H2O

HYDRON™
MEMBRANE TECHNOLOGY

ADVANCED MEMBRANE TECHNOLOGY

Price
Performance
Profitability

HYDRON
MEMBRANE TECHNOLOGY

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HYDRON Membrane Technology Membrane Elements

TW SERIES (Residential/ Light Commercial)

HYDRON Residential/Light Commercial Membrane Elements are a reliable alternative for your residential/light commercial and small system membrane needs HYDRON Membranes are manufactured in a State-of-the-Art, ISO-9001-2000 certified automatic rolling facility, providing you with a precise and advanced membrane element that not only delivers an attractive cost to benefit ratio, but also gives you a membrane that has consistently of high quality and performance.

HYDRON Residential/Light Commercial Membrane Elements can be used in a variety of small size system applications, such as household water purification, laboratory, hydroponics, hospital, and many other applications where a reliable, performance membrane is needed.

NSF

This Membrane is Tested and Certified by NSF International against NSF / ANSI Standard 58 for material requirements only.

COMPONENT

TW Membrane Specifications - Residential / Light Commercial

Series	Part Number	Applied Pressure psi (bar)	Average Permeated Flow gpd (m^3/d)	Stable Rejection Rate (%)
TW	**TW-1812-50**	60 (4.1)	50 (0.19)	97.5
	TW-1812-75	60 (4.1)	75 (0.28)	97.5
	TW-2012-100	60 (4.1)	100 (0.38)	95.0
	TW-2012-150	60 (4.1)	150 (0.57)	95.0
	TW-3012	60 (4.1)	300 (1.14)	95.0

TW SERIES

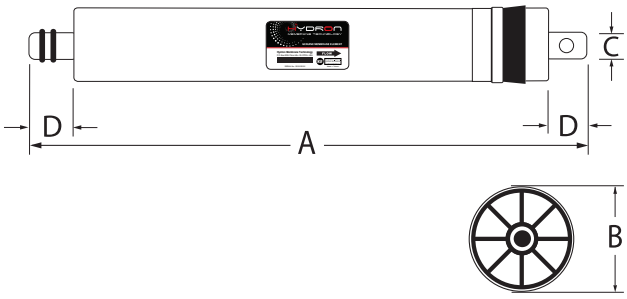
MEMBRANE TYPE — Polyamide Compound

TESTING CONDITIONS

- Testing Pressure — **60 psi** (0.41 MPa) (4.1 bar)
- Temperature of Testing Solution — **77 °F** (25 °C)
- Concentration of Testing Solution (NaCl) — **250 ppm**
- pH Value of Testing Solution — **7.5**
- Recovery Rate of Single Membrane Element — **15%**

EXTREME OPERATION CONDITIONS

- Max. Working Pressure — **300 psi** (2.07 MPa) (20.7 bar)
- Max. Feedwater Temperature — **113 °F** (45 °C)
- Max. Feedwater SDI — **5**
- Single Membrane Max. Pressure Drop — **10 psi** (0.07 MPa) (0.7 bar)
- Residual chlorine Concentration of Feedwater — **<0.1 ppm**
- pH Range of Feedwater during Continuous Operation — **3~10**
- pH Range of Feedwater during Chemical Cleaning — **2~12**
- Max. Temperature for Continuous Operation above pH 10 — **95°F** (35°C)



TW Membrane Measurements

Part Number	A	B	C	D
	in (mm)	in (mm)	in (mm)	in (mm)
TW-1812-50	11.76" (298.7)	1.81" (46)	0.67" (16.9)	1.04" (26.5)
TW-1812-75	11.76" (298.7)	1.81" (46)	0.67" (16.9)	0.85" (21.6)
TW-2012-100	11.76" (298.7)	1.91" (48.5)	0.67" (16.9)	0.85" (21.6)
TW-2012-150	11.76" (298.7)	1.91" (48.5)	0.67" (16.9)	0.85" (21.6)
TW-3012	11.76" (298.7)	2.99" (76)	0.67" (16.9)	0.85" (21.6)

IMPORTANT INFORMATION

Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, HYDRON recommends removing residual free chlorine by pre treatment prior to membrane exposure. Any specific application must be limited within the extreme operating conditions. We strongly recommend you to refer to the latest edition of technology manual and design guide prepared by HYDRON Membrane Technology or consult experts proficient in membrane technology. In case the customer fails to follow the operating conditions as specified in this manual, HYDRON Membrane Technology will assume no liability for all results. The permeate flow listed in the table is the average value. The permeate flow of single membrane element is within a tolerance not exceeding ±20% of nominal value. Discard the RO-filtered water produced during the first one hour after system start-up. During storage time and run time, it is strictly prohibited to dose any chemical medicament that may be harmful.

Quality Delivered

HYDRON
MEMBRANE TECHNOLOGY

HYDRON Membrane Technology
Membrane Elements

HLP SERIES (Light Commercial)

HYDRON Light Commercial Membrane Elements are a reliable alternative for your light commercial and small system membrane needs. HYDRON Membranes are manufactured in a State-of-the-Art, ISO-9001-2000 certified automatic rolling facility, providing you with a precise and advanced membrane element that not only delivers an attractive cost to benefit ratio, but also gives you a membrane that has consistently of high quality and performance.

HYDRON Light Commercial Membrane Elements can be used in a variety of small size system applications, such as household water purification, laboratory, hydroponics, hospital, and many other applications where a reliable, performance membrane is needed.

NSF

This Membrane is Tested and Certified by NSF International against NSF / ANSI Standard 61 for material requirements only.

COMPONENT

HLP Membrane Specifications - Light Commercial

Series	Part Number	Applied Pressure psi (bar)	Average Permeated Flow gpd (m^3/d)	Stable Rejection Rate (%)	Active Membrane Area ft^2 (m^2)
HLP	**HLP-2521**	150 (10.3)	300 (1.3)	99.0	14 (1.3)
	HLP-2540	150 (10.3)	750 (2.84)	99.0	30 (2.79)
	HLP-4021	150 (10.3)	1000 (3.8)	98.0	36 (3.34)

HLP-2521, HLP-2540 & HLP-4021

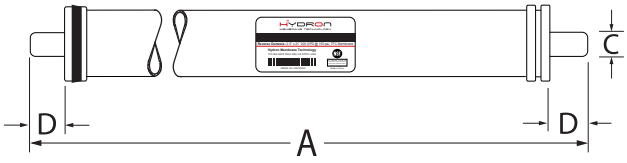
MEMBRANE TYPE — Polyamide Compound

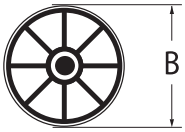
TESTING CONDITIONS

- Testing Pressure — **150 psi (1.03 MPa) (10.34 bar)**
- Temperature of Testing Solution — **77 °F (25 °C)**
- Concentration of Testing Solution (NaCl) — **1500 ppm**
- pH Value of Testing Solution — **7.5**
- Recovery Rate of Single Membrane Element — **8% (HLP-2521, HLP-4021)**, **15% (HLP-2540)**

EXTREME OPERATION CONDITIONS

- Max. Working Pressure — **600 psi (4.14 MPa) (41.4 bar)**
- Max. Feedwater Temperature — **113 °F (45 °C)**
- Max. Feedwater SDI — **5**
- Single Membrane Max. Pressure Drop — **15 psi (0.1 MPa) (1.03 bar)**
- Residual chlorine Concentration of Feedwater — **<0.1 ppm**
- pH Range of Feedwater during Continuous Operation — **3~10**
- pH Range of Feedwater during Chemical Cleaning — **2~12**
- Max. Temperature for Continuous Operation above pH 10 — **95°F (35°C)**





