



# NOVACON™ HIGHLY ASYMMETRIC PES SEMICONDUCTOR PROCESS FILTERS

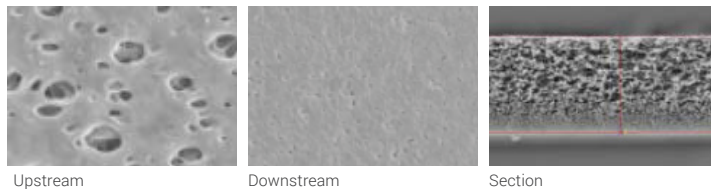
## HIGH RETENTION EFFICIENCY, FLOW RATES, AND SURFACE ENERGY, FOR PROCESS CYCLE TIME IMPROVEMENT.

Novacon® Series filters are specially designed for dilute acids, bases, and other process chemical mixtures as a cost-effective alternative for lower temperature wet etch and clean applications.

The asymmetric PES (polyethersulfone) membrane provides significant retention of particles (down to 1nm) with additional beneficial characteristics including high flow rates, high particle holding capacity, and longer filter lifetime. In addition, the membrane structure and high surface energy is effective in reducing bubble formation during flow.

The HDPE (High-Density Polyethylene) supports and cartridge structure ensure low metal extractables during filtration.

Novacon disposable filters fluoropolymer shell and one-piece structural design provides high mechanical strength and makes installations easier.



Upstream

Downstream

Section



### FEATURE

### BENEFIT

**Highly asymmetric PES membrane**

Combines excellent retention and high flow

Ultra-clean performance out-of-box results in faster start up, reduces equipment pre-operation time

Low surfactant binding

**High purity HDPE structure and PFA (for disposables) shell**

Good chemical compatibility

Low metal extractables

**High membrane surface area**

High flow rate and longer life

**Industry standard connections**

Ease of installation and replacement

**Higher cleanliness option**

Meets stringent process requirements for metals, anions, and organic contaminants

**Prewet option**

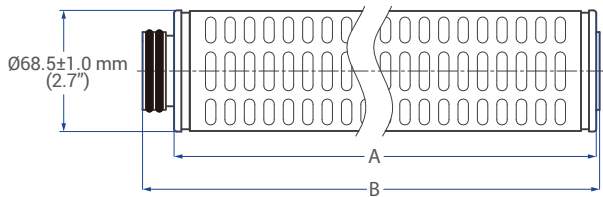
Provides convenience and decreases the chances of product contamination

## SPECIFICATIONS

<b>Filter media</b>	Hydrophilic HAPES <sup>1</sup> /Hydrophobic HAPES
<b>Supports/core/cage/end caps</b>	HDPE
<b>O-rings (cartridge only)</b>	Cartridge: TEV or EPDM; Disposable: TEV
<b>Shell (disposable only)</b>	PFA
<b>Max. operating temperature</b>	70°C
<b>Disposable max. operating pressure</b>	Disposables: 0.58 MPa (5.8 bar, 84 psi) at 25°C Small In-Line X Type Disposable: 0.40 MPa (4.0 bar, 58 psi) at 25°C
<b>Cartridge max. differential pressure</b>	Forward/Reverse: 0.34 MPa (3.4 bar, 49 psi) at 25°C
	<b>X1                      Z1                      Z2                      X1 X-Type</b>
<b>Effective filtration area</b>	Ø68 mm (2.7")      Ø83 mm (3.27")      Ø83 mm (3.27")      Ø68 mm (2.7")
	0.8m <sup>2</sup> (8.6ft <sup>2</sup> )      1.4m <sup>2</sup> (15.0ft <sup>2</sup> )      1.7m <sup>2</sup> (18.3ft <sup>2</sup> )      0.42m <sup>2</sup> (4.5ft <sup>2</sup> )

