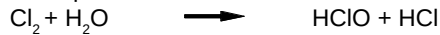


General

When preparing the chlorine solution in the chlorine gas ejector, in addition to hypochloric acid (HClO), hydrochloric acid is produced as well in the motive water.

Reaction process:



The pool water is gradually acidified by the hydrochloric acid, if it is not neutralized by the natural hardness of the water $\text{Ca}(\text{HCO}_3)_2$ or other appropriate measures.

If the pool water constantly circulating and also used for the ejector operation is very soft, artificial hardness must be produced in order to avoid an inadmissible reduction of the pH value.

This problem can be solved easily by using a hypochloric acid reaction tower, in which the hydrochloric acid is neutralized completely by means of granulated marble (CaCO_3).

Reaction process:



Not only the hydrochloric acid is destroyed in the reaction tower but also more highly effective hypochloric acid is produced due to a reaction between chlorine and marble.

Reaction process:



Installation and operation

The reaction tower is to be installed directly after the ejector outlet in an upright position. A pressure loss of about 0.2 bar in the reaction tower has to be taken into consideration for the ejector configuration. Besides, it must be ensured that the reaction tower is always filled sufficiently with granulated marble (at least 30%), which is decreasing because of the aforementioned reaction.

Marble consumption

The marble consumption can be determined as a function of water hardness, flow and chlorine gas volume using the following formula.

$$M = 0.704 \cdot \text{Cl}_2 - 17.83 \cdot T \cdot ^\circ\text{dH}$$

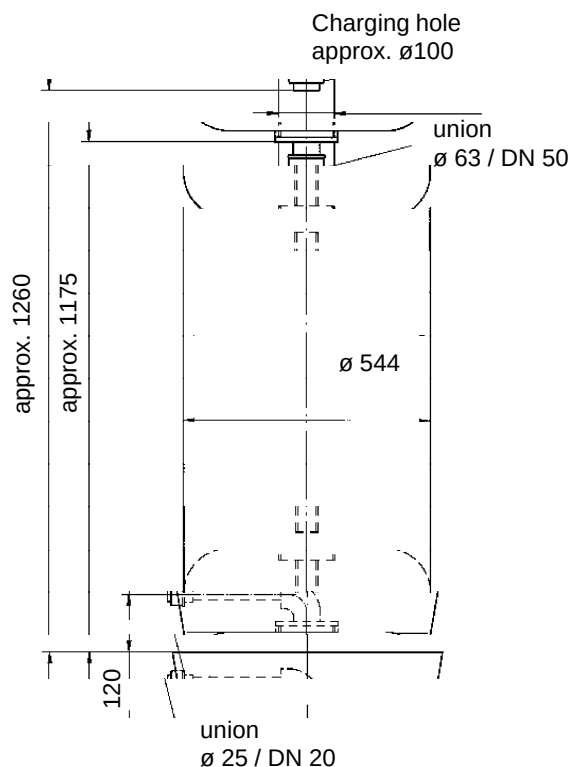
Marble	M	[g/h]
Chlorination	Cl_2	[g/h]
Motive water	T	[m³/h]
German hardness	°dH	[—]

Note:

