

Water Solutions



Prime RO

PROven
PROgressive
PROductive
PROficient
PROminent



DuPont introduces
New FilmTec™ Prime RO Portfolio



PROven
PROgressive
PROductive
PROficient
PROminent

DuPont introduces Prime RO Industrial Portfolio

- **PROven** Based on the historical FilmTec™ BW30, with more than 40 years of manufacturing experience
- **PROgressive** Continuous innovation to reach unparalleled combination of product specifications, durability and cleanability
- **PROductive** Enables customers to benefit from up to 20% in energy consumption savings while improving permeate quality by up to 50%
- **PROficient** Outstanding performance and durability compared to other available alternatives
- **PROminent** Demonstrates unparalleled combination of product specifications, durability and cleanability

Prime RO Portfolio | The Next Generation

Current Portfolio

Product Name	Salt Rejection (%)		Flow (GDP)	Spacer (mil)
	Stabilized Minimum			
BW30-400*	99.5	99	10,500	28
BW30XFR-400/34* (i)	99.65	99.4	11,500	34-LDP
BW30-400/34* (i)	99.5	99	10,500	34
BW30-365*	99.5	99	9,500	34
BW30HR-440 (i)**	99.7	99.4	12,650	28

(i) - Available with iLEC™

* Products will be discontinued

** Product will not be discontinued

Prime RO Portfolio

Product Name	Salt Rejection (%)		Flow (GDP)	Spacer (mil)
	Stabilized Minimum			
BW30 PRO-400	99.6	99.4	11,000	28
BW30XHR PRO-400/34 (i)	99.8	99.6	11,500	34-LDP
BW30XHR PRO-440*	99.8	99.6	12,650	28

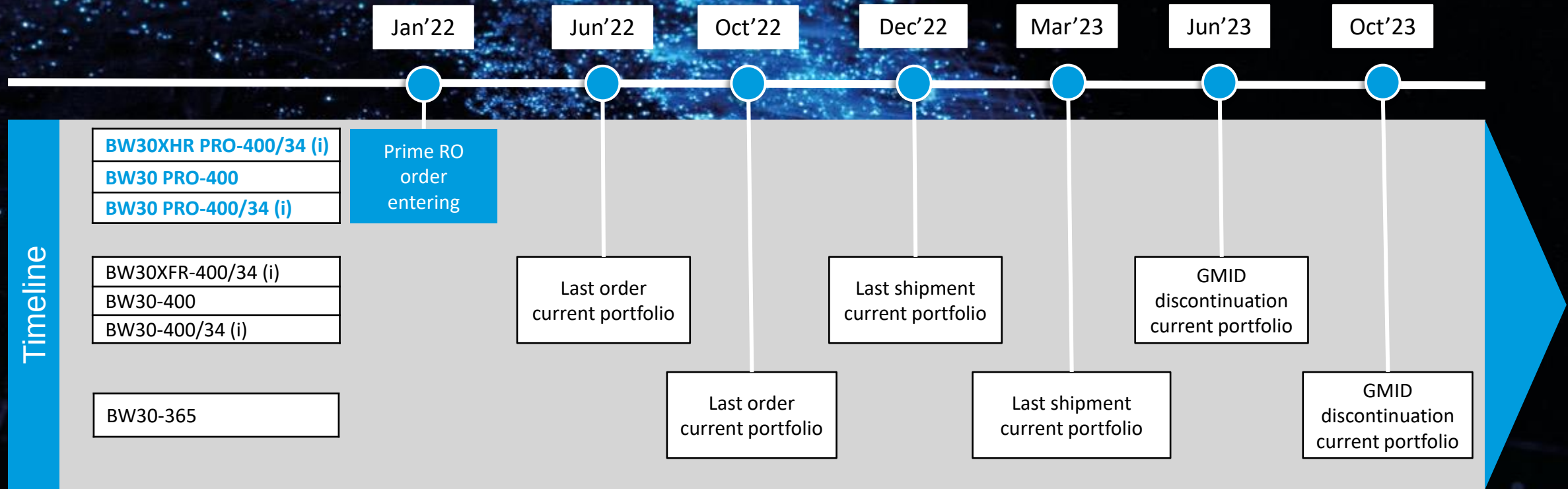
* Product already available

■ Improved Specifications



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Prime RO Portfolio | New and Old products timeline



Prime RO Portfolio | PDS

What's new?

- Clear, simplified and differentiated value proposition
- New links to the products' operational limits
- Content consolidated to fit into **2 pages**

Product Data Sheet
FilmTec™ Reverse Osmosis Membranes

FilmTec™ BW30 PRO-400
High Rejection, High Reliability Industry-Standard Brackish Water Reverse Osmosis Membrane Element

Key Features

- Delivers consistent water quality and higher rejection and flow than previous generation BW30 product
- Based on historical BW30 industry-standard RO membrane with decades of proven performance
- Outstanding durability resulting in stable long-term performance

Key Applications

- Demineralization for industrial applications, such as: Power Generation, Steel & Metal, Chemical & Petrochemical
- Municipal water purification

Typical Properties

FilmTec™ Element	Active Area ft ² (m ²)	Feed Spacer Thickness inches (mm)	Permeate Flow Rate gal (m ³) / day	Stabilized Salt Rejection (%)	Minimum Salt Rejection (%)
BW30 PRO-400	400 (37)	28	11,000 (42)	99.6	99.4

1. Permeate flow and salt rejection based on the following standard conditions: 2,000 ppm NaCl, 225 psi (15.5 bar), TYP (20°C), pH 8 and 10% recovery.
2. Flow rates for individual elements may vary but will be no more than 10% below the value shown.
3. Salt specifications may vary as design revisions take place.

Element Dimensions

For element weight information refer to the [TDS](#)
For element packaging and shipping information refer to [How are FilmTec™ elements packaged and shipped?](#)

FilmTec™ Element BW30 PRO-400	Dimensions - inches (mm)
A	40.0 (1,016)
B	1.125 (1,250)
C	7.9 (200)

Product Data Sheet
FilmTec™ Reverse Osmosis Membranes

FilmTec™ BW30XHR PRO-400/34
Extra High Rejection Brackish Water Reverse Osmosis Membrane Element

Key Features

- Offers exceptional permeate quality
- Delivers excellent silica, boron, nitrate, TOC and ammonium rejection
- Outstanding durability resulting in stable long-term performance
- Enhanced fouling protection thanks to 34 mil feed spacer

Key Applications

- Demineralization for industrial applications, such as: Power Generation, Steel & Metal, Chemical & Petrochemical
- Municipal water purification
- Applications requiring stringent permeate quality

Typical Properties

FilmTec™ Element	Active Area ft ² (m ²)	Feed Spacer Thickness inches (mm)	Permeate Flow Rate gal (m ³) / day	Stabilized Salt Rejection (%)	Minimum Salt Rejection (%)
BW30XHR PRO-400	400 (37)	34-LDP	11,500 (43.5)	99.75	99.6

1. Permeate flow and salt rejection based on the following standard conditions: 2,000 ppm NaCl, 225 psi (15.5 bar), TYP (20°C), pH 8 and 10% recovery.
2. Flow rates for individual elements may vary but will be no more than 10% below the value shown.
3. Salt specifications may vary as design revisions take place.

Element Dimensions

For element weight information refer to the [TDS](#)
For element packaging and shipping information refer to [How are FilmTec™ elements packaged and shipped?](#)

FilmTec™ Element BW30XHR PRO-400	Dimensions - inches (mm)
A	40.0 (1,016)
B	1.125 (1,250)
C	7.9 (200)

Product Data Sheet
FilmTec™ Reverse Osmosis Membranes

FilmTec™ BW30XHR PRO-440
Extra High Rejection Brackish Water Reverse Osmosis Membrane Element

Key Features

- Offers exceptional permeate quality
- Delivers excellent silica, boron, nitrate, TOC and ammonium rejection
- Outstanding durability resulting in stable long-term performance

Key Applications

- Demineralization for industrial applications, such as: Power Generation, Steel & Metal, Chemical & Petrochemical
- Municipal water purification
- Applications requiring stringent permeate quality
- Cost efficient solution for seawater 2nd pass

Typical Properties

FilmTec™ Element	Active Area ft ² (m ²)	Feed Spacer Thickness inches (mm)	Permeate Flow Rate gal (m ³) / day	Stabilized Salt Rejection (%)	Minimum Salt Rejection (%)
BW30XHR PRO-440	440 (41)	28	12,650 (48)	99.75	99.6

1. Permeate flow and salt rejection based on the following standard conditions: 2,000 ppm NaCl, 225 psi (15.5 bar), TYP (20°C), pH 8 and 10% recovery.
2. Flow rates for individual elements may vary but will be no more than 10% below the value shown.
3. Salt specifications may vary as design revisions take place.