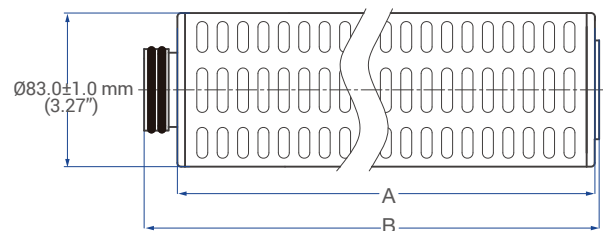
<sup>1</sup> Hydrophilic option available for 50nm, 0.1µm, and 0.2µm removal ratings

### NOVACON X1 CARTRIDGE FILTERS (2-222/FLAT)



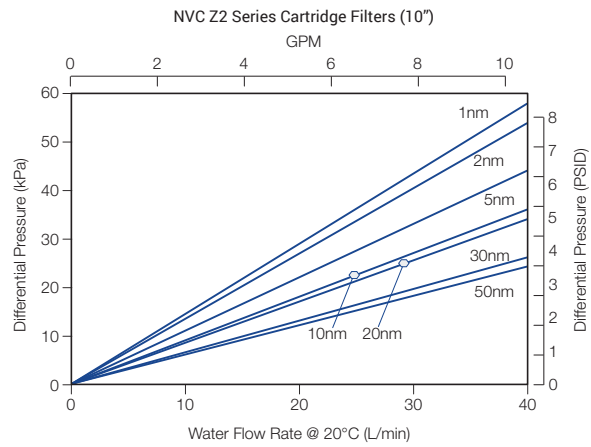
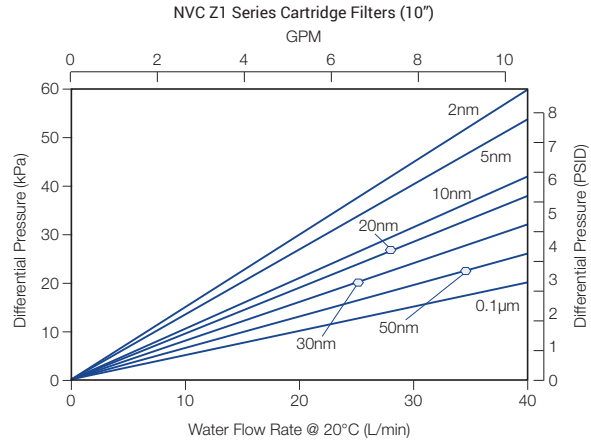
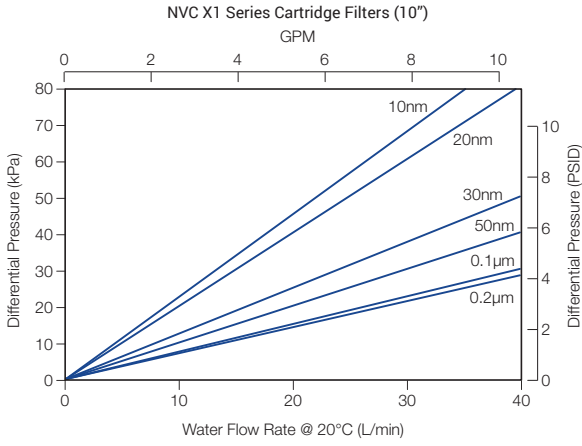
Length Code	A	B
<b>04P</b>	102.0 ±1 mm (4.0")	122.0 ±1 mm (4.8")
<b>09P</b>	229.0 ±2 mm (9.0")	249.0 ±2 mm (9.8")
<b>10P</b>	254.0 ±2 mm (10.0")	274.0 ±2 mm (10.8")
<b>20P</b>	508.0 ±3 mm (20.0")	528.0 ±3 mm (20.8")
<b>10</b>	242.5 ±2 mm (9.5")	262.5 ±2 mm (10.3")
<b>20</b>	488.0 ±3 mm (19.2")	508.0 ±3 mm (20.0")
<b>20C</b>	478.0 ±3 mm (18.8")	498.0 ±3 mm (19.6")
<b>30</b>	734.0 ±4 mm (28.9")	754 ±4 mm (29.7")