HLP Membrane Measurements

Part Number	A	B	C	D
	in (mm)	in (mm)	in (mm)	in (mm)
HLP-2521	21" (533.4)	2.4" (61)	0.75" (19.1)	1.19" (30.2)
HLP-2540	40" (1016)	2.4" (61)	0.75" (19.1)	1.19" (30.2)
HLP-4021	21" (533.4)	3.9" (99.7)	0.75" (19.1)	1.05" (26.7)

IMPORTANT INFORMATION

Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, HYDRON recommends removing residual free chlorine by pre treatment prior to membrane exposure. Any specific application must be limited within the extreme operating conditions. We strongly recommend you to refer to the latest edition of technology manual and design guide prepared by HYDRON Membrane Technology or consult experts proficient in membrane technology. In case the customer fails to follow the operating conditions as specified in this manual, HYDRON Membrane Technology will assume no liability for all results. The permeate flow listed in the table is the average value. The permeate flow of single membrane element is within a tolerance not exceeding ±20% of nominal value. Discard the RO-filtered water produced during the first one hour after system start-up. During storage time and run time, it is strictly prohibited to dose any chemical medicament that may be harmful.

Uncompromised Performance

HYDRON
MEMBRANE TECHNOLOGY

HYDRON Commercial Membranes

BW-4040 / t

HYDRON Commercial Membrane Elements with their hard shell fiberglass exterior provide outstanding performance for commercial systems. HYDRON Membranes are manufactured in a State-of-the-Art, ISO-9001-2000 certified automatic rolling facility which provides you with a precise and advanced membrane element. HYDRON Membranes not only deliver an attractive cost to benefit ratio, but also gives you a membrane that has consistently high quality and performance.

HYDRON Commercial Membrane Elements can be used in a variety of mid sized commercial applications, such as car wash, bottling, manufacturing, water stores, food processing, and many other applications where a reliable, performance membrane is needed.

NSF

This Membrane is Tested and Certified by NSF International against NSF / ANSI Standard 61 for material requirements only.

COMPONENT

BW / HLE Membrane Specifications - Commercial

Series	Part Number	Applied Pressure psi (bar)	Average Permeated Flow gpd (m^3/d)	Stable Rejection Rate (%)	Active Membrane Area ft^2 (m^2)	Max. Feed Temp. °F (°C)
BW	**BW-4040**	225 (15.5)	2400 (9.1)	99.5	90 (8.4)	113 (45)
HLE	**HLE-4040**	100 (6.9)	2600 (9.84)	98.0	90 (8.4)	113 (45)

BW-4040

MEMBRANE TYPE Polyamide Compound

TESTING CONDITIONS

- Testing Pressure **225 psi (1.55 MPa) (15.5 bar)**
- Temperature of Testing Solution **77 °F (25 °C)**
- Concentration of Testing Solution (NaCl) **2000 ppm**
- pH Value of Testing Solution **7.5**
- Recovery Rate of Single Membrane Element **15%**

EXTREME OPERATION CONDITIONS

- Max. Working Pressure **600 psi (4.14 MPa) (41.4 bar)**
- Max. Feedwater Flow **16 gpm (3.6 m^3/hr)**
- Max. Feedwater Temperature **113°F (45 °C)**
- Max. Feedwater SDI **5**
- Single Membrane Max. Pressure Drop **15 psi (0.1 MPa) (1.03 bar)**
- Residual chlorine Concentration of Feedwater **<0.1 ppm**
- pH Range of Feedwater during Continuous Operation **3~10**
- pH Range of Feedwater during Chemical Cleaning **2~12**

HLE-4040

MEMBRANE TYPE Polyamide Compound

TESTING CONDITIONS

- Testing Pressure **100 psi (0.69 MPa) (6.9 bar)**
- Temperature of Testing Solution **77 °F (25 °C)**
- Concentration of Testing Solution (NaCl) **500 ppm**
- pH Value of Testing Solution **7.5**
- Recovery Rate of Single Membrane Element **15%**

EXTREME OPERATION CONDITIONS

- Max. Working Pressure **600 psi (4.14 MPa) (41.4 bar)**
- Max. Feedwater Flow **16 gpm (3.6 m^3/hr)**
- Max. Feedwater Temperature **113°F (45 °C)**
- Max. Feedwater SDI **5**
- Single Membrane Max. Pressure Drop **15 psi (0.1 MPa) (1.03 bar)**
- Residual chlorine Concentration of Feedwater **<0.1 ppm**
- pH Range of Feedwater during Continuous Operation **3~10**
- pH Range of Feedwater during Chemical Cleaning **2~12**

BW-4040/HLE-4040

A=40" (1016 mm) B=3.9" (99.7 mm) C=0.75" (19.1 mm) D= 1.05" (26.7 mm)

IMPORTANT INFORMATION

Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, HYDRON recommends removing residual free chlorine by pre treatment prior to membrane exposure. Any specific application must be limited within the extreme operating conditions. We strongly recommend you to refer to the latest edition of technology manual and design guide prepared by HYDRON Membrane Technology or consult experts proficient in membrane technology. In case the customer fails to follow the operating conditions as specified in this manual, HYDRON Membrane Technology will assume no liability for all results. The permeate flow listed in the table is the average value. The permeate flow of single membrane element is within a tolerance not exceeding ±20% of nominal value. Discard the RO-filtered water produced during the first one hour after system start-up. During storage time and run time, it is strictly prohibited to dose any chemical medicament that may be harmful.

Advanced Membrane Technology

HYDRON
MEMBRANE TECHNOLOGY

HYDRON Commercial / Industrial Membranes

BW-8040 / HLP-8040

HYDRON Commercial/Industrial Membrane Elements with their hard shell fiberglass exterior provide outstanding performance for commercial/industrial systems. HYDRON Membranes are manufactured in a State-of-the-Art, ISO-9001-2000 certified automatic rolling facility which provides you with a precise and advanced membrane element. HYDRON Membranes not only deliver an attractive cost to benefit ratio, but also gives you a membrane that has consistently high quality and performance.

HYDRON Commercial/Industrial Membrane Elements can be used in a variety of applications, such as car wash, bottling, manufacturing, water stores, food processing, and many other applications where a reliable, performance membrane is needed.

NSF

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COMPONENT

BW / HLP Membrane Specifications - Commercial / Industrial

Series	Part Number	Applied Pressure psi (bar)	Average Permeated Flow gpd (m^3/d)	Stable Rejection Rate (%)	Active Membrane Area ft^2 (m^2)	Max. Feed Temp. °F (°C)
BW	**BW-8040**	225 (15.5)	11500 (43.5)	99.5	440 (41)	113 (45)
HLP	**HLP-8040**	150 (10.3)	13000 (49.2)	98.0	400 (37)	113 (45)

BW-8040

MEMBRANE TYPE Polyamide Compound

TESTING CONDITIONS

- Testing Pressure **225 psi (1.55 MPa) (15.5 bar)**
- Temperature of Testing Solution **77 °F (25 °C)**
- Concentration of Testing Solution (NaCl) **2000 ppm**
- pH Value of Testing Solution **7.5**
- Recovery Rate of Single Membrane Element **15%**

