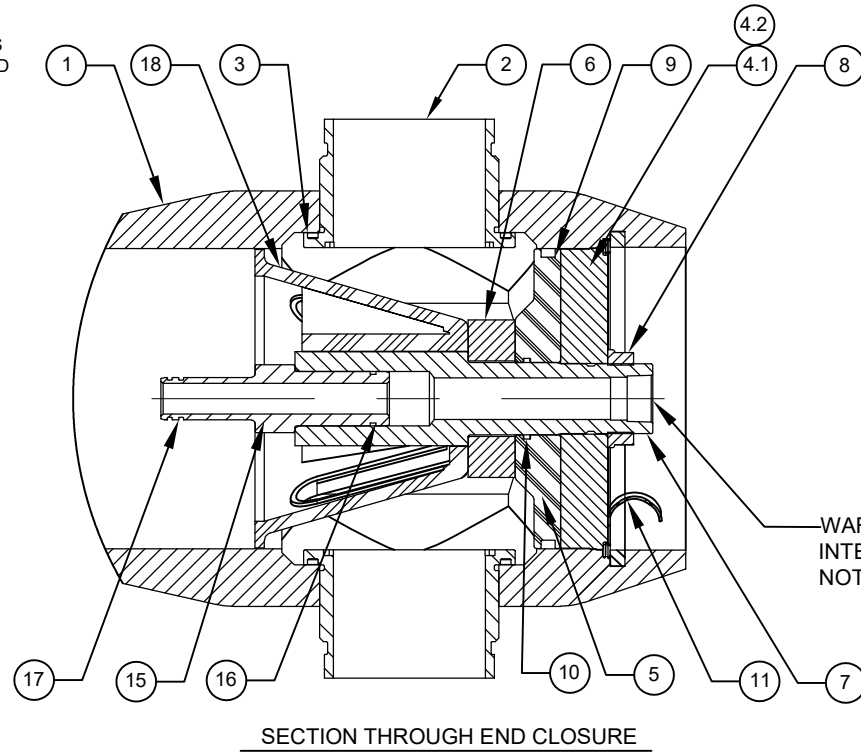


VIEW AT CENTER SUPPORT  
CENTER VESSEL ON 2 OR 3 SUPPORTS  
AT SPAN(S) "S" : 3 SUPPORTS REQUIRED  
FOR LENGTHS -4 AND ABOVE



PORT SIZE CODE	
G	3" GROOVED END
I	4" GROOVED END

CAUTION: INCORRECT MANIFOLDING  
WILL CAUSE SEVERE LOCAL STRESS  
AROUND PORT AND MAY RESULT IN  
LEAKS AND PREMATURE FAILURE;  
TAKE EVERY PRECAUTION LISTED  
ON REVERSE, SEE INSTALLATION  
INSTRUCTIONS FOR FURTHER DETAILS

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1*	1	99245	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
2*	A/R	A/R	F/C Port	SA-351 CF3M
3	A/R	A/R	F/C Port Seal	Ethylene Propylene
HEAD				
4	2	194473	Bearing Plate Assembly	-
4.1*	1	96157	Bearing Plate	SB-221 A96061-T6
4.2	1	97045	Danger Label	-
5	2	96159	Sealing Plate	Engineering Thermoplastic.
6	2	96262	Spacer	Engineering Thermoplastic.
7	2	96263	Permeate Port	Engineering Thermoplastic.
8	2	45066	Port Nut	Engineering Thermoplastic.
9	2	196223	Head Seal	Ethylene Propylene - O - Ring
10	2	196215	Perm Port Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
11*	2	47336	Quick Release Retaining Ring	SA-479 316
VESSEL SUPPORT				
12	2*	52169	Saddle	Engineering Thermoplastic.
13	2*	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
14	4**	46265	Strap screw.	5/16-18 UNC,2.5"L, 18-8 Stainless Steel.
ELEMENT INTERFACE				
15	2	A/R	Adapter	Engineering Thermoplastic.
16	2	196222	Adapter seal	Ethylene Propylene - O - Ring
17	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
18	1	96163	Thrust Cone	Engineering Thermoplastic.

\* 3 & \*\*6 each furnished with length code 4,5,6,7&8.


