



## In-Tank Filters In-to-Out Flow Disposable Filter Cartridge Type

### Return Line Application

Model "TFR" 750, 1000, 1200, 1250, 1500, 2000

### Specifications

- Working pressure 150 PSI (10 bar)
- Operating temperatures -22°F to +212°F (-32°C to +100°C)
- Flows to 120 GPM, (450 LPM)
- Bypass 25 PSI
- Compatible with mineral oils HH, HL, HM, HR, HV, HG according to ISO 6743/4
- Aluminum casting

### Options

- NPT or SAE ports
- 10, 25 micron cellulose, synthetic elements
- 45 PSID bypass
- Visual or electrical indicators
- Magnetic core
- Steel diffuser tube, Zinc plated



### TFR 1 Element Length

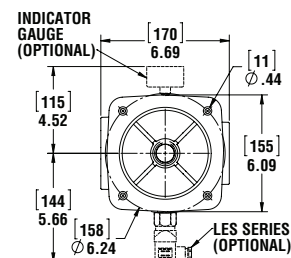
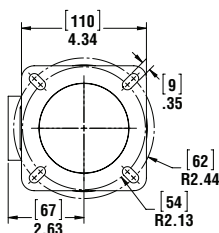
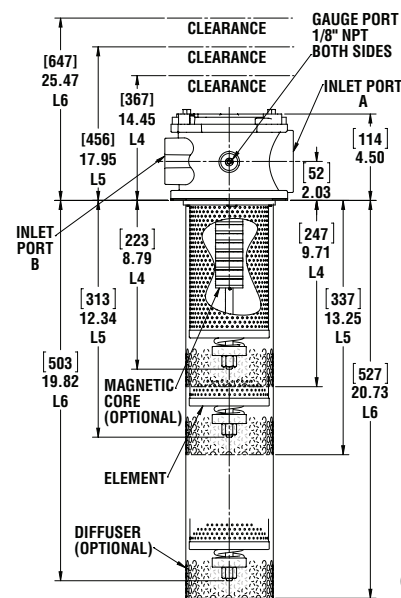
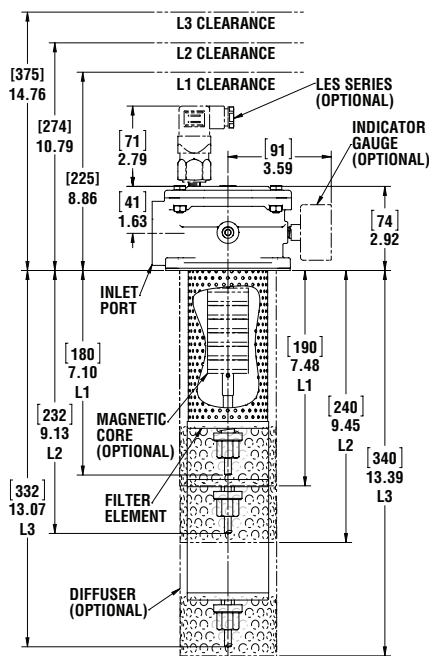
Model No		C	D
TFR1-L1	in	7.1	7.9
	mm	180	200
TFR1-L2	in	9.1	9.8
	mm	230	250
TFR1-L3	in	13.0	13.8
	mm	330	350

### TFR 2 Element Length

Model No		C	D
TFR2-L4	in	9.3	10.0
	mm	235	255
TFR2-L5	in	11.8	12.6
	mm	300	320
TFR2-L6	in	19.9	20.7
	mm	505	525

### TFR Port Housing

	Inlet A	Inlet B
TFR-2-1250	1 1/4" NPT	1 1/2" Flange-1 1/4" NPT
TFRA-2-1250	1 5/8"-12 SAE	1 1/2" Flange-1 5/8"-12 SAE
	Inlet A	Inlet B
TFR-2-1500	1 1/2" NPT	1 1/2" Flange-1 1/4" NPT
TFRA-2-1500	1 7/8"-12 SAE	1 1/2" Flange-1 5/8"-12 SAE
	Inlet A	Inlet B
TFR-2-2000	2" NPT	1 1/2" Flange-1 1/4" NPT
TFRA-2-2000	2 1/2"-12 SAE	1 1/2" Flange-1 5/8"-12 SAE

