

VONTRON INDUSTRIAL MEMBRANE ELEMENTS

HOR SERIES HIGH OXIDATION RESISTANT MEMBRANE ELEMENTS

Brief Introduction

HOR (high oxidation resistant) series of aromatic polyamide compound membrane elements are newly developed by Vontron Technology Co. having the properties of low operating pressure, high permeate flow and excellent rejection performance, etc. Manufactured using a special synthesizing process which enhances the oxidation properties of the membrane elements, the membrane is able to withstand the impact of oxidative substances, thus simplifying and optimizing the pretreatment process of an RO system by decreasing the microbial contamination of the membrane element, saving on operating costs and prolonging service life.

Industrial HOR series membranes are designed for the desalting of water sources with a salinity lower than 10,000ppm, such as surface water, underground water and are especially applicable to the treatment of water sources that contain microbial contamination or oxidative substances, such as municipal-purpose or industrial-purpose reclaimed water, electroplating wastewater, etc. The residential HOR-2012 element is mainly used for various smaller systems such as household water purification systems and devices for hospitals and laboratories, etc.

Specifications and Main Properties

Model	Active Membrane Area ft ² (m ²)	Average Permeated Flow GPD (m ³ /d)	Stable Rejection Rate (%)	Minimum Rejection Rate (%)
HOR21-8040	365(33.9)	9000(34.1)	99.2	99.0
HOR21-4040	85(7.9)	2200(8.3)	99.2	99.0
HOR-2012	5.0(0.46)	50(0.19)	97.5	96.0

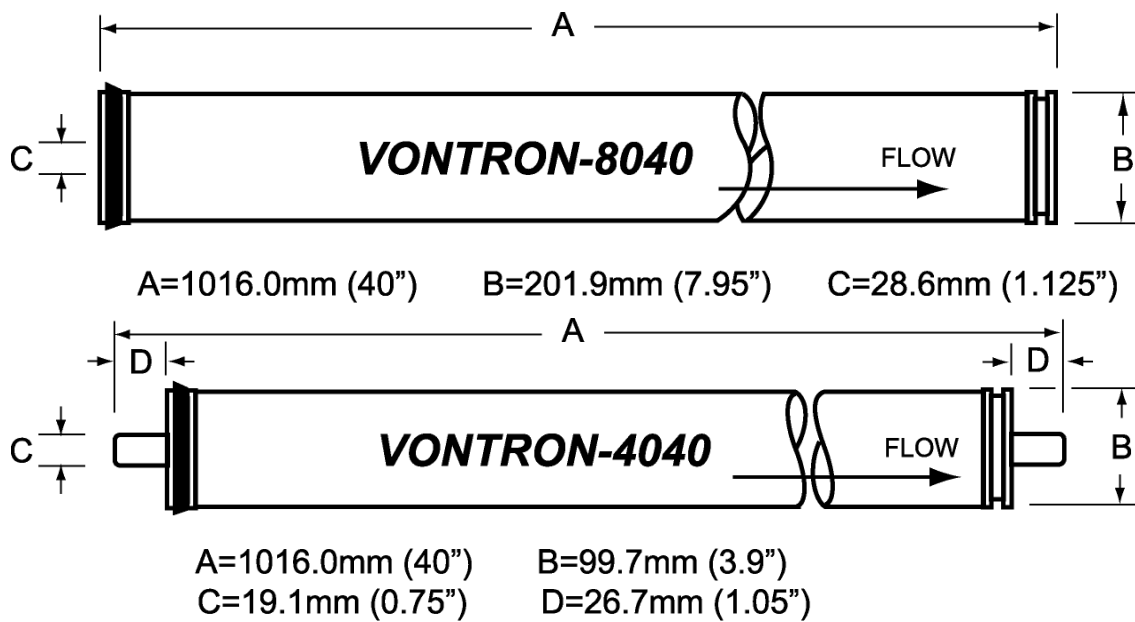
Testing Conditions: Testing Pressure.....225 psi (1.55Mpa) (for 8040 and 4040)
 60psi (0.41Mpa) (2012)
 Temperature of Testing Solution25 °C
 Concentration of Testing Solution (NaCl)..... 2000ppm
 pH Value of Testing Solution7.5
 Recovery Rate of Single Membrane Element....15%