EXTREME OPERATION CONDITIONS

- Max. Working Pressure **600 psi (4.14 MPa) (41.4 bar)**
- Max. Feedwater Flow **75 gpm (17 m^3/hr)**
- Max. Feedwater Temperature **113 °F (45 °C)**
- Max. Feedwater SDI **5**
- Single Membrane Max. Pressure Drop **15 psi (0.1 MPa) (1.03 bar)**
- Residual chlorine Concentration of Feedwater **<0.1 ppm**
- pH Range of Feedwater during Continuous Operation **3~10**
- pH Range of Feedwater during Chemical Cleaning **2~12**

HLP-8040

MEMBRANE TYPE Polyamide Compound

TESTING CONDITIONS

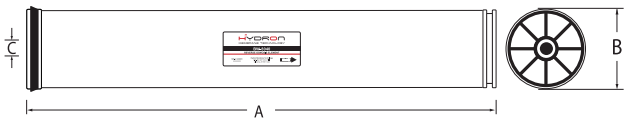
- Testing Pressure **150 psi (1.03 MPa) (10.34 bar)**
- Temperature of Testing Solution **77 °F (25°C)**
- Concentration of Testing Solution (NaCl) **1500 ppm**
- pH Value of Testing Solution **7.5**
- Recovery Rate of Single Membrane Element **15%**

EXTREME OPERATION CONDITIONS

- Max. Working Pressure **600 psi (4.14 MPa) (41.4 bar)**
- Max. Feedwater Flow **75 gpm (17 m^3/hr)**
- Max. Feedwater Temperature **113 °F (45 °C)**
- Max. Feedwater SDI **5**
- Single Membrane Max. Pressure Drop **15 psi (0.1 MPa) (1.03 bar)**
- Residual chlorine Concentration of Feedwater **<0.1 ppm**
- pH Range of Feedwater during Continuous Operation **3~10**
- pH Range of Feedwater during Chemical Cleaning **2~12**

BW-8040/HLP-8040

A=40" (1016 mm) B=7.95" (201.9 mm) C=1.125" (28.6 mm)



IMPORTANT INFORMATION

Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, HYDRON recommends removing residual free chlorine by pre treatment prior to membrane exposure. Any specific application must be limited within the extreme operating conditions. We strongly recommend you to refer to the latest edition of technology manual and design guide prepared by HYDRON Membrane Technology or consult experts proficient in membrane technology. In case the customer fails to follow the operating conditions as specified in this manual, HYDRON Membrane Technology will assume no liability for all results. The permeate flow listed in the table is the average value. The permeate flow of single membrane element is within a tolerance not exceeding ±20% of nominal value. Discard the RO-filtered water produced during the first one hour after system start-up. During storage time and run time, it is strictly prohibited to dose any chemical medicament that may be harmful.

Advanced Membrane Technology

HYDRON
MEMBRANE TECHNOLOGY

HYDRON PRO Series Ultra High Flow Commercial Membranes

UHF-4040-PRO

HYDRON Pro Series Ultra High Flow Commercial Membranes with their hard shell fiberglass exterior provide outstanding performance for commercial systems. HYDRON Membranes are manufactured in a State-of-the-Art, ISO-9001-2000 certified automatic rolling facility which provides you with a precise and advanced membrane element. HYDRON Membranes not only deliver an attractive cost to benefit ratio, but also gives you a membrane that has consistently high quality and performance.

HYDRON Pro Series Ultra High Flow Commercial Membranes can accommodate any standard 8" x 40" membrane elements, have a compact design, and offer a reliable head seal area. Hydron FRPV membrane housings are made to meet the demands of long term and continuous use.

NSF

This Membrane is Tested and Certified by NSF International against NSF / ANSI Standard 61 for material requirements only.

COMPONENT

UHF-4040-PRO Specifications - Commercial

Applied Pressure psi (bar)	Average Permeated Flow gpd (m^3/d)	Stable Rejection Rate (%)	Active Membrane Area ft^2 (m^2)	Max. Feed Temp. °F (°C)
50 (3.4)	1500 (5.67)	96	135 (12.5)	113 (45)
150 (10.3)	5000 (18.9)	98	135 (12.5)	113 (45)

MEMBRANE TYPE — **Polyamide Compound**

TESTING CONDITIONS

› Testing Pressure A	**50 psi**	**(0.34 MPa) (3.4 bar)**
› Testing Pressure B	**150 psi**	**(1.03 MPa) (10.3 bar)**
› Temperature of Testing Solution	**77 °F**	**(25 °C)**
› Concentration of Testing Solution (NaCl)	**500 ppm**	
› pH Value of Testing Solution	**7.5**	
› Recovery Rate of Single Membrane Element	**15%**	

EXTREME OPERATION CONDITIONS

› Max. Working Pressure	**600 psi**	**(4.14 MPa) (41.4 bar)**
› Max. Feedwater Flow	**16 gpm**	**(3.6 m^3/hr)**
› Max. Feedwater Temperature	**113 °F**	**(45 °C)**
› Max. Feedwater SDI	**5**	
› Single Membrane Max. Pressure Drop	**15 psi**	**(0.1 MPa) (1.03 bar)**
› Residual chlorine Concentration of Feedwater	**<0.1 ppm**	
› pH Range of Feedwater during Continuous Operation	**3~10**	
› pH Range of Feedwater during Chemical Cleaning	**2~12**	

UHF-4040-PRO

A=40" (1016 mm) B=3.9" (99.7 mm)
C=.75" (19.1mm) D=1.05" (26.7 mm)

IMPORTANT INFORMATION

Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, HYDRON recommends removing residual free chlorine by pre treatment prior to membrane exposure. Any specific application must be limited within the extreme operating conditions. We strongly recommend you to refer to the latest edition of technology manual and design guide prepared by HYDRON Membrane Technology or consult experts proficient in membrane technology. In case the customer fails to follow the operating conditions as specified in this manual, HYDRON Membrane Technology will assume no liability for all results. The permeate flow listed in the table is the average value. The permeate flow of single membrane element is within a tolerance not exceeding ±20% of nominal value. Discard the RO-filtered water produced during the first one hour after system start-up. During storage time and run time, it is strictly prohibited to dose any chemical medicament that may be harmful.

Uncompromised Performance

HYDRON
MEMBRANE TECHNOLOGY

HYDRON HSW Pro Series Seawater Commercial Membranes

HSW-2521-PRO / HSW-2540-PRO / HSW-4021-PRO / HSW-LE4040-PRO
HSW-HR4040-PRO / HSW-LE8040-440-PRO / HSW-XLE8040-440-PRO

HYDRON Seawater Commercial Membrane Elements with their hard shell fiberglass exterior provide outstanding performance for commercial systems. HYDRON Membranes are manufactured in a State-of-the-Art, ISO-9001-2000 certified automatic rolling facility which provides you with a precise and advanced membrane element. HYDRON Membranes not only deliver an attractive cost to benefit ratio, but also gives you a membrane that has consistently high quality and performance.

HYDRON Seawater Commercial Membrane Elements technology have made seawater desalination a viable and cost-effective solution for desalination needs. They are ideal for use in small, medium, and large Seawater applications and offer exceptional performance. Proven durability coupled with excellent permeate production make Hydron HSW membranes a product of preference for water treatment professionals everywhere.