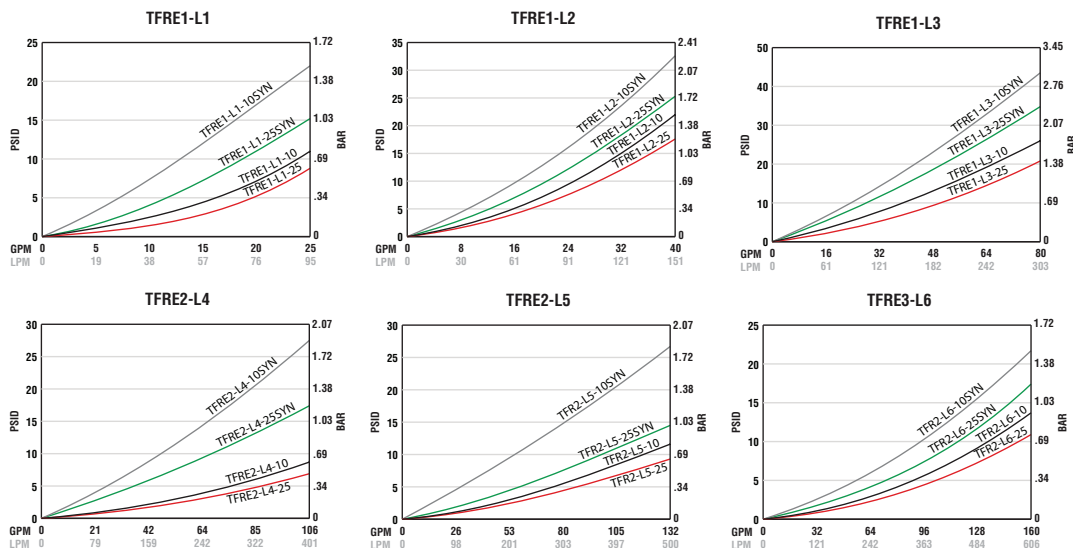


See Technical Bulletin TB.FIL09.708, TB.FIL11.708, TB.FIL20.708, for further information at (Technical Data - [www.lenzinc.com](http://www.lenzinc.com))

**For indicator gauge specifications and ordering information see pages 38a-39a**

*\*Indicators ordered and shipped separately*

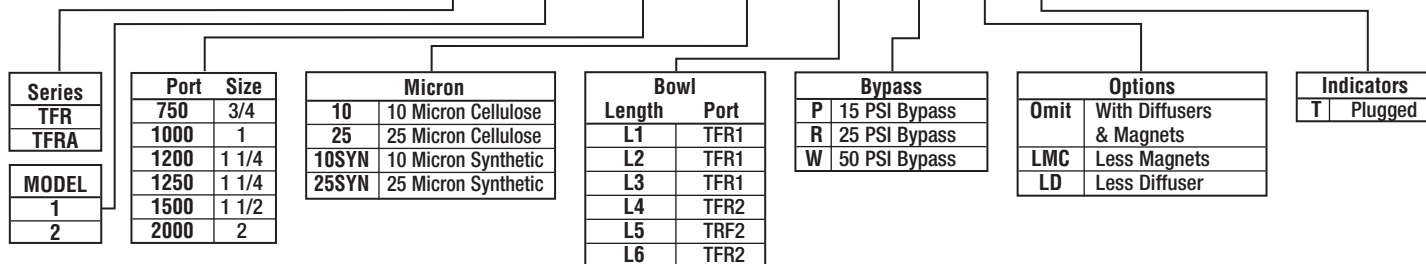




Temperature 100° F Viscosity 150 SUS  
Average pressure drop through clean assembly

