

# PVC PRESSURE VESSELS

## AMI 2.5" DIAMETER, 200 PSI, U-PIN STYLE

### Description

Attractive 2.5" PVC pressure vessels available for 14", 21" & 40" length membranes. This style is designed for direct connection to **AM**<sup>®</sup>/Applied Membranes and FILMTEC/DOW style elements.



### Configuration

- U-Pin Style
- End Entry

### Specifications

- **Maximum Operating Pressure:** 200 PSI (14 BAR)
- **Materials:** Rigid PVC body, PVC end plugs, PVC reinforcement cuff, Stainless steel cuff bands


### Pressure Vessels

Model No.	For Membranes				Vessel Dimensions				Connection, FNPT		
	Diameter		Length		Diameter		Length		Feed	Brine	Prod.
	In	cm	In	cm	In	cm	In	cm			
PV2514PVCAU	2.5	6.4	14	35.6	2.5	6.4	19	48.3	¼"	¼"	¼"
PV2521PVCAU	2.5	6.4	21	53.3	2.5	6.4	25.75	65.4	¼"	¼"	¼"
PV2540PVCAU	2.5	6.4	40	101.6	2.5	6.4	45	114.3	¼"	¼"	¼"

*Note: Vessels sold complete with End Plugs, U-Pins, Feed Plug and O-Rings. Mounting Pads and Straps not included.*

### Spare Parts

Model No.	Description	Qty. per Vessel
PV-EP25U	End Plug with O-Rings	2
PV-RR25U1	U-Pin	2
PV-OR40-330	O-Ring for End Plug – External	2
PV-OR40-210	O-Ring for End Plug – Internal	2
3850.002	Plug for Feed End, ¼" (64 MM)	1



End caps not interchangeable w/SSAU model

**WARNING:** PVC pressure vessels are limited to a maximum pressure of 200 psi (14 BAR) at 77°F (25°C). Higher pressure, higher temperature or water hammer will lead to a premature failure. It is highly recommended that when these conditions exist, a pressure switch or relief valve be installed to protect the vessel. Alternately, you may consider a stainless steel or FRP vessel.

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# PVC PRESSURE VESSELS

## AMI 4" DIAMETER, 200 PSI, U-PIN STYLE

### Description

Attractive 4" PVC pressure vessels available for 21" & 40" length membranes. This style is designed for direct connection to **AMI**® / Applied Membranes and FILMTEC/DOW style elements.



### Configuration

- U-Pin Style
- End Entry

### Specifications

- **Maximum Operating Pressure:** 200 PSI (14 BAR)
- **Materials:** Rigid PVC body, PVC end plugs, PVC reinforcement cuff, Stainless steel cuff bands

### Pressure Vessels

Model No.	For Membranes					Vessel Dimensions				Connection, FNPT		
	Diameter		Length		Qty.	Diameter		Length		Feed	Brine	Prod.
	in	cm	in	cm		in	cm	in	cm			
PV4021PWG	4	10.2	21	53.3	1	4	10.2	25.75	65.4	½"	½"	½"
PV4040PWG	4	10.2	40	101.6	1	4	10.2	45	114.3	½"	½"	½"
PV4080PWG	4	10.2	40	101.6	2	4	10.2	85	215.9	½"	½"	½"

*Note: Vessels sold complete with End Plugs, U-Pins, Feed Plug and O-Rings. Mounting Pads and Straps not included. Membrane Interconnectors are sold separately.*

### Spare Parts

Model No.	Description	Qty. per Vessel
PV-EP40PD1212	End Plug with O-Rings, ½" Brine x ½" Product	2
PV-EP40PD134	End Plug with O-Rings, ¾" Brine x ½" Product	2
PV-EP40PD1	End Plug with O-Rings, ½" Brine x ¾" Product	2
PV-RR40U	U-Pin	2
PV-OR40-342	O-Ring for End Plug – External	2
PV-OR40-210	O-Ring for End Plug – Internal	2
3850.005	Plug for Feed End, ½" MNPT	1
3850.003	Plug for Feed End, ¾" MNPT	1



**WARNING:** PVC pressure vessels are limited to a maximum pressure of 200 psi (14 BAR) at 77°F (25°C). Higher pressure, higher temperature or water hammer will lead to a premature failure. It is highly recommended that when these conditions exist, a pressure switch or relief valve be installed to protect the vessel. Alternately, you may consider a stainless steel or FRP vessel.

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# STAINLESS STEEL PRESSURE VESSELS

## AMI 2" DIAMETER, 300 PSI, U-PIN STYLE

### Description

Stainless Steel pressure vessels enhance system appearance and allow you to take full advantage of the membrane capability. Safer and more reliable than the PVC pressure vessels. This style is designed for direct connection to **EMI**<sup>®</sup>/Applied Membranes and FILMTEC/DOW style elements.

### Configuration

- U-Pin Style
- End Entry



### Specifications

- **Maximum Operating Pressure:** 300 PSI (20 BAR)
- **Materials:** 316 Stainless Steel Body, PVC End Plugs, SS U-Pins

### Pressure Vessels

Model No.	For Membranes				Vessel Dimensions				Connection, FNPT		
	Diameter in	cm	Length in	cm	Diameter In	cm	Length In	cm	Feed	Brine	Prod.
PV2013SSAU-316	2.0	5.1	13	33.0	2.0	5.0	15.5	39.4	1/8"	1/8"	1/8"
PV2026SSAU-316	2.0	5.1	26	66.0	2.0	5.0	28	71.1	1/8"	1/8"	1/8"

*Note: Vessels sold complete with End Plugs, U-Pins, Feed Plug and O-Rings. Mounting Pads and Straps not included.*

### Spare Parts

Model No.	Description	Qty. per Vessel
PV-EP20SSU2	End Plug with O-Rings	2
PV-RR20U	U-Pin	2
PV-OR20-326	O-Ring for End Plug	4
3850.001	Feed plug, 1/8" for feed end	1



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# STAINLESS STEEL PRESSURE VESSELS

## AMI 2.5" DIAMETER, 300 PSI, U-PIN STYLE

### Description

Stainless Steel pressure vessels enhance system appearance and allow you to take full advantage of the membrane capability. Safer and more reliable than the PVC pressure vessels. This style is designed for direct connection to **EMI**<sup>®</sup> /Applied Membranes and FILMTEC/DOW style elements.



