

ENGINEERING YOUR SUCCESS.



## TETPOR PLUS

Parker Hannifin Corporation  
Bioscience & Water Filtration Division  
2340 Eastman Avenue  
Oxnard, California, USA 93030  
+1 877 784 2234  
[www.parker.com/bioscience](http://www.parker.com/bioscience)

Clearflow is a trademark of Parker Hannifin Corporation.

## Introduction

These guidelines give the correct methods for using liquid and gas filter cartridges manufactured by Parker domnick hunter. If you have any queries, our process filtration specialists will be pleased to discuss your particular filtration requirements or answer any questions you may have. We may also be contacted at any of the addresses given on the reverse of this document or through our worldwide network of sales companies and distributors.

### 1. Storage

- 1.1 Store cartridges in a clean and dry environment and avoid placing heavy objects on the top of the cartridge tube or packaging. The cartridges should not be exposed to temperatures below 5 °C (41 °F) or above 40 °C (104 °F) or to direct sunlight.
- 1.2 Keep the cartridge in its sealed polyethylene bag until it is time to install it.
- 1.3 The shelf-life for cartridge filters is as follows:-

Liquid membrane cartridges	3 years
Liquid depth cartridges	5 years
TETPOR membrane variants	5 years
Gas membrane cartridges	5 years
Gas depth cartridges	5 years
Gamma irradiated cartridges	Consult Certificate of Conformance

### 2. Installation

The various cartridge formats and end caps are shown on the end of this sheet. Please refer to this if you are unsure which cartridge format you have.

- 2.1 New housings should be flushed out with clean water / air (dependant on the application) prior to installation of the cartridge to remove any debris. Ensure tie-rods / support plates are removed prior to flushing as vibration (especially in air) can cause components to loosen.
- 2.2 Before changing or installing a liquid or gas cartridge filter ensure that the filter vessel is depressurized and any liquid has been drained off. (Most vent filter cartridges are open to atmosphere but if the filter is connected to a pressurised line then ensure that the filter vessel is depressurized before removing the filter bowl).
- 2.3 Remove the filter bowl. For plastic housings the bowl is unscrewed and for stainless steel housings the bowl is held in place using a band clamp or a bolted flange.
- 2.4 Cut open the polyethylene bag at the cartridge open end and check that the o-ring seals or gaskets are clean, intact, correctly located in their grooves and not damaged.
- 2.5 Lubricate o-ring seals with a lubricant that is compatible with the process fluid (e.g. clean water) or use process liquid itself. Note: No lubricant should be used for oxygen applications.
- 2.6 Using the bag as protection and holding the cartridge as near as possible to the open end as opposed to the main body of the cartridge or the top end cap, press the cartridge firmly into or onto the housing locations. Keep the cartridge vertical to prevent damage to the o-rings.
  - a) If the vessel has a bayonet type cartridge location (A, C & R), slightly turn the cartridge clock-wise to locate the retaining lugs.
  - b) For double open ended cartridges (B), take care to ensure that the cartridge gaskets on both the housing and cartridge are centred over the housing knife edge seals at both ends before closing the vessel.
  - c) Cartridges with a threaded end cap (V) should be screwed in until the gasket is compressed.
  - d) Threaded vent filters should be screwed into position until the flat gasket is compressed (BSPP) or the thread locks (NPT).
- 2.7 Remove the polyethylene bag from the cartridge(s) before the vessel is closed.
- 2.8 Some filter housings take more than one cartridge (multi-round) and they will have a support plate that locates on top of the cartridges and prevents movement and damage. Refer to the vessel instructions for the way that this plate is secured and ensure that it is always installed before the vessel bowl is located.

### 3. Operation (Liquid Cartridges)

Filter cartridges should not be subjected to excessive hydraulic shock and should never be reverse pressurized from the downstream to the upstream side (inside to out). (Except PEPLYN HA / HD).

- 3.1 Slowly open the upstream valve and allow liquid into the filter vessel.
- 3.2 The vent valve located at the top of the vessel should be cracked open to allow air to escape and to ensure that the filter vessel is full of liquid. The vent valve should be closed when liquid starts to exit the valve.