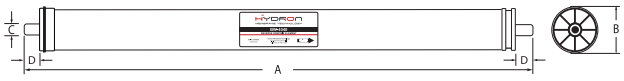
HSW Pro Series Seawater Membrane Specifications - Commercial

Size	Part Number	Applied Pressure psi (bar)	Average Permeated Flow gpd (m^3/d)	Stable Rejection Rate (%)	Active Membrane Area ft^2 (m^2)	Max. Feed Temp. °F (°C)
2.5"	HSW-2521-PRO	800 (55.1)	270 (1.02)	99.5	13 (1.2)	113 (45)
2.5"	HSW-2540-PRO	800 (55.1)	600 (2.27)	99.5	33 (12.3)	113 (45)
4"	HSW-4021-PRO	800 (55.1)	750 (2.83)	99.5	35 (3.25)	113 (45)
4"	HSW-LE4040-PRO	800 (55.1)	1900 (7.19)	99.7	90 (8.66)	113 (45)
4"	HSW-HR4040-PRO	800 (55.1)	1600 (6.05)	99.8	90 (8.66)	113 (45)
8"	HSW-LE8040-440-PRO	800 (55.1)	9500 (35.96)	99.8	440 (40.8)	113 (45)
8"	HSW-XLE8040-440-PRO	800 (55.1)	12100 (45.8)	99.7	440 (40.8)	113 (45)

HSW Pro Series Seawater Membrane Measurements

Part Number	A	B	C	D
	in (mm)	in (mm)	in (mm)	in (mm)
HSW-2521-PRO	21" (533.4)	2.4" (61)	0.75" (19.1)	1.19" (30.2)
HSW-2540-PRO	40" (1016)	2.4" (61)	0.75" (19.1)	1.19" (30.2)
HSW-4021-PRO	21" (533.4)	3.9" (99.7)	0.75" (19.1)	1.05" (26.7)
HSW-LE4040-PRO	40" (1016)	3.9" (99.7)	0.75" (19.1)	1.05" (26.7)
HSW-HR4040-PRO	40" (1016)	3.9" (99.7)	0.75" (19.1)	1.05" (26.7)
HSW-LE8040-440-PRO	40" (1016)	7.9" (201)	0.75" (19.1)	-
HSW-XLE8040-440-PRO	40" (1016)	7.9" (201)	1.125" (29)	-

HSW-2521-PRO, HSW-4021-PRO



HSW-2540-PRO, HSW-LE4040-PRO, HSW-HR4040-PRO
HSW-LE8040-440-PRO,

IMPORTANT INFORMATION

Under certain conditions, the presence of free chlorine and other oxidizing agents will cause premature membrane failure. Since oxidation damage is not covered under warranty, HYDRON recommends removing residual free chlorine by pre treatment prior to membrane exposure. Any specific application must be limited within the extreme operating conditions. We strongly recommend you to refer to the latest edition of technology manual and design guide prepared by HYDRON Membrane Technology or consult experts proficient in membrane technology. In case the customer fails to follow the operating conditions as specified in this manual, HYDRON Membrane Technology will assume no liability for all results. The permeate flow listed in the table is the average value. The permeate flow of single membrane element is within a tolerance not exceeding ±20% of nominal value. Discard the RO-filtered water produced during the first one hour after system start-up. During storage time and run time, it is strictly prohibited to dose any chemical medicament that may be harmful.

HSW PRO SERIES SEAWATER COMMERCIAL MEMBRANES

MEMBRANE TYPE / SIZE	Seawater 2.5"	Seawater 4"	Seawater 8"
TESTING CONDITIONS			
› Testing Pressure	800psi (55.1 bar)	800psi (55.1 bar)	800psi (55.1 bar)
› Temperature of Testing Solution	77F (25C)	77F (25C)	77F (25C)
› Concentration of Testing Solution (NaCl)	32,000 mg/L	32,000 mg/L	32,000 mg/L
› pH Value of Testing Solution	8	8	8
› Recovery Rate of Single Membrane Element	4%	4%	8%
EXTREME OPERATION CONDITIONS			
› Max. Working Pressure	1200psi (8.28 bar)	1200psi (8.28 bar)	1200psi (8.28 bar)
› Max. Feedwater Flow	6gpm (1.4 m3/h)	16gpm (3.6 m3/h)	75gpm (17 m3/h)
› Max. Feedwater Temperature	113F (45C)	113F (45C)	113F (45C)
› Max. Feedwater SDI	5	5	5
› Single Membrane Max. Pressure Drop	15psi (1.03bar)	15psi (1.03bar)	15psi (1.03bar)
› Residual chlorine Concentration of Feedwater	<0.1ppm	<0.1ppm	<0.1ppm
› pH Range of Feedwater during Continuous Operation	2-11	2-11	2-11
› pH Range of Feedwater during Chemical Cleaning	1-13	1-13	1-13

Reliability Assured

H2YDRON
MEMBRANE TECHNOLOGY

HYDRON 4” FRPV Membrane Housing

FRPV-4030EF / FRPV-403080EF / FRPV-4012030EF

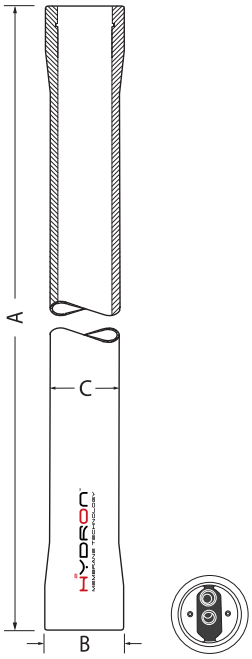
HYDRON 4" FRPV Series II Membrane Housings are durable composite reinforced membrane vessels designed for use in commercial and industrial Reverse Osmosis systems. FRPV vessels are coated with high gloss polyurethane paint to provide resistance to UV rays and other elements.

HYDRON 4" FRPV Series II Membrane Housings can accommodate any standard 40” membrane element, have a compact design and offer a reliable head seal area. Hydron FRPV membrane housings are made to meet the demands of long term and continuous use.

- **Accommodates all standard 4"x 40" membrane elements.**
- **Locking plate with allen head bolts for easy maintenance and safety.**
- **Manufactured to meet the demands of long term and continuous use.**
- **High Gloss Polyurethane Exterior Coating for resistance to UV rays and other elements.**
- **Compact design for commercial and industrial reverse osmosis and ultrafiltration applications.**

4" FRPV Membrane Housing Specifications

Elements	Part Number	Maximum Operating Pressure	Maximum Operating Temperature	Minimum Operating Temperature	Inlet Port	Permeate Port
1	**FRPV-4030EF**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	1/2"	1/2"
2	**FRPV-403080EF**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	3/4"	1/2"
3	**FRPV-4012030EF**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	3/4"	1/2"



INTENDED USE

The model FRPV-4030EF Fiberglass RO/UF Pressure Vessel is designed for continuous, long-term use a as a housing for single reverse osmosis and ultrafiltration elements in typical commercial water treatment systems at pressures up to 300 psi.

Any make of 4"x 40" nominal diameter spiral-wound element is easily accommodated.

The model FRPV-4030EF must be installed, operated and maintained in accordance with the listed precautions, and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell.

The end closure, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head assembly.

** Specifications subject to change without notice.*

FRPV Membrane Housing Measurements

Elements	Part Number	A	B	C
		in (mm)	in (mm)	in (mm)
1	**FRPV-4030EF**	44.88"+ 0.08" (1140 + 2)	Ø4.80"+ 0.08" (Ø122 + 2)	Ø4.25"+ 0.08" (Ø108 + 2)
2	**FRPV-403080EF**	84.88"+ 0.08" (2156 + 2)	Ø4.80"+ 0.08" (Ø122 + 2)	Ø4.25"+ 0.08" (Ø108 + 2)
3	**FRPV-4012030EF**	124.88"+ 0.08" (3172 + 2)	Ø4.80"+ 0.08" (Ø122 + 2)	Ø4.25"+ 0.08" (Ø108 + 2)

⚠ CAUTION ⚠

EYE PROTECTION SHOULD BE WORN WHEN REMOVING OR INSTALLING RTAINING RINGS. KEEP FINGERS CLEAR FROM RETAINING RING WHILE INSTALLING LAST OF TWO TURNS. RING MAY SNAP INTO POSITION POSSIBLY PINCHING FINGERS.

