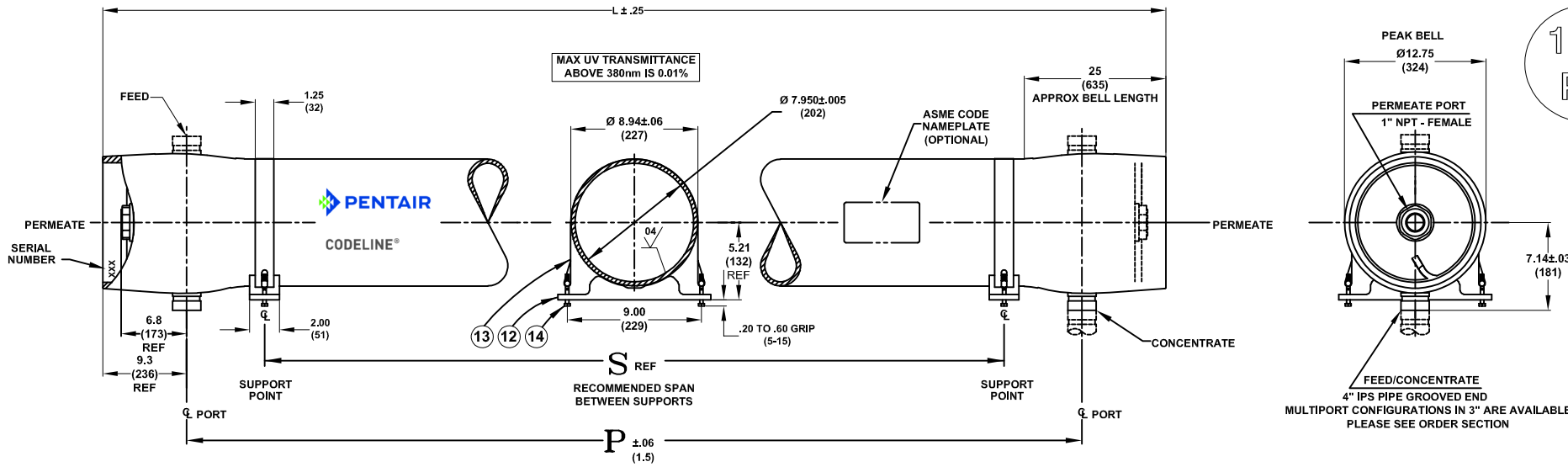
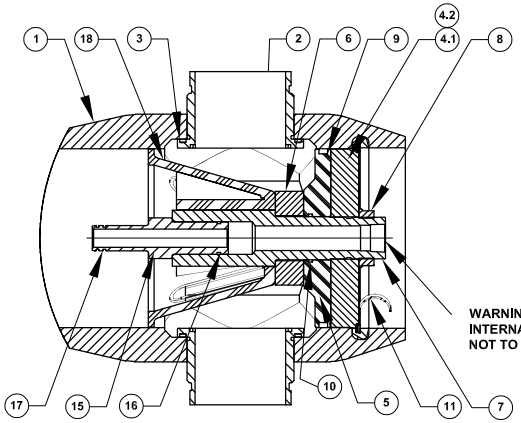


DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
1	1	200049	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
2	A/R	A/R	F/C Port	SA-995 (J93380) CD3MWCuN
3	A/R	A/R	F/C Port Seal	Ethylene Propylene
			HEAD	
4	2	194476	Bearing Plate Assembly	-
4.1	1	96158	Bearing Plate	SB-221 A96061-T6
4.2	1	98803	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	96000	Head Seal	Ethylene Propylene - O - Ring
10	2	45312	Perm Port Seal	Ethylene Propylene - O - Ring
			HEAD INTERLOCK	
11	2	47336	Quick Release Spiral 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	52245	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.

