High Pressure Compressed Air and Gas Filters

J-Series High Efficiency Filters / CNG and Alternative Fuel Filters

Bulletin 1300-220/USA Rev A
Finite J-Series High Pressure Filters

Why do high pressure systems need filtration?

High pressure compressors are used in a variety of applications. Many owners, operators and designers of high pressure compressed air or gas systems rely on Parker’s Finite Filter Operation for high efficiency filters. End users of high pressure compressed air, such as scuba divers and fire rescue workers, depend on high quality breathable air.

Throughout the stages of compression many contaminants can enter into the system. Excessive amounts of liquid aerosols, primarily lube oil carryover and solid particulate contamination are common in high pressure systems. In addition, higher temperature levels are possible and may cause liquid oils to varnish. This contamination can lead to poor component performance and wear that may lead to unscheduled maintenance. Even submicronic contaminants in compressed air or gas systems can foul multistage compressors, increasing maintenance costs and impacting product quality.

Parker’s Finite Filter Operation offers a variety of high pressure compressed air and gas filters. With our wide range of elements, we have a solution for every stage of compression, as well as at the point of use. Whether you are storing high pressure air or gas or using a continuous flow, count on Parker to protect your equipment from contamination. Parker Finite is the solution to ending high pressure contamination fouling.

Parker’s Finite Filter Operation’s J-Series Filters are designed to filter contaminants such as rust, pipe scale, compressor lube oil, and water from compressed gases. These filters are often used in high pressure compressed natural gas (CNG) systems, not only as inter-stage filters in the multi-stage compression of the gas, but also in the storage and delivery of the gas for CNG powered vehicles.

Parker’s varied media choices remove up to 99.995% of both solid and liquid aerosols, and contaminants as small as 0.01 microns in size. An activated carbon media is also available which removes oil vapor. This stage of filtration is often used as the final filter before the storage of high pressure breathing air used by scuba divers, firefighters, and others who utilize portable breathing devices.

The filter housings and the replaceable elements used in this product line have an extremely robust construction, specially designed for use in system pressures up to 5,000 psig. Five housing sizes and two thread styles (NPT or SAE) are available with connections ranging from 1/4” to 2”; temperatures up to 350°F, and flows up to 26,000 SCFM at 5,000 PSIG.
Filter Element Features

Parker Finite offers six filter media grades ensuring that we have the correct media choice for nearly any application requirement.

Available are coalescing grades with 95% to 99.995% efficiency and pleated or UNI-CAST coalescing media designs. Additionally, a bulk liquid separator, a particulate removal and oil vapor removal choices are standard offerings.

Each element uses a retention clip design that ensures the element is seated and sealed properly. This built-in, fail-safe feature will virtually eliminate any possibility of contaminant by-pass and is unique amongst high pressure filters.

Each element is composed of internal and external plated carbon steel retainers which provide the element with a 75+ PSID burst rating. Each element also features a bore seal interface with the housing, an anti-vibration shoulder, and an integrated standoff which minimizes the likelihood of any movement of the element, even during severe system pulsations.

Element standoff lengths were designed for each housing size to allow an optimal volume of liquid contaminant to be collected in the filter’s quiet zone, further minimizing any chance of contaminant carryover.

Filter Housing Features

- Robust, spheroidal graphite-cast iron offers higher mechanical strength, improved ductility, and increased shock resistance, assuring the user that this filter is built for the task at hand.
- Head to bowl bore seal ensures greater seal integrity.
- Threaded mounting holes on top of filter head allow each size to be easily panel mounted when line mounting is not an option.
- Engraved flow direction arrow in filter’s head notifies the user of proper flow direction. One direction flow for all media choices reduces the possibility of a housing being installed improperly.
- The spheroidal graphite cast iron head and steel bowl are nickel plated for corrosion resistance. The completed assembly is finished with a UV stable epoxy powder paint that will allow the filter to stand-up to harsh outdoor conditions.
- An imprinted aluminum part number tag ensures that each unit’s identifying information will be visible in the years ahead.
- SAE-6 steel drain plug with positive o-ring seal installed. This port also allows the easy installation of Finite’s JDK5000H or JFK5000V high pressure drain kits which allow the safe removal of liquid contamination at system pressures.
- Bowls are designed to be easily tightened or loosened with a standard socket wrench.
- Bowls feature a slotted positional locator which enables the element to be positively retained, therefore having a low bowl removal clearance.
Element Types and Media Grade Options

Coalescers:

Removes: Oil, water, liquids

Coalescing elements are specially designed for the removal of liquid contaminants from gaseous flows. These media types flow from the inside of the element to the outside. Coalesced liquid collects in the bowl where it is drained, while clean air or gas exits the housing through the outlet port. Particulate contaminants are captured and held in the media.

