Quantity	4 sets
Flow rate	150m^3/h
Head	0.2MPa

2.4.2 Automatic filters (2X100%, 00PBC21~22AT001)

1) Equipment Function

To prevent solid particles in seawater from entering the sodium hypochlorite generating system and causing corrosion to system pipe and electrode, automatic cleaning filter (00PBC21~22AT001) is arranged at the inlet of Sodium Hypochlorite Generators (00PBC31~34BB001).

2) Working Principle and Structure

The filters (00PBC21~22AT001) are automatic back flushing type, and are on line cleaning without shutdown. Back flushing process is controlled by filter inlet and outlet differential pressure switch（00PBC21~22CP301） and timer. It should set back flushing period on timer （6hours）, and set value on differential pressure gauge（0.4bar）, When the timer reach the set back flushing period or differential pressure exceeds the set value, automatic back flushing procedure starts to flush the dirt on strainer.

Automatic filter (00PBC21~22AT001) is composed of shell, cover, shaft, strainer, motor and electrical valve, differential pressure controller and control panel.

3) Main parameters:

Flow: 300m^3/h

Strainer accuracy: 0.5mm

Pressure loss: 0.035 MPa

Material of strainer: SS25073

2.4.3 Sodium Hypochlorite Generators (4X50%,00PBC31~34BB001)

In this project, 4×50% sodium hypochlorite generators (00PBC31~34BB001) are arranged and each generator’s output is 295Kg/h.

4) Equipment Function

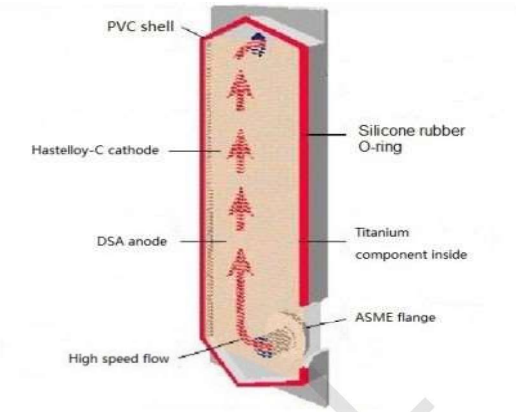
Electrolyzer is the key equipment of this system. Seawater pass through the electrolyzer will be electrolyzed by direct current to produce sodium hypochlorite. Hypochlorous acid and hypochlorite are collectively referred to as effective chlorine. Effective chlorine is the most effective, security, and environmentally friendly oxidizing agent to suppress sea biological adherent growth.

This system consists of 4 sets of 100% sodium hypochlorite generators (00PBC31~34BB001), and each set has 40 series connected electrolyzers. The active sodium hypochlorite generation

capacity of each set is 295 kg/h.

5) Structure

This system use SRSM400/1 electrolyzer, Electrolyzer mainly consists of anode, cathode, shell, cover, seal component, conductive rod, fasteners, etc.



The electrolyzer cover is made by transparent acrylic material. Operation staff can observe the reaction occurs inside the electrolyzer, and that help to judge the opportunity for electrolyzer maintenance and acid cleaning.

Anode in the electrolyzer is unipolar type. The electrolyzer is upright placed, and the seawater flow through bottom - up one time with a high speed. The hydrogen generated during electrolysis process will outflow with the water flow, and will not store up in the electrolyzer. The high speed water flow will retard the depositing of the calcium and magnesium sediment and extend the acid cleaning period.

6) Main parameters:

Model:	SRSM400/1
Quantity:	40（1 set）
Yield of effective chlorine	295kg/h（1
set） Flow of seawater	136m^3/h（1
set）	
Anode material:	Titanium net coated with noble metal oxide
Cathode material:	Hastelloy
alloy	
Working voltage:	＜240V
Working current:	≤7200A