VIEW AT CENTER SUPPORT

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



SECTION THROUGH END CLOSURE

WARNING ⚠
INTERNAL PORT PRESSURE NOT TO EXCEED 125 PSI #

NOTES:-
- ♦MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- ♦DIMENSION IN INCHES (MM APPROX.)
- ♦SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- ♦ITEM 18 DOWNSTREAM ONLY.
- ♦NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- # 600 PSI FOR METALLIC PERMPORTS FOR OPTIONAL PART NUMBERS. REFER PAGE 3.
- ** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

PORT CONFIGURATION DETAILS	
PORT CONFIG	VESSEL QUANTITY

PO NUMBER	
CUSTOMER NAME	
PROJECT NAME	
TOTAL QUANTITY	

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON PAGE 2, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	66.65 (1693)	48 (1219)	10X1 (254)	264 (120)
-2	106.65 (2709)	88 (2235)	50X1 (1270)	301 (137)
-3	146.65 (3725)	128 (3251)	80X1 (2032)	338 (153)
-4	186.65 (4741)	168 (4267)	64X2 (1626)	374 (170)
-5	226.65 (5757)	208 (5283)	78X2 (1981)	411 (186)
-6	266.65 (6773)	248 (6299)	92X2 (2337)	448 (203)
-7	306.65 (7789)	288 (7315)	106X2 (2692)	485 (220)
-8	346.65 (8805)	328 (8331)	120X2 (3048)	522 (237)

PENTAIR
CODELINE®

MODEL - 80U120
MEMBRANE HOUSING

DRAWN DATE	YPS 04MAY17	ECN 5394	DWG. NO. 99188 REV. G
CHECKED DATE	KPS 04MAY17	DATE 22MAY20	SCALE NONE SIZE B SHEET 1OF 3
APPROVED DATE	MKS 04MAY17		

RATING:

DESIGN PRESSURE……...1200 PSIG (8.27 MPa)
MAX. OPERATING TEMP……..……150°F (66°C)
MIN. OPERATING TEMP……..……..…...20°F (-7°C)
FACTORY TEST PRESSURE……..CE / ASME 1800PSIG/1320 PSIG (12.41MPa)/ (9.10 MPa)
QUALIFICATION PRESSURE ….....7200 PSI (49.64 MPa)

INTENDED USE:

The CodeLine 80U120 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 1200 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 80U120 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 2019. F/C port, Bearing plate and Quick release spiral ring are designed as per Section VIII Division I Edition 2019.
At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80U120 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 150°F (0.86 Mpa at 66^0C).
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 80U Series USER'S GUIDE 94182.

ORDERING:

Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80U120 ☐ -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 Sec X, but not Code Stamped

☐ Hydro testing at 1.5 times the design pressure.
☐ CE Marked.

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT SELECTION

Serial Number End

Size of the Permeate Port ☐ **1"** ☐ 1.25" ☐ 1.5"
Type of Connection ☐ **FNPT** ☐ MNPT ☐ BSPTM ☐ BSPTF ☐ IPS GROOVED
Material of Construction ☐ **Noryl** ☐ SS316L ☐ Zeron 100

Non Serial Number End

Size of the Permeate Port ☐ **1"** ☐ 1.25" ☐ 1.5"
Type of Connection ☐ **FNPT** ☐ MNPT ☐ BSPTM ☐ BSPTF ☐ IPS GROOVED
Material of Construction ☐ **PET/Noryl** ☐ SS316L ☐ Zeron 100

Note:

- Standard offering is 1.0" FNPT in Noryl.
- 1.25" & 1.5" BSPTF, 1.25" & 1.5" FNPT connections cannot be offered

STRAP ASSEMBLY

☐ **SS304** ☐ SS316 ☐ SS316L

FEED/CONCENTRATE PORT SELECTION

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

Configuration ☐ **–1 I 5 I**
☐l –Multi port: (Refer PAGE 3 for 3"-4" for Multi ports selection). Ports not available in 90º configurations.

Serial number end ☐☐☐☐☐☐☐☐
Opposite end ☐☐☐☐☐☐☐☐

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

BEARING PLATE MATERIAL

☐ **– A96061 T6 Aluminium**

☐ – Stainless Steel 316L

Note: Refer page-3 for optional Part numbers.

