TETPOR AIR Filters

- air / gas filters
- expanded PTFE

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.

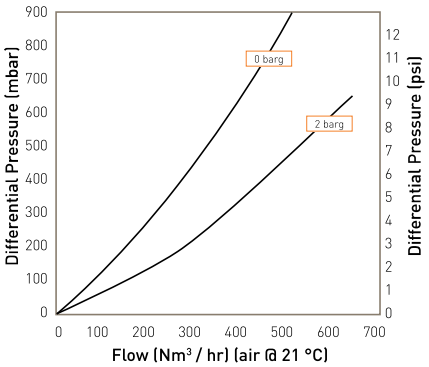
TETPOR AIR filter cartridges also utilize a well-proven, inherently hydrophobic expanded PTFE membrane validated as sterilizing grade in liquid in accordance with current ASTM F838 methodology.
This ensures the removal of all airborne bacteria, viruses and bacteriophage.

Note: TETPOR is a registered trademark of Parker Hannifin Corporation.

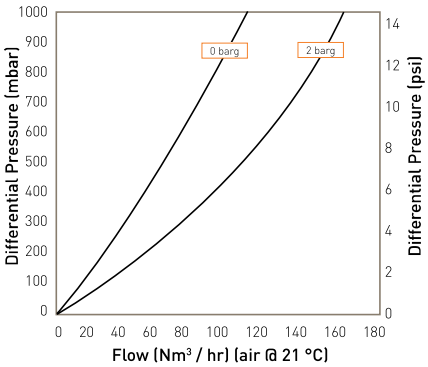
Features and Benefits

- 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

Performance Characteristics



10" Size (250 mm) Cartridge



B Size (65 mm) Cartridge

Specifications

Materials of Construction

- Filtration Membrane: 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
- End Caps Insert: 316L Stainless Steel
- Standard o-rings: Silicone
- 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

Temperature °C	Temperature °F	Max. Forward dP (bar)	Max. Forward dP (psi)
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

limits:

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 current European Council Pressure Equipment Directive (PED) - 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. The Pressure Equipment Directive mandates that category SEP product cannot 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^2	(8.28 ft^2)
K Size:	0.36	m^2	(3.87 ft^2)
A Size:	0.25	m^2	(2.69 ft^2)
B Size:	0.12	m^2	(1.29 ft^2)
E Size:	0.06	m^2	(0.64 ft^2)
Syringe ø50 mm:	14.50	cm^2	(2.25 in^2)

Sterilization

	Autoclave Cycles	Autoclave Temp	Steam-in-Place Cycles (30 min.)	Steam-in-Place Temp
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 contact.

Biological Safety

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

Quality Standards

Pharmaceutical grade products are manufactured in accordance with cGMP, 100% flushed with pharmaceutical grade purified water and integrity tested prior to despatch. A sample of each lot is tested to demonstrate conformity to validated claims.

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 (barg)	Test Pressure (psig)	Diffusional Flow (ml / min)	Water Intrusion Test Pressure (barg)	Water Intrusion Test Pressure (psig)	Water Intrusion (ml / 10 min)	Water Flow (µl / 10 min)
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	8.3	2.5	36.3	7.2	2060
10"	0.8	11.6	17.7	2.5	36.3	15.3	4370

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

Ordering Information

Cartridges

ZCMT □ / □ □ - □ □

Code	Length (Nominal)
B*	2.5" (65 mm)
A*	5" (125 mm)
K	5" (125 mm)
1	10" (250 mm)
2	20" (500 mm)
3	30" (750 mm)

* Supplied in packs of 3.

Code	Micron
020	0.2 µm

Code	Endcap (10")
B*	dh DOE
C	BF / 226 Bayonet
D	Fin / 222
E	Flat Top / 222
F	BF / 216/218
G	Recess / 222
H	UF Retrofit
R	BF / 222 Bayonet

*EPDM gaskets supplied as standard.

Code	Endcap (Demi)
SK	Retrofit
T	TRUESEAL
X	116
Y	Demi Stub
Z	Demi A & B Std

Code	Variant
A	Air / Gas

Code	O-rings
E	EPDM
P	PTFE Encapsulated Silicone
S	Silicone
V	Viton

MURUS Capsules

ZLMT □ - □ □ □ - □ □ □ - □

Code	Length (Nominal)
K	5" (125 mm)
1	10" (250 mm)
2	20" (500 mm)
3	30" (750 mm)

Code	Micron
020	0.2 µm

Code	Inlet Connection
A	3/4" Tri-Clamp
B	1 1/2" Tri-Clamp
D	1" Hosebarb
T	1" Tri-Clamp
H	1/2" Hosebarb

Code	Outlet Connection
A	3/4" Tri-Clamp
B	1 1/2" Tri-Clamp
D	1" Hosebarb
T	1" Tri-Clamp
H	1/2" Hosebarb

Code	Variant
A	Air / Gas

Code	Grade
N	Non-sterile

Code	Design
L	In-Line
T*	T-Port
M**	Streamline Valves

*Only available with a 1" Tri-Clamp
** Not available with a 1" or 1.5" Tri-Clamp fittings

Code	O-rings
E	EPDM
S	Silicone
V	Viton

DEMICAP Capsules

ZEMT □ - □ □ □ - □ □ □

Code	Length (Nominal)
E	4.4" (113 mm)
B	5.5" (140 mm)
A	7.9" (200 mm)

Code	Micron
020	0.2 µm

Code	Inlet Connection
T	1" Tri-Clamp
N	1/2" NPT Male
H	1/2" Hosebarb
G	Stepped Hosebarb
M	1/4" NPT Male
Q	Walther QC
R	Grommel / QC
V	3/8" NPT Female

Code	Outlet Connection
T	1" Tri-Clamp
N	1/2" NPT Male
H	1/2" Hosebarb
G	Stepped Hosebarb
M	1/4" NPT Male
Q	Walther QC
R	Grommel / QC
V	3/8" NPT Female

Code	Variant
A	Air / Gas

Code	Grade
N	Non-Sterile

Code	Pack N°
3	Pack of 3

Syringe Filters

ZSMT □ - □ □ □ - □ □ □ □ □

Code	Diameter
050	50 mm

Code	Micron
020	0.2 µm

Code	Inlet Connection
G	Stepped Hosebarb
L	1/8" NPT Male

Code	Outlet Connection
G	Stepped Hosebarb
L	1/8" NPT Male

Code	Variant
P	Pharmaceutical

Code	Grade
N	Non-sterile

Code	Options
S	Standard

Code	Pack N°
025	25 per box

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