PRECAUTIONS

DO... read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure.

DO... inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion.

DO... provide overpressure protection for vessel set at not more than 105% of design pressure.

DO... mount shell on horizontal or vertical members at central span "S" using compliant, vessel supports; tighten hold down straps just snug.

DO NOT... pressurize vessel until double checking to verify that the retaining rings are in place.

DO NOT... work on any component until first verifying that pressure is relieved from vessel.

DO NOT... tolerate leaks or allow end closures to be routinely wetted in any way.

DO NOT... operate vessel with permeate pressure in excess of 125 psi at 120 °F (0.86 MPa at 49°C).

DO NOT... make rigid piping connections to parts or clamp vessel in any way that restricts growth of fiberglass shell under pressure; ▲DIA = 0.01 in. (0.25 mm) and ▲L = 0.3 in. (.8 mm) for a length code -1 vessel .

DO NOT... hang piping manifolds from parts or use vessel in any way to support other components.

DO NOT... operate at pH levels below 3 or above 11.

DO NOT... operate vessel at pressures and temperatures in excess of its rating.

High Performance
Durability
Delivered

HYDRON
MEMBRANE TECHNOLOGY

HYDRON 8" Side Entry FRPV Membrane Housing (300 psi)

FRPV-8030S-1F, FRPV-8030S-2F, FRPV-8030S-3F, FRPV-8030S-4F, FRPV-8030S-5F, FRPV-8030S-6F, FRPV-8030S-7F

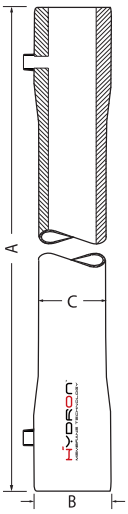
HYDRON 8" FRPV Series II Membrane Housings are durable composite reinforced membrane vessels designed for use in commercial, municipal and industrial Reverse Osmosis systems. Hydron FRPV vessels are coated with high gloss polyurethane paint to provide resistance to UV rays and other elements and are available in 300 psi and 600 psi ratings.

HYDRON 8" FRPV Series II Membrane Housings can accommodate any standard 8" x 40" membrane elements, have a compact design, and offer a reliable head seal area. Hydron FRPV membrane housings are made to meet the demands of long term and continuous use.

- **Accommodates all standard 8"x 40" membrane elements.**
- **Manufactured to meet the demands of long term and continuous use.**
- **Locking plate with secure head bolts for easy maintenance, safety and security.**
- **High Gloss Polyurethane Exterior Coating for resistance to UV rays and other elements.**
- **Compact design for commercial, municipal and industrial reverse osmosis and ultrafiltration applications.**

8" FRPV Membrane Housing Specifications

Elements	Part Number	Maximum Operating Pressure	Maximum Operating Temperature	Minimum Operating Temperature	Inlet Port	Permeate Port
1	**FRPV-8030S-1F**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
2	**FRPV-8030S-2F**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
3	**FRPV-8030S-3F**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
4	**FRPV-8030S-4F**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
5	**FRPV-8030S-5F**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
6	**FRPV-8030S-6F**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
7	**FRPV-8030S-7F**	300 psi (21 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"



⚠ CAUTION ⚠

INCORRECT INSTALLATION, OPERATION AND MAINTENANCE OF THESE VESSELS MAY CAUSE LOSS OF LIFE, SEVER BODILY INJURY, AND OR PROPERTY DAMAGE.

INTENDED USE

Hydron FRPV Membrane Housings are designed for continuous, long-term use a as a housing for single and multiple reverse osmosis and ultrafiltration elements in typical commercial water treatment systems at pressures from 300 psi - 600 psi.

Hydron FRPV Membrane Housings must be installed, operated and maintained in accordance with the listed precautions, and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell.

The end closure, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head assembly.

** Specifications subject to change without notice.*

8" FRPV Membrane Housing Measurements

Elements	Part Number	A	B	C
		in (mm)	in (mm)	in (mm)
1	**FRPV-8030S-1F**	58.82" + 0.12" (1494 + 3)	Ø9.49" + 0.07" (Ø241 + 2)	Ø8.27" + 0.12" (Ø210 + 3)
2	**FRPV-8030S-2F**	98.82" + 0.12" (2510 + 3)	Ø9.49" + 0.07" (Ø241 + 2)	Ø8.27" + 0.12" (Ø210 + 3)
3	**FRPV-8030S-3F**	138.82" + 0.12" (3526 + 3)	Ø9.49" + 0.07" (Ø241 + 2)	Ø8.27" + 0.12" (Ø210 + 3)
4	**FRPV-8030S-4F**	178.82" + 0.12" (4542 + 3)	Ø9.49" + 0.07" (Ø241 + 2)	Ø8.58" + 0.12" (Ø210 + 3)
5	**FRPV-8030S-5F**	218.82" + 0.12" (5558 + 3)	Ø9.49" + 0.07" (Ø241 + 2)	Ø8.58" + 0.12" (Ø210 + 3)
6	**FRPV-8030S-6F**	258.82" + 0.12" (6574 + 3)	Ø9.49" + 0.07" (Ø241 + 2)	Ø8.58" + 0.12" (Ø210 + 3)
7	**FRPV-8030S-7F**	298.82" + 0.12" (7590 + 3)	Ø9.49" + 0.07" (Ø241 + 2)	Ø8.58" + 0.12" (Ø210 + 3)

PRECAUTIONS

DO... read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure or serious injury or death.

DO... inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion.

DO... provide overpressure protection for vessel set at not more than 105% of design pressure.

DO... mount shell on horizontal or vertical members at central span "S" using compliant, vessel supports; tighten hold down straps just snug.

DO NOT... pressurize vessel until double checking to verify that the Locking Plates are in place.

DO NOT... work on any component until first verifying that pressure is relieved from vessel.

DO NOT... tolerate leaks or allow end closures to be routinely wetted in any way.

DO NOT... operate vessel with permeate pressure in excess of 125 psi at 120 °F (0.86 MPa at 49 °C).

DO NOT... make rigid piping connections to parts or clamp vessel in any way that restricts growth of fiberglass shell under pressure; ▲DIA = 0.01 in. (0.25 mm) and ▲L = 0.3 in. (.8 mm) for a length code -1 vessel.

DO NOT... hang piping manifolds from parts or use vessel in any way to support other components.

DO NOT... operate at pH levels below 3 or above 11.

DO NOT... operate vessel at pressures and temperatures in excess of its rating.

Reliability Assured

HYDRON
MEMBRANE TECHNOLOGY

HYDRON 8" Side Entry FRPV Membrane Housing (600 psi)

FRPV-8060S-1F, FRPV-8060S-2F, FRPV-8060S-3F, FRPV-8060S-4F, FRPV-8060S-5F, FRPV-8060S-6F, FRPV-8060S-7F

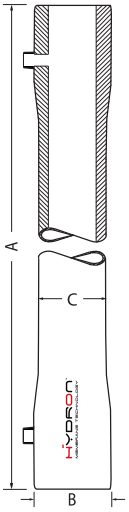
HYDRON 8" FRPV Series II Membrane Housings are durable composite reinforced membrane vessels designed for use in commercial, municipal and industrial Reverse Osmosis systems. Hydron FRPV vessels are coated with high gloss polyurethane paint to provide resistance to UV rays and other elements and are available in 300 psi and 600 psi ratings.