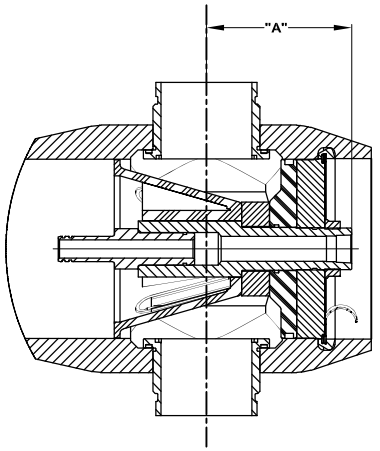
BEARING PLATE PART NUMBERS		
PERMEATE PORT SIZE	ALUMINIUM	SSF316L ###
1.0"/1.25"	**194476**	194538
1.5"	194507	194569

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

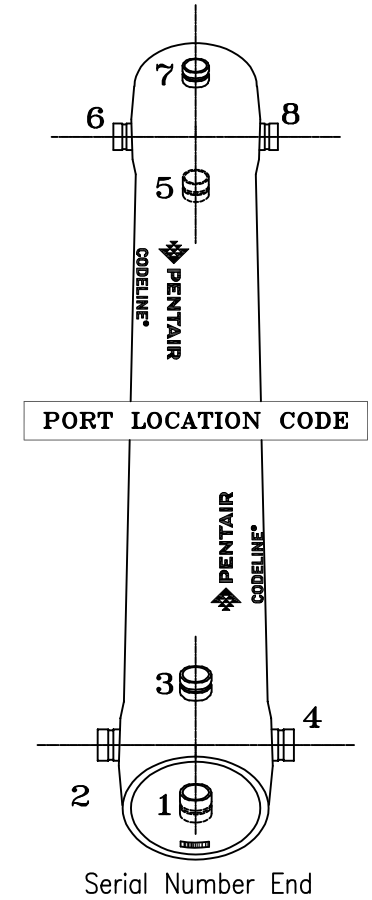
SEALING PLATE PART NUMBERS	
Standard used for Aluminium BP	**96159**
Optional used for SS316L BP	97404

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

F/C PORT & SEAL PART NUMBER			
SIZE	***CD3MWCuN	**CE3MN	SEAL
4"	**96648**	98813	**96265**
3"	97860	97996	98621



SECTION THROUGH END CLOSURE



Serial Number End

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

PERMEATE PORT PART NUMBERS & PERMPORT TO F/C PORT OFFSET DISTANCE											
SIZE	MATERIAL	FNPT		MNPT		BSPTF		BSPTM		IPS GROOVED	
		PART NUMBER	DIM "A"	PART NUMBER	DIM "A"	PART NUMBER	DIM "A"	PART NUMBER	DIM "A"	PART NUMBER	DIM "A"
1.0"	PET/NORYL	**96263**	6.8	97411	7.8	97414	6.8	97417	7.8	97420	8.1
	SS316L # #	97410	6.8	97412	7.8	97415	6.8	97418	7.8	97421	8.1
	#ZERON 100	97296	6.8	97413	7.8	97416	6.8	97419	7.8	97422	8.1
1.25"	PET/NORYL	NA	NA	97467	7.8	NA	NA	97425	7.8	97428	8.1
	SS316L # #	NA	NA	97423	7.8	NA	NA	97426	7.8	97429	8.1
	#ZERON 100	NA	NA	97424	7.8	NA	NA	97427	7.8	97430	8.1
1.5"	PET/NORYL	NA	NA	97431	7.4	NA	NA	97434	7.4	97437	8.0
	SS316L # #	NA	NA	97432	7.4	NA	NA	97435	7.4	97438	8.0
	#ZERON 100	NA	NA	97433	7.4	NA	NA	97436	7.4	97439	8.0

NOTES

DIMENSION IN INCHES (MM APPROX.)
** GRADE SA-995 (UNS J93404) CE3MN
*** GRADE SA-995 (UNS J93380) CD3MWCuN
# GRADE SA-479 UNS S32760 / S32750
GRADE SA-479 SS-316L
GRADE SA-182 SS-F316L
+ OPTIONAL STRAP ASSEMBLY WITH SS-316 & 316L SHALL BE SUPPLIED AS PER METRIC STANDARDS

PENTAIR
CODELINE®

DRAWN	YPS 04MAY17	MODEL - 80U120 MEMBRANE HOUSING			
CHECKED	KPS 04MAY17	DATE 22MAY20	DWG. NO. 99188		REV. G
APPROVED	MKS 04MAY17	ECN 5394	SCALE NONE	SIZE A3	SHEET 3 OF 3