



# MEMBRANE PRESSURE VESSELS

HIGHEST QUALITY AND PRECISION

# Introduction

## The Company

Wave Cyber (Shanghai) Co., Ltd. is wholly owned by Wave Cyber Limited, a British company found in 2001. Wave Cyber adopts the world advanced technology and techniques to manufacture state-of-the-art pressure vessel products. We offer variety of membrane pressure vessels made from series of new composite materials to protect water treatment equipment of our customers from environmental deterioration.

Choice of membrane pressure vessel from

- ✧ 2.5" End port,
- ✧ 4" end port
- ✧ 4" Side port
- ✧ 8" End port,
- ✧ 8" Side port

## Why Wave Cyber?

- ✧ ISO9001:2000 certified manufacturer
- ✧ ASME RP certified facility
- ✧ TUV - KTW certificate for drinking water application
- ✧ Continuing innovation in membrane pressure vessel products
- ✧ Regional service available through worldwide distributors
- ✧ Delivery in 1 to 4 weeks
- ✧ 20 years experienced expert in pressure vessel manufacturing as team leader.
- ✧ A team of talented engineers
- ✧ Quick after sale service response

## Product Integrity

Wave Cyber Membrane Pressure Vessels are precision engineered to improve the overall design and overall performance of your system. Wave Cyber purchases the most advanced computerized winding technology and manufacturing equipment to achieve highest integrity of the membrane pressure vessels, smooth inner surface, accurate dimensions and precise tolerance on the pressure tube body as well as the accessories from the feed ports to a single 'O' ring seal. These uniform dimensions provide and ensure the tightest membrane element seal, eliminate any possibility of leak and improve durability of your system.

No matter your application requires low pressure or high pressure, our products line and options allow it easy to find the perfect fit to your machine or system.

## Quality Assurance

- ✧ 100,000 times cycle test
- ✧ Burst test with 6 times of its operating pressure
- ✧ 100% QA test with 1.1 times stage elevation of hydraulic pressure.
- ✧ 100% QA inspection and cleaning before final packaging and delivery to customers.
- ✧ Submitted for NSF standard 61

# Products

## Available Membrane Pressure Vessel Products

Pressure	2.5" End port	4" End port	4" Side port	8" End port	8" Side port
150 psi				A	A
300 psi	A	A	A	A	A
450 psi		A	A	A	A
600 psi				A	A
1000 psi	A	A	A	A	A
1200 psi				A	A

A – Available pressure rating

# Features

## 2.5 And 4 inches Membrane Pressure Vessels

- ✧ High strength, smooth inner surface and durable FRP shell.
- ✧ Length available:
  - ✧ Single element of 14", 21" and 40" to 2 element;
  - ✧ Single element of 21" and 40" up to 6 elements to 6 element
- ✧ SS 316 head locking baffle for simple and safe head assembling for 300 and 450 psi vessels. Three turns locking ring design for 1000 psi vessels
- ✧ Insert plastic permeate port material
- ✧ Polyurethane outermost coating provides extra protection to environment and good appearance.
- ✧ White color is as standard. Other colors are also available.



### Side Port Type

- ✧ Feed/ concentrate port - 1" SS 316 mechanical coupling connection for 300 and 450 psi vessels, 1" duplex SS mechanical coupling for 1000 psi vessels.
- ✧ 1/2" NPT or BSP permeate port connection

### End Port Type

- ✧ Insert plastic head material; EPDM O-ring seal
- ✧ Feed/ concentrate port connection
  - 4" vessels: 3/4" or 1/2" FNPT or BSP PVC for 300 and 450 psi vessels;  
3/4" MNPT duplex steel for 1000 psi vessels;
  - 2.5" vessels: 1/4" or 3/8" FNPT or BSP PVC for 300 psi vessels;  
1/4" or 3/8" FNPT or BSP duplex steel for 1000 psi vessels;
- ✧ Permeate port connection
  - 4" vessels: 1/2" NPT or BSP;
  - 2.5" vessels: 1/4" NPT or BSP