Type C
The Finite UNI-CAST coalescing elements are made of epoxy saturated borosilicate glass microfiber and includes a polyester drain layer. (1)(2)

Type 7CP
This pleated coalescer is made of fluorocarbon saturated borosilicate glass microfiber and includes a polyester drain layer. (1)(2)

Type WS
The Finite water separator element is composed of wrapped stainless steel mesh. (1)(2)

Type A
Our Type A media is wrapped activated carbon. This element has a galvanized carbon steel inner retainer and a stainless steel perforated metal outer retainer layer. (2)

* Consult factory for other media types.

Adsorber:

Removes: Oil vapor (odor)

Adsorption elements are used to remove vapors (hydrocarbon) that are not removed by the coalescing filter. Hydrocarbon vapors collect in the element, while clean air exits the housing through the outlet port. In this element, the air or gas flows from the inside of the element to the outside.

Type 7CP
This pleated coalescer is made of fluorocarbon saturated borosilicate glass microfiber and includes a polyester drain layer. (1)(2)

Type WS
The Finite water separator element is composed of wrapped stainless steel mesh. (1)(2)

Particulate:

Removes: Solid contaminants

Particulate filters in the J-Series flow from the inside of the element to the outside. Particles collect in the element, while the clean air exits through the outlet port.

Type 3P
This 3 micron absolute rated pleated element is made of cellulose. (1)(2)

Notes:
1 Each element is retained internally and externally with galvanized carbon steel perforated metal. Not shown in some photos above.
2 Top and bottom end caps are made of glass filled nylon to ensure durability.

Media Grades and Specifications:

Finite media grades determine the filtration efficiency. Capture efficiencies are available up to 99.995%. Micron ratings range from 0.01 to 3 micron. The columns on the right note both the wet and dry pressure drops.

<table>
<thead>
<tr>
<th>Grade Designation</th>
<th>Media Type</th>
<th>Removes...</th>
<th>Coalescing Efficiency</th>
<th>Max Oil Carryover ppm¹</th>
<th>Micron Rating (um)</th>
<th>Pressure Drop Media Dry (PSID)</th>
<th>Additional Pressure Drop Media Wet² (PSID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4C Coalescing</td>
<td>99.995%</td>
<td>0.003</td>
<td>0.01</td>
<td>1.25</td>
<td>3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7CP Coalescing</td>
<td>99.5%</td>
<td>0.09</td>
<td>0.5</td>
<td>0.25</td>
<td>0.5-0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10C Coalescing</td>
<td>95%</td>
<td>0.85</td>
<td>1.0</td>
<td>0.5</td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS Bulk Separator</td>
<td>99+%¹</td>
<td>N.A.</td>
<td>&lt;0.25</td>
<td>N.A.</td>
<td>&lt;0.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3P Particulate</td>
<td>N.A.</td>
<td>3.0</td>
<td>0.25</td>
<td>N.A.</td>
<td>N.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Adsorber</td>
<td>99+%¹</td>
<td>N.A.</td>
<td>1.0</td>
<td>N.A.</td>
<td>N.A.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹Tested per ISO 12500-1 at 40 ppm inlet.
²Add dry + wet columns for total pressure drop.
³Bulk liquid removal efficiency.
⁴Oil vapor removal efficiency is given for A media.
Applications:

High Pressure (HP) Filter Applications

- Test Air for HP Hydraulics 10C / 7CP
- Inter-stage HP Compressor WS / 10C
- CNG Compressor Outlet 10C → 4C
- CNG Storage Cascades 10C → 4C
- CNG Dispensers 10C → 4C
- Breathing Air / SCUBA 10C → 4C → A
- High Pressure “Ultra Pure Air” 10C → 4C → A
- Bulk Liquid contamination WS → 7CP → 4C
- Bulk solid Contamination 3P → 7CP → 4C
- HP Air / Gas Dryer Protection 10C / 7CP → 4C → Dryer → 7CP / 3P
- Food Applications / Odor Removal 10C / 7CP → 4C → A

Flow Rates:

Choose Filter Size to find the corresponding flow rates

J-Series Flow Rates (SCFM)