HYDRON 8" FRPV Series II Membrane Housings can accommodate any standard 8" x 40" membrane elements, have a compact design, and offer a reliable head seal area. Hydron FRPV membrane housings are made to meet the demands of long term and continuous use.

- **Accommodates all standard 8"x 40" membrane elements.**
- **Manufactured to meet the demands of long term and continuous use.**
- **Locking plate with secure head bolts for easy maintenance, safety and security.**
- **High Gloss Polyurethane Exterior Coating for resistance to UV rays and other elements.**
- **Compact design for commercial, municipal and industrial reverse osmosis and ultrafiltration applications.**

8" FRPV Membrane Housing Specifications

Elements	Part Number	Maximum Operating Pressure	Maximum Operating Temperature	Minimum Operating Temperature	Inlet Port	Permeate Port
1	**FRPV-8060S-1F**	600 psi (41 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
2	**FRPV-8060S-2F**	600 psi (41 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
3	**FRPV-8060S-3F**	600 psi (41 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
4	**FRPV-8060S-4F**	600 psi (41 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
5	**FRPV-8060S-5F**	600 psi (41 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
6	**FRPV-8060S-6F**	600 psi (41 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"
7	**FRPV-8060S-7F**	600 psi (41 bar)	150° F (66° C)	14° F (-10° C)	1.5"	1"



⚠ CAUTION ⚠

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INTENDED USE

Hydron FRPV Membrane Housings are designed for continuous, long-term use a as a housing for single and multiple reverse osmosis and ultrafiltration elements in typical commercial water treatment systems at pressures from 300 psi - 600 psi.

Hydron FRPV Membrane Housings must be installed, operated and maintained in accordance with the listed precautions, and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell.

The end closure, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head assembly.

** Specifications subject to change without notice.*

8" FRPV Membrane Housing Measurements

Elements	Part Number	A	B	C
		in (mm)	in (mm)	in (mm)
1	**FRPV-8060S-1F**	62.28" + 0.12" (1582 + 3)	Ø9.96" + 0.07" (Ø253 + 2)	Ø8.58" + 0.12" (Ø218 + 3)
2	**FRPV-8060S-2F**	102.28" + 0.12" (2598 + 3)	Ø9.96" + 0.07" (Ø253 + 2)	Ø8.58" + 0.12" (Ø218 + 3)
3	**FRPV-8060S-3F**	142.28" + 0.12" (3614 + 3)	Ø9.96" + 0.07" (Ø253 + 2)	Ø8.58" + 0.12" (Ø218 + 3)
4	**FRPV-8060S-4F**	182.28" + 0.12" (4630 + 3)	Ø9.96" + 0.07" (Ø253 + 2)	Ø8.58" + 0.12" (Ø218 + 3)
5	**FRPV-8060S-5F**	222.28" + 0.12" (5646 + 3)	Ø9.96" + 0.07" (Ø253 + 2)	Ø8.58" + 0.12" (Ø218 + 3)
6	**FRPV-8060S-6F**	262.28" + 0.12" (6662 + 3)	Ø9.96" + 0.07" (Ø253 + 2)	Ø8.58" + 0.12" (Ø218 + 3)
7	**FRPV-8060S-7F**	302.28" + 0.12" (7678 + 3)	Ø9.96" + 0.07" (Ø253 + 2)	Ø8.58" + 0.12" (Ø218 + 3)

PRECAUTIONS

DO... read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure or serious injury or death.

DO... inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion.

DO... provide overpressure protection for vessel set at not more than 105% of design pressure.

DO... mount shell on horizontal or vertical members at central span "S" using compliant, vessel supports; tighten hold down straps just snug.

DO NOT... pressurize vessel until double checking to verify that the Locking Plates are in place.

DO NOT... work on any component until first verifying that pressure is relieved from vessel.

DO NOT... tolerate leaks or allow end closures to be routinely wetted in any way.

DO NOT... operate vessel with permeate pressure in excess of 125 psi at 120 °F (0.86 MPa at 49 °C).

DO NOT... make rigid piping connections to parts or clamp vessel in any way that restricts growth of fiberglass shell under pressure; ▲DIA = 0.01 in. (0.25 mm) and ▲L = 0.3 in. (.8 mm) for a length code -1 vessel.

DO NOT... hang piping manifolds from parts or use vessel in any way to support other components.

DO NOT... operate at pH levels below 3 or above 11.

DO NOT... operate vessel at pressures and temperatures in excess of its rating.

Terms and Conditions

The products described in this document are hereby offered for sale to be established by Hydrofit Quick Connect Fittings, Polaris Scientific Ultraviolet, Hydron Membranes, Aquatrol, Shok Blok, HydroGuard, Hydronix Water Technology, any of its subsidiaries and its authorized distributors. This offer and its acceptance by any customer (the "Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any item described in this document, when communicated to Hydrofit Quick Connect Fittings, Polaris Scientific Ultraviolet, Hydron Membranes, Aquatrol, Shok Blok, HydroGuard, Hydronix Water Technology, its subsidiaries or an authorized distributor (the "Seller") verbally or in writing, shall constitute acceptance of this offer. Provided, however, that these terms and conditions shall not operate as a rejection of the Buyer's offer unless such offer contains variances in the description, quantity, price, or delivery schedule of the items.

1. Terms and Conditions of Sale.
All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of the Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein (the "Agreement"). The Buyer's acceptance of any offer to sell is limited to the terms and conditions in the Agreement. Any terms or conditions in addition to or inconsistent with those stated in the Agreement, proposed by the Buyer in any acceptance of an offer by the Seller, are hereby rejected. No such additional, different or inconsistent terms and conditions shall become part of the agreement between the Buyer and the Seller unless expressly accepted in writing by the Seller. The Seller's acceptance of any offer to purchase by the Buyer is expressly conditioned upon the Buyer's assent to all the terms and conditions in this Agreement, irrespective of any terms in addition to, or inconsistent with those contained in the Buyer's offer. Acceptance of the Seller's products shall in all events constitute such assent.

2. Documents.
Unless provided otherwise in the Agreement, all catalog descriptions, illustrations, drawings and literature or independently submitted estimates of performance, weights and measurements or other specifications provided by the Seller are mere approximations and the Seller reserves the right to alter or amend them at any time. The Seller reserves the right to correct clerical or technical errors in the contract documents. The Buyer shall furnish with his order all necessary specifications and information. The Seller takes no responsibility for goods manufactured, priced or delivered not in accordance with the order or the specifications unless the Buyer's order and specifications are clear and correct.

3. Prices.
Unless otherwise provided, all prices contained in our quotations and written acceptances are ex-works and do not include the cost of packing. All orders are accepted on the condition that all such prices are subject to revision by the Seller at any time before the goods are dispatched to take account of any price change. In the event that the Buyer does not place the entire order quoted by the Seller for the Buyer, the Seller reserves the right to revise its prices. The Seller also reserves the right to revise its prices if the Buyer modifies the specification or quantity of the goods or the delivery requirements after the order has been accepted by the Seller.

