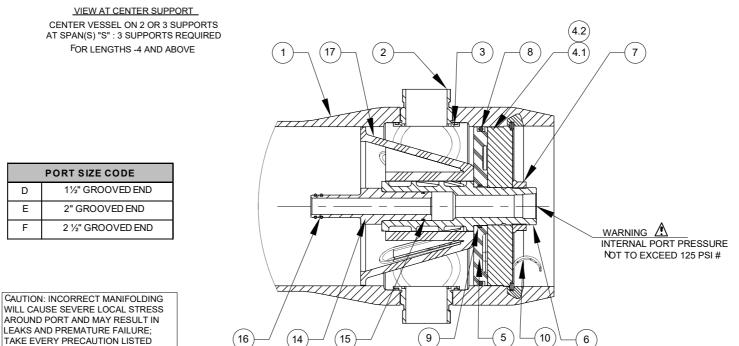


DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL		
REF NUMBER SHELL						
1	1	99220	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.		
2	A/R	A/R	F/C Port	SA-995 (UNS J93380) CD3MWCuN		
3	A/R	A/R	F/C Port Seal	Ethylene Propylene		
			HEAD			
4	2	194454	Bearing Plate Assembly	-		
4.1	1	96158	Bearing Plate	SB-221 A96061-T6		
4.2	1	96168	Danger Label	-		
5	2	96160	Sealing Plate	Engineering Thermoplastic.		
6	2	96162	Permeate Port	Engineering Thermoplastic.		
7	2	45066	Port Nut	Engineering Thermoplastic.		
8	2	96000	Head Seal	Ethylene Propylene - O - Ring		
9	2	45312	Perm Port Seal	Ethylene Propylene - O - Ring		
			HEAD INTERLO	оск		
10	2	47336	Quick Release Spiral Ring	SA-479 316		
			VESSEL SUPPO	ORT		
11	2+	52169	Saddle	Engineering Thermoplastic.		
12	2*	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.		
13	4**	46265	Strap screw.	5/16-18 UNC,2.5"- L,18-8 Stainless Steel.		
			ELEMENT INTER	FACE		
14	2	A/R	Adapter	Engineering Thermoplastic.		
15	2	52245	Adapter seal	Ethylene Propylene - O - Ring		
16	4	A/R	PWT Seal	Ethylene Propylene - O - Ring		
17	1	96163	Thrust Cone	Engineering Thermoplastic.		



NO. OF PORTS PORT LOCATION VESSEL QTY **Approx** Dash S Weight Length IN(MM) IN(MM) IN(MM) LB(KG)* 19X1 145 63.15 (1604)(1194)(483)(66)167 103.15 87 56X1 -2 (2620)(2210)(1422)(76)196 143.15 127 80X1 -3 (3636)(3226)(2032)(89)231 183.15 167 64X2 -4 (4242)(4652)(1626)(105)258 223.15 207 78X2 (5668)(5258)(1981)(117)324 263.15 247 92X2 -6 (6684)(6274)(2337)(147)106X2 346 303.15 287 -7 (7700)(7290)(2692)(157)370 343.15 327 120X2 -8 (8716)(8306)(3048)(168)

GENERAL NOTES:

- 1. MAX. ANGULAR VARIATION BETWEEN ANY PORT ±0.5°.
- 2. DIMENSION IN INCHES (MM APPROX.).
- 3. SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.

 $^{+}3$ & $^{++}6$ each furnished with length code 4,5,6,7 & 8.

- 4. ITEM 17 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.
- ** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

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SECTION THROUGH END CLOSURE

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ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

	CODELINE	V ERNA, GOA INDIA
	D RAWING DESCRIPTION:	DRAWING NO.:
1	MODEL - 80S100 MEMBRANE HOUSING	99163
	CUSTOMER NAME:	VESSEL MODEL:

D RAWING DESCRIPTION:	DRAWING N	0.: R EV	
MODEL - 80S100 MEMBRANE H	MODEL - 80S100 MEMBRANE HOUSING		
CUSTOMER NAME:	VESSEL MODEL:		
-	80S100		
P ROJECT NAME:		_	TOTAL QTY:
-			-
CUSTOMER P.O.#:	S IZE:	S CALE:	P AGE NO.:
-	A3	NONE	01 OF 03
	MDDEL - 80S100 MEMBRANE HI CUSTOMER NAME: PROJECT NAME:	MODEL - 80S100 MEMBRANE HOUSING CUSTOMER NAME: - PROJECT NAME: - CUSTOMER P.O.#: S IZE:	MDDEL - 80S100 MEMBRANE HOUSING 99163



