In-Line Filter QFD5

Model No. of filter in photograph is QFD516QZ10F48DPG.

Features and Benefits

- Duplex filter design
- Approved for API 5L use
- Element changeout from the top minimizes oil spillage
- Available with optional core assembly to accommodate coreless elements
- Offered with standard Q, QPML deep-pleated and QCLQF coreless elements in 16" and 39" lengths with Viton® seals as the standard
- Offered in 2" and 3" SAE J518 4-bolt flange Code 61 and ANSI 300# flange porting
- Integral inlet and outlet test points are standard on all models
- Various Dirt Alarm® options
- Also available in 4, 6 or 8 housing modular designs (contact factory)
- The QCLCF, coreless elements, are not interchangeable with the Q & QPML elements and vice versa

350 gpm
1325 L/min
500 psi
35 bar

Filter Housing Specifications

Flow Rating:	Up to 175 gpm (675 L/min) for 2"; 350 gpm (1325 L/min) for 3" for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	500 psi (35 bar)
Min. Yield Pressure:	Contact Factory
Rated Fatigue Pressure:	Contact Factory
Temp. Range:	-15°F to 200°F (-26°C to 93°C)
Bypass Setting:	Cracking: 30 psi (2.1 bar) Full Flow: 33 psi (2.3 bar) for 2"; 38 psi (2.6 bar) for 3"
Porting Base & Cap:	Ductile Iron
Element Case & Transfer Valve:	Steel
Weight of QFD5-16Q:	410.0 lbs. (186.0 kg) for 2"; 455.0 (206.0 kg) for 3"
Weight of QFD5-39Q:	562.0 lbs. (255.0 kg) for 2"; 607.0 (275.0 kg) for 3"
Element Change Clearance:	16Q 12.00" (305 mm) 39Q 33.80" (859 mm)

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® and 10 µ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and all ASP® media (synthetic)

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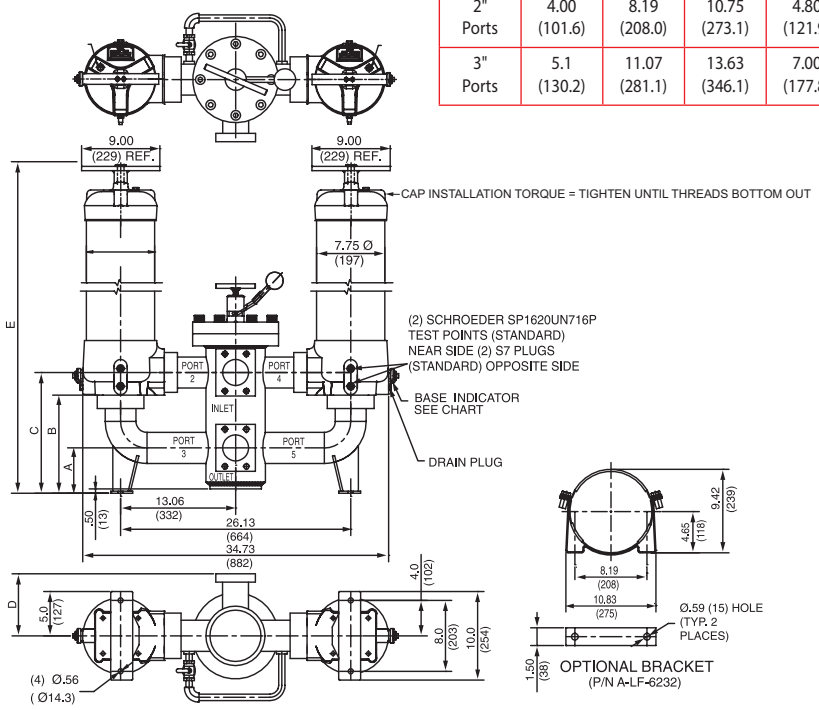
PORT SIZE	DIM A	DIM B	DIM C	DIM D	DIM E 16Q	DIM E 39Q
2" Ports	4.00 (101.6)	8.19 (208.0)	10.75 (273.1)	4.80 (121.9)	36.50 (927)	58.31 (1481)
3" Ports	5.1 (130.2)	11.07 (281.1)	13.63 (346.1)	7.00 (177.8)	39.38 (1000)	61.19 (1559)



Metric dimensions in ( ).

