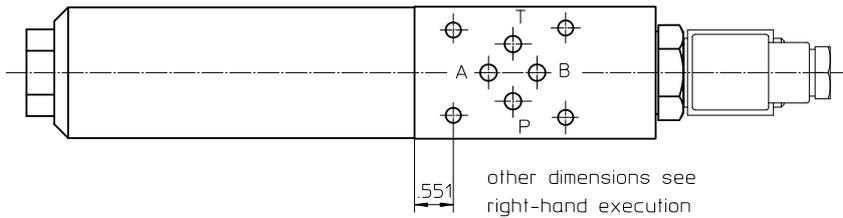


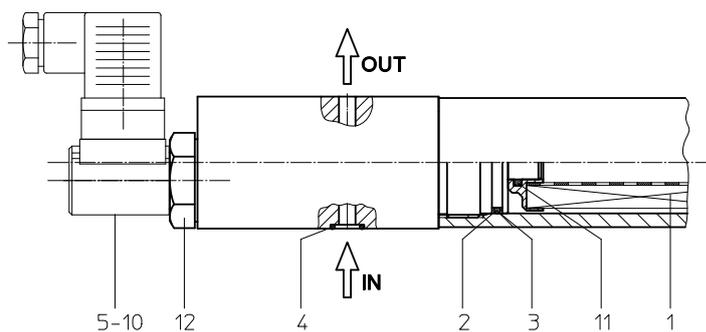
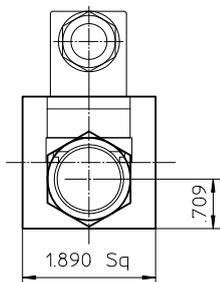
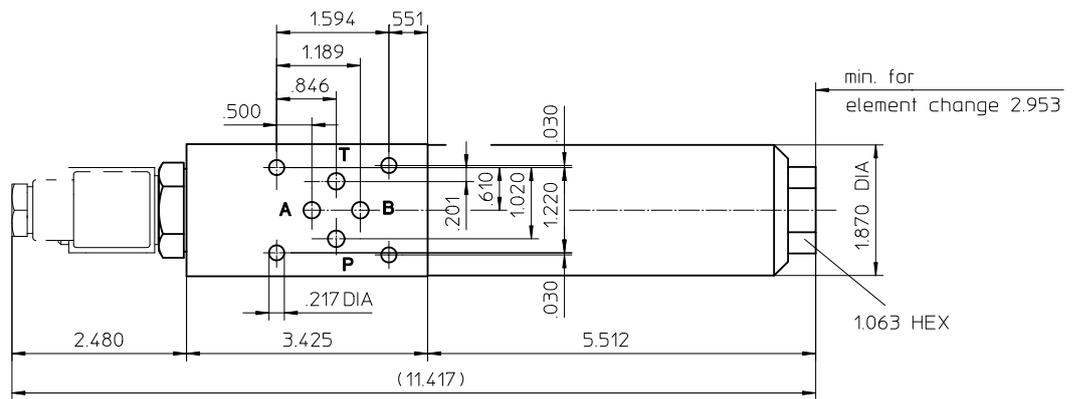
# Series HPZ 32

## 5075 PSI

### Left hand installation



### Right hand installation



Weight: approx. 7.7 lbs.

Dimensions: inches

Designs and performance values are subject to change.



Powering Business Worldwide

# Pressure Filter

## Series HPZ 32

### 5075 PSI

#### Description:

The HPZ series filter is a valve protection filter according to DIN 24340-A6 (D03 & D05 pattern). These pressure filters are mounted between the valve and manifold to provide extra protection for critical valves. The HPZ filter can be mounted on either side of the valve for easy filter maintenance, depending on the filter configuration.

The filter element consists of star-shaped, pleated filter material, which is supported on the inside by a perforated core tube and is bonded to the end caps with a high-quality adhesive. The flow direction is from outside to inside. Filter elements are available down to 4  $\mu\text{m}_{(c)}$ .

