

PolyCera® Titan Off-Shore Ultrafiltration High Temperature, High Oil Tolerant Spiral Monolith® Element Specifications

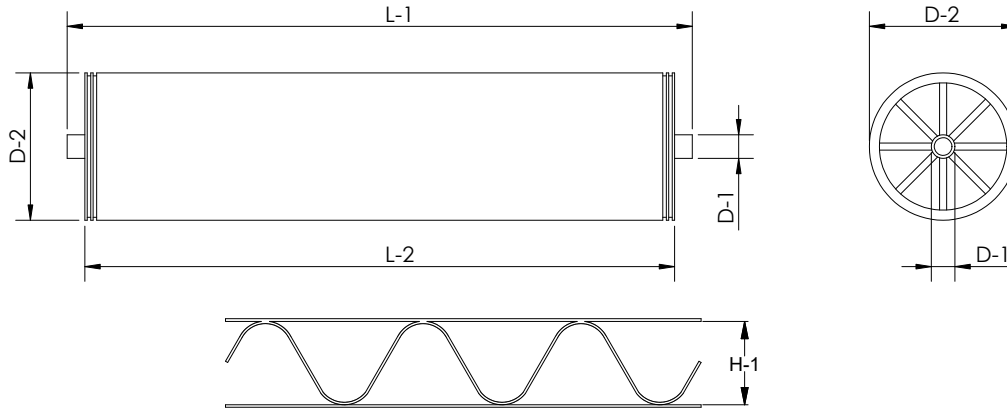
Performance & Operating Parameters

Membrane Material:	PolyCera Titan
Nominal Pore Size/MWCO:	5 nm/70 kDa
Operating pH Ranges:	1.0 – 10.0 @ T ≤ 90°C (194°F), 1.0 – 13.5 @ T ≤ 50°C (122°F)
Operating Temperature Ranges:	5°C – 90°C (41°F – 194°F)
Maximum Inlet Pressure:	8.3 bar (120 psi)
Maximum Cross-Flow Per Element:	34.1 m ³ /h (150 gpm)
Max Pressure Drop Per Element:	0.35 bar (5 psi)
Feed Free Oil & Grease:	≤ 2000 mg/L
Feed Total Suspended Solids:	≤ 500 mg/L
Feed BTEX:	≤ 200 mg/L
Continuous Free Chlorine:	≤ 5 mg/L
Typical Operating Flux:	20 - 200 LMH (12 - 118 GFD)
Feed Spacer Thickness:	40 mil
Recommended Pre-Filter:	150 μm

Model Number Size		Titan 70XB-4040-UHF- TWM 4040	Titan 70XB-8040-UHF- FRF 8040
Active Area	m ² (ft ²)	5.5 (60)	23.6 (254)
Weight	kg (lb)	3.5 (8)	13 (29)
Outer Wrap		Tape	Fiberglass
Endcap		Male	Female
Recommend crossflow	m ³ /h (gpm)	5.7 (25)	34.1 (150)
Filtrate flowrate*	m ³ /h (gpm)	0.95 (4.2)	1.9 (8.3)
Permeate connection D-1**	cm (in)	1.90 (0.75)	2.86 (1.13)
Element diameter D-2	cm(in)	10.2 (4.00)	20.3 (8.00)
Element length (Female) L-1	cm (in)	101.6 (40.00)	NA
Element length (Male) L-1	cm (in)	96.1 (37.93)	101.6 (40.00)
Feed channel height H-1	mm (mil)	1.02 (40)	1.02 (40)

Note: *Testing condition: synthetic produced water feed stream with 1000 ppm crude oil, 25°C, 1.9 bar (27 psi) transmembrane pressure, 10% recovery. Actual results will vary depending on feed stream quality and operation conditions.

**All element dimensions have specified tolerances of +0.00/-0.06”.



Cleaning & Chemical Exposure Guidelines

Maximum Backwash Pressure:	1.7 bar (25 psi)
Backwash Flux:	40 - 240 LMH (24 - 144 GFD)
Standard Backwash Duration:	30 seconds
Maximum Backwash Duration:	2 minutes
Maximum Cleaning Temperature:	90°C (194°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 1.0 Normal (pH > 1.0)
Sodium Hydroxide:	≤ 4% or 1.0 Normal (pH < 13.5)
Free Chlorine Instantaneous/Total:	50 ppm/100,000 ppm hour @ pH 11
Peroxide/Ozone:	Not compatible

- Notes:** 1) Increased crossflow during backwash enhances cleaning efficacy
2) Backwash flux should be 1.5 to 2 times of operating flux

Handling & Storage Instructions

New Element Handling & Storage Guidelines

- ◇ Recommended storage temperature: 5°C – 30°C (41°F – 86°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 & 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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