4. Advice.
All advice given in connection with the Seller's goods is provided without charge to the Buyer. ANY ADVICE AND ASSISTANCE GIVEN BY THE SELLER TO THE BUYER IS GIVEN AT THE BUYER'S RISK, AND THE SELLER SHALL NOT BE LIABLE FOR ANY LOSS, DAMAGE OR CLAIM ARISING THEREFROM.

5. Payment.
(a) Unless otherwise provided in the Agreement, or explicitly agreed upon in writing by the Seller, payment is due in full 30 days from date of shipment of the items purchased herein under. (b) In the case of an installment contract, deliveries or parts, payment for each installment delivery or part shall be made under sub-clause (a) as if the same constituted a separate agreement. (c) Amounts not timely paid shall bear interest at the rate of 2-1/2% above the Seller's bank's prime rate from time to time in force. (d) In the event that the Buyer fails within one calendar month of the date for payment to effect any payment which may be due under the Agreement or any agreement with the Seller, or if the Buyer commits any breach of the Agreement, or if the Buyer becomes insolvent or commits any act of bankruptcy or contemplation of liquidation, the Seller will be entitled, without prejudice to the Seller's other rights, to terminate the Agreement or any unfulfilled part thereof, or at the Seller's option to make partial deliveries.

6. Modifications and Cancellations.
This Agreement is not subject to oral modification or cancellation. A Buyer's request for modification or cancellation will not be incorporated into the Agreement unless the request is accepted by the Seller in a writing that amends the Agreement. Acceptance of any such requested modification or cancellation shall be at the Seller's discretion and shall be upon such terms and conditions as the Seller may require.

7. Handling Charge.
Goods supplied in accordance with the Buyer's order may later be returned to the Seller at the Seller's discretion provided the return is pre-authorized in writing, and the merchandise is unused, in original packages, unaltered, clean and no older than 60 days from the date of shipment by the Seller. The Buyer will be required to pay to the Seller a handling charge of 25% of the purchase price of the returned goods. A copy of the original invoice for the merchandise must accompany all returns.

8. Delivery.
(a) Any delivery dates quoted are approximate only and the Seller shall have no liability for any delays in delivery. (b) Unless provided otherwise, delivery of the goods shall be made when the Seller has notified the Buyer that the goods are ready for dispatch. Regardless of the method of delivery, delivery shall be made F.O.B. Seller's plant, where the risk of loss shall thereupon pass to the Buyer upon the Seller's delivery to a carrier. Notwithstanding that the Seller's prices are ex-works, the Seller is prepared by special contract to procure carriage or freight and insurance on behalf of the Buyer and at Buyer's cost in which event the Seller shall be under no liability for damage in transit or loss or damage to the goods beyond the point at which the Seller contracts to deliver the same. (c) The Seller will not make drop shipments.

9. Inspection and Rejection.
(a) The following provisions shall apply in relation to all deliveries of goods: the Seller shall not be held liable for any claims of damage in transit, shortage of delivery or loss of goods, unless in the case of shortage of delivery, a separate notice in writing is given to the carrier concerned and to the Seller within three (3) days of the receipt of the goods, followed by a complete claim in writing within five (5) days of receipt of the goods and in the case of loss of goods, a separate notice in writing is given to the carrier concerned and to the Seller and a complete claim in writing made within thirty (30) days of the date of consignment. The Buyer must inspect the goods on arrival from the carrier; however, where goods are accepted from the carrier concerned without being inspected, the delivery book of the carrier concerned must be signed "not examined". The Seller shall have the right to inspect the goods at the Buyer's premises in respect to any such claims made by the Buyer and the Buyer shall retain such goods until the Seller has inspected such goods or until the Seller has notified the Buyer that the Seller does not wish to inspect such goods. Any breach of these conditions in this provision shall serve as a waiver to any claim brought by the buyer. (b) Without prejudice to the Seller's other rights, should the Buyer fail for any reason to send the Seller forwarding instructions within ninety (90) days after the date of the Seller's notification that the goods are ready for dispatch or to accept delivery of the goods, the Seller shall be entitled at the Buyer's risk and expense to store the goods and/or to procure or effect storage of the goods elsewhere. Goods so stored shall be paid for as if they had been dispatched and/or accepted.

10. Special Tooling.
Where it is necessary for the Seller to manufacture or to purchase special tooling, including without limitation tools, dies, jigs, mandrills, fixtures, molds, and patterns, in order to execute a contract, the Buyer will be charged with all or a proportion of the cost of such special tools. Such special tooling shall be and remain the Seller's property notwithstanding payment of any charges made by the Buyer. In no event will the Buyer acquire any interest in apparatus belonging to the Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adopted for such manufacture and notwithstanding any charges paid by the Buyer therefore. Unless otherwise agreed, the Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

11. Test and Performance.
(a) The Seller's goods are, where practicable, submitted to the Seller's standard test before delivery. If special tests are required, these shall be made at the Seller's premises unless otherwise agreed, and will be subject to an extra charge. (b) The Seller accepts no liability for failure to attain any performance figures quoted by the Seller unless the Seller specifically has guaranteed them with an agreed sum as liquidation damages and the Buyer has suffered actual loss by reason of the failure to attain the figures quoted. (c) Any particulars of weights and measurements, power and consumption, power output or performance relating to the goods and like matters furnished by the Seller to the Buyer in the Seller's catalogs, literature or otherwise, are approximate and are intended only to present a general idea of the goods to be supplied and unless previously agreed specifically in writing shall not form part of the Agreement.

12. Buyer's Property.
Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished to the Seller by the Buyer, or any other items which become the Buyer's property, may be considered obsolete and may be destroyed by the Seller after two (2) consecutive years have elapsed without the Buyer placing an order for the items which are manufactured using such property. The Seller shall not be responsible for any loss or damage to such property while it is in the Seller's possession or control.

13. Taxes.
Unless otherwise indicated, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by the Seller, or if the Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the item sold. The Buyer agrees to pay all such taxes or to reimburse the Seller therefore upon receipt of its invoice. If the Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, the Buyer shall promptly indemnify and hold the Seller harmless from and against any such tax, as well as any interest or penalties thereon which may be assessed if the items are held to be taxable.