### Configuration

- U-Pin Style
- End Entry

### Specifications

- **Maximum Operating Pressure:** 300 PSI (20 BAR)
- **Materials:** 316 Stainless Steel Body, PVC End Plugs, SS U-Pins

### Pressure Vessels

Model No.	For Membranes				Vessel Dimensions				Connection, FNPT		
	Diameter		Length		Diameter		Length		Feed	Brine	Prod.
	in	cm	in	cm	in	cm	in	cm			
PV2514SSAU-316	2.5	6.4	14	35.6	2.5	6.4	16	40.6	¼"	¼"	¼"
PV2521SSAU-316	2.5	6.4	21	53.3	2.5	6.4	22.5	57.2	¼"	¼"	¼"
PV2540SSAU-316	2.5	6.4	40	101.6	2.5	6.4	42	106.7	¼"	¼"	¼"

*Note: Vessels sold complete with End Plugs, U-Pins, Feed Plug and O-Rings. Mounting Pads and Straps not included.*

### Spare Parts

Model No.	Description	Qty. per Vessel
PV-EP25GWD	End Plug with O-Rings, 2 Ports for Product End	1
PV-EP25GWS	End Plug with O-Rings, 1 Port for Feed End	1
PV-RR25U2	U-Pin	2
PV-OR40-330	O-Ring for End Plug – External	2
PV-OR40-210	O-Ring for End Plug – Internal	2



End caps not interchangeable w/PVCAU model

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# STAINLESS STEEL PRESSURE VESSELS

## AMI 4" DIAMETER, 300 PSI, U-PIN STYLE

### Description

Stainless Steel pressure vessels enhance system appearance and allow you to take full advantage of the membrane capability. Safer and more reliable than the PVC pressure vessels. This style is designed for direct connection to **AMI**® /Applied Membranes and FILMTEC/DOW style elements.



### Configuration

- U-Pin Style
- End Entry

### Specifications

- **Maximum Operating Pressure:** 300 PSI (20 BAR)
- **Materials:** 316 Stainless Steel Body, PVC End Plugs, SS U-Pins

### Pressure Vessels

Model No.	For Membranes					Vessel Dimensions				Connection, FNPT		
	Diameter		Length		Qty.	Diameter		Length		Feed	Brine	Prod.
	in	cm	in	cm		in	cm	in	cm			
PV4014SSAU-316	4	10.2	14	35.6	1	4	10.2	19	48.3	½"	½"	½"
PV4021SSAU-316	4	10.2	21	53.3	1	4	10.2	26	66.0	½"	½"	½"
PV4040SSAU-316	4	10.2	40	101.6	1	4	10.2	45	114.3	½"	½"	½"
PV4080SSAU-316	4	10.2	40	101.6	2	4	10.2	85	215.9	½"	½"	½"

*Note: Vessels sold complete with End Plugs, U-Pins and O-Rings. Feed Plug, Mounting Pads and Straps not included. Membrane Interconnectors are sold separately.*

### Spare Parts

Model No.	Description	Qty. per Vessel
PV-EP40PD1212	End Plug with O-Rings, ½" Brine × ½" Product	2
PV-EP40PD134	End Plug with O-Rings, ¾" Brine × ½" Product	2
PV-EP40PD1	End Plug with O-Rings, ½" Brine × ¾" Product	2
PV-RR40U	U-Pin	2
PV-OR40-342	O-Ring for End Plug – External	2
PV-OR40-210	O-Ring for End Plug – Internal	2
3850.005	Plug for Feed End, ½" MNPT	1
3850.003	Plug for Feed End, ¾" MNPT	1



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# STAINLESS STEEL PRESSURE VESSELS

## AMI 2.5" DIAMETER, 250 PSI, END CLAMP STYLE

### Description

End entry stainless steel pressure vessels have a smooth, sleek look. This unique design saves both time and money. Prices are competitive with other stainless steel and FRP pressure vessels. This style is designed for direct connection to **EMI**®/Applied Membranes and FILMTEC/DOW style elements.



### Configuration

- End Clamp
- End Entry

### Specifications

- **Maximum Operating Pressure:** 250 PSI (17 BAR)
- **Materials:** 316 Stainless Steel body, PVC End Plugs, SS Clamps

### Pressure Vessels

Model No.	For Membranes				Vessel Dimensions				Connection, FNPT		
	Diameter		Length		Diameter		Length		Feed	Brine	Prod.
	in	cm	in	cm	in	cm	in	cm			
PV2514SSAW-316	2.5	6.4	14	35.6	2.5	6.4	16	40.6	3/8"	3/8"	1/4"
PV2521SSAW-316	2.5	6.4	21	53.3	2.5	6.4	22.5	57.2	3/8"	3/8"	1/4"
PV2540SSAW-316	2.5	6.4	40	101.6	2.5	6.4	42	106.7	3/8"	3/8"	1/4"

*Note: Vessels sold complete with End Plugs, End Clamps, and O-Rings. Feed end product port plug, Mounting Pads and Straps not included.*

### Spare Parts

Model No.	Description	Qty. per Vessel
PV-EPW25PD3814	End Plug with O-Rings, 3/8" Brine x 1/4" Product	2
PV-CL25W	End Clamp, single, with bolts & nuts	2
3850.002	Feed end product port plug, 1/4" MNPT (not included with vessel, sold separately)	1
PV-OR25-329	O-Ring for End Plug – External	2
PV-OR40-210	O-Ring for End Plug – Internal	2



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# STAINLESS STEEL PRESSURE VESSELS

## AMI 4" DIAMETER, 300 PSI, END CLAMP STYLE

### Description

End entry stainless steel pressure vessels have a smooth, sleek look. This unique design saves both time and money. Prices are competitive with other stainless steel and FRP pressure vessels. This style is designed for direct connection to **EMI**®/Applied Membranes and FILMTEC/DOW style elements.



