

TETPOR AIR sterilization filter cartridges offer exceptional filtration performance while providing the highest levels of biosecurity throughout the process industry.

Operating at ambient temperature conditions, TETPOR AIR filter cartridges provide a cost-effective filtration solution. A unique polypropylene prefilter layer extends service life in heavily contaminated environments.

TETPOR AIR filter cartridges also utilize a well-proven, inherently hydrophobic expanded PTFE membrane validated as sterilizing grade in liquid in accordance with ASTM F838-05. This ensures the removal of all airborne bacteria, viruses and bacteriophage.

## Features and Benefits

- Assured biosecurity with absolute rated filtration
- High flow rates with low pressure drops
- High voids volume PTFE membrane
- Steam sterilizable to 142 °C (287.6 °F)
- Unique prefilter layer

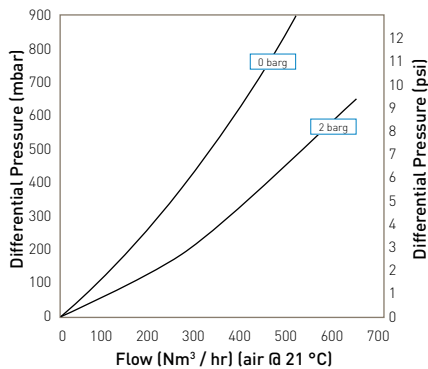
## TETPOR AIR Filter Cartridges

- air / gas filters
- expanded PTFE

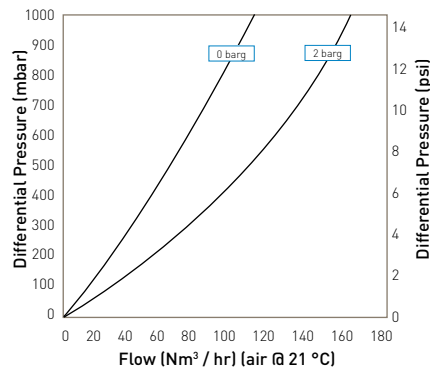


Note: TETPOR is a registered trademark of Parker domnick hunter

## Performance Characteristics



10" Size (250 mm) Cartridge



B Size (65 mm) Cartridge

## Specifications

### Materials of Construction

- Filtration Membrane: Expanded PTFE
- Upstream Support: Polypropylene
- Downstream Support: Polypropylene

#### Filter Cartridges

- Inner Support Core: Polypropylene
- Outer Protection Cage: Polypropylene
- End Caps: Polypropylene
- End Caps Insert: 316L Stainless Steel
- Standard o-rings/gaskets: Silicone

#### MURUS Disposable Filter Capsules

- Core: Polypropylene
- Sleeve: Polypropylene
- Standard o-rings: Viton
- Capsule Body: Polypropylene
- Capsules Vent Seals: Silicone

#### DEMICAP Filter Capsules

- Core: Polypropylene
- Sleeve: Polypropylene
- End Caps: Polypropylene
- Capsule Body: Polypropylene
- Capsules Vent Seals: Silicone
- Filling Bell: Polycarbonate

#### Syringe Filters

- Body: Polypropylene

### Recommended Operating Conditions

#### Filter Cartridges

Up to 60 °C (140 °F) continuous operating temperature and higher short-term temperatures during CIP to the following limits:

| Temperature |     | Max. Forward dP |        |
|-------------|-----|-----------------|--------|
| °C          | °F  | (bar)           | (psil) |
| 20          | 68  | 5.0             | 72.5   |
| 40          | 104 | 4.0             | 58.0   |
| 60          | 140 | 3.0             | 43.5   |
| 80          | 176 | 2.0             | 29.0   |
| 90          | 194 | 1.7             | 24.6   |

#### MURUS Disposable Filter Capsules

Up to 25 °C ( 77 °F) @ 5.5 barg (79.7 psig)

Up to 60 °C (140 °F) @ 2.8 barg (40.6 psig)

*Parker Hannifin certify that this product complies with the European Council Pressure Equipment Directive (PED) 97/23/EC Article 3, Paragraph 3 - Sound Engineering Practice (SEP). This product is intended for use with Group 1 & 2 Dangerous and Harmless Liquids and Group 2 Harmless Gases at the operating conditions stated in this document : In compliance with PED Article 3, Paragraph 3, SEP, this product does not bear the CE mark.*

#### DEMICAP Filter Capsules

Up to 40 °C (104 °F) at line pressures up to 5.0 barg (72 psig).

