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.

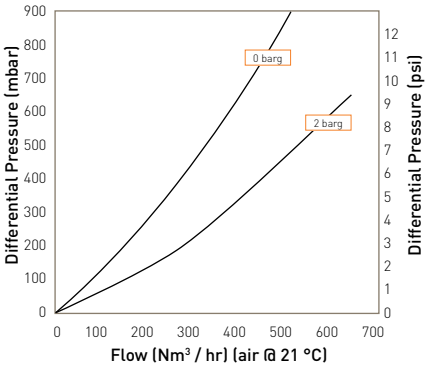
TETPOR AIR filter cartridges also utilize a well-proven, inherently hydrophobic expanded PTFE membrane validated as sterilizing grade in liquid in accordance with ASTM F838-05. This ensures the removal of all airborne bacteria, viruses and bacteriophage.

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

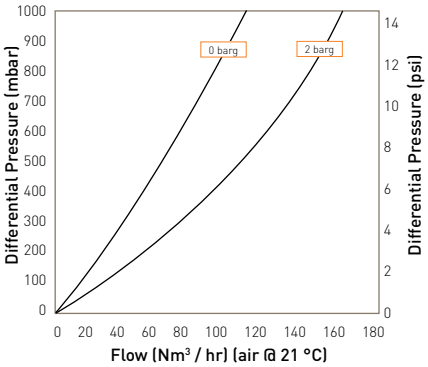
Features and Benefits

- 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: 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 °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)

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 domnick hunter 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	8.5	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 □ / □ □ - □ □

Code	Length (Nominal)		Code	Micron		Code	Endcap (10¨)		Code	Variant		Code	O-rings	
B*	2.5¨	(65 mm)	020	0.2	µm	B*	dh DOE		A	Air / Gas		E	EPDM	
A*	5¨	(125 mm)				C	BF / 226 Bayonet					P	PTFE Encapsulated Silicone	
K	5¨	(125 mm)				D	Fin / 222					S*	Silicone	
1	10¨	(250 mm)				E	Flat Top / 222					V	Viton	
2	20¨	(500 mm)				F	BF / 216/218							
3	30¨	(750 mm)				G	Recess / 222							
						H	UF Retrofit							
						R	BF / 222 Bayonet							

*Supplied in packs of 3.

*EPDM gaskets supplied as standard.

*Silicone o-ring supplied as standard without having to specify the 'S' code.

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

MURUS Capsules

ZLMT □ - □ □ □ - □ □ □ - □

Code	Length (Nominal)		Code	Micron		Code	Inlet Connection		Code	Outlet Connection		Code	Variant		Code	Grade		Code	Design		Code	O-rings	
K	5¨	(125 mm)	020	0.2	µm	A	3/4¨ Tri-Clamp		A	3/4¨ Tri-Clamp		A	Air / Gas		N	Non-sterile		L	In-Line		E	EPDM	
1	10¨	(250 mm)				B	1 1/2¨ Tri-Clamp		B	1 1/2¨ Tri-Clamp								T*	T-Port		S*	Silicone	
2	20¨	(500 mm)				D	1¨ Hosebarb		D	1¨ Hosebarb											V	Viton	
3	30¨	(750 mm)				T	1¨ Tri-Clamp		T	1¨ Tri-Clamp													

*Only available with a 1¨ Tri-Clamp.

*Silicone o-ring supplied as standard without having to specify the 'S' code.

DEMICAP Capsules

ZEMT □ - □ □ □ - □ □ □

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

Syringe Filters

ZSMT □ - □ □ □ - □ □ □ □ □

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		G	Stepped Hosebarb		P	Pharmaceutical		N	Non-sterile		S	Standard		025	25 per box	
						L	1/8¨ NPT Male		L	1/8¨ NPT Male													

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