### Configuration

- End Clamp
- End Entry

### Specifications

- **Maximum Operating Pressure:** 300 PSI (20 BAR)
- **Materials:** 316 Stainless Steel body, GFN End Plugs, SS Clamps

### Pressure Vessels

Model No.	For Membranes					Vessel Dimensions				Connection, FNPT		
	Diameter in	cm	Length in	cm	Qty.	Diameter in	cm	Length in	cm	Feed	Brine	Prod.
PV4040SSAW-316	4	10.2	40	101.6	1	4	10.2	43.5	110.5	½"	½"	½"
PV4080SSAW-316	4	10.2	40	101.6	2	4	10.2	85	215.9	¾"	¾"	½"

*Note: Vessels sold complete with End Plugs, End Clamps, and O-Rings. Feed end product port plug, Mounting Pads and Straps not included. Membrane Interconnectors are sold separately.*

### Spare Parts

Model No.	Description	Qty. per Vessel
PV-EPW40PD1212	End Plug with O-Rings, ½" Brine x ½" Product	2
PV-EPW40PD3412	End Plug with O-Rings, ¾" Brine x ½" Product	2
PV-CL40W	End Clamp, single, with bolts & nuts	2
3850.005	Feed end product port plug, ½" MNPT (not included with vessel, sold separately)	1
PV-OR40-342	O-Ring for End Plug – External	4
PV-OR40-210	O-Ring for End Plug – Internal	2



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# FIBERGLASS PRESSURE VESSELS



## 2.5" DIA. END PORT 1000 PSI SW MEMBRANE HOUSINGS

### Description

AMI fiberglass membrane housings are rated at 1,000 psi and specially designed for seawater reverse osmosis membranes used in marine applications. Commonly used in watermakers, AMI FRP seawater pressure vessels are suitable for seawater desalination in shipboard applications, watermakers, land-based desalinators and sea-based desalinators. The end caps are designed for direct connection to industry standard 2.5" diameter male style membrane elements.



### Configuration

- End port/End-Entry design
- SS End Plug Secured by Retaining Plates & Screws (Included)

### Specifications

- **Maximum Operating Pressure:** 1,000 PSI (68 BAR)
- **Operating Temperature:** 14°F-150°F
- **Materials:** FRP/Fiberglass Shell, Stainless Steel End Plugs, Locking Plates, and Screws

### Pressure Vessels

Model No.	For Membranes	Vessel Dimensions				Connection, FNPT		
		Od (Max)		Length		Feed	Brine	Prod
		in	cm	in	cm			
PV2514A1000E	2.5" x 14"	3.3	8.3	17.5	44.4	¼" FNPT	¼" FNPT	¼" FNPT
PV2521A1000E	2.5" x 21"	3.3	8.3	24.5	62.2	¼" FNPT	¼" FNPT	¼" FNPT
PV2540A1000E	2.5" x 40"	3.3	8.3	43.5	110.5	¼" FNPT	¼" FNPT	¼" FNPT

*Note: Fiberglass membrane pressure vessels sold complete with end plugs, end closure hardware, and mounting straps/pads. Feed/brine port fittings are not included.*

### Replacement Components

Model No.	Replacement Part	Includes	Qty. Per Vessel
PV-EP25A-1000E	End Plug w O-Rings	1 End Plug, 2 PWT Seals, 1 Head Seal	2
PV-RP25A-1000E	Retaining Plate	2 Plates, 2 Screws	2
PV-OR25A-1000E	O-Ring Set	4 PWT Seals, 2 Head Seals	1
PV-MC25A-1000E	Mounting Kit	2 Pads, 2 Straps, 4 Screws	1
PV-EX25A-1000E	End Plug Extraction Kit (Not included with vessel)		



### High Pressure Feed/Brine Port Fittings (Not Included)

Model No.	Description	Qty. Needed Per Vessel		
8-4 FTX-SS	¼" NPT x ½" Flare Fitting	2		
8CM4316	¼" NPT x ½" Tube Fitting	2		

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# CODELINE FRP PRESSURE VESSELS



## 4" & 8" RO/UF/SEAWATER MEMBRANE HOUSINGS

Key features of CodeLine 4" & 8" vessels include: Mirror finish I.D for easy & quick loading & unloading of membranes; Quick lock head retention system for quick access to membranes; Exteriors coated with high gloss polyurethane paint for UV resistance; ASME (American Society of Mechanical Engineers) compliant & CE marking.