### NOVACON Z1, Z2 CARTRIDGE FILTERS (2-222/FLAT)



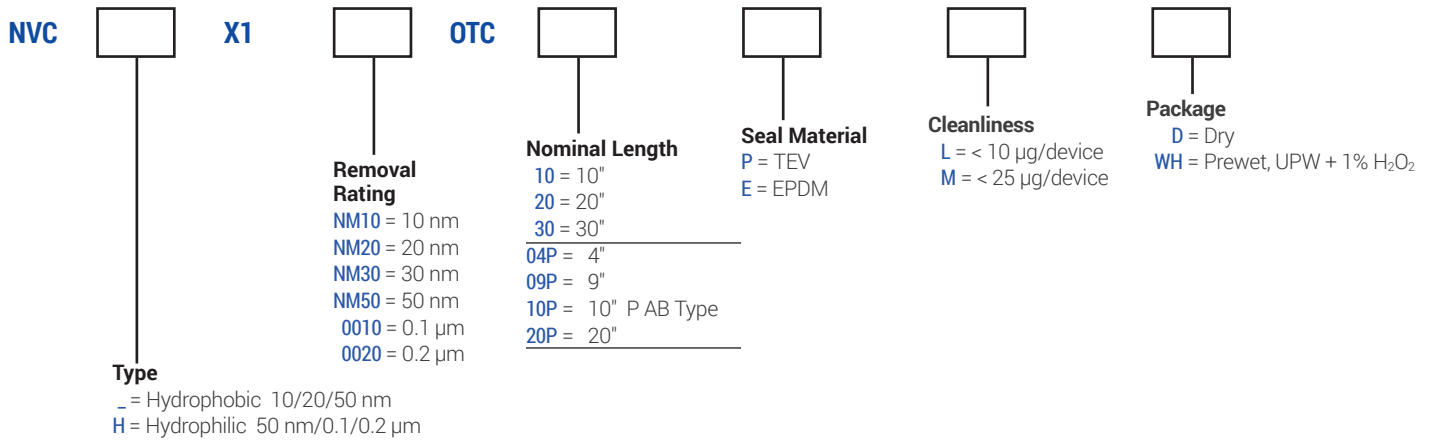
Length Code	A	B
<b>04</b>	110.0 ±1 mm (4.3")	130.5 ±1 mm (5.1")
<b>10</b>	225.0 ±2 mm (8.9")	247.0 ±2 mm (9.7")
<b>20</b>	452.0 ±3 mm (17.8")	472.0 ±3 mm (18.6")