Eaton filter elements are known for high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

Eaton filter elements can be used for petroleum-based fluids, HW emulsions, water glycols, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

Eaton filter elements are available up to a pressure resistance of  $\Delta p$  2320 PSI and a rupture strength of  $\Delta p$  3625 PSI.

## 1. Type index:

### 1.1. Complete filter: (ordering example)

**HPZ. 32. 10VG. HR. E. P. - . Z. 1. - . R. AE**

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

#### 1 series:

HPZ = pressure filter for sandwich stacking

#### 2 nominal size: 32

#### 3 filter-material and filter-fineness:

80G, 40G, 25G, 10G stainless steel wire mesh  
25VG, 16VG, 10VG, 6VG, 3VG microglass

#### 4 filter element collapse rating:

30 =  $\Delta p$  435 PSI  
HR =  $\Delta p$  2320 PSI (rupture strength  $\Delta p$  3625 PSI)

#### 5 filter element design:

E = single-end open

#### 6 sealing material:

P = Nitrile (NBR)  
V = Viton (FPM)

#### 7 filter element specification:

- = standard  
VA = stainless steel

#### 8 process connection:

Z = sandwich stacking according to DIN 24340, T2

#### 9 process connection size:

1 = A6 according to DIN 24340, T2

#### 10 filter housing specification: (see catalog)

- = standard

#### 11 head design:

R = right-hand installation  
L = left-hand installation

#### 12 clogging indicator or clogging sensor:

- = without  
AOR = visual, see sheet-no. 1606  
AOC = visual, see sheet-no. 1606  
AE = visual-electric, see sheet-no. 1615  
VS5 = electronic, see sheet-no. 1619

To add an indicator to your filter, use the corresponding indicator data sheet to find the indicator details and add them to the filter assembly model code.

### 1.2. Filter element: (ordering example)

**01E. 30. 10VG. HR. E. P. -**

1	2	3	4	5	6	7
---	---	---	---	---	---	---

#### 1 series:

01E. = filter element according to company standard

#### 2 nominal size: 30

#### 3 - 7 see type index-complete filter

## Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium:	mineral oil, other media on request
max. operating pressure:	5075 PSI
test pressure:	7257 PSI
process connection:	(master gauge for holes) DIN 24340-A6
housing material:	EN-GJS-400-18-LT, C-steel
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	0.02 Gal

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.  
 Classified under ATEX Directive 2014/34/EC according to specific application (see questionnaire sheet-no. 34279-4).

## Pressure drop flow curves:

### Filter calculation/sizing

The pressure drop of the assembly at a given flow rate Q is the sum of the housing  $\Delta p$  and the element  $\Delta p$  and is calculated as follows:

$$\Delta p_{assembly} = \Delta p_{housing} + \Delta p_{element}$$

$$\Delta p_{housing} = (\text{see } \Delta p = f(Q) \text{ - characteristics})$$

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left( \frac{PSI}{GPM} \right) \times v (SUS) \times \frac{\rho}{0.876} \left( \frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at [www.eatonpowersource.com/calculators/filtration/](http://www.eatonpowersource.com/calculators/filtration/)

