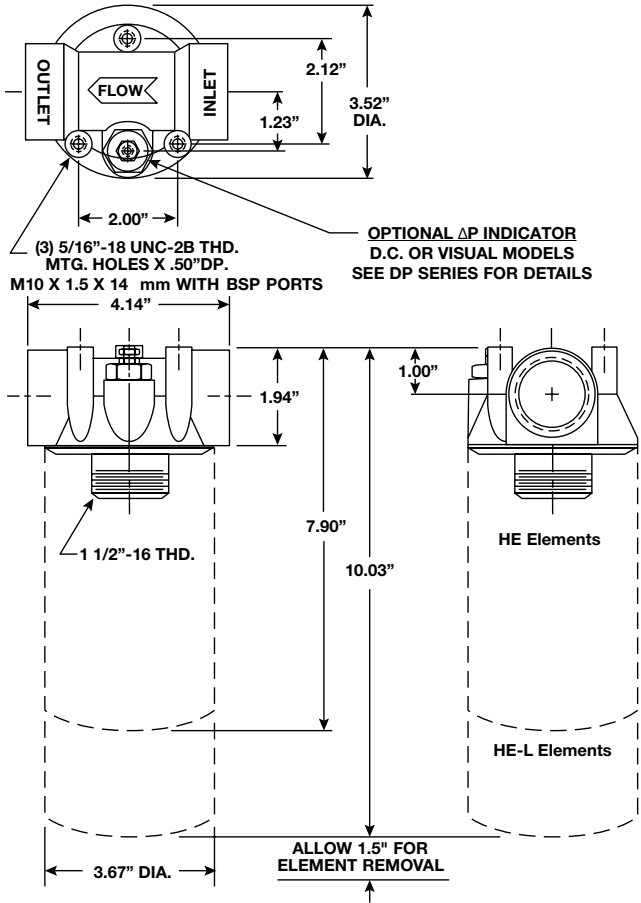
Application Data:

- Reference:
 - $\beta_{X\mu(c)} = 2$ represents 50% efficiency at Particle Size
 - $\beta_{X\mu(c)} = 75$ represents 98.7% efficiency at Particle Size
 - $\beta_{X\mu(c)} = 1000$ represents 99.5% efficiency at Particle Size
- Buna-N FG01 gasket standard. Fluorocarbon gasket FG01V optional, consult factory.
- Caution:** Do **not** use ZSE/ZLE Series filter elements on internal combustion engines.



HF SERIES
SPIN-ON FILTER HEADS
WITH ΔP INDICATOR OPTION

Flows Up To: 40 GPM (Return)
Port Sizes: 3/4" NPTF; 1" NPTF
3/4" BSP; 1" BSP
1 1/16"-12UN (SAE-12); 1 5/16"-12UN (SAE-16)
Pressure: 400 PSI Max. Operating
Temperature: Up to +200° F w/indicator
Application: Petroleum-based fluids only.
Consult factory for synthetic fluids.



Average Pressure Drop Through Clean Filter Assembly With 150 SUS Oil At 105° F.

HE Element Data: See Page 23





HE SERIES
MEDIUM PRESSURE
SPIN-ON FILTER ELEMENTS
FOR USE WITH HF SERIES FILTER HEADS.

Diameter: 3.7"
Mounting Thread: 1-1/2" - 16 UN
Pressure: 400 PSI Max. Operating
 ΔP_{max} Cellulose: 50 PSID
 ΔP_{max} Z-Glass: 80 PSID
Temperature: Up to +250°F Operating
Applications: Petroleum-based fluids.

Part Number	Particle Size	Nominal Rating	Absolute Rating	Can Color / Imprint	Media Type*	Free Water Absorption	Overall Height
HE03	3 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 75$	White / Green	Cellulose	7.2 oz	5.9"
HE03AZL	3 Micron	$\beta_{5\mu(c)} = 2$	$\beta_{24\mu(c)} = 75$	White / Orange	Aqua-Zorb		8.0"
HE10	10 Micron	$\beta_{11\mu(c)} = 2$	$\beta_{25\mu(c)} = 75$	White / Red	Cellulose		5.9"
HE10L	10 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	White / Red	Cellulose		8.0"

*Glass media is available. Contact factory for quote.

Application Data:

- Reference:
 - $\beta_{x\mu(c)} = 2$ represents 50% efficiency at Particle Size
 - $\beta_{x\mu(c)} = 75$ represents 98.7% efficiency at Particle Size
- Buna-N gasket standard. Fluorocarbon gasket optional, consult factory.
- Suitable for petroleum-based fluids. Consult factory for synthetic fluids.
- Caution:** Do **not** use HE Series filter elements on internal combustion engines.
- Aqua-Zorb filter medias absorb and retain free water. Any absorbed water cannot be liberated from the Aqua-Zorb media. As the element becomes saturated with water, the Aqua-Zorb media continues to swell, and will ultimately curtail flow through the filter. Not for use with water-glycols.

Consult Manufacturer for Ordering Information



ZME SERIES
MEDIUM PRESSURE
SPIN-ON FILTER ELEMENTS
FOR USE WITH DHF SERIES FILTER HEADS.

Diameter: 3.7"
Mounting Thread: 1-3/8"-12 UN
Pressure: 500 PSI Max. Operating
 ΔP_{max} Cellulose: 80 PSID
 ΔP_{max} Z-Glass: 100 PSID
Temperature: Up to +250°F Operating
Applications: Petroleum-based fluids.

Part Number	Particle Size	Nominal Rating	Absolute Rating		Can Color / Imprint	Media Type	Overall Height
ZME05	5 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{<4\mu(c)} = 75$	$\beta_{5\mu(c)} = 200$	White / Green	Z-Glass	6.0"
ZME16	16 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{10\mu(c)} = 75$	$\beta_{14\mu(c)} = 200$	White / Red	Z-Glass	6.0"
ZME16L	16 Micron	$\beta_{<4\mu(c)} = 2$	$\beta_{10\mu(c)} = 75$	$\beta_{14\mu(c)} = 200$	White / Red	Z-Glass	9.5"

Application Data:

- Reference:
 - $\beta_{x\mu(c)} = 2$ represents 50% efficiency at Particle Size
 - $\beta_{x\mu(c)} = 75$ represents 98.7% efficiency at Particle Size
 - $\beta_{x\mu(c)} = 200$ represents 99.5% efficiency at Particle Size
- Application: Petroleum-based fluids. Consult factory for synthetic fluids
- Caution:** Do **not** use ZME Series filter elements on internal combustion engines.

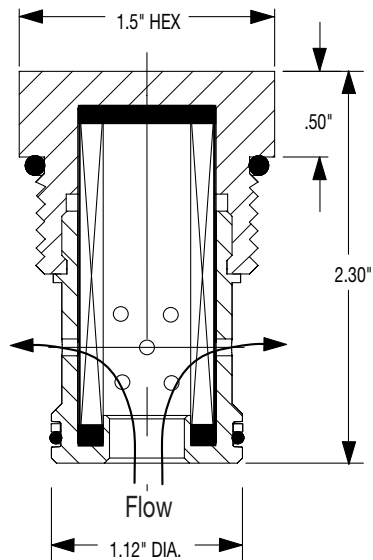
Consult Manufacturer for Ordering Information





C16 SERIES CARTRIDGE FILTER

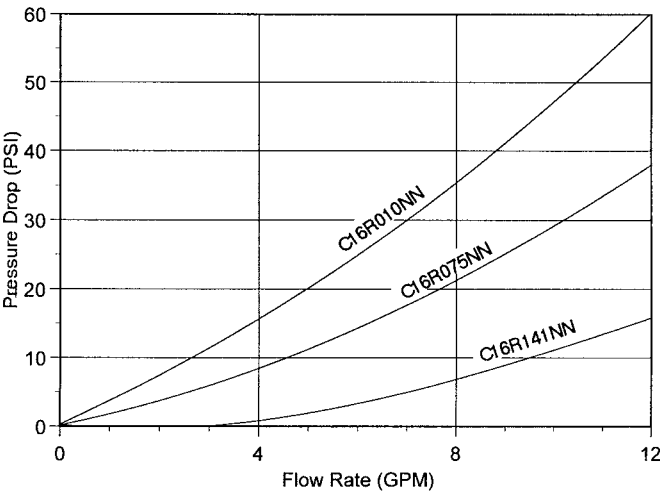
Flows Up to: 12 GPM
Cavity: Common Cavity No. C16-2
Pressure: 3,000 PSI Max.
Temperature: Up to +250°F Operating
Applications: Petroleum-based fluids



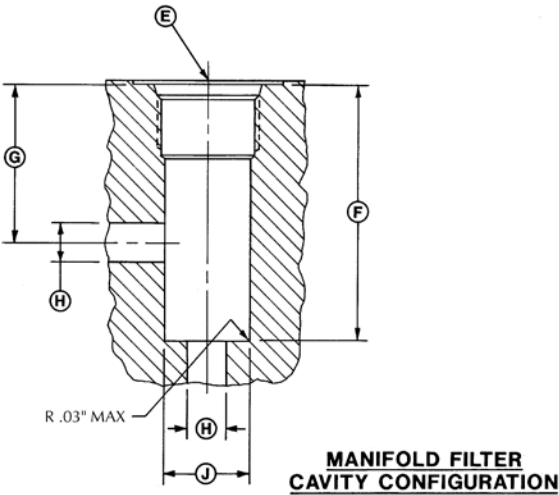
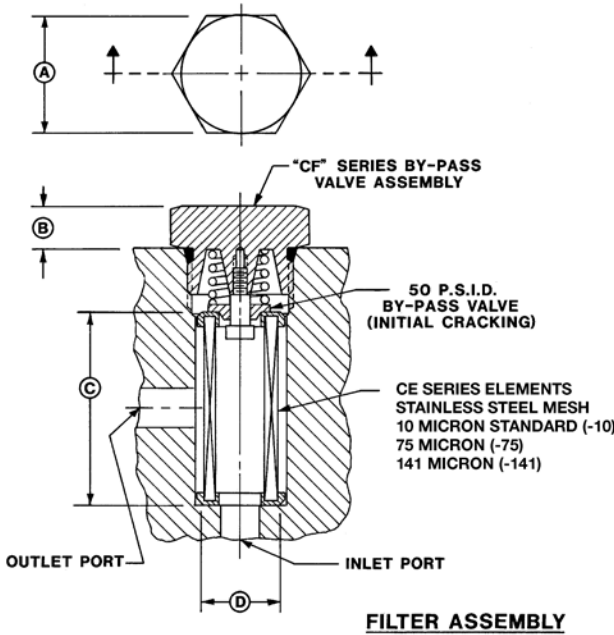
Sized to fit Common Cavity No. C16-2

Application Data:

- Steel construction with stainless steel mesh media
- C16-Series filters are designed to be used as final filters to protect control valves, not as system filters.

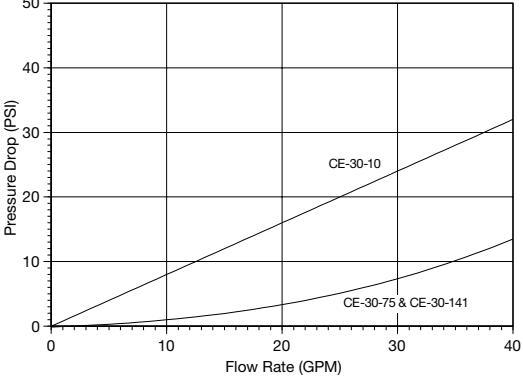
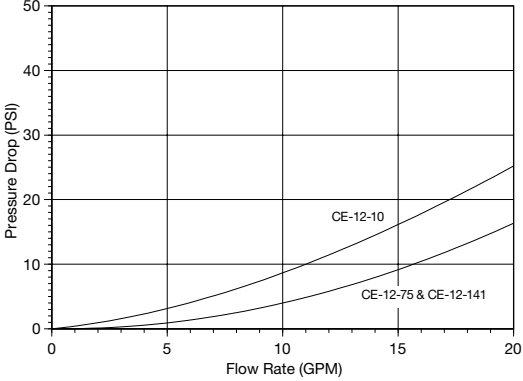
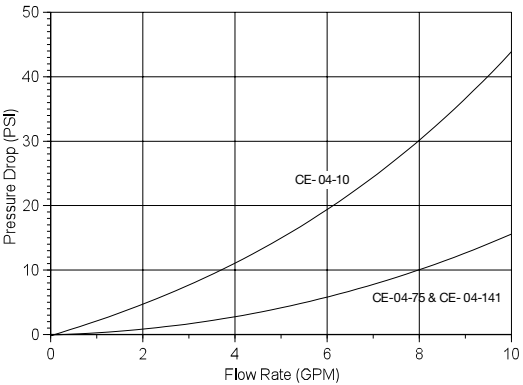


Average Pressure Drop Through Clean Filter Assembly
With 150 SUS At 105° F



CF / CE SERIES MANIFOLD CARTRIDGE FILTERS

Operating Pressure: 6,000 PSI
Flows Up To: 30 GPM
Media: 10-Micron Stainless Steel Mesh
Applications: Petroleum-based fluids



Avg. pressure drop with 150 SUS oil at 105° F.

B/P Valve Assy	Element Number	Flow Capacity	A Hex Size	B Hex Height	C Element Length	D Element Dia.	E SAE Port	F Cavity Depth	G Max. Min.	H Max. Port Dia.	J Max. Min.
CF04	CE0410	4 GPM	1.00"	.41"	1.72"	.74"	-10 (7/8"-14)	2.41"	1.12" 1.87"	2.66"	.781" .814"
CF12	CE1210	12 GPM	1.50"	.50"	2.50"	1.00"	-16 (1 5/16"-12)	3.34"	1.49" 2.53"	.531"	1.140" 1.187"
CF30	CE3010	30 GPM	2.13"	.65"	4.00"	1.50"	-24 (1 7/8"-12)	5.01"	1.92" 3.81"	.875"	1.750" 1.803"

CF/CE Series filters are used as final filters to protect control valves, not as system filters.

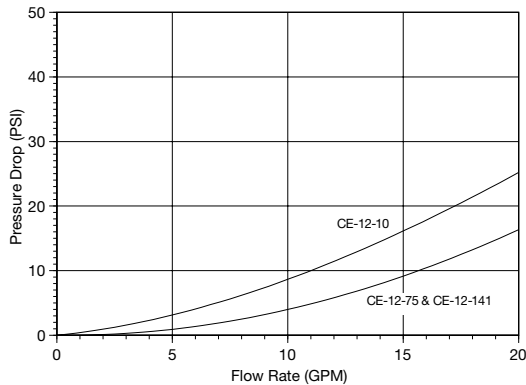
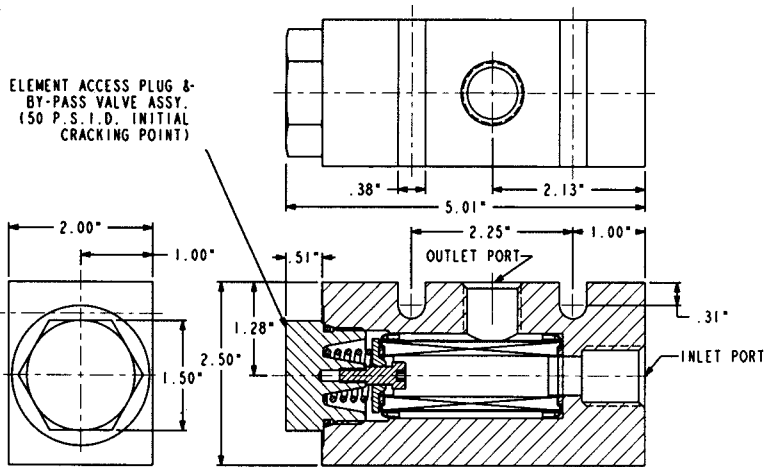
Consult Manufacturer for Ordering Information

Consult Manufacturer for Ordering Information

CF-90 SERIES IN-LINE HIGH-PRESSURE FILTER



Port Size: 1/2" NPTF
3/4" - 16 UN (SAE-8)
Pressure: 3,000 PSI
Flows Up To: 12 GPM
By-Pass Valve Setting: 50 PSI
Filtration: 10-Micron Stainless Steel
Wire Cloth Standard



Avg. pressure drop with 150 SUS oil at 105° F.

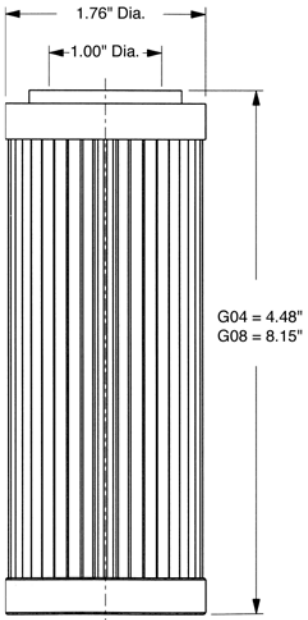
Note:

- CE-Series filter elements are compatible with petroleumbase fluids, water glycol, diesel fuel, & gaso-line (except if containing alcohol). For fluids not listed, consult factory.
- Element access plug uses a Buna-N O-ring as standard (for use with petroleum-base fluids). Fluorocarbon O-ring optional (for use with synthetic fluids).

G SERIES ELEMENTS PALL 9020/9021 INTERCHANGE



Media: Zinga Synthetic Z-Glass Media
Application: P3000 Series Pressure Filters
Temperature: Nitrile Seals -45°F to +225°F
Fluorocarbon Seals -20°F to +275°F



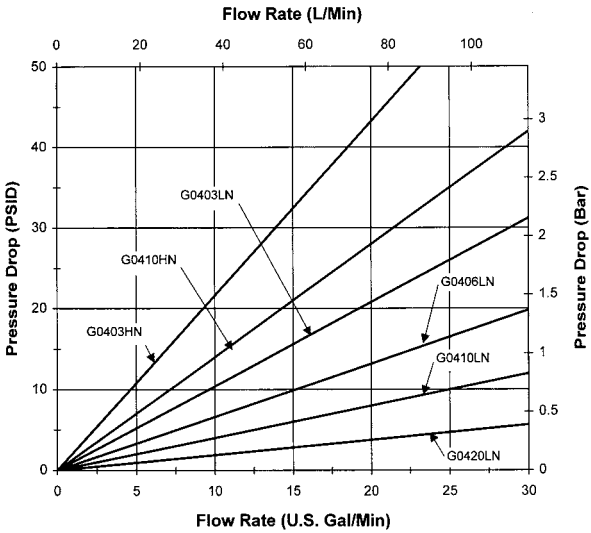
150 PSID RATED ELEMENTS (For Use in Filters with By-pass Valve Only)			
ZINGA P/N	BXμ(c) = 200	BXμ(c) = 1000	PALL P/N
G0403LN	<4 Micron	<4 Micron	HC9024FDP4H
G0406LN	5 Micron	6 Micron	HC9024FDN4H
G0410LN	8 Micron	10 Micron	HC9024FDS4H
G0420LN	19 Micron	23 Micron	HC9024FDT4H
G0803LN	<4 Micron	<4 Micron	HC9024FDP8H
G0806LN	5 Micron	6 Micron	HC9024FDN8H
G0810LN	8 Micron	10 Micron	HC9024FDS8H
G0820LN	19 Micron	23 Micron	HC9024FDT4H

Buna-N Seals Standard. Replace "N" in P/N with "V" for Fluorocarbon.

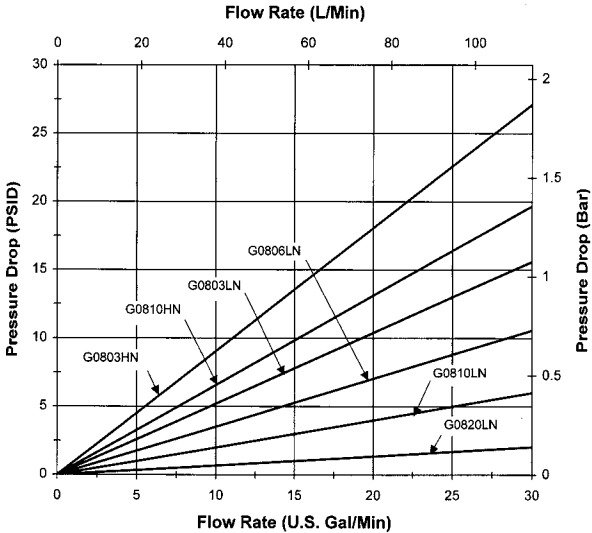
3000 PSID RATED ELEMENTS			
ZINGA P/N	BXμ(c) = 200	BXμ(c) = 1000	PALL P/N
G0403HN	<4 Micron	<4 Micron	HC9021FUP4H
G0410HN	8 Micron	10 Micron	HC9021FUS4H
G0803HN	<4 Micron	<4 Micron	HC9021FUP8H
G0810HN	8 Micron	10 Micron	HC9021FUS8H

Buna-N Seals Standard. Replace "N" in P/N with "V" for Fluorocarbon.

Average Pressure Drop Through Clean Element
With 150 SUS Oil At 100° F (32 cSt at 40° C)



G04 Series



G08 Series

Consult Manufacturer for Ordering Information

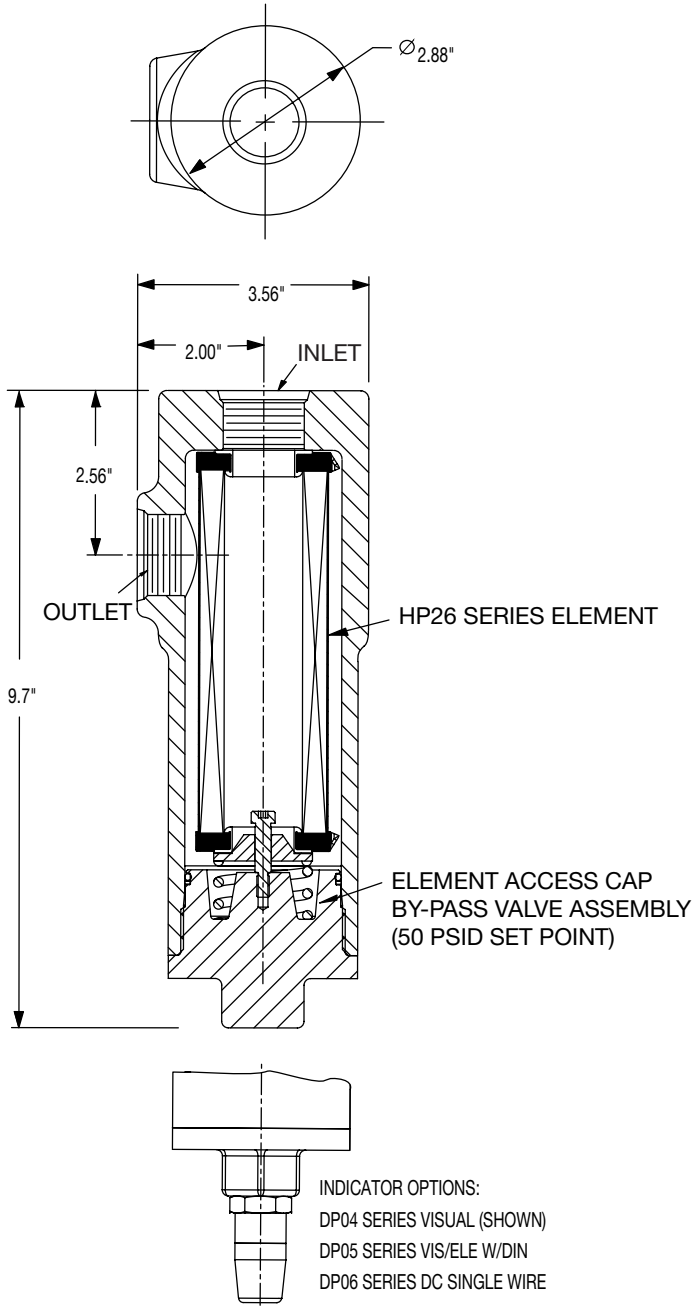
Consult Manufacturer for Ordering Information





HP3000 SERIES IN-LINE PRESSURE FILTERS WITH ΔP INDICATOR OPTION

Flows Up To: 60 GPM
Ports Sizes: 1" NPTF
1 1/16"-12 UN (SAE - 12)
1 5/16"-12 UN (SAE - 16)
Pressure: 3,000 PSI Max. Operating
Application: Inline Filtration,
90° Design Permits Element
Replacement without Breaking Line.



SPECIFICATIONS

Code Number	Removal Rating	
03Z (Z-Glass)	B _{<4μ(c)} = 200	B _{7μ(c)} = 1000
10Z (Z-Glass)	B _{10μ(c)} = 200	B _{12μ(c)} = 1000
003 (Cellulose)	B _{<4μ(c)} = 2	
010 (Cellulose)	B _{5μ(c)} = 2	
025 (Cellulose)	B _{19μ(c)} = 2	

REFERENCE
B_{xμ(c)} Rating of 1000 = 99.9% Efficiency
B_{xμ(c)} Rating of 200 = 99.5% Efficiency
B_{xμ(c)} Rating of 2 = 50.0% Efficiency

PRESSURE RATING
Maximum Operating: 3,000 PSI (207 Bar)
Burst Pressure: 15,000 PSI (1034 Bar)
Rated Fatigue Pressure:
0-3000-0 PSI for 1,000,000 Cycles

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

BY-PASS SETTING:
50 PSID

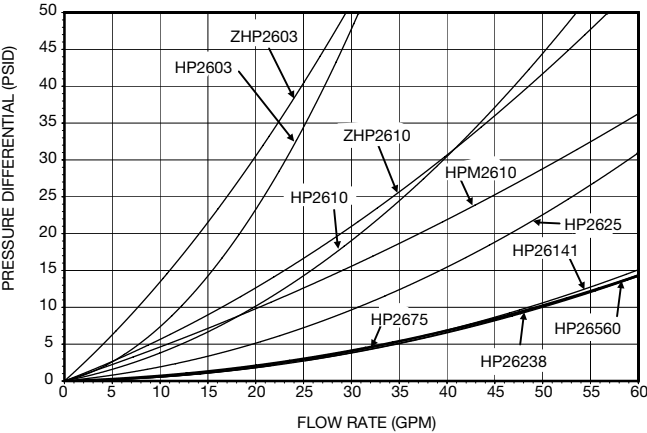
ΔP INDICATOR OPTIONS
Visual, Single-Wire DC Electrical, or
Electrical/Visual w/ DIN Connector

FLUID COMPATIBILITY
Elements: Suitable For Use with
Petroleum-Base Fluids. Consult
Factory For Use With Other Fluids.

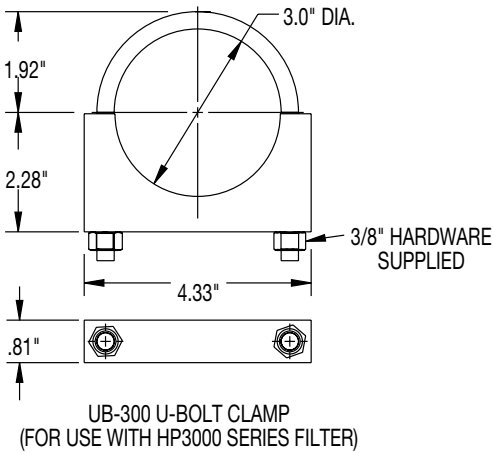
MATERIALS
Housing: Ductile Iron
By-Pass: Steel
Element Hardware: Plated Carbon
Steel Endcaps and Core.
Epoxy Endcap Adhesive.
Filter Media: Z-Glass Fiber, Cellulose
Stainless Steel Mesh

WEIGHT
4.2 lbs. (2.2 Kg)

Average pressure drop through clean filter with 150 SUS oil at 105° F.



