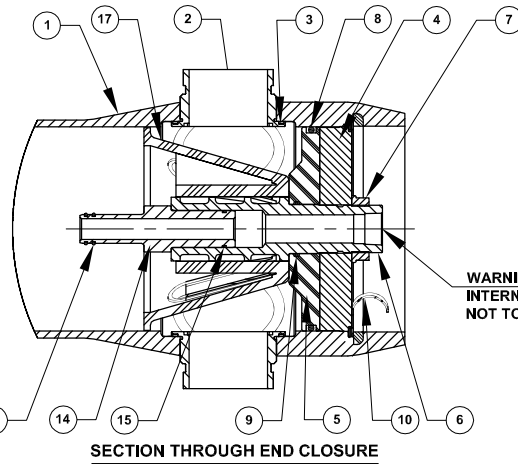


VIEW AT CENTER SUPPORT
 CENTER VESSEL ON 2 OR 3 SUPPORTS
 AT SPAN(S) "S" : 3 SUPPORTS REQUIRED
 FOR LENGTH 4 AND ABOVE



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 17 DOWNSTREAM ONLY.
 - ◆ NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
 - ◆ FOR OPTIONAL PART NUMBERS, REFER PAGE 3.
 - ◆ F/C PORT, BEARING PLATE, PERMEATE PORT & QUICK RELEASE SPIRAL RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.
- # 300 PSI FOR METALLIC PERMPORTS
 ** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

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 | 99222 | SHELL | Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place. |
| 2 | A/R | | F/C Port | CF3M as per SA-351 |
| 3 | A/R | | F/C Port Seal | Ethylene Propylene |
| HEAD | | | | |
| 4 | 2 | 96156 | Bearing Plate | 6061-T6 as per SB-221 |
| 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 |
| HEAD INTERLOCK | | | | |
| 10 | 2 | 47336 | Quick Release Spiral Ring | SS 316 as per SA-479 |
| VESSEL SUPPORT | | | | |
| 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 INTERFACE | | | | |
| 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. |

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

| |
|----------------|
| PO NUMBER |
| CUSTOMER NAME |
| PROJECT NAME |
| TOTAL QUANTITY |

| PORT CONFIGURATION DETAILS | |
|----------------------------|-----------------|
| PORT CONFIG | VESSEL QUANTITY |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| DRAWN DATE | PGS 02 SEP 05 |
| CHECKED DATE | MD 02 SEP 05 |
| APPROVED DATE | RM 02 SEP 05 |

| Dash Length | L IN(MM) | P IN(MM) | S IN(MM) | Approx Weight LB(KG) |
|-------------|---------------|------------|--------------|----------------------|
| -1 | 60.15 (1528) | 47 (1194) | 8X1 (203) | 64 (29) |
| -2 | 100.15 (2544) | 87 (2210) | 48X1 (1219) | 79 (36) |
| -3 | 140.15 (3560) | 127 (3226) | 80X1 (2032) | 93 (42) |
| -4 | 180.15 (4576) | 167 (4242) | 64X2 (1626) | 108 (49) |
| -5 | 220.15 (5592) | 207 (5258) | 78X2 (1981) | 123 (56) |
| -6 | 260.15 (6608) | 247 (6274) | 92X2 (2337) | 137 (62) |
| -7 | 300.15 (7624) | 287 (7290) | 106X2 (2692) | 152 (69) |
| -8 | 340.15 (8640) | 327 (8306) | 120X2 (3048) | 167 (76) |

PENTAIR
CODELINE®

MODEL - 80H30
MEMBRANE HOUSING

| | | |
|--------------|----------------|----------------------|
| ECN 4624 | DWG. NO. 99166 | REV. AA |
| DATE 20DEC17 | SCALE NONE | SIZE A3 SHEET 1 OF 3 |

RATING:

| | |
|------------------------------|--|
| DESIGN PRESSURE..... | 300 PSIG (2.07 MPa) |
| MAX. OPERATING TEMP..... | 190°F (88°C) |
| MIN. OPERATING TEMP..... | 20°F (-7°C) |
| FACTORY TEST PRESSURE..... | CE / ASME 450 PSIG/330 PSIG (3.1 MPa) (2.27 MPa) |
| QUALIFICATION PRESSURE | 1800 PSI (12.4 MPa) |

INTENDED USE:

The CodeLine 80H30 Fiberglass RO Pressure Vessel is designed for continuous, long term use as a housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 300 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 80H30 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. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80H30 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. Parker Super O-lube®, Glycerin or suitable silicone based 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. (6mm) 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 80H30 -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 Standard.
 - Certified by Pentair .

| 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

- Standard SS304 Optional SS316 Optional SS316L

FEED/CONCENTRATE PORT SELECTION

- Material of Construction Standard CF3M Optional Duplex SS (CD3MN)
 Optional Super Duplex SS (CD3MWCuN)

- Configuration Standard - CF3M 1G5G
 Optional – Multi ports :(Refer SPEC.SHEET/PM/1.5"-3"for Multi port selection)
Ports not available in 90° configurations.

- Serial number end
- Opposite end

BEARING PLATE MATERIAL

- Standard – 6061 T6 Aluminium
- Optional – Stainless Steel 316L

Note: Refer page-3 for optional Part numbers.

4

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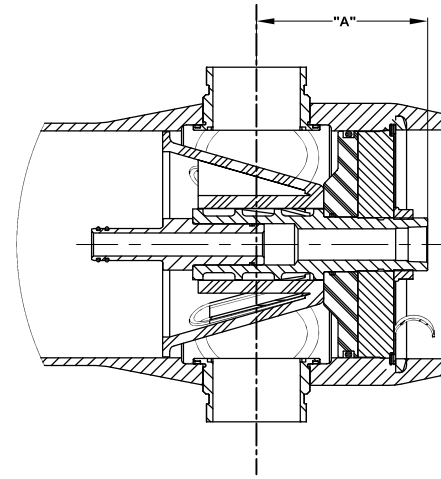
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| BEARING PLATE PART NUMBERS | | |
|----------------------------|-----------|--------------|
| PERMEATE PORT SIZE | ALUMINIUM | SS F316L ### |
| 1.0"/1.25" | 96156 | 97346 |
| 1.5" | 96879 | 97350 |

| 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 ⁺ | 94371 ⁺ |



SECTION THROUGH END CLOSURE

| F/C PORT & SEAL PART NUMBER | | | | |
|-----------------------------|-------|---------|--------------|-------|
| SIZE | *CF3M | **CD3MN | ***CD3MW/CuN | 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 CF3M AS PER SA-351.

** GRADE CD3MN AS PER SA-995 (UNS-J92205).

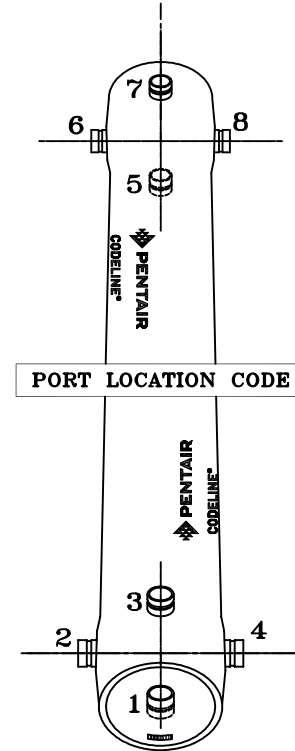
*** GRADE CD3MWCuN AS PER SA-995 (J 93380).

GRADE ZERON 100 AS PER SA-479.

GRADE SS-316L AS PER SA-479.

GRADE SS-F316L AS PER SA-182.

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



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

PENTAIR
CODELINE®

| | | | | | |
|----------|-----|-----------------------------------|----------|------|--------|
| DRAWN | KPS | MODEL - 80H30 MEMBRANE HOUSING | | | |
| CHECKED | RD | DATE | DWG. NO. | REV. | |
| | | 16 OCT 10 | 99166 | AA | |
| APPROVED | RM | 20DEC17 | SCALE | SIZE | SHEET |
| | | 16 OCT 10 | NONE | A3 | 3 OF 3 |
| | | ECN 4624 | | | |

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B

B

A

A