#### GENERAL NOTES:

1. MAX. ANGULAR VARIATION BETWEEN ANY PORT  $\pm 0.5^\circ$ .
  2. DIMENSION IN INCHES (MM APPROX.).
  3. SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
  4. ITEM 18 DOWNSTREAM ONLY.
  5. NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED BY PENTAIR.
- # 600 PSI FOR METALLIC PERMEATE PORT. FOR OPTIONAL PART NUMBERS, REFER PAGE 3.  
\* ASME PARTS.  
\*\* WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

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 <b>PENTAIR CODELINE</b>				VERNA, GOA INDIA	
DRAWN BY:	KR	DRAWING DESCRIPTION:	MODEL - 80U60 MEMBRANE HOUSING	DRAWING NO.:	99186
DATE:	11JAN07			REV.:	AE
CHECKED BY:	MD	CUSTOMER NAME:	-	VESSEL MODEL:	
DATE:	11JAN07			80U60	
APPROVED BY:	PSC	PROJECT NAME:	-	TOTAL QTY:	
DATE:	11JAN07			-	
ECN NO.:	7007	CUSTOMER P.O.#:	-	SIZE:	A3
REV. DATE:	28JAN25			SCALE:	NONE
				PAGE NO.:	01 OF 03

RATING:

DESIGN PRESSURE/MAWP.....	600 PSI (4.14 MPa)
MAX. ALLOWABLE TEMP.....	190°F (88°C)
MIN. ALLOWABLE TEMP.....	20°F (-7°C)
FACTORY TEST PRESSURE.....	660 PSI (4.55 MPa)
QUALIFICATION PRESSURE .....	3600 PSI (24.82 MPa)

INTENDED USE:

The CodeLine 80U60 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 600 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine 80U60 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) Section X Edition 2023. F/C port, Bearing plate and Quick release spiral ring are designed as per ASME Section VIII Division I Edition 2023.  
At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80U60 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 Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass 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.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:

- DO...read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
- DO...mount the shell on horizontal members at span “S” using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
- DO...align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
- DO...use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
- DO...provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
- DO...provide overpressure protection for vessel set at not more than 105% of design pressure
- DO...inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
- DO... Lubricate seals sparingly, using nonpetroleum based lubricants, i.e. Glycerin or suitable lubricants.

- DO NOT...work on any component until first verifying that pressure is relieved from vessel
- DO NOT...make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;  
\*\*\*ΔDIA = 0.015 in. (0.4mm) and  
\*\*\*ΔL = 0.2 in. (5mm) for a length code –8 vessel
- DO NOT... hang piping manifolds from ports or use vessel in any way to support other components
- DO NOT...tighten Permeate Port connection more than one turn past hand tight
- DO NOT... operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
- DO NOT...install Spacer on downstream end of vessel
- DO NOT...operate vessel without Thrust Cone installed downstream
- DO NOT...pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
- DO NOT...operate vessel at pressure and temperature in excess of its rating.
- DO NOT...operate vessel with permeate pressure in excess of 125 psi at 190°F (0.86 Mpa at 88°C).
- DO NOT...tolerate leaks or allow end closures to be routinely wetted in any way
- DO NOT...operate outside the pH range 3-11.
- DO NOT...operate outside the pH range 2-12 for cleaning.
- DO NOT...exceed 43.2 hours in a year for cleaning with above mentioned pH range.

For complete information on proper use of the vessel please refer to the 80U Series USER’S GUIDE 94315

ORDERING:

Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80U60 ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6 ☐ -7 ☐ -8

MEMBRANE BRAND AND MODEL

- ☐ Please supply adapters for the following membrane brand and specific model  
Brand \_\_\_\_\_ Model \_\_\_\_\_

CERTIFICATION REQUIRED

- ☐ Hydro testing at 1.1 times the design pressure.  
☐ ASME Stamped and National Board Registered.  
☐ In compliance with the ASME Section X, but not Code Stamped  
☐ CE Marked – MODULE-D1, CATEGORY-2

ADAPTER KITS	
UP STREAM	DOWN STREAM

PERMEATE PORT SELECTION

Serial Number End

Size of the Permeate Port	<input type="checkbox"/> 1”	<input type="checkbox"/> 1.25”	<input type="checkbox"/> 1.5”
Type of Connection	<input type="checkbox"/> FNPT	<input type="checkbox"/> MNPT	<input type="checkbox"/> BSPTM <input type="checkbox"/> BSPTF <input type="checkbox"/> IPSG <input type="checkbox"/> BSPPF <input type="checkbox"/> BSPPM
Material of Construction	<input type="checkbox"/> Noryl	<input type="checkbox"/> SS316L	<input type="checkbox"/> Zeron 100

Non Serial Number End

Size of the Permeate Port	<input type="checkbox"/> 1”	<input type="checkbox"/> 1.25”	<input type="checkbox"/> 1.5”
Type of Connection	<input type="checkbox"/> FNPT	<input type="checkbox"/> MNPT	<input type="checkbox"/> BSPTM <input type="checkbox"/> BSPTF <input type="checkbox"/> IPSG <input type="checkbox"/> BSPPF <input type="checkbox"/> BSPPM
Material of Construction	<input type="checkbox"/> Noryl	<input type="checkbox"/> SS316L	<input type="checkbox"/> Zeron 100

Note:

- Refer to Page 3 for available permeate port options.

