

# 18/28/38P Series

High Pressure Filters

Max 700 l/min - 414 bar



## The all-round high pressure filter solution

### Robust housing for heavy duty applications

The 18/28/38P Series features a range of head and bowl sizes and connection options. Microglass III glassfibre media is standard. Maximum pressure 414 bar. Maximum flow 700 l/min. A globally proven filter with optimized sizing for a wide range of industrial applications.



## Contact Information:

Parker Hannifin  
**Hydraulic Filter Division Europe**

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[www.parker.com/hfde](http://www.parker.com/hfde)

## Product Features:

- Multiple bypass settings up to 7 bar.
- 18/28/38P features a range of head and bowl sizes and connection options.
- Microglass III glassfibre media is standard.
- Maximum pressure 414 bar. Maximum flow 700 l/min.
- A proven filter solution for 'heavy duty' hydraulic systems.

# 18/28/38P Series

## High Pressure Filters

### Features & Benefits

Features	Advantages	Benefits
Fatigue tested to full pressure rating	Strong and robust housing for heavy duty applications	Reliable and continuous operation both in mobile and industrial applications
Several head sizes	Optimised sizing	Efficient filtration Covers wide flow range
Several connection options	Easy mounting	Global design, global acceptance Right filter for each application
Microglass III replacement elements	Multi-layered design produced high capacity and efficiency	Great performance value
	Wire support reduces pleat bunching, keeps performance consistent	Reliable performance throughout element life Reduces downtime, maximises element life
Visual, electrical and electronic indicators available	Check element condition at a glance	Optimises element life, prevents bypassing
	Right style for the application	Matches your system electrical connections

### Typical Applications

- Injection moulding
- Die casting
- Servo controls
- Machine tools
- Mobile equipment

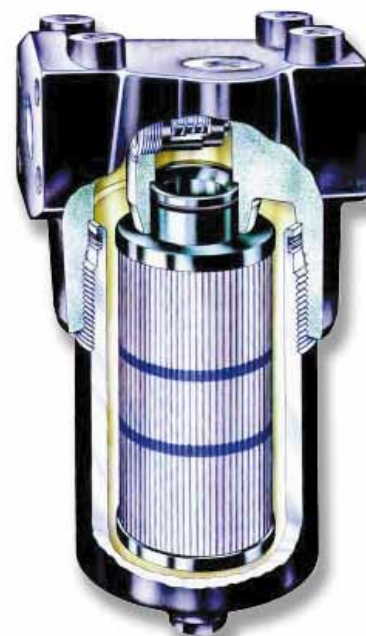
### The Parker Filtration 18/28/38P Series High Pressure Filters

Parker Filtration engineered the 18/28/38P series of high pressure filters to satisfy demanding applications in the mobile and industrial markets throughout the world. With metric mounting and optional ISO 6149 ports, this new series is truly a global design.

Installed downstream of the pump, this new series with their wide range of high capacity Microglass III elements, offer excellent protection to system components.

Standard filters come complete with industry proven spool type bypass valve. For more critical applications such as servo or proportional controls, a no bypass high strength element combination ensures maximum protection.

The modular low hysteresis differential pressure indicator fitted to this series is unrivaled in its performance. Tests prove its accuracy and foolproof design to be a major advance in indicator technology.



## Specification

### Pressure ratings:

Maximum allowable operating pressure 414 bar.

Filter housing pressure pulse fatigue tested: 10<sup>6</sup> pulses 0 - 414 bar.

### Connections:

Inlet and outlet connections are threaded internally or flange faced.

#### Connection style

	Model		
	18P	28P	38P
BSPF(G)	3/4"	1"	1 1/4", 1 1/2"
SAE	12	16	20, 24
ISO 6149	M27	M33	M42, M48
Flange SAE 6000	3/4"	1"	1 1/4"
Flange SAE 6000-M*	3/4"	1"	1 1/4"

\*6000-M is a SAE style with appropriate metric fixing threads.

### Filter housing:

Head material cast iron (GSI).

Bowl material steel.

### Seal material:

Nitrile or Fluoroelastomer.

### Operating temperature range:

Seal material Nitrile: -40 °C to +100 °C.

Seal material Fluoroelastomer: -20 °C to +120 °C.

### Bypass valve & indicator settings:

Table below gives bypass valve and corresponding indicator setting.