### Effective Filtration Area (EFA)

|                 |                       |                         |
|-----------------|-----------------------|-------------------------|
| 10" (250 mm):   | 0.77 m <sup>2</sup>   | (8.28 ft <sup>2</sup> ) |
| K Size:         | 0.36 m <sup>2</sup>   | (3.87 ft <sup>2</sup> ) |
| A Size:         | 0.25 m <sup>2</sup>   | (2.69 ft <sup>2</sup> ) |
| B Size:         | 0.12 m <sup>2</sup>   | (1.29 ft <sup>2</sup> ) |
| E Size:         | 0.06 m <sup>2</sup>   | (0.64 ft <sup>2</sup> ) |
| Syringe ø50 mm: | 14.50 cm <sup>2</sup> | (2.25 in <sup>2</sup> ) |

### Sterilization

|            | Autoclave |                   | Steam-in-Place |                   |
|------------|-----------|-------------------|----------------|-------------------|
|            | Cycles    | Temp              | Cycles         | Temp              |
|            |           |                   | (30 min.)      |                   |
| Cartridges | 120       | 142 °C (287.6 °F) | 120            | 142 °C (287.6 °F) |
| MURUS      | 5         | 130 °C (266 °F)   | -              | -                 |
| DEMICAP    | 100       | 135 °C (275 °F)   | -              | -                 |
| Syringe    | 1         | 130 °C (266 °F)   | -              | -                 |

For detailed operational procedures and advice on cleaning and sterilization, please contact the Technical Support Group through your usual Parker domnick hunter contact.

### Food and Biological Safety

Materials conform to the relevant requirements of 21CFR Part 177 and current USP Plastics Class VI - 121 °C and ISO10993 equivalents.

## Performance Characteristics

### TOC / Conductivity

The filtrate quality from a 10" (250 mm) TETPOR AIR conforms to the requirements of current USP <643> (TOC) and USP <645> (conductivity).

### Endotoxins

Aqueous extracts from the 10" (250 mm) TETPOR AIR contain < 0.25 EU / ml when tested in accordance with the Limulus Amoebocyte Lysate test.

### Non-Volatile Extractables (NVE)

Total NVEs extracted in the first 5 litre flush of purified water for a 10" (250 mm) cartridge are <5 mg.

### Pharmaceutical Validation

A full validation guide is available upon request from Laboratory Services Group (LSG).

### Oxidizable Substances

TETPOR AIR filter cartridges meet current USP and EP quality standards for sterile purified water for oxidizable substances following a <1 litre water flush.

### Integrity Test Data

All filters are integrity testable to the following limits when wet with 60 / 40 : IPA /water and using air as the test gas.

| Cartridge | Test Pressure |        | Diffusional Flow<br>(ml / min) | Water Intrusion Test Pressure |        | Water Intrusion<br>(ml / 10 min) | Water Flow<br>(µl / 10 min) |
|-----------|---------------|--------|--------------------------------|-------------------------------|--------|----------------------------------|-----------------------------|
|           | (barg)        | (psig) |                                | (barg)                        | (psig) |                                  |                             |
| E         | 0.8           | 11.6   | 1.5                            | 2.5                           | 36.3   | 1.3                              | 371                         |
| B         | 0.8           | 11.6   | 3.0                            | 2.5                           | 36.3   | 2.6                              | 742                         |
| A         | 0.8           | 11.6   | 6.0                            | 2.5                           | 36.3   | 5.3                              | 1514                        |
| K         | 0.8           | 11.6   | 8.5                            | 2.5                           | 36.3   | 7.5                              | 2142                        |
| 10"       | 0.8           | 11.6   | 18.0                           | 2.5                           | 36.3   | 16.0                             | 4571                        |

### Retention Characteristics

TETPOR AIR filter cartridges are validated by bacterial challenge testing with *Brevundimonas diminuta* to current ASTM F838-05 methodology (10<sup>7</sup> organisms / cm<sup>2</sup> EFA minimum) with typical in-house challenge levels being 10<sup>11</sup> organisms per 10" (250 mm) filter cartridge.