<table>
<thead>
<tr>
<th>Model</th>
<th>Port</th>
<th>Filter Type</th>
<th>100 PSIG</th>
<th>1000 PSIG</th>
<th>1500 PSIG</th>
<th>2000 PSIG</th>
<th>2500 PSIG</th>
<th>3000 PSIG</th>
<th>3500 PSIG</th>
<th>4000 PSIG</th>
<th>4500 PSIG</th>
<th>5000 PSIG</th>
</tr>
</thead>
<tbody>
<tr>
<td>J_1A</td>
<td>1/4&quot;</td>
<td>4C, A</td>
<td>15</td>
<td>135</td>
<td>200</td>
<td>265</td>
<td>330</td>
<td>395</td>
<td>460</td>
<td>525</td>
<td>590</td>
<td>655</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7CP, 10C, 3P, WS</td>
<td>30</td>
<td>265</td>
<td>395</td>
<td>525</td>
<td>660</td>
<td>790</td>
<td>920</td>
<td>1050</td>
<td>1180</td>
<td>1310</td>
</tr>
<tr>
<td>J_2A</td>
<td>1/2&quot;</td>
<td>4C, A</td>
<td>25</td>
<td>220</td>
<td>330</td>
<td>440</td>
<td>550</td>
<td>655</td>
<td>765</td>
<td>875</td>
<td>985</td>
<td>1095</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7CP, 10C, 3P, WS</td>
<td>50</td>
<td>440</td>
<td>660</td>
<td>880</td>
<td>1095</td>
<td>1315</td>
<td>1530</td>
<td>1750</td>
<td>1970</td>
<td>2185</td>
</tr>
<tr>
<td>J_2B</td>
<td>1/2&quot;</td>
<td>4C, A</td>
<td>35</td>
<td>310</td>
<td>460</td>
<td>615</td>
<td>765</td>
<td>920</td>
<td>1070</td>
<td>1225</td>
<td>1380</td>
<td>1530</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7CP, 10C, 3P, WS</td>
<td>80</td>
<td>710</td>
<td>1055</td>
<td>1405</td>
<td>1755</td>
<td>2105</td>
<td>2450</td>
<td>2800</td>
<td>3150</td>
<td>3500</td>
</tr>
<tr>
<td>J_3B</td>
<td>3/4&quot;</td>
<td>4C, A</td>
<td>60</td>
<td>530</td>
<td>790</td>
<td>1055</td>
<td>1315</td>
<td>1575</td>
<td>1840</td>
<td>2100</td>
<td>2360</td>
<td>2525</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7CP, 10C, 3P, WS</td>
<td>130</td>
<td>1150</td>
<td>1715</td>
<td>2285</td>
<td>2850</td>
<td>3415</td>
<td>3985</td>
<td>4550</td>
<td>5115</td>
<td>5685</td>
</tr>
<tr>
<td>J_4C</td>
<td>1&quot;</td>
<td>4C, A</td>
<td>90</td>
<td>795</td>
<td>1190</td>
<td>1580</td>
<td>1975</td>
<td>2365</td>
<td>2760</td>
<td>3150</td>
<td>3540</td>
<td>3935</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7CP, 10C, 3P, WS</td>
<td>200</td>
<td>1770</td>
<td>2640</td>
<td>3515</td>
<td>4385</td>
<td>5255</td>
<td>6130</td>
<td>7000</td>
<td>7870</td>
<td>8745</td>
</tr>
<tr>
<td>J_6D</td>
<td>1-1/2&quot;</td>
<td>4C, A</td>
<td>180</td>
<td>1590</td>
<td>2375</td>
<td>3160</td>
<td>3945</td>
<td>4730</td>
<td>5515</td>
<td>6300</td>
<td>7085</td>
<td>7870</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7CP, 10C, 3P, WS</td>
<td>400</td>
<td>3540</td>
<td>5280</td>
<td>7025</td>
<td>8770</td>
<td>10515</td>
<td>12255</td>
<td>14000</td>
<td>15745</td>
<td>17490</td>
</tr>
<tr>
<td>J_8E</td>
<td>2&quot;</td>
<td>4C, A</td>
<td>275</td>
<td>2435</td>
<td>3630</td>
<td>4830</td>
<td>6030</td>
<td>7230</td>
<td>8425</td>
<td>9625</td>
<td>10825</td>
<td>12025</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7CP, 10C, 3P, WS</td>
<td>600</td>
<td>5310</td>
<td>7925</td>
<td>10540</td>
<td>13155</td>
<td>15770</td>
<td>18385</td>
<td>21000</td>
<td>23615</td>
<td>26230</td>
</tr>
</tbody>
</table>

