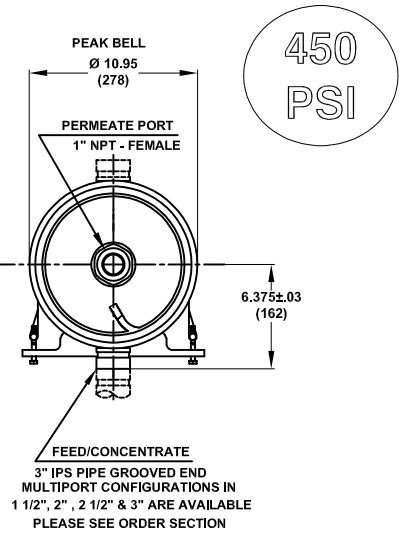
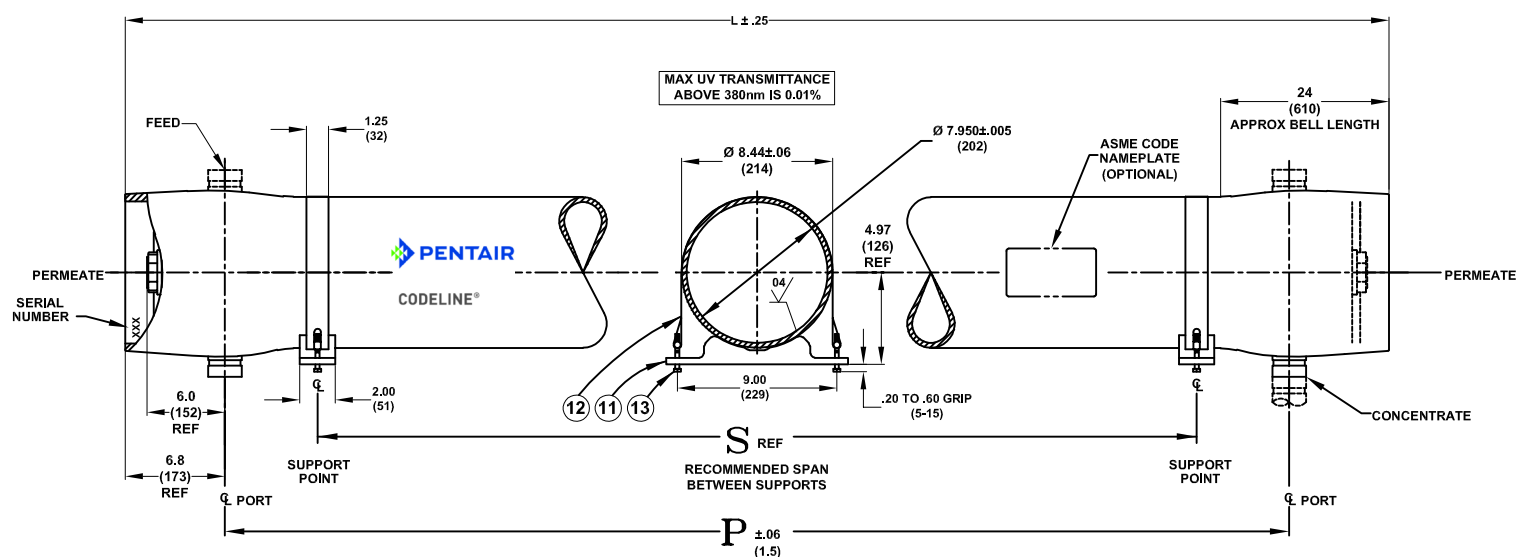
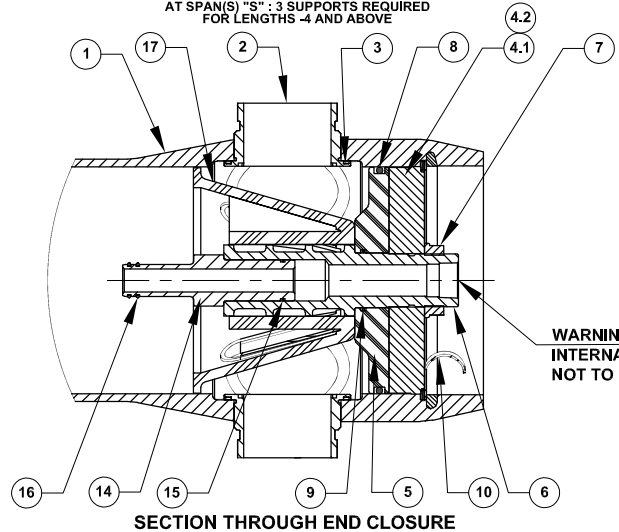