Bypass	Indicator
3.5 bar	2.5 bar
7.0 bar	5.0 bar

### Filter element:

#### Degree of filtration:

Determined by multipass-test according to ISO 16889.

### Flow fatigue characteristics:

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724).

### Microglass III:

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and metal inner core. Collapse rating 20 bar (ISO 2941).

### High collapse elements:

(To be used when no bypass function in filter housing).

Microglass III media supported with epoxy coated metal wire mesh on upstream and stainless steel on downstream, end cap material steel. Strong metal inner core. Collapse rating 210 bar (ISO 2941).

### Indicator options:

Indicating differential pressure: 2.5 ± 0.3 bar or 5.0 ± 0.5 bar.

- visual M3.
- electrical T1.
- electronic F1(PNP).
- electronic F2(NPN).

For indicator details see catalogue section 6.

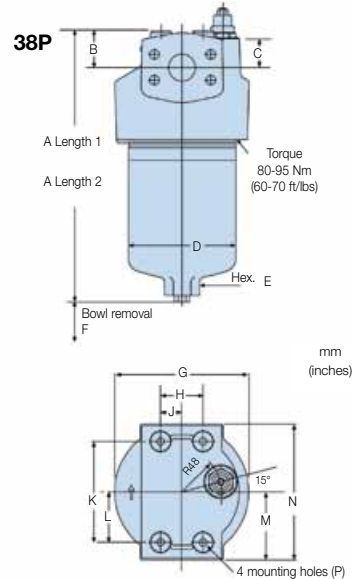
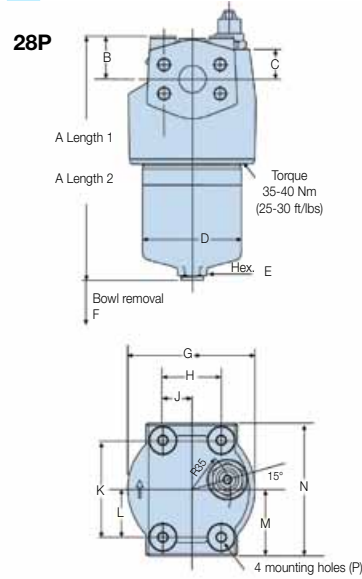
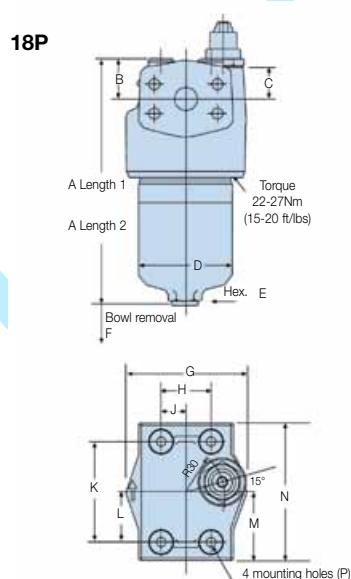
### Weights (kg):

Model	Length 1	Length 2
18P	4.2	5.7
28P	6.7	9.2
38P	15.8	20.3

### Fluid compatibility:

Suitable for use with mineral and vegetable oils, and some synthetic oils. For other fluids, please consult Parker Filtration.

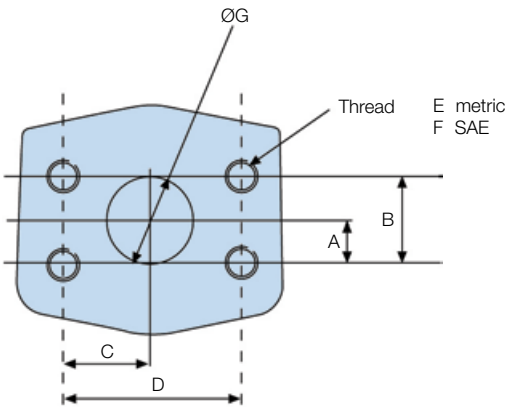
Model	A	B	C	D	E (A/F)	F	G	H	J	K	L	M	N	P
18P-1	198 (7.79)	32 (1.26)	26 (1.02)	75 (2.95)	24 (0.94)	100 (3.94)	98 (3.86)	40 (1.57)	20 (0.79)	80 (3.15)	40 (1.57)	55 (2.16)	110 (4.33)	M8 x 1.25 x12 deep
18P-2	293 (11.53)													
28P-1	228 (8.97)	40 (1.57)	29 (1.14)	93 (3.66)	24 (0.94)		120 (4.72)	55 (2.16)	27.5 (1.07)	90 (3.54)	45 (1.77)	62 (2.44)	124 (4.88)	M10 x 1.5 x11 deep
28P-2	337 (13.26)													
38P-1	329 (12.95)	44 (1.73)	35 (1.38)	128 (5.04)	36 (1.42)		160 (6.30)	50 (1.97)	25 (0.98)	120 (4.72)	60 (2.36)	81 (3.19)	162 (6.38)	M10 x 1.5 x12 deep
38P-2	448 (17.64)													