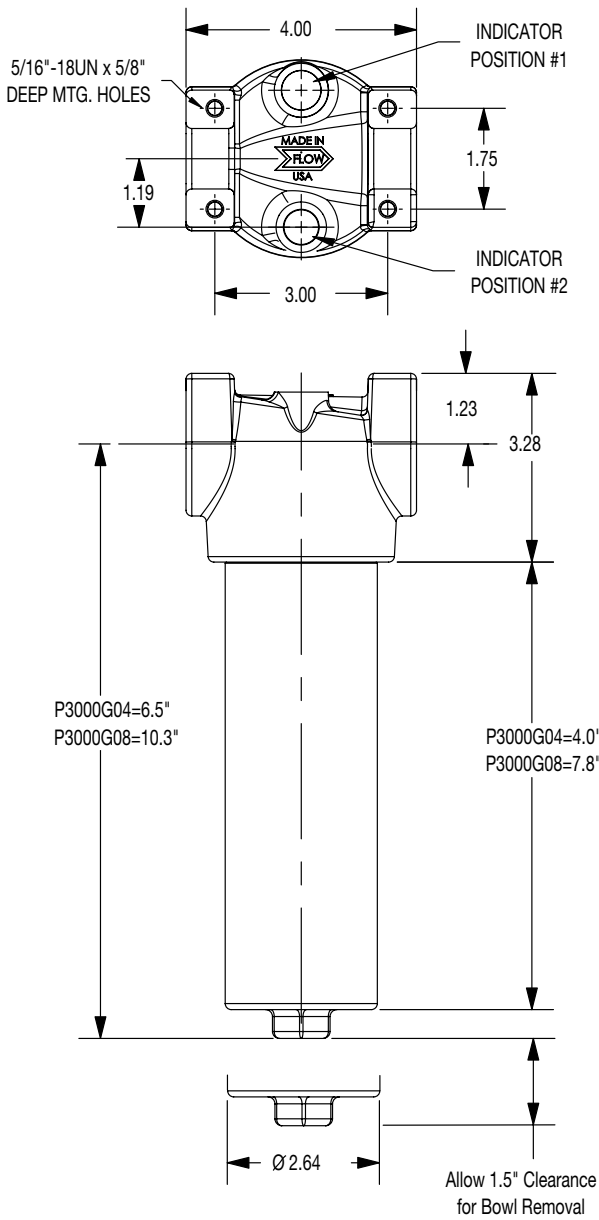
ACCESSORIES:





**P3000 SERIES
PRESSURE FILTERS**
WITH ΔP INDICATOR OPTION

Flows Up To: 30 GPM (114 L/MIN)
Ports Size: 1 1/16"-12 UN (SAE - 12)
Pressure: 3,000 PSI (207 BAR)
Application: Inline Filtration,
External Charge Pump Filtration,
High-Shock Return Line Filtration



SPECIFICATIONS		
Code Number	Removal Rating	
03H (Z-Glass)	$\beta_{<4\mu(c)} = 200$	$\beta_{<4\mu(c)} = 1000$
03L (Z-Glass)	$\beta_{<4\mu(c)} = 200$	$\beta_{<4\mu(c)} = 1000$
06L (Z-Glass)	$\beta_{5\mu(c)} = 200$	$\beta_{6\mu(c)} = 1000$
10L (Z-Glass)	$\beta_{8\mu(c)} = 200$	$\beta_{10\mu(c)} = 1000$
10H (Z-Glass)	$\beta_{8\mu(c)} = 200$	$\beta_{10\mu(c)} = 1000$
20L (Z-Glass)	$\beta_{19\mu(c)} = 200$	$\beta_{23\mu(c)} = 1000$
10C (cellulose)	$\beta_{5\mu(c)} = 2$	

REFERENCE
 $\beta_{X\mu(c)}$ Rating of 1000 = 99.9% Efficiency
 $\beta_{X\mu(c)}$ Rating of 200 = 99.5% Efficiency
 $\beta_{X\mu(c)}$ Rating of 2 = 50.0% Efficiency

PRESSURE RATING
Maximum Operating: 3,000 PSI (207 Bar)
Burst Pressure: 8,600 PSI (580 Bar)
Rated Fatigue Pressure:
0-3000-0 PSI for 1,000,000 Cycles

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

BY-PASS SETTING OPTION:
No By-Pass or 50 PSID

ΔP INDICATOR OPTIONS
Visual, Single-Wire DC Electrical, or
Electrical/Visual w/ DIN Connector

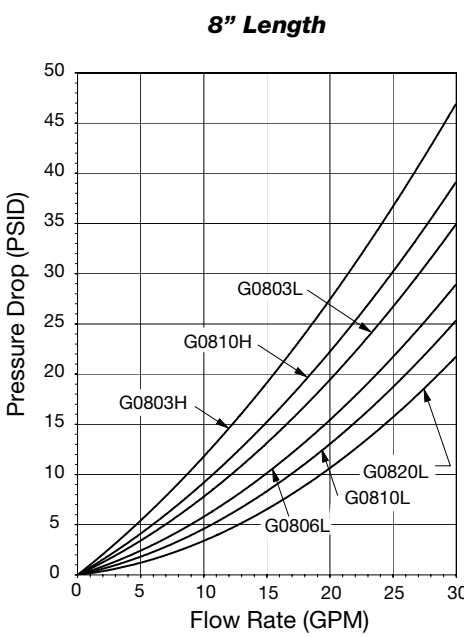
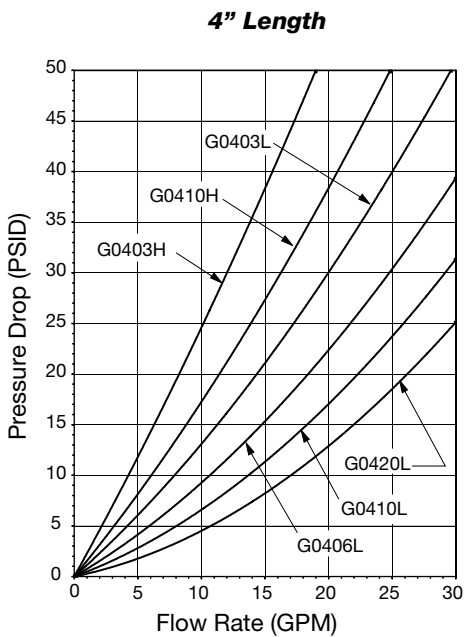
FLUID COMPATIBILITY
Elements: Suitable For Use with
Petroleum-Base Fluids. Consult
Factory For Use With Other Fluids.

MATERIALS
Head: Die-Cast Aluminum
Bowl: Anodized Aluminum (6061-T6)
By-Pass: Nylon
Element Hardware: Plated Carbon
Steel Endcaps and Core. Epoxy
Endcap Adhesive.
Filter Media: Z-Glass Fiber Standard

WEIGHT
P3000G04: 4.2 lbs. (2.2 Kg)
P3000G08: 5.2 lbs. (2.8 Kg)

P3000 PRESSURE DROP CURVES

Fluid Viscosity 150 SUS at 105°F (33 CS at 41°C)



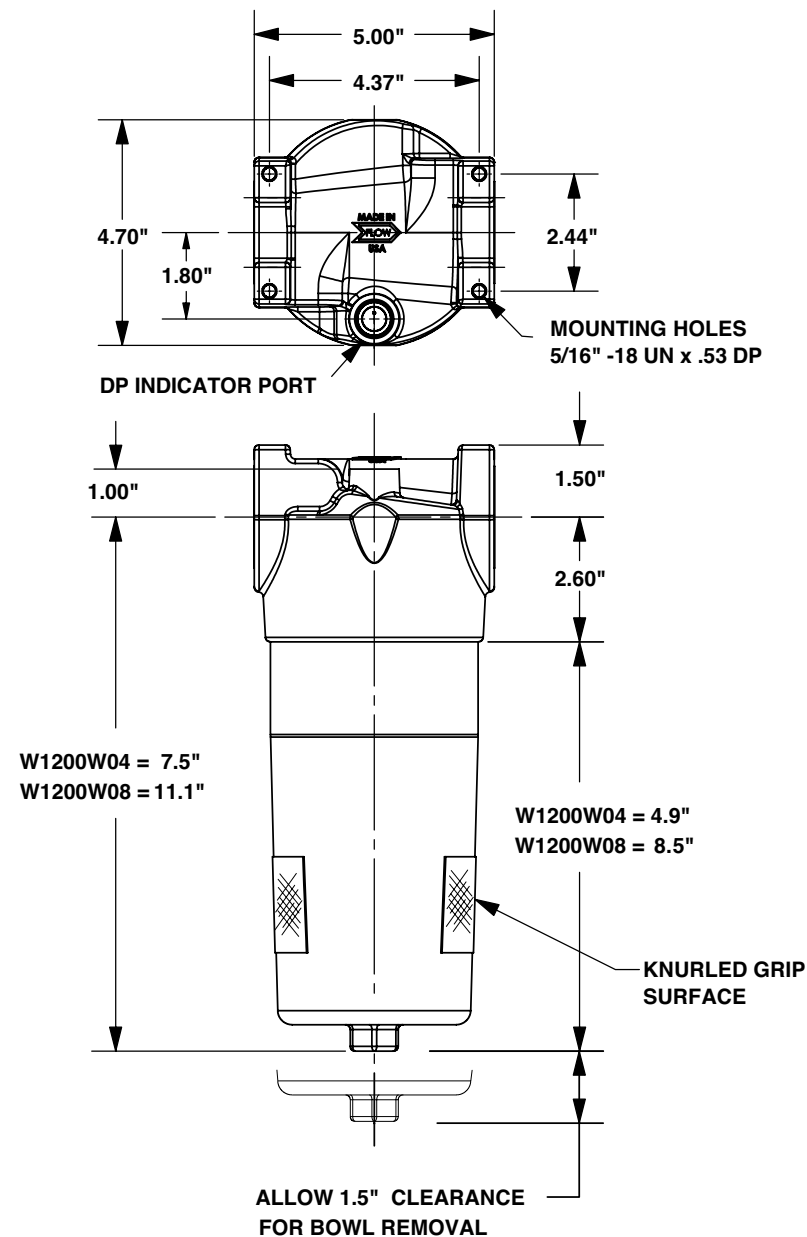
Consult Manufacturer for Ordering Information

Consult Manufacturer for Ordering Information

W1200 SERIES PRESSURE FILTERS WITH ΔP INDICATOR OPTION



Flows Up To:	120 GPM (454 L/MIN)
Port Sizes:	1 1/4" & 1 1/2" NPTF 1 5/8"-12UN (SAE-20) 1 7/8"-12UN (SAE-24)
Max. Operating Pressure:	1,200 PSI (83 BAR)
Application:	Inline Filtration High-Shock Return Line Filtration



SPECIFICATIONS

Code Number	Removal Rating	
03H (Z-Glass)	$\beta_{<4\mu(c)} = 200$	$\beta_{<4\mu(c)} = 1000$
03L (Z-Glass)	$\beta_{<4\mu(c)} = 200$	$\beta_{<4\mu(c)} = 1000$
06L (Z-Glass)	$\beta_{5\mu(c)} = 200$	$\beta_{8\mu(c)} = 1000$
10L (Z-Glass)	$\beta_{8\mu(c)} = 200$	$\beta_{10\mu(c)} = 1000$
10H (Z-Glass)	$\beta_{8\mu(c)} = 200$	$\beta_{10\mu(c)} = 1000$
20L (Z-Glass)	$\beta_{19\mu(c)} = 200$	$\beta_{23\mu(c)} = 1000$

REFERENCE

$\beta_{x\mu(c)}$ Rating of 1000 = 99.9% Efficiency
 $\beta_{x\mu(c)}$ Rating of 200 = 99.5% Efficiency

PRESSURE RATING

Maximum Operating: 1,200 PSI (83 Bar)
Burst Pressure: 3,000 PSI (206 Bar)
Rated Fatigue Pressure:
 0-1000-0 PSI for 1,000,000 Cycles

TEMPERATURE RANGE

Operating: -40°F to +250°F
(-4°C to +120°C)

BY-PASS SETTING OPTION:

No By-Pass or 50 PSID

ΔP INDICATOR OPTIONS

Visual, Single-Wire DC Electrical, or
Electrical/Visual w/ DIN Connector

FLUID COMPATIBILITY

Elements: Suitable For Use with Petroleum-Base Fluids. Consult Factory For Use With Other Fluids.

MATERIALS

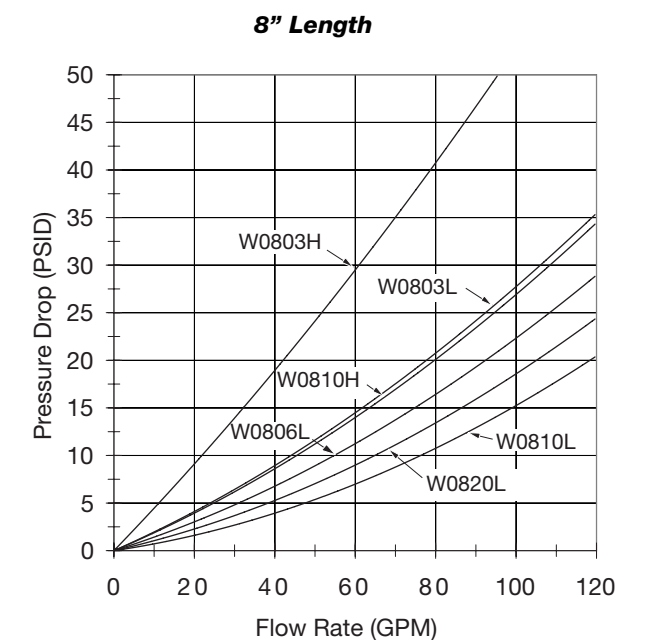
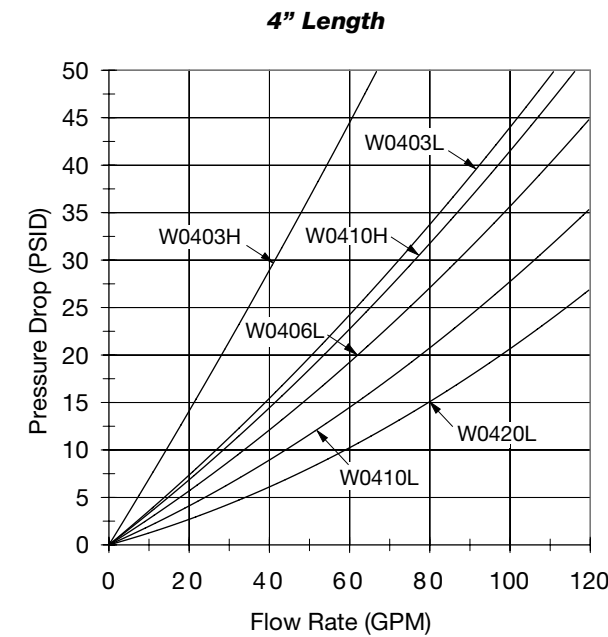
Head: Die-Cast Aluminum
Bowl: Anodized Die-Cast Aluminum
By-Pass: Nylon
Element Hardware: Plated Carbon Steel Endcaps and Core. Epoxy Endcap Adhesive.
Filter Media: Z-Glass Fiber Standard

WEIGHT

W1200W04: 6.6 lbs. (3 Kg)
W1200W08: 8.8 lbs. (4 Kg)

W1200 PRESSURE DROP CURVES

Fluid Viscosity 150 SUS at 105°F (33 CS at 41°C)



Consult Manufacturer for Ordering Information

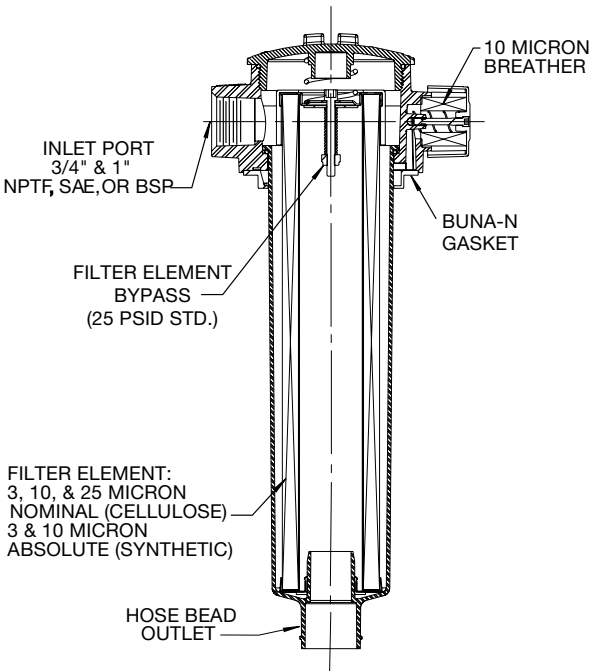
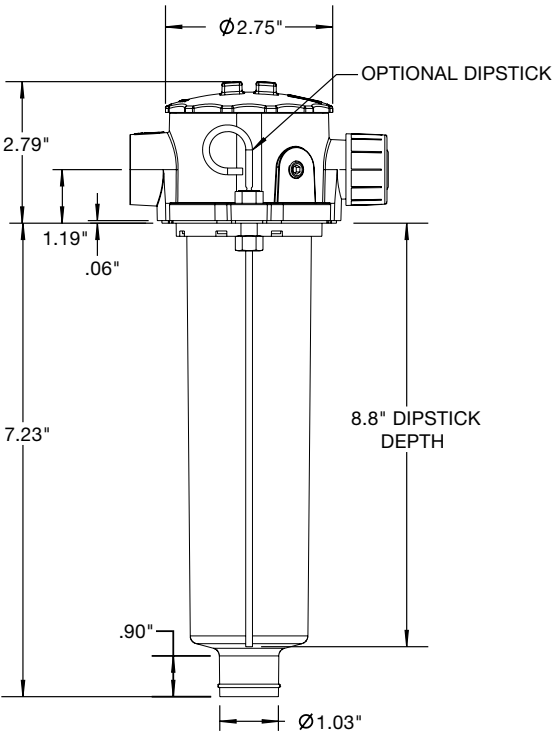
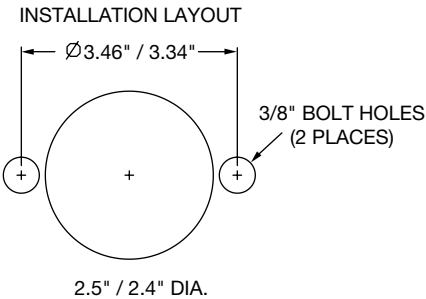
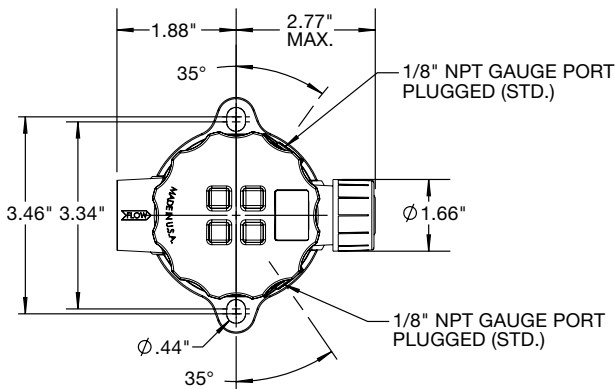
Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17

Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17

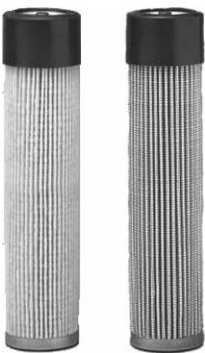
SLF1 SERIES TANK-TOP FILTERS (WITH INTEGRAL TANK BREATHER)



Flows Up To: 25 GPM (Return)
Port Sizes: 1/2" & 3/4" NPTF, SAE & BSP
Pressure: 100 PSI Max. Operating Pressure
300 PSI Burst
Temperature: -15 to +230°F Operating
Head: Die-Cast Aluminum Alloy
Bowl / Cover: Nylon
Breather: 10-Micron (Foam) Standard
Applications: Petroleum-based fluids only
Consult factory for synthetic fluids

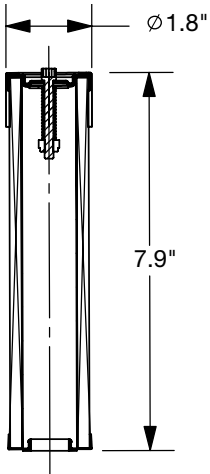


Consult Manufacturer for Ordering Information

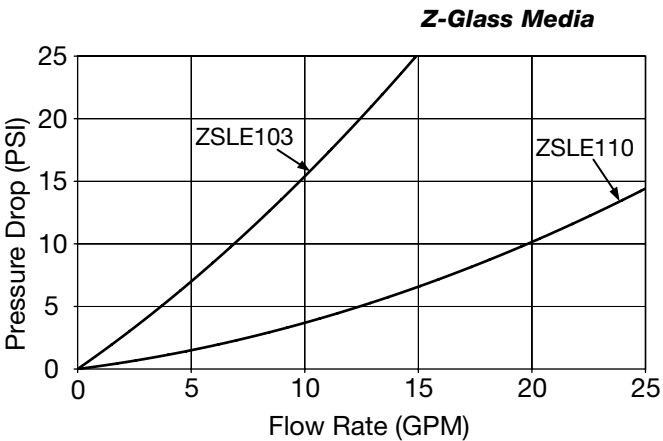
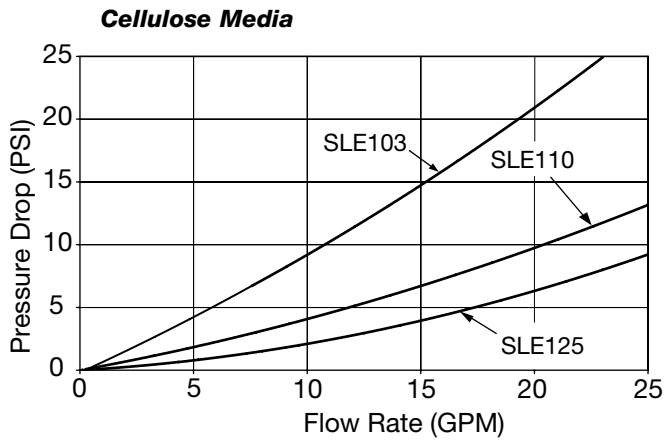


SLE1 & ZSLE1 SERIES FILTER ELEMENTS CELLULOSE AND SYNTHETIC

SLE1 & ZSLE1 FILTER ELEMENTS			
Code	Media Type	Nominal Rating	Absolute Rating
SLE103	Cellulose	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$
SLE110	Cellulose	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$
SLE125	Cellulose	$\beta_{19\mu(c)} = 2$	$\beta_{36\mu(c)} = 75$
ZSLE103	Z-Glass	$\beta_{<4\mu(c)} = 2$	$\beta_{<4\mu(c)} = 200$
ZSLE110	Z-Glass	$\beta_{<4\mu(c)} = 2$	$\beta_{10\mu(c)} = 200$



Average pressure drop through clean assembly with 150 SUS oil at 105° F



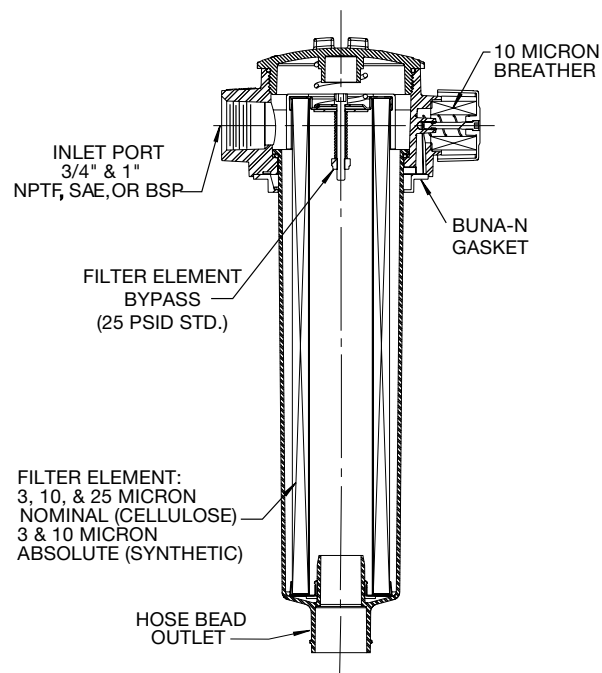
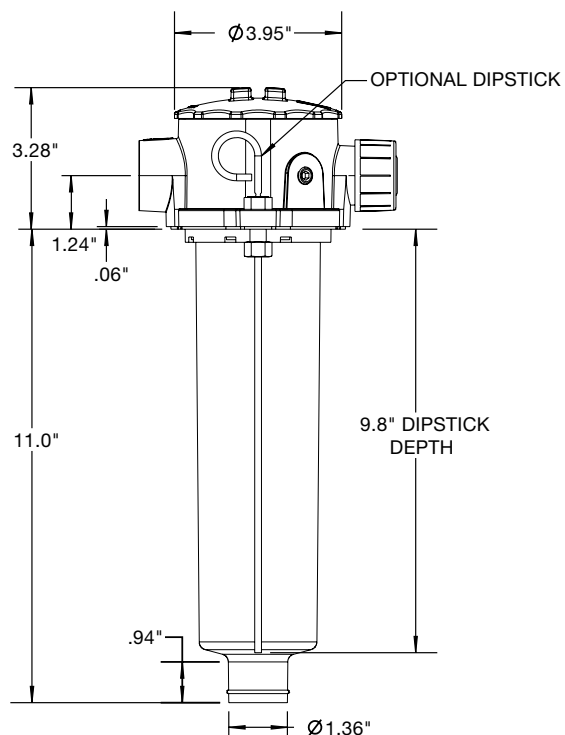
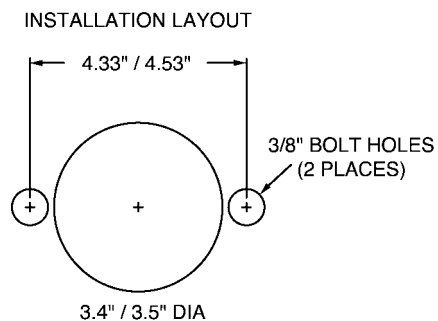
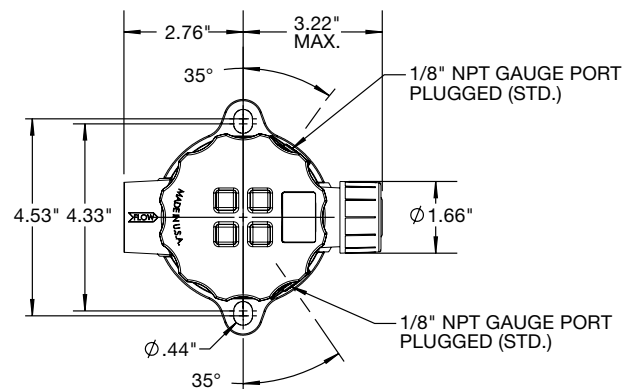
Consult Manufacturer for Ordering Information