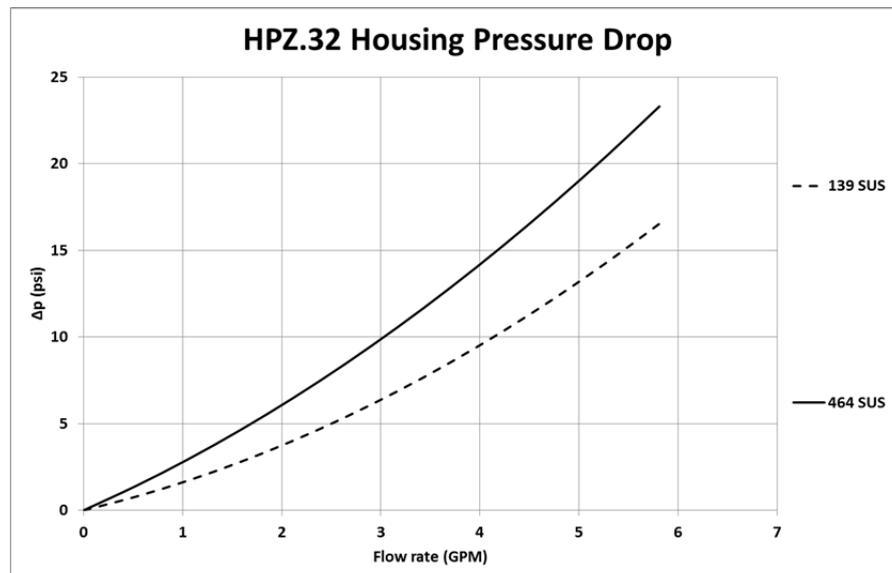
### Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup> and a kinematic viscosity of 139 SUS (30 mm<sup>2</sup>/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

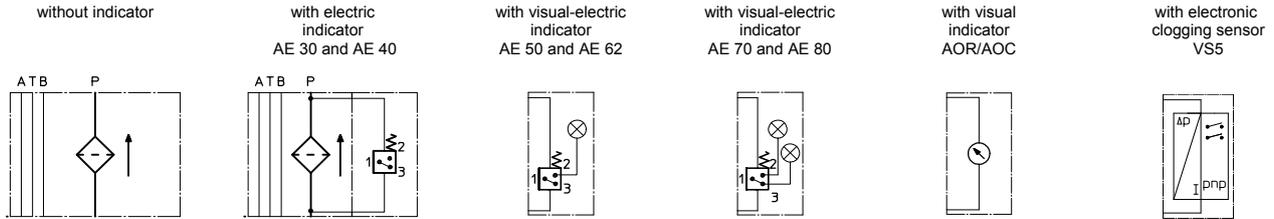
HPZ	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
32	12.554	8.716	5.580	4.794	3.275	0.2539	0.2369	0.1623

### $\Delta p = f(Q)$ – characteristics according to ISO 3968

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup>. The pressure drop changes proportionally to the density.



## Symbols:



## Spare parts:

item	qty.	designation	dimension	article-no.	
1	1	filter element	01E.30...		
2	1	support ring	SRA 27 x 2,1 x 1	305466	
3	1	O-ring	32 x 2,5	306843 (NBR)	308268 (FPM)
4	4	O-ring	9,25 x 1,78	304354 (NBR)	310268 (FPM)
5	1	clogging indicator, visual	AOR or AOC	see sheet no. 1606	
6	1	clogging indicator, visual-electric	AE	see sheet no. 1615	
7	1	clogging sensor, electronic	VS5	see sheet no. 1619	
8	1	O-ring	15 x 1,5	315357 (NBR)	315427 (FPM)
9	1	O-ring	22 x 2	304708 (NBR)	304721 (FPM)
10	1	O-ring	14 x 2	304342 (NBR)	304722 (FPM)
11	1	O-ring	11 x 3	312603 (NBR)	312727 (FPM)
12	1	screw plug	20913-4	309817	

item 12 execution only without clogging indicator or clogging sensor

## Test methods:

Filter elements are tested according to the following ISO standards:

ISO 2941	Verification of collapse/burst resistance
ISO 2942	Verification of fabrication integrity
ISO 2943	Verification of material compatibility with fluids
ISO 3723	Method for end load test
ISO 3724	Verification of flow fatigue characteristics
ISO 3968	Evaluation of pressure drop versus flow characteristics
ISO 16889	Multi-pass method for evaluating filtration performance