Element Performance Information & Dirt Holding Capacity

	Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 $\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
16Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0
39Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0

	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	CLQFZ1	307	PMLZ1	307
	Z3	283	CLQFZ3	315	PMLZ3	315
	Z5	351	CLQFZ5	364	PMLZ5	364
	Z10	280	CLQFZ10	306	PMLZ10	330
	Z25	254	CLQFZ25	278	PMLZ25	299
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3	1001	CLQFZ3	1293	PMLZ3	1525
	Z5	954	CLQFZ5	1302	PMLZ5	1235
	Z10	940	CLQFZ10	1214	PMLZ10	1432
	Z25	853	CLQFZ25	1102	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar), QCLQF: 100 psid (7 bar)

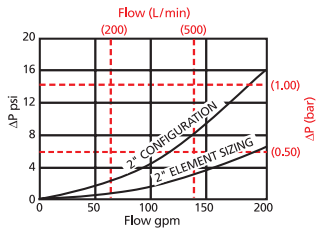
Flow Direction: Outside In

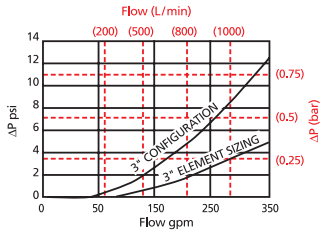
Element Nominal Dimensions:
39Q: 6.0" (150 mm) O.D. x 38.70" (985 mm) long
39QCLQF: 6.0" (150 mm) O.D. x 40.01" (1016 mm) long
39QPML: 6.0" (150 mm) O.D. x 37.80" (960 mm) long

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

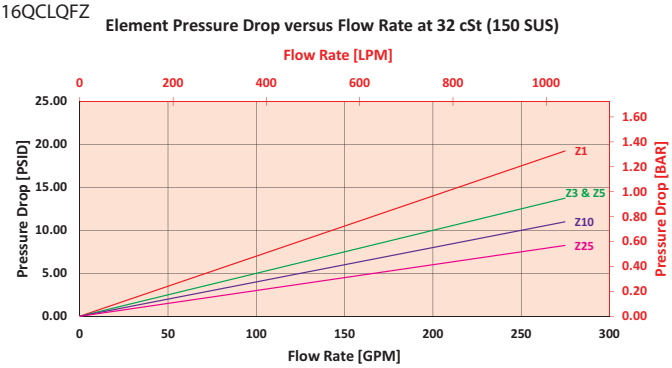
QFD5 $\Delta P_{housing}$ for fluids with sp gr (specific gravity) = 0.86:



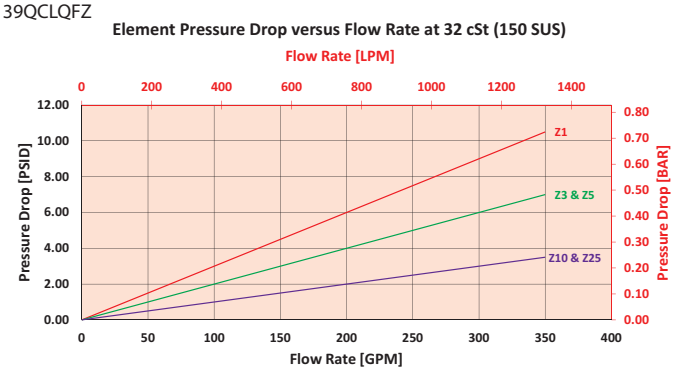


$\Delta P_{element}$

16QCLQFZ



39QCLQFZ



$$\Delta P_{filter} = \Delta P_{housing} + (\Delta P_{element} * V_f)$$

Exercise:

Determine ΔP_{filter} at 200 gpm (758 L/min) for QFD516QZ3F48D5C using 100 SUS (21.3 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{housing}$ at 200 gpm. In this case, $\Delta P_{housing}$ is 5 psi (.34 bar) on the graph for the QFD5 housing.

Use the element pressure curve to determine $\Delta P_{element}$ at 200 gpm. In this case, $\Delta P_{element}$ is 7 psi (.48 bar) according to the graph for the 16QCZ3 element.