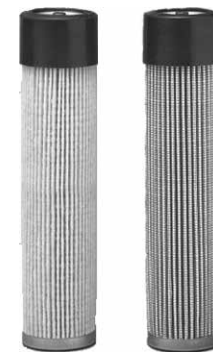
SLF2 SERIES TANK-TOP FILTERS (WITH INTEGRAL TANK BREATHERS)



Flows Up To: 40 GPM (Return)
Port Sizes: 3/4" & 1" NPTF, SAE & BSP
Pressure: 100 PSI Max. Operating Pressure
300 PSI Burst
Temperature: -15 to +230°F Operating
Head: Die-Cast Aluminum Alloy
Bowl / Cover: Nylon
Breather: 10-Micron (Foam) Standard
Applications: Petroleum-based fluids only
Consult factory for synthetic fluids

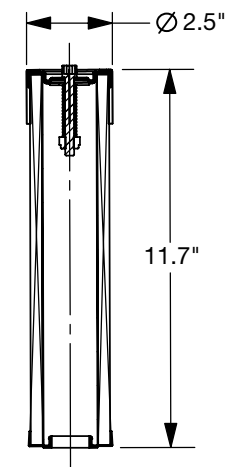


Consult Manufacturer for Ordering Information

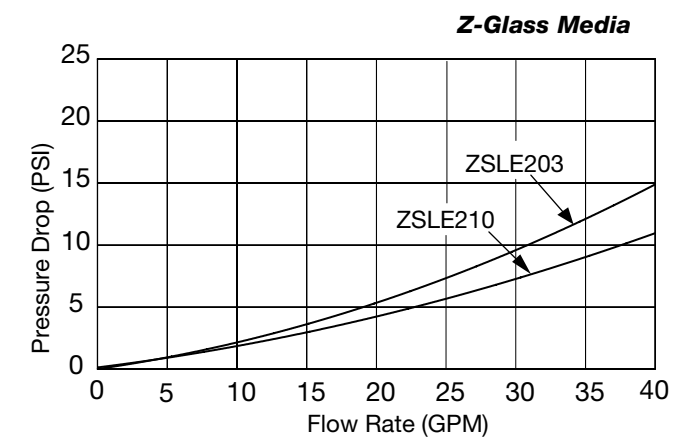
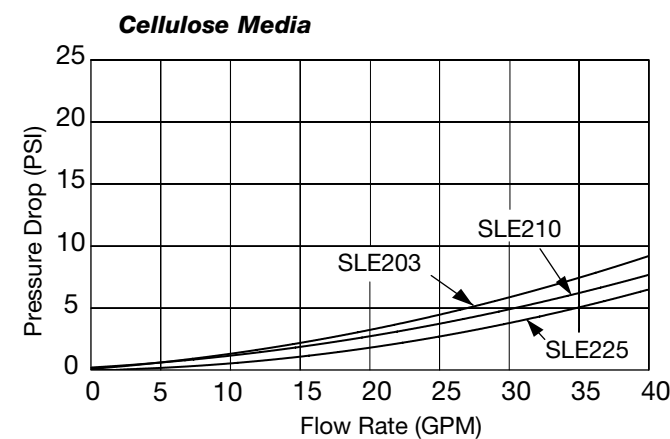


SLE2 & ZSLE2 SERIES FILTER ELEMENTS CELLULOSE AND SYNTHETIC

SLE2 & ZSLE2 FILTER ELEMENTS			
Code	Media Type	Nominal Rating	Absolute Rating
SLE203	Cellulose	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$
SLE210	Cellulose	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$
SLE225	Cellulose	$\beta_{19\mu(c)} = 2$	$\beta_{36\mu(c)} = 75$
ZSLE203	Z-Glass	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 200$
ZSLE210	Z-Glass	$\beta_{<4\mu(c)} = 2$	$\beta_{10\mu(c)} = 200$



Average pressure drop through clean assembly with 150 SUS oil at 105° F



Consult Manufacturer for Ordering Information





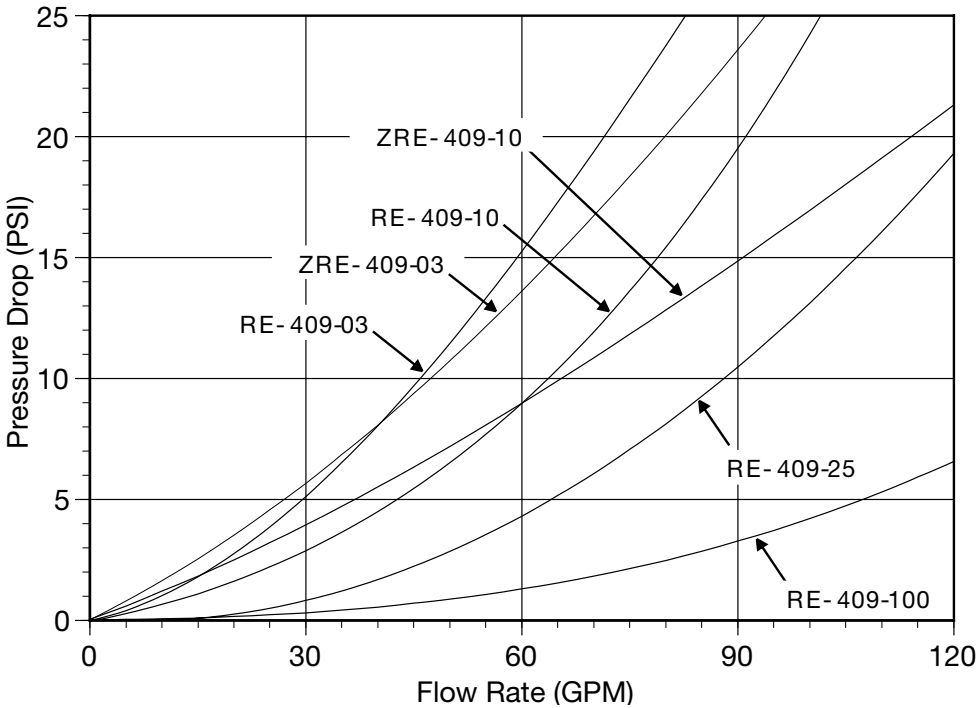
TR & TS SERIES SUCTION / RETURN LINE TANK-TOP FILTERS

Flows Up To: TR 96 GPM (Return) 32 GPM (Suction)
TS 71 GPM (Return) 24 GPM (Suction)
Port Sizes: 1 1/4" & 1 1/2" NPTF
1 5/8" - 12 UN (SAE - 20)
1 7/8" - 12 UN (SAE - 24)
1 1/4" BSP
Pressure: 100 PSI Max. Operating
Temperature: Up to +250°F
Application: Suitable for petroleum-based fluid only.
Consult factory for synthetic fluids.

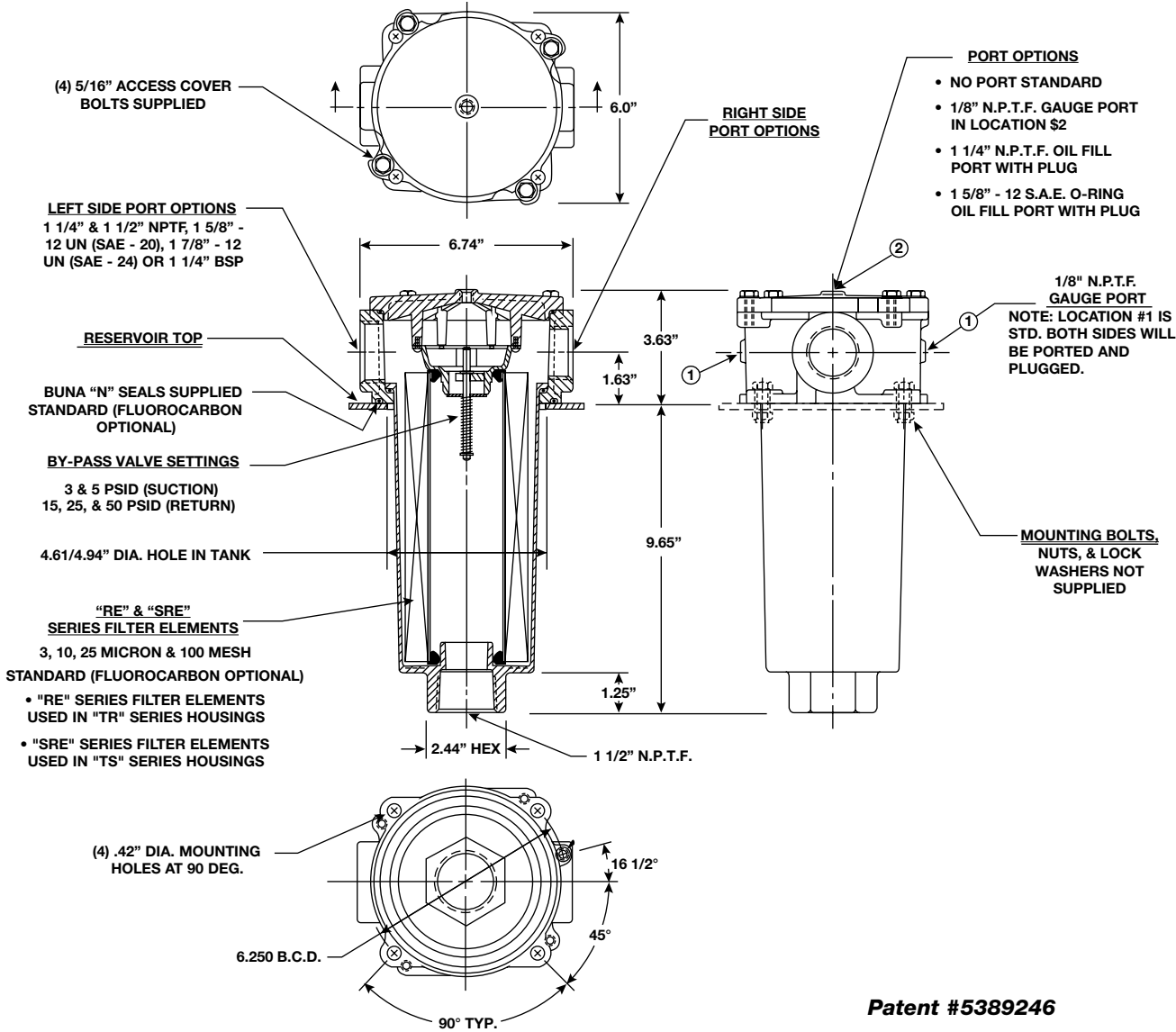
Design Features:

- No parts to lose with unitized cover and by-pass valve assembly.
- Radial seal grommets used in RE and SRE series filter elements.
- Drop-in element bowl design for easier installation.
- Patented element bowl hold-down for suction applications.
- O-ring seal between filter housing and tank top.
- Filter housing mounting bolt pattern matches Zinga RF and SRF series as well as Schroeder ST and RT series housings.
- TS series housings are fully compatible with Schroeder K series elements.

Average pressure drop through clean filter with 150 SUS oil at 105° F.



RE & SRE Element Data: See Pages 45 & 46



Patent #5389246

Consult Manufacturer for Ordering Information

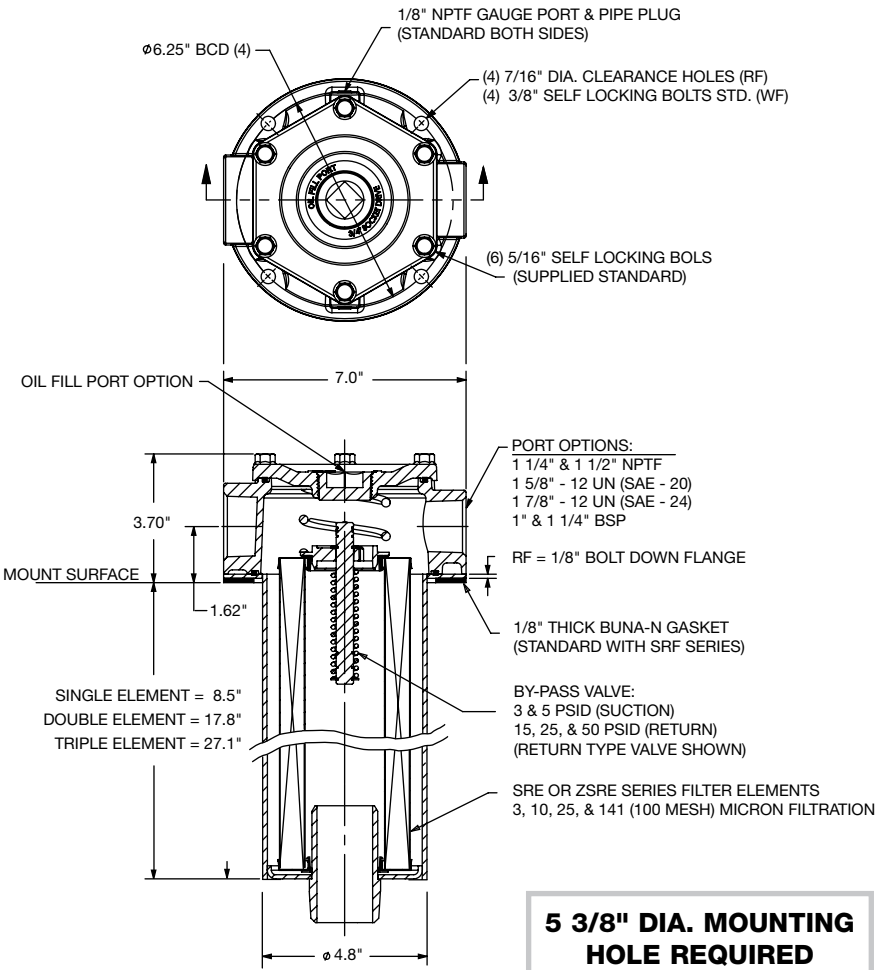
Consult Manufacturer for Ordering Information



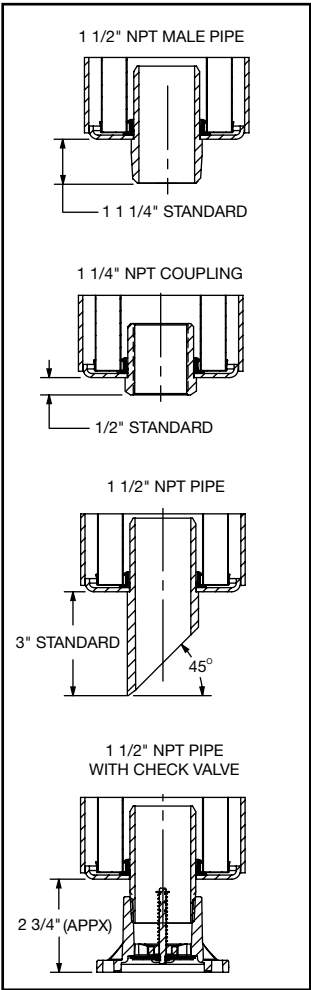


SRF SERIES SUCTION / RETURN LINE TANK-TOP FILTERS

Flows Up To: 83 GPM (Return) 28 GPM (Suction)
Port Sizes: 1 1/4" & 1 1/2" NPTF
1 5/8" - 12 UN (SAE - 20)
1 7/8" - 12 UN (SAE - 24)
1" & 1 1/4" BSP
Pressure: 100 PSI Max Operating
Temperature: Up to 250°F Operating
Application: Petroleum-based fluids
Consult factory for synthetic fluids



BOTTOM PORT OPTIONS:



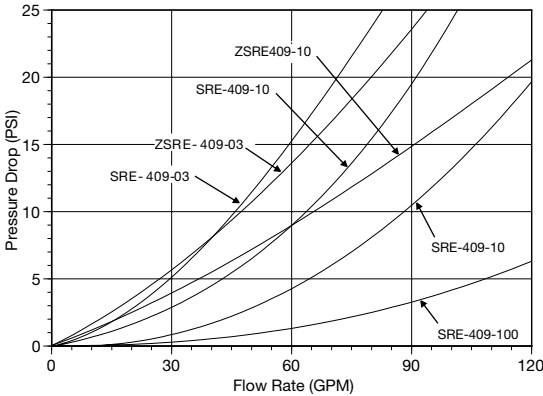
Design Features:

- Radial seal grommet used in SRE Series filter elements.
- Filter housing mounting bolt pattern matches Zinga RF, TR, and TS series as well as Schroeder ST, RT, and LRT series housings.
- SRF series housings are fully compatible with Schroeder K series elements.

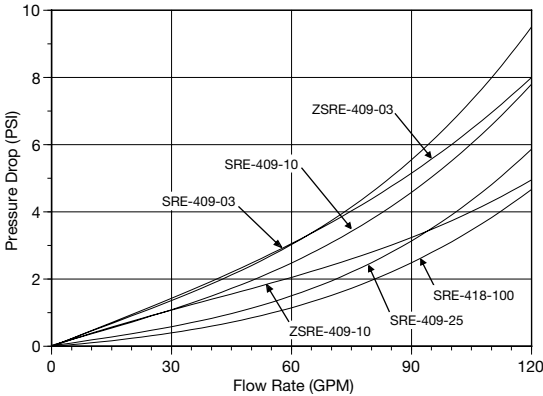
Consult Manufacturer for Ordering Information



Average Pressure Drop Through Clean Filter Assembly With 150 SUS Oil At 105° F

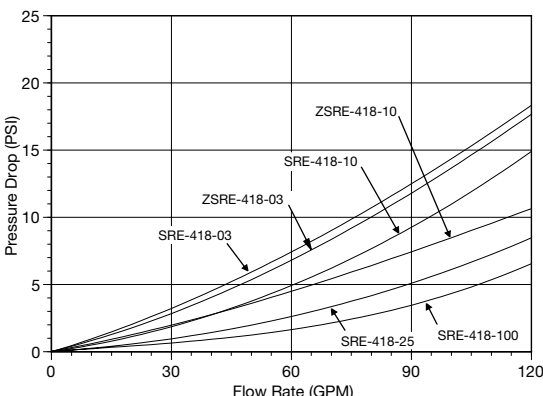


Single Length Element

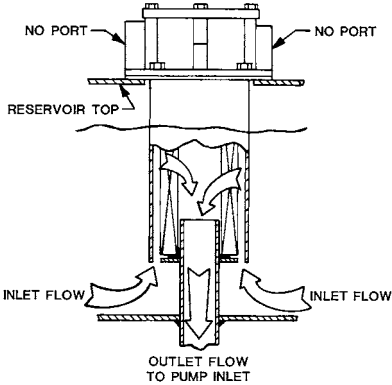


Triple Length Element

Additional SRE Element Data: See Page 45



Double Length Element



Application: Bottom Flow Filter

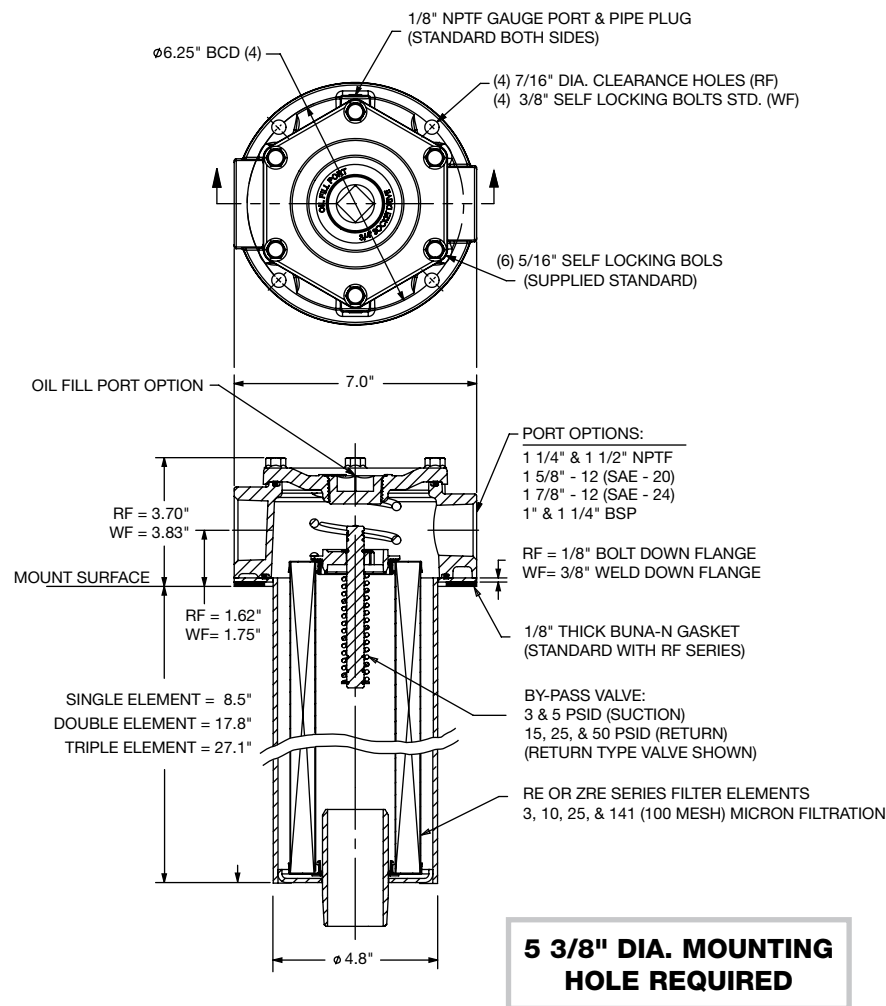
Consult Manufacturer for Ordering Information



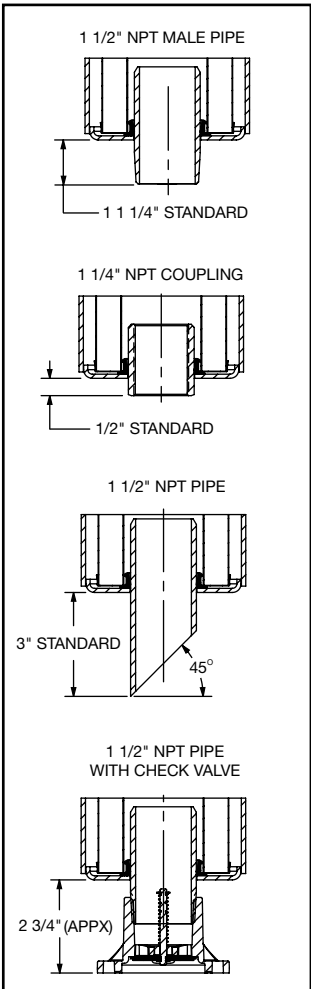


RF SERIES (100 PSI) WF SERIES (500 PSI) TANK-TOP FILTERS

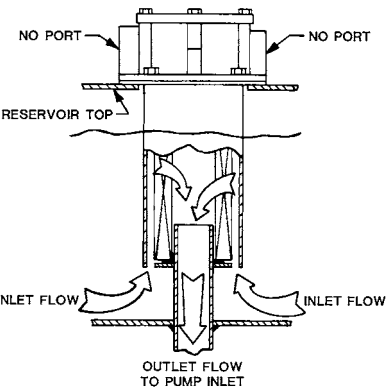
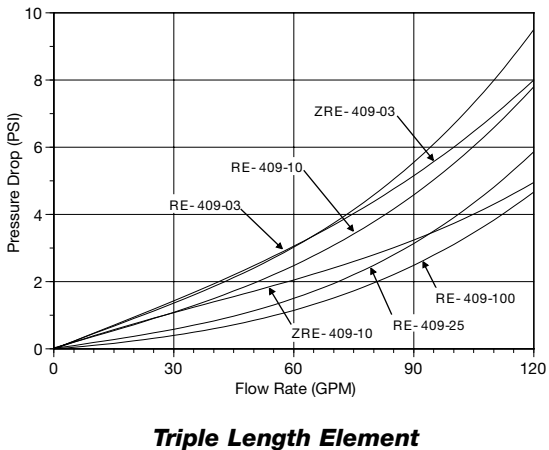
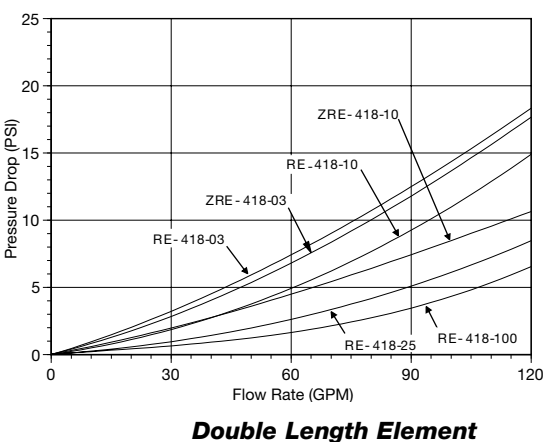
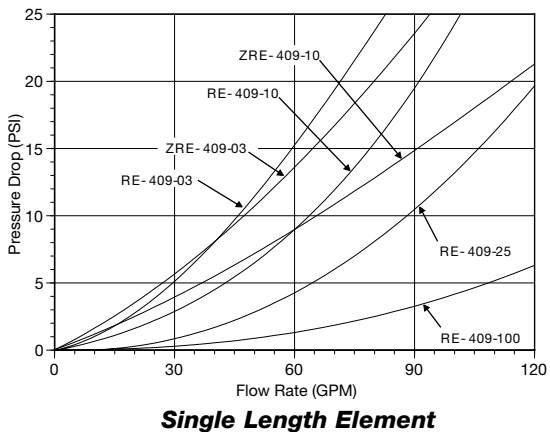
Flows Up To: 96 GPM (Return) 32 GPM (Suction)
Port Sizes: 1 1/4" & 1 1/2" NPTF
1 5/8" - 12 (SAE - 20)
1 7/8" - 12 (SAE - 24)
1" & 1 1/4" BSP
Max. Operating Pressure: RF - 100 PSI, WF - 500 PSI
Temperature: Up to 250°F Operating
Application: Petroleum-based fluids only
Consult factory for synthetic fluids



BOTTOM PORT OPTIONS:



Average Pressure Drop Through Clean Filter Assembly With 150 SUS Oil At 105° F

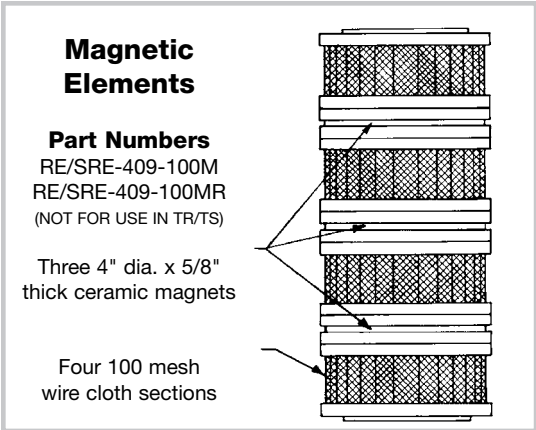
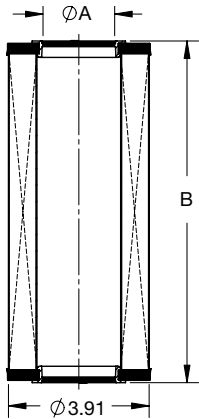