## Assembly Ordering Code

TFR — 2 — 1000 — 10 — L6 — R — — T



## Replacement Elements

Model Number	Media	in <sup>2</sup>	cm <sup>2</sup>	B= 2/20/75	Dirt Holding Capacity
TFR1E-L1-10	10 Micron Cellulose	279	1800	6μ/8μ/13μ	8
TFR1E-L1-25	25 Micron Cellulose	279	1800	24μ/35μ/43μ	11
TFR1E-L1-10SYN	10 Micron Synthetic	190	1225	3μ/5.5μ/12μ	11
TFR1E-L1-25SYN	25 Micron Synthetic	190	1225	7μ/16μ/23μ	13
TFR1E-L2-10	10 Micron Cellulose	403	2600	6μ/8μ/13μ	12
TFR1E-L2-25	25 Micron Cellulose	403	2600	24μ/35μ/43μ	16
TFR1E-L2-10SYN	10 Micron Synthetic	264	1700	3μ/5.5μ/12μ	16
TFR1E-L2-25SYN	25 Micron Synthetic	264	1700	7μ/16μ/23μ	19
TFR1E-L3-10	10 Micron Cellulose	589	3800	6μ/8μ/13μ	18
TFR1E-L3-25	25 Micron Cellulose	589	3800	24μ/35μ/43μ	24
TFR1E-L3-10SYN	10 Micron Synthetic	407	2625	3μ/5.5μ/12μ	24
TFR1E-L3-25SYN	25 Micron Synthetic	407	2625	7μ/16μ/23μ	28
TFR2E-L4-10	10 Micron Cellulose	496	3200	6μ/8μ/13μ	15
TFR2E-L4-25	25 Micron Cellulose	496	3200	24μ/35μ/43μ	20
TFR2E-L4-10SYN	10 Micron Synthetic	419	2700	3μ/5.5μ/12μ	25
TFR2E-L4-25SYN	25 Micron Synthetic	419	2700	7μ/16μ/23μ	29
TFR2E-L5-10	10 Micron Cellulose	713	4600	6μ/8μ/13μ	21
TFR2E-L5-25	25 Micron Cellulose	713	4600	24μ/35μ/43μ	28
TFR2E-L5-10SYN	10 Micron Synthetic	574	3700	3μ/5.5μ/12μ	34
TFR2E-L5-25SYN	25 Micron Synthetic	574	3700	7μ/16μ/23μ	40
TFR2E-L6-10	10 Micron Cellulose	1054	6800	6μ/8μ/13μ	32
TFR2E-L6-25	25 Micron Cellulose	1054	6800	24μ/35μ/43μ	42
TFR2E-L6-10SYN	10 Micron Synthetic	837	5400	3μ/5.5μ/12μ	50
TFR2E-L6-25SYN	25 Micron Synthetic	837	5400	7μ/16μ/23μ	59

For 25 Micron Synthetic, 74 Micron Mesh, replacement elements consult factory

Beta Rating of 2 = 50% Efficiency  
Beta Rating of 20 = 95% Efficiency  
Beta Rating of 75 = 98.7% Efficiency  
Note: 45 PSI Pressure Drop Maximum



## General Filter Specifications

### Bypasses

Differential opening set value + - 10%

### Medias

<b>Cellulose</b>	Resin impregnated paper
<b>Synthetic</b>	Inorganic micro fiber
<b>Wire Mesh</b>	140 micron, 100 mesh stainless Steel
<b>Water Removal</b>	10 micron resin impregnated paper

### Compatibility of Fluids with

#### Filter Heads & Bowls Per ISO 6743/4

**Mineral oils** (types HH, HL, HM, HR, HV)  
**Water based emulsions** (types HFAE, HFAS)  
**Synthetic fluids** (types HS, HFDR, HFDS, HFFU)  
**Water glycol** (types HFC)