N.B. If hazardous liquids are being filtered, please ensure that vent and drain valves are connected to a suitable drain line.

- 3.3 Slowly open the downstream valve and allow the filtered liquid to flow. It is recommended that newly installed cartridges are briefly flushed to drain and remove any debris that may have been inadvertently generated during cartridge installation or to remove trace levels of surfactant that may be present in some filter media. Liquid cartridges are shown to be blocked when the differential pressure across the filter has significantly increased and / or the flow of liquid through them is reduced to an unacceptable level. If you do not have pressure gauges that indicate the differential pressure then please contact Parker domnick hunter or its representative.



#### **4. Operation (Gas / Vent cartridges)**

Vent / gas filter cartridges are hydrophobic and they will not operate effectively if they are covered in water or steam condensate. This can lead to tank collapse or cartridge deformation so please ensure that if vent filters do come into contact with water they are replaced.

Gas cartridges are blocked when the differential pressure across the filter is high and/or the flow of gas through them is significantly reduced. In normal operation they should be changed at least annually.

#### **5. Integrity Testing**

Some liquid and gas cartridges may be integrity tested by a number of manual or automatic methods. Please contact Parker domnick hunter or its representative for further information on which method is most suitable for your application or refer to the appropriate product datasheet.

#### **6. Hot Water Sanitization (Liquid Hydrophilic Cartridges)**

Recirculate prefiltered water through the filter for 30 min at 80 °C (176 °F). The maximum differential pressure across the filter should be no more than 1 bar (14.5 psi). Open all system outlet valves to sanitize the system thoroughly.

#### **7. Steam Sterilization**

Please refer to the datasheets to find out if your cartridge filter and housing can be autoclaved or steamed in place (SIP) and the allowed maximum temperature. To minimize the risk of contamination to a sterile system the filter should be autoclaved or SIP'd immediately prior to use.

N.B. Plastic housings cannot be steam sterilized or autoclaved.

#### **Steam-in-Place (SIP)**

It is important that both liquid and gas filter cartridges do not have bulk steam flowed through them during SIP because excessive differential pressure can cause damage to the cartridge at high temperatures. It is also usual to filter the steam so that any dirt it carries does not block or damage the filter.

##### **Vacuum Autoclave Sterilization**

The cartridge should be installed in the housing, the vent / drain valves left open and the housing bowl left slightly open. Do not allow the cartridge to support the vessel base or allow the bowl to rest on the cartridge during autoclaving. The assembly should be autoclaved on a cycle with a slow exhaust. Where possible liquid cartridges should be flushed with clean water prior to autoclaving.

Parker domnick hunter has detailed guidelines for the sanitization and steam sterilization of liquid and gas filters so if you are unsure of the procedures please contact Parker domnick hunter or its representative.

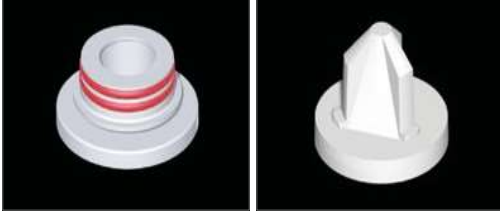
#### **Disposal**

All cartridge filters should be disposed of in a safe manner and in line with Health & Safety Guidelines.