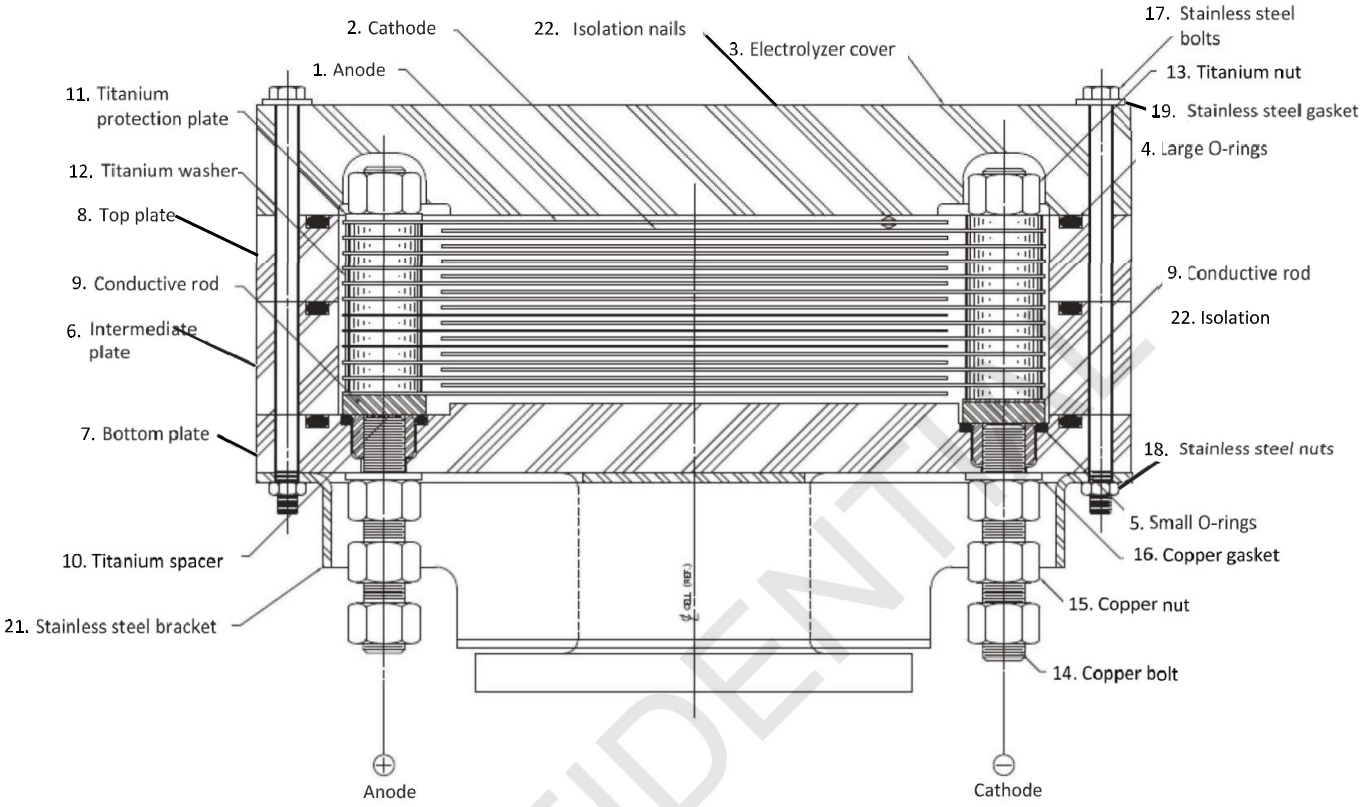
2.4.4 Sodium hypochlorite storage tank(4X50%，00PBC41~44BB001)

4x50% Sodium hypochlorite storage tanks （00PBC41~44BB001） are used. Tank is 40m^3 and material is GURP.

7) Functions:

2.1.1. List of vulnerable spare parts during normal operation

See Table 1.1 for the list of spare parts for the SC400/1 type electrolytic cell contract used in this system.