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High Pressure Filters

## Flange Face Details



Model mm (inches)	A	B	C	D	E	F	G
<b>18P (3/4")</b>	11.9 (0.47)	23.8 (0.94)	25.4 (1.00)	50.8 (2.0)	M10 x 1.5-6H x 18 Deep	3/8-16 UNC-2B x 18 deep	19.0 (0.75)
<b>28P (1")</b>	14 (0.55)	27.8 (1.09)	28.0 (1.10)	57.1 (2.25)	M12 x 1.75-6H x 20 Deep	7/16-14 UNC-2B x 20 deep	25.4 (1.0)
<b>38P (1 1/4")</b>	15.7 (0.62)	31.7 (1.25)	33.0 (1.30)	66.7 (2.62)	M14 x 2-6H x 20 Deep	1/2-13 UNC-2B x 20 deep	31.8 (1.25)

## Pressure Drop Curves

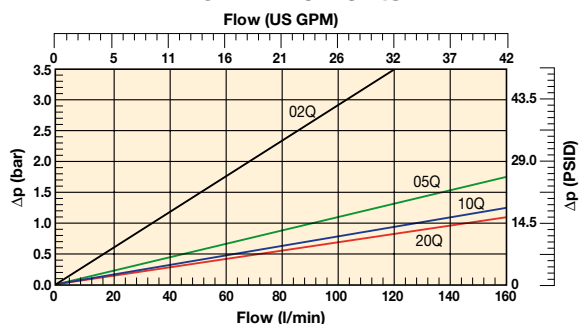
With 3.5 bar bypass the recommended initial pressure drop is max 1.2 bar.

With 7.0 bar bypass the recommended initial pressure drop is max 2.3 bar.

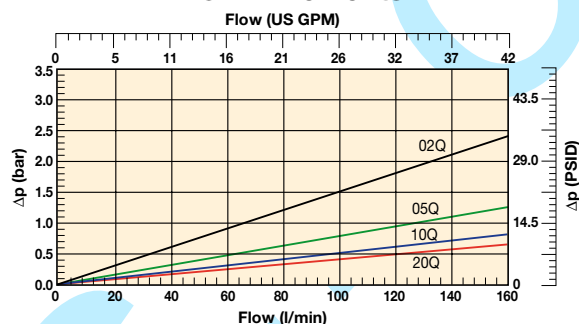
If the medium used has a viscosity different from 30 cSt, pressure drop over the filter can be estimated as follows:

The total  $\Delta p$  = housing  $\Delta p_h$  + (element  $\Delta p_e \times \text{working viscosity}/30$ ).