### Pressure Vessels for 4"×40" Membranes

Pressure Rating (PSI)	Port Type (E=End, S=Side)	Model Number – Per Length, in Number of 4"×40" Elements per Vessel					
		1 Membrane (Approx. 40" L)	2 Membranes (Approx. 80" L)	3 Membranes (Approx. 120" L)	4 Membranes (Approx. 160" L)	5 Membranes (Approx. 200" L)	6 Membranes (Approx. 240" L)
Series 40E: 4" Diameter End Port – ¾" NPT Female Feed/Concentrate Ports, ½" NPT Female Permeate Port							
300	E	40E30N-1WHITE	40E30N-2WHITE	40E30N-3WHITE	--	--	--
600	E	40E60-1	40E60-2	40E60-3	40E60-4	40E60-5	40E60-6
1000	E	40E100-1	40E100-2	40E100-3	40E100-4	40E100-5	40E100-6
Series 40S: 4" Diameter Side Port – 1" IPS Pipe Feed/Concentrate Ports, ½" NPT Female Permeate Port							
300	S	40S30-1	40S30-2	40S30-3	40S30-4	40S30-5	40S30-6
450	S	40S45-1	40S45-2	40S45-3	40S45-4	40S45-5	40S45-6
600	S	40S60-1	40S60-2	40S60-3	40S60-4	40S60-5	40S60-6

Please specify the element model and manufacturer when ordering to ensure the correct interface hardware is included. 40E30N Series is available in blue or white exterior finish. To order in blue, use part # ending in "BLUE" instead of "WHITE". Example: 40E30N-1BLUE

### Pressure Vessels for 8"×40" Membranes

Pressure Rating (PSI)	Port Type (E=End, S=Side)	Model Number – Per Length, in Number of 8"×40" Elements per Vessel						
		1 Membrane (Approx. 40" L)	2 Membranes (Approx. 80" L)	3 Membranes (Approx. 120" L)	4 Membranes (Approx. 160" L)	5 Membranes (Approx. 200" L)	6 Membranes (Approx. 240" L)	7 Membranes (Approx. 280" L)
Series 80E: 8" Diameter End Port Vessels – 1.5" IPS Pipe Feed/Concentrate Ports, 1" NTP Female Permeate Port								
300	E	80E30-1	80E30-2	80E30-3	80E30-4	80E30-5	80E30-6	80E30-7
450	E	80E45-1	80E45-2	80E45-3	80E45-4	80E45-5	80E45-6	80E45-7
600	E	80E60-1	80E60-2	80E60-3	80E60-4	80E60-5	80E60-6	80E60-7
1000	E	80E100-1	80E100-2	80E100-3	80E100-4	80E100-5	80E100-6	80E100-7
1200	E	80E120-1	80E120-2	80E120-3	80E120-4	80E120-5	80E120-6	80E120-7
Series 80S ASME Coded 8" Diameter Side Port – 1.5" IPS Pipe Feed/Concentrate Ports, 1" NTP Female Permeate Port								
150	S	80S15A-1	80S15A-2	80S15A-3	80S15A-4	80S15A-5	80S15A-6	80S15A-7
300	S	80S30A-1	80S30A-2	80S30A-3	80S30A-4	80S30A-5	80S30A-6	80S30A-7
450	S	80S45A-1	80S45A-2	80S45A-3	80S45A-4	80S45A-5	80S45A-6	80S45A-7
600	S	80S60A-1	80S60A-2	80S60A-3	80S60A-4	80S60A-5	80S60A-6	80S60A-7
1000	S	80S100A-1	80S100A-2	80S100A-3	80S100A-4	80S100A-5	80S100A-6	80S100A-7
1200	S	80S120A-1	80S120A-2	80S120A-3	80S120A-4	80S120A-5	80S120A-6	80S120A-7
Series 80S Non-Coded 8" Diameter Side Port – 1.5" IPS Pipe Feed/Concentrate Ports, 1" NTP Female Permeate Port								
150	S	80S15-1	80S15-2	80S15-3	80S15-4	80S15-5	80S15-6	80S15-7
300	S	80S30-1	80S30-2	80S30-3	80S30-4	80S30-5	80S30-6	80S30-7
450	S	80S45-1	80S45-2	80S45-3	80S45-4	80S45-5	80S45-6	80S45-7
600	S	80S60-1	80S60-2	80S60-3	80S60-4	80S60-5	80S60-6	80S60-7
Series 80H "High Flow" 8" Diameter Side Port – 3" IPS Pipe Feed/Concentrate Ports, 1" NTP Female Permeate Port								
150	S	80H15-1	80H15-2	80H15-3	80H15-4	80H15-5	80H15-6	80H15-7
300	S	80H30-1	80H30-2	80H30-3	80H30-4	80H30-5	80H30-6	80H30-7
450	S	80H45-1	80H45-2	80H45-3	80H45-4	80H45-5	80H45-6	80H45-7
600	S	80H60-1	80H60-2	80H60-3	80H60-4	80H60-5	80H60-6	80H60-7
1000	S	80H100-1	80H100-2	80H100-3	80H100-4	80H100-5	80H100-6	80H100-7
1200	S	80H120-1	80H120-2	80H120-3	80H120-4	80H120-5	80H120-6	80H120-7
Series 80U "Ultra High Flow" 8" Diameter Side Port – 4" IPS Pipe Feed/Concentrate Ports, 1" NTP Female Permeate Port								
300	S	80U30-1	80U30-2	80U30-3	80U30-4	80U30-5	80U30-6	80U30-7
450	S	80U45-1	80U45-2	80U45-3	80U45-4	80U45-5	80U45-6	80U45-7
600	S	80U60-1	80U60-2	80U60-3	80U60-4	80U60-5	80U60-6	80U60-7

Please specify the element model and manufacturer when ordering to ensure the correct interface hardware is included.

