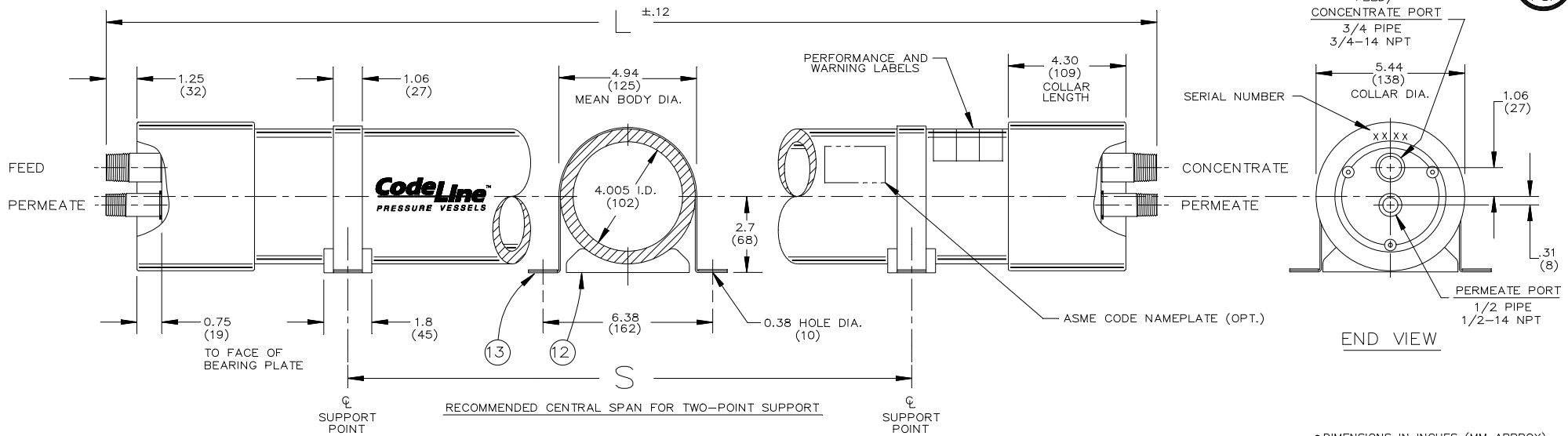
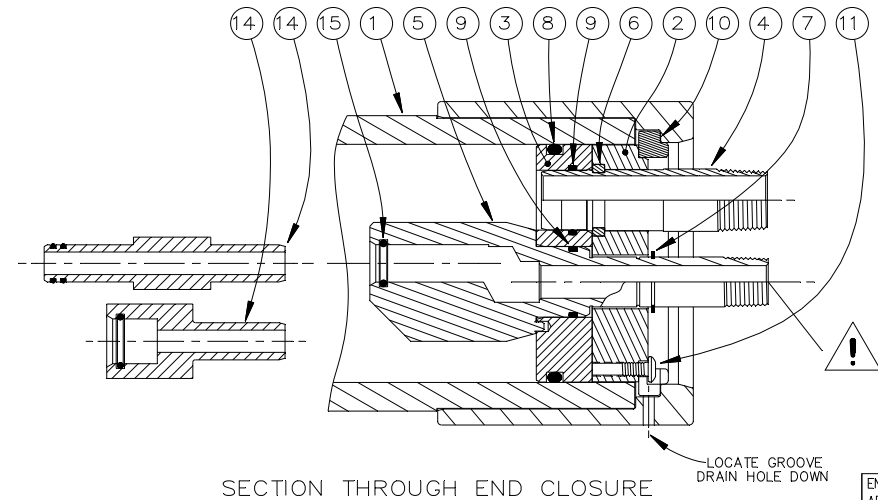


1000  
PSI



• DIMENSIONS IN INCHES (MM APPROX)  
• NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED

| Dwg. Ref.          | Qty. Per | Item Number | Description        | Materials/Remarks  |
|--------------------|----------|-------------|--------------------|--|
| SHELL              |          |             |                    |  |
| ①                  | 1        |             | Shell              | Filament wound epoxy/glass composite with retainer groove formed by adhesive-bonded 6061-T6 hd. anod. Al. alloy collar |
| END PLUG ASSY      |          |             |                    |  |
| ②                  | 2        | 50480       | Bearing Plate      | 6061-T6 hard anodized Al. alloy  |
| ③                  | 2        | 50481       | Sealing Plate      | PVC Thermoplastic  |
| ④                  | 2        | 50484       | Feed/Conc Port     | Superaustenitic stainless steel - 6% moly.   |
| ⑤                  | 2        | 50325       | Permeate Port      | PVC Thermoplastic  |
| ⑥                  | 2        | 50489       | Port Retainer Set  | Type 316 SST-2 identical pieces per set  |
| ⑦                  | 2        | 45244       | Retaining Ring     | Ph 15-7 Mo SST   |
| ⑧                  | 2        | 45317       | Plug Seal          | Ethylene propylene O-Ring  |
| ⑨                  | 4        | 45299       | Port Seal          | Ethylene propylene O-Ring  |
| END PLUG INTERLOCK |          |             |                    |  |
| ⑩                  | 2        | 50488       | Plate Retainer Set | 6061-T6 hd. anod. - 3 distinct pieces/set  |
| ⑪                  | 6        | 45019       | Buttonhead Screw   | 18-8 SST with thread lock patch  |
| VESSEL SUPPORT     |          |             |                    |  |
| ⑫                  | 2        | 45058       | Saddle             | Cast urethane elastomer  |
| ⑬                  | 2        | 50327       | Strap              | Type 304 SST - PVC cushion   |
| ELEMENT INTERFACE  |          |             |                    |  |
| ⑭                  | 2        | * AS REQ.   | Adapter            | Engineering Thermoplastic  |
| ⑮                  | 2        | 45294       | Adapter Seal       | Ethylene propylene O-Ring  |
| FOR REFERENCE ONLY |          |             |                    |  |