Application: Bottom Flow Filter

RE Element Data: See Pages 46

SRE & ZSRE SERIES FILTER ELEMENTS						
Use in SRF & TS Housings Or as Direct Interchange for Schroeder "K" Series Elements.						
Part Number	Nominal Rating	Absolute Rating	Media Type	(A) ID	(B) Length	Flow Direction Through Element
SRE40903	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	Cellulose	1.61"	9.19"	Bi-Directional
SRE40903AZ**	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	Aqua-Zorb	1.61"	9.19"	Outside to Inside
SRE40910	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	Cellulose	1.61"	9.19"	Bi-Directional
SRE40910AZ**	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	Aqua-Zorb	1.61"	9.19"	Outside to Inside
SRE40925	$\beta_{19\mu(c)} = 2$	$\beta_{36\mu(c)} = 75$	Cellulose	1.61"	9.19"	Bi-Directional
SRE41803	$\beta_{5\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	Cellulose	1.61"	18.19"	Bi-Directional
SRE41810	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	Cellulose	1.61"	18.19"	Bi-Directional
SRE41825	$\beta_{19\mu(c)} = 2$	$\beta_{36\mu(c)} = 75$	Cellulose	1.61"	18.19"	Bi-Directional
SRE409100*	141 Micron	-----	SS Mesh	1.61"	9.19"	Outside to Inside
SRE409100R*	141 Micron	-----	SS Mesh	1.61"	9.19"	Inside to Outside
SRE409100M*	141 Micron	-----	SS Mesh	1.61"	9.19"	Outside to Inside
SRE409100MR*	141 Micron	-----	SS Mesh	1.61"	9.19"	Inside to Outside
ZSRE40903	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	1.61"	9.19"	Outside to Inside
ZSRE40903R	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	1.61"	9.19"	Inside to Outside
ZSRE40910	$\beta_{<4\mu(c)} = 2$	$\beta_{12\mu(c)} = 1000$	Z-Glass	1.61"	9.19"	Outside to Inside
ZSRE40910R	$\beta_{<4\mu(c)} = 2$	$\beta_{12\mu(c)} = 1000$	Z-Glass	1.61"	9.19"	Inside to Outside
ZSRE41803	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	1.61"	18.19"	Outside to Inside
ZSRE41803R	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	1.61"	18.19"	Inside to Outside
ZSRE41810	$\beta_{<4\mu(c)} = 2$	$\beta_{12\mu(c)} = 1000$	Z-Glass	1.61"	18.19"	Outside to Inside
ZSRE41810R	$\beta_{<4\mu(c)} = 2$	$\beta_{12\mu(c)} = 1000$	Z-Glass	1.61"	18.19"	Inside to Outside

- Note:**
- * 1. 100 mesh stainless steel wire cloth standard for 141 micron elements. 30, 60, and 200 mesh optional.
 - ** 2. **Aqua-Zorb** filter media retains up to 11 oz. of free water. Any absorbed water cannot be liberated from the media. As the element becomes saturated with water, the **Aqua-Zorb** media continues to swell, and will ultimately curtail flow through the filter. Not for use with water-glycols.
 - 3. SRE and ZSRE are equipped with a Buna-N grommet (radial) seal as standard. (Fluorocarbon Available)

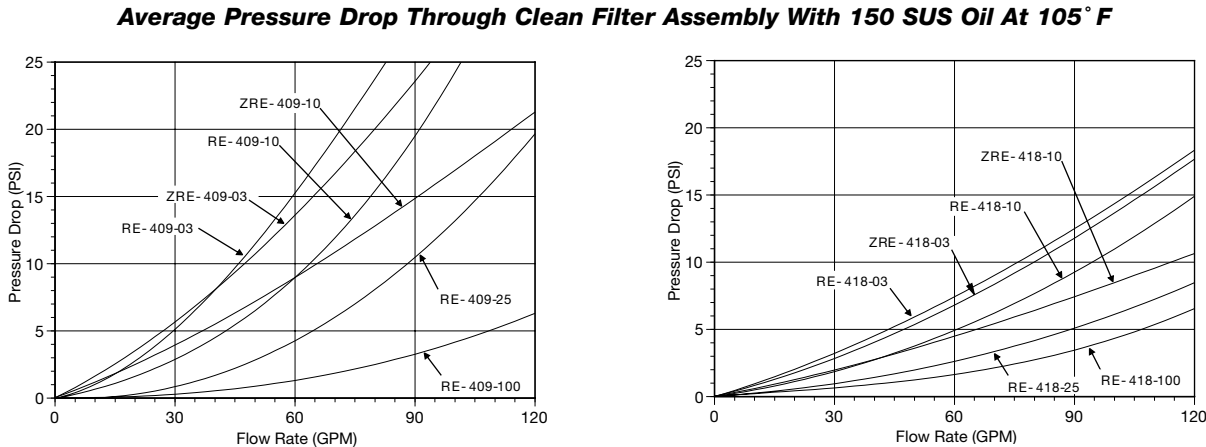


Consult Manufacturer for Ordering Information



RE & ZRE SERIES FILTER ELEMENTS						
Use in RF, WF & TR Housings						
Part Number	Nominal Rating	Absolute Rating	Media Type	(A) ID	(B) Length	Flow Direction Through Element
RE40903	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	Cellulose	1.96"	9.19"	Bi-Directional
RE40903AZ**	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	Aqua-Zorb	1.96"	9.19"	Outside to Inside
RE40910	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	Cellulose	1.96"	9.19"	Bi-Directional
RE40910AZ**	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	Aqua-Zorb	1.96"	9.19"	Outside to Inside
RE40925	$\beta_{19\mu(c)} = 2$	$\beta_{36\mu(c)} = 75$	Cellulose	1.96"	9.19"	Bi-Directional
RE41803	$\beta_{5\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	Cellulose	1.96"	18.19"	Bi-Directional
RE41810	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	Cellulose	1.96"	18.19"	Bi-Directional
RE41825	$\beta_{19\mu(c)} = 2$	$\beta_{36\mu(c)} = 75$	Cellulose	1.96"	18.19"	Bi-Directional
RE409100*	141 Micron	-----	SS Mesh	1.96"	9.19"	Outside to Inside
RE409100R*	141 Micron	-----	SS Mesh	1.96"	9.19"	Inside to Outside
RE409100M*	141 Micron	-----	SS Mesh	1.96"	9.19"	Outside to Inside
RE409100MR*	141 Micron	-----	SS Mesh	1.96"	9.19"	Inside to Outside
ZRE40903	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	1.96"	9.19"	Outside to Inside
ZRE40903R	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	1.96"	9.19"	Inside to Outside
ZRE40910	$\beta_{<4\mu(c)} = 2$	$\beta_{12\mu(c)} = 1000$	Z-Glass	1.96"	9.19"	Outside to Inside
ZRE40910R	$\beta_{<4\mu(c)} = 2$	$\beta_{12\mu(c)} = 1000$	Z-Glass	1.96"	9.19"	Inside to Outside
ZRE41803	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	1.96"	18.19"	Outside to Inside
ZRE41803R	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	1.96"	18.19"	Inside to Outside
ZRE41810	$\beta_{<4\mu(c)} = 2$	$\beta_{12\mu(c)} = 1000$	Z-Glass	1.96"	18.19"	Outside to Inside
ZRE41810R	$\beta_{<4\mu(c)} = 2$	$\beta_{12\mu(c)} = 1000$	Z-Glass	1.96"	18.19"	Inside to Outside

- Note:**
- * 1. 100 mesh stainless steel wire cloth standard for 141 micron elements. 30, 60, and 200 mesh optional.
 - ** 2. **Aqua-Zorb** filter media retains up to 11 oz. of free water. Any absorbed water cannot be liberated from the media. As the element becomes saturated with water, the **Aqua-Zorb** media continues to swell, and will ultimately curtail flow through the filter. Not for use with water-glycols.
 - 3. RE and ZRE are equipped with a Buna-N grommet (radial) seal as standard. (Fluorocarbon Available)



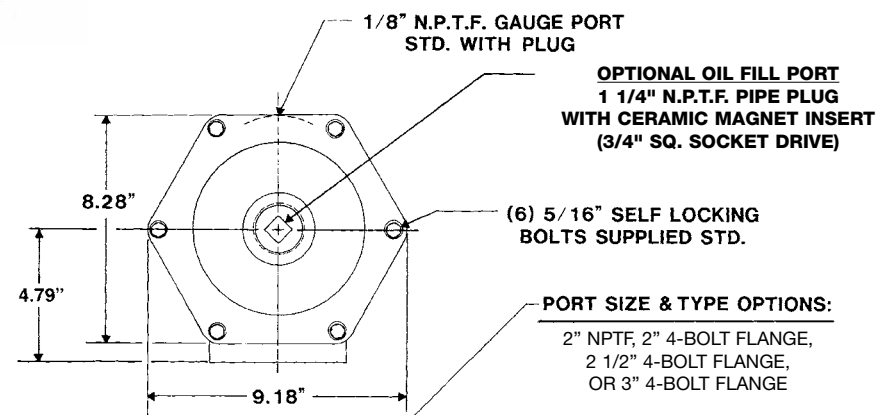
Consult Manufacturer for Ordering Information



WF-2 SERIES TANK-TOP FILTER



Flows Up To: 300 GPM (Return) 100 GPM (Suction)
 Port Sizes: 2" NPTF
 2" 4-Bolt Flange
 2 1/2" 4-Bolt Flange
 3" 4-Bolt Flange
 Pressure: 300 PSI Max. Operating Pressure
 Temperature: Up to 250°F
 Application: Petroleum-based fluids.

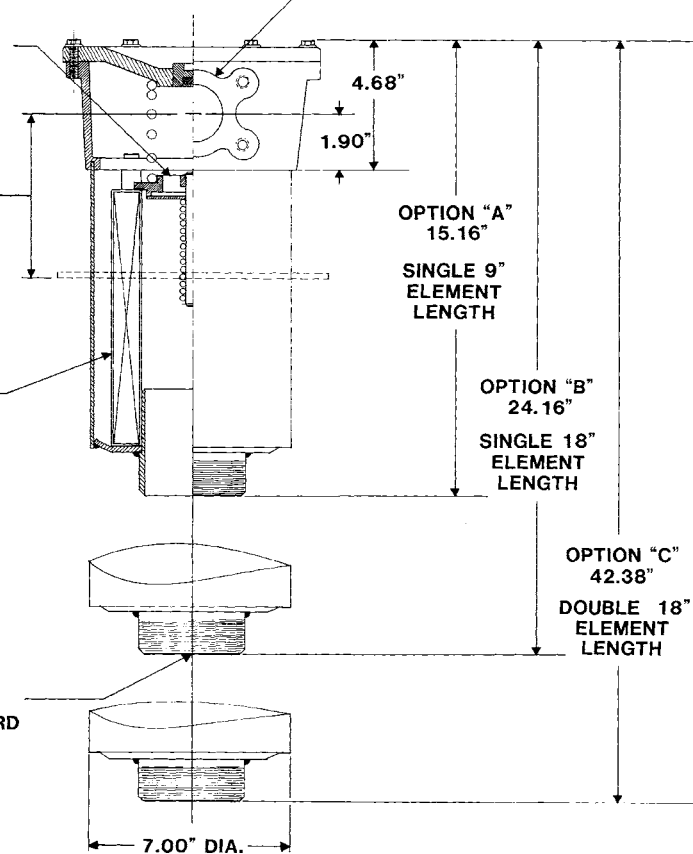


**OPTIONAL BY-PASS
VALVE SETTINGS:**
 3 & 5 PSID (SUCTION)
 15, 25, & 50 (RETURN)

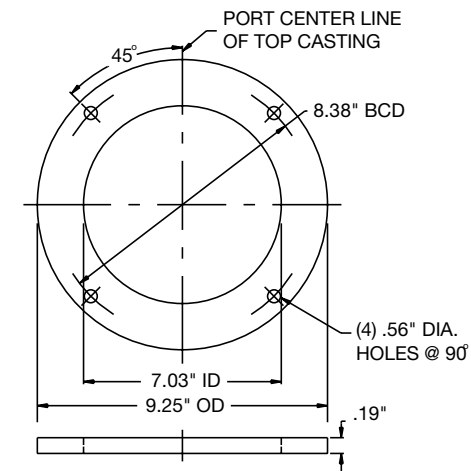
2.5" MINIMUM
 OPTIONAL BOLT OR WELD FLANGE
 CAN BE WELDED TO HOUSING
 CUSTOMER HEIGHT SPECIFICATIONS
 BY FACTORY AT EXTRA COST

"WE" SERIES FILTER ELEMENTS

3" N.P.T. x 2" LG.
 MALE PIPE STANDARD



Optional Mounting Flanges



Bolt Flange (Part Number WF-10):

- For bolt down installation to reservoir.
- Bolt flange supplied with 1/8" thick gasket.

Weld Flange (Part Number WF-09):

- For weld in place installation on reservoir.
- Weld flange identical to bolt flange except without bolt clearance holes and gasket.

Note:

- 7.06" to 7.38" dia. hole in reservoir wall required for proper installation.
- Flanges can be welded to filter housings by factory as an extra cost option. Specify the desired height required from port center line to mounting surface (reservoir wall), 2.5" minimum.

Consult Manufacturer for Ordering Information

Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17



Consult Manufacturer for Ordering Information

Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17

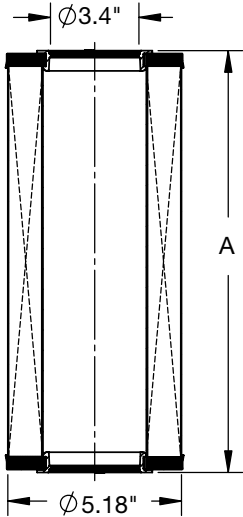
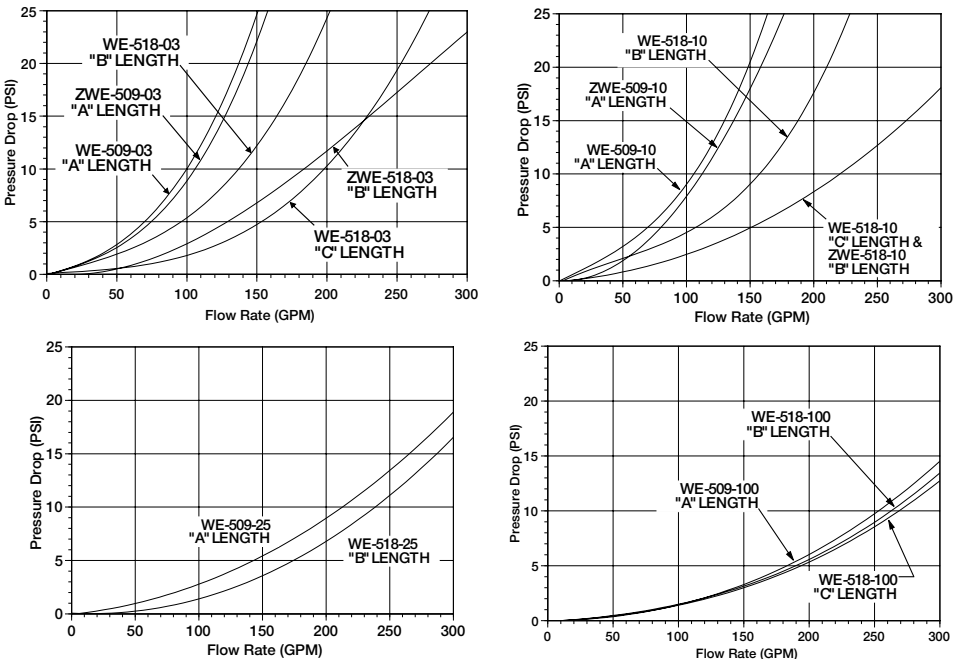
WE & ZWE SERIES FILTER ELEMENTS

For use in WF2 Housings

Part Number	Nominal Rating	Absolute Rating	Media Type	(A) Length	Flow Direction Through Element
WE50903	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	Cellulose	9.13"	Bi-Directional
WE50910	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	Cellulose	9.13"	Bi-Directional
*WE509100	141 Micron		SS Mesh	9.13"	Outside To Inside
*WE509100R	141 Micron		SS Mesh	9.13"	Inside To Outside
WE50925	$\beta_{19\mu(c)} = 2$	$\beta_{30\mu(c)} = 75$	Cellulose	9.13"	Bi-Directional
WE51803	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	Cellulose	18.13"	Bi-Directional
**WE51803AZ	$\beta_{<4\mu(c)} = 2$	$\beta_{11\mu(c)} = 75$	Aqua-Zorb	18.13"	Bi-Directional
WE51810	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	Cellulose	18.13"	Bi-Directional
**WE51810AZ	$\beta_{5\mu(c)} = 2$	$\beta_{19\mu(c)} = 75$	Aqua-Zorb	18.13"	Bi-Directional
*WE518100	141 Micron		SS Mesh	18.13"	Outside To Inside
*WE518100R	141 Micron		SS Mesh	18.13"	Inside To Outside
WE51825	$\beta_{19\mu(c)} = 2$	$\beta_{30\mu(c)} = 75$	Cellulose	18.13"	Bi-Directional
ZWE50903	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	9.13"	Outside To Inside
ZWE50903R	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	9.13"	Inside To Outside
ZWE50910	$\beta_{<4\mu(c)} = 2$	$\beta_{13\mu(c)} = 1000$	Z-Glass	9.13"	Outside To Inside
ZWE50910R	$\beta_{<4\mu(c)} = 2$	$\beta_{13\mu(c)} = 1000$	Z-Glass	9.13"	Inside To Outside
ZWE51803	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	18.13"	Outside To Inside
ZWE51803R	$\beta_{<4\mu(c)} = 2$	$\beta_{7\mu(c)} = 1000$	Z-Glass	18.13"	Inside To Outside
ZWE51810	$\beta_{<4\mu(c)} = 2$	$\beta_{13\mu(c)} = 1000$	Z-Glass	18.13"	Outside To Inside
ZWE51810R	$\beta_{<4\mu(c)} = 2$	$\beta_{13\mu(c)} = 1000$	Z-Glass	18.13"	Inside To Outside

Note:

- * 1. 100 mesh stainless steel wire cloth standard for 141 micron elements. 30, 60, and 200 mesh optional.
- ** 2. **Aqua-Zorb** filter media retains up to 11 oz. of free water. Any absorbed water cannot be liberated from the media. As the element becomes saturated with water, the **Aqua-Zorb** media continues to swell, and will ultimately curtail flow throughout the filter. Not for use with water-glycols.



Average pressure drop through clean assembly with 150 SUS oil at 105° F

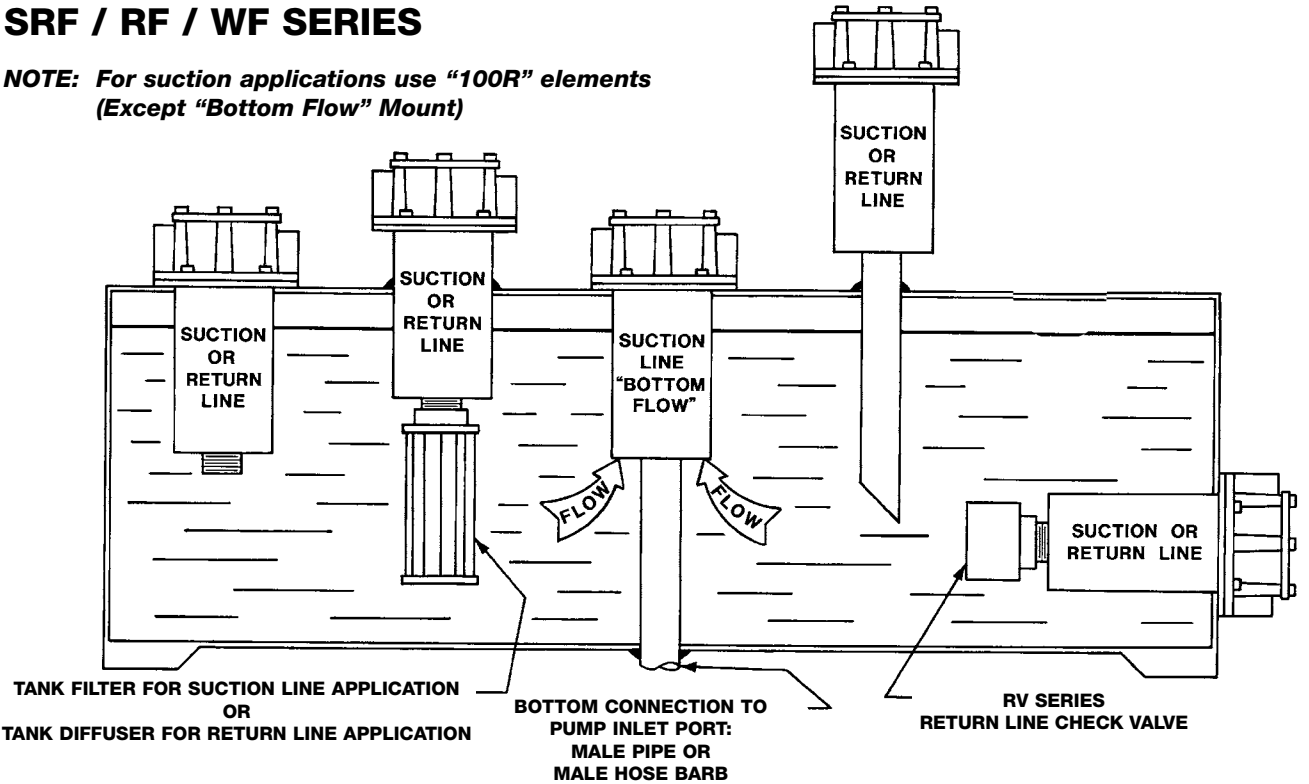
Consult Manufacturer for Ordering Information



TYPICAL TANK-TOP FILTER INSTALLATIONS

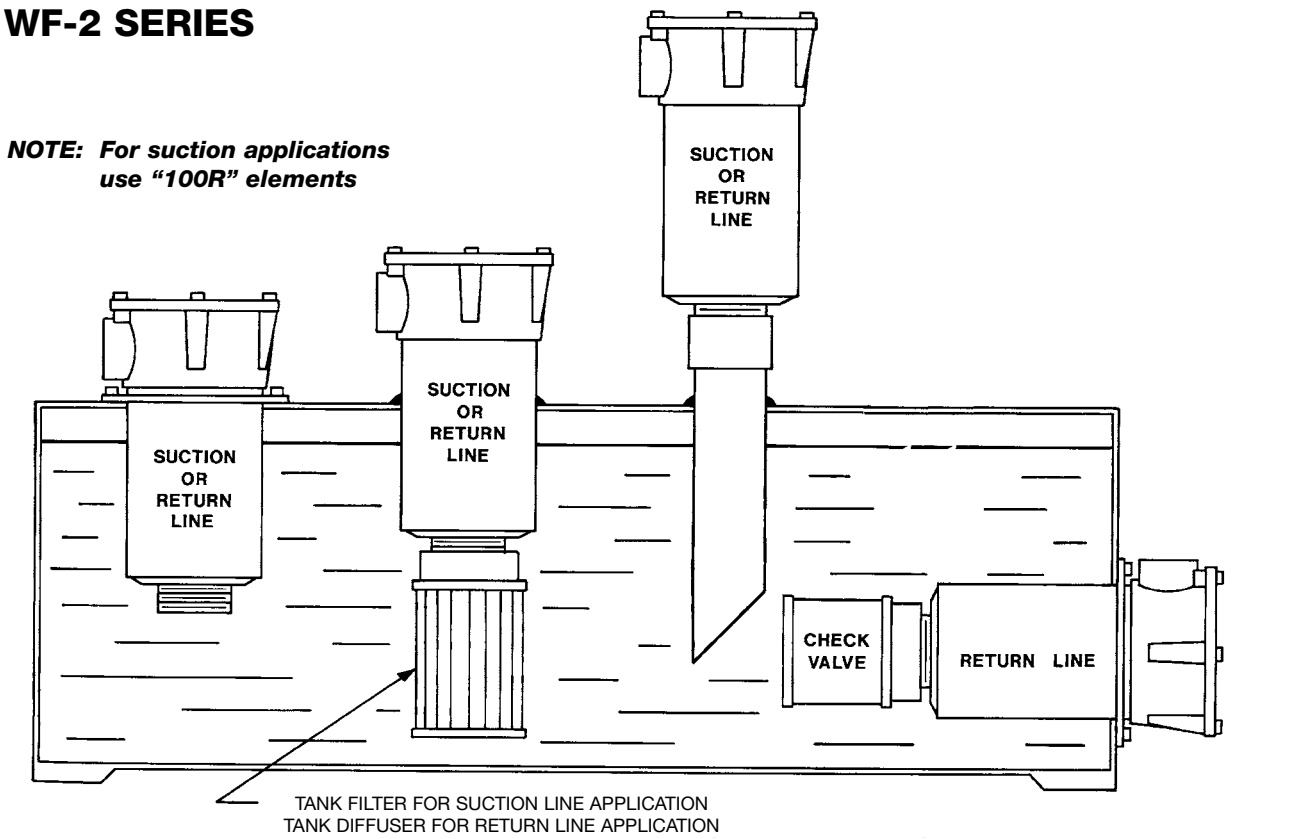
SRF / RF / WF SERIES

NOTE: For suction applications use "100R" elements (Except "Bottom Flow" Mount)



WF-2 SERIES

NOTE: For suction applications use "100R" elements



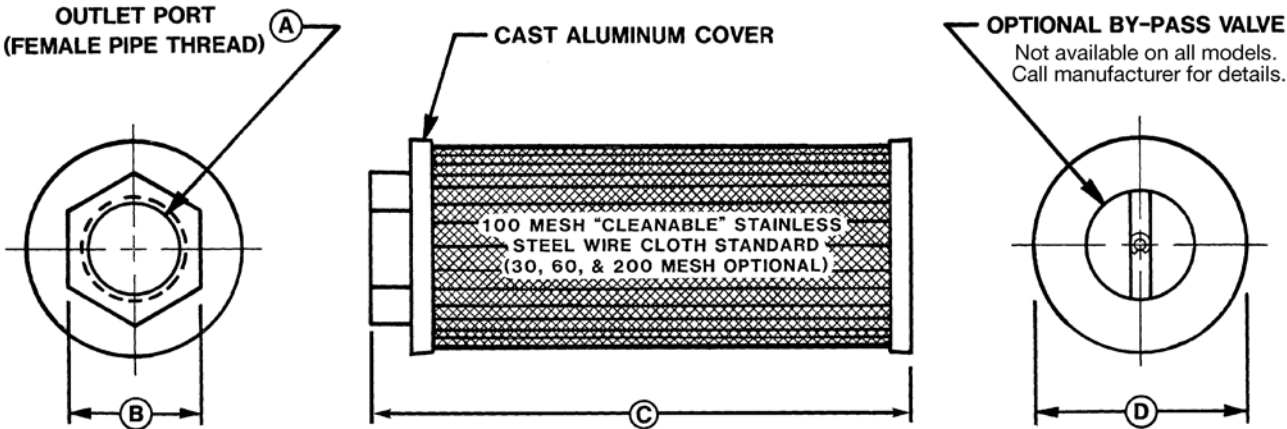
Consult Manufacturer for Ordering Information





SS & MS SERIES
INTERNALLY MOUNTED
TANK FILTER

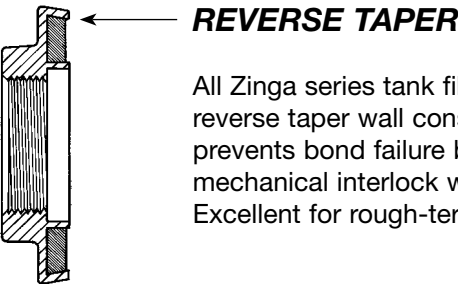
Port Sizes: 3/8" Through 6" NPTF
Media: 100 Mesh Standard
Optional By-pass: 3 PSI (6" Hg) or 5 PSI (10" Hg)
Operating Temperature: Up to 250°F



Model	A Outlet Port	B Wrench Flat	C Overall Length	D OD	Rated Flow @ 5 Ft/Sec
MS030X0*	3/8" NPTF	1.2"	2.6"	1.1"	3 GPM
SS030X0*	3/8" NPTF	1.13"	2.2"	3.2"	3 GPM
MS050X0*	1/2" NPTF	1.2"	2.6"	1.1"	5 GPM
SS050X0*	1/2" NPTF	1.13"	2.2"	3.2"	5 GPM
MS070XX*	3/4" NPTF	1.5"	3.9"	1.5"	8 GPM
SS070XX*	3/4" NPTF	1.75"	3.6"	3.2"	8 GPM
MS100XX*	1" NPTF	1.75"	3.9"	1.7"	14 GPM
SS100XX*	1" NPTF	1.75"	4.6"	3.2"	14 GPM
SS120XX*	1 1/4" NPTF	2.25"	6.6"	3.2"	23 GPM
SS150XX*	1 1/2" NPTF	2.25"	8.6"	3.2"	32 GPM
SS154XX*	1 1/2" NPTF	2.25"	7.2"	4.2"	32 GPM
SS200XX*	2" NPTF	3.0"	7.2"	4.2"	53 GPM
SS250XX*	2 1/2" NPTF	3.5"	9.3"	4.2"	75 GPM
SS300XX*	3" NPTF	4.0"	12.4"	4.2"	116 GPM
SS400XX*	4" NPT	NA	20.1"	9.0"	200 GPM
SS600XX*	6" NPT	NA	20.1"	9.0"	450 GPM

All strainers are rated at 5 ft/sec with a pressure drop of under 1" Hg (1/2 PSI) with 150 SUS oil.