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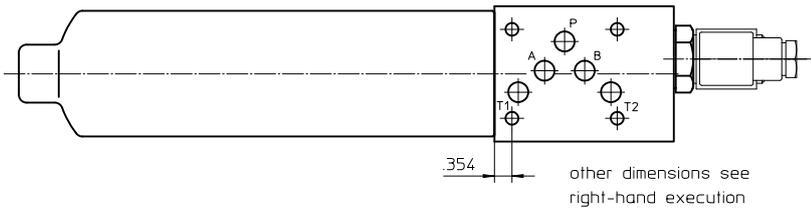
**For more information, please  
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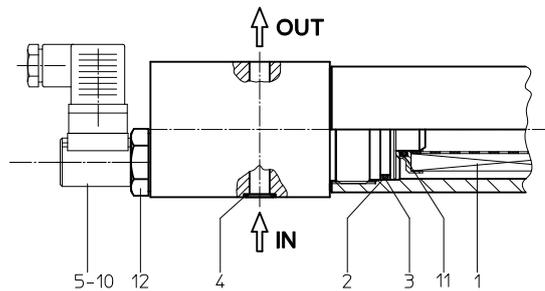
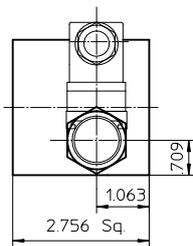
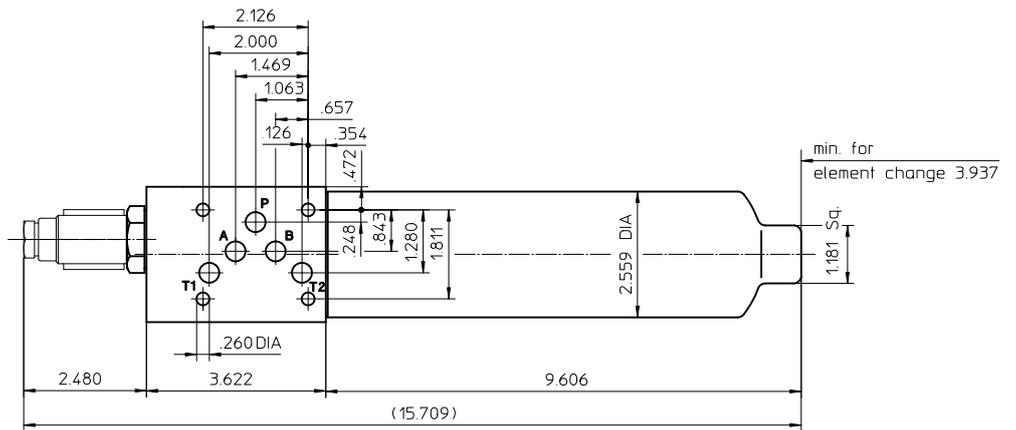
# Series HPZ 90

## 5075 PSI

### Left hand installation



### Right hand installation



Weight: approx. 14.3 lbs.

Dimensions: inches

Designs and performance values are subject to change.

# Pressure Filter

## Series HPZ 90

### 5075 PSI

#### Description:

The HPZ series filter is a valve protection filter according to DIN 24340-A6 (D03 & D05 pattern). These pressure filters are mounted between the valve and manifold to provide extra protection for critical valves. The HPZ filter can be mounted on either side of the valve for easy filter maintenance, depending on the filter configuration.

The filter element consists of star-shaped, pleated filter material, which is supported on the inside by a perforated core tube and is bonded to the end caps with a high-quality adhesive. The flow direction is from outside to inside. Filter elements are available down to 4  $\mu\text{m}_{(c)}$ .

Eaton filter elements are known for high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

Eaton filter elements can be used for petroleum-based fluids, HW emulsions, water glycols, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

Eaton filter elements are available up to a pressure resistance of  $\Delta p$  2320 PSI and a rupture strength of  $\Delta p$  3625 PSI.