Element Dimensions

For element weight information refer to the [TDS](#)
For element packaging and shipping information refer to [How are FilmTec™ elements packaged and shipped?](#)

FilmTec™ Element BW30XHR PRO-440	Dimensions - inches (mm)
A	40.0 (1,016)
B	1.125 (1,250)
C	7.9 (200)



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Prime RO Portfolio I **WAVE Model**

Addition of Prime RO portfolio

- BW30 PRO-400
- BW30 XHR PRO-400/34 (i)
- BW30 XHR PRO-440

October

Internal version
(WAVE 1.82k)

January

External version
(WAVE 1.87)



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New FilmTec™ Prime RO Benefits and Replacement



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Prime RO Portfolio | Benefits & Replacement guide

Users of BW30-365

Option 1 – Upgrade to BW30 PRO-400

- ~20% Lower permeate TDS
- ~15% Higher permeate flow

Option 2 – Upgrade to BW30XHR PRO-400/34 (i)

- ~50% Lower permeate TDS
- ~20% Higher permeate flow
- Enhanced fouling protection thanks to 34 mil LDP feed spacer
- Available with iLEC™

Replacement Option	Product Name	Salt Rejection (%)		Flow (GPD)	Spacer (mil)
		Stabilized	Minimum		
Original Product	BW30-365	99.5	99.0	9,500	34
Option 1	BW30 PRO-400	99.6	99.4	11,000	28
Option 2	BW30XHR PRO-400/34 (i)	99.8	99.6	11,500	34-LDP

Prime RO Portfolio | Benefits & Replacement guide

Users of BW30-400

Option 1 – Upgrade to BW30 PRO-400

- ~20% Lower permeate TDS
- ~5% Higher permeate flow

Option 2 – Upgrade to BW30XHR PRO-400/34 (i)

- ~50% Lower permeate TDS
- ~10% Higher permeate flow
- Enhanced fouling protection thanks to 34 mil LDP feed spacer
- Available with iLEC™

Replacement Option	Product Name	Salt Rejection (%)		Flow (GPD)	Spacer (mil)
		Stabilized	Minimum		
Original Product	BW30-400	99.5	99	10,500	28
Option 1	BW30 PRO-400	99.6	99.4	11,000	28
Option 3	BW30XHR PRO-400/34 (i)	99.8	99.6	11,500	34-LDP

Prime RO Portfolio I Benefits & Replacement guide

Users of BW30-400/34 (i)

Option 1 – Upgrade to BW30XHR PRO-400/34 (i)

- ~50% Lower permeate TDS
- ~10% Higher permeate flow
- Enhanced fouling protection thanks to 34 mil LDP feed spacer
- Available with iLEC™

Replacement Option	Product Name	Salt Rejection %		Flow (GDP)	Spacer (mil)
		Stabilized	Minimum		
Original Product	BW30-400/34 (i)	99.5	99	10,500	34 mil
Option 1	BW30XHR PRO-400/34 (i)	99.8	99.6	11,500	34-LDP

Prime RO Portfolio | Benefits & Replacement guide

Users of BW30XFR-400/34 (i)

Option 1 – Upgrade to BW30XHR PRO-400/34 (i)

- ~30% Lower permeate TDS
- Available with iLEC™

Option 2 – Upgrade to Fortilife™ CR100 (i)

- Contaminant & biofouling resistant
- ~15% Lower permeate TDS
- Enhanced fouling protection thanks to 34 mil L2DP feed spacer
- Available with iLEC™

Option 3 – Upgrade to Fortilife™ CR200 (i)

- Contaminant, biofouling and organic fouling resistant
- ~15% Lower permeate TDS
- ~10% Higher permeate flow
- Enhanced fouling protection thanks to 34 mil L2DP feed spacer
- Available with iLEC™

Replacement Option	Product Name	Salt Rejection (%)		Flow (GDP)	Spacer (mil)
		Stabilized	Minimum		
Original Product	BW30XFR-400/34 (i)	99.65	99.4	11,500	34-LDP
Option 1	BW30XHR PRO-400/34 (i)	99.8	99.6	11,500	34-LDP
Option 2	CR100 (i)	99.7	99.4	11,500	34-L2DP
Option 3	CR200 (i)	99.7	99.4	12,500	34-L2DP

New FilmTec™ Prime RO Demonstrated Superior Performance

BW30 PRO-400

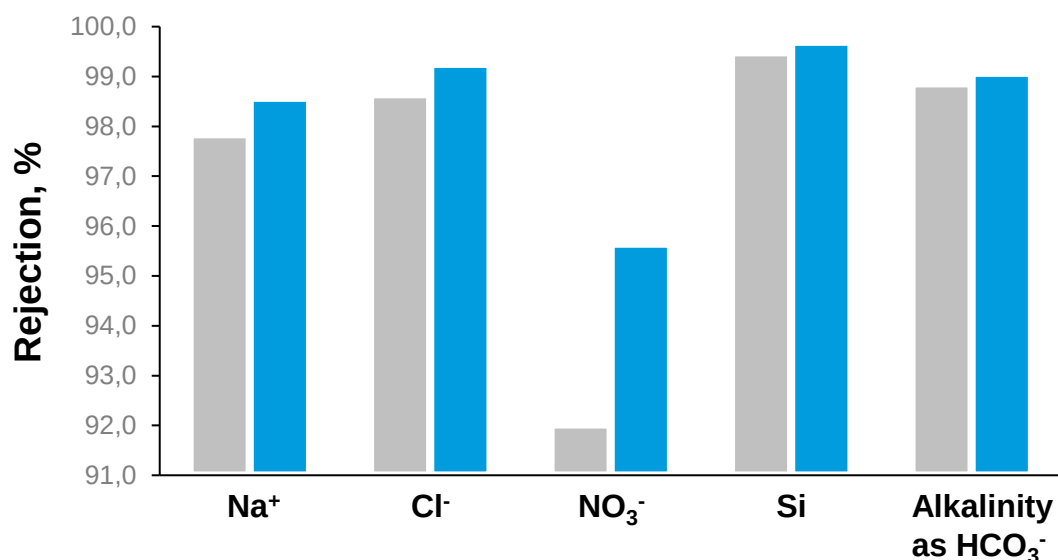


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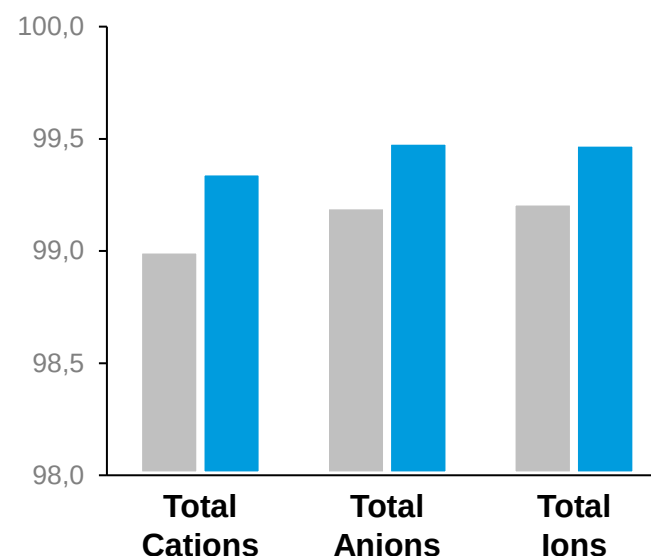