14. Warranty.
EXCEPT AS EXPRESSLY WARRANTED IN WRITING BY THE SELLER, THE GOODS SOLD BY THE SELLER ARE PURCHASED BY THE BUYER "AS IS." THE SELLER DOES NOT WARRANT THAT THE GOODS ARE OF MERCHANTABLE QUALITY OR THAT THEY CAN BE USED FOR ANY PARTICULAR PURPOSE. EXCEPT AS EXPRESSLY WARRANTED IN WRITING BY THE SELLER, THE SELLER MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND WITH RESPECT TO THE PRODUCTS.
(a) The Seller warrants that the items sold hereunder shall be free from defects in material or workmanship at the time of shipment by the Seller. The Seller warrants that if within 12 months of delivery of the goods to the Buyer the Buyer returns immediately to the Seller's premises any of the said goods which the Buyer believes to be defective, carrier paid, properly packed and clearly marked with the Buyer's full name and address and any other information such as serial numbers which may be necessary to enable the goods to be identified, together with a complete description of the alleged defect, they will be repaired or new goods will be supplied in exchange and the goods so repaired or such new goods will be delivered to the Buyer free of charge at the Seller's premises; provided, however, that the foregoing warranty shall be applicable only if upon demand by the Seller, the Buyer proves to the Seller's satisfaction: (i) that the defect was due solely to defective workmanship; (ii) that no alterations or repairs have been made to the goods except with the Seller's written consent; (iii) that the defect was not caused by any act of the Buyer or its agents; and (iv) that the defect was not caused by any matter beyond the reasonable control of the Seller, including, without limitation, accident or normal wear and tear. (b) THIS WARRANTY DOES NOT APPLY UNLESS THE SELLER'S PRODUCTS ARE: (I) USED IN DOMESTIC PLUMBING APPLICATIONS; (II) INSTALLED BY A LICENSED CONTRACTOR, PLUMBER OR QUALIFIED EQUIPMENT INSTALLATION PROFESSIONAL; AND (III) INSTALLED AND OPERATED IN ACCORDANCE WITH PUBLISHED HYDROFIT / HYDRONIX WATER TECHNOLOGY SPECIFICATIONS. (c) All costs and expenses, including freight charges, customs duties, and insurance incurred in returning the goods to the Seller's premises in accordance with this provision shall be paid by the Buyer. The benefit of this warranty shall not be assignable by the Buyer. (d) THIS WARRANTY DOES NOT EXTEND TO ANY GOODS NOT MANUFACTURED BY THE SELLER EVEN THOUGH SUPPLIED BY THE SELLER NOR DOES IT EXTEND TO ANY SECOND-HAND OR RECONDITIONED GOODS NOR DOES IT EXTEND TO COMPONENTS MANUFACTURED BY THE SELLER BUT INSTALLED, ATTACHED OR WELDED BY THE BUYER OR HIS CUSTOMER ON EQUIPMENT NOT MANUFACTURED BY THE SELLER. GOODS NOT MANUFACTURED BY THE SELLER CARRY ONLY THE WARRANTY (IF ANY) OF THEIR MAKERS AND THE BUYER IS ENTITLED TO THE BENEFIT THEREOF ONLY SO FAR AS THE SELLER HAS THE POWER TO TRANSFER IT. (E) THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER; THE SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESSED OR IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING, ARE HEREBY DISCLAIMED. (f) NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY TO THE BUYER'S DESIGNS OR SPECIFICATIONS.

15. Limited Remedy.
THE SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS AGREEMENT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD. IN NO EVENT SHALL THE SELLER BE LIABLE TO THE BUYER OR ANY THIRD PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ANY ITEMS SOLD, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY. IN NO EVENT SHALL THE SELLER BE LIABLE TO THE BUYER OR ANY OTHER ENTITY FOR MORE THAN THE INVOICE PRICE RECEIVED BY THE SELLER FOR ANY NON-CONFORMING PRODUCTS. THE SELLER SHALL NOT BE LIABLE TO THE BUYER OR ANY OTHER ENTITY FOR PERSONAL INJURY, PROPERTY DAMAGE, OR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, SPECIAL, OR OTHER DAMAGES OF ANY KIND, INCLUDING WITHOUT LIMITATION THE COST OF PROCUREMENT OF SUBSTITUTE GOODS, THE LOSS OF PROFITS, PRODUCTS, OR PRODUCTION, OR THE INTERRUPTION OF BUSINESS, HOWEVER CAUSED. THE SELLER SHALL NOT BE LIABLE TO THE BUYER OR ANY OTHER ENTITY ON ANY THEORY OF LIABILITY INCLUDING WITHOUT LIMITATION BREACH OF CONTRACT OR EXPRESS OR IMPLIED WARRANTY, TORT, NEGLIGENCE, FAILURE TO WARN, OR STRICT LIABILITY, AND WHETHER OR NOT THE SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE ESSENTIAL PURPOSE OF THIS PROVISION IS TO LIMIT THE LIABILITY OF THE SELLER ARISING OUT OF THE SALE OF PRODUCTS TO THE BUYER WHETHER FOR BREACH OF CONTRACT, NEGLIGENCE, OR ANY OTHER THEORY OF LIABILITY. THESE LIMITATIONS SHALL APPLY NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY AND NOTWITHSTANDING THE PROVISIONS OF ANY OTHER AGREEMENT BETWEEN THE SELLER AND THE BUYER.

16. Indemnity for Infringement of Intellectual Property Rights.
(a) The Buyer shall defend and indemnify the Seller against all actions, claims, demands, penalties and costs by third parties in tort, or for infringement, or alleged infringement, of patents, trademarks, copyrights, trade dress, trade secret or other rights of any third party resulting from the goods manufactured in accordance with the Buyer's specifications or based on any information provided by the Buyer. The Buyer will defend any action against the Seller for title, patent, trademark, copyright infringement, or other claimed by a third party at the Buyer's sole cost and expense. (b) The Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this provision. The Seller will defend and indemnify the Buyer against allegations of infringement of patents, trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). The Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against the Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. The Seller's obligation to defend and indemnify the Buyer is contingent on the Buyer notifying the Seller within 10 days after sole control over the defense of any allegations or actions, including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, the Seller may, at its sole expense and option, procure for the Buyer the right to continue using said item, replace or modify said item so as to make it non-infringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, the Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in combination or use in a system of any item sold hereunder. The foregoing in this provision shall constitute the Seller's sole and exclusive liability and the Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

17. Lien.
In addition to any right of lien to which the Seller may by law be entitled, the Seller shall have a general lien on all goods of the Buyer in the Seller's possession (although such goods or some of them may have been paid for) for the unpaid price of any other goods sold and delivered to the Buyer by the Seller under the same or other contracts.

18. Waiver.
The Seller's rights shall not be affected or restricted by any indulgence or forbearance granted to the Buyer. No waiver by the Seller of any breach shall operate as a waiver of any later breach.

19. Force Majeure.
The Seller shall be excused from performing any of its obligations under this Agreement which are prevented or delayed by any occurrence not within the reasonable control of the Seller, including but not limited to, accidents, acts of God, destruction or damage to the goods or the Seller's manufacturing plant, delays or failures in delivery of carriers or suppliers, shortages of materials, strikes or other labor matters, floods, earthquakes, fire, riots, explosions, or any regulations, rules, ordinances or orders of any governmental authority, federal, state or local, whether such cause exists at the date of the order or not.

20. Buyer's Representation of Solvency.
The Buyer hereby represents that as of the signing of this Agreement it was not insolvent within the meaning of the Uniform Commercial Code or any Bankruptcy Laws.

21. Assignment and Delegation.
The rights and obligations of the parties under this Agreement may not be assigned or delegated, except on the express written consent of the other party to the assignment or delegation.

22. Integration.
The rights and obligations of the parties and the terms and conditions set forth herein, together with any amendments, modifications and any different terms and conditions expressly accepted by the Seller in writing, shall constitute a complete and exclusive statement of the terms of this Agreement. This Agreement supersedes not only all prior agreements, but also oral agreements made contemporaneously with the execution of this Agreement. All such materials may not be used to supplement, explain, or contradict the terms of this Agreement.

23. Severability.
If any of these conditions or any part thereof purports to exclude or restrict or limit any liability and such exclusion or restriction or limitation is prohibited or rendered void or unenforceable by any legislation to which it is subject, or is itself prohibited or rendered void or unenforceable by any legislation to which it is subject, then the exclusion, restriction or limitation on the condition or part thereof in question shall be so prohibited or rendered void or unenforceable and the validity or enforceability of any other part of these provisions shall not thereby be affected.

24. Governing Law/Limitation on Actions.
The terms, conditions, rights, and obligations under this Agreement shall be construed under the laws of the State of California, without regard to principles of conflicts of laws. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by the Buyer more than two (2) years after such cause of action accrues.

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HYDRON™
MEMBRANE TECHNOLOGY

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