Headquarter: 54/18 Bui Quang La, Ward 12, Go Vap District, HCMC, Vietnam **Office:** 77 DHT10B, Dong Hung Thuan Ward, District 12, HCMC, Vietnam

Phone: (028) 6258 5368 - (028) 6291 9568 Email: info@atswatertechnology.com Website: www.atswatertechnology.com

RATING:

DESIGN PRESSURE	1000 PSIG
	(6.90 MPa)
MAX. OPERATING TEMP	150°F
	(66°C)
MIN. OPERATING TEMP	20°F
	(-7°C)
FACTORY TEST PRESSURE.	
	1500 PSIG/1100 PSIG
	(10.34 MPa)/ (7.58 MPa)
QUALIFICATION PRESSURE	
	(41.37 MPa)

INTENDED USE:

The CodeLine 80S100 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical sea waters at pressures up to 1000 psi. Any make of eightinch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine 80S100 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X Edition 2021. F/C Port, Bearing Plate, and Quick release spiral ring are Designed as per ASME Section VIII Division I Edition 2021.

At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80S100 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;
 - *** Δ DIA = 0.015 in. (0.4mm) and
 - *** Δ L = 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 150°F (0.86 Mpa at 66° 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.

For complete information on proper use of the vessel please refer to the 80S Series USER'S GUIDE 94182

ORDERING:

Using the chart below, please check the features you require

VESSEL LENGTH CODE - please check one

MODEL 80S100 □ -1 □ -2 □ -3 □ -4 □ -5 □ -6 □ -7 □ -8

MEMBRANE BRAND AND MODEL

Please suppl	y adapters for the following membrane brand and specific mode
Brand	Model

CERTIFICATION REQUIRED

- $\hfill \Box$ Hydro testing at 1.5 times the design pressure.
 - ☐ CE Marked.
- ☐ 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

ADAPT	ADAPTER KITS			
UP STREAM	DOWN STREAM			

PERMEATE PORT SELECTION

'amia1	Number	End

Size of the Permeate Port	□ 1"	□ 1.25"	□ 1.5"				
Type of Connection	□ FNPT	\square MNPT	\square BSPTM	□ BSPTF	□ IPS GRO	OVED 🗆 TE	RICLOVER
Material of Construction	□ Norvi	□ SS316	[. □ Zeron 1	00			

Non Serial Number End

Type of Connection \square FNPT \square MNPT \square BSPTM \square BSPTF \square IPS GROOVED \square TRICLOVER

Note:

- Standard offering is 1.0" FNPT in Noryl.
- 1.25" & 1.5" BSPTF, 1.25" & 1.5" FNPT and 1.25" TRI-COLVER connections cannot be offered
- TRI-CLOVER permeate port cannot be offered in Noryl

STRAP ASSEMBLY

□ SS304	□ SS316		

FEED/CONCENTRATE PORT SELECTION

Material of Construction	☐ Super Duplex SS (CD3MWCuN)
	☐ CE3MN* (Cannot be offered for ASME Stamped vessels

Configuration

CD3MWCuN 1D5D

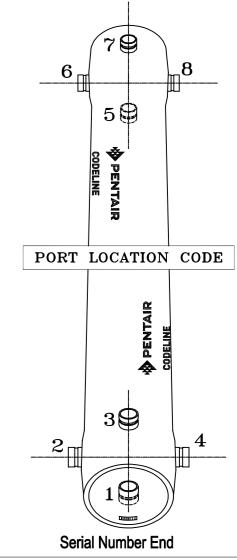
☐ Multı port:		
1.5", 2", 2.5"	Ports not available in	90° configurations.

Serial number end

Opposite end

BEARING PLATE MATERIAL

- ☐ A96061 -T6 Aluminum
- ☐ Stainless Steel 316L



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

GENERAL NOTES:

1. PLEASE REFER TO $\overline{99376}$ FOR TRICLOVER DETAILS AND REFER PAGE-3 FOR OPTIONAL PART NUMBERS.

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		PENTA CODELIN		VERNA, GO INDIA	DA	
RAWN BY:	RA	DRAWING DESCRIPTION:	DRAWING NO.:		REV.	
ATE:	15/09/21	MODEL - 80S100 MEMBRANE H	OUSING	99163	3	AB
CHECKED BY:	KPS	CUSTOMER NAME:	VESSEL MOD	EL:		
ATE:	15/09/21	-		808	100	
PPROVED BY:	FF	PROJECT NAME:			TOTAL	QTY:
ATE:	15/09/21	-			.	-
CN NO.:	5940	CUSTOMER P.O.#:	SIZE:	SCALE:	PAGE	NO.:
ATE:	13/01/22	-	A3	NONE	02 C	F 03