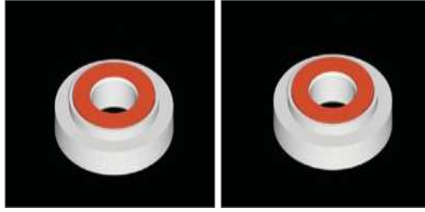




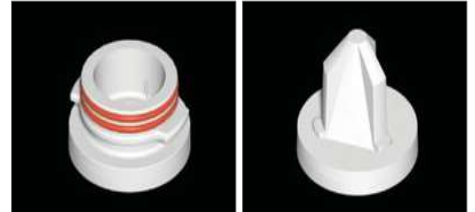
## Cartridge endcaps



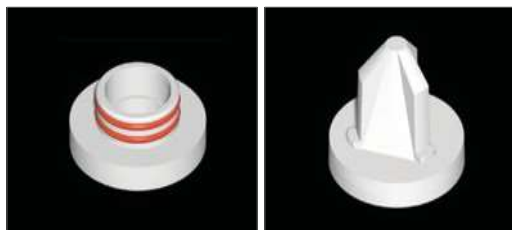
A Style 223 o-rings



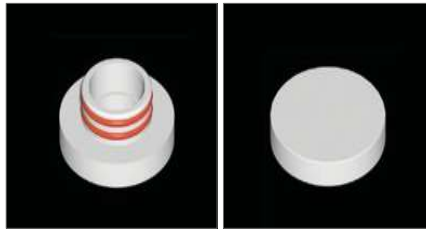
B, L Style Flat Gaskets



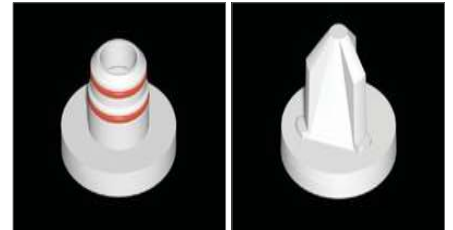
C Style 226 o-rings



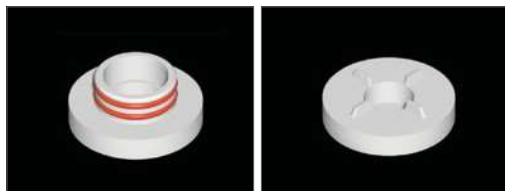
D Style 222 o-rings



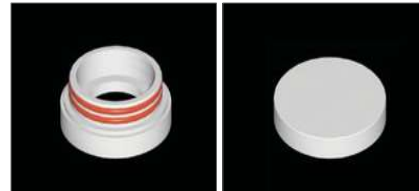
E Style 222 o-rings



F Style 216 / 218 o-rings



G Style 222 o-rings



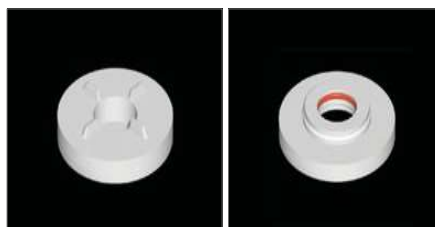
H Style 54 mm ID x 4 mm  
o-rings



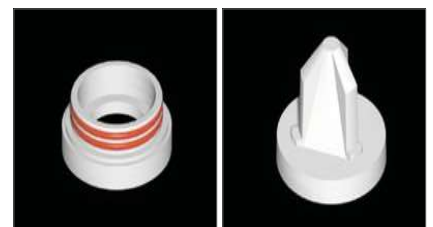
J Style S.O.E.



K Style 214 o-rings (internal)

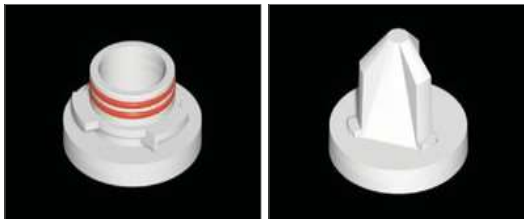


N Style 213 o-rings (internal)