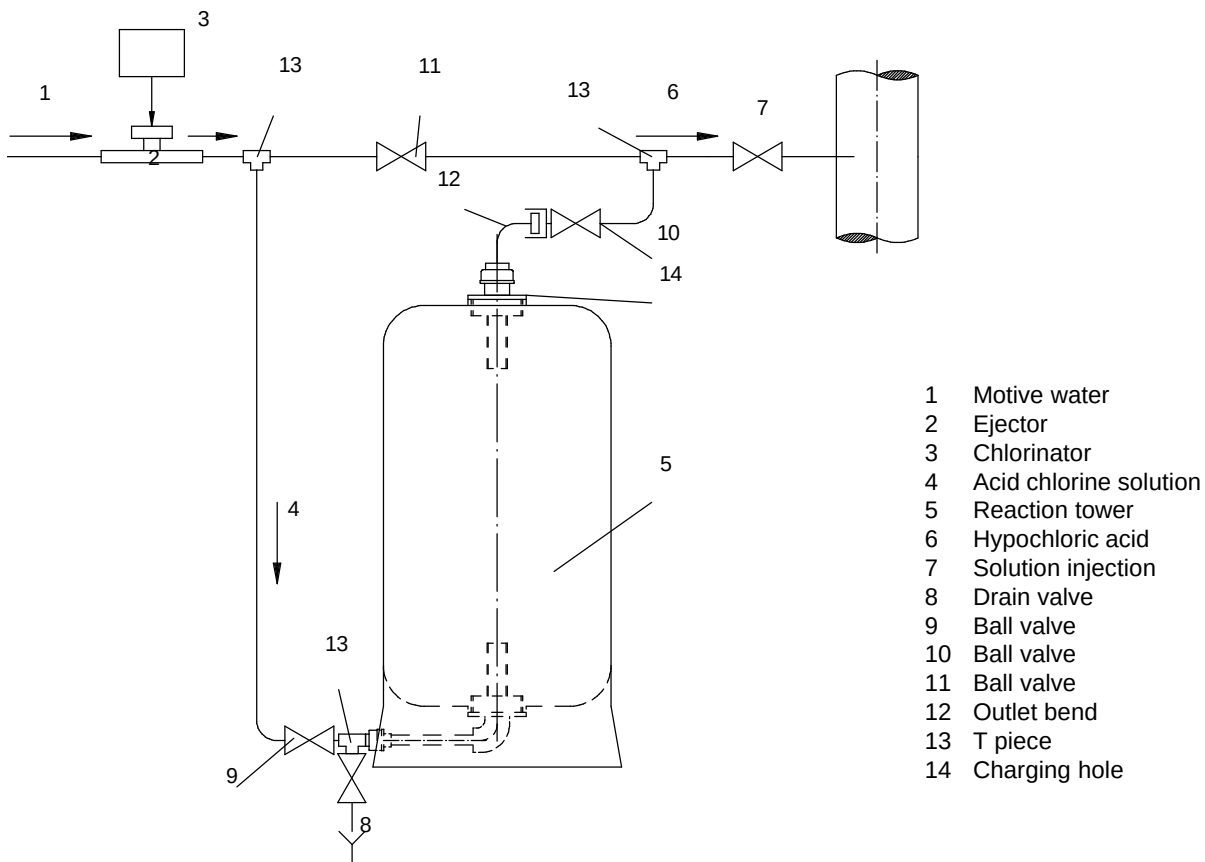
If the result is negative, no marble is required.



Dimensional drawing



Flow diagram



Part Numbers

Reaction tower	
incl. wrench for charging hole:	23533714
Granulated marble, 50 kg:	97544
(4 x 50 kg are required for initial filling)	
Installation accessories	
(items 8 - 13):	32594

Maintenance of the reaction tower

The reaction tower is connected to the bypass lines using the installation accessories. During operation, ball valve (11) is shut and ball valves (9 and 10) are open so that the chlorine solution flows through the reaction tower. To charge the reaction tower with granulated marble, ball valve (11) is opened and ball valves (9 and 10) are closed.

The water contained in the reaction tower can be drawn off by opening the drain valve (8).

Granulated marble is filled into the tower after removing the outlet bend (12) and opening the union (14). A suitable special wrench is contained in the scope of delivery. After restarting the reaction tower, check the connected lines for leaks.

Technical data

Material:	wound glass fiber-reinforced epoxy resin tank with weld-less internal ABS casing.
Capacity:	164 litre
Operating pressure:	max. 10 bar
Operating temperature:	max. 50° C
Pressure loss:	depends on the water flow, filling level and grain size of the marble (normally less than 0.2 bar)
Filling:	200kg of granulated marble, grain size: 10 mm
Max. water flow:	3 m ³ /h
Connections:	inlet DN 20 outlet DN 50

Declaration of Harmlessness

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type:

Part-no.:

Order No.:

Date of delivery:

Reason for repair:

.....

.....

Dosing medium

Description:

Irritating: ☐ Yes ☐ No

Properties:

Corrosive: ☐ Yes ☐ No

We hereby certify, that the product has been cleaned thoroughly inside and outside before returning, that it is free from hazardous material (i.e. chemical, biological, toxic, flammable, and radioactive material) and that the lubricant has been drained.

If the manufacturer finds it necessary to carry out further cleaning work, we accept the charge will be made to us.

We assure that the aforementioned information is correct and complete and that the unit is dispatched according to the legal requirements.

Company / address:

Phone:

.....

Fax:

.....

Email:

Customer No.:

Contact person:

Date, Signature:

Warranty Application

Please copy and send it back with the unit!

If the device breaks down within the period of warranty, please return it in a cleaned condition with the complete warranty application, filled out.

Sender

Company: Phone: Date:

Address:

Contact person:

Manufacturer order no.: Date of delivery:

Device type: Serial number:

Nominal capacity / nominal pressure:

Description of fault:.....

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Service conditions of the device

Point of use / system designation:.....

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.....

Accessories used (suction line etc.):.....

.....

.....

.....

.....

Commissioning (date):

Duty period (approx. operating hours):

Please describe the specific installation and enclose a simple drawing of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.