*Additional information required to place an order. Contact factory for assistance.



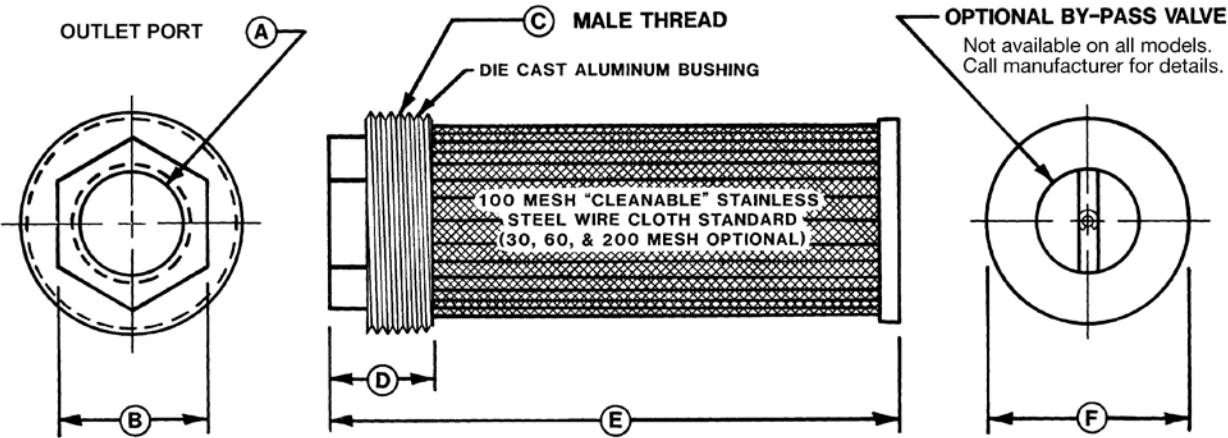
All Zinga series tank filter end caps have reverse taper wall construction. This feature prevents bond failure by ensuring a positive mechanical interlock with the epoxy adhesive. Excellent for rough-terrain vehicle applications.

Consult Manufacturer for Ordering Information



TF SERIES
TANK FILTER
EXTERNALLY MOUNTED

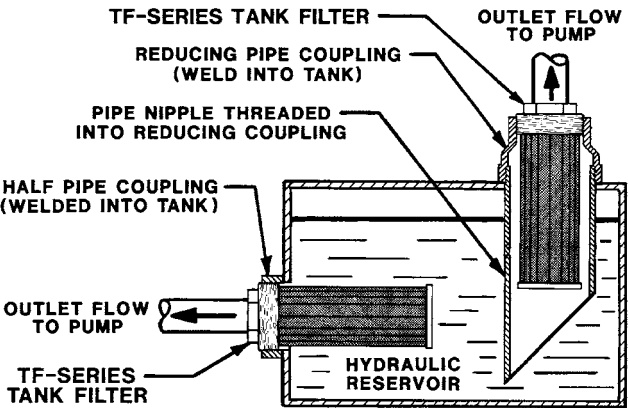
Port Sizes: 3/8" Through 4" NPTF
Media: 100 Mesh Standard
Optional By-pass: 3 PSI (6" Hg) or 5 PSI (10" Hg)
Operating Temperature: Up to 250°F
Other Options: Magnetic Options Available



Model	A Outlet Port	B Hex Size	C Male Thread	D Fitting Length	E	F Cover Dia.	Rated Flow @ 5 Ft/Sec
TF0310X0*	3/8" NPTF	1.2"	1" NPTF	1.1"	2.6"	1.1"	3 GPM
TF0510XX*	1/2" NPTF	1.2"	1" NPTF	1.1"	4.9"	1.1"	5 GPM
TF0712XX*	3/4" NPTF	1.5"	1 1/4" NPTF	1.1"	6.9"	1.5"	8 GPM
TF1015XX*	1" NPTF	1.75"	1 1/2" NPTF	1.1"	6.9"	1.7"	14 GPM
TF1030XX*	1" NPTF	2.5"	3" NPTF	1.5"	4.7"	3.2"	14 GPM
TF1220XX*	1 1/4" NPTF	2.1"	2" NPTF	1.2"	9.1"	2.2"	23 GPM
TF1230XX*	1 1/4" NPTF	2.5"	3" NPTF	1.5"	6.7"	3.2"	23 GPM
TF1530XX*	1 1/2" NPTF	2.5"	3" NPTF	1.5"	8.7"	3.2"	32 GPM
TF1630XX*	1 5/8"-12 (SAE-20)	2.5"	3" NPTF	1.5"	8.7"	3.2"	14 GPM
TF1830XX*	1 7/8"-12 (SAE-24)	2.5"	3" NPTF	1.5"	8.7"	3.2"	21 GPM
TF2030XX*	2" NPTF	3.06"	3" NPTF	1.6"	8.8"	3.2"	53 GPM
TF2040XX*	2" NPTF	4.13"	4" NPTF	1.8"	7.7"	4.2"	53 GPM
TF2540XX*	2 1/2" NPTF	4.13"	4" NPTF	2.1"	9.7"	4.2"	75 GPM
TF3040XX*	3" NPTF	4.13"	4" NPTF	2.1"	12.7"	4.2"	116 GPM
TF4060XX*	4" NPT	5.8"	6" NPTF	2.3"	12.4"	6.0"	200 GPM

All strainers are rated at 5 ft/sec with a pressure drop of under 1" Hg (1/2 PSI) with 150 SUS oil.

*Additional information required to place an order. Contact factory for assistance.



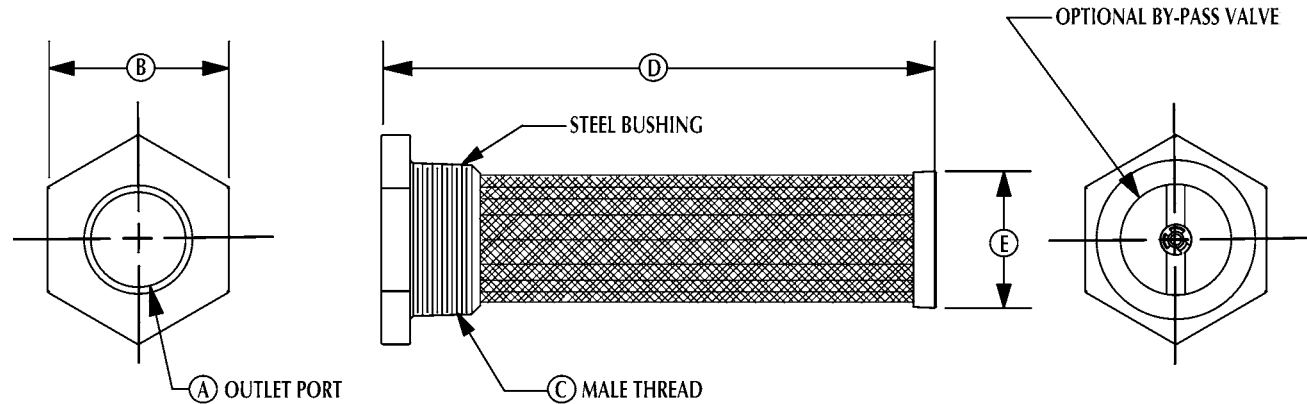
Consult Manufacturer for Ordering Information





TFS SERIES STEEL BUSHING TANK FILTER EXTERNALLY MOUNTED

Port Sizes: 1/2" Through 3" NPT
Media: 100 Mesh Standard
Optional By-pass: 3 PSI (6" Hg) or 5 PSI (10" Hg)
Operating Temperature: Up to 250°F



Model	A Outlet Port	B Hex Size	C Male Thread	D Overall Length	E Cover Dia.	Rated Flow @ 5 Ft/Sec
TFS0510XX*	1/2" NPT	1.38"	1" NPT	5.3"	1.1"	5 GPM
TFS0712XX*	3/4" NPT	1.80"	1 1/4" NPT	6.9"	1.5"	8 GPM
TFS1015XX*	1" NPT	2.23"	1 1/2" NPT	7.1"	1.7"	14 GPM
TFS1220XX*	1 1/4" NPT	2.58"	2" NPT	9.1"	2.2"	23 GPM
TFS1540XX*	1 1/2" NPT	2.70"	4" NPT	9.2"	4.2"	32 GPM
TFS2030XX*	2" NPT	3.30"	3" NPT	9.4"	3.2"	53 GPM
TFS2540XX*	2 1/2" NPT	3.83"	4" NPT	9.1"	4.2"	75 GPM
TFS3040XX*	3" NPT	4.65"	4" NPT	9.4"	4.2"	116 GPM

All strainers are rated at 5 ft/sec with a pressure drop of under 1" Hg (1/2 PSI) with 150 SUS oil.

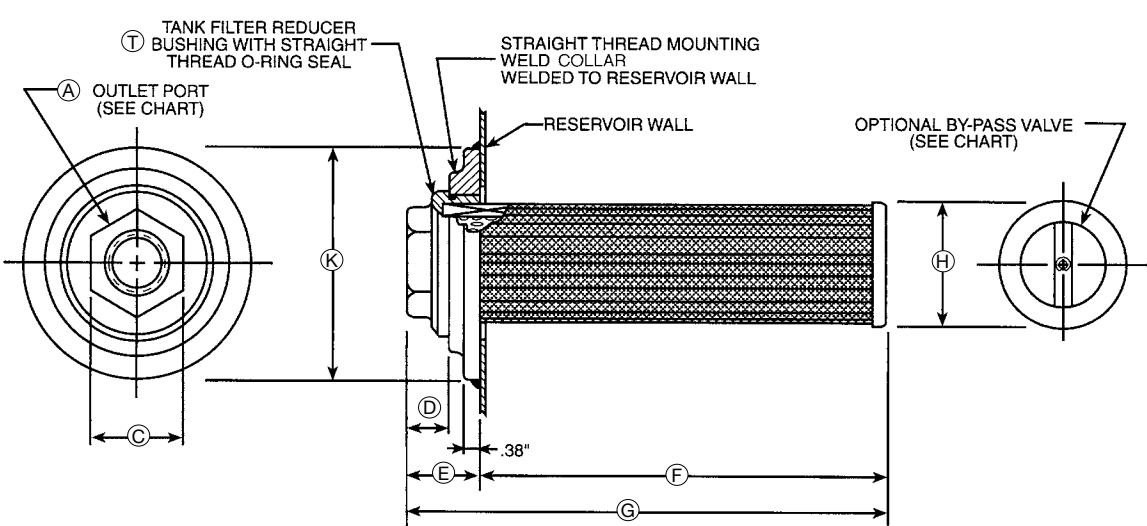
*Additional information required to place an order. Contact factory for assistance.

Consult Manufacturer for Ordering Information



TF & TFS SERIES O-RING SEAL TANK STRAINER & MOUNTING WELD COLLAR

Port Sizes: 1 5/8"-12 SAE to 2 1/2"-12 SAE
Media: 100 Mesh Standard
Optional By-pass: 3 PSI (6" Hg) or 5 PSI (10" Hg)
Operating Temperature: Up to 250°F



Design provides leak-proof service by using a male straight-thread o-ring seal that mates with a female straight-thread collar welded to the reservoir.

Model	T Thread	A Outlet Port	C Hex	D	E	F	G	H Dia.	Rated Flow @ 5 Ft/Sec
TFS1625XX*	2 1/2"-12 UN-2A	1 5/8"-12 (SAE-20)	2.75"	.8"	1.3"	7.9"	9.2"	2.2"	14 GPM
TF1634XX*	3 3/8"-12 UN-2A	1 5/8"-12 (SAE-20)	2.44"	.9"	1.5"	5.2"	6.7"	3.2"	14 GPM
TF1834XX*	3 3/8"-12 UN-2A	1 7/8"-12 (SAE-24)	2.44"	.9"	1.5"	7.2"	8.7"	3.2"	21 GPM
TFS3234XX*	3 3/8"-12 UN-2A	2 1/2"-12(SAE-32)	3.5"	.7"	1.2"	7.8"	9.1"	3.2"	39 GPM

All strainers are rated at 5 ft/sec with a pressure drop of under 1" Hg (1/2 PSI) with 150 SUS oil.

*Additional information required to place an order. Contact factory for assistance.

Notes:

- 1. Buna-N O-ring supplied as standard, fluo-rocarbon available.
- 2. TFS: Steel-reducer bushing.
TF: Cast-aluminum reducer bushing.

Weld Collars		
Part Number	T Thread	K Dia.
WC1225	2 1/2" - 12 UN-2B	3.9"
WC1634	3 3/8" - 12 UN-2B	5.0"
Please Order Separately		

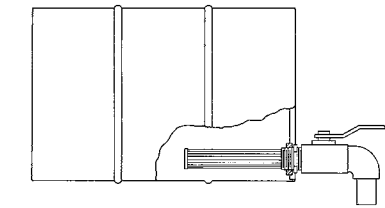
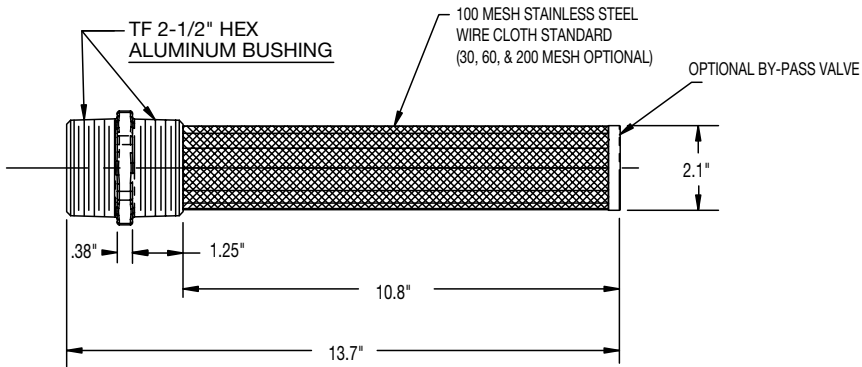
Consult Manufacturer for Ordering Information



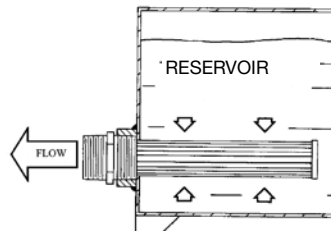
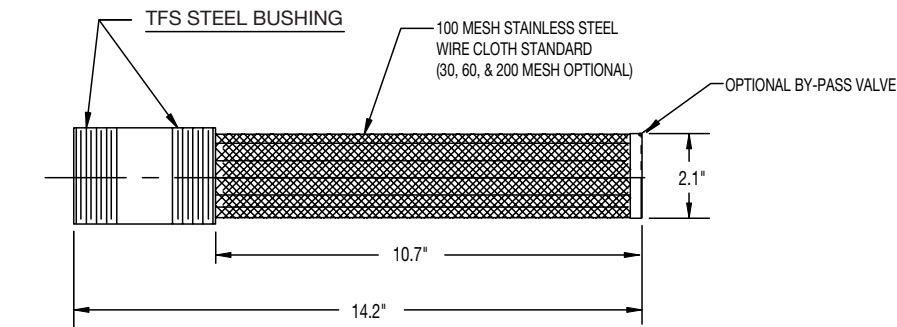


TF SERIES
MALE NPTF
TANK FILTER

Port Sizes: 2" Through 2 1/2" NPTF
Media: 100 Mesh Standard
Optional By-pass: 3 PSI (6" Hg) or 5 PSI (10" Hg)
Operating Temperature: Up to 250°F



TF-2020 Used As A Strainer In A 55 Gallon Barrel With a 2" Ball Valve Directly Attached



Suction Line Straining Application

Commonly Ordered Configuration

TFS2020XX*

All strainers rated at 5 ft/sec with a pressure drop of under 1" Hg (1/2 PSI) with 150 SUS oil.

*Additional information required to place an order. Contact factory for assistance.

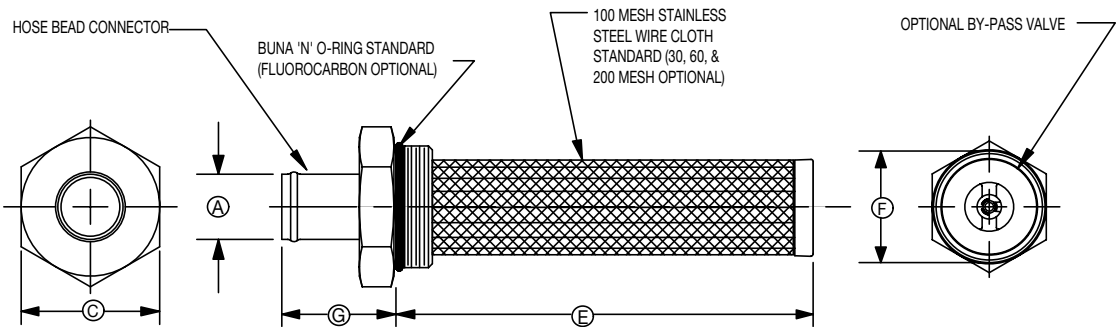
Consult Manufacturer for Ordering Information



BTF SERIES
HOSE BEAD TANK FILTER &
MOUNTING WELD COLLAR

Port Sizes: 3/4" Through 1 1/4" Hose
External Thread: NPTF and Straight w/ O-ring Seal
Media: 100 Mesh Standard
Optional By-pass: 3 PSI (6" Hg) or 5 PSI (10" Hg)
Operating Temperature: Up to 250°F

Hose Bead to Male Straight-Thread Fitting O-Ring and Mounting Weld Collar

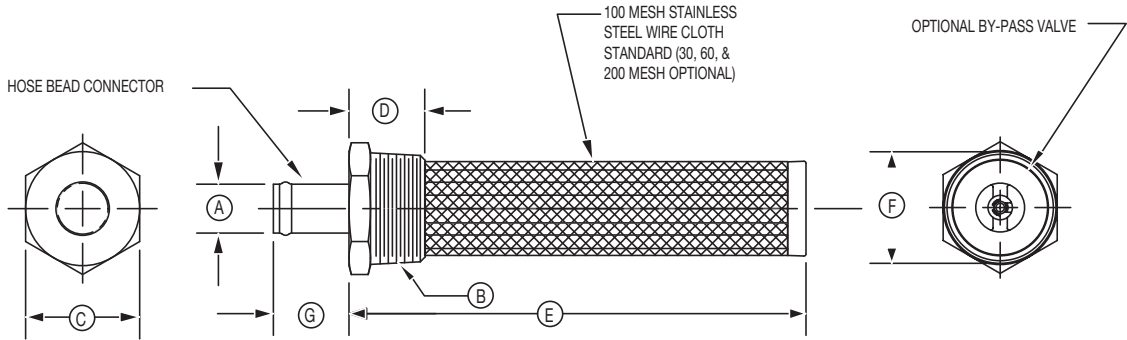


Model	A	B Thread	C Hex	E Length	F Dia.	G Length	Rated Flow 5 Ft/Sec
BTF0716XX*	.8"	1 5/8"-12UN-2A	1.88"	6.4"	1.5"	1.6"	5 GPM
BTF1018XX*	1.0"	1 7/8"-12UN-2A	2.13"	6.4"	1.7"	1.7"	10 GPM
BTF1225XX*	1.3"	2 1/2"-12UN-2A	2.75"	8.4"	2.7"	1.9"	16 GPM

*Additional information required to place an order. Contact factory for assistance.

Weld Collar		
Part Number	B Thread	O.D.
WC0716	1 5/8"-12UN-2B	2.75"
WC1018	1 7/8"-12UN-2B	3.06"
WC1225	2 1/2"-12UN-2B	3.88"
Ordered Separately From Filter		

Hose Bead-to-Pipe Thread Seal



Model	A	B Thread	C Hex	D Length	E Length	F Dia.	G Length	Rated Flow 5 Ft/Sec
BTF0712XX*	.8"	1 1/4" NPTF	1.75"	1.2"	7.0"	1.5"	1.2"	5 GPM
BTF1015XX*	1.0"	1 1/2" NPTF	2.00"	1.2"	7.0"	1.7"	1.2"	10 GPM
BTF1220XX*	1.3"	2" NPTF	2.50"	1.3"	9.1"	2.7"	1.3"	16 GPM

All strainers rated at 5 ft/sec with a pressure drop of under 1" Hg (1/2 PSI) with 150 SUS oil.

*Additional information required to place an order. Contact factory for assistance.

Consult Manufacturer for Ordering Information

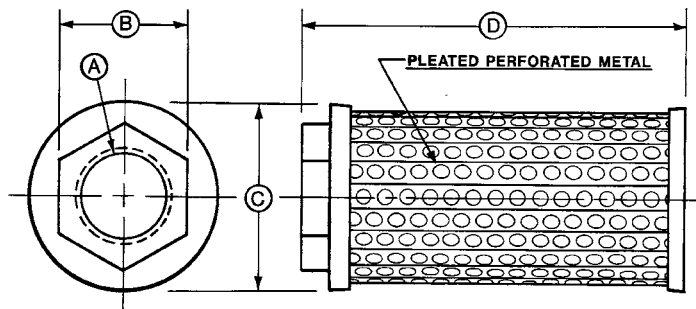




TD SERIES TANK DIFFUSERS

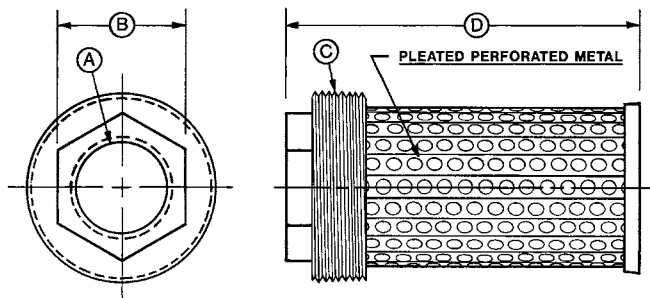
Port Sizes: 3/8" Through 6" NPTF
Operating Temperature: Up to 250°F

INTERNALLY MOUNTED PMI Series



Model Number	A Inlet Port	B Wrench Flat	C Outside Dia.	D Overall Length	Rated Flow (At 15 Ft/Sec)	Ratio of Perf Mtl Open Area vs. Pipe Int Area
TD100PMI	1" NPTF	1.75"	3.2"	3.6"	40 GPM	27 : 1
TD125PMI	1 1/4" NPTF	2.25"	3.2"	4.6"	70 GPM	22 : 1
TD150PMI	1 1/2" NPTF	2.25"	3.2"	5.6"	95 GPM	21 : 1
TD200PMI	2" NPTF	3.0"	4.2"	6.2"	157 GPM	17 : 1

EXTERNALLY MOUNTED PME Series



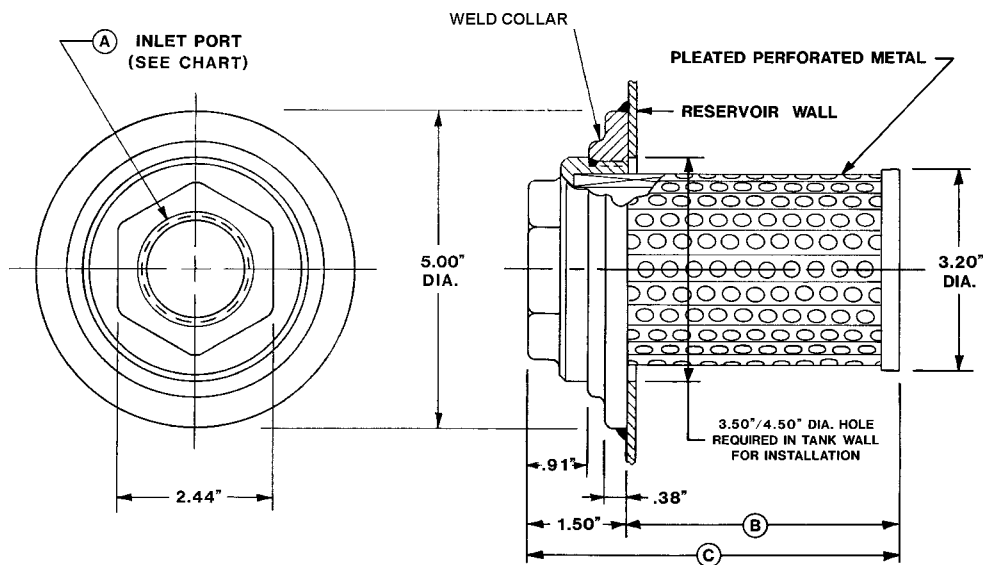
Model Number	A Inlet Port	B Wrench Flat	C Male Thread	D Overall Length	Rated Flow (At 15 Ft/Sec)	Ratio of Perf Mtl Open Area vs. Pipe Int Area
TD0310PME	3/8" NPTF	1.2"	1" NPTF	3.0"	9 GPM	25 : 1
TD0510PME	1/2" NPTF	1.12"	1" NPTF	4.0"	9 GPM	25 : 1
TD0712PME	3/4" NPTF	1.5"	1 1/4" NPTF	3.9"	25 GPM	18 : 1
TD1015PME	1" NPTF	1.75"	1 1/2" NPTF	4.9"	40 GPM	19 : 1
TD1030PME	1" NPTF	2.5"	3" NPTF	4.7"	40 GPM	31 : 1
TD1220PME	1 1/4" NPTF	2.1"	2" NPTF	5.1"	70 GPM	14 : 1
TD1230PME	1 1/4" NPTF	2.5"	3" NPTF	4.7"	70 GPM	18 : 1
TD1530PME	1 1/2" NPTF	2.5"	3" NPTF	5.7"	95 GPM	18 : 1
TD2040PME	2" NPTF	4.1"	4" NPT	6.8"	157 GPM	17 : 1
TD2540PME	2 1/2" NPTF	4.1"	4" NPT	10.8"	224 GPM	22 : 1
TD3040PME	3" NPTF	4.1"	4" NPT	10.8"	346 GPM	15 : 1
TD4060PME	4" NPTF	5.8"	6" NPT	17.5"	595 GPM	21 : 1

