TETPOR AIR Filter Cartridges

- air / gas filters
- expanded PTFE

TETPOR AIR sterilisation filter cartridges offer exceptional filtration performance whilst 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.

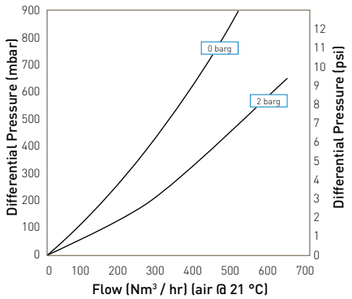
TETPOR AIR filter cartridges also utilise a well-proven inherently hydrophobic expanded PTFE membrane with an absolute removal rating of 0.01 micron for gas applications. This ensures the removal of all airborne bacteria, viruses and bacteriophage.

Features and Benefits

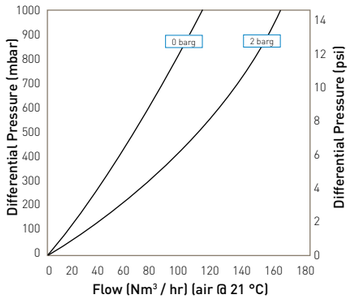
- Assured biosecurity with absolute rated filtration
- High flow rates with low pressure drops
- High voids volume PTFE membrane
- Steam sterilisable to 142 °C (287.6 °F)
- Unique prefilter layer

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 70 °C (158 °F) continuous operating temperature and higher short-term temperatures during CIP to the following limits:

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

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^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)

Sterilisation

	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)	-	-

TETPOR AIR filter cartridges can be sanitised with hot water at up to 90 °C (194 °F) and are compatible with a wide range of chemicals.

For detailed operational procedures and advice on cleaning and sterilisation, 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.

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).

Oxidisable Substances
TETPOR AIR filter cartridges meet current USP and EP quality standards for sterile purified water for oxidisable 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	Water Intrusion Test Pressure		Water Intrusion	Water Flow
	(barg)	(psig)	(ml / min)	(barg)	(psig)	(ml / 10 min)	(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	8.5	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 (10^7 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 □ / □ □ - A □

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)

Code	Micron	
020	0.2	µm

Code	Endcap (10")
B	dh DOE
C	BF / 226 Bayonet
G	Recess / 222
R	BF / 222 Bayonet

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

Code	O-rings
E	EPDM
P	PTFE
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

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

Code	Variant	
P	Pharmaceutical	

Code	Grade	
N	Non-sterile	

Code	Design	
L	In-Line	
T	T-Port	

Code	O-rings[1]	
E	EPDM[2]	
S	Silicone	
V	Viton	

[1] *Silicone o-ring supplied as standard without having to specify the 'S' code*
[2] *EPDM - Ethylene Propylene Diene Monomer Rubber*

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	
P	Pharmaceutical	

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 / 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	