## Ordering Information

### Cartridges

| Code   Length (Nominal)                                                                                  | Code   Micron | Code   Endcap (10")                                                                                                                           | Code   Variant | Code   O-rings                                                   |
|----------------------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------------------------------------------------|
| B* 2.5" (65 mm)<br>A* 5" (125 mm)<br>K 5" (125 mm)<br>1 10" (250 mm)<br>2 20" (500 mm)<br>3 30" (750 mm) | 020 0.2 µm    | B* dh DOE<br>C BF / 226 Bayonet<br>D Fin / 222<br>E Flat Top / 222<br>F BF / 216/218<br>G Recess / 222<br>H UF Retrofit<br>R BF / 222 Bayonet | A Air / Gas    | E EPDM<br>P PTFE Encapsulated Silicone<br>S* Silicone<br>V Viton |
| * Supplied in packs of 3.                                                                                |               |                                                                                                                                               |                |                                                                  |
| *EPDM gaskets supplied as standard.                                                                      |               |                                                                                                                                               |                |                                                                  |
| Code   Endcap (Demi)                                                                                     |               |                                                                                                                                               |                |                                                                  |
| SK Retrofit<br>T TRUESEAL<br>X 116<br>Y Demi Stub<br>Z Demi A & B Std                                    |               |                                                                                                                                               |                |                                                                  |

### MURUS Capsules

| Code   Length (Nominal)                                             | Code   Micron | Code   Inlet Connection                                                   | Code   Outlet Connection                                                  | Code   Variant | Code   Grade  | Code   Design          | Code   O-rings                                                                |
|---------------------------------------------------------------------|---------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------|---------------|------------------------|-------------------------------------------------------------------------------|
| K 5" (125 mm)<br>1 10" (250 mm)<br>2 20" (500 mm)<br>3 30" (750 mm) | 020 0.2 µm    | A 3/4" Tri-Clamp<br>B 1 1/2" Tri-Clamp<br>D 1" Hosebarb<br>T 1" Tri-Clamp | A 3/4" Tri-Clamp<br>B 1 1/2" Tri-Clamp<br>D 1" Hosebarb<br>T 1" Tri-Clamp | A Air / Gas    | N Non-sterile | L In-Line<br>T* T-Port | E EPDM<br>S* Silicone<br>V Viton                                              |
| *Only available with a 1" Tri-Clamp.                                |               |                                                                           |                                                                           |                |               |                        | *Silicone o-ring supplied as standard without having to specify the 'S' code. |

### DEMICAP Capsules

| Code   Length (Nominal)                               | Code   Micron | Code   Inlet Connection                                                                                                                              | Code   Outlet Connection                                                                                                                             | Code   Variant | Code   Grade  | Code   Pack N° |
|-------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|----------------|
| E 4.4" (113 mm)<br>B 5.5" (140 mm)<br>A 7.9" (200 mm) | 020 0.2 µm    | T 1" Tri-Clamp<br>N 1/2" NPT Male<br>H 1/2" Hosebarb<br>G Stepped Hosebarb<br>M 1/4" NPT Male<br>Q Walther QC<br>R Grommel / QC<br>V 3/8" NPT Female | T 1" Tri-Clamp<br>N 1/2" NPT Male<br>H 1/2" Hosebarb<br>G Stepped Hosebarb<br>M 1/4" NPT Male<br>Q Walther QC<br>R Grommel / QC<br>V 3/8" NPT Female | A Air / Gas    | N Non-Sterile | 3 Pack of 3    |

### Syringe Filters

| Code   Diameter | Code   Micron | Code   Inlet Connection               | Code   Outlet Connection              | Code   Variant   | Code   Grade  | Code   Options | Code   Pack N° |
|-----------------|---------------|---------------------------------------|---------------------------------------|------------------|---------------|----------------|----------------|
| 050 50 mm       | 020 0.2 µm    | G Stepped Hosebarb<br>L 1/8" NPT Male | G Stepped Hosebarb<br>L 1/8" NPT Male | P Pharmaceutical | N Non-sterile | S Standard     | 025 25 per box |

The below Parker TETPOR Liquid-series cartridge filters are all the models that are potentially possible in all variations. Please note that not all models are actually produced or on stock and some model numbers and names have become obsolete. Nevertheless this should help as cross reference table chart for Cuno filters nomenclature.