LIT-1252-Bypass



LIT-1252-10P



CP-752-10

#### Compatibility of Fluids with Filter Elements Per ISO 2943

**Mineral oils** (types HH, HL, HM, HR, HV, HG) ISO 6743/4  
**Synthetic fluids** (types A & M series only)  
**Water based emulsions** consult Lenz for further information

## Compatibility of Fluids with Seals Per ISO 6743/4

### Nitrile (Buna N)

**Mineral Oils** (HH, HL, HM, HR, HV, HG)  
**Water emulsion** (HFAE, HFAS)  
**Water glycol** (HFC)

### Viton seals

**Synthetic fluids** (types HS, HFDR, HFDS, HFDU)

### Indicator Options

<b>Visual</b>	Suction & return visual gauges
<b>Electrical</b>	Suction & return electrical switches
<b>Differential</b>	Return indicators

### Mineral Oil Types

<b>HH</b>	Non inhibited refined mineral oils
<b>HL</b>	Refined mineral oils with anti-oxidation and anti-rust properties
<b>HM</b>	HL fluids with improved anti wear
<b>HR</b>	HL oils with VI improvers
<b>HV</b>	Lubricants with high viscosity
<b>HG</b>	HM oils with anti-stick slip properties

### Water Based Emulsion Types

<b>HFAE</b>	Oil water emulsions or aqueous fluids which are further with additional letters
<b>HFAS</b>	Solutions of chemicals containing minimum 80% of water
<b>HFC</b>	Aqueous solutions with viscosity-increasing additives and minimum 35% mass water

### Synthetic Fluid Types

<b>HFDU</b>	Fire resistant fluids of other compositions
<b>HFDS</b>	HFD based upon phosphoric acid ester
<b>HS</b>	Synthetic fluids with no specific fire resistant properties
<b>HFDR</b>	HFD based on halogen-containing compounds





## 2" Diameter Filter Indicating Gauges



### MC-12

Return Line Indicating Gauge  
for **15 PSI** Filter Applications  
2" Multi color

0-12 PSI Green  
12-15 PSI Yellow  
15-60 PSI Red (Service Filter)  
(To be used with "T" Indicator Port Location)



### MC-20

Return Line Indicating Gauge  
for **25 PSI** Filter Applications  
2" Multi color

0-20 PSI Green  
21-24 PSI Yellow  
25-60 PSI Red (Service Filter)  
(To be used with "T" Indicator Port Location)



**CHANGE FILTER**

### CP-2

Compound Indicating Gauge  
(Suction or Return Line)

10" to 30" Vacuum is a Red Danger Area.  
0-60 PSI  
A Red "Change Filter" Sticker for the  
Pressure side is included with each gauge  
for application after the pressure factor  
is determined.  
(To be used with "T" or "S" Indicator Port Location)



### GLY-MC-20

Glycerin Filled  
Return Line Indicating Gauge  
for **25 PSI** Filter Applications  
2" Multi color

0-20 PSI Green  
21-24 PSI Yellow  
25-60 PSI Red (Service Filter)  
(To be used with "T" Indicator Port Location)



### 135080

Suction Line Indicating Gauge for  
**5 PSI** vacuum filter application  
2" Multi color

0-9" HG Green  
9-11" HG Yellow  
11-30" HG Red (Service Filter)  
(To be used with "S" Indicator Port Location)



### VAC-3-20

Suction Line Indicating Gauge  
for **3 PSI** vacuum filter applications  
2" Multi color

0-3" HG Green  
4-6" HG Yellow  
6-30" HG Red (Service Filter)  
(To be used with "S" Indicator Port Location)

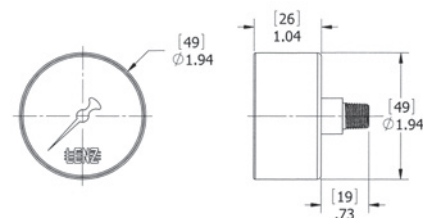


### Differential Indicator DP-75

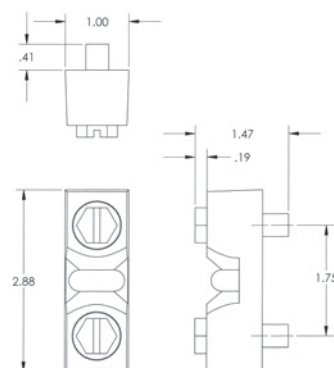
Simple differential sliding  
indicator which changes from  
green to red at 7 PSID.