Consult Manufacturer for Ordering Information



TD SERIES O-RING SEAL TANK DIFFUSER

Port Sizes: SAE-20 & SAE-24
Operating Temperature: Up to 250°F



Model	A Inlet Port	B Length	C Overall Length	Rated Flow @15 Ft/Sec	Open Area Ratio
TD1634PME	1 5/8"-12UN (SAE-20)	3.2"	4.7"	43 GPM	27:1
TD1834PME	1 7/8"-12UN (SAE-24)	4.2"	5.7"	64 GPM	24:1

Please Order Weld Collar Part Number WC-1634 Separately From Tank Diffuser

WC-1634 MOUNTING WELD COLLAR



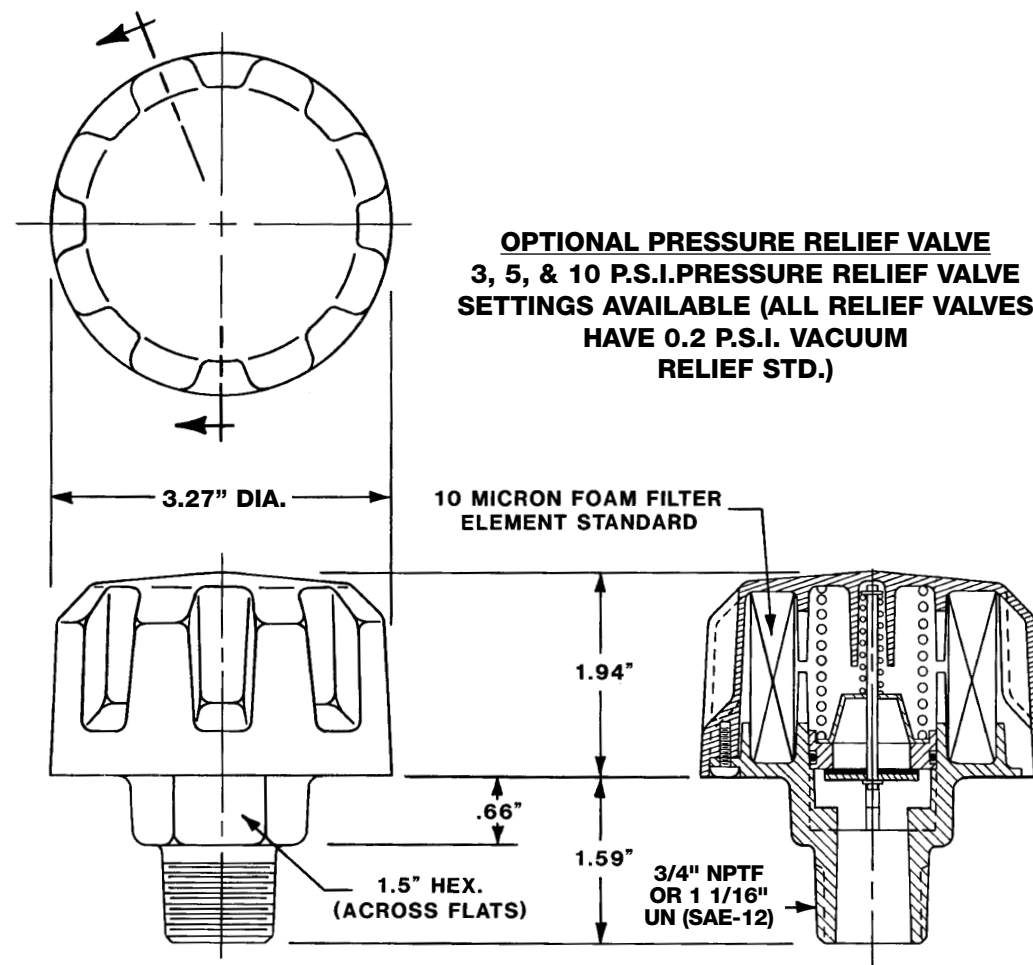
Consult Manufacturer for Ordering Information



RB SERIES RESERVOIR BREATHERS



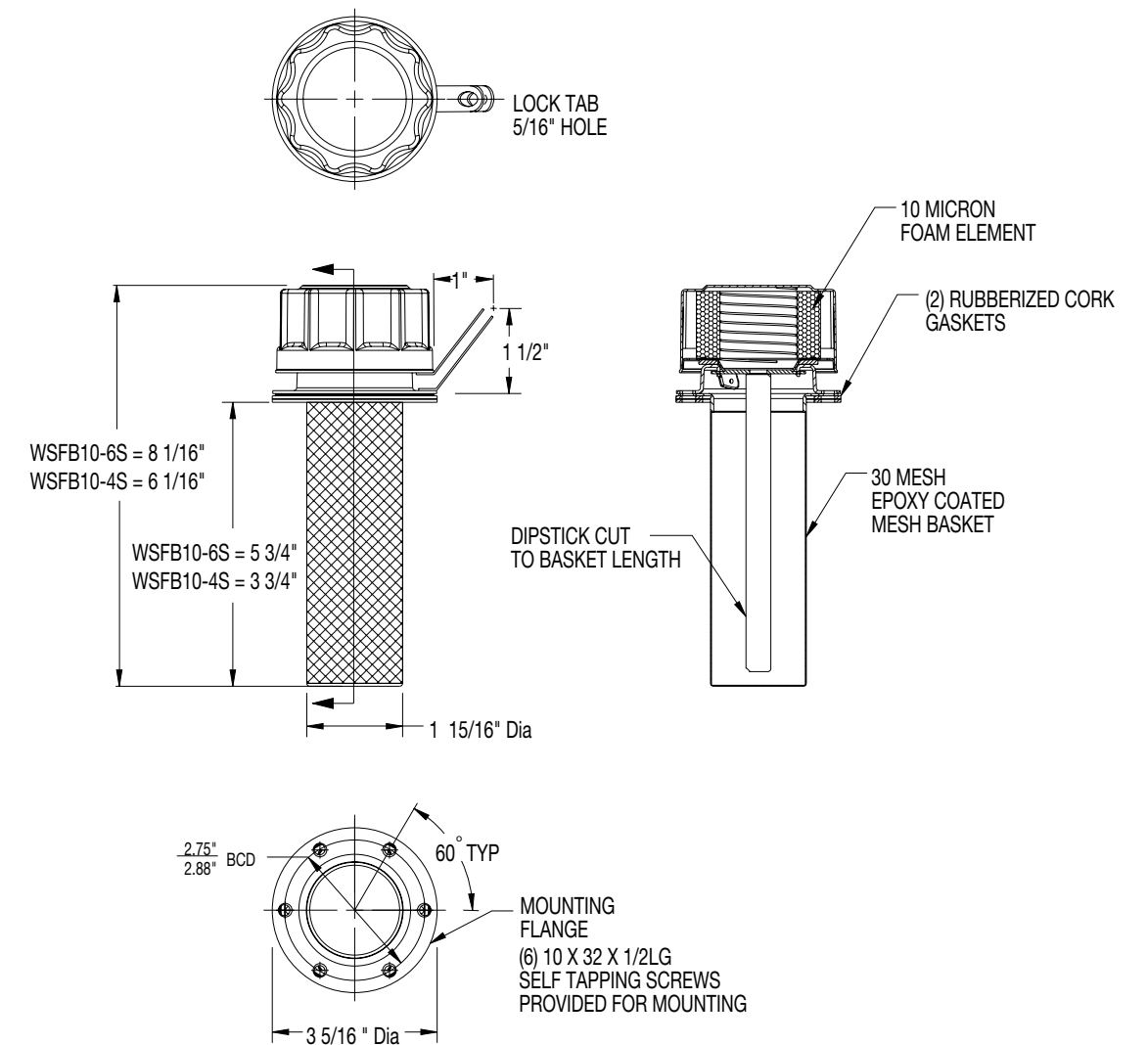
- 3/4" NPTF or 1-1/16" UN Thread Mount
- Optional 3, 5, & 10 Pressure Relief Valve
- Durable Weather-Resistant Nylon Plastic Cover



WSFB SERIES ECONOMICAL RESERVOIR FILLER BREATHER



- Black Painted Weather-Resistant Cover
- 10-Micron Foam Filter Element
- Basket-Length Dipstick
- Lock Tab



Consult Manufacturer for Ordering Information

Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17



Consult Manufacturer for Ordering Information

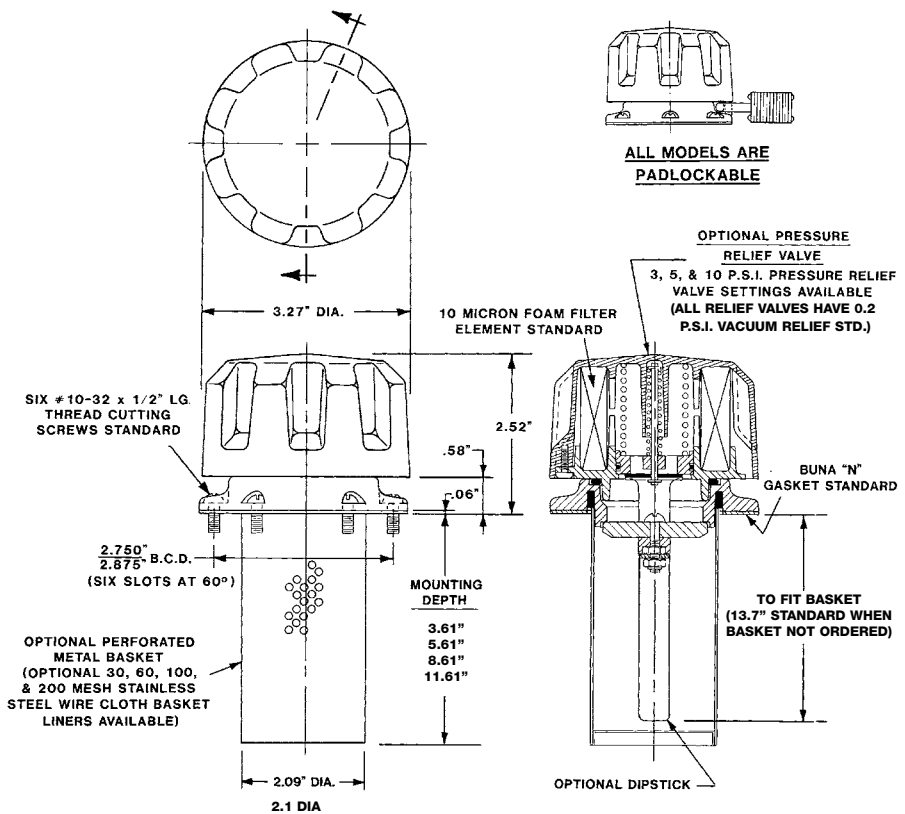
Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17



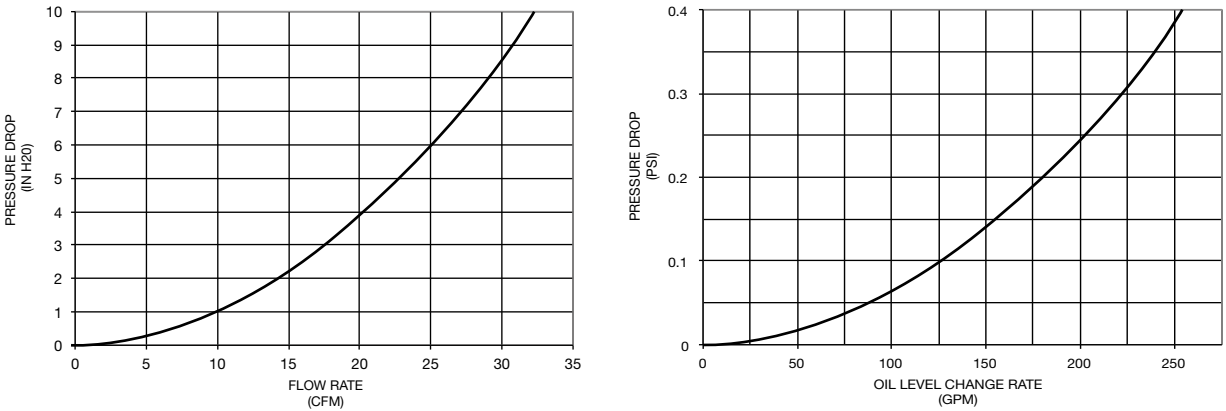
FB SERIES RESERVOIR FILLER BREATHERS



- 10-Micron Foam Filter Element*
- Cap-To-Base Chain Connection
- Aluminum and Nylon Cover Options
- Wire Mesh-Lined Basket Available
- 1" Steel Weldable Riser Available (PN: FB43)



Average Pressure Drop Through Assembly Without Relief Valve



*Spin-on element filler breather available for areas where filtration down to 1 micron particle removal is required.

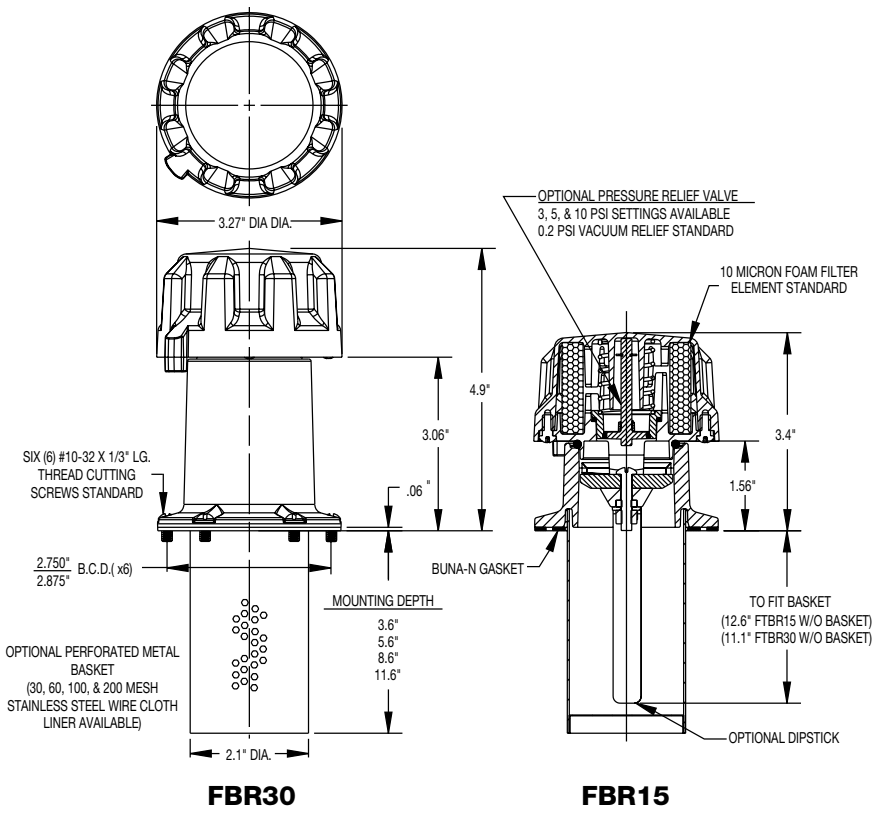
Consult Manufacturer for Ordering Information



FBR SERIES RAISED FILLER BREATHERS



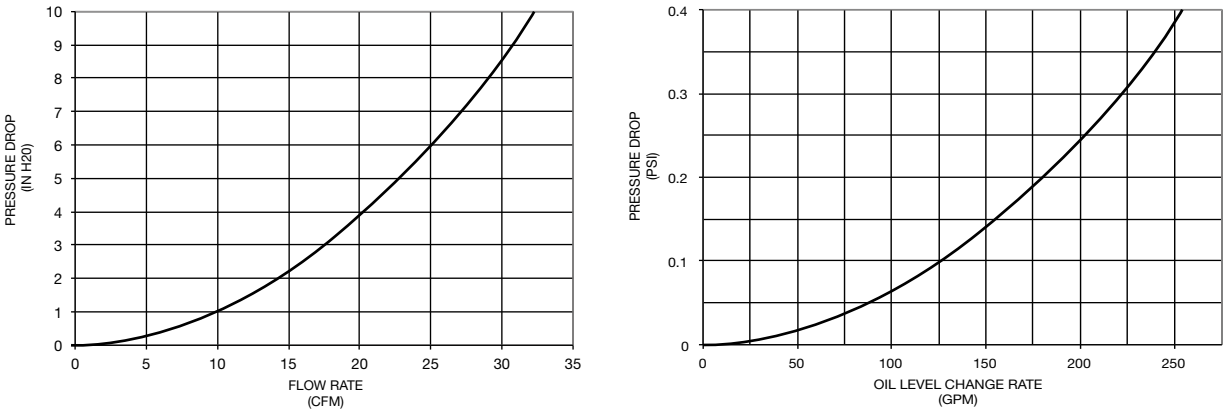
- 1 1/2" and 3" Risers
- 10-Micron Foam Filter Element
- Cap-To-Base Chain Connection
- Aluminum and Nylon Cover Options
- Wire Mesh-Lined Basket Available



FBR30

FBR15

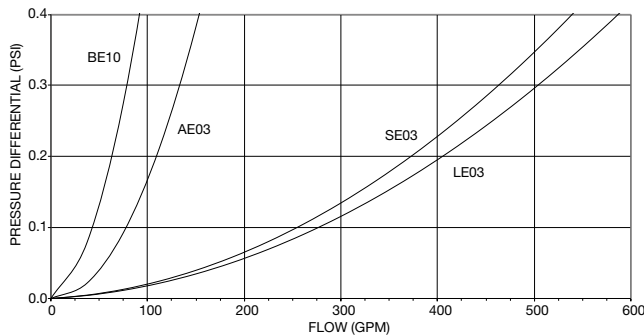
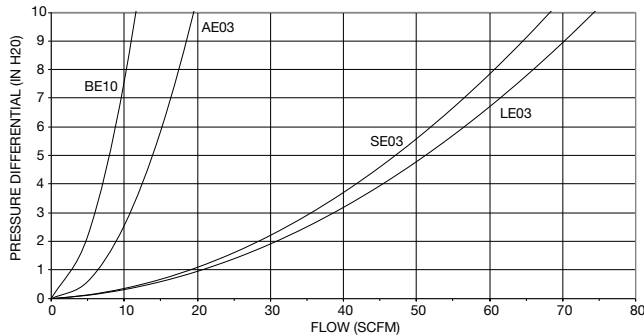
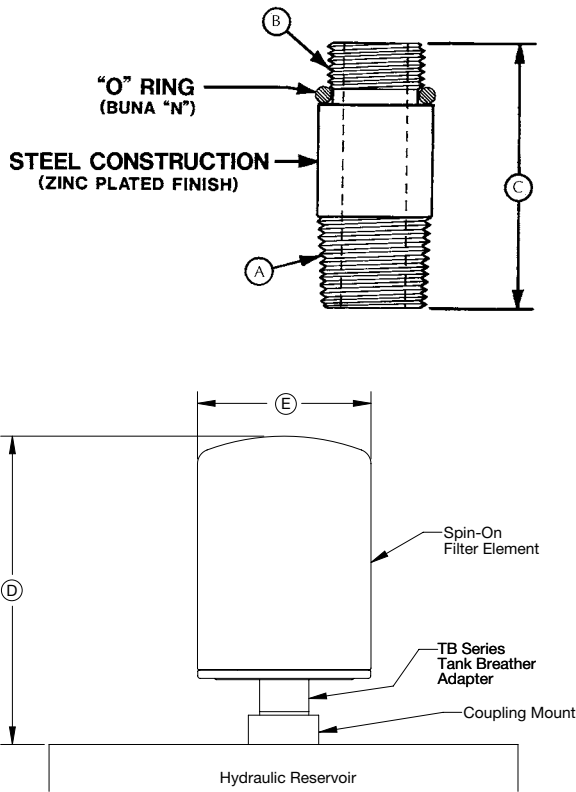
Average Pressure Drop Through Assembly Without Relief Valve



Consult Manufacturer for Ordering Information



TB SERIES TANK BREATHERS CONVERT SPIN-ON ELEMENTS TO TANK BREATHERS



Average Pressure Drop Through Assembly

Note: Spin-on filters with anti-drain back valves should not be used for breather applications. Zinga standard spin-on filters do NOT have anti-drain back valves.

Adapter Number	A Mount Thread	B Spin-On Thread	C Adapter Length	Spin-On Series	D Assy Height	E Element Diameter	Air Filtration @ 99% Efficiency	* Maximum Air Flow scfm / gpm
TB050	1/2" NPT	3/4"-16 UNF	1.6"	BE10	5.2"	3.1"	2 micron	8 / 60
TB075	3/4" NPT	1"-12 UNF	2.0"	AE03	7.3"	3.7"	1 micron	14 / 104
				AE10	7.3"		2 micron	13 / 97
				AE10L	10.6"		2 micron	14 / 104

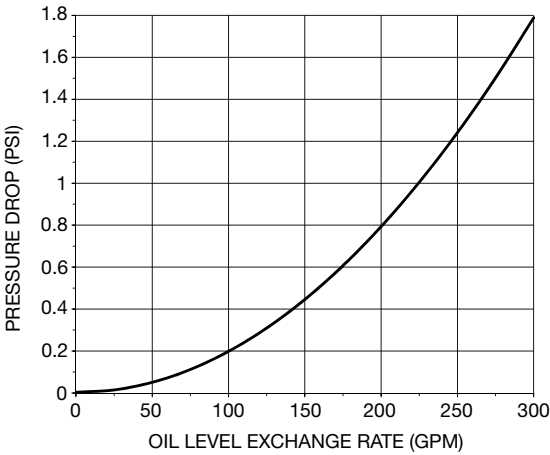
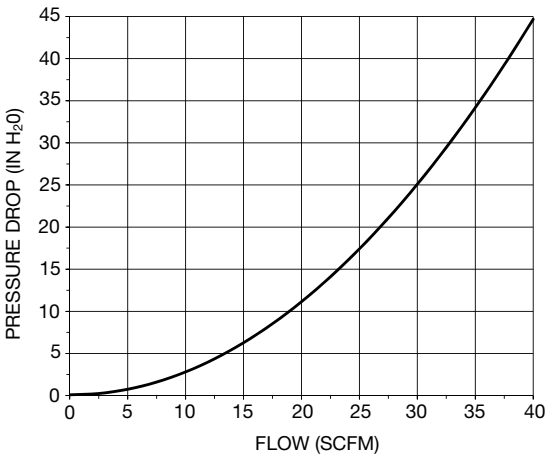
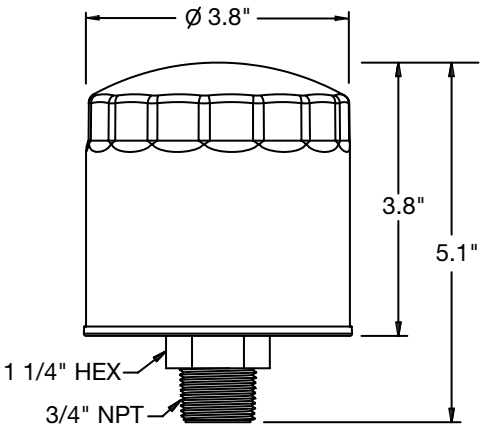
* Based on maximum pressure drop of 5 Inches H₂O (0.18 PSID) through clean filter element

Consult Manufacturer for Ordering Information



TBN310 SERIES SPIN-ON BREATHER

- 3/4" NPTF adapter
- Steel Spin-on Housing Design
- Air Flow Rates to 40 SCFM
- 2-Micron Particle Retention



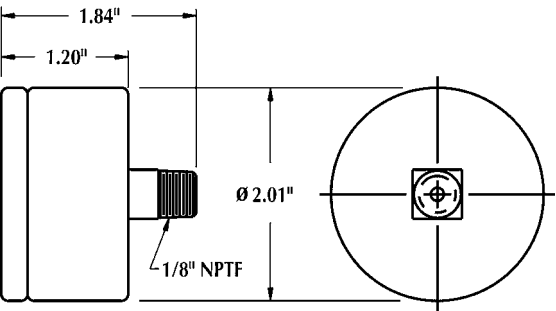
Design Features:

- Integral 3/4" NPT Male Nylon Mounting Stem
- Direct Interchange for Competitor 310 product.
- 99% Removal Efficiency of Particles 2 Microns and Larger

Consult Manufacturer for Ordering Information



GV & CI SERIES FILTER GAUGES VACUUM & PRESSURE



- Black Steel Case
- Brass Stem
- Acrylic Lens
- Temperature: -40 to +200°F Operating Temperatures

VACUUM GAUGES (Suction Line Filter Installations)



Part No. GV-05
For Use With 3 PSI
Filter By-Pass Valve



Part No. GV-10
For Use With 5 PSI
Filter By-Pass Valve

PRESSURE GAUGES (Return Line Filter Installations)



Part No. CI-12
For Use With 15 PSI
Filter By-Pass Valve



Part No. CI-20
For Use With 25 PSI
Filter By-Pass Valve

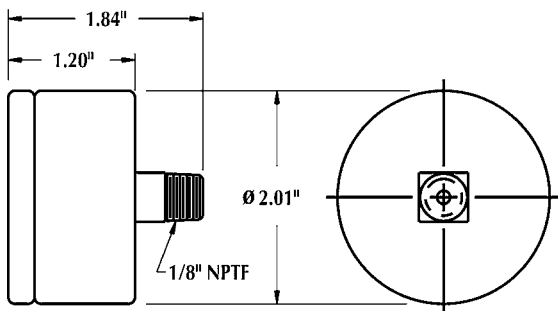


Part No. CI-40
For Use With 50 PSI
Filter By-Pass Valve

Consult Manufacturer for Ordering Information



GVL & CIL SERIES STAINLESS STEEL GLYCERIN-FILLED FILTER GAUGES



- Stainless Steel Case
- Brass Stem
- Acrylic Lens
- Shock- and Vibration-Resistant
- Temperature: -40 to +200°F Operating Temperatures

VACUUM GAUGES (Suction Line Filter Installations)



Part No. GV-05L
For Use With 3 PSI
Filter By-Pass Valve



Part No. GV-10L
For Use With 5 PSI
Filter By-Pass Valve

PRESSURE GAUGES (Return Line Filter Installations)



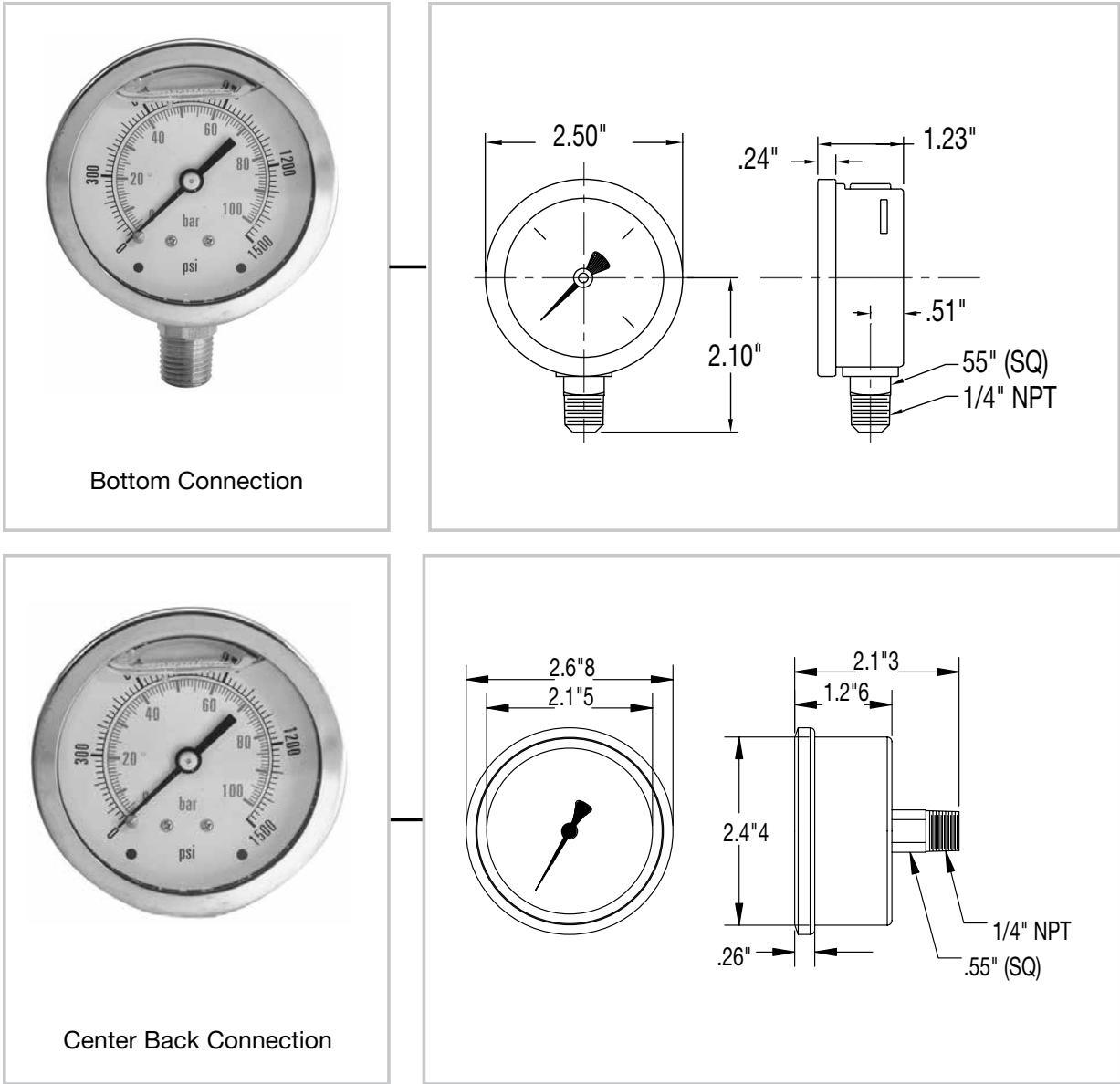
Part No. CI-20L
For Use With 25 PSI
Filter By-Pass Valve

Consult Manufacturer for Ordering Information



LG SERIES
GAUGES
GLYCERIN FILLED

- Accuracy +/- 1.5% full scale
- 2 1/2" dia. 304 stainless steel case
- Glycerin filled
- Dual Scale: PSI & Bar
- Temperature: -40 to +200°F Operating Temperatures



Bottom Connection

Center Back Connection

All gauges standard with 1/4" NPT connections. Other connections available by special order.