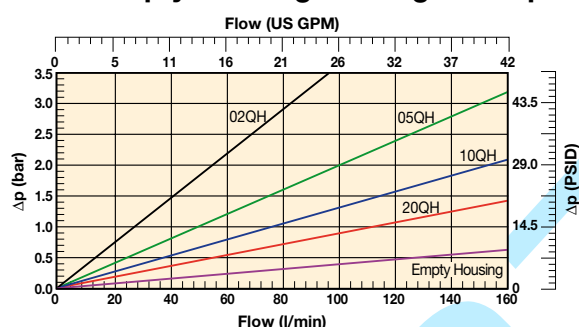
### 18P-1 Elements



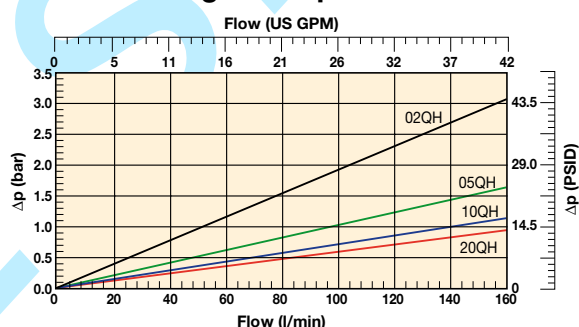
### 18P-2 Elements



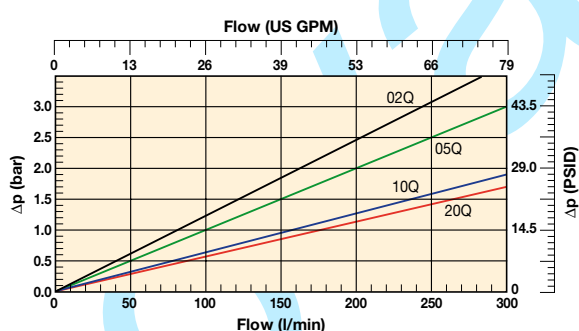
### 18P-1 Empty Housing and High Collapse