Because the viscosity in this sample is 100 SUS (21.3 cSt), we determine the Viscosity Factor (V_f) by dividing the Operating Fluid Viscosity with the Standard Viscosity of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{housing}$ with the true element pressure differential, ($\Delta P_{element} * V_f$). The $\Delta P_{element}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$\Delta P_{housing}$ = 5 psi [.34 bar] | $\Delta P_{element}$ = 7 psi [.48 bar]

V_f = 100 SUS (21.3 cSt) / 150 SUS (32 cSt) = .67

ΔP_{filter} = 5 psi + (7 psi * .67) = 9.7 psi

OR

ΔP_{filter} = .34 bar + (.48 bar * .67) = .66 bar

Note:
If your element is not graphed, use the following equation: $\Delta P_{element}$ = Flow Rate x ΔP_f. Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP	Ele.	ΔP
16QAS3V	0.04	16QPMLZ1	0.08	39QZ1	0.03
16QAS5V	0.04	16QPMLZ3	0.05	39QZ3	0.01
16QAS10V	0.03	16QPMLZ5	0.05	39QZ5	0.01
16QPML-AS3V	0.05	16QPMLZ10	0.04	39QZ10	0.01
16QPML-AS5V	0.05	16QPMLZ25	0.02	39QZ25	0.01
16QPML-AS10V	0.04	39QAS3V	0.01	39QPMLZ1	0.03
16QZ1	0.09	39QAS5V	0.01	39QPMLZ3	0.02
16QZ3	0.04	39QAS10V	0.01	39QPMLZ5	0.02
16QZ5	0.04	39QPMLAS-3V	0.02	39QPMLZ10	0.01
16QZ10	0.03	39QPMLAS-5V	0.02	39QPMLZ25	0.01
16QZ25	0.01	39QPMLAS-10V	0.01		

QFD5 In-Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder QF5:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
QFD5 –	–	–	–	–	–	–	–	–	

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
QFD5 –	16 –	Q –	Z –	3 –	–	F48 –	–	D5C –	=QFD516QZ3F48D5C

BOX 1 – Filter Series

QFD5

BOX 2 – Element Length (in)

16
39

BOX 3 – Element Style

Q
QCLQF
QPML

BOX 4 – Media Type

Z = Excellement® Z-Media® (synthetic)
AS = Anti-Stat Pleat media (synthetic)
W = W media (water removal)

BOX 5 – Micron Rating

1 = 1 µm Z-Media®
3 = 3 µm Z-Media®
5 = 5 µm Z-Media®
10 = 10 µm Z-Media®
25 = 25 µm Z-Media®

BOX 6 – Housing Seal Material

Omit = Buna N
V = Viton®

BOX 7 – Porting

F32	= 2" SAE 4-bolt flange Code 61
F32M	= 2" SAE 4-bolt flange Code 61
FA32	= 2" ANSI 300# flange
F48	= 3" SAE 4-bolt flange Code 61
F48M	= 3" SAE 4-bolt flange Code 61
FA48	= 3" ANSI 300# flange

BOX 8 – Bypass Setting

Omit = 30 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 9 – Dirt Alarm® Options

	Omit =	None
Visual	DPG =	Standard differential pressure gauge
	D5 =	Visual pop-up
	D5C =	D5 in cap
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	D8 in cap
Electrical	MS5 =	Electrical w/ 12 in. 18 gauge 4-conductor cable
	MS5LC =	Low current MS5
	MS10 =	Electrical w/ DIN connector (male end only)
	MS10LC =	Low current MS10
	MS11 =	Electrical w/ 12 ft. 4-conductor wire
	MS12 =	Electrical w/ 5 pin Brad Harrison connector (male end only)
	MS12LC =	Low current MS12
	MS16 =	Electrical w/ weather-packed sealed connector
	MS16LC =	Low current MS16
	MS17LC =	Electrical w/ 4 pin Brad Harrison male connector
Electrical with Thermal Lockout	MS5T =	MS5 (see above) w/ thermal lockout
	MS5LCT =	Low current MS5T
	MS10T =	MS10 (see above) w/ thermal lockout
	MS10LCT =	Low current MS10T
	MS12T =	MS12 (see above) w/ thermal lockout
	MS12LCT =	Low current MS12T
	MS16T =	MS16 (see above) w/ thermal lockout
	MS16LCT =	Low current MS16T
	MS17LCT =	Low current MS17T
Electrical Visual	MS13 =	Supplied w/ threaded connector & light
	MS14 =	Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	MS13DCT =	MS13 (see above), direct current, w/ thermal lockout
	MS13DCLCT =	Low current MS13DCT
	MS14DCT =	MS14 (see above), direct current, w/ thermal lockout
	MS14DCLCT =	Low current MS14DCT

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5 plus the letter V.
Example: 39QZ10V

Box 3. QCLQF are CoreCentric® coreless elements – housing includes rigid metal core. QPML are deep-pleated elements with more media and higher dirt holding capacity.

Box 4. For option W, Box 3 must equal Q.

Box 6. All elements for this filter are supplied with Viton® seals. Seal designation in Box 6 applies to housing only. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 8. When X is paired with a standard filter series, a standard bushing and spring plate will be used.