FilmTec™ BW30 PRO-400 | Proven Higher Rejection

Ion Rejection



Overall Rejection



■ BW30-400
■ BW30 PRO-400

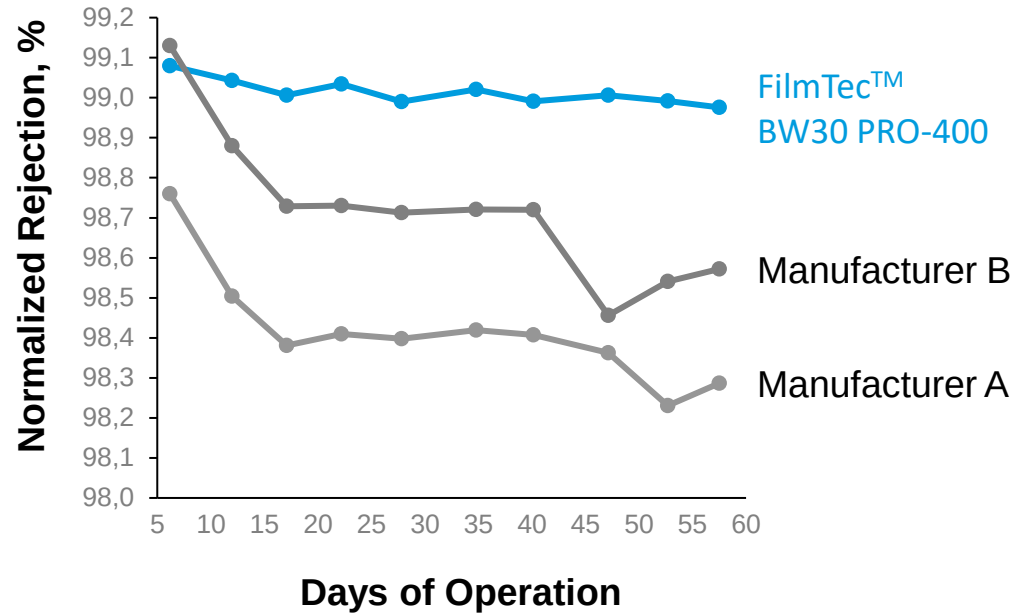
Test Conditions:

- River water, ~1100 ppm
- 25 LMH
- 40% recovery
- 3 elements/Pressure Vessel
- 25°C, pH 7.4
- Feed flow 7 m³/h

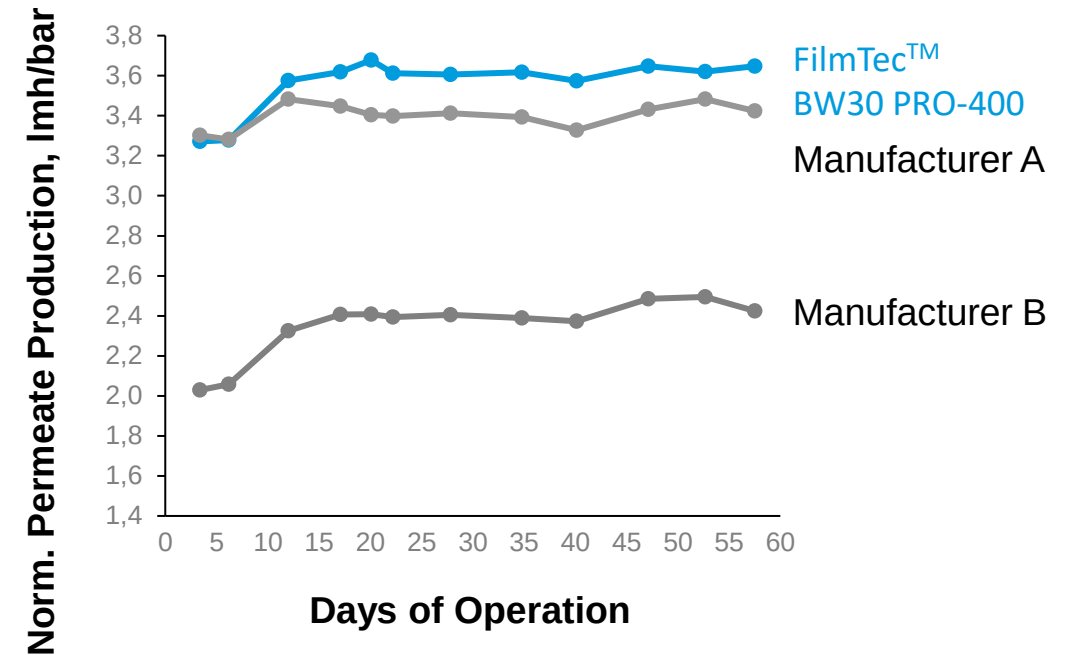
- Higher rejection of specific ions as well as overall TDS
- Significantly higher nitrate rejection

FilmTec™ BW30 PRO-400 | Proven Durability

Normalized Salt Rejection



Normalized Permeate Production



- FilmTec™ elements delivered the highest salt rejection coupled with the highest permeate production when benchmarked versus other manufacturers
- FilmTec elements showed the most stable performance after 9 cleanings

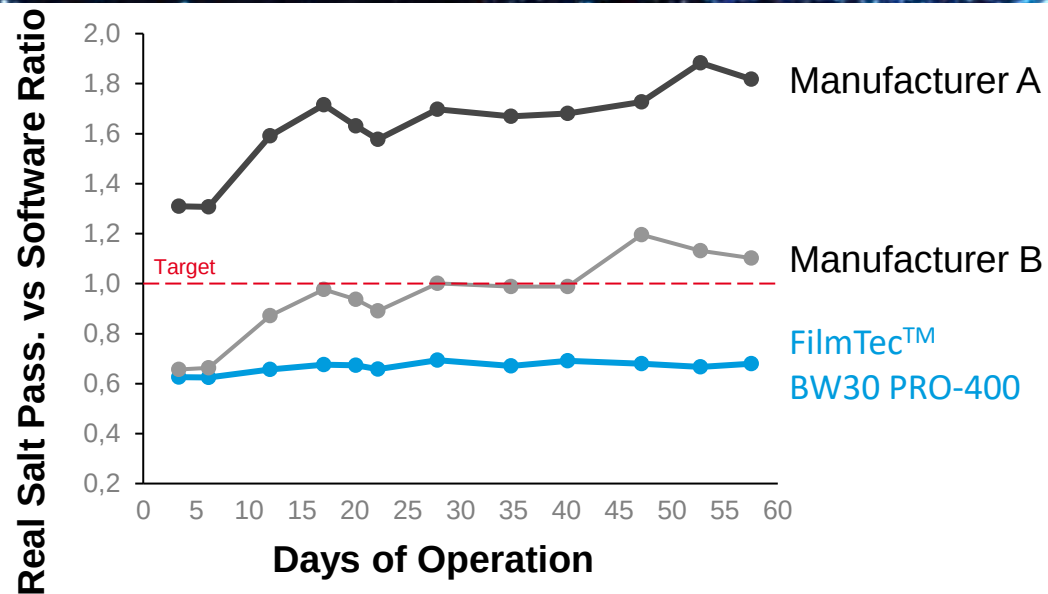
Test Conditions:

- River water, ~900 ppm
- 25 LMH
- 40% recovery
- 3 elements/Pressure Vessel
- 25°C, pH 8
- Feed flow 7 m³/h

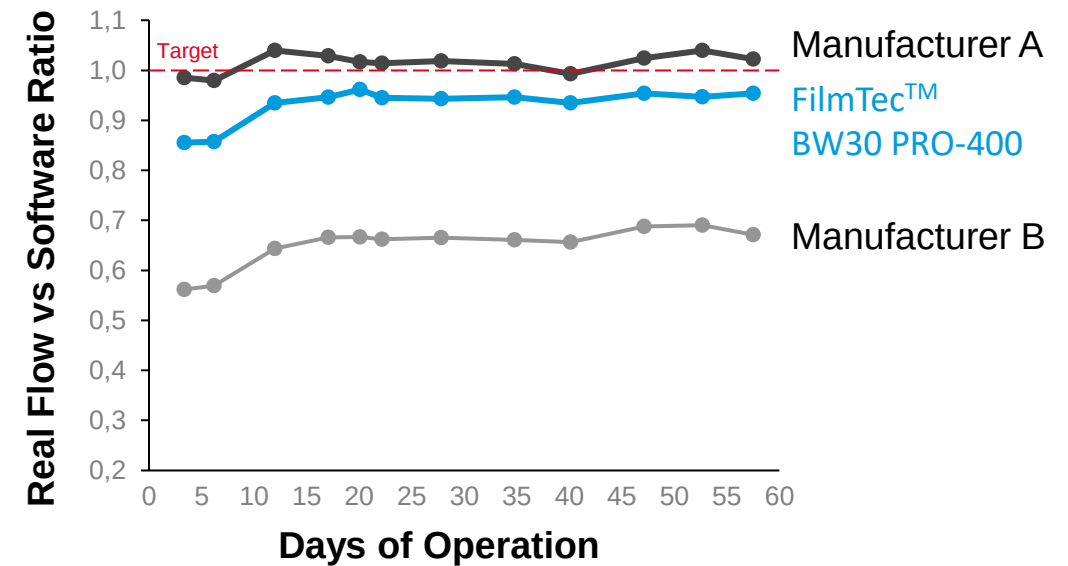
FilmTec™ BW30 PRO-400 | Accurate Software Design



Experimental Salt Permeability vs. Software



Experimental Permeate Flow vs. Software



- WAVE software predicts permeate flow with high accuracy – demonstrated by the close match between experimental and design software results
- FilmTec™ element salt rejection was higher than predicted by WAVE at all times