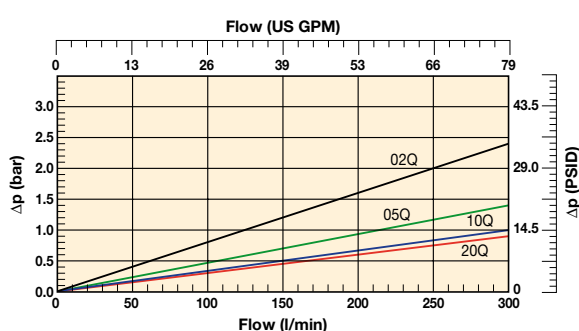
### 18P-2 High Collapse Elements



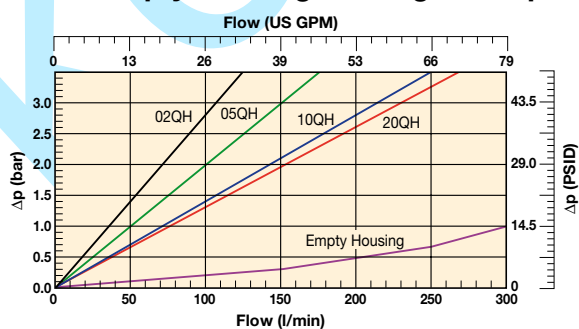
### 28P-1 Elements



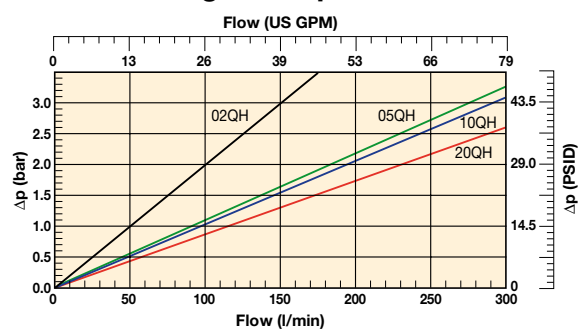
### 28P-2 Elements



### 28P-1 Empty Housing and High Collapse



### 28P-2 High Collapse Elements

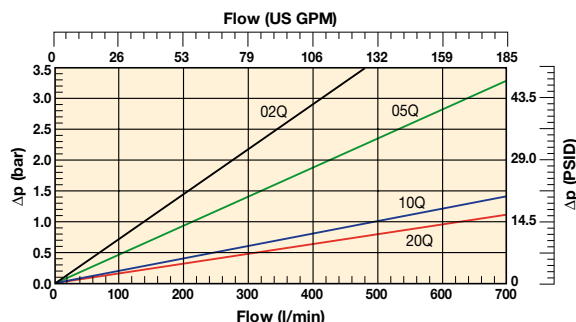


# 18/28/38P Series

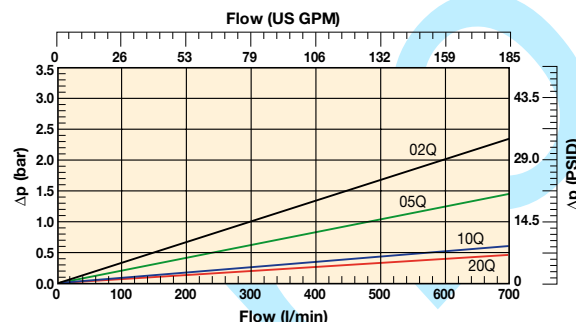
## High Pressure Filters

### Pressure Drop Curves (cont.)

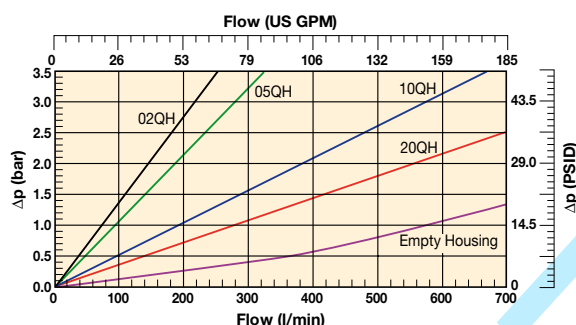
**38P-1 Elements**



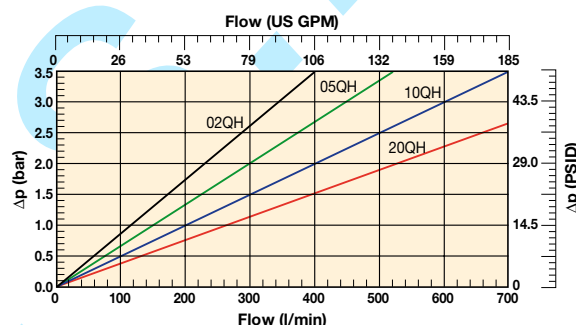
**38P-2 Elements**



**38P-1 Empty Housing and High Collapse**



**38P-2 High Collapse Elements**



### Element Service

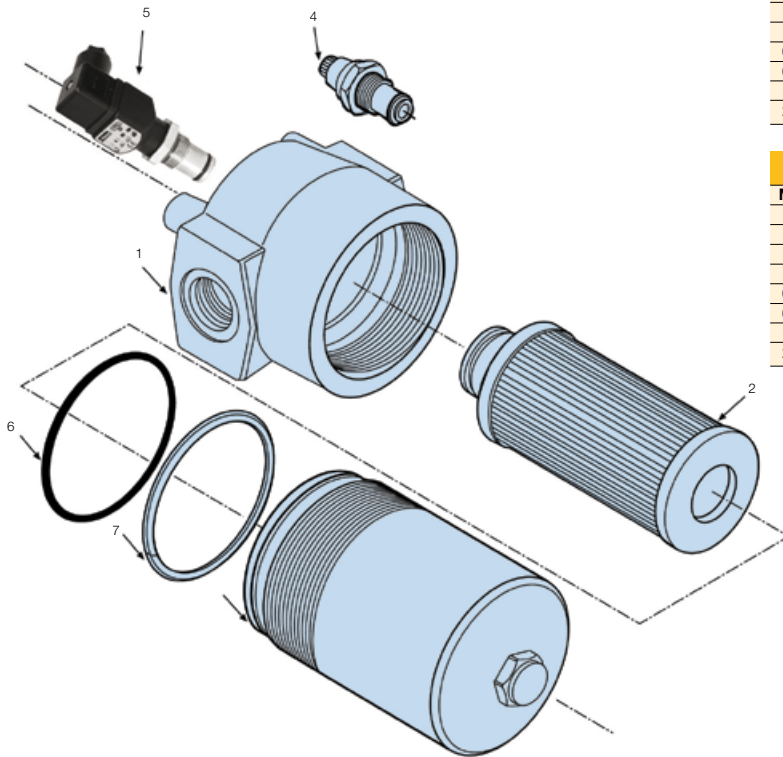
- Stop the system's power unit.
- Relieve any system pressure in the filter line.
- Drain the filter bowl if drain port option is provided.
- Rotate the bowl clockwise (left) and remove.
- Remove element by pulling downward with a slight twisting motion and discard.
- Check bowl o-ring and anti-extrusion ring for damage and replace if necessary.
- Lubricate element o-ring with system fluid and locate element in filter head.
- Install bowl by rotating counter-clockwise (right) and tighten to specified torque.  
 18P - 22-27 Nm (16-20 ft. lbs.)  
 28P - 35-40 Nm (25-30 ft. lbs.)  
 38P - 80-95 Nm (60-70 ft. lbs.)
- Confirm there are no leaks after powering the system.