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# CODELINE FRP PRESSURE VESSELS



## SPARE PARTS FOR 4" & 8" HOUSINGS

### Spare Parts for 40E Series 4" Dia. End Port

Description	40E30N-*	40E60-*	40E100-*
Head Assembly	94665	47533	47474
End Plug	96288	50420	n/a
Plug Seal	PV-OR40-342	PV-OR40-342	PV-OR40-342
Bearing Plate	n/a	n/a	47471
Seal Plate	n/a	n/a	50481
Permeate Port	n/a	n/a	47469
Permeate Port Seal	n/a	n/a	PV-OR40-120
Port Retainer	n/a	n/a	45244
Feed/Conc. Port	n/a	n/a	47472
Adapter Seal	PV-OR40-116	PV-OR40-114	PV-OR40-114
Retaining Ring	45260	45260	45260

### Spare Parts for 40S Series 4" Dia. Side Port

Description	40S30-*	40S45-*	40S60-*
Bearing Plate	96803	96803	96803
Sealing Plate	96855	96855	96855
Head Seal	PV-OR40-342	PV-OR40-342	PV-OR40-342
Permeate Port	96807	96807	96807
Permeate Port Seal	45335	45335	45335
Port Retainer	45242	45242	45242
Retaining Ring	45260	45260	45260
Adapter Seal	PV-OR40-116	PV-OR40-116	PV-OR40-116
End Plug	96287	96287	96287

### Spare Parts for 80E Series 8" Dia. End Port

Description:	80E30	80E45	80E60	80E100	80E120
Head Assembly	94002	94003	94004	94005	94006
Bearing Plate	51050	51051	51052	47317	47317
Sealing Plate	96003	96003	96003	96003	96003
Feed/Conc. Port	50607	50567	50567	50556	50556
Port Retainer	45247	45090	45090	45090	45090
Port Nut	n/a	45066	45066	45066	45066
Permeate Port	50608	50569	50569	50558	50558
Permeate Port Seal	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225
Head Seal	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD
Retaining Ring	47336	47336	47336	47336	47336
Adapter Seal	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124
Thrust Ring	45069	45069	45069	45069	45069

### Spare Parts for 80S Series 8" Dia. Side Port

Description	80S15	80S30	80S45	80S60	80S100	80S120
Bearing Plate	96156	96156	96157	96157	96158	96158
Sealing Plate	96160	96160	96160	96160	96160	96160
Permeate Port	96162	96162	96162	96162	96162	96162
Port Nut	45066	45066	45066	45066	45066	45066
Head Seal	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD
Permeate Port Seal	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225
Retaining Ring	47336	47336	47336	47336	47336	47336
Adapter Seal	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124
Thrust Cone	96163	96163	96163	96163	96163	96163

### Spare Parts for 80H & 80U "High-Flow" and "Ultra-High Flow" Series 8" Dia. Side Port

Description	80H15	80H30	80H45	80H60	80H100	80H102	80U30	80U45	80U60
Bearing Plate	96156	96156	96157	96157	96158	96158	96156	96157	96157
Sealing Plate	96159	96159	96159	96159	96159	96159	96159	96159	96159
Permeate Port	96161	96161	96161	96161	96161	96161	96263	96263	96263
Port Nut	45066	45066	45066	45066	45066	45066	45066	45066	45066
Head Seal	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD	PV-OR80-442-QD
Perm. Port Seal	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225	PV-OR80-225
Retaining Ring	47336	47336	47336	47336	47336	47336	47336	47336	47336
Adapter Seal	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124	PV-OR80-124
Thrust Cone	96163	96163	96163	96163	96163	96163	96163	96163	96163
Spacer	n/a	n/a	n/a	n/a	n/a	n/a	96262	96262	96262

Please contact us for information on spare parts not listed. Vessel model & serial number and/or membrane model may be required.

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# PROTEC FRP PRESSURE VESSELS



## 2.5" RO/UF/SEAWATER MEMBRANE HOUSINGS

### Description

Protec Arisawa PRO 2.5-1200-EP fiberglass membrane housings use a strong coated fiberglass suitable for seawater conditions. Protec FRP vessels are designed for continuous use housing membrane elements to purify waters including seawater at any positive pressure up to 1000 PSI.

Protec 2.5" seawater vessels are sold standard with end caps designed for direct connection to Applied Membranes and FilmTec/DOW 2.5x21 and 2.5x40 standard, male style elements with 3/4" product water tubes. Protec vessels may be adapted to accommodate any make of 2.5 - inch nominal diameter spiral-wound element as well as many hollow fiber elements.



### Configuration

- End port/End-Entry design
- End plug with retaining ring (included)

### Specifications

- **Maximum Operating Pressure:** 1,200 PSI (82 BAR)
- **Minimum Design Temperature:** 20°F (-6.7°C) @ 1,200 PSI (82 BAR)
- **Materials:** FRP/Fiberglass Shell, Acetal End Plugs, Stainless Steel Retaining Ring, Ethylene Propylene Seals

### Pressure Vessels


Model No.	For Membranes				Vessel Dimensions				Connection, FNPT		
	Dia.		Length		Od (Max)		Length		Feed	Brine	Prod
	in	cm	in	cm	in	cm	in	cm			
PV2521A1000E	2.5	6.4	21	53.3	3.8	9.7	25	63.5	1/4" FNPT	1/4" FNPT	1/4" FNPT
PV2540A1000E	2.5	6.4	40	101.6	3.8	9.7	44	111.8	1/4" FNPT	1/4" FNPT	1/4" FNPT

*Note: Fiberglass membrane pressure vessels sold complete with end plugs and end closure hardware & seals. Feed/brine port fittings & mounting components are not included.*

### Replacement Components

Part No.	Description	Qty. Per Vessel	Material
4020004	End Plug (Sold Each)	2	Acetal
6180116-N	PWT Seal (Sold Each)	4	Ethylene Polypropylene
6180330-N	Head Seal (Sold Each)	2	Ethylene Polypropylene
6144256	Retaining Ring, Head (Sold Each)	2	316 Stainless Steel

### High Pressure Feed/Brine Port Fittings (Not Included)

Model No.	Description	Qty. Needed Per Vessel	
8-4 FTX-SS	1/4" NPT x 1/2" Flare Fitting	2	
8CM4316	1/4" NPT x 1/2" Tube Fitting	2	

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## 4" RO/UF/SEAWATER MEMBRANE HOUSINGS

### Pressure Vessels for 4"×40" Membranes

These models are designed for continuous use housing membrane filtration elements to purify typical waters at any positive pressure up to 1000 PSI. The design will accommodate any make of four-inch nominal diameter spiral-wound element as well as many hollow fiber elements. The element interface hardware for the specified element is supplied with the vessel. The models have been designed to meet the standards of the American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code, Section X. At an additional cost, vessels can be inspected during fabrication by an ASME Authorized Inspector and Code stamped.