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450  
PSI

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



**WARNING** ⚠  
INTERNAL PORT PRESSURE  
NOT TO EXCEED 125 PSI #

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
<b>SHELL</b>				
1	1	99273	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
<b>HEAD</b>				
4	2	194688	Bearing Plate Assembly	-
4.1	1	194610	Bearing Plate	SB-108 A03560-T6
4.2	1	196121	Danger Label	-
5	2	96159	Sealing Plate	Engineering Thermoplastic.
6	2	96161	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
<b>HEAD INTERLOCK</b>				
10	2	47336	Quick Release Spiral Ring	SA-479 316
<b>VESSEL SUPPORT</b>				
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.
<b>ELEMENT INTERFACE</b>				
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.

**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.  
 ♦ NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.  
 ♦ ITEM 17 DOWNSTREAM ONLY.  
 ♦ FOR OPTIONAL PART NUMBERS. REFER PAGE 3.  
 # 450 PSI FOR METALLIC PERMPORTS.  
 \*\* WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION

PORT CONFIGURATION DETAILS	
PORT CONFIG	VESSEL QUANTITY

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	60.75 (1543)	47 (1194)	8X1 (203)	91 (41)
-2	100.75 (2559)	87 (2210)	48X1 (1219)	111 (50)
-3	140.75 (3575)	127 (3226)	80X1 (2032)	131 (59)
-4	180.75 (4591)	167 (4242)	64X2 (1626)	152 (69)
-5	220.75 (5607)	207 (5258)	78X2 (1981)	172 (78)
-6	260.75 (6623)	247 (6274)	92X2 (2337)	192 (87)
-7	300.75 (7639)	287 (7290)	106X2 (2692)	215 (98)
-8	340.75 (8655)	327 (8306)	120X2 (3048)	235 (107)

PO NUMBER \_\_\_\_\_  
 CUSTOMER NAME \_\_\_\_\_  
 PROJECT NAME \_\_\_\_\_  
 TOTAL QUANTITY \_\_\_\_\_

DRAWN DATE	AND DATE
CHECKED DATE	MD DATE
APPROVED DATE	SS DATE

**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**

**CODELINE®**  
 MODEL - 80H45  
 MEMBRANE HOUSING

ECN 5300	DWG. NO. 99167	REV. AA
DATE 22JAN2020	SCALE NONE	SIZE A3
SHEET 1 OF 3		

4 3 2 1

**RATING:**

DESIGN PRESSURE.....450 PSIG  
(3.1 MPa)  
 MAX. OPERATING TEMP.....190°F  
(88°C)  
 MIN. OPERATING TEMP.....20°F  
(-7°C)  
 FACTORY TEST PRESSURE.....CE / ASME  
675 PSIG/ 495 PSIG  
(4.65 MPa)/(3.41 MPa)  
 QUALIFICATION PRESSURE .....2700 PSI  
(18.62 MPa)

**INTENDED USE:**

The CodeLine 80H45 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 450 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 80H45 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 80H45 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

\*\*\*AL = 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.

For complete information on proper use of the vessel Please refer to the 80H Series USER’S GUIDE 94182.

**ORDERING:**

Using the chart below, please check the features you require

**VESSEL LENGTH CODE – please check one**

MODEL 80H45  -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  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  CF3M  Duplex SS (CD3MN)  
 Super Duplex SS (CD3MWCuN)

Configuration  - CF3M 1G5G

- Multi port: (Refer SPEC.SHEET/PM/1.5”-3” for Multi ports selection).  
Ports not available in 90° configurations.

Serial number end

Opposite end

**BEARING PLATE MATERIAL**

- A03560 T6 Aluminium
- A96061 T6 Aluminium
- Stainless Steel 316L

**Note:** Refer page-3 for optional Part numbers.

PORT SIZE CODE	
D	1½” GROOVED END
E	2” GROOVED END
F	2½” GROOVED END
G	3” GROOVED END

4

3

2

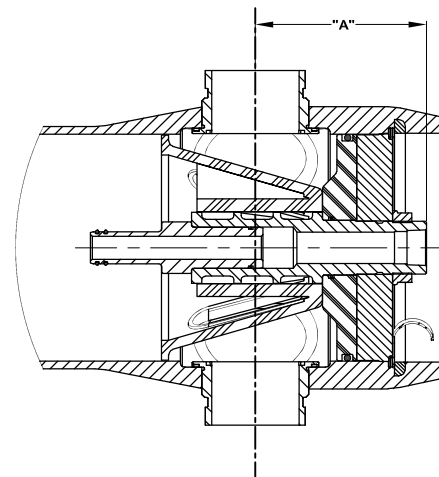
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BEARING PLATE PART NUMBERS			
ALUMINIUM			
PERMEATE PORT SIZE	SB-108 UNS 03560-T6	SB-221 UNS A96061-T6	SS F316L ###
1.0"/1.25"	194688	194462	194524
1.5"	-	194493	194555

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

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

STRAP ASSEMBLY PART NUMBERS		
SS304	SS316	SS316L
45042	46926 <sup>+</sup>	94371 <sup>+</sup>



SECTION THROUGH END CLOSURE

F/C PORT & SEAL PART NUMBER				
SIZE	*CF3M	**CD3MN	***CD3MWCuN	SEAL
3"	97852	97903	97856	98621
2.5"	97851	97902	97855	96079
2.0"	97850	97901	97854	96078
1.5"	97849	97900	97853	96077

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"	NORYL	96161	6.0	97378	7.0	97664	6.0	97384	7.0	97689	7.2
	SS316L # #	97247	6.0	97379	7.0	97382	6.0	97385	7.0	97388	7.3
	#ZERON 100	97295	6.0	97380	7.0	97383	6.0	97386	7.0	97389	7.3
1.25"	NORYL	NA	NA	97665	7.0	NA	NA	97666	7.0	97667	7.2
	SS316L # #	NA	NA	97390	7.0	NA	NA	97392	7.0	97167	7.3
	#ZERON 100	NA	NA	97391	7.0	NA	NA	97393	7.0	97395	7.3
1.5"	NORYL	NA	NA	97668	6.6	NA	NA	97399	6.6	97669	7.2
	SS316L # #	NA	NA	97397	6.6	NA	NA	97400	6.6	97448	7.2
	#ZERON 100	NA	NA	97398	6.6	NA	NA	97401	6.6	97403	7.2

## NOTES

DIMENSION IN INCHES (MM APPROX.)

\* GRADE SA-351 CF3M

\*\* GRADE SA-995 (UNS-J92205) CD3MN

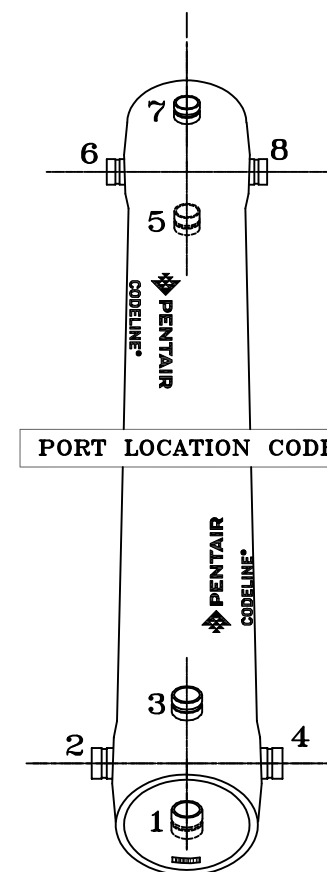
\*\*\* GRADE SA-995 (J 93380) CD3MWCuN

# GRADE SA-479 UNS S3271860 / S32750

##GRADE SA-479 SS-316L

###GRADE SA-182 SS-F316L

+ OPTIONAL STRAP ASSEMBLY WITH SS316 &amp; 316L MATERIAL SHALL BE SUPPLIED AS PER METRIC STANDARDS



PORT LOCATION CODE

Serial Number End

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

DRAWN	KPS 16 OCT 10	MODEL - 80H45 MEMBRANE HOUSING			
CHECKED	RD 16 OCT 10	ECN 5300	DWG. NO. 99167	REV. AA	
APPROVED	RM 16 OCT 10	DATE 22JAN2020	SCALE NONE	SIZE A3	SHEET 3 OF 3

4

3

2

1

B

B

A

A