### Parts List

Index	Description	Part number
1	<b>Head Assembly</b>	
2	<b>Element</b>	see table on next page
3	<b>Bowl</b>	
	<b>Indicators</b>	
4	M3 – Visual auto reset; 2.5 bar	FMUM3KVMU14H
	M3 – Visual auto reset; 5.0 bar	FMUM3MVMU14H
5	T1 – Electrical; 2.5 bar with DIN 43650 Connector	FMUT1KVMU14H
	T1 – Electrical; 5.0 bar with DIN 43650 Connector	FMUT1MVMU14H
	F1 – Electronic PNP; 2.5 bar with 4 LED	FMUF1KVMU14H
	F2 – Electronic NPN; 2.5 bar with 4 LED	FMUF2KVMU14H
	F1 – Electronic PNP; 5.0 bar with 4 LED	FMUF1MVMU14H
	F2 – Electronic NPN; 5.0 bar with 4 LED	FMUF2MVMU14H
6	<b>Bowl Seal</b>	
7	<b>Bowl Anti-extrusion Ring</b>	
	<b>Seal Kits</b>	
	Seal kit 18P (std) – Nitrile	S04350
	Seal kit 18P (F3) – Fluoroelastomer	S04351
	Seal kit 28P (std) – Nitrile	S04352
	Seal kit 28P (F3) – Fluoroelastomer	S04353
	Seal kit 38P (std) – Nitrile	S04354
	Seal Kit 38P (F3) – Fluoroelastomer	S04355



## Element Service (cont.)



### Replacement element part numbers

Elements with Nitrile seals						
Model	18P-1	18P-2	28P-1	28P-2	38P-1	38P-2
02Q	G04242	G04250	G04258	G04266	G04274	G04282
05Q	G04243	G04251	G04259	G04267	G04275	G04283
10Q	G04244	G04252	G04260	G04268	G04276	G04284
20Q	G04245	G04253	G04261	G04269	G04277	G04285
02QH	G04290	G04298	G04306	G04314	G04322	G04330
05QH	G04291	G04299	G04307	G04315	G04323	G04331
10QH	G04292	G04300	G04308	G04316	G04324	G04332
20QH	G04293	G04301	G04309	G04317	G04325	G04333

Elements with Fluoroelastomer seals						
Model	18P-1	18P-2	28P-1	28P-2	38P-1	38P-2
02Q	G04246	G04254	G04262	G04270	G04278	G04286
05Q	G04247	G04255	G04263	G04271	G04279	G04287
10Q	G04248	G04256	G04264	G04272	G04280	G04288
20Q	G04249	G04257	G04265	G04273	G04281	G04289
02QH	G04294	G04302	G04310	G04318	G04326	G04334
05QH	G04295	G04303	G04311	G04319	G04327	G04335
10QH	G04296	G04304	G04312	G04320	G04328	G04336
20QH	G04297	G04305	G04313	G04321	G04329	G04337