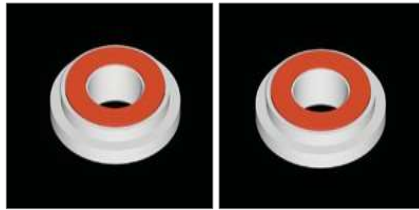


P Style 227 o-rings

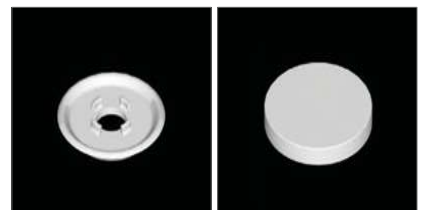




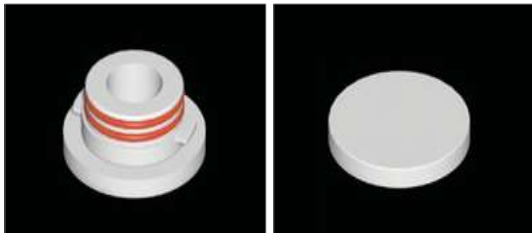
R Style 222 o-rings



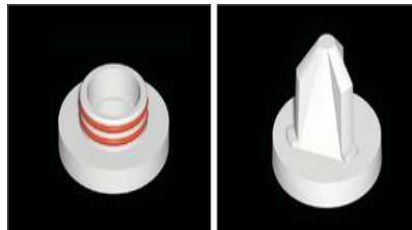
S Style Flat Gaskets



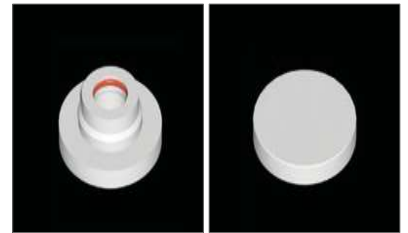
SK Style (demi only)



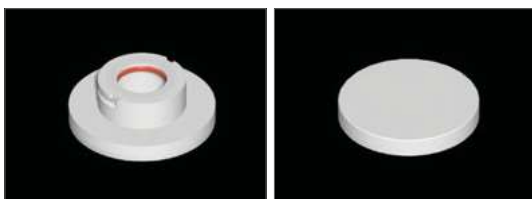
T Style 126 o-rings (demi only)



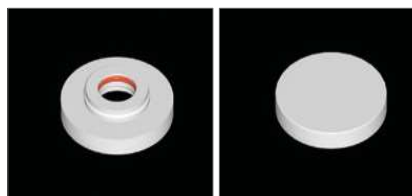
U Style 222 o-rings



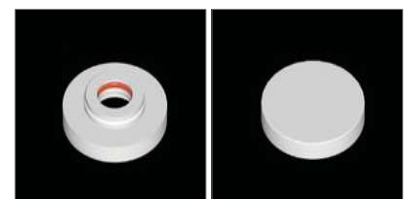
W Style 111 o-rings  
(demi only)



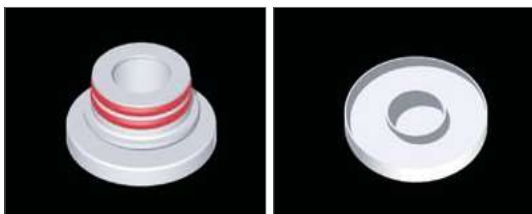
X Style 116 o-rings (demi only)



Y Style 116 o-rings  
(internal) (demi only)



Z Style 116 o-rings  
(internal) (demi only)

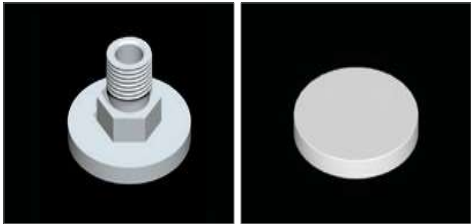


Demi H Style 217 o-rings (demi only)

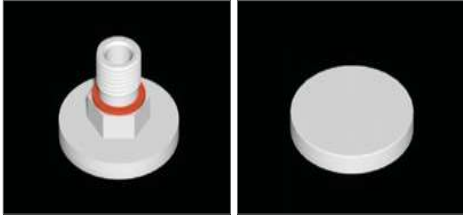




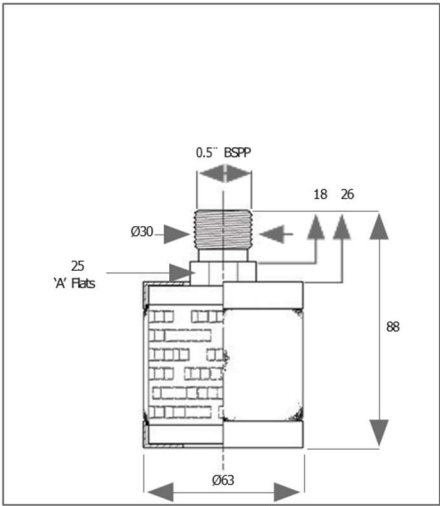
Vent autoclave filter endcaps and dimensions