## CARTRIDGE FLOW RATES



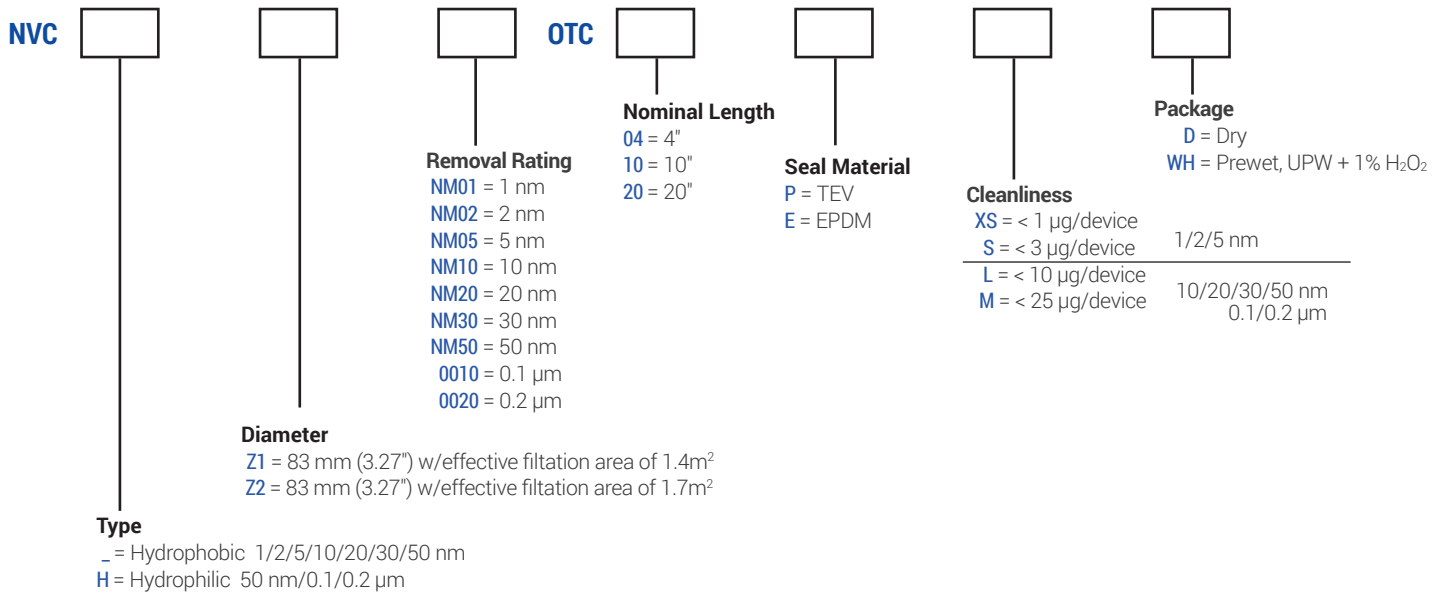
## NVC X1 CARTRIDGE ORDERING INFORMATION (2.7" DIAMETER)

EXAMPLE: **NVCX1NM500TC20EMWH** = Hydrophobic 50 nm, 20", EPDM seal, < 25 µg/device, prewet

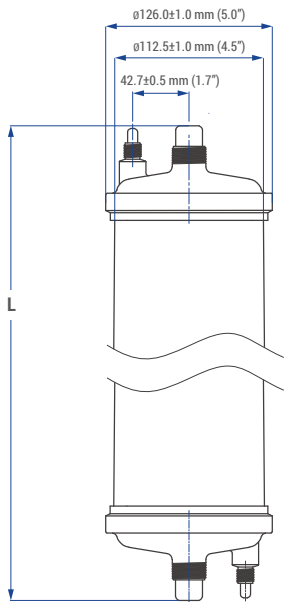


## NVC CARTRIDGE ORDERING INFORMATION (3.27" DIAMETER)

EXAMPLE: **NVCHZ1NM500TC10EMD** = Hydrophilic, Z1, 50 nm, 10", EPDM seal, < 25 µg/device, dry



# NOVACON IN-LINE DISPOSABLE FILTERS



## FLARE CONNECTION TYPE NOMINAL DIMENSIONS

Code	Inlet/Outlet	Vent/Drain	5" Filter L	10" Filter L
F32	3/8"	1/4"	240.0±2.0 mm (9.5")	359.0±3.0 mm (14.1")
F42	1/2"	1/4"	240.0±2.0 mm (9.5")	359.0±3.0 mm (14.1")
F62	3/4"	1/4"	240.0±2.0 mm (9.5")	359.0±3.0 mm (14.1")
F82	1"	1/4"	257.0±2.0 mm (10.1")	376.0±3.0 mm (14.8")

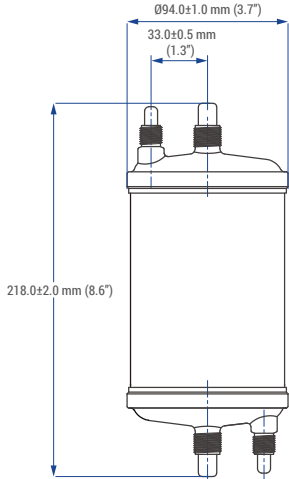
## NVC DISPOSABLE ORDERING INFORMATION<sup>1</sup>