New FilmTec™ Prime RO Demonstrated Superior Performance

BW30XHR PRO-400

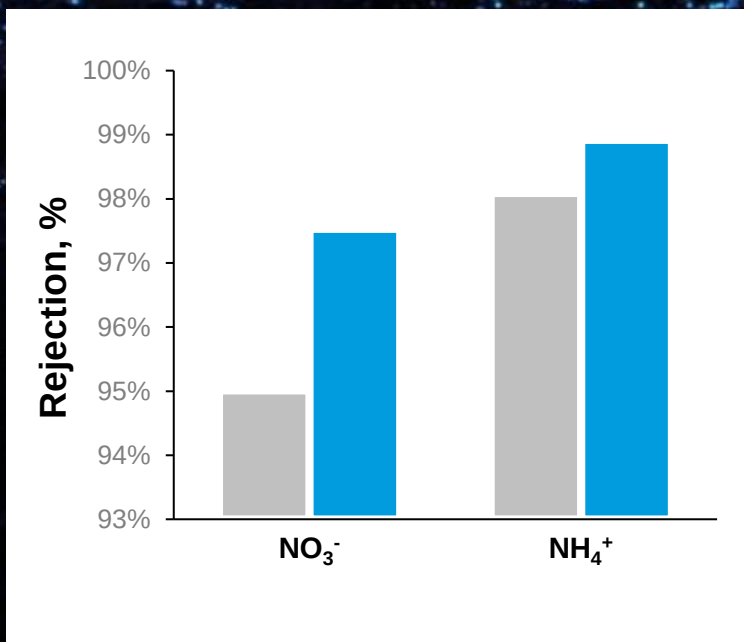


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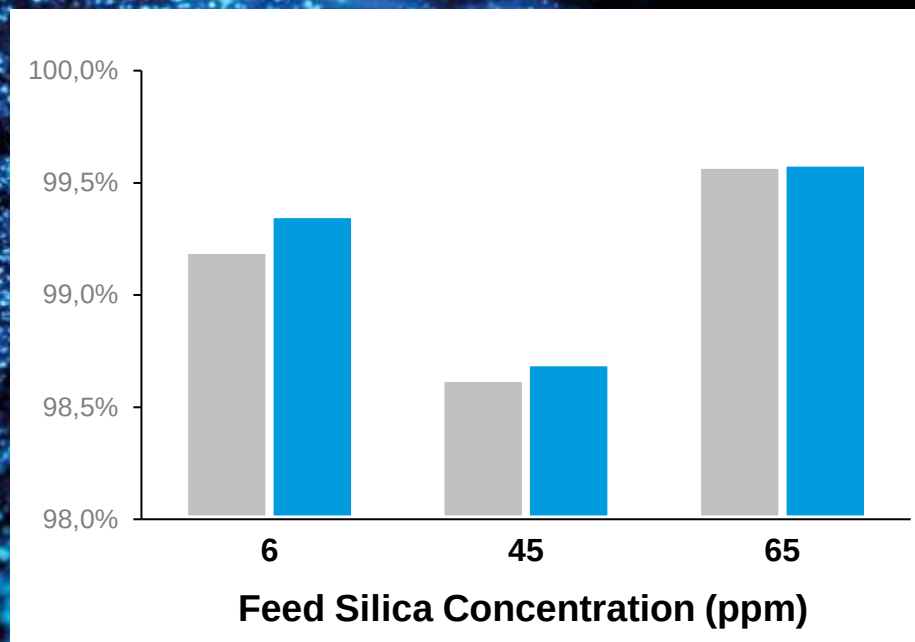
FilmTec™ BW30XHR PRO-400/34 | High Rejections of Solutes

NO₃⁻ and NH₄⁺ Rejection



Feed water (FW)	Synthetic solution	Synthetic solution
FW TDS (ppm)	2806	2806
Solute conc. (ppm)	140	140
pH	7.17	7.17

SiO₂ Rejection



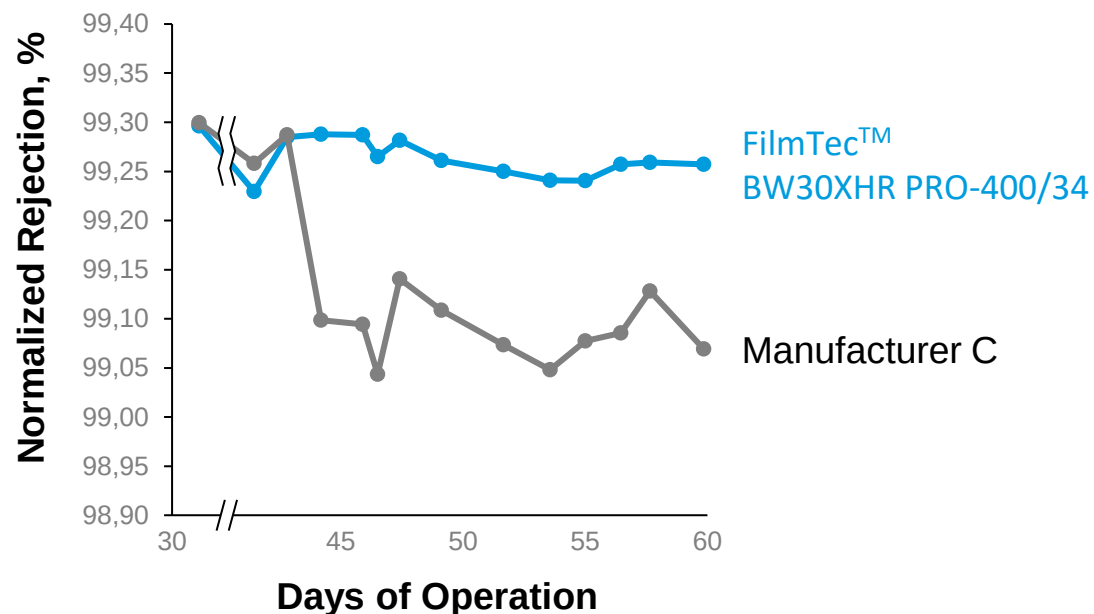
Feed water (FW)	River water	Synthetic solution	Synthetic solution
FW TDS (ppm)	784	2,800	715
pH	7.8	7.2	7.9

BW30XFR-400/34
 BW30XHR PRO-400/34

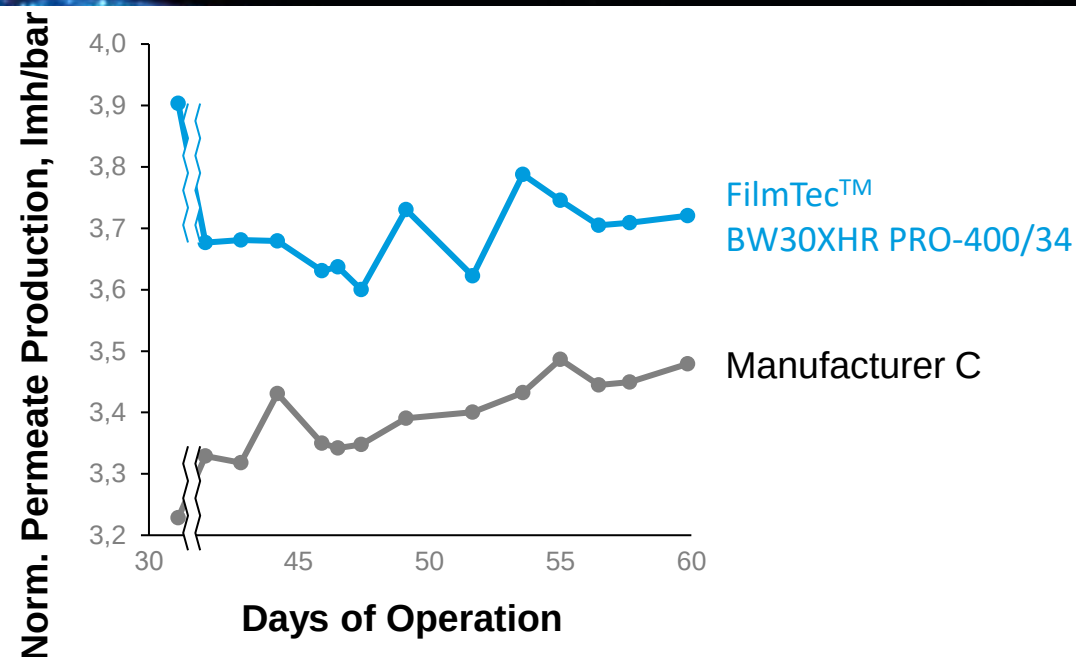
- In addition to overall higher TDS rejection, BW30XHR PRO-400/34 offers also improved specific ions removal