## Ordering Information

### Standard products table

Part number	Supersedes	Flow (l/min)	Model number	Element length	Media rating (μ)	Seals	Indicator	Bypass settings	Ports	Replacement elements
18P110QBT1MG121	18P-1-10Q-TW6-98-B2B2-1	80	18P	Length 1	10	Nitrile	Electrical	7.0 bar	G <sup>3</sup> / <sub>4</sub> "	G04244
18P110QBM3MG121	18P-1-10Q-M2-98-B2B2-1	80	18P	Length 1	10	Nitrile	Visual	7.0 bar	G <sup>3</sup> / <sub>4</sub> "	G04244
18P120QBT1MG121	18P-1-20Q-TW6-98-B2B2-1	100	18P	Length 1	20	Nitrile	Electrical	7.0 bar	G <sup>3</sup> / <sub>4</sub> "	G04245
18P120QBM3MG121	18P-1-20Q-M2-98-B2B2-1	100	18P	Length 1	20	Nitrile	Visual	7.0 bar	G <sup>3</sup> / <sub>4</sub> "	G04245
18P210QBT1MG121	18P-2-10Q-TW6-98-B2B2-1	130	18P	Length 2	10	Nitrile	Electrical	7.0 bar	G <sup>3</sup> / <sub>4</sub> "	G04252
18P210QBM3MG121	18P-2-10Q-M2-98-B2B2-1	130	18P	Length 2	10	Nitrile	Visual	7.0 bar	G <sup>3</sup> / <sub>4</sub> "	G04252
18P220QBT1MG121	18P-2-20Q-TW6-98-B2B2-1	150	18P	Length 2	20	Nitrile	Electrical	7.0 bar	G <sup>3</sup> / <sub>4</sub> "	G04253
18P220QBM3MG121	18P-2-20Q-M2-98-B2B2-1	150	18P	Length 2	20	Nitrile	Visual	7.0 bar	G <sup>3</sup> / <sub>4</sub> "	G04253
28P110QBT1MG161	28P-1-10Q-TW6-98-C2C2-1	120	28P	Length 1	10	Nitrile	Electrical	7.0 bar	G1"	G04260
28P110QBM3MG161	28P-1-10Q-M2-98-C2C2-1	120	28P	Length 1	10	Nitrile	Visual	7.0 bar	G1"	G04260
28P120QBT1MG161	28P-1-20Q-TW6-98-C2C2-1	150	28P	Length 1	20	Nitrile	Electrical	7.0 bar	G1"	G04261
28P120QBM3MG161	28P-1-20Q-M2-98-C2C2-1	150	28P	Length 1	20	Nitrile	Visual	7.0 bar	G1"	G04261
28P210QBT1MG161	28P-2-10Q-TW6-98-C2C2-1	250	28P	Length 2	10	Nitrile	Electrical	7.0 bar	G1"	G04268
28P210QBM3MG161	28P-2-10Q-M2-98-C2C2-1	250	28P	Length 2	10	Nitrile	Visual	7.0 bar	G1"	G04268
38P110QBT1MG201	38P-1-10Q-TW6-98-D2D2-1	340	38P	Length 1	10	Nitrile	Electrical	7.0 bar	G1 <sup>1</sup> / <sub>2</sub> "	G04276
38P110QBM3MG201	38P-1-10Q-M2-98-D2D2-1	340	38P	Length 1	10	Nitrile	Visual	7.0 bar	G1 <sup>1</sup> / <sub>2</sub> "	G04276
38P120QBT1MG201	38P-1-20Q-TW6-98-D2D2-1	420	38P	Length 1	20	Nitrile	Electrical	7.0 bar	G1 <sup>1</sup> / <sub>2</sub> "	G04277
38P120QBM3MG201	38P-1-20Q-M2-98-D2D2-1	420	38P	Length 1	20	Nitrile	Visual	7.0 bar	G1 <sup>1</sup> / <sub>2</sub> "	G04277
38P210QBT1MG201	38P-2-10Q-TW6-98-D2D2-1	560	38P	Length 2	10	Nitrile	Electrical	7.0 bar	G1 <sup>1</sup> / <sub>2</sub> "	G04284
38P210QBM3MG201	38P-2-10Q-M2-98-D2D2-1	560	38P	Length 2	10	Nitrile	Visual	7.0 bar	G1 <sup>1</sup> / <sub>2</sub> "	G04284
38P220QBT1MG201	38P-2-20Q-TW6-98-D2D2-1	700	38P	Length 2	20	Nitrile	Electrical	7.0 bar	G1 <sup>1</sup> / <sub>2</sub> "	G04285
38P220QBM3MG201	38P-2-20Q-M2-98-D2D2-1	700	38P	Length 2	20	Nitrile	Visual	7.0 bar	G1 <sup>1</sup> / <sub>2</sub> "	G04285

Note: Filter assemblies ordered from the product configurator on the next page are on extended lead times. Where possible, please make your selection from the table above.

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## High Pressure Filters

### Ordering Information (cont.)

#### Product configurator

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
<b>38P</b>	<b>1</b>	<b>10Q</b>	<b>B</b>	<b>M3</b>	<b>M</b>	<b>G20</b>	<b>1</b>

#### Box 1

Code	
Model	Code
Small size high pressure filter, T-port	<b>18P</b>
Medium size high pressure filter, T-port	<b>28P</b>
Large size high pressure filter, T-port	<b>38P</b>

#### Highlights Key (Denotes part number availability)

<b>123</b>	Item is standard
<b>123</b>	Item is standard green option
<b>123</b>	Item is semi standard
123	Item is non standard