## 8 inches Membrane Pressure Vessels

- ✧ High strength and durable FRP shell
- ✧ ASME manufacture process,
- ✧ One piece molded lock thrust cone design reduces pressure drop with highest water flow. Cone shape design provides highest pressure tolerance up to 275 Kg/cm<sup>2</sup>.
- ✧ SS 316 three turn spiral lock ring for easy and safe head assembly.
- ✧ assemble and disassemble
- ✧ ABS permeate adaptor. OD 1.125" is standard. Different ODs are available for retrofit membrane element with different permeate tube dimensions.
- ✧ Polyurethane outermost coating provides extra protection to environment and good appearance.
- ✧ Length available from 1 element through 8 elements
- ✧ White color is as standard. Other colors are also available.
- ✧ ASME Code stamp available upon request



## Side Port Type

- ✧ Feed/conc port size available in 1.5" MC(standard), 2" MC and 2-1/2" MC, 3" MC(mechanical coupling connection)
- ✧ 2 side ports are offered as standard, multi-port with different clocking are available.
- ✧ 1" PVC pipe union Permeate connection is standard. Other custom permeate connectors are available on request.
- ✧ For seawater vessels, side port material standard is Duplex, Super Duplex (4%/6% Mo) available upon request.

## End Port Type

- ✧ Feed/concentrate port size available in 1.5" MC (standard)
- ✧ 1" PVC pipe union Permeate connection is standard. Other custom permeate connectors are available on request

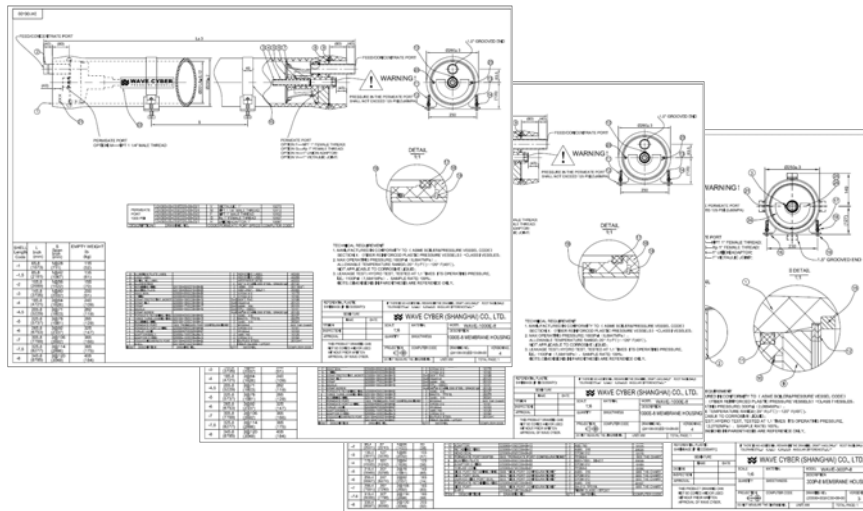
## Permeate port options

Various options of permeate connections are provided to suit different installation requirement.

Option	Description
J	Socket Union Adaptor, PVC, 1.32" O.D. Pipe
H	Socket Union Adaptor, PVC, 32 mm O.D. Pipe
V	Mechanical Coupling 1"-PVC
S	Mechanical Coupling 1"-SS
M	Male thread NPT 1 <sup>1</sup> / <sub>4</sub> "
N	Male thread NPT 1 1/2"
F	Female thread NPT 1"
G	Female thread Rp 1"
UF	Connected to Victualic Fitting
W	Sanitary Connection 1"
K	Sanitary Connection 1.5"

(All the mechanical coupling connection is additional charged)

# Services



Wave Cyber provides technical materials and information for product selection such as product selection guide, technical drawings, pressure drop curve for side port selections, recommended spare parts and Operation & Maintenance manual etc.

The information is also available on our web site: [www.wave-cyber.com](http://www.wave-cyber.com).