## 1. Type index:

### 1.1. Complete filter: (ordering example)

**HPZ. 90. 10VG. HR. E. P. - . Z. 2. - . R. AE**

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

- |    |  |
|----|--|
| 1  | <b>series:</b><br>HPZ = pressure filter for sandwich stacking  |
| 2  | <b>nominal size:</b> 90  |
| 3  | <b>filter-material and filter-fineness:</b><br>80G, 40G, 25G, 10G stainless steel wire mesh<br>25VG, 16VG, 10VG, 6VG, 3VG microglass   |
| 4  | <b>filter element collapse rating:</b><br>30 = $\Delta p$ 435 PSI<br>HR = $\Delta p$ 2320 PSI (rupture strength $\Delta p$ 3625 PSI)   |
| 5  | <b>filter element design:</b><br>E = single-end open   |
| 6  | <b>sealing material:</b><br>P = Nitrile (NBR)<br>V = Viton (FPM)   |
| 7  | <b>filter element specification:</b><br>- = standard<br>VA = stainless steel   |
| 8  | <b>process connection:</b><br>Z = sandwich stacking according to DIN 24340, T2   |
| 9  | <b>process connection size:</b><br>2 = A10 according to DIN 24340, T2  |
| 10 | <b>filter housing specification:</b> (see catalog)<br>- = standard   |
| 11 | <b>head design:</b><br>R = right-hand installation<br>L = left-hand installation   |
| 12 | <b>clogging indicator or clogging sensor:</b><br>- = without<br>AOR = visual, see sheet-no. 1606<br>AOC = visual, see sheet-no. 1606<br>AE = visual-electric, see sheet-no. 1615<br>VS5 = electronic, see sheet-no. 1619 |

To add an indicator to your filter, use the corresponding indicator data sheet to find the indicator details and add them to the filter assembly model code.

### 1.2. Filter element: (ordering example)

**01E. 90. 10VG. HR. E. P. -**

1	2	3	4	5	6	7
---	---	---	---	---	---	---

- |   |   |
|---|---|
| 1 | <b>series:</b><br>01E. = filter element according to company standard |
| 2 | <b>nominal size:</b> 90   |
| 3 | - 7   see type index-complete filter                                  |

## Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
max. operating pressure:	5075 PSI
test pressure:	7257 PSI
process connection:	(master gauge for holes) DIN 24340-A10
housing material:	EN-GJS-400-18-LT, C-steel
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	0.10 Gal

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.  
 Classified under ATEX Directive 2014/34/EC according to specific application (see questionnaire sheet-no. 34279-4).

## Pressure drop flow curves:

### Filter calculation/sizing

The pressure drop of the assembly at a given flow rate Q is the sum of the housing  $\Delta p$  and the element  $\Delta p$  and is calculated as follows:

$$\Delta p_{assembly} = \Delta p_{housing} + \Delta p_{element}$$

$$\Delta p_{housing} = (\text{see } \Delta p = f(Q) \text{ - characteristics})$$

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left( \frac{PSI}{GPM} \right) \times v(SUS) \times \frac{\rho}{0.876} \left( \frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at [www.eatonpowersource.com/calculators/filtration/](http://www.eatonpowersource.com/calculators/filtration/)