Extreme Operating Conditions

Max. Working Pressure.....	600psi (4.14Mpa) (for 8040 and 4040)
	300psi (2.07Mpa) (for 2012)
Max. Feed water Flow.....	75gpm (17 m ³ /h) (for 8040)
	16gpm (3.6 m ³ /h) (for 4040)
Max. Feed water Temperature.....	45°C
Max. Feed water SDI.....	5
Residual chlorine Concentration of Feed water.....	<0.5ppm
pH Range of Feed water during Continuous Operation.....	3~10
pH Range of Feed water during Chemical Cleaning.....	2~12
Max. Pressure Drop of Single Membrane Element.....	15psi (0.1Mpa) (for 8040 and 4040)
	10psi (0.07Mpa) (for 2012)

Dimensions of Membrane Element

All dimensions are shown in: millimeter (inch)



Important Information

1. When hypochlorite is dosed, the catalytic and oxidative metallic ions in the feed water, such as Cu²⁺, Ni²⁺, etc. shall be completely eliminated.
2. When hypochlorite is dosed, the pH value and temperature of feed water shall be kept under careful control to make sure that the feed water temperature doesn't exceed 30°C

and the pH

value is preferably between 6~8. Higher feed water temperature or improper pH value may quicken the oxidation.

3. The salt permeation rate shall not exceed 4 times of the initial value within 3 years of service life.
4. It would be best to use feed water pipe-work made of high-pressure PVC or stainless steel, the membrane housings made of FRP, the pump and valves containing no bronze component.
5. Since there exists residual chlorine in the permeated water, the customer shall choose to carry out de-chlorination treatment as per the practical application. Post carbon is recommended for this purpose.
6. When it is required to carry out impact disinfection, a hypochlorite solution with 2ppm concentration can be selected.
7. Any specific application must be limited within the extreme operating conditions. We strongly recommend you to refer to the latest edition of the technology manual and design guide prepared by Vontron Technology Co. or consult experts proficient in membrane technology. In case the customer fails to follow the operating conditions as specified in this manual, Vontron technology Co. will assume no liability.
8. The permeate flow listed in the table is the average value. The permeate flow of single membrane element is within a tolerance not exceeding $\pm 20\%$ of the nominal value.
9. All wet-type membrane elements have been strictly tested before leaving the factory, and have been treated with the solution of 1.0% sodium hydrogen sulfite (an antifreeze solution of 10% propanediol required in winter) for storage purpose, then vacuum sealed in a plastic bag and further packed in carton boxes. In order to prevent the breeding of microbes during short-time storage, transportation and system standby, we recommend you soak the membrane elements with protective solution (prepared with RO filtered water) containing 1.0% sodium hydrogen sulfite (food grade quality)
10. Discard the RO-filtered water produced during the first one hour after system start-up.
11. During storage time and run time, it is strictly prohibited to dose any chemical that may be

harmful to the membrane elements. In case of any violation in using this kind of chemical, Vontron Technology Co. assumes no liability for any outcome incurred.

Points of Attention

7. All data and information provided has been obtained from long-term evaluation by Vontron Technology Co. This data and information is accurate and effective. Vontron Technology Co. assumes no liability for any consequences caused by user's failure in abiding by the conditions specified in this manual for the use or maintenance of membrane products. It is strongly recommended that the user shall strictly abide by the requirements for design, use and maintenance of products and keep relevant records.
8. Along with technical development and product review, the information contained herein will be subject to modification without prior notification. Please keep an eye on the website of Vontron Technology Co. for any product updates.