TETPOR Air

|             |             |             |              |             |             |             |             |
|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|
| ZCMTB-020B  | ZCMTA-020B  | ZCMTB-020B  | ZCMTA-020B   | ZCMTK-020B  | ZCMT1-020B  | ZCMT2-020B  | ZCMT3-020B  |
| ZCMTB-020C  | ZCMTA-020C  | ZCMTB-020C  | ZCMTA-020C   | ZCMTK-020C  | ZCMT1-020C  | ZCMT2-020C  | ZCMT3-020C  |
| ZCMTB-020D  | ZCMTA-020D  | ZCMTB-020D  | ZCMTA-020D   | ZCMTK-020D  | ZCMT1-020D  | ZCMT2-020D  | ZCMT3-020D  |
| ZCMTB-020E  | ZCMTA-020E  | ZCMTB-020E  | ZCMTA-020E   | ZCMTK-020E  | ZCMT1-020E  | ZCMT2-020E  | ZCMT3-020E  |
| ZCMTB-020G  | ZCMTA-020G  | ZCMTB-020F  | ZCMTA-020F   | ZCMTK-020F  | ZCMT1-020F  | ZCMT2-020F  | ZCMT3-020F  |
| ZCMTB-020R  | ZCMTA-020R  | ZCMTB-020G  | ZCMTA-020G   | ZCMTK-020G  | ZCMT1-020G  | ZCMT2-020G  | ZCMT3-020G  |
| ZCMTB-020SK | ZCMTA-020SK | ZCMTB-020H  | ZCMTA-020H   | ZCMTK-020H  | ZCMT1-020H  | ZCMT2-020H  | ZCMT3-020H  |
| ZCMTB-020T  | ZCMTA-020T  | ZCMTB-020R  | ZCMTA-020R   | ZCMTK-020R  | ZCMT1-020R  | ZCMT2-020R  | ZCMT3-020R  |
| ZCMTB-020Y  | ZCMTA-020Y  | ZCMTB-020SK | ZCMTA-020SK  | ZCMTK-020SK | ZCMT1-020SK | ZCMT2-020SK | ZCMT3-020SK |
| ZCMTB-020Z  | ZCMTA-020Z  | ZCMTB-020T  | ZCMTA-020T   | ZCMTK-020T  | ZCMT1-020T  | ZCMT2-020T  | ZCMT3-020T  |
| ZCMTB-020T  | ZCMTA-020T  | ZCMTB-020X  | ZCMTA-020X   | ZCMTK-020X  | ZCMT1-020X  | #REF!       | ZCMT3-020X  |
| ZCMTB-020Y  | ZCMTA-020Y  | ZCMTB-020Y  | ZCMTA-020Y   | ZCMTK-020Y  | ZCMT1-020Y  | ZCMT2-020Y  | ZCMT3-020Y  |
| ZCMTB-020Z  | ZCMTA-020Z  | ZCMTB-020Z  | ZCMTA-020Z   | ZCMTK-020Z  | ZCMT1-020Z  | ZCMT2-020Z  | ZCMT3-020Z  |
|             |             |             |              |             |             |             |             |
| ZLMTK-020A  | ZLMT1-020A  | ZLMT2-020A  | ZLMT3-020A   |             |             |             |             |
| ZLMTK-020B  | ZLMT1-020B  | ZLMT2-020B  | ZLMT3-020B   |             |             |             |             |
| ZLMTK-020D  | ZLMT1-020D  | ZLMT2-020D  | ZLMT3-020D   |             |             |             |             |
| ZLMTK-020T  | ZLMT1-020T  | ZLMT2-020T  | ZLMT3-020T   |             |             |             |             |
|             |             |             |              |             |             |             |             |
| ZEMTE-020T  | ZEMTB-020T  | ZEMTA-020T  | ZSMT050-020G |             |             |             |             |
| ZEMTE-020N  | ZEMTB-020N  | ZEMTA-020N  | ZSMT050-020L |             |             |             |             |
| ZEMTE-020H  | ZEMTB-020H  | ZEMTA-020H  |              |             |             |             |             |
| ZEMTE-020G  | ZEMTB-020G  | ZEMTA-020G  |              |             |             |             |             |
| ZEMTE-020M  | ZEMTB-020M  | ZEMTA-020M  |              |             |             |             |             |
| ZEMTE-020Q  | ZEMTB-020Q  | ZEMTA-020Q  |              |             |             |             |             |
| ZEMTE-020R  | ZEMTB-020R  | ZEMTA-020R  |              |             |             |             |             |
| ZEMTE-020V  | ZEMTB-020V  | ZEMTA-020V  |              |             |             |             |             |