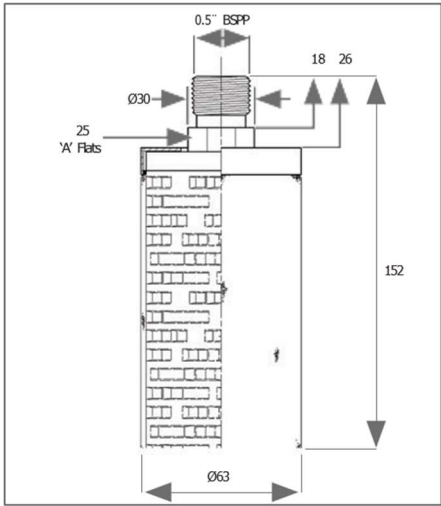
X Style 1/2" NPTM Thread & Gasket



V Style BSPP Thread & Gasket

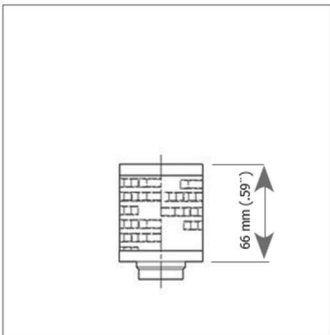


'B' Size

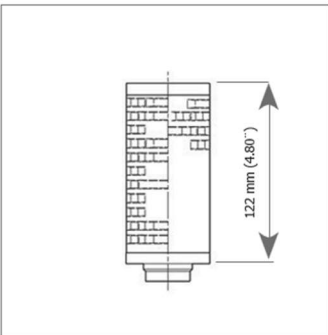


'A' Size

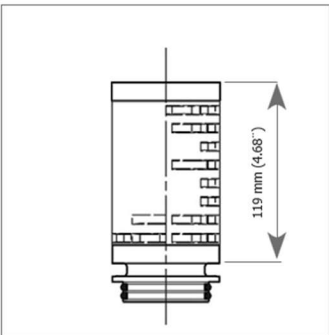
CATRIDGE DIMENSIONS



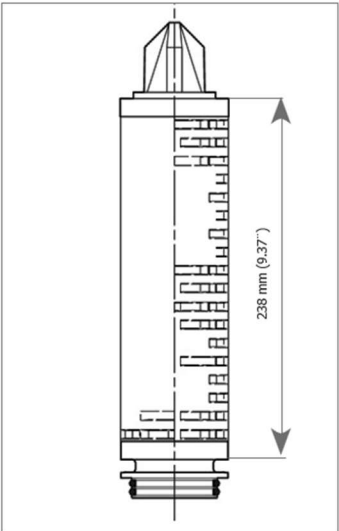
'B' Size



'A' Size




'K' Size



10" Size





---

© 2018 Parker Hannifin Corporation.  
All rights reserved.

Stock N°: 17 950 0420  
Publication Reference: Rev. A 2/25

Parker Hannifin Manufacturing Ltd  
Bioscience – EMEA Durham  
Road Birtley, Co. Durham  
DH3 2SF, England  
phone +44 (0)191 4105121  
fax +44 (0)191 4105312  
email: [bioscience.emea@parker.com](mailto:bioscience.emea@parker.com)  
[www.parker.com/bioscience](http://www.parker.com/bioscience)

Parker Hannifin Corporation  
Bioscience – North America 2340  
Eastman Avenue Oxnard,  
California, USA 93030 toll free: +1  
877 784 2234  
phone: +1 805 604 3400  
fax: +1 805 604 3401  
email: [bioscience.na@parker.com](mailto:bioscience.na@parker.com)  
[www.parker.com/bioscience](http://www.parker.com/bioscience)