FilmTec™ BW30XHR PRO-400/34 | Excellent Energy/Rejection Balance

Normalized Salt Rejection



Normalized Permeate Production



- FilmTec™ provides higher and more stable rejection
- Thanks to lower pressure requirement, FilmTec™ element shows optimized energy / rejection balance

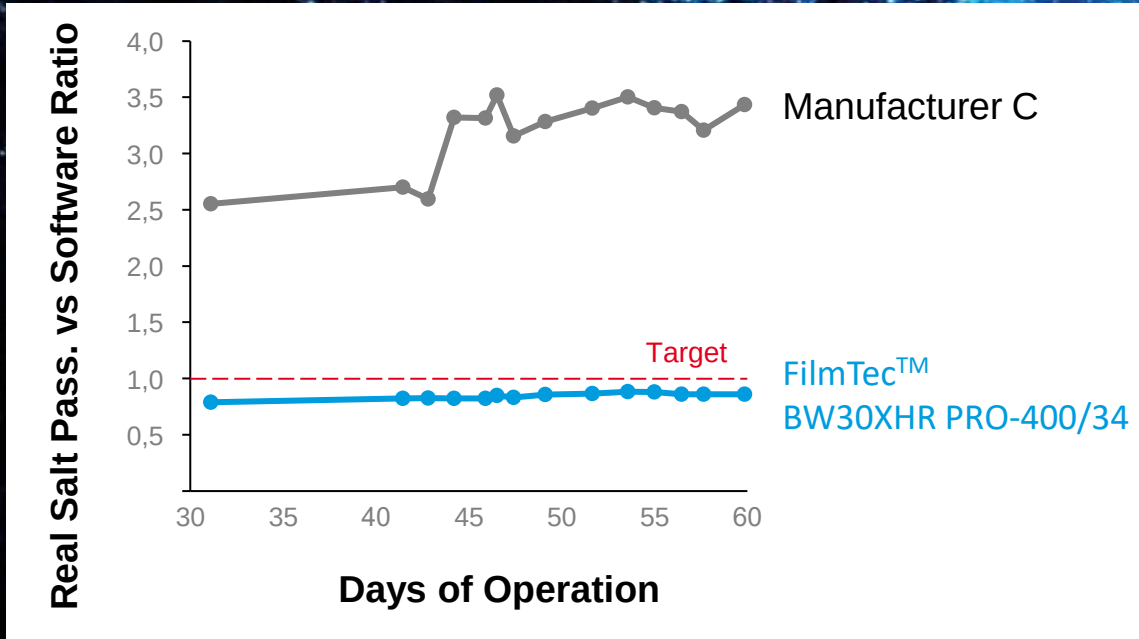
Test Conditions:

- River water, 900 ppm
- 25 LMH
- 40% recovery
- 3 elements/Pressure Vessel
- 22-27°C, pH 7.4
- Feed flow 7-7.5 m³/h

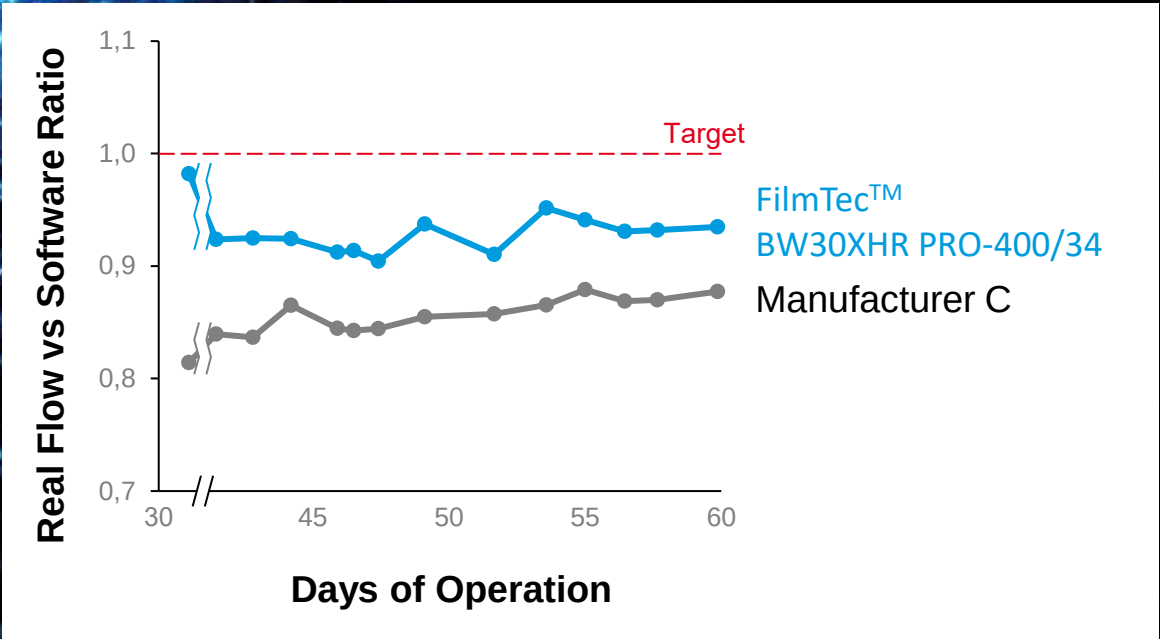


FilmTec™ BW30XHR PRO-400/34 | Accurate Software Design

Experimental Salt Permeability vs Software



Experimental Permeate Flow vs Software



- WAVE user can trust design results as the software accurately models element performance in terms of both salt rejection and permeate flow

New FilmTec™ Prime RO

Economic Benefits

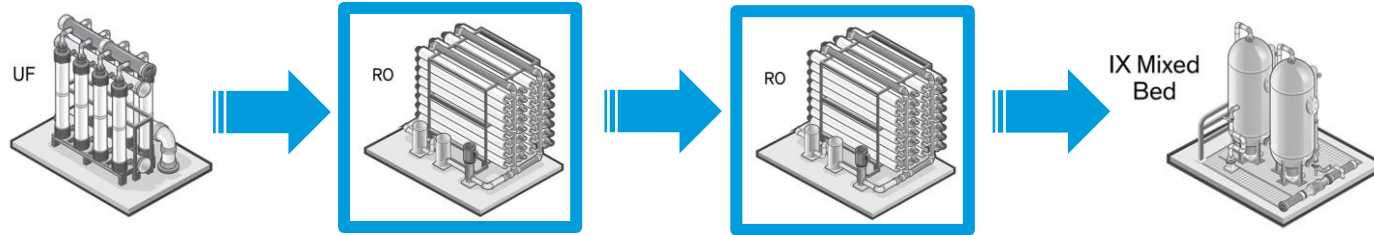


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Impact for Customers

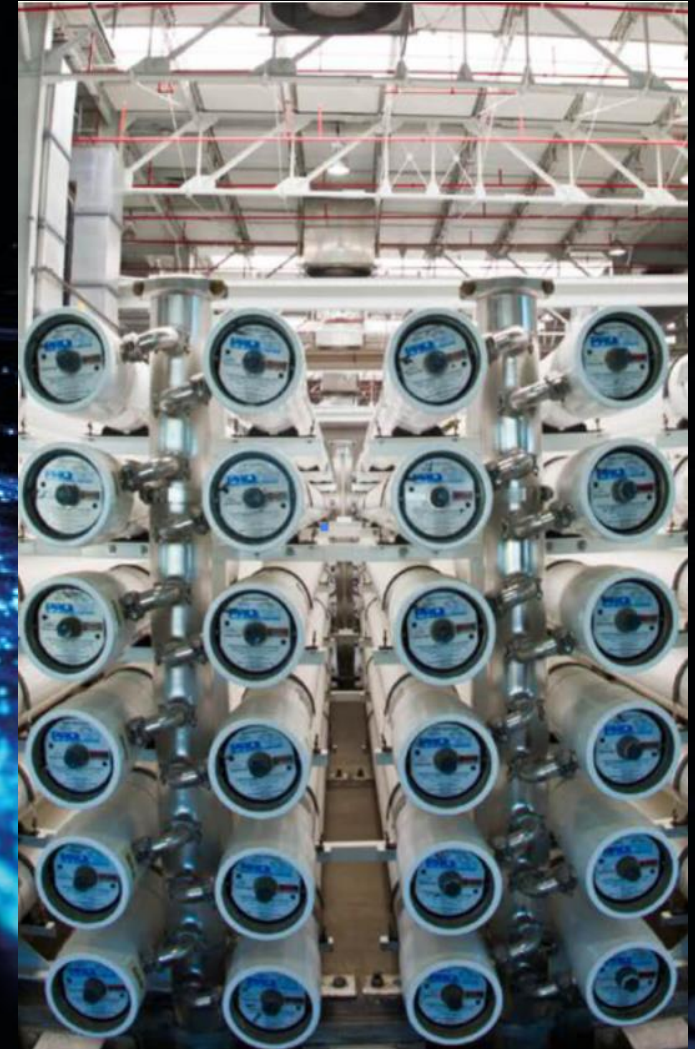
Multi-Tech Demin Plant Upgrade



The DuPont Cost Saving Calculator estimates the total cost of water savings when RO systems upgrade to the new Prime RO elements.