Note: These rates are based on compressed air flow. For CNG, these flows can be multiplied by a factor of 1.2.
Specifications:

<table>
<thead>
<tr>
<th>Model</th>
<th>J_1A</th>
<th>J_2A</th>
<th>J_2B</th>
<th>J_3B</th>
<th>J_4C</th>
<th>J_6D</th>
<th>J_8E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Size (N= NPT)</td>
<td>1/4&quot; NPT</td>
<td>1/2&quot; NPT</td>
<td>1/2&quot; NPT</td>
<td>3/4&quot; NPT</td>
<td>1&quot; NPT</td>
<td>1-1/2&quot; NPT</td>
<td>2&quot; NPT</td>
</tr>
<tr>
<td>Port Size (S= SAE)</td>
<td>SAE-4</td>
<td>SAE-8</td>
<td>SAE-8</td>
<td>SAE-12</td>
<td>SAE-16</td>
<td>SAE-24</td>
<td>SAE-32</td>
</tr>
<tr>
<td>Max. Pressure</td>
<td>5000 PSIG</td>
<td>5000 PSIG</td>
<td>5000 PSIG</td>
<td>5000 PSIG</td>
<td>5000 PSIG</td>
<td>5000 PSIG</td>
<td>5000 PSIG</td>
</tr>
<tr>
<td>Max. Temperature</td>
<td>350°F</td>
<td>350°F</td>
<td>350°F</td>
<td>350°F</td>
<td>350°F</td>
<td>350°F</td>
<td>350°F</td>
</tr>
<tr>
<td>Head</td>
<td>SG Iron*</td>
<td>SG Iron*</td>
<td>SG Iron*</td>
<td>SG Iron*</td>
<td>SG Iron*</td>
<td>SG Iron*</td>
<td>SG Iron*</td>
</tr>
<tr>
<td>Bowl</td>
<td>Steel</td>
<td>Steel</td>
<td>Steel</td>
<td>Steel</td>
<td>Steel</td>
<td>Steel</td>
<td>Steel</td>
</tr>
<tr>
<td>Seals</td>
<td>Fluorocarbon</td>
<td>Fluorocarbon</td>
<td>Fluorocarbon</td>
<td>Fluorocarbon</td>
<td>Fluorocarbon</td>
<td>Fluorocarbon</td>
<td>Fluorocarbon</td>
</tr>
<tr>
<td>Backing Ring</td>
<td>Nitrile</td>
<td>Nitrile</td>
<td>Nitrile</td>
<td>Nitrile</td>
<td>Nitrile</td>
<td>Nitrile</td>
<td>Nitrile</td>
</tr>
<tr>
<td>Sump Volume</td>
<td>50 mL</td>
<td>50 mL</td>
<td>180 mL</td>
<td>180 mL</td>
<td>230 mL</td>
<td>500 mL</td>
<td>500 mL</td>
</tr>
<tr>
<td>Weight</td>
<td>9.0 lbs.</td>
<td>9.0 lbs.</td>
<td>13.0 lbs.</td>
<td>13.0 lbs.</td>
<td>21.0 lbs.</td>
<td>45.0 lbs.</td>
<td>67.0 lbs.</td>
</tr>
<tr>
<td>Port to Port</td>
<td>3.62&quot;</td>
<td>3.62&quot;</td>
<td>4.33&quot;</td>
<td>4.33&quot;</td>
<td>4.96&quot;</td>
<td>6.42&quot;</td>
<td>7.2&quot;</td>
</tr>
<tr>
<td>Height</td>
<td>7.4&quot;</td>
<td>7.4&quot;</td>
<td>12.0&quot;</td>
<td>12.0&quot;</td>
<td>13.5&quot;</td>
<td>17.5&quot;</td>
<td>22.1&quot;</td>
</tr>
<tr>
<td>Clearance</td>
<td>2.0&quot;</td>
<td>2.0&quot;</td>
<td>2.25&quot;</td>
<td>2.25&quot;</td>
<td>2.25&quot;</td>
<td>3.0&quot;</td>
<td>3.0&quot;</td>
</tr>
<tr>
<td>Drain Port</td>
<td>SAE-6</td>
<td>SAE-6</td>
<td>SAE-6</td>
<td>SAE-6</td>
<td>SAE-6</td>
<td>SAE-6</td>
<td>SAE-6</td>
</tr>
<tr>
<td>Socket / Bowl Removal</td>
<td>1-1/16&quot; HEX</td>
<td>1-1/16&quot; HEX</td>
<td>1-1/16&quot; HEX</td>
<td>1-1/16&quot; HEX</td>
<td>1-1/2&quot; HEX</td>
<td>1-1/2&quot; HEX</td>
<td>1-1/2&quot; HEX</td>
</tr>
<tr>
<td>Head / Bowl Torque</td>
<td>15-20 ft-lbs.</td>
<td>15-20 ft-lbs.</td>
<td>25-30 ft-lbs.</td>
<td>25-30 ft-lbs.</td>
<td>25-30 ft-lbs.</td>
<td>60-70 ft-lbs.</td>
<td>60-70 ft-lbs.</td>
</tr>
</tbody>
</table>