**Wave Cyber 4 Inches Membrane Pressure vessel – Spare Part List** 1/4

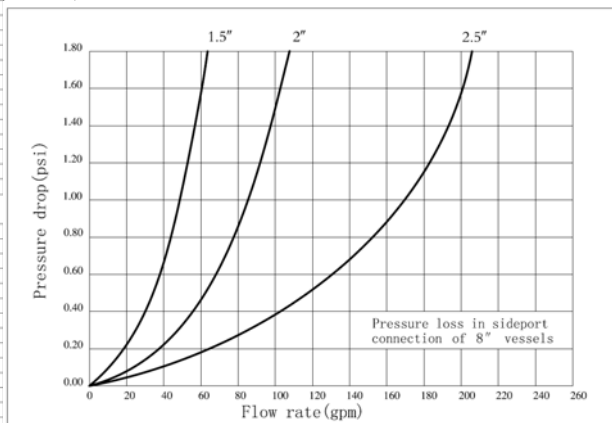
**I. side port**

**I-A. 300 psi, side port, Drawing # 21300-00**

Description	P/N	Qty req'd/vessel
1. Membrane vessel	21300-01	1
2. Side port seal, EPDM 512	21300-15	2
3. Pin, side port, anti-rotate, SS304	21300-33	2
4. Side port, SA-312, SS316L	21300-04	2
5. Retaining ring, A580, SS316	21300-14	2
6. Retaining ring, side port, A580, SS316	21300-03	2
7. Baffles, A580, SS304	22300-02	4
8. Permeate port, ABS	21300-12	2
9. Head seal, EPDM 512	22300-04	2
10. MPV seal, EPDM 512	22300-06	2
11. Strap protective jacket, soft PVC	22300-09	2 or 3
12. Strap, A666, SS304	22300-07	2 or 3
13. Allen screw, M8*30 SS	11455	4 or 6
14. Strap nut, Hpb59-1	22300-08	4 or 6
15. Saddle, polyurethane	22300-05	2 or 3
16. Allen Screw, M8*20 grade8.8	11546	4

**I-B. 450 psi, side port, Drawing # 21450-00**

Description	P/N	Qty req'd/vessel
1. Membrane vessel	21450-01	1
2. Side port seal, EPDM 512	21300-15	2
3. Pin, side port, anti-rotate, SS304	21300-33	2
4. Side port, SA-312, SS316L	21300-04	2
5. Retaining ring, A580, SS316	21300-14	2
6. Retaining ring, side port, A580, SS316	21300-03	2
7. Baffles, A580, SS304	22300-02	4
8. Permeate port, ABS	21300-12	2
9. Head seal, EPDM 512	22300-04	2
10. MPV seal, EPDM 512	22300-06	2
11. Strap protective jacket, soft PVC	22300-09	2 or 3
12. Strap, A666, SS304	22300-07	2 or 3
13. Allen screw, M8*30 grade 8.8	11455	4 or 6
14. Strap nut, Hpb59-1	22300-08	4 or 6
15. Saddle, polyurethane	22300-05	2 or 3
16. Allen Screw, M8*20 grade8.8	11546	4



# Customer Satisfaction

Over 30 Billion cubic meters of purified water has been produced per year by the Membrane Systems using Wave Cyber membrane pressure vessels around the World.



90000 CMD Municipal RO Plant (2008): Courtesy, MPE

## Partial China Customers

Peninsula Water Tech, Guizhou Jin Yi Caustic Mfg, Nanning Petrochemical Corp, Shandong Textile, Shandong Zibo, Shangdong Jinling Coal Mine, Omex – Dow Chemical, Shandong Fei Cheng Coal Mine, Shanghai Fan Xiang Power Plant Shandong ShanQin Food Stuff, LiuDi Lin Steel Corp, Zhuhai Wei Chong Electronics, Zhejiang Great Petrochemica, CoCa Cola, Asian Tec, F uYang Power Plan, Guangzhou HengWen Power Plant, Shanghai Bao Steel, Hang Zhou Wahaha, Ma On Shan Steel,. Pall Corp (China),

## Partial International Customers

Sual Power Plant – Philippines, FAJI Petrochemical Complex (Iran), GE Infrastructure Water & Process Technologies, Iran Department of Agriculture, Lapsi Sea Water Desalination Plant (Malta), Cirkewwa Sea Water Desalination Plant (Malta), Pembroke Sea Water Desalination Plant (Malta), Toray Membrane, Eurotrol S.P.A., Kirikkale City Municipality (Turkey), VA-Tech – Wabag (India), Hyundai Steel (Korea). Sharp (Japan), Culligan International,

**Wave Cyber (Shanghai) Co., Ltd**

No. 218 Songhai Road, Qing Pu Industrial Zone,

Post Code: 201703

Shanghai P.R. China

Tel: +86-21-69758588 Fax: +86-21-69758288

Web-site: [www.wave-cyber.com](http://www.wave-cyber.com)