Key Assumptions:

- Savings in 5 years
- **Plant:** feed TDS: 600 mg/L, capacity 5,000 m³/d, temperature 15°C, electricity price 0.10 \$/kWh, plant depreciation 20 years, modeled with WAVE
- **UF:** flux 80 l/mh
- **RO:** recovery 75%, flux 24 LMH, 6 elements/PV, 2:1 array, FF=0.85.
- **Mix Bed** AmberLite™ HPR 1300, AmberLite™ HPR 4700 Cl, velocity 20 BV/h



Benefits & Replacement guide

Upgrade Options

Original Product BW30-400

1 – Upgrade to BW30 PRO-400

- ~20% Lower permeate TDS
- ~5% Higher permeate flow

2 – Upgrade to BW30XHR PRO-400/34 (i)

- ~60% Lower permeate TDS
- ~10% Higher permeate flow
- Enhanced fouling protection: 34 mil LDP feed spacer
- Available with iLEC™

Specifications

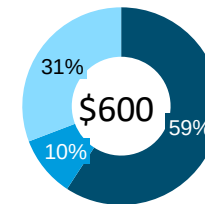
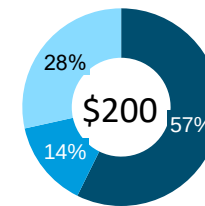
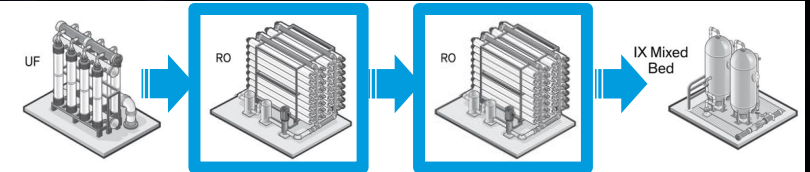
Salt Rejection (%)		Flow (GDP)	Spacer (mil)
Stab.	Min.		
99.5	99.0	10,500	34

99.6	99.4	11,000	28
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99.8	99.6	11,500	34-LDP
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Savings in total cost of water per element

Multi-Tech
Demin Plant
Upgrade



■ RO OPEX
■ MB CAPEX
■ MB OPEX

**Up to \$600 savings
per element in
total cost of water**

Benefits & Replacement guide

Upgrade Options

Original Product BW30XFR-400/34 (i)

1 – Upgrade to BW30XHR PRO-400/34 (i)

- ~42% Lower permeate TDS
- Available with iLEC™
- Similar fouling protection as BW30XFR

2 – Upgrade to Fortilife™ CR100 (i)

- Contaminant & biofouling resistant
- ~15% Lower permeate TDS
- Enhanced fouling protection: 34 mil L2DP feed spacer
- Available with iLEC™

Specifications

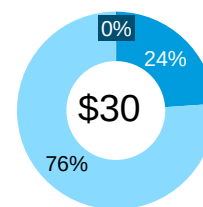
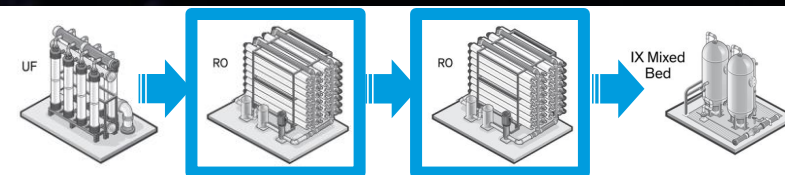
Salt Rejection (%)		Flow (GPD)	Spacer (mil)
Stab.	Min.		
99.65	99.4	11,500	34-LDP

99.8	99.6	11,500	34-LDP
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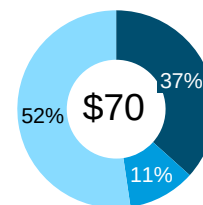
99.7	99.4	11,500	34-L2DP
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Savings in total cost of water per element

Multi-Tech
Demin Plant
Upgrade



RO OPEX
MB CAPEX
MB OPEX



**Up to \$70 savings
per element in
total cost of water**

New FilmTec™ Prime RO Environmental Benefits



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17 Million Tonnes CO₂ Savings per Year



~9 million tonnes
of coal burned



~300 million trees
Grown for 10 years



~70 million km
driven
by average car



~2 trillion
smartphones
charged

Data is based on:

- DuPont Sustainability Calculator
- US EPA Greenhouse Gas Equivalencies Calculator

Water Solutions



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FilmTec™ BW30 PRO-400

BW30 PRO-400
BW30 PRO-400

Membrana ad osmosi inversa per acqua salmastra ad elevata reiezione ed alta portata.

Caratteristiche peculiari

- Fornisce sia una qualità costante nel tempo dell'acqua prodotta sia un miglior flusso e reiezione se comparati ai moduli BW30 della generazione precedente
- Realizzata basandosi sulla storica membrana RO BW30 con decennali e comprovate performance
- Eccezionale durata che si traduce in prestazioni stabili a lungo termine

Applicazioni chiave

- Impianti di demineralizzazione per: produzione di energial, acciaio e metalli, chimica e petrolchimica
- Depurazione delle acque municipali

High Rejection and High Performance Industry-Standard Brackish Water Reverse Osmosis Membrane Element

Key Features

- Delivers consistent water quality and higher rejection and flow than previous generation BW30 product
- Based on historical BW30 Industry-standard RO membrane with decades of proven performance
- Outstanding durability resulting in stable, long-term performance

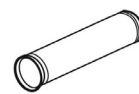
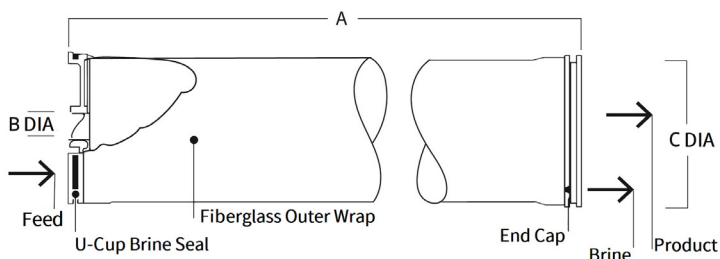
Key Applications

- Demineralization for industrial applications, such as: Power Generation, Steel & Metal, Chemical & Petrochemical
- Municipal water purification

Typical Properties

FilmTec™ Element	Active Area ft ² (m ²)	Feed Spacer Thickness (mil)	Permeate Flow Rate gpd (m ³ /d)	Stabilized Salt Rejection (%)	Minimum Salt Rejection (%)
BW30 PRO-400	400 (37)	28	11,000(42)	99.6	99.4

1. Permeate flow and salt rejection based on the following standard conditions: 2,000 ppm NaCl, 225 psi (15.5 bar), 77°F (25°C), pH 8 and 15% recovery.
2. Flow rates for individual elements may vary but will be no more than 15% below the value shown.
3. Sales specifications may vary as design revisions take place.

Element Dimensions


FilmTec supplies coupler part number 313198 with each element. Each coupler includes two 3-912 EPR O-rings (part number 151705).

FilmTec™ Element BW30 PRO-400 Dimensions – inches (mm)	
A	40.0 (1,016)
B	1.125 ID (29)
C	7.9 (201)

Suggested Operating Conditions

Membrane Type	Polyamide Thin-Film Composite
Maximum Operating Temperature ¹	113°F (45°C)
Maximum Operating Pressure	600 psig (41bar)
Maximum Pressure Drop	
Per Element	15psig (1.0bar)
Per Pressure Vessel (Minimum 4 Elements)	50 psig (3.5bar)
pH Range	
Continuous Operation ¹	2 - 11
Short-Term Cleaning (30 min.) ²	1- 13
Maximum Feed Flow ³	75gpm (17m ³ /hr)
Maximum Feed Silt Density Index	SDI5
Free Chlorine Tolerance ⁴	<0.1ppm

1. Maximum temperature for continuous operation above pH 10 is 95°F (35°C).
2. Refer to [FilmTec™ Cleaning Guidelines](#) (Form No. 45-D01696-en).
3. For recommended feed and permeate flow rates, flux, and recovery for various feed sources, refer to [FilmTec™ Design Guidelines for multiple- element systems of 8-inch elements](#) (Form No. 45-D01695-en).
4. Oxidation damage is not covered under warranty, DuPont recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to [Dechlorinating Feedwater](#) (Form No. 45-D01569-en) for more information.

