

Water Treatment



Engineering & Construction

ISD Softeners

OVERVIEW

Softening using ion-exchange resins maintains Calcium and Magnesium Salts (that determine the hardness of water) with the release in water of Sodium Salts in substitution. The resins softening does not substantially modify the saline contents, but the saline composition. The hardness of water is responsible for the formation of crusts on piping or on the equipment crossed by the water (heat exchanger, boilers, cooling towers, etc.). The ISD softeners work in pairs (Duplex) with exchange running: while a softener is in "operation" phase, the other one is in "regeneration" or in "stand-by". The exchange of the kind of function is given by a volumetric counter pulse-thruster calibrated for a specific cyclic capacity according to the hardness of water to be treated and to other parameters. When the resin can no longer exchange Sodium salts with Calcium Salts, it means that its exchange capacity runs out. The resin is regenerated by a Sodium chloride non-saturated solution (brine). Depending on the regeneration level provided for (NaCl grams per resin litre), the resin has different exchange capacities: higher is the regenerative level, higher will be the exchange capacity. But the increase of the exchange capacity isn't directly proportional to the increase of the chosen regenerative level.

The ISD softeners are used in industrial, civil and hospital fields. They guarantee reliability, safety, life, especially under their simplicity and tested application.

CHOISE OF A SOFTENER

Cycle values in Technical Data Schedule refer to a conventional hardness of 1°F (1°F is equivalent to 10 mg/l expressed as CaCO₃).

Here follows the procedure required for the choice of the softener (single):

- To know the hardness of water to be treated;
- To fix the cycle, i.e. the quantity of water can cross the softener before of the resins exhaustion, also according to the regenerative level of the chosen salt (for ISD models, the quantity of water must guarantee the operation of the softener for 8 hours at least);
- To multiply the hardness value in °F by the above fixed quantity of cyclic water;
- The outcome found must be included in two cycle values in the Schedule;
- To check the model of chosen softener is able to supply the required water delivery.
- For ISD models the supply rate must satisfy the water request for the regenerative operations of one of the 2 softeners while the other one is in operation (backwashing, brine suction, moving, final washing).

FILTERING MATERIAL

- The filtering bed is composed by quartziferous sand supporting the resins bed.
- Strong cationic resins bed, sodic cycle, food purpose

OPTIONS

- Resins disinfection automatic system

OPERATING DATA

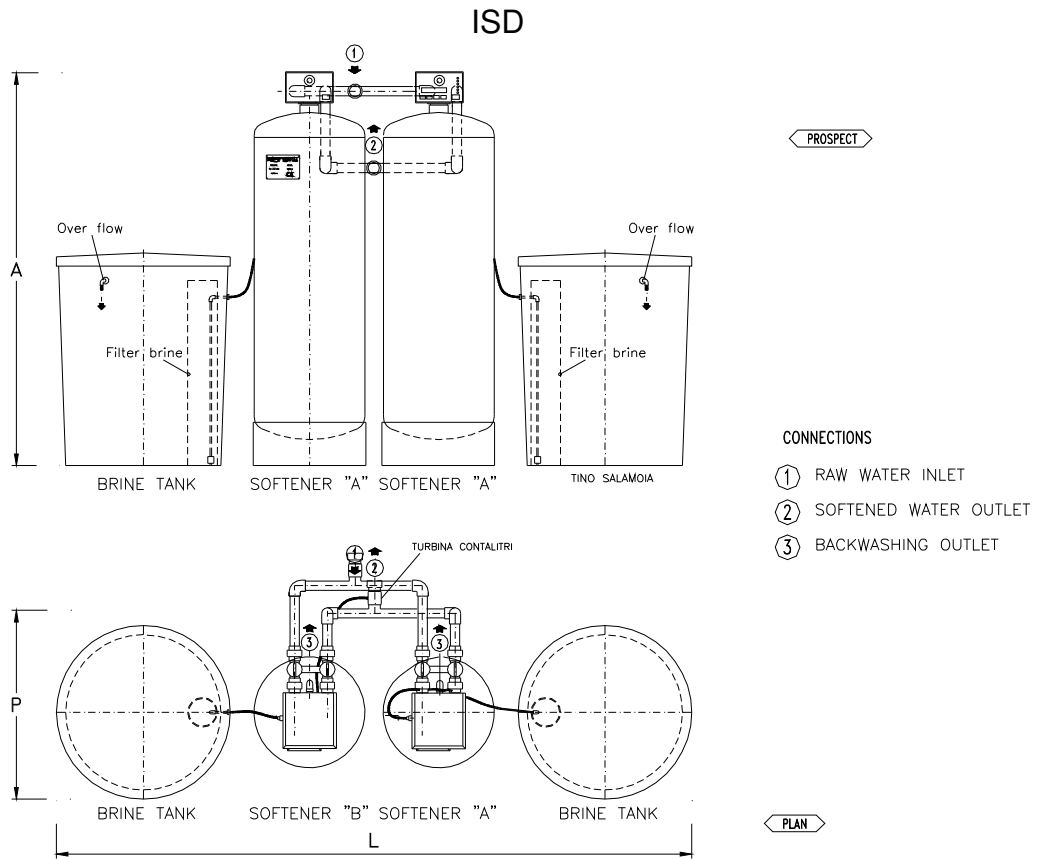
➤ Operating pressure min/max	2,5/5	bar
➤ Project/testing pressure	5/7,5	bar
➤ Backwashing pressure	1,5	bar
➤ Water temperature range	3÷40	°C
➤ Electric power voltage/frequency	220/50	V/Hz
➤ Electric absorption	20	W
➤ Load losses with (read values at pressure gauges) medium/high flow	0,3/1,2	bar

CONSTRUCTION

- Fiberglass tank
- Water distribution system: the lower distributor is composed by a suitable distributor with calibrated PVC/PP holes. On the upper part there is an under-valve filter with calibrated structure.
- Automatic valve for water distribution during working and backwashing phases
- Brine suction ejector
- Tank/s for salt complete with brine filter/s
- Brine valves
- Counter-litre turbine.

APPLIANCE

- Tap water softening
- Well water softening
- In industrial field (laundries, vapour generators supply, cooling towers supply, etc)
- In civil field (potabilization, commun big boilers supply)
- In hospital field (thermal power plant supply, etc.)



TECHNICAL DATA

Model	Flow rate	
	Nominal	Max
	m ³ /h	m ³ /h
ISD 25	0,65	0,9
ISD 40	1	1,5
ISD 70	1,75	2,6
ISD 100	2,5	3,7
ISD 150	3,75	5,5
ISD 200	5	7,4
ISD 250	6,25	8,9

- NB:**
- For constructional reasons dimensions and weights are not binding.
 - The company holds the right to modify the technical and aesthetic characteristics of each equipment.
 - Flow rates are calculated in accordance with a hardness water of 25°F.

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