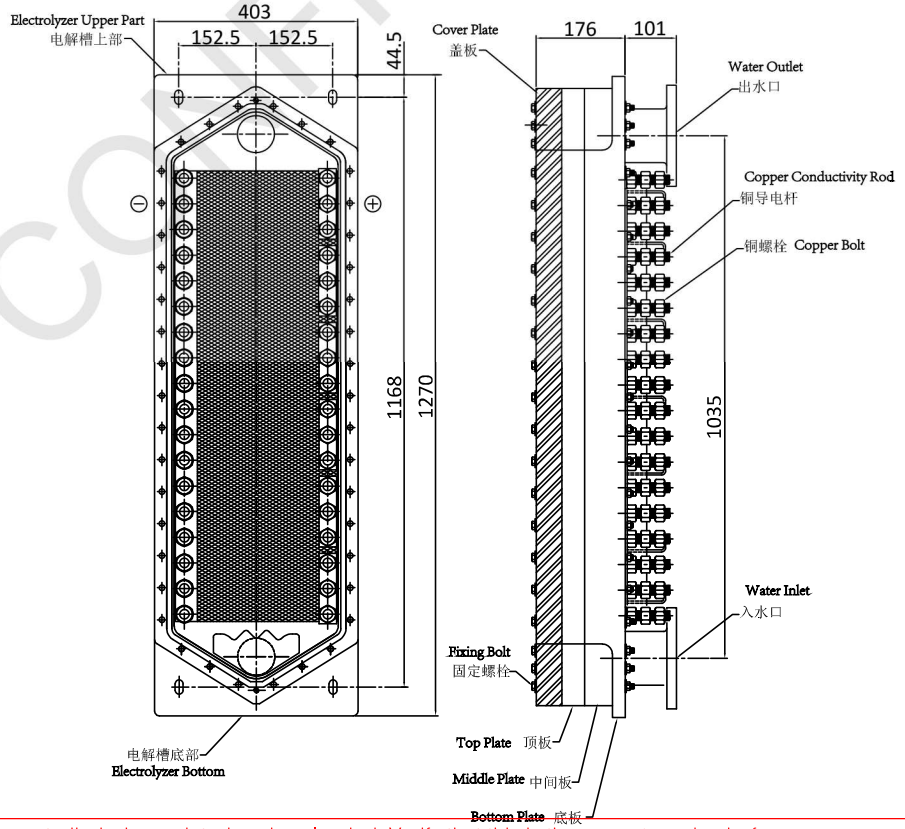


Table 1.1 SC400/1 type electrolytic cell (single) parts list

No.	Spare part name	Quantity	Remark
1	anode	12	Titanium with noble metal oxide coating
2	cathode	11	Hastelloy C-276, 278×911×1mm
3	Electrolyzer cover	1	PMMA, S=50mm
4	large O - rings	3	Silicon Rubber, Φ8×2653mm
5	small O - rings	36	Fluororubber, 38×5.7mm
6	intermediate plate	1	PVC, S=50mm
7	bottom plate	1	PVC, S=35mm
8	top plate	1	PVC, S=45mm
9	Conductive rod	12	Titanium, 3/4″
10	Titanium spacer	12	T=1.5mm
11	Titanium protection plate	6	T=3mm
12	Titanium washer	396	Φ35×Φ19.6×6.0mm
13	Titanium nuts	36	3/4″
14	copper bolts	36	3/4″, L=132.8mm
15	copper nut	108	3/4″
16	copper gasket	36	3/4″
17	stainless steel bolts	42	Hex head, SS316, 3/8"×195mm
18	stainless steel nuts	42	Hex, SS316, 3/8"
19	stainless steel gasket	58	SS316, 3/8", Φ25×Φ11×2mm
20	lock washer	36	T2 Copper, Cinquefoil Type
21	stainless steel bracket	1	SS316L
22	Isolation nails	42	Model: SC-GLD-02

Handling device

——When handling the electrolyzer, avoid scratching and damaging the cell cover and casing, and prevent foreign matter from entering the inlet and outlet flanges of the cell.

——The inlet and outlet flanges and branch pipes are not allowed to be stressed during handling to prevent cracks in the weld.

——When the electrolyzer is transported and installed in the factory, it is recommended to use a crane.

Storage conditions for spare parts

The storage conditions of the SC400/1 type electrolytic cell contract spare parts used in this system are shown in Table 3.3 below.