STRAP ASSEMBLY

- ☐ SS304 ☐ SS316 ☐ SS316L

FEED/CONCENTRATE PORT SELECTION

Material of Construction	<input type="checkbox"/> CF3M	<input type="checkbox"/> Duplex SS (CD3MN)	<input type="checkbox"/> Super Duplex SS (CD3MWCuN)
--------------------------	-------------------------------	--	---

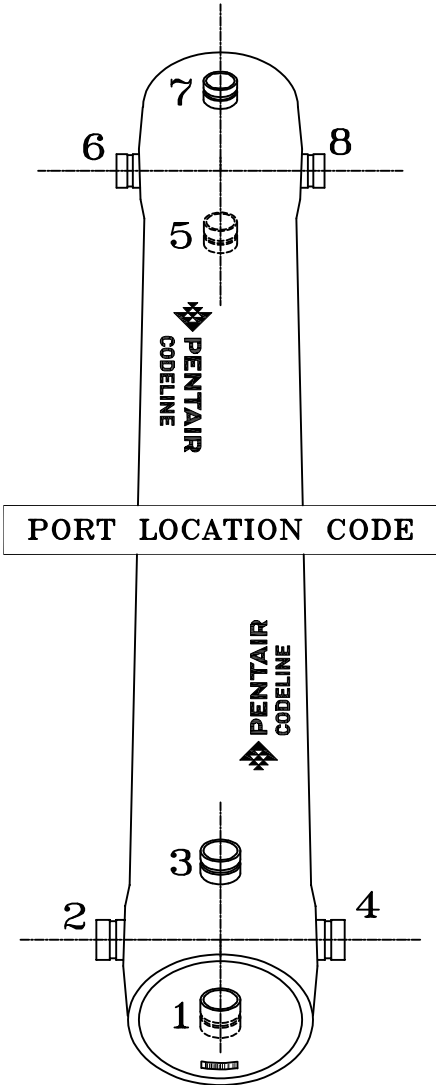
Configuration

- ☐ CF3M 115I
- ☐ Multi port:  
Ports not available in 90° configurations.

Serial number end	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Opposite end	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

BEARING PLATE MATERIAL

- ☐ A96061 T6 Aluminium  
☐ Stainless Steel 316L



Serial Number End

CODELINE BODY LABELS ARE PLACED AT 90° ON SERIAL NUMBER END AND AT 270° ON THE OPPOSITE SIDE END

GENERAL NOTES:

1. REFER PAGE-3 FOR OPTIONAL PART NUMBERS.

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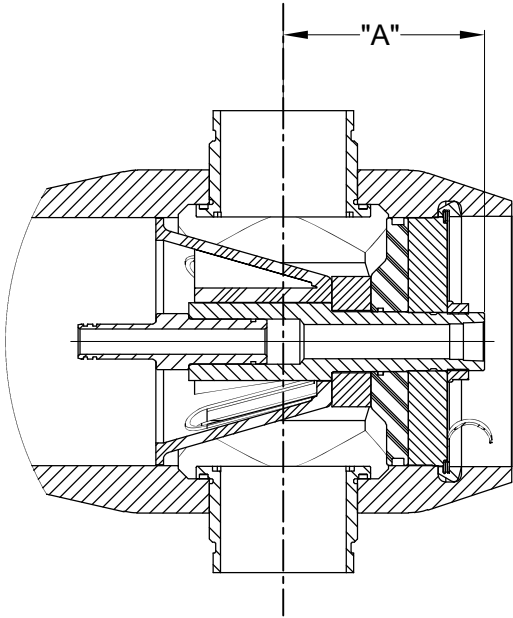
**PENTAIR**  
**CODLINE**