0 - 7 PSID. Green Clean  
7 - 10 PSID. Red Service Filter  
CP Series (500, 750, 1010, 1280,  
1580)

*\*Indicators ordered and shipped separately*



### DIAL INDICATOR



### DP-75





## Electrical Filter Indicators

### Field Adjustable

#### Specifications:

- 1/8 NPT connection
- 3 AMP 12/24 VDC, 125/250 VAC IP67
- +/- 2% repeatability of full set point range @ 70°F
- Operating temperature 40°F to +250°F (-40°C to 121°C)
- 1,000,000 cycles mechanical range
- Maximum pressure 500 (25 BAR) PSI
- Steel housing, zinc plated
- Buna N diaphragm
- SPDT snap action switch

#### Options:

- EPDM seals -10°F – 250°F (-23°C – 121°C)
- Viton seals 0 – 250°F (-18°C – 121°C)
- Flying leads

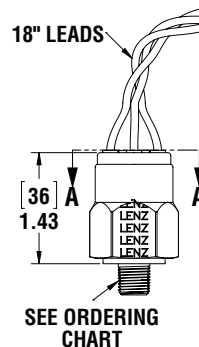
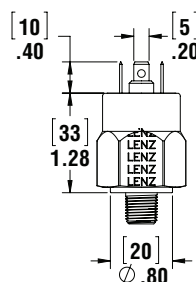
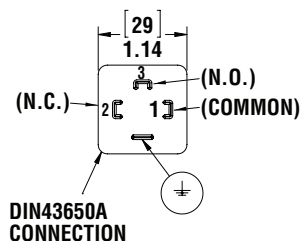
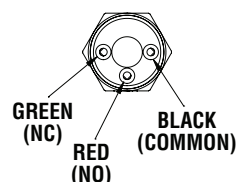
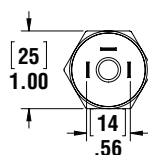


LES-FL



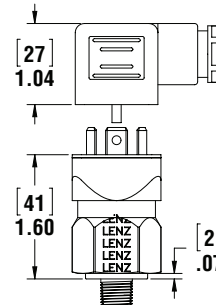
LES-HC

Model	Adjustment Range	Average Differential	Set Pressure
P1	3-20 PSI (.2-1.4 BAR)	2-5 PSI (.13-0.4 BAR)	15 PSI
P2	15-80 PSI (1.03-6 BAR)	4-7 PSI (.27-0.5 BAR)	22 PSI
V1	5-28 in Hg (160-948mb)	2-4 INHg (67-135mb)	5 Hg



SEE ORDERING CHART

LES-FL



LES-HC

## Switch Ordering Code

LES – P1 – 2N – B – HC –

Series	Adjustment Range	Thread	Seals	Electrical Connection	Options
LES	P1 3-20 PSI P2 15-80 PSI V1 5-30" HG Rising	2N 1/8" NPT 4N 1/4" NPT 4S 7/16"-20 6S 9/16"-18	B Buna V Viton E EPDM	FL Flying Leads HC Din Clamp	Omit SS Stainless Housing IL Ind Light

*\*Indicators ordered and shipped separately*

Switch can be used in AC or DC Service.  
For other options consult factory.  
Switch does not indicate differential pressure

See Technical Bulletin TB.FIL23.912, or further information at  
(Technical Data – [www.lenzinc.com](http://www.lenzinc.com))