



# Ion Exchange Water Softener

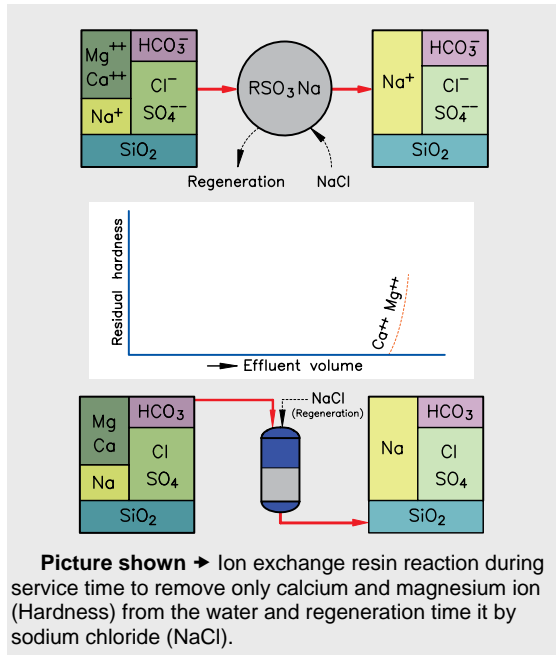
## Automatic regeneration

DENKO THAI Produce premium quality of softened water for industrial & commercial use

### Product Introductions

The most important for water softening process was the principle of ion exchange resin by exchanges the calcium and magnesium (hardness) in the water with a equivalent number of sodium ions. During the softening process, the water passes through the resin bed, and the calcium and magnesium are removed. The resin bed volume was fixed capacity to remove hardness before it needs to be regenerated to full capacity in order to continue provide softened water. When the resin bed is nearing exhaustion, the control valve washes the resin bed, and draws sodium chloride (NaCl) containing solution from the NaCl tank through the resin. As the NaCl contacts the resin bed, the process of ion exchange occurs, and the calcium and magnesium (hardness) that was collected in the bed during operation is washed to drain. After a final rinse to remove the excess NaCl, the resin bed is again ready to provide softened water.

The main parts of water softeners consist of operation control valve, to direct water flow during the regeneration cycle, softener tank that contains the cation exchange resin and sodium chloride (NaCl) tank which preparing NaCl solution to used during regeneration.



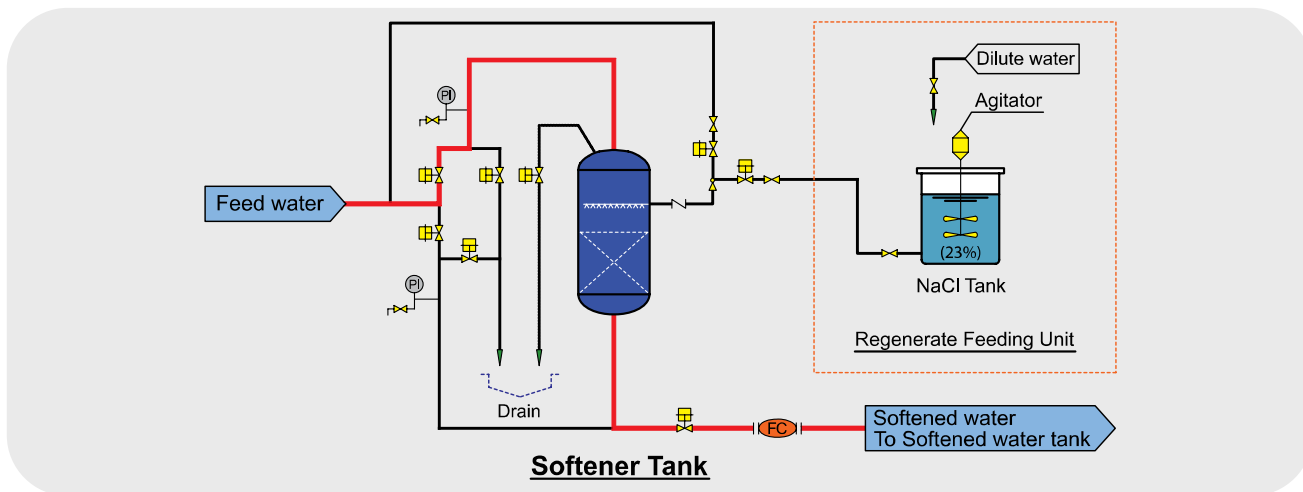
### Product Features

- ◆ Produce premium quality of softened water with total hardness content less than 2 ppm as  $\text{CaCO}_3$
- ◆ High exchange capacity and low consumption of sodium chloride (NaCl).
- ◆ Ion exchange resin is high grade and suitable for contact with food.
- ◆ The tank column is made of steel and it is protected internally by a food- grade layer of epoxy resins of controlled thickness and covered externally by a layer of enamel paint.
- ◆ The automatic regeneration control by programmable logic controller.
- ◆ The closely provided resin bead size minimizes the pressure loss.

### Main Product Applications

- ▶ Cooling systems
- ▶ Textile, Ceramic industry
- ▶ Food, Pharmaceutical industry
- ▶ Pretreatment of reverse osmosis system
- ▶ Hotel, Restaurants and Bakeries
- ▶ Low pressure boilers
- ▶ Car washes
- ▶ Chicken and animal breeding

# Automatic regeneration water softener flow diagram



## Product Specifications of Water Softener unit : AS - model

Model	Service Flow (~m <sup>3</sup> /hr)	Operation Control Valve (ø inch)	Tank Diameter (ø mm)	Straight Height (h mm)	Resin Volume (l)	Chemical Consumption 100% NaCl/cycle (~kg)	NaCl Tank (l)	Unit Dimension (w x d x h)	Weight	
									Empty (kg)	Running (kg)
AS - 250	1	¾ x ¾	250	1825	50	6	100	1200 x 1000 x 2500	220	400
AS - 350	2	1 x 1	350	1825	100	12	100	1200 x 1000 x 2500	310	480
AS - 400	3	1 x 1	400	1825	125	15	100	1400 x 1000 x 2500	400	740
AS - 430	4	1¼ x 1¼	430	1825	150	18	100	1400 x 1000 x 2500	440	800
AS - 500	5	1¼ x 1¼	500	1825	200	24	200	1650 x 1000 x 2500	600	1100
AS - 560	6	1½ x 1½	560	1825	250	30	200	1650 x 1000 x 2500	650	1300
AS - 620	7	1½ x 1½	620	1825	300	36	200	1800 x 1000 x 2500	720	1450
AS - 670	8	1½ x 1½	670	1825	350	42	300	2000 x 1400 x 2500	900	1700
AS - 710	10	2 x 2	710	1825	400	48	300	2000 x 1400 x 2500	1000	1800
AS - 840	14	2 x 2	840	1825	550	66	500	2000 x 1400 x 2500	1200	2300

**Remarks : Out of Scope** → Feed water supply, softened water outlet and softened water storage tank, regenerate water drain.

**The operation cycle time** → Depend on total hardness and feed water quality.



### Light Commercial Softener

We offer the small capacity product which softener tank made by FRP. (Fiberglass Reinforce Polypropylene) that it's light weight and compact type units follow requirements for commercial applications such as restaurants, hotels, resorts, greenhouses, grocery stores and other.

Recommended feed water quality	