Pressure Rating (PSI)	Model Number – Per Length, in Number of 4"×40" Elements per Vessel					
	1 Membrane (Approx. 40" L)	2 Membranes (Approx. 80" L)	3 Membranes (Approx. 120" L)	4 Membranes (Approx. 160" L)	5 Membranes (Approx. 200" L)	6 Membranes (Approx. 240" L)
<b>End Port Pressure Vessels</b>						
300	PRO-4-300-EP-1	PRO-4-300-EP-2	PRO-4-300-EP-3	--	--	--
600	PRO-4-600-EP-1	PRO-4-600-EP-2	PRO-4-600-EP-3	PRO-4-600-EP-4	PRO-4-600-EP-5	PRO-4-600-EP-6
1000	PRO-4-1000-EP-1	PRO-4-1000-EP-2	PRO-4-1000-EP-3	PRO-4-1000-EP-4	PRO-4-1000-EP-5	PRO-4-1000-EP-6
<b>Side Port Pressure Vessels</b>						
300	PRO-4-300-SP-1	PRO-4-300-SP-2	PRO-4-300-SP-3	PRO-4-300-SP-4	PRO-4-300-SP-5	PRO-4-300-SP-6
450	PRO-4-450-SP-1	PRO-4-450-SP-2	PRO-4-450-SP-3	PRO-4-450-SP-4	PRO-4-450-SP-5	PRO-4-450-SP-6

Please note that vessels on this page are supplied with qty. (2) In/Out Ports. Additional or larger ports are not included in the price. Please specify the element model and manufacturer when ordering to ensure the correct interface hardware is included.

### Spare Parts for End Port Protec 4" Pressure Vessels

PRO-4-300-EP-*			PRO-4-600-EP-*			PRO-4-1000-EP-*		
Part No.	Description	Qty	Part No.	Description	Qty	Part No.	Description	Qty
4040084	Shell	1	3040007	Shell	1	3040008	Shell	1
4040087-1	End Plug, ½" NPT Feed	2	4040054-1	End Plug	2	4040011	Bearing Plate	2
4040088-1	End Plug, ¾" NPT Feed	2	4040060-1	Bearing Ring	2	4040012-1	Sealing Plate	2
4040079	Retaining Ring (w/ finger pull)	4	6150002	Screw, Bearing Ring	4	4040014-2	Feed/Conc. Port	2
PV-OR40-342	Head Seal	2	4040079	Retaining Ring (w/ finger pull)	2	6121100	Retaining Ring (F/C Port)	2
PV-OR40-116	Adapter Seal	2	PV-OR40-342	Head Seal	2	4040019-3	Clocking Tab	2
			PV-OR40-116	Adapter Seal	2	4040079	Retaining Ring (w/ finger pull)	2
						PV-OR40-342	Head Seal	2
						PV-OR40-114	Adapter Seal	2
						PV-OR40-120	Seal, F/C & Perm. Port	2

### Spare Parts for Side Port Protec 4" Pressure Vessels

PRO-4-300-SP-*			PRO-4-450-SP-*		
Part No.	Description	Qty	Part No.	Description	Qty
3040022	Shell	1	3040023	Shell	1
4040026	Bearing Plate	2	4040027	Bearing Plate	2
4040030-1	Sealing Plate	2	4040030-1	Sealing Plate	2
4040031-1	Feed/Conc. Port	A/R	4040031-1	Feed/Conc. Port	A/R
6120125	Retaining Ring, F/C Port	A/R	6120125	Retaining Ring, F/C Port	A/R
4040079	Retaining Ring (w/ finger pull)	2	4040079	Retaining Ring (w/ finger pull)	2
PV-OR40-342	Head Seal	2	PV-OR40-342	Head Seal	2
6110218-N	F/C Port Seal, Square	A/R	6110218-N	F/C Port Seal, Square	A/R
6110221-N	Permeate Port Seal, Sq.	2	6110221-N	Permeate Port Seal, Sq.	2
PV-OR40-116	Adapter Seal	2	PV-OR40-116	Adapter Seal	2

Please contact us for information on spare parts not listed. Vessel model & serial number and/or membrane model may be required.

### Mounting Accessories

#### Mounting Accessories for All 4" Protec Membrane Housings (Sold Separately)

Part No.	Description	Qty
4040040	Strap Assembly, Stainless Steel, 300 Series	2
4040037	Support Saddle, Polyurethane	2*
615001	Strap Screw, Stainless Steel, 300 Series	4

\*3 with each shell length -4 and longer



# PROTEC FRP PRESSURE VESSELS



## 8" RO/UF/SEAWATER MEMBRANE HOUSINGS

### Pressure Vessels for 8" x 40" Membranes

These models are designed for continuous use housing membrane filtration elements to purify waters at any positive pressure up to 1200 PSI. The design will accommodate any make of eight-inch nominal diameter spiral-wound element as well as many hollow fiber elements. The element interface hardware for the specified element is supplied with the vessel. The models have been designed to meet the standards of the American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code, Section X. At an additional cost, vessels can be inspected during fabrication by an ASME Authorized Inspector and Code stamped. Models with a PSI of 150-600 purify typical brackish waters while models with a PSI of 1000-1200 purify typical seawater.