Ulteriori e importanti informazioni

Si raccomanda di flussare le membrane prima della messa in servizio. Una corretta procedura di start-up dell' impianto ad osmosi inversa è essenziale per preparare le membrane al normale servizio operativo. La procedura previene danni ai moduli che possono essere causati da sovra alimentazione o shock idraulici. La corretta sequenza di avvio, aiuta a garantire che i parametri del sistema siano conformi alle specifiche progettuali raggiungendo così gli obiettivi di qualità e produttività del sistema

Prima di iniziare le procedure di start-up, occorre che il pre-trattamento sia efficiente, che i moduli osmotici siano inseriti nei vessels e che i sistemi di controllo e calibrazione funzionino perfettamente.

Per ulteriori informazioni fare riferimento alla documentazione informativa presente sul sito web www.dupont.com/ e intitolata "Sequenza di avvio" (Modulo n. 45-D01609-it).

Additional Important Information

It is recommended that systems using these elements rinse. Proper start-up of reverse osmosis water treatment systems is essential to prepare the membranes for operating service and to prevent membrane damage due to overfeeding or hydraulic shock. Following the proper start-up sequence also helps ensure that system operating parameters conform to design specifications so that system water quality and productivity goals can be achieved.

Before initiating system start-up procedures, membrane pretreatment, loading of the membrane elements, instrument calibration and other system checks should be completed.

Please refer to the application information literature entitled Start-Up Sequence (Form No. 45-D01609-en) for more information.



FilmTec™ BW30XHR PRO-400/34

BW30XHR PRO-400/34

Membrana ad osmosi inversa per acqua salmastra ad altissima reiezione

Caratteristiche principali

- Offre un'eccezionale qualità del permeato
- Fornisce un'eccellente reiezione su: silice, boro, nitrati, TOC e ammonio
- Durata eccezionale con conseguenti prestazioni stabilizzate a lungo termine
- Maggiore resistenza alle incrostazioni grazie allo spaziatore da 34 mil

Applicazioni chiave

- Impianti di demineralizzazione per applicazioni industriali quali: produzione di energia, acciaio e metalli, chimica e petrolchimica
- Depurazione delle acque municipali
- Applicazioni dov'è richiesto una qualità rigorosa del permeato

BW30XHR PRO-400/34

Extra High Rejection Brackish Water Reverse Osmosis Membrane Element

Key Features

- Offers exceptional permeate quality
- Delivers excellent silica, boron, nitrate, TOC and ammonium rejection
- Outstanding durability resulting in stable, long-term performance
- Enhanced fouling protection thanks to 34 mil feed spacer

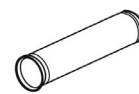
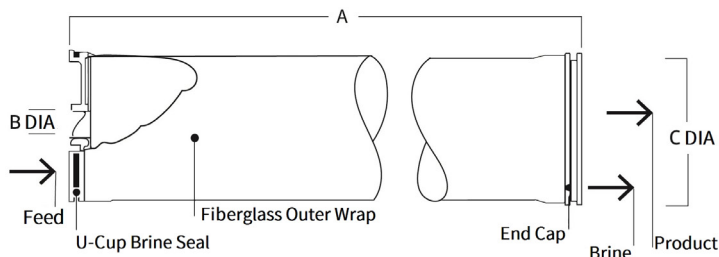
Key Applications

- Demineralization for industrial applications, such as: Power Generation, Steel & Metal, Chemical & Petrochemical
- Municipal water purification
- Applications requiring stringent permeate quality

Typical Properties

FilmTec™ Element	Active Area ft ² (m ²)	Feed Spacer Thickness (mil)	Permeate Flow Rate gpd (m ³ /d)	Stabilized Salt Rejection (%)	Minimum Salt Rejection (%)
BW30XHR PRO-400/34	400 (37)	34-LDP	11,500 (43.5)	99.8	99.6

1. Permeate flow and salt rejection based on the following standard conditions: 2,000 ppm NaCl, 225 psi (15.5 bar), 77°F (25°C), pH 8 and 15% recovery.
2. Flow rates for individual elements may vary but will be no more than 15% below the value shown.
3. Sales specifications may vary as design revisions take place.

Element Dimensions


FilmTec supplies coupler part number 313198 with each element. Each coupler includes two 3-912 EPR O-rings (part number 151705).

**FilmTec™ Element BW30 PRO-400
Dimensions – inches (mm)**

A	40.0 (1,016)
B	1.125 ID (29)
C	7.9 (201)

Suggested Operating Conditions

Membrane Type	Polyamide Thin-Film Composite
Maximum Operating Temperature ¹	113°F (45°C)
Maximum Operating Pressure	600 psig (41bar)
Maximum Pressure Drop	
Per Element	15psig (1.0bar)
Per Pressure Vessel (Minimum 4 Elements)	50 psig (3.5bar)
pH Range	
Continuous Operation ¹	2 - 11
Short-Term Cleaning (30 min.) ²	1- 13
Maximum Feed Flow ³	75gpm (17m ³ /hr)
Maximum Feed Silt Density Index	SDI5
Free Chlorine Tolerance ⁴	<0.1ppm

1. Maximum temperature for continuous operation above pH 10 is 95°F (35°C).
2. Refer to [FilmTec™ Cleaning Guidelines](#) (Form No. 45-D01696-en).
3. For recommended feed and permeate flow rates, flux, and recovery for various feed sources, refer to [FilmTec™ Design Guidelines for multiple- element systems of 8-inch elements](#) (Form No. 45-D01695-en).
4. Oxidation damage is not covered under warranty, DuPont recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to [Dechlorinating Feedwater](#) (Form No. 45-D01569-en) for more information.

Ulteriori e importanti informazioni

Si raccomanda di flussare le membrane prima della messa in servizio. Una corretta procedura di start-up dell' impianto ad osmosi inversa è essenziale per preparare le membrane al normale servizio operativo. La procedura previene danni ai moduli che possono essere causati da sovra alimentazione o shock idraulici. La corretta sequenza di avvio, aiuta a garantire che i parametri del sistema siano conformi alle specifiche progettuali raggiungendo così gli obiettivi di qualità e produttività del sistema

Prima di iniziare le procedure di start-up, occorre che il pre-trattamento sia efficiente, che i moduli osmotici siano inseriti nei vessels e che i sistemi di controllo e calibrazione funzionino perfettamente.

Per ulteriori informazioni fare riferimento alla documentazione informativa presente sul sito web www.dupont.com/ e intitolata "Sequenza di avvio" (Modulo n. 45-D01609-it).

Additional Important Information

It is recommended that systems using these elements rinse. Proper start-up of reverse osmosis water treatment systems is essential to prepare the membranes for operating service and to prevent membrane damage due to overfeeding or hydraulic shock. Following the proper start-up sequence also helps ensure that system operating parameters conform to design specifications so that system water quality and productivity goals can be achieved.

Before initiating system start-up procedures, membrane pretreatment, loading of the membrane elements, instrument calibration and other system checks should be completed.

Please refer to the application information literature entitled Start-Up Sequence (Form No. 45-D01609-en) for more information.