VERNA, GOA  
INDIA

DRAWN BY: DATE:	KR 11JAN07	DRAWING DESCRIPTION: MODEL - 80U60 MEMBRANE HOUSING	DRAWING NO.: 99186	REV.: AE
CHECKED BY: DATE:	MD 11JAN07	CUSTOMER NAME: -	VESSEL MODEL: 80U60	
APPROVED BY: DATE:	PSC 11JAN07	PROJECT NAME: -	TOTAL QTY: -	
ECN NO.:	7007	CUSTOMER P.O.#:	SIZE: A3	SCALE: NONE
REV. DATE:	28JAN25	-		PAGE NO.: 02 OF 03

F/C PORT <sup>++</sup> & SEAL PART NUMBER				
SIZE	*CF3M	**CD3MN	***CD3MWCuN	SEAL
4"	96266	96884	96647	196228
3"	96567	97443	96659	196141

STRAP ASSEMBLY PART NUMBERS		
SS 304	SS 316	SS 316L
45042	46926 <sup>+</sup>	94371 <sup>+</sup>



SECTION THROUGH END CLOSURE

PERM PORT RETAINER RING & PORT NUT PART NUMBERS			
1.0" / 1.25"	Standard Port nut	Engineering Thermoplastic	45066
1.5"	Port Retainer Ring	Stainless Steel	45247

<sup>++</sup> BEARING PLATE PART NUMBERS		
PERMEATE PORT SIZE	ALUMINIUM	SS F316L ###
1.0"/1.25"	194473	195203
1.5	194504	195204

PERMEATE PORT PART NUMBERS & PERMPORT TO F/C PORT OFFSET DISTANCE															
SIZE	MATERIAL	FNPT		MNPT		BSPTF		BSPTM		IPS GROOVED		BSPPF		BSPPM	
		PART NUMBER	DIM "A"	PART NUMBER	DIM "A"	PART NUMBER	DIM "A"	PART NUMBER	DIM "A"	PART NUMBER	DIM "A"	PART NUMBER	DIM "A"	PART NUMBER	DIM "A"
1.0"	NORYL	96263	6.8	97411	7.8	97414	6.8	97417	7.8	97420	8.1	96772	6.8	196824	7.8
	SS 316L # #	97410	6.8	97412	7.8	97415	6.8	97418	7.8	97421	8.1	NA	NA	NA	NA
	#ZERON 100	97296	6.8	97413	7.8	97416	6.8	97419	7.8	97422	8.1	NA	NA	NA	NA
1.25"	NORYL/PET	NA	NA	97467	7.8	NA	NA	97425	7.8	97428	8.1	NA	NA	NA	NA
	SS 316L # #	NA	NA	97423	7.8	NA	NA	97426	7.8	97429	8.1	NA	NA	NA	NA
	#ZERON 100	NA	NA	97424	7.8	NA	NA	97427	7.8	97430	8.1	NA	NA	NA	NA
1.5"	NORYL/PET	NA	NA	97431	7.4	NA	NA	97434	7.4	97437	8.0	NA	NA	NA	NA
	SS 316L # #	NA	NA	97432	7.4	NA	NA	97435	7.4	97438	8.0	NA	NA	NA	NA
	#ZERON 100	NA	NA	97433	7.4	NA	NA	97436	7.4	97439	8.0	NA	NA	NA	NA

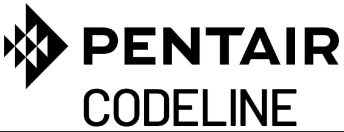
GENERAL NOTES:

- DIMENSIONS IN INCHES (MM APPROX.).
- \* GRADE SA-351 CF3M.
  - \*\* GRADE SA-995 CD3MN (UNS J92205).
  - \*\*\* GRADE SA-995 CD3MWCuN (UNS J93380)
  - # GRADE SA-479 UNS S32760/S32750
  - ## GRADE SA-479 316L
  - ### GRADE SA-182 F316L
  - + OPTIONAL STRAP ASSEMBLY WITH SS-316 & 316L SHALL BE SUPPLIED AS PER METRIC STANDARDS.
  - ++ ASME PARTS.

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INDIA

DRAWN BY:	KR	DRAWING DESCRIPTION:	DRAWING NO.:	REV.:
DATE:	11JAN07	MODEL - 80U60 MEMBRANE HOUSING	99186	AE
CHECKED BY:	MD	CUSTOMER NAME:	VESSEL MODEL:	
DATE:	11JAN07	-	80U60	
APPROVED BY:	PSC	PROJECT NAME:	TOTAL QTY:	
DATE:	11JAN07	-	-	
ECN NO.:	7007	CUSTOMER P.O.#:	SIZE:	SCALE:
REV. DATE:	28JAN25	-	A3	NONE
				PAGE NO.:
				03 OF 03