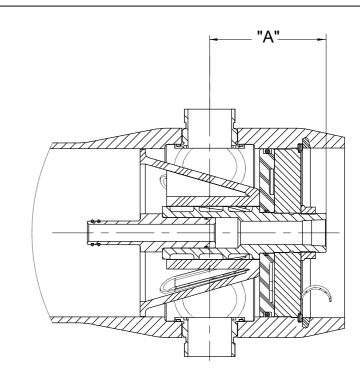
BEARING PLATE PART NUMBERS						
PERMEATE PORT SIZE	ALUMINIUM	SS F316L ###				
1.0"/1.25"	194454	194516				
1.5"	194485	194547				

SEALING PLATE PART NUMBERS				
Standard used for Aluminium BP	96160			
Optional used for SS F316L BP	96477			

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				

STRAP ASSEMBLY PART NUMBERS						
SS304	SS316	SS316L				
45042	46926 ⁺	94371+				

F/C PORT & SEAL PART NUMBER						
SIZE	***CD3MWCuN	**CE3MN	SEAL			
1.5"	96469	96725	96077			
2.0"	96645	96907	96078			
2.5"	96385	96954	96079			



SECTION THROUGH END CLOSURE

		PERMEA	TE PORT P	ART NUMBE	RS & PERM	MPORT TO F	C PORT O	FFSET DISTA	NCE		
		FNPT		MNPT		BSPTF		BSPTM		IPS GROOVED	
SIZE	MATERIAL	PART		PART		PART		PART		PART	
		NUMBER	DIM "A"	NUMBER	DIM "A"	NUMBER	DIM "A"	NUMBER	DIM "A"	NUMBER	DIM "A"
	NORYL	96162	5.5	97659	6.5	96301	5.5	97660	6.5	97661	6.8
1.0"	SS 316L ##	96752	5.5	97347	6.5	97351	5.5	97355	6.5	97322	6.8
	#ZERON 100	97349	5.5	97348	6.5	97352	5.5	97356	6.5	97293	6.8
	NORYL	NA	NA	97655	6.5	NA	NA	97360	6.5	97662	6.8
1.25"	SS 316L ##	NA	NA	96487	6.5	NA	NA	97362	6.5	97311	6.8
	#ZERON 100	NA	NA	97359	6.5	NA	NA	97363	6.5	97365	6.8
1.5"	NORYL	NA	NA	97663	6.1	NA	NA	97369	6.1	97656	6.7
	SS 316L ##	NA	NA	97368	6.1	NA	NA	97371	6.1	97449	6.7
	#ZERON 100	NA	NA	97292	6.1	NA	NA	97372	6.1	97374	6.7

GENERAL NOTES:

- DIMENSIONS IN INCHES (MM APPROX.).
- ** GRADE SA-995 (UNS-J93404) CE3MN.
 CE3MN cannot be offered for ASME Stamped vessels.
- ***GRADE SA-995 CD3MWCuN (J 93380) # GRADE SA-479 UNS S32760/S32750
- ## GRADE SA-479 316L
- ### GRADE SA-479 316L ### GRADE SA-182 F316L
- + OPTIONAL STRAP ASSEMBLY WITH SS-316 & 316L SHALL BE SUPPLIED AS PER METRIC STANDARDS.

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		PENTA CODELIN		VERNA, GO INDIA	DA .	
DRAWN BY:	RA	DRAWING DESCRIPTION:		DRAWING NO).:	RE\
DATE:	15/09/21	MODEL - 80S100 MEMBRANE H	OUSING	99163	3	AE
CHECKED BY:	KPS	CUSTOMER NAME:		VESSEL MOD		
DATE:	15/09/21	-		808	3100	
APPROVED BY:	FF	PROJECT NAME:			TOTAL	QTY
DATE:	15/09/21	-				-
ECN NO.:	5940	CUSTOMER P.O.#:	SIZE:	SCALE:	PAGE	NO.:
DATE:	13/01/22	-	A3	NONE	03 O	F 03



Headquarters: 54/18 Bui Quang La, Ward 12, Go Vap District, HCMC, Viet Nam Office: 12 DHT10B, Dong Hung Thuan Ward, District 12, HCMC, Viet Nam Phone: (028) 6258 5368 - (028) 6291 9568

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