Pressure Rating (PSI)	Model Number – Per Length, in Number of 8" x 40" Elements per Vessel						
	1 Membrane (40" L)	2 Membranes (80" L)	3 Membranes (120" L)	4 Membranes (160" L)	5 Membranes (200" L)	6 Membranes (240" L)	7 Membranes (280" L)
<b>End Port Pressure Vessels</b>							
300	PRO-8-300-EP-1	PRO-8-300-EP-2	PRO-8-300-EP-3	PRO-8-300-EP-4	PRO-8-300-EP-5	PRO-8-300-EP-6	PRO-8-300-EP-7
450	PRO-8-450-EP-1	PRO-8-450-EP-2	PRO-8-450-EP-3	PRO-8-450-EP-4	PRO-8-450-EP-5	PRO-8-450-EP-6	PRO-8-450-EP-7
600	PRO-8-600-EP-1	PRO-8-600-EP-2	PRO-8-600-EP-3	PRO-8-600-EP-4	PRO-8-600-EP-5	PRO-8-600-EP-6	PRO-8-600-EP-7
1000	PRO-8-1000-EP-1	PRO-8-1000-EP-2	PRO-8-1000-EP-3	PRO-8-1000-EP-4	PRO-8-1000-EP-5	PRO-8-1000-EP-6	PRO-8-1000-EP-7
1200	PRO-8-1200-EP-1	PRO-8-1200-EP-2	PRO-8-1200-EP-3	PRO-8-1200-EP-4	PRO-8-1200-EP-5	PRO-8-1200-EP-6	PRO-8-1200-EP-7
<b>Side Port Pressure Vessels</b>							
300	PRO-8-300-SP-1	PRO-8-300-SP-2	PRO-8-300-SP-3	PRO-8-300-SP-4	PRO-8-300-SP-5	PRO-8-300-SP-6	PRO-8-300-SP-7
450	PRO-8-450-SP-1	PRO-8-450-SP-2	PRO-8-450-SP-3	PRO-8-450-SP-4	PRO-8-450-SP-5	PRO-8-450-SP-6	PRO-8-450-SP-7
600	PRO-8-600-SP-1	PRO-8-600-SP-2	PRO-8-600-SP-3	PRO-8-600-SP-4	PRO-8-600-SP-5	PRO-8-600-SP-6	PRO-8-600-SP-7
100	PRO-8-1000-SP-1	PRO-8-1000-SP-2	PRO-8-1000-SP-3	PRO-8-1000-SP-4	PRO-8-1000-SP-5	PRO-8-1000-SP-6	PRO-8-1000-SP-7
1200	PRO-8-1200-SP-1	PRO-8-1200-SP-2	PRO-8-1200-SP-3	PRO-8-1200-SP-4	PRO-8-1200-SP-5	PRO-8-1200-SP-6	PRO-8-1200-SP-7

\*Please note that vessels on this page are supplied with qty. (2) 1.5" In/Out Ports. Additional or larger ports are not included in the price. Please specify the element model and manufacturer when ordering to ensure the correct interface hardware is included.

### Spare Parts for End Port Protec 8" Vessels

Part Description	For Protec Series No:					
	8-150-EP	8-300-EP	8-450-EP	8-600-EP	8-1000-EP	8-1200-EP
Bearing Plate	4080027	4080027	4080029	4080031	4080033	4080033
Adapter Seal	6110326-N	6110326-N	6110326-N	6110326-N	6110326-N	6110326-N
Sealing Plate	4080065-1	4080065-1	4080065-1	4080065-1	4080065-1	4080065-1
Feed/Concentrate Port	4080176-1	4080176-1	4080176-1	4080176-1	4080231	4080231
Retaining Ring, F/C Port	6121187	6121187	6121187	6121187	6121187	6121187
Feed/Concentrate Port Seal	6184604-N	6184604-N	6184604-N	6184604-N	6184604-N	6184604-N
Head Seal U-Cup	6168434	6168434	6168434	6168434	6168434	6168434
Head Seal Quad Seal	6100442MK	6100442MK	6100442MK	6100442MK	6100442MK	6100442MK
Permeate Port Seal	6110229-N	6110229-N	6110229-N	6110229-N	6110229-N	6110229-N
Retaining Ring w/ finger pull	4080080	4080320	4080320	4080320	4080320	4080320
Thrust Ring	4080043	4080043	4080043	4080043	4080043	4080043

### Spare Parts for Side Port Protec 8" Vessels

Part Description	For Protec Series No:					
	8-150-SP	8-300-SP	8-450-SP	8-600-SP	8-1000-SP	8-1200-SP
Bearing Plate	4080008	4080028	4080030	4080032	4080034	4080034
Adapter Seal	6110326-N	6110326-N	6110326-N	6110326-N	6110326-N	6110326-N
Sealing Plate U-Cup	4080177-3	4080177-3	4080177-3	4080177-3	4080177-2	4080177-2
Feed/Concentrate Port	4080250	4080250	4080250	4080257-1	4080234	4080234
Retaining ring F/C Port	6121187	6121187	6121187	6121187	6121187	6121187
Head Seal U-Cup	6168434	6168434	6168434	6168434	6168434	6168434
Head Seal Quad-Ring	6100442MK	6100442MK	6100442MK	6100442MK	6100442MK	6100442MK
Permeate Port Seal	6110229-N	6110229-N	6110229-N	6110229-N	6110229-N	6110229-N
Retaining Ring w/ Finger Pull	4080080	4080320	4080320	4080320	4080320	4080320

Please contact us for information on spare parts not listed. Vessel model & serial number and/or membrane model may be required.

