

PolyCera® Titan Nanofiltration

Spiral Wound

Performance & Operating Parameters

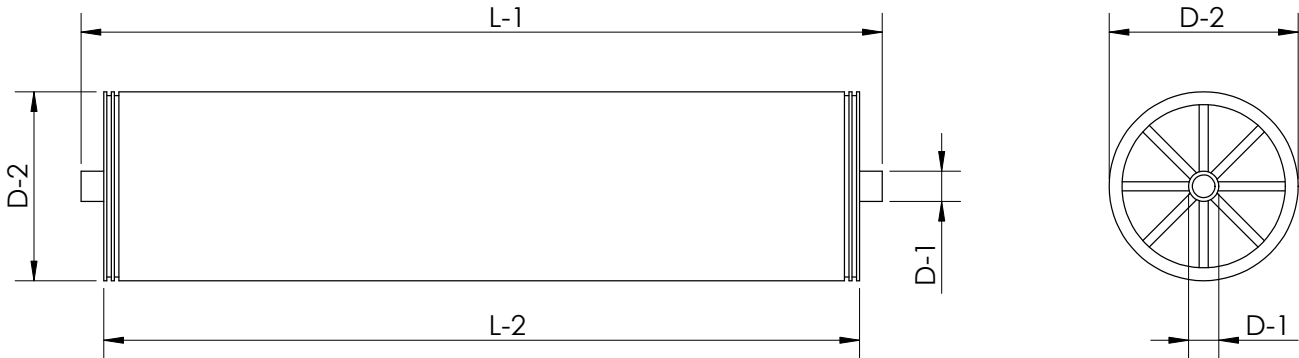
Membrane material:	PolyCera Titan
Nominal pore size/MWCO:	<1 nm/500 Da
Rose Bengal (dye) removal:	> 99%
Hardness removal:	< 5%
Monovalent ions removal:	~ 0%
Operating pH ranges:	1.0 – 10.0 @ T≤70°C (158°F), 1.0 – 13.5 @ T≤50°C (122°F)
Operating temperature ranges:	5°C – 70°C (41°F – 158°F)
Maximum inlet pressure:	17.3 bar (250 psi)
Maximum cross-flow per element:	13.6 m ³ /h (60 gpm)
Max pressure drop per element:	1.0 bar (15 psi)
Feed free oil and grease:	≤ 500 mg/L
Feed total suspended solids:	≤ 100 mg/L
Continuous free chlorine:	≤ 5 mg/L
Typical operating flux:	5 - 40 LMH (3 - 24 GFD)
Feed spacer thickness:	24, 31, 65 mil
Recommended pre-filter:	5 µm

Element Specifications

Model Number		Titan NF-1812		Titan NF-4040		Titan NF-8040	
Size		1812		4040		8040	
D-1*	cm (in)	1.71 (0.67)		1.90 (0.75)		2.86 (1.13)	
D-2	cm (in)	4.6 (1.80)		10.2 (4.00)		20.3 (8.00)	
L-1	cm (in)	30.48 (12.00)		101.6 (40.00)		NA	
L-2	cm (in)	29.8 (11.75)		96.1 (37.93)		101.6 (40.00)	
Weight	kg (lb)	0.45 (1)		3.5 (8)		13 (29)	

Note: *All element dimensions have specified tolerances of +0.00/-0.06"

ELEMENT SPECIFICATIONS



Model	Spacer, mm (mil)	Active area, m2 (ft2)	Outer wrap	Endcap	Recommend cross-flow m3/h (GPM)	Average permeate flow m3/d (GPD)*
TitanNF-1812UHF	0.6 (24)	0.42 (4.5)	Tape	Male	0.4 (1.8)	0.21 (55)
TitanNF-1812HF	0.8 (31)	0.39 (4.2)	Tape	Male	0.5 (2.0)	0.19 (51)
TitanNF-1812HS	1.7 (65)	0.23 (2.5)	Tape	Male	0.6 (2.5)	0.11 (30)
TitanNF-4040UHF	0.6 (24)	7.9 (85)	FRP	Male	2 (10)	3.9 (1037)
TitanNF-4040HF	0.8 (31)	7.1 (76)	FRP	Male	4 (18)	3.5 (932)
TitanNF-4040HS	1.7 (65)	4.5 (48)	FRP	Male	5 (23)	2.2 (591)
TitanNF-8040UHF	0.6 (24)	33.7 (363)	FRP	Female	10 (43)	16.7 (4425)
TitanNF-8040HF	0.8 (31)	29.6 (319)	FRP	Female	11 (48)	14.7 (3887)
TitanNF-8040HS	1.7 (65)	18.8 (202)	FRP	Female	14 (60)	9.3 (2468)

Note: *Testing condition: de-ionized water, 25°C, 10.3 bar (150 psi) transmembrane pressure. Actual results will vary depending on feed water quality and operation conditions

Cleaning & Chemical Exposure Guidelines

Maximum cleaning temperature:	85°C (185°F) @ 1 < pH ≤ 10, 50°C (122°F) @ 10 < pH ≤ 13.5
Maximum cleaning pH:	1.0 < pH < 13.5 @ 50°C (122°F), 1.0 < pH < 10.0 @ 85°C (185°F)
Hydrochloric acid:	≤ 0.4% or 1.0 Normal (pH > 1.0)
Citric acid:	≤ 20% or 1 Normal (pH > 1.0)
Sodium hydroxide:	≤ 4% or 1.0 Normal (pH < 13.5)
Free chlorine instantaneous/total:	100 ppm/100,000 ppm.hour @ pH 11
Peroxide/Ozone:	Not compatible

Notes: Consult PolyCera for application specific operating parameters beyond those described

Handling & Storage Instructions

New Element Handling & Storage Guidelines

- ◇ Recommended storage temperature: 5°C – 20°C (41°F – 68°F). Do not freeze element
- ◇ Handle with care. Damage to elements/end-caps/ATDs can compromise performance
- ◇ It is recommended to store elements wet and horizontally
- ◇ Whenever possible, store elements in original packaging
- ◇ Drying can damage membrane surface and compromise performance
- ◇ Membrane elements should be stored in dry, dark, and ventilated conditions

Installation & Initial Use Guidelines

- ◇ Prior to use, soak element for 24 hours with DI water then flush for at least 30 minutes
- ◇ Elements can be mounted vertically or horizontally
- ◇ When mounted vertically, it is recommended to orient feed to flow from top to bottom
- ◇ Use water or glycerin to lubricate seal

After Use Storage and Preservation Guidelines

Use standard CIP procedure to clean feed and filtrate from the elements prior to shut down. Then perform element preservation as recommended below:

- ◇ 1 – 7 days: Sanitize element by flushing with 10 ppm bleach and adjust to pH 11 for 30 minutes. Fill up element and housing with fresh 1 ppm bleach solution, seal the housing and store
- ◇ 1 week to 6 months: Fill up element and housing with 0.3 % Saniclean* solution, seal the housing and store. Every two weeks, drain the Saniclean solution from the system and flush with clean water. Refill the element and housing with 0.3 % Saniclean solution, seal the housing and store.
- ◇ More than 6 months: Contact PolyCera Inc. for further information.

Note: Saniclean is a USDA accepted, low-foaming acid anionic rinse product made by Five Star Chemicals & Supplies, Inc. (Colorado, USA). Please contact Five Star Chemicals & Supplies, Inc. or PolyCera, Inc. for further information.

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