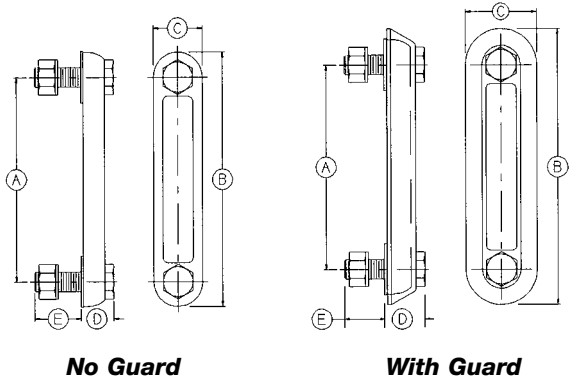
Consult Manufacturer for Ordering Information



SG SERIES
RESERVOIR
SIGHT LEVEL GAUGES

- Temperature: 212° F Max.
- Optional Thermometer
- Optional Guards
- UV-Resistant Housing

For use with petroleum-base and water-base hydraulic fluids. Consult factory for other fluids.



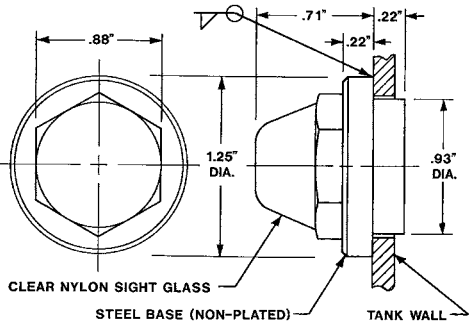
Model Number	A	B	C	D	E
SG03XX0*	3.00"	4.22"	1.22"	0.81"	1.16"
SG03XXG*	3.00"	4.75"	1.75"	0.93"	0.82"
SG05XX0*	5.00"	6.22"	1.22"	0.81"	1.16"
SG05XXG*	5.00"	6.75"	1.75"	0.93"	0.82"
SG05XXN*	5.00"	6.75"	1.75"	0.93"	0.82"
SG10XX0*	10.00"	11.22"	1.22"	0.81"	1.16"
SG10XXG*	10.00"	11.75"	1.75"	0.93"	0.82"

*Additional information required to place an order. Contact factory for assistance.



- Fluid Level Oil Eye and Steel Weld Port
- For Use with Petroleum-Base and Water-Base Hydraulic Fluids
- Temperature: -65° to 150°F for Pressures up to 400 PSI (Max Temperature 212°F for Non-Pressurized Applications)
- Sight Glass Designed for Use with SAE-8 Port Geometry

OE-1 SERIES
OIL-EYE



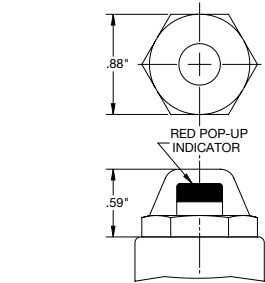
Consult Manufacturer for Ordering Information



DIFFERENTIAL PRESSURE (ΔP) INDICATORS

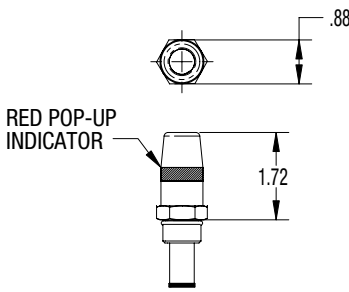
DIFFERENTIAL PRESSURE (ΔP) INDICATORS

DP03 Series



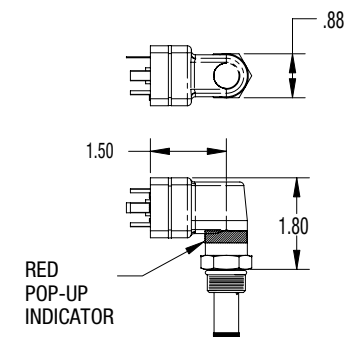
Low-Pressure Visual Indicator
200 PSI max Operating Pressure
Temperatures up to 150°F
Automatic Resetting
Factory Installed. Available as kit for field replacement.
For use with DF, SF, MF, MFT, & ZDF Series Only

DP04 Series

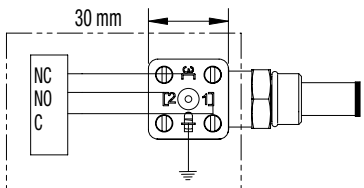


Cartridge-Style Visual Indicator
3000 PSI max Operating Pressure (6000 PSI for 80 PSID units)
Temperatures up to 200°F
Automatic Resetting
Factory Installed. Available as kit for field replacement.

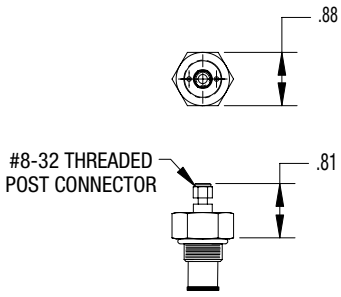
DP05 Series



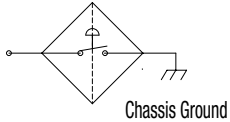
Cartridge-Style Visual/Electrical Indicator
DIN 43650 Type A Male Plug (11MM)
1NO, 1NC, & Common SPDT Switch (3 pole and ground)
5A; 125/250 VAC, 24 VDC (Resistive)
3000 PSI max Operating Pressure (6000 PSI for 80 PSID units)
Temperatures up to 200°F
Automatic Resetting
Factory Installed. Available as kit for field replacement.



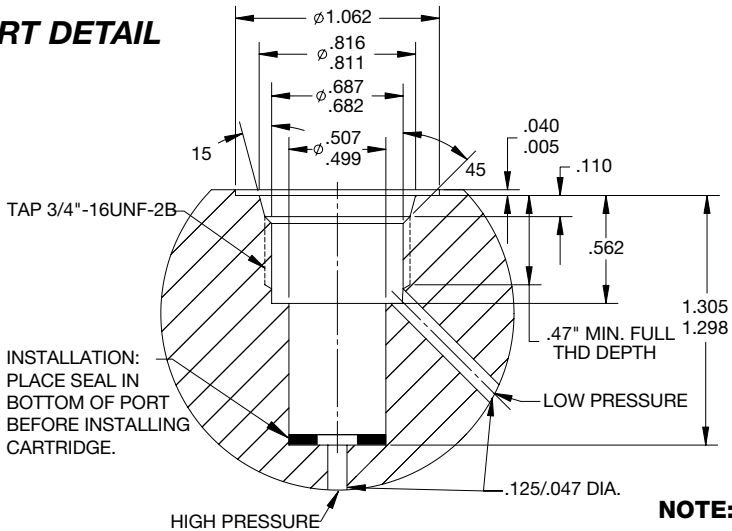
DP06 Series



Cartridge-Style Single Wire DC Indicator
200mA @ 36VDC
Momentary - Normally Open Circuit
3000 PSI max Operating Pressure (6000 PSI for 80 PSID units)
Temperatures up to 200°F
Automatic Resetting
Factory Installed. Available as kit for field replacement.
Ground Through Filter Head to Chassis. (In Oil)



INDICATOR PORT DETAIL



NOTE: TOP PORTION OF INDICATOR PORT PARALLEL TO SAE-8

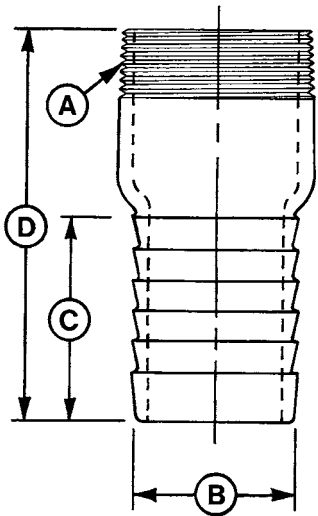
Consult Manufacturer for Ordering Information

Consult Manufacturer for Ordering Information



FT SERIES
FILTER TANK
ADAPTERS

Part Number	A Male Thread	B Hose ID	C Barb Length	D Overall Length
FT0505ZP	1/2" NPT	1/2"	1.35"	3.44"
FT0507ZP	1/2" NPT	3/4"	1.35"	2.94"
FT0707ZP	3/4" NPT	3/4"	1.35"	3.12"
FT0710ZP	3/4" NPT	1"	1.35"	2.94"
FT1007ZP	1" NPT	3/4"	1.35"	4.12"
FT1010ZP	1" NPT	1"	1.35"	3.38"
FT1012ZP	1" NPT	1-1/4"	1.65"	3.44"
FT1212ZP	1 1/4" NPT	1-1/4"	1.65"	3.88"
FT1215ZP	1 1/4" NPT	1-1/2"	1.65"	3.58"
FT1515ZP	1 1/2" NPT	1-1/2"	1.75"	3.88"
FT1520ZP	1 1/2" NPT	2"	2.20"	4.50"
FT2015ZP	2" NPT	1-1/2"	1.75"	5.42"
FT2020ZP	2" NPT	2"	2.20"	4.50"
FT2025ZP	2" NPT	2-1/2"	2.40"	5.00"
FT2525ZP	2 1/2" NPT	2-1/2"	2.40"	5.50"
FT2520ZP	2 1/2" NPT	2"	2.20"	6.13"
FT2530ZP	2 1/2" NPT	3"	3.00"	6.13"
FT3030ZP	3" NPT	3"	3.00"	6.00"
FT3025ZP	3" NPT	2-1/2"	2.40"	7.13"
FT4040ZP	4" NPT	4"	3.80"	7.25"

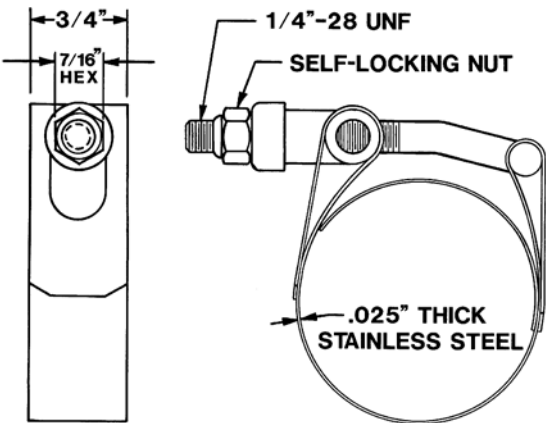


ZP suffix on fitting indicates
Zinc plated finish as standard.
Black pipe finish is available.



HC SERIES
HOSE CLAMPS
SEVERE SERVICE
"T" BOLT TYPE

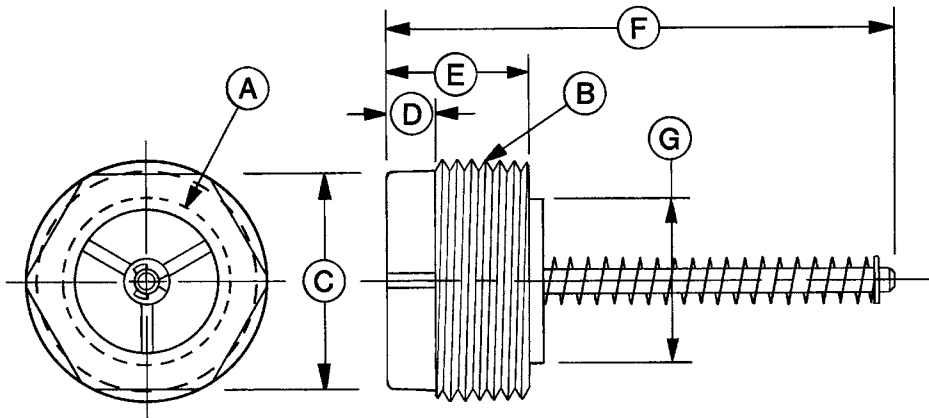
Hose Clamp Part Number	Clamping Range Min.	Max	Recommended Clamps Per Hose End
HC075	1.19"	1.37"	One
HC100	1.38"	1.56"	One
HC125	1.63"	1.88"	One
HC138	1.81"	2.12"	One
HC150	1.94"	2.19"	One
HC187	2.19"	2.44"	One
HC200	2.38"	2.69"	One
HC238	2.81"	3.12"	One
HC250	2.94"	3.25"	Two
HC300	3.50"	3.81"	Two
HC400	4.50"	4.81"	Two



Consult Manufacturer for Ordering Information

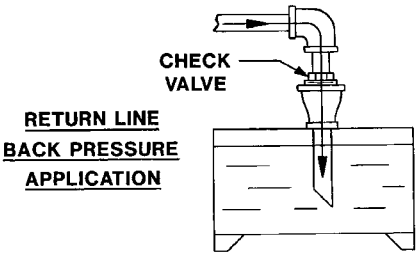
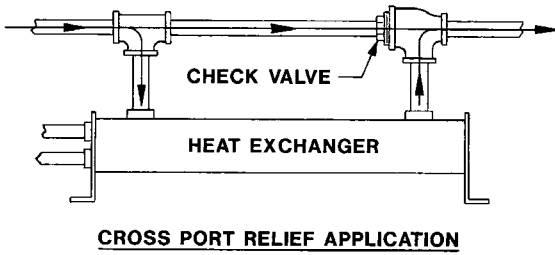


BRV SERIES
BACK PRESSURE INDUCING
CHECK VALVES



Part Number	A	B	C	D	E	F (max)	G
BRV07122XX*	3/4" NPTF	1 1/4" NPTF	1.50"	.32"	1.10"	2.90"	.81"
BRV10152XX*	1" NPTF	1 1/2" NPTF	1.75"	.32"	1.10"	4.04"	1.25"
BRV12202XX*	1 1/4" NPTF	2" NPTF	2.09"	.30"	1.22"	4.36"	1.75"
BRV20302XX*	2" NPTF	3" NPTF	3.06"	.63"	1.78"	6.35"	2.50"

*Additional information required to place an order. Contact factory for assistance.



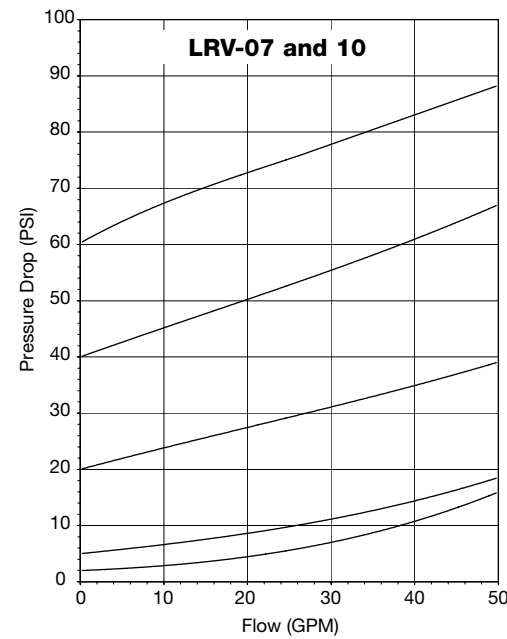
Consult Manufacturer for Ordering Information



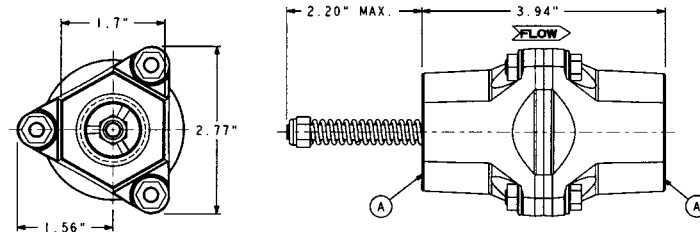
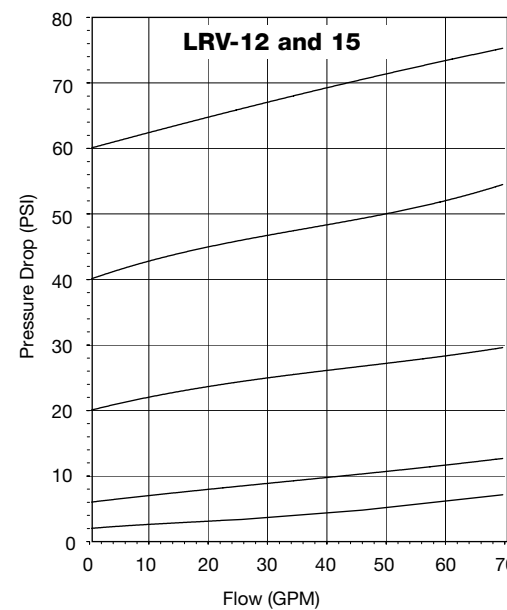


LRV SERIES CHECK VALVES

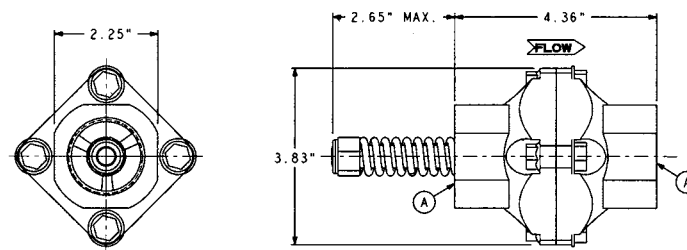
Heat Exchanger / Cross Port Relief Valves



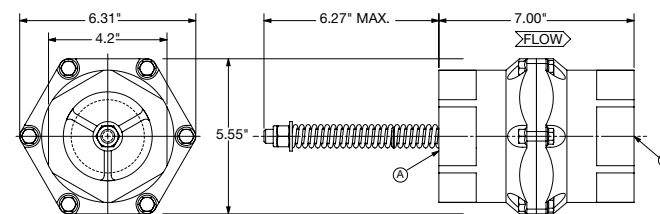
Average Pressure Drop with 150 SUS Oil at 100° F.



**Part Numbers
LRV-07 and 10
500 PSI Max**



**Part Numbers
LRV-12 and 15
500 PSI Max**

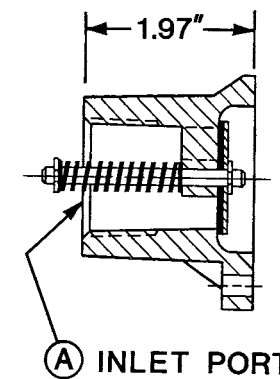


**Part Number LRV-30
300 PSI Max**

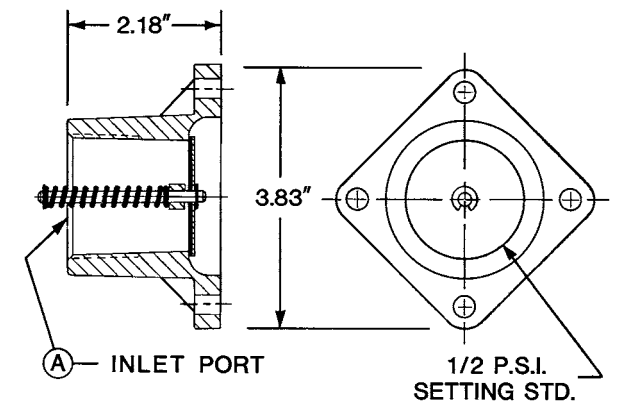


RV SERIES RETURN LINE TANK MOUNTED CHECK VALVES

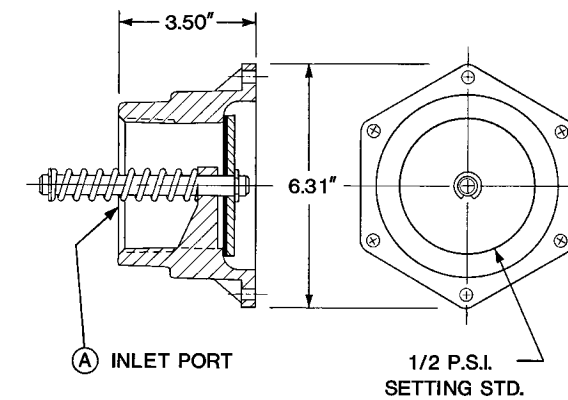
Maximum Operating Pressure: 50 PSI
Standard Valve Setting: 1/2 PSI



**Part Numbers
RV-07-1-01 & RV-10-1-01**



**Part Numbers
RV-12-1-01 & RV-15-1-01**



Part Number RV-30-1-01

Part Number	A Inlet Port
RV07101	3/4" NPTF
RV10101	1" NPTF
RV12101	1 1/4" NPTF
RV15101	1 1/2" NPTF
RV30101	3" NPTF

NOTE: Buna-N seals standard, Fluorocarbon seals optional

Consult Manufacturer for Ordering Information

Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17



Phone 608.524.4200 Fax 608.524.4220 www.filtrationgroup.com E 17

Consult Manufacturer for Ordering Information

RCA SERIES RESERVOIR COVER

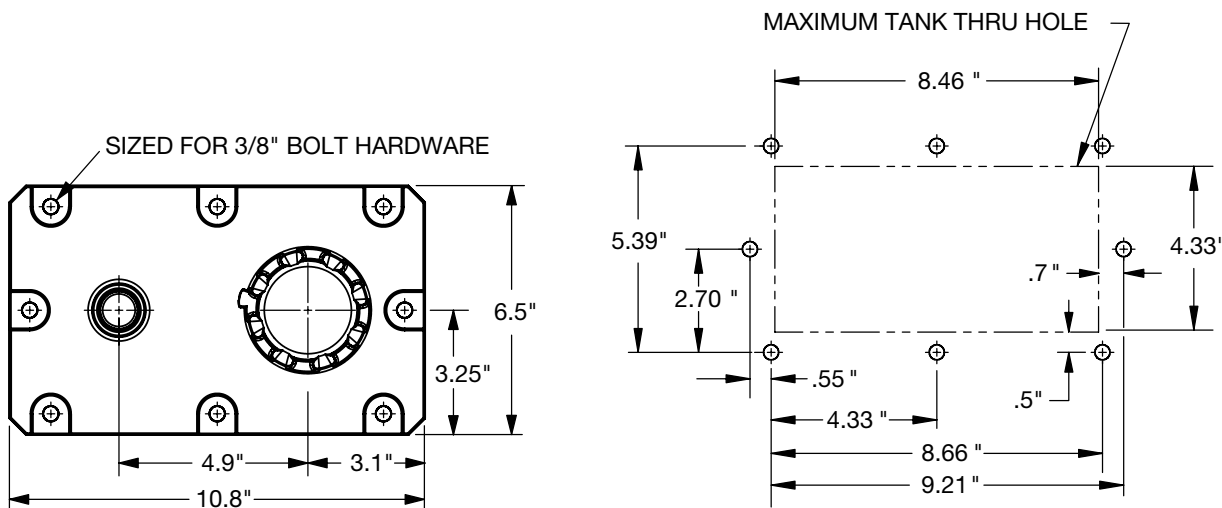
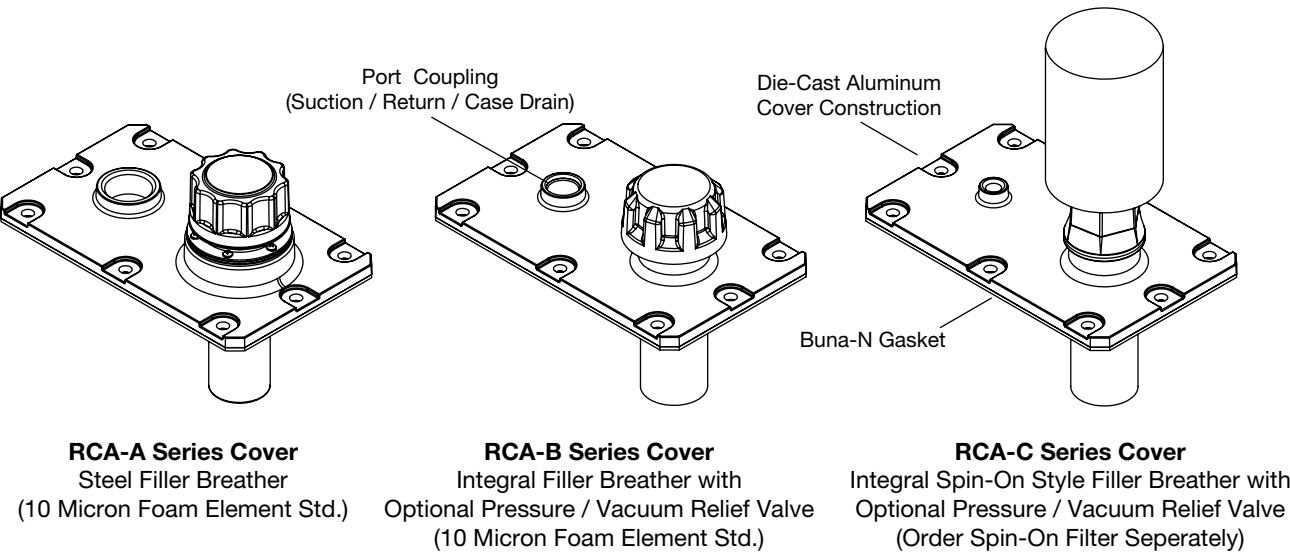


Integral Filler Breathers:
Suction/Return Port Coupling

Zinga SFB, FB or FTB Series
3/8" to 1 1/4" NPTF
SAE-6 to SAE-20
Buna - N Flat Gasket

Temperature:
Up to +250°F

Application:
Petroleum-based fluids only.
Consult factory for synthetic fluid.