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# PRESSURE VESSEL COMPONENTS


## MOUNTING ACCESSORIES

### Mounting Clamps for PVC 4" Pressure Vessels

Model No.	Description	
1949.040	Click-Lock Style Mounting Click Clamps #113 for 4" Dia. Vessel	
PV-STPVC40	Mounting Strap for 4" Dia. Pressure Vessel	
YCUP400*	Unistrut Clamp with bolt for 4" Dia. Vessels, Plated Metal	
YCUF400*	Unistrut Clamp with bolt for 4" Dia. Vessels, FRP	


\* Unistrut clamps are for mounting onto channel iron in a system frame.

### Mounting Clamps for Stainless Steel 2", 2.5" & 4" Pressure Vessels


Model No.	Description	
1949.005	Click-Lock Style Mounting Click Clamps #20 for 1/2" Dia. Pressure Vessel	
1949.007	Click-Lock Style Mounting Click Clamps #25 for 3/4" Dia. Pressure Vessel	
1949.010	Click-Lock Style Mounting Click Clamps #32 for 1/2" Dia. Pressure Vessel	
1945.015	Click-Lock Style Mounting Click Clamps #47 for 1 1/2" Dia. Pressure Vessel	
1949.020	Click-Lock Style Mounting Click Clamps #59 for 2" Dia. Pressure Vessel	
1949.025	Click-Lock Style Mounting Click Clamps #71 for 2 1/2" Dia. Pressure Vessel	
PV-ST40A-SS	Mounting Strap for 4" Dia. Vessel	
YCUP218-OD*	Unistrut Clamp with bolt for 2" Dia. SS, Plated Material	
YCUP258-OD*	Unistrut Clamp with bolt for 2.5" Dia. SS, Plated Material	
YCUP418-OD*	Unistrut Clamp with bolt for 4" Dia. SS, Plated Material	

\* Unistrut clamps are for mounting onto channel iron in a system frame.

### Mounting Straps and Saddle Pads for FRP 4" and 8" Pressure Vessels

Model No.	Description	
PV-SA40AEA	Saddle for All 4" Dia. SS, FRP or PVS Vessel, 1 each	
4040037	Support Saddle (1 pc.) for 4" Protec Housings	
4040040	Strap Assembly for 4" Protec Housings (Universal)	
4080173	Support Saddle (1 pc.) for 8" 150/300psi Protec Housings	
4080174	Support Saddle (1 pc.) for 8" 450/600psi Protec Housings	
4080175	Support Saddle (1 pc.) for 8" 1000/1200psi Protec Housings	
4080137	Strap Assembly for 8" Protec Housings (Universal)	
6150001	Screw for straps for 4" & 8" Protec Housings	
47459	Strap/Each for 4" CodeLine Housings (Universal)	
45058	Saddle/Each for 4" CodeLine Housings (Universal)	
52169	Saddle/Each for 8" CodeLine Housings (Universal)	
45042	Strap/Each for 8" CodeLine Housings (Universal)	
46265	Screw for straps for 8" CodeLine Housings	

### Membrane Extraction Tools and Channel Iron

Model No.	Description	
PV-EXT14	End Plug Extractor Tool for 1/4" NPT thread	
PV-EXT38	End Plug Extractor Tool for 3/8" NPT thread	

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# PRESSURE VESSEL COMPONENTS

## MEMBRANE INTERCONNECTOR COUPLERS

### Interconnectors for 4" Diameter Membrane Elements

Model No.	Description	For Membranes with Permeate Tube		Compatible with Membrane Manufacturer(s)	Seals Included (Can be ordered Separately using Part #'s Below)
		Size (Dia.)	Style		
PV-IN410	Standard Style Coupler	0.75" OD	Male	<ul style="list-style-type: none"> <li>• AMI</li> <li>• FilmTec</li> <li>• Hydranautics</li> <li>• Koch</li> <li>• Toray</li> </ul>	PV-OR40-210 (2)
PV-IN420	Flush-Cut Style Coupler	0.625" ID	Flush	<ul style="list-style-type: none"> <li>• AMI</li> <li>• Desal</li> <li>• Koch</li> </ul>	PV-OR40-014 (4)
PV-IN440	Full-Fit Style Coupler	0.75" OD	Full-Fit	<ul style="list-style-type: none"> <li>• FilmTec</li> </ul>	PV-OR40-210 (2)



### Interconnectors for 8" Diameter Membrane Elements

Model No.	Description	For Membranes with Permeate Tube		Compatible with Membrane Manufacturer(s)	Seals Included (Can be ordered Separately using Part #'s Below)
		Size (Dia.)	Style		
PV-IN810	FilmTec Standard Tube Membrane Coupler for Brackish & Seawater Elements	1.125" ID	Flush	FilmTec	PV-OR80-912 (2)
PV-IN811LE	FilmTec Large Tube Membrane Coupler for Brackish & Seawater Elements	1.5" ID	Flush	FilmTec	PV-OR80-218 (2)
PV-IN810LE	FilmTec Step-Down Coupler for use between Std-Tube & Large-Tube Membrane Elements	1.125" ID to 1.5" ID	Flush	FilmTec	PV-OR80-912 (2) PV-OR80-218 (1)
PV-IN880	FilmTec Full-Fit Membrane Coupler	1.125" ID	Full-Fit	FilmTec	PV-OR80-912 (2)
PV-IN870	Hydranautics Brackish Membrane Coupler	1.125" ID	Flush	Hydranautics	PV-OR80-912 (2)
PV-IN870S	Hydranautics Seawater Membrane Coupler	1.125" ID	Flush	Hydranautics	PV-OR80-912 (2)
PV-IN830	Koch Membrane Coupler	1.125" ID	Flush	Koch	PV-OR80-912 (2)
PV-IN840	Toray Standard Tube Membrane Coupler	1.125" ID	Flush	Toray	PV-OR80-912 (2)
PV-IN841L	Toray Large Tube Membrane Coupler	1.5" ID	Flush	Toray	PV-OR80-218 (2)



PV-IN810