*Note: SG Iron is an abbreviation for Spheroidal Graphite Cast Iron

High Pressure Drains and Gauge:

- **JDK5000H**: Horizontal Drain Kit 5000 psig
- **JDK5000V**: Vertical Drain Kit 5000 psig
- **BDPI-25**: Differential Pressure Gauge and Bracket

Note: Replacement Element supplied with o-ring and lube tube.
How To Order
Part Numbers for Complete Assemblies:
Use the steps below to build your own part number.
For any permutation not mentioned below, please consult factory at 1-800-521-4357.

<table>
<thead>
<tr>
<th>Series Name</th>
<th>Thread</th>
<th>Port Size</th>
<th>Housing Size</th>
<th>Media Grade</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>N - NPT</td>
<td>1 (1/4&quot;)</td>
<td>A</td>
<td>4C</td>
<td>N = None</td>
</tr>
<tr>
<td>S - SAE</td>
<td></td>
<td>2 (1/2&quot;)</td>
<td>A</td>
<td>10C</td>
<td>Available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 (1/2&quot;)</td>
<td>B</td>
<td>7CP</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (3/4&quot;)</td>
<td>B</td>
<td>WS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 (1&quot;)</td>
<td>C</td>
<td>3P</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 (1-1/2&quot;)</td>
<td>D</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 (2&quot;)</td>
<td>E</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Examples:
JN2A-4CN, JS6D-WSN, JN3B-3PN

Replacement Element Part Numbers:
Note: Replacement element supplied with replacement head/bowl seals and tube of lubricant.

<table>
<thead>
<tr>
<th>Media Grade/Type</th>
<th>Series Name</th>
<th>Housing Size</th>
<th>Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>4C</td>
<td>J</td>
<td>A</td>
<td>K</td>
</tr>
<tr>
<td>10C</td>
<td></td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>7CP</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>WS</td>
<td></td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>3P</td>
<td></td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Examples:
4CJAK, WSJDK, 3PJ BK

J-Series filters are used in a number of applications, ranging from breathing air for scuba divers, to high-pressure hydraulic circuit testing, to a variety of uses in the alternative fuel industry.
# Worldwide Filtration Manufacturing Locations

## North America

### Compressed Air Treatment
**Gas Separation & Filtration Division**
Airtrek/Finite/dominick hunter/Zander
Lancaster, NY
716 686 6400
www.parker.com/taf

Balston
Haverhill, MA
978 858 0505
www.parker.com/balston

### Engine Filtration
**Racor**
Modesto, CA
209 521 7860
www.parker.com/racor

Holly Springs, MS
662 252 2656
www.parker.com/racor

### Hydraulic Filtration
**Hydraulic & Fuel Filtration**
Metamora, OH
419 644 4311
www.parker.com/hydraulicfilter

Laval, QC Canada
450 629 9594
www.parkerfarr.com

Velcon
Colorado Springs, CO
719 531 5855
www.velcon.com

### Process Filtration
**domnick hunter Process Filtration**
SciLog
Oxnard, CA
805 604 3400
www.parker.com/processfiltration

### Water Purification
**Village Marine, Sea Recovery, Horizon Reverse Osmosis**
Carson, CA
310 637 3400
www.parker.com/watermakers

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### Compressed Air Treatment
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**Parker Gas Separations**
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**Hiross Zander**
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### Engine Filtration & Water Purification
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**Racor Research & Development**
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### Hydraulic Filtration
**Hydraulic Filter**
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