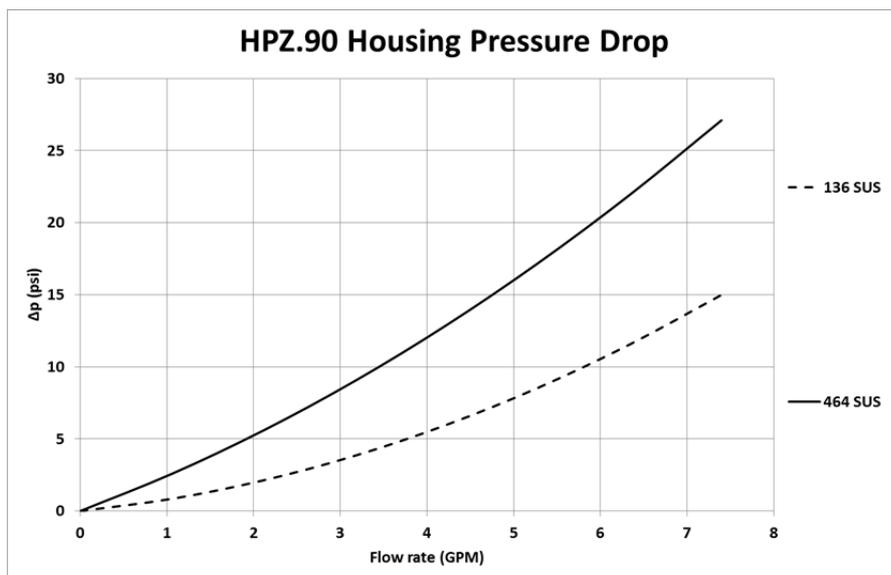
### Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup> and a kinematic viscosity of 139 SUS (30 mm<sup>2</sup>/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

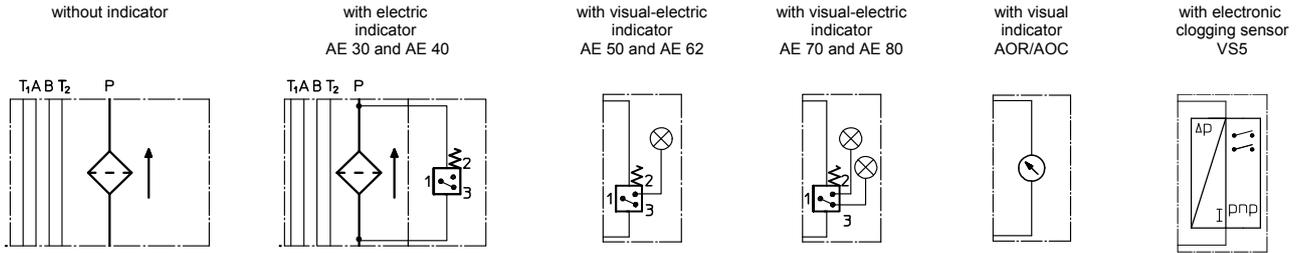
HPZ	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
90	4.059	2.818	1.804	1.550	1.059	0.1210	0.1130	0.0774

### $\Delta p = f(Q)$ – characteristics according to ISO 3968

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup>. The pressure drop changes proportionally to the density.



## Symbols:



## Spare parts:

item	qty.	designation	dimension	article-no.
1	1	filter element	01E.90...	
2	1	support ring	SRA 52 x 2,6 x 1	311013
3	1	O-ring	45 x 3	304991 (NBR) 304997 (FPM)
4	4	O-ring	12 x 2	311014 (NBR) 310271 (FPM)
5	1	clogging indicator, visual	AOR or AOC	see sheet no. 1606
6	1	clogging indicator, visual-electric	AE	see sheet no. 1615
7	1	clogging sensor, electronic	VS5	see sheet no. 1619
8	1	O-ring	15 x 1,5	315357 (NBR) 315427 (FPM)
9	1	O-ring	22 x 2	304708 (NBR) 304721 (FPM)
10	1	O-ring	14 x 2	304342 (NBR) 304722 (FPM)
11	1	O-ring	22 x 3,5	304341 (NBR) 304392 (FPM)
12	1	screw plug	20913-4	309817

item 12 execution only without clogging indicator or clogging sensor

## Test methods:

Filter elements are tested according to the following ISO standards:

ISO 2941	Verification of collapse/burst resistance
ISO 2942	Verification of fabrication integrity
ISO 2943	Verification of material compatibility with fluids
ISO 3723	Method for end load test
ISO 3724	Verification of flow fatigue characteristics
ISO 3968	Evaluation of pressure drop versus flow characteristics
ISO 16889	Multi-pass method for evaluating filtration performance

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