#### Box 2

Filter type	
Length	Code
Length 1	<b>1</b>
Length 2	<b>2</b>

#### Box 3

Degree of filtration				
Element media	Glass fibre			
	Media code			
Microglass III element	<b>02Q</b>	<b>05Q</b>	<b>10Q</b>	<b>20Q</b>
High collapse element	<b>02QH</b>	<b>05QH</b>	<b>10QH</b>	<b>20QH</b>

#### Box 4

Seal type	
Seal material	Code
Nitrile	<b>B</b>
Fluoroelastomer	V

#### Box 5

Indicator	
	Code
No indicator port	<b>N</b>
Visual indicator	<b>M3</b>
Electrical indicator	<b>T1</b>
Plugged with steel plug	P
Electronic 4 LED, PNP, N.O.	F1
Electronic 4 LED, NPN, N.O.	F2
Electronic 4 LED, PNP, N.C.	F3
Electronic 4 LED, NPN, N.C.	F4

#### Box 6

Bypass and indicator settings		
Bypass valve	Indicator	Code
3.5 bar	2.5 bar	<b>K</b>
7.0 bar	5.0 bar	<b>M</b>
No bypass	5.0 bar	<b>M</b>
No bypass	No indicator	<b>X</b>

+ Box 8: code 2  
+ Box 8: code 2

When filter includes a bypass valve but not an indicator, code denotes bypass setting.

#### Box 7

Filter connection	
Ports	Code
18P: Thread G 3/4	<b>G12</b>
Thread SAE 12	S12
Thread M27, ISO 6149	M27
SAE flange 3/4" 6000-M	H12
SAE flange 3/4" 6000	F12
28P: Thread G 1	<b>G16</b>
Thread SAE 16	S16
Thread M33, ISO 6149	M33
SAE flange 1" 6000-M	H16
SAE flange 1" 6000	F16
38P: Thread G 1 1/4	<b>G20</b>
Thread G 1 1/2	<b>G24</b>
Thread SAE 20	S20
Thread SAE 24	S24
Thread M42, ISO 6149	M42
Thread M48, ISO 6149	M48
SAE flange 1 1/4" 6000-M	<b>H20</b>
SAE flange 1 1/4" 6000	F20

#### Box 8

Options	
Options	Code
Standard	<b>1</b>
No bypass	<b>2</b>
ATEX certified* (Category 2, non-electrical equipment)	EX

Note 1\*: For ATEX classified filters add EX after the code. ATEX certified filters with electrical indicator are available on request. Visual indicators are classified as Category 2, non electrical equipment. Filter assemblies with EX code will be supplied with a dedicated name plate. Pls consult Parker Filtration for any questions related to the classification of our products.

#### Nominal flow (l/min) at viscosity 30 cSt

Filter model	02Q	05Q	10Q	20Q
18P-1	35	60	80	100
18P-2	70	110	130	150
28P-1	80	100	120	150
28P-2	140	200	250	300
38P-1	140	220	340	420
38P-2	320	440	560	700

#### 18/28/38P Series Seal Kits

Part Number	Description
<b>S04350</b>	NITRILE SEAL KIT 18P
<b>S04351</b>	FLUOROELASTOMER SEAL KIT 18P
<b>S04352</b>	NITRILE SEAL KIT 28P
<b>S04353</b>	FLUOROELASTOMER SEAL KIT 28P
<b>S04354</b>	NITRILE SEAL KIT 38P
<b>S04355</b>	FLUOROELASTOMER SEAL KIT 38P

Degree of filtration						Code	
Average filtration beta ratio $\beta$ (ISO 16889) / particle size $\mu\text{m}$ [c]							
$\beta_x(c)=2$	$\beta_x(c)=10$	$\beta_x(c)=75$	$\beta_x(c)=100$	$\beta_x(c)=200$	$\beta_x(c)=1000$		
% efficiency, based on the above beta ratio ( $\beta_x$ )						Disposable	High collapse
50.0%	90.0%	98.7%	99.0%	99.5%	99.9%	Microglass III	element
N/A	N/A	N/A	N/A	N/A	4.5	02Q	02QH
N/A	N/A	4.5	5	6	7	05Q	05QH
N/A	6	8.5	9	10	12	10Q	10QH
6	11	17	18	20	22	20Q	20QH

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.

Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

