

## COMPOSITE VESSELS for RO/UF APPLICATIONS

### ASSEMBLY AND OPERATING INSTRUCTIONS FOR **4 INCH** FRONT PORT VESSELS

#### **SERIES RO4ZxM\_\_-V4I\_and\_ RO4ZxM\_\_-V1**

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#### **1. Delivery**

Make sure that the delivery is complete.

Make sure that the vessels and accessories are not damaged during transportation or handling.

Before installing a vessel in a system, check the label on the vessel in order to be sure about the appropriate pressure rating.

#### **1.1 Element adaptor / seals**

The vessels are delivered assembled and the endplates are fixed with the retaining ring (2 pieces).

The closed adaptor for connection of the permeate tube of the element is packed separately in a bag together with the required seals. This version has no open adapter. The endplate will be directly connected to the membrane (only suitable for male membranes with center core tube OD19.2mm)

#### **2. Operating conditions and intended use**

The vessel is designed for long term use as a housing for spiral elements to desalt brackish water or sea water.

*For pressure and temperature limits refer to the label of the vessel and the table of the drawings.*

If the medium has different properties than water as described above, **make sure that the medium does not affect the materials** in contact with the medium. **DANGER!** by non respect You could destroy the vessel !

List of materials in contact with the medium:

- **LINER**            The liner is made out of HIPS or PP
- **Endplates**        The endplates are made out of PP or PVC
- **Seals**            The O-rings are made out EPDM
- **Adaptor**         The element adaptor is made out of PP or PVC

Check Your medium in relation to these materials!

Knappe Composites will assist the customer in determining the suitability of their specific operating conditions in regards of the use of our standard vessels. Do not hesitate to contact us.

#### **3. Cleaning / Preservation**

Make sure that the chemicals used comply in the used concentration with HIPS,PP, PVC and EPDM.

**WARNING ! After any preservation you have to check the endplate system and the Liner before pressurization of the vessel.**

Confirm that no chemical attack had occurred !

#### **4. Installation of Seals/O-rings**

Before installing the endplate with the O-rings make sure that the pressure vessels have been cleaned and are completely free from dirt and small particles. Small deposits and tiny scratches can be smoothed with 400 grain wet type emery paper.

For installation of all rubber parts like O-rings use as **lubrication agent exclusively glycerin.**

**Never use Vaseline** or other products which are made on a petrol or vegetable basis. Sponge or lint free cloth should be used for application of lubricant.

Do not use any sharp tools (knives, screwdrivers etc.) in order to install or dismantle the seals. Remove the O-rings only by hand, the use of screwdrivers, knives or similar tools risk to damage the surface of the endplate and/or the O-rings and may lead to leakages.

Make sure that all outer couplings fit. Do not apply force to make things fit. A **tension free connection** of the vessel with the piping is required.

## **5.Precautions**

Read and follow these instructions

**DANGER!** Disregarding the following precaution may cause loss of life !!!!

*No warranty will be applicable if the vessels and the assembly parts have been subject to any accident, faulty installation and misapplication of the following points:*

The head assembly must be free of corrosion.  
Loosen deposits carefully with a brush or sponge in time.  
Flush away loosened deposits with fresh water  
Use only glycerin as lubrication agent  
check Your medium ,cleaning, antiscalent agents to be in conformance with the materials of the vessel

Allow for thermal growth of the pressure vessel  
Expansion will be approx. DIA = 0,8mm and L= 8-10mm for a six element vessel.

## **6.Trouble shooting**

Leakage at low or no pressure

- |           |   |
|-----------|---|
| a)        | With increasing pressure the leakage disappears   |
| Cause:    | O-ring damaged  |
| Solution: | Replace O-ring  |
|           |   |
| b)        | Leakage persists with increasing pressure   |
| Cause:    | May be due to dirty surface and/or damaged O-ring   |
| Solution: | Examine the in-liner for scratches<br>Clean the surface and O-ring<br>Small scratches can be eliminated by sanding carefully (grain 400 or more wet type) |
|           |   |
| c)        | At time of shutdown, limited leakage appears.   |
| Cause:    | This may be due to drain of water or suction of air   |
| Solution: | If this problem appears, please contact your supplier   |

All information and data are our best actual knowledge.  
However this information does not create any liabilities nor whatsoever for the pressure vessels.