Tank-Mounted Filter QT

Model No. of filter in photograph is QT39QZ10P48D5C.

Features and Benefits

- Low pressure tank-mounted filter
- Designed for high return line flows
- Tank-mounted unit saves space, reduces plumbing
- Cap handles provide for easy element changeout
- Offered with standard Q, QW, and QPML deep-pleated elements in 16" and 39" lengths with Viton® seals as the standard seal option

450 *gpm*
1700 L/min
100 psi
7 bar

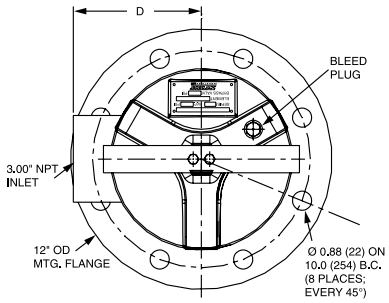
Filter Housing Specifications

Flow Rating:	Up to 450 gpm (1700 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	300 psi (21 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	100 psi (7 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2.1 bar) Full Flow: 55 psi (3.8 bar)
Porting Head: Element Case:	Steel Steel
Min. Weight of QT-16Q: Min. Weight of QT-39Q:	100.0 lbs. (46 kg) 158.0 lbs. (72 kg)
Element Change Clearance:	16Q 12.0" (305 mm) 39Q 33.8" (859 mm)

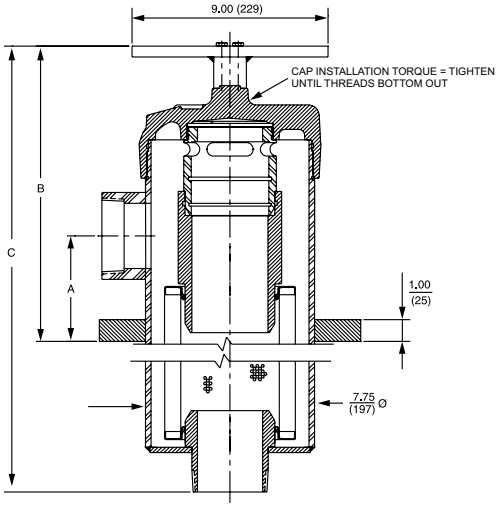
Fluid Compatibility

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)

QT Tank-Mounted Filter



TOP VIEW



SECTION A-A

INLET PORT SIZE*	DIMENSIONS			
	A	B	C	D
3"	4.85 (123)	14.62 (371)	16Q: 30.43 (773) 39Q: 52.25 (1327)	5.88 (149)
4"	5.75 (146)	16.12 (409)	16Q: 30.43 (773) 39Q: 52.25 (1327)	6.13 (156)

*Outlet port is always 3".

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			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
		$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
16Q	Z1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/PMLZ25	18.0	20.0	22.5	19.0	24.0
39Q	Z1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/PMLZ25	18.0	20.0	22.5	19.0	24.0

Element		DHC (gm)	Element	DHC (gm)
16Q	Z1	276	PMLZ1	307
	Z3	283	PMLZ3	315
	Z5	351	PMLZ5	364
	Z10	280	PMLZ10	330
	Z25	254	PMLZ25	299
39Q	Z1	974	PMLZ1	1485
	Z3	1001	PMLZ3	1525
	Z5	954	PMLZ5	1235
	Z10	940	PMLZ10	1432
	Z25	853	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar)

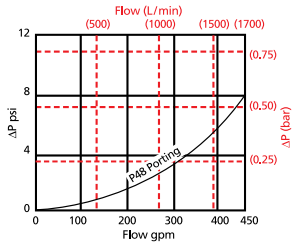
Flow Direction: Outside In

Element Nominal Dimensions:
16Q: 6.0" (150 mm) O.D. x 16.85" (430 mm) long
16QPML: 6.0" (150 mm) O.D. x 16.00" (405 mm) long
39Q: 6.0" (150 mm) O.D. x 38.70" (985 mm) long
39QPML: 6.0" (150 mm) O.D. x 37.80" (960 mm) long

Pressure Drop Information
Based on Flow Rate and Viscosity

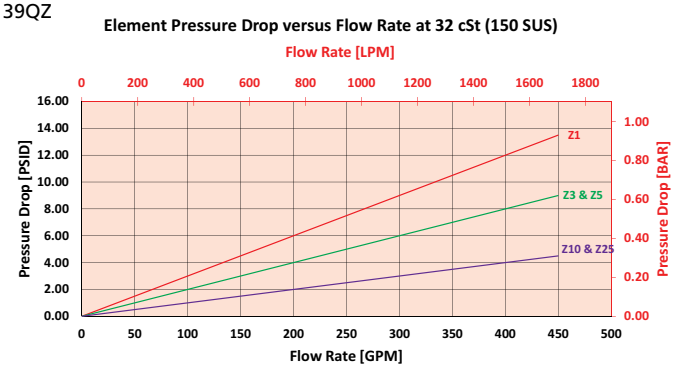
$\Delta P_{housing}$

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

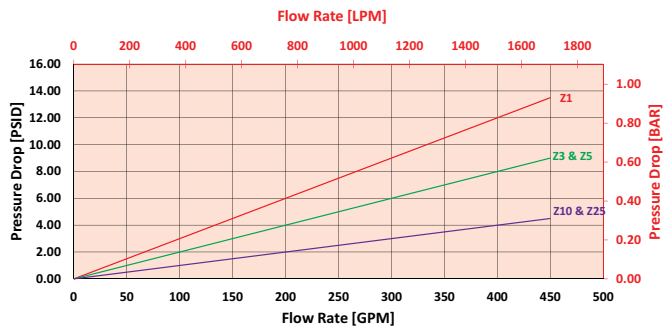


$\Delta P_{element}$

39QZ



39QPMLZ



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

Exercise:

Determine ΔP_{filter} at 200 gpm (758 L/min) for QT16QZ3P48D5C using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{housing}$ at 200 gpm. In this case, $\Delta P_{housing}$ is 2 psi (.14 bar) on the graph for the QT housing.

Use the element pressure curve to determine $\Delta P_{element}$ at 200 gpm. In this case, $\Delta P_{element}$ is 8 psi (.55 bar) according to the graph for the 16QZ3 element.

Because the viscosity in this sample is 160 SUS (34 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:

$\Delta P_{housing}$ = 2 psi [.14 bar] | $\Delta P_{element}$ = 8 psi [.55 bar]

V_f = 160 SUS (34 cSt) / 150 SUS (32 cSt) = 1.1

ΔP_{filter} = 2 psi + (8 psi * 1.1) = 10.8 psi

OR

ΔP_{filter} = .14 bar + (.55 bar * 1.1) = .75 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
16QAS3V	0.04	16QPMLZ1	0.08
16QAS5V	0.04	16QPMLZ3	0.05
16QAS10V	0.03	16QPMLZ5	0.05
16QPMLAS3V	0.05	16QPMLZ10	0.04
16QPMLAS5V	0.05	16QPMLZ25	0.02
16QPMLAS10V	0.04	39QAS3V	0.01
16QZ1	0.09	39QAS5V	0.01
16QZ3	0.04	39QAS10V	0.01
16QZ5	0.04	39QPMLAS3V	0.02
16QZ10	0.03	39QPMLAS5V	0.02
16QZ25	0.01	39QPMLAS10V	0.01

QT Tank-Mounted Filter

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
QT									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
QT	16	Q	Z	3		P48			D5C	**= QT16QZ3P48D5C**

BOX 1 — Filter Series

QT

BOX 2 — Element Length (in)

16
39

BOX 3 — Element Style

Q
QCLQF
QPML

BOX 4 — Media Type

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

BOX 5 — Micron Rating

1 = 1 µ Z-Media®
3 = 3 µ AS and Z-Media®
5 = 5 µ AS and Z-Media®
10 = 10 µ AS and Z-Media®
25 = 25 µ Z-Media®

BOX 6 — Housing Seal Material

Omit = Buna N
H = EPR
V = Viton®

BOX 7 — Inlet Porting

P48 = 3" NPTF
P64 = 4" NPTF

BOX 8 — Bypass Setting

Omit = 30 psi cracking
15 = 15 psi cracking
40 = 40 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 9 — Outlet Porting

Omit = 3" NPT Male
C = Check valve
D = Diffuser
CD = Check valve and diffuser

BOX 10 — Dirt Alarm® Options

	Omit = None
Visual	D5C = Visual pop-up in cap
Visual with Thermal Lockout	D8C = Visual w/ thermal lockout in cap
Electrical	MS5C = Electrical w/ 12 in. 18 gauge 4-conductor cable in cap
	MS5LCC = Low current MS5 in cap
	MS10C = Electrical w/ DIN connector (male end only) in cap
	MS10LCC = Low current MS10 in cap
	MS11C = Electrical w/ 12 ft. 4-conductor wire in cap
	MS12C = Electrical w/ 5 pin Brad Harrison connector (male end only) in cap
	MS12LCC = Low current MS12 in cap
	MS16C = Electrical w/ weather-packed sealed connector in cap
	MS16LCC = Low current MS16 in cap
	MS17LCC = Electrical w/ 4 pin Brad Harrison male connector in cap
Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout in cap
	MS5LCT = Low current MS5T in cap
	MS10TC = MS10 (see above) w/ thermal lockout in cap
	MS10LCTC = Low current MS10T in cap
	MS12TC = MS12 (see above) w/ thermal lockout
	MS12LCTC = Low current MS12T in cap
	MS16TC = MS16 (see above) w/ thermal lockout in cap
	MS16LCTC = Low current MS16T in cap
	MS17LCTC = Low current MS17T in cap
Electrical Visual	MS13C = Supplied w/ threaded connector & light in cap
	MS14C = Supplied w/ 5 pin Brad Harrison connector & light (male end) in cap
Electrical Visual with Thermal Lockout	MS13DCTC = MS13 (see above), direct current, w/ thermal lockout in cap
	MS13DCLCTC = Low current MS13DCT in cap
	MS14DCTC = MS14 (see above), direct current, w/ thermal lockout in cap
	MS14DCLCTC = Low current MS14DCT in cap

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5, plus the letter V. *Example*: 16QZ1V

Box 3. QCLQF element are not available in ASP® media.

Box 4. E media elements are also available for the QT filter housing. Contact factory for more information.

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

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