RCB SERIES RESERVOIR COVER



Flows Up To: 96 GPM (Return) 32 GPM (Suction)

Integral Filter Port Sizes: 7/8" - 14 UN (SAE-10) to 1 7/8" - 12 UN (SAE - 24)

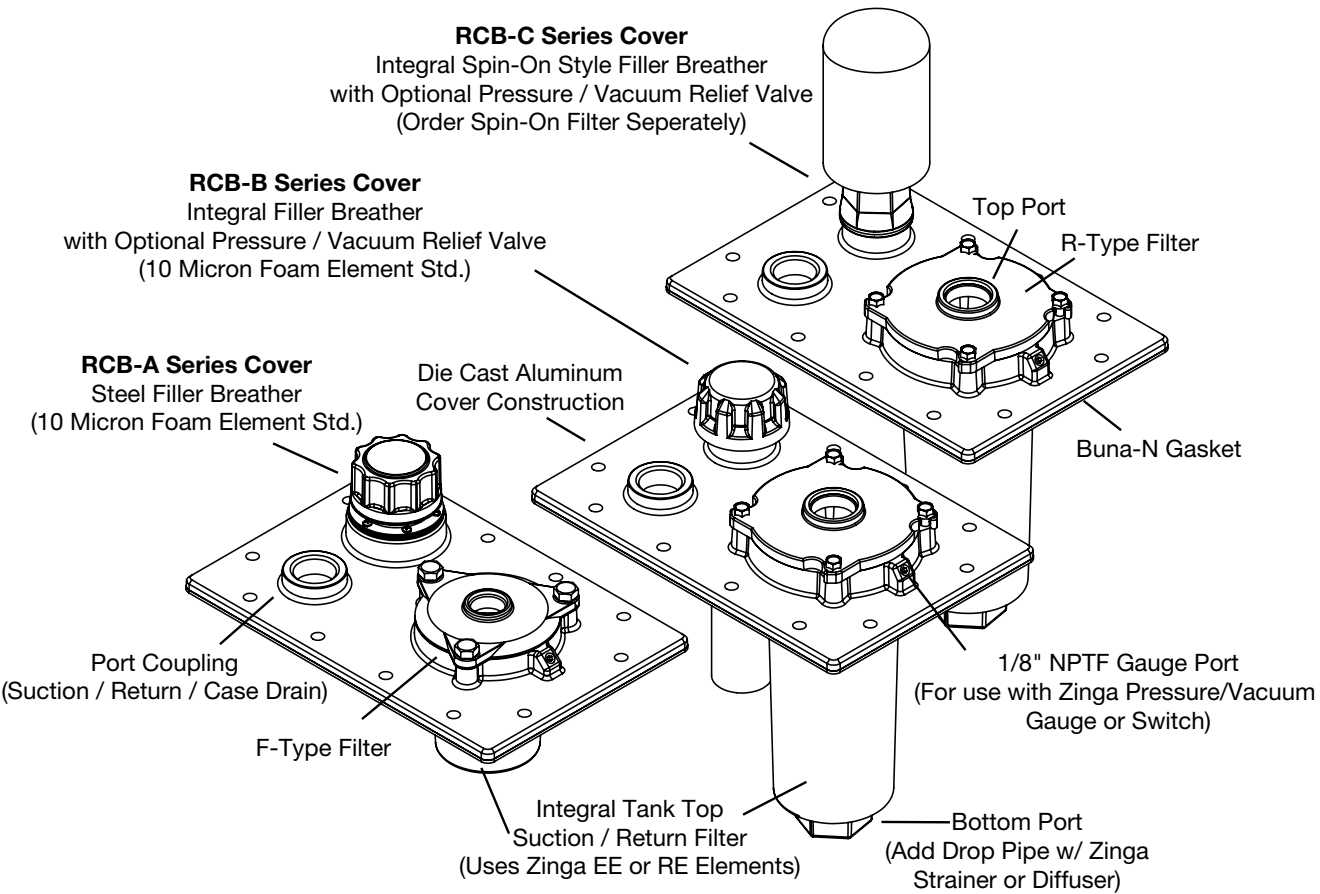
Integral Filler Breathers:
Suction/Return Port

Zinga SFB, FB or FTB Series
3/8" to 1 1/4" NPTF

Filter Operating Pressure: 100 PSI Max.

Temperature:
Up to +250°F

Application:
Petroleum-based fluids only.
Consult factory for synthetic fluid.

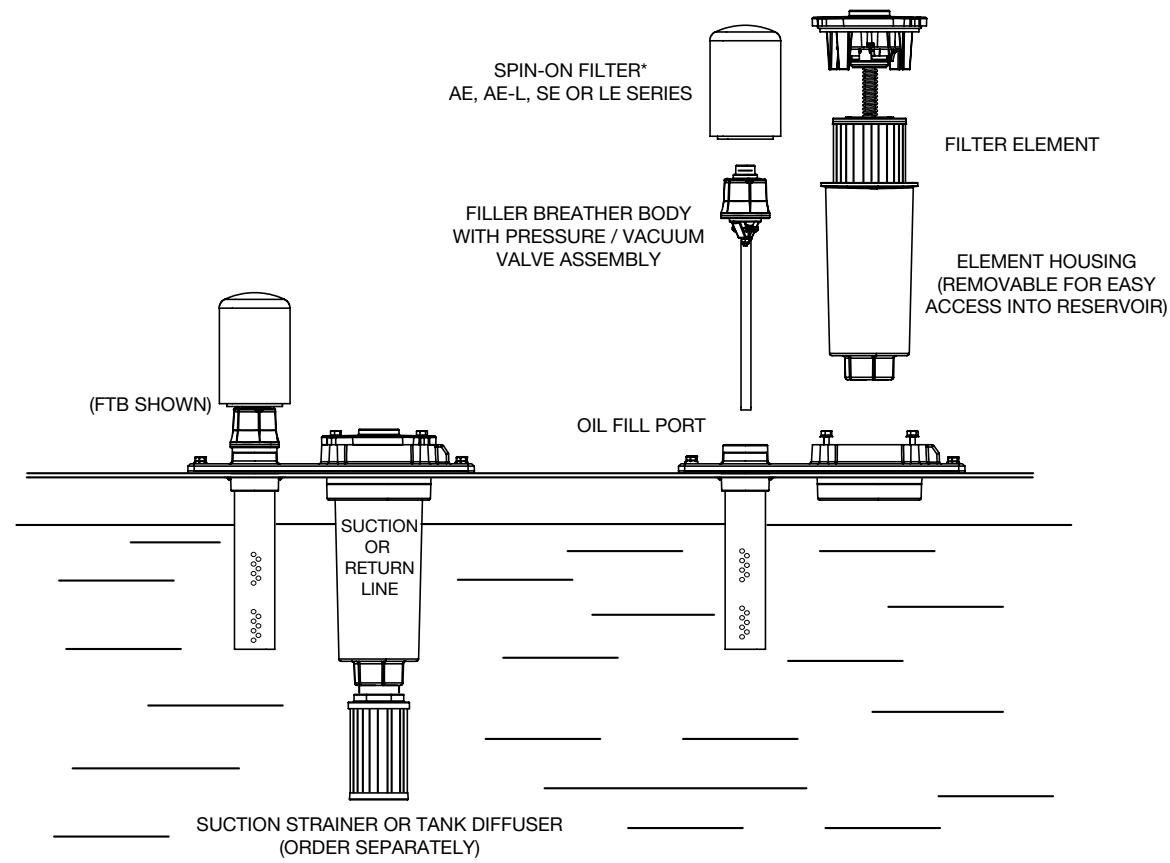
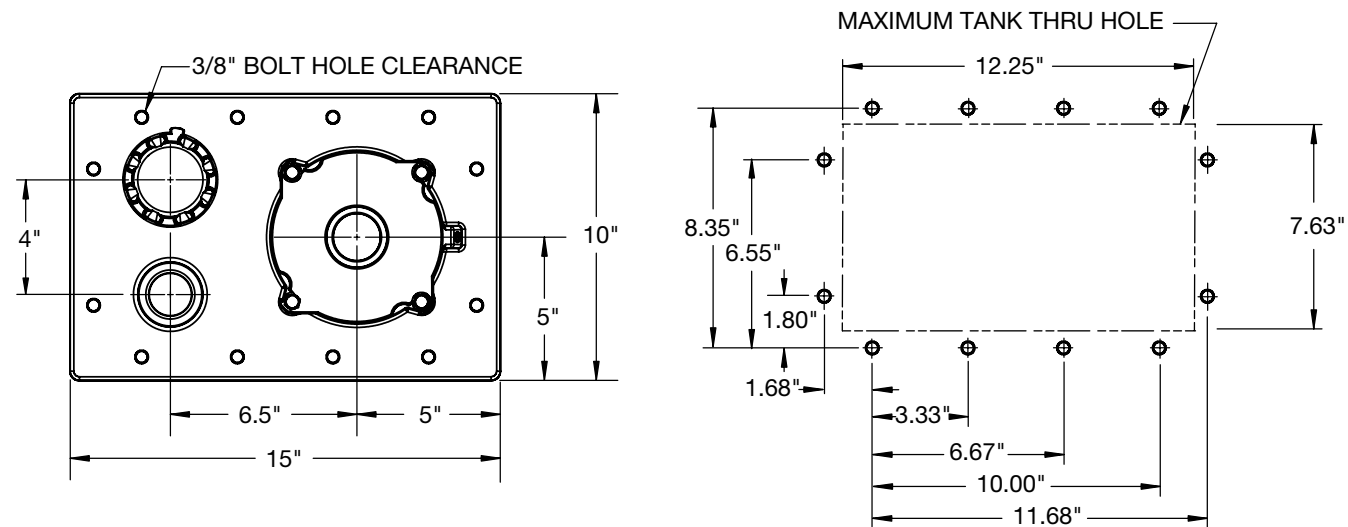


Consult Manufacturer for Ordering Information



Consult Manufacturer for Ordering Information





* SPIN-ON FILTERS WITH ANTI-DRAIN BACK VALVES SHOULD NOT BE USED FOR BREATHER APPLICATIONS. ZINGA STANDARD SPIN-ON FILTERS DO NOT HAVE ANTI-DRAIN BACK VALVES

REFERENCE INFORMATION

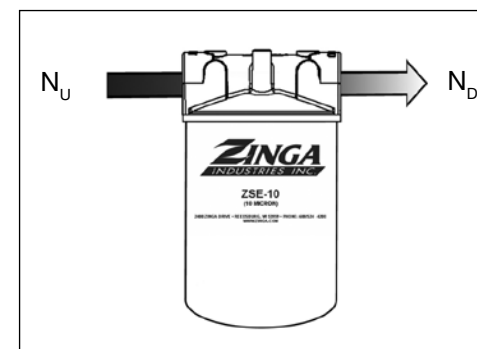
Relative Size of Particles

Substance	Size in microns (μ)	Size in inches (in.)
Grain of Table Salt	100	0.00400
Human Hair	70	0.00270
Lower Limit of Visibility	40	0.00158
White Blood Cells	25	0.00100
Talcum Powder	10	0.00040
Red Blood Cells	8	0.00030
Bacteria (avg.)	2	0.00008

$$1 \text{ micron} = \frac{1}{1,000,000} \text{ meters} = 0.000004 \text{ inches}$$

Measurement of Filter Efficiency

The measure of filter efficiency is determined by comparing the number of upstream particles (N_U) of a determined size (x) vs. the downstream number (N_D). This ratio is defined as the Beta Ratio (β_x).



$$\beta_x = \frac{N_U}{N_D} \text{ where } x = \text{size of particles in microns } (\mu)$$
$$\text{Efficiency}_x = 100 \left(1 - \frac{1}{\beta_x} \right)$$

Example:

$$\frac{37,500 \text{ Particles } 10\mu \text{ Upstream}}{500 \text{ Particles } 10\mu \text{ Downstream}} = 75.00$$

Beta Ratio:

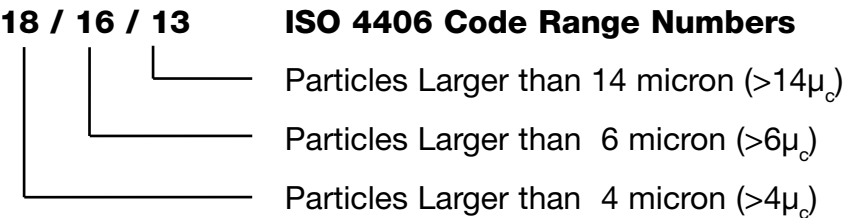
$$\beta_{10} = 75.00 \text{ Stated as "Beta 10 equal to 75"}$$

$$\text{Efficiency}_{10} = 100 \left(1 - \frac{1}{75.00} \right) = 98.7\%$$

β	Efficiency
1.01	1.0 %
1.10	9.0 %
1.50	33.3 %
2.00	50.0 %
10.00	90.0 %
75.00	95.5 %
100.00	98.7 %
200.00	99.5 %
1000.00	99.9 %

Typical ISO Cleanliness Level Range Numbers for System Components

16 / 14 / 11	Servo Valves	25µ Z-Glass 10µ Z-Glass 3µ Z-Glass	Recommended Media
17 / 15 / 12	Proportional Control Valves		
18 / 16 / 13	Vane & Piston Pumps/Motors Directional & Pressure Control Valves		
19 / 17 / 14 20 / 18 / 15	Gear Pumps/Motors Flow Control Valves Cylinders New Unused Fluid		



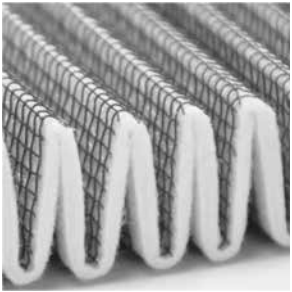
ISO 4406 RANGE NUMBERS		
Range Number	Number of Particles Per ml	
	More Than	Up to and including
24	80,000.00	160,000.00
23	40,000.00	80,000.00
22	20,000.00	40,000.00
21	10,000.00	20,000.00
20	5,000.00	10,000.00
19	2,500.00	5,000.00
18	1,300.00	2,500.00
17	640.00	1,300.00
16	320.00	640.00
15	160.00	320.00
14	80.00	160.00
13	40.00	80.00
12	20.00	40.00
11	10.00	20.00
10	5.00	10.00
9	2.50	5.00
8	1.30	2.50
7	0.64	1.30
6	0.32	0.64

Consult Manufacturer for Ordering Information



Zinga Filter Media Types

Z-Glass Media



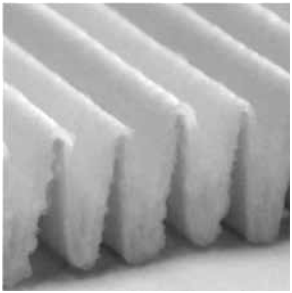
Multi-Layered, non-woven glass media that provides the highest levels of depth filtration efficiency and capacity. Higher capacity means longer service life. Coupled with a steel support mesh, Z-Glass can withstand higher differential pressures.

Cellulose Media



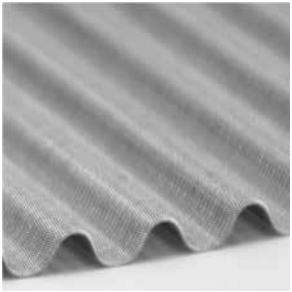
Traditional paper based media that provides a nominal level of depth filtration and capacity. Used with petroleum-based fluids only. Some grades of cellulose include a layered glass fiber substrate to provide more efficiency.

AquaZorb Media



Water absorbing cellulose based media designed specifically to absorb and retain free water from petroleum-based fluids. Commonly used in offline systems, AquaZorb will operate until it is fully saturated and ultimately curtail flow through the media. A system by-pass valve and service gauge is recommended when using AquaZorb.

Stainless Steel Mesh



Woven in a variety of precision patterns, stainless steel mesh provides a basic surface type filtration with very low differential pressure. Applications include pump protection and “last chance” valve protection. Stainless steel mesh can be serviced by ultrasonic cleaning.

Mesh	Degree of Filtration
30	560µ
60	280µ
100	141µ
200	75µ
200 x 1400	10µ

Consult Manufacturer for Ordering Information



Fluid Viscosity & Flow Capacity

In an effort to determine the flow capacity of filter it is important to consider the viscosity of the fluid being conditioned. Pressure drop (ΔP) produced by flow through a filter is directly proportional to the viscosity of the fluid. At a set flow rate, a fluid with a lower viscosity will produce less pressure drop (and greater flow capacity) than that of a fluid with higher viscosity.

Fluid Viscosity & Temperature

A fluid's viscosity is governed by its temperature. As a fluid's temperature increases, its viscosity decreases. Fluid manufacturer's viscosity charts should be used to determined the viscosity of the fluid at its normal operating temperature.

Estimating Pressure Drop (ΔP)

All pressure drop data found in this catalog is based on 150 SUS oil. If the fluid to be filtered in your application has a viscosity of 150 SUS and a specific gravity of 0.9 at the system's normal operating temperature, the pressure drop values can be taken directly off the graphs. For fluids that do not match, a quick estimate can be determined by the following:

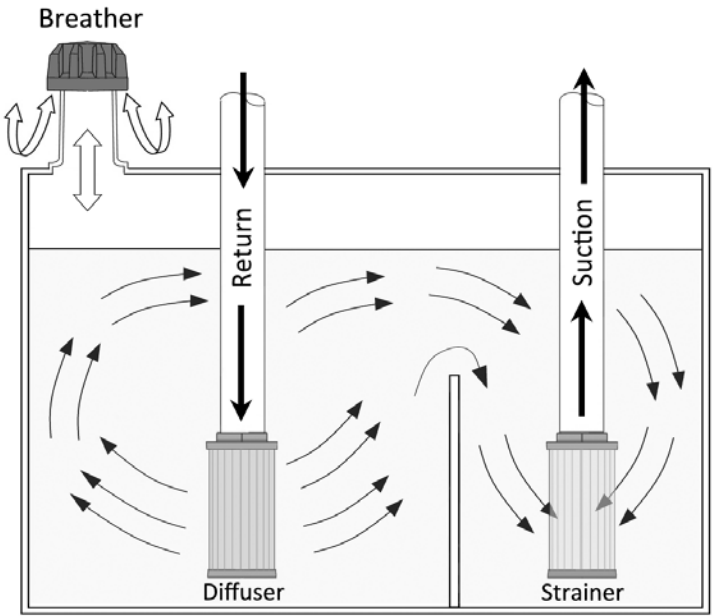
$$\Delta P_{Estimated} = \Delta P_{Graph} \times \frac{\text{System Viscosity (SUS)}}{150} \times \frac{\text{System Specific Gravity (SG)}}{.9}$$

Filter Application Guidelines

Filter Type	Max. ΔP at Normal Operating Temperature	Max. Line Velocity (ft / sec)
Suction Strainers	1" Hg (1/2 PSI)	5
Suction Line Filters	≤50% of max. allowed by pump manufacturer	5
Return Line Filters*	≤50% of filter by-pass valve	15
Pressure Filters	≤50% of filter by-pass valve	25

* Return line filters should always include a by-pass valve. Flow intensification should also be considered.

Guide Lines / Formulas / Conversions



Diffusers & Suction Strainers

Using tank diffusers helps prevent air entrainment in hydraulic systems. With the proper placement of a baffle between a diffuser and a suction strainer pump, cavitation can be curtailed. It is recommended to install diffusers and strainers in the bottom 1/3 of the reservoir.

Filler Breathers

Ingression of contaminants through the air can be reduced by using a breather with a filtration rating equal to or better than the hydraulic system rating.

On systems with a fairly constant fluid level in the reservoir, a pressurized filler breather can increase the pump inlet pressure. Generally, the more pressure a pump has at its inlet, the quieter it will run.

Useful Formulas & Conversions

Pipe Velocity (fps) = $\frac{.3208 \times \text{Flow Rate (GPM)}}{\text{Internal Area (in}^2\text{)}}$		
Pump Outlet Flow (gpm) = $\frac{\text{RPM} \times \text{Pump Displacement} \frac{\text{in}^3}{\text{rev}}}{231}$		
1 bar = 14.5 PSI	1 PSI = 2.04 in. Hg	1 ft H₂O = .433 PSI
1 cm³ = 0.06102 in³	1 L = 61.0234 in³	1 gal (US) = 231 in³



VELOCITY CHART FOR PIPE - TUBE - HOSE

STANDARD PIPE - SCHEDULE 40										EXTRA STRONG PIPE - XS - SCHEDULE 80					
Pipe Size	OD	ID	Int Area	GPM 5 Ft/Sec.	GPM 10 Ft/Sec.	GPM 15 Ft/Sec.	GPM 20 Ft/Sec.	GPM	GPM	ID	Int Area	GPM 5 Ft/Sec.	GPM 10 Ft/Sec.	GPM 15 Ft/Sec.	GPM 20 Ft/Sec.
3/8"	.675	.493	.191	3.0	6.0	9.0	12.0			.423	.141	2.2	4.4	6.6	8.8
1/2"	.840	.622	.304	4.8	9.5	12.0	19.0			.546	.234	3.7	7.3	11.0	14.7
3/4"	1.050	.824	.533	8.4	16.7	25.1	33.4			.742	.433	6.8	13.6	20.3	27.1
1"	1.315	1.049	.864	13.5	27.0	40.6	54.1			.957	.719	11.3	22.5	33.8	45.0
1-1/4"	1.660	1.380	1.495	23.4	46.8	70.3	93.7			1.278	1.283	20.0	40.1	60.2	80.3
1-1/2"	1.900	1.610	2.036	31.9	63.7	95.6	127.0			1.500	1.767	27.7	55.3	83.0	110.0
2"	2.375	2.067	3.356	52.5	105.0	157.0	210.0			1.939	2.953	46.2	92.5	139.0	185.0
2-1/2"	2.875	2.469	4.788	75.0	150.0	225.0	300.0			2.323	4.238	66.4	133.0	199.0	265.0
3"	3.500	3.068	7.393	116.0	232.0	347.0	463.0			2.900	6.605	103.0	207.0	310.0	414.0
3-1/2"	4.000	3.548	9.886	155.0	310.0	465.0	619.0			3.364	8.888	139.0	278.0	418.0	557.0
4"	4.500	4.026	12.730	199.0	399.0	598.0	797.0			3.826	11.500	180.0	360.0	540.0	720.0

ASA TUBING										SAE HOSE					
Tube Size	Wall Thk.	Int Area	GPM 5 Ft/Sec.	GPM 10 Ft/Sec.	GPM 15 Ft/Sec.	GPM 20 Ft/Sec.	GPM 25 Ft/Sec.	GPM	GPM	Hose Size	Int Area	GPM 5 Ft/Sec.	GPM 10 Ft/Sec.	GPM 15 Ft/Sec.	GPM 20 Ft/Sec.
1/2"	.083	.088	1.37	2.74	4.11	5.48	6.85			3/8"	.110	1.73	3.46	5.19	6.92
5/8"	.109	.133	2.08	4.16	6.24	8.32	10.40			1/2"	.196	3.08	6.15	9.23	12.30
3/4"	.109	.222	3.48	6.96	10.44	13.92	17.40			5/8"	.307	4.81	9.61	14.42	19.24
7/8"	.095	.369	5.75	11.50	17.25	23.00	28.75			3/4"	.442	6.90	13.80	20.70	27.60
1"	.109	.480	7.50	15.00	22.50	30.00	37.50			7/8"	.601	9.40	18.80	28.20	37.60
1-1/8"	.120	.615	9.60	19.20	28.80	38.40	48.00			1"	.785	12.30	24.60	36.90	49.20
1-1/4"	.120	.801	12.55	25.10	37.66	50.20	62.75			1-1/4"	1.227	19.20	38.40	57.60	76.80
1-1/2"	.120	1.247	19.55	39.10	58.65	78.20	97.75			1-1/2"	1.767	27.70	55.40	83.10	110.80
2"	.250	1.767	27.70	55.40	83.10	110.80	138.50			2"	3.142	49.20	98.40	147.60	196.80

Consult Manufacturer for Ordering Information



For Performance You Can Count On

The RB2 Thread-Mount Nylon Filler Breather

The RB2 by Zinga Industries combines our time-tested breather design with an innovative internal splash-resistant geometry. A variety of popular thread mounting options for simplified and economical reservoir mounting makes this splash-resistant design the right choice for reservoir designers and users.

Features and Benefits:

- Faster fill / refill rate for more efficient filtration
- Unique glass-filled nylon construction, provided in 1-1/4 and 2-1/2 thread sizes, means all-weather durability for longer life in harsh and corrosive environments
- Engineered and tested for unparalleled splash resistance
- Integrated splash-resistant design can be used with the pressure / vacuum option

Options:

- Weld bases available in steel or aluminum
- Steel baskets in 4", 6", 9", or 12" nominal lengths with 30, 60, 100, or 200 stainless steel mesh liners
- Oil level indicating dipstick
- Combined pressure / vacuum relief valve in 3, 5, or 10 PSI pressure all with .2 PSI vacuum
- 1-micron air filter available



608.524.4200
Zinga.com





Filtration Group®
Hydraulics

A Safer, Healthier and More Productive World

Filtration Group Corporation



As a part of Filtration Group, Zinga is a global leader in filtration for agriculture and construction providing filtration and reservoir accessory product solutions for the mobile hydraulic market. We lead the industry in developing extensive, award-winning product lines of filtration solutions that improve oil cleanliness, maximize performance and meet warranty levels for reliability.



ZINGA
Filtration Group®

Phone 608.524.4200 Fax 608.524.4220
www.filtrationgroup.com

© 2017 All rights reserved.
FGZ-058022117-01