EXAMPLE: **NVCHZ1NNM5010F42MD** = Hydrophilic, Z1, Inline, 50 nm, 10", F42 CFL (flare type), < 25 µg/device, dry

<p><b>NVC</b></p> <p><b>Type</b></p> <p>_ = Hydrophobic H = Hydrophilic</p>	<p><b>Diameter</b></p> <p>Z1 = 83 mm (3.27") Z2 = 83 mm (3.27")</p>	<p><b>N</b></p> <p><b>Flow Type</b></p> <p>N = Inline</p>	<p><b>Removal Rating</b></p> <p>NM01 = 1 nm NM02 = 2 nm NM05 = 5 nm NM10 = 10 nm NM20 = 20 nm NM30 = 30 nm NM50 = 50 nm 0010 = 0.1 µm 0020 = 0.2 µm</p>	<p><b>Nominal Length</b></p> <p>05 = 5" 10 = 10"</p>	<p><b>Connection</b></p> <p>CFL (Flare Type): F32 F42 F62 F82</p>	<p><b>Cleanliness</b></p> <p>XS = &lt; 1 µg/device S = &lt; 3 µg/device L = &lt; 10 µg/device M = &lt; 25 µg/device</p>	<p><b>Package</b></p> <p>D = Dry WH = Prewet, UPW + 1% H<sub>2</sub>O<sub>2</sub></p>
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<sup>1</sup> Not all combinations of surface area options and removal ratings are available. Please contact Banner Industries with any questions about part number availability.

# NOVACON SMALL IN-LINE X-TYPE DISPOSABLE FILTERS



## FLARE CONNECTION TYPE CONNECTIONS

Code	Inlet/Outlet	Vent/Drain
F32	3/8" male	1/4" male
F42	1/2" male	1/4" male

## SMALL IN-LINE X-TYPE DISPOSABLES ORDERING INFORMATION

EXAMPLE: **NVCX1XNM5004F42MW** = 50nm, F42 flare, < 25ug/device, prewet

<p><b>NVC</b> <span style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></span></p> <p><b>Type</b></p> <p>_ = Hydrophobic 1/2/5/10/20/30/50 nm/0.1 µm H = Hydrophilic 50 nm/0.1/0.2 µm</p>	<p><span style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></span></p> <p><b>Filter Area</b></p> <p>X1 = 0.42m<sup>2</sup> (4.5ft<sup>2</sup>)</p>	<p><b>X</b></p>	<p><span style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></span> <b>04</b></p> <p><b>Removal Rating</b></p> <p>NM01 = 1 nm NM02 = 2 nm NM05 = 5 nm NM10 = 10 nm NM20 = 20 nm NM30 = 30 nm NM50 = 50 nm 0010 = 0.1 µm 0020 = 0.2 µm</p>	<p><span style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></span></p> <p><b>Connection</b> CFL (Flare Type):</p> <p>F32 F42</p>	<p><span style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></span></p> <p><b>Cleanliness</b></p> <table border="0"> <tr> <td>XS = &lt; 1 µg/device</td> <td rowspan="2">1/2/5 nm</td> </tr> <tr> <td>S = &lt; 3 µg/device</td> </tr> <tr> <td>L = &lt; 10 µg/device</td> <td rowspan="2">10/20/30/50 nm 0.1/0.2 µm</td> </tr> <tr> <td>M = &lt; 25 µg/device</td> </tr> </table>	XS = < 1 µg/device	1/2/5 nm	S = < 3 µg/device	L = < 10 µg/device	10/20/30/50 nm 0.1/0.2 µm	M = < 25 µg/device	<p><span style="border: 1px solid black; display: inline-block; width: 30px; height: 20px; vertical-align: middle;"></span></p> <p><b>Package</b></p> <p>D = Dry WH = Prewet, UPW + 1% H<sub>2</sub>O<sub>2</sub></p>
XS = < 1 µg/device	1/2/5 nm											
S = < 3 µg/device												
L = < 10 µg/device	10/20/30/50 nm 0.1/0.2 µm											
M = < 25 µg/device												



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