FilmTec™ BW30XHR PRO-400/34i

BW30XHR PRO-400/34i

Membrana ad osmosi inversa per acqua salmastra ad altissima reiezione

Caratteristiche principali

- Offre un'eccezionale qualità del permeato
- Fornisce un'eccellente reiezione su: silice, boro, nitrati, TOC e ammonio
- Durata eccezionale con conseguenti prestazioni stabilizzate a lungo termine
- Maggiore resistenza alle incrostazioni grazie allo spaziatore da 34 mil

Applicazioni chiave

- Impianti di demineralizzazione per applicazioni industriali quali: produzione di energia, acciaio e metalli, chimica e petrolchimica
- Depurazione delle acque municipali
- Applicazioni dov'è richiesto una qualità rigorosa del permeato

BW30XHR PRO-400/34i

Extra High Rejection Brackish Water Reverse Osmosis Membrane Element

Key Features

- Offers exceptional permeate quality
- Delivers excellent silica, boron, nitrate, TOC and ammonium rejection
- Outstanding durability resulting in stable, long-term performance
- Enhanced fouling protection thanks to 34 mil feed spacer

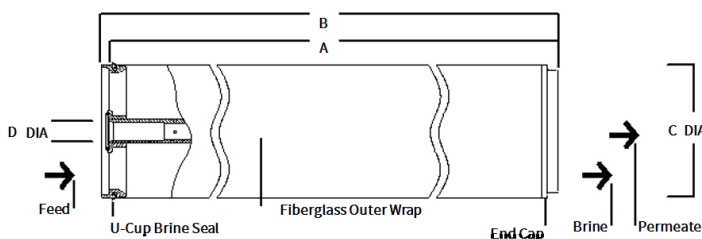
Key Applications

- Demineralization for industrial applications, such as: Power Generation, Steel & Metal, Chemical & Petrochemical
- Municipal water purification
- Applications requiring stringent permeate quality

Typical Properties

FilmTec™ Element	Active Area ft ² (m ²)	Feed Spacer Thickness (mil)	Permeate Flow Rate gpd (m ³ /d)	Stabilized Salt Rejection (%)	Minimum Salt Rejection (%)
BW30XHR PRO-400/34i	400 (37)	34-LDP	11,500 (43.5)	99.8	99.6

1. Permeate flow and salt rejection based on the following standard conditions: 2,000 ppm NaCl, 225 psi (15.5 bar), 77°F (25°C), pH 8 and 15% recovery.
2. Flow rates for individual elements may vary but will be no more than 15% below the value shown.
3. Sales specifications may vary as design revisions take place.

Element Dimensions


FilmTec™ Element BW30XHR PRO-400/34i Dimensions – inches (mm)	
A	40.0 (1,016)
B	40.5 (1,029)
C	7.9 (201)
D	1.125 ID (29)

* Individual elements with iLEC™ Interlocking Endcaps measure 40.5 inches (1,029 mm) in length (B). The net length (A) of the elements when connected is 40.0 inches (1,016 mm).



Suggested Operating Conditions

Membrane Type	Polyamide Thin-Film Composite
Maximum Operating Temperature ¹	113°F (45°C)
Maximum Operating Pressure	600 psig (41bar)
Maximum Pressure Drop	
Per Element	15psig (1.0bar)
Per Pressure Vessel (Minimum 4 Elements)	50 psig (3.5bar)
pH Range	
Continuous Operation ¹	2 - 11
Short-Term Cleaning (30 min.) ²	1- 13
Maximum Feed Flow ³	75gpm (17m ³ /hr)
Maximum Feed Silt Density Index	SDI5
Free Chlorine Tolerance ⁴	<0.1ppm

1. Maximum temperature for continuous operation above pH 10 is 95°F (35°C).
2. Refer to [FilmTec™ Cleaning Guidelines](#) (Form No. 45-D01696-en).
3. For recommended feed and permeate flow rates, flux, and recovery for various feed sources, refer to [FilmTec™ Design Guidelines for multiple- element systems of 8-inch elements](#) (Form No. 45-D01695-en).
4. Oxidation damage is not covered under warranty, DuPont recommends removing residual free chlorine by pretreatment prior to membrane exposure. Please refer to [Dechlorinating Feedwater](#) (Form No. 45-D01569-en) for more information.

Ulteriori e importanti informazioni

Si raccomanda di flussare le membrane prima della messa in servizio. Una corretta procedura di start-up dell' impianto ad osmosi inversa è essenziale per preparare le membrane al normale servizio operativo. La procedura previene danni ai moduli che possono essere causati da sovra alimentazione o shock idraulici. La corretta sequenza di avvio, aiuta a garantire che i parametri del sistema siano conformi alle specifiche progettuali raggiungendo così gli obiettivi di qualità e produttività del sistema

Prima di iniziare le procedure di start-up, occorre che il pre-trattamento sia efficiente, che i moduli osmotici siano inseriti nei vessels e che i sistemi di controllo e calibrazione funzionino perfettamente.

Per ulteriori informazioni fare riferimento alla documentazione informativa presente sul sito web www.dupont.com/ e intitolata "Sequenza di avvio" (Modulo n. 45-D01609-it).

Additional Important Information

It is recommended that systems using these elements rinse. Proper start-up of reverse osmosis water treatment systems is essential to prepare the membranes for operating service and to prevent membrane damage due to overfeeding or hydraulic shock. Following the proper start-up sequence also helps ensure that system operating parameters conform to design specifications so that system water quality and productivity goals can be achieved.

Before initiating system start-up procedures, membrane pretreatment, loading of the membrane elements, instrument calibration and other system checks should be completed.

Please refer to the application information literature entitled Start-Up Sequence (Form No. 45-D01609-en) for more information.



FilmTec™ BW30XHR PRO-440

BW30XHR PRO-440

Membrana ad osmosi inversa per acqua salmastra ad altissima reiezione

Caratteristiche principali

- Offre un'eccezionale qualità del permeato
- Fornisce un'eccellente reiezione su: silice, boro, nitrati, TOC e ammonio
- Durata eccezionale con conseguenti prestazioni stabilizzate a lungo termine

Applicazioni chiave

- Impianti di demineralizzazione per applicazioni industriali quali: produzione di energia, acciaio e metalli, chimica e petrolchimica
- Depurazione delle acque municipali
- Applicazioni dov'è richiesto una qualità rigorosa del permeato

BW30XHR PRO-440

Extra High Rejection Brackish Water Reverse Osmosis Membrane Element

Key Features

- Offers exceptional permeate quality
- Delivers excellent silica, boron, nitrate, TOC and ammonium rejection
- Outstanding durability resulting in stable, long-term performance

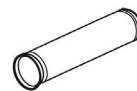
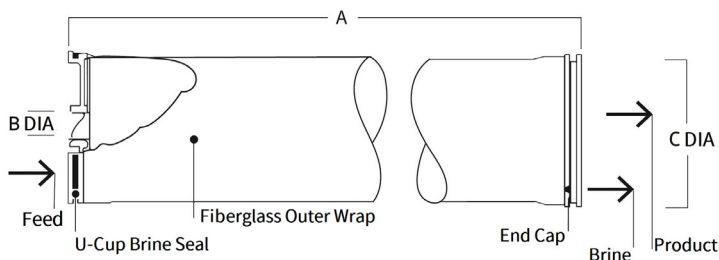
Key Applications

- Demineralization for industrial applications, such as: Power Generation, Steel & Metal, Chemical & Petrochemical
- Municipal water purification
- Applications requiring stringent permeate quality

Typical Properties

FilmTec™ Element	Active Area ft ² (m ²)	Feed Spacer Thickness (mil)	Permeate Flow Rate gpd (m ³ /d)	Stabilized Salt Rejection (%)	Minimum Salt Rejection (%)
BW30XHR PRO-440	440 (41)	28	12,650 (48)	99.8	99.6

1. Permeate flow and salt rejection based on the following standard conditions: 2,000 ppm NaCl, 225 psi (15.5 bar), 77°F (25°C), pH 8 and 15% recovery.
2. Flow rates for individual elements may vary but will be no more than 15% below the value shown.
3. Sales specifications may vary as design revisions take place.

Element Dimensions


FilmTec supplies coupler part number 313198 with each element. Each coupler includes two 3-912 EPR O-rings (part number 151705).

**FilmTec™ Element BW30 PRO-400
Dimensions – inches (mm)**

A	40.0 (1,016)
B	1.125 ID (29)
C	7.9 (201)

Suggested Operating Conditions

Membrane Type	Polyamide Thin-Film Composite
Maximum Operating Temperature ¹	113°F (45°C)
Maximum Operating Pressure	600 psig (41bar)
Maximum Pressure Drop	
Per Element	15psig (1.0bar)
Per Pressure Vessel (Minimum 4 Elements)	50 psig (3.5bar)
pH Range	
Continuous Operation ¹	2 - 11
Short-Term Cleaning (30 min.) ²	1- 13
Maximum Feed Flow ³	75gpm (17m ³ /hr)
Maximum Feed Silt Density Index	SDI5
Free Chlorine Tolerance ⁴	< 0.1ppm

1. Maximum temperature for continuous operation above pH 10 is 95°F (35°C).
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Ulteriori e importanti informazioni

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Additional Important Information

It is recommended that systems using these elements rinse. Proper start-up of reverse osmosis water treatment systems is essential to prepare the membranes for operating service and to prevent membrane damage due to overfeeding or hydraulic shock. Following the proper start-up sequence also helps ensure that system operating parameters conform to design specifications so that system water quality and productivity goals can be achieved.

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