SECTION THROUGH END CLOSURE

! INTERNAL PORT PRESSURE MUST NOT EXCEED 125 PSI

| Shell Length Code | L L.O.A. IN (MM) | S Span IN (MM)        | Empty Weight LB (KG) |
|-------------------|------------------|-----------------------|----------------------|
| 1                 | 55.0 (1397)      | 28 - 31 (711-787)     | 35 (16)              |
| 2                 | 95.0 (2413)      | 51 - 55 (1295-1397)   | 54 (25)              |
| 3                 | 135.0 (3429)     | 73 - 78 (1854-1981)   | 73 (33)              |
| 4                 | 175.0 (4445)     | 95 - 101 (2413-2565)  | 92 (42)              |
| 5                 | 215.0 (5461)     | 117 - 124 (2972-3150) | 111 (50)             |
| 6                 | 255.0 (6477)     | 140 - 148 (3556-3759) | 130 (59)             |

**STRUCTURAL GROUP**

|                  |                             |              |        |               |
|------------------|-----------------------------|--------------|--------|---------------|
| ENGR AP 25JUN99  | CODELINE MODEL U4S          |              |        |               |
| QLTY RAU 15JUL99 | SEAWATER RO PRESSURE VESSEL |              |        |               |
| MRKT DWE 30JUN99 | ECO 89799                   | SHEET 1 OF 1 | SIZE B | NUMBER 504002 |
|                  |                             |              |        | REV H         |

**RATING:**

DESIGN PRESSURE..... 1000 PSI at 120°F  
(6.9 MPa at 49°C)  
 MIN. OPERATING TEMP..... 20°F  
(-7°C)  
 FACTORY TEST PRESSURE..... 1500 PSI  
(10.3 MPa)  
 BURST PRESSURE..... 6000 PSI  
(41.4 MPa)

**INTENDED USE**

The CodeLine Model U4S Seawater 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 1000 psi. Any make of 4-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine Model U4S is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME Code). At small additional cost, vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine Model U4S must be installed, operated and maintained in accordance with the precautions listed, and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the 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 end plug.

Structural Group 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 materials 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 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 shell with drain holes down on horizontal members at central span "S" using compliant vessel supports furnished; tighten holddown straps just snug
- 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 NOT... make rigid piping connections to ports or clamp vessel in any way that restricts growth of fiberglass shell under pressure; at design pressure  
▲ DIA = 0.001 in. (0.25mm) and ▲ = 0.2 in. (5mm) for a length code -6 vessel
- DO NOT... hang piping manifolds from ports or use vessel in any way to support other components
- DO NOT... operate vessel at pressures and temperatures in excess of its rating
- DO NOT... operate vessel without both permeate ports internally connected with a complete set of elements and interconnecting hardware
- DO NOT... operate vessel with permeate port pressure in excess of 125 psi at 120°F(0.9 Mpa at 49°C)
- DO NOT... tolerate leaks or allow end closures to be routinely wetted in any way
- DO NOT... pressurize vessel until double checking to verify that all three segments of Plate Retainer Set are in place and secured by all three screws at both ends.
- DO NOT... work on any component until first verifying that pressure is relieved from the vessel

**NOTE**

5/32 in. hex key required to open and close vessel.

**ORDERING**

Please specify the following:

- VESSEL MODEL NUMBER built from table of options below
- MEMBRANE ELEMENT MAKE AND MODEL NUMBER
- SPECIFIC CONCERNS regarding INTENDED USE and requests for SPECIAL MATERIALS of CONSTRUCTION

A vessel model number specifies a complete assembly less element interface components. The required interface components are furnished with the vessel but are specified separately.

Membrane elements and between-element connectors (interconnectors) are furnished by membrane element manufacturer.

U4S- □ W- □ □ □ - □ ■

CODELINE MODEL U4S  
Fiberglass RO Pressure Vessel  
4" Nominal Diameter  
1000 PSI Design Pressure

SHELL LENGTH  
Length per code number corresponding to number of elements that can be contained

| Code | Element Capacity |   |
|------|------------------|---|
| -1   | One each         | of any make industry standard 40-inch long membrane element |
| -2   | Two each         |   |
| -3   | Three each       |   |
| -4   | Four each        |   |
| -5   | Five each        |   |
| -6   | Six each         |   |

SHELL FINISH

| Exterior Shell Finish                                       |
|---|
| White, high-gloss polyurethane coating over sanding surface |

assigned by Structural Group

CERTIFICATION

| Code | Certification Grade  |
|------|--|
| H    | Certified by Structural Group, not ASME Code stamped                                     |
| C    | Certified by ASME Authorized Inspector and Code stamped                                  |
| R    | Code stamped and registered with National Board of Pressure Vessel Inspectors (NAT'L BD) |

assigned by Structural Group

PERMEATE PORT CONFIGURATION

| Code | Port Sizes                         |
|------|------------------------------------|
| 1    | 1/2-14 NPT-Male, PVC Std. per Dwg. |
| *2   | 1/2-14 NPT-MALE, 316 S.S.          |

FEED/CONC PORT CONFIGURATIONS

| Code | Port Sizes                        |
|------|-----------------------------------|
| 1    | 3/4-14 NPT, Std. per Dwg.         |
| *2   | 3/4" IPS Victaulic®, 254 SMO S.S. |

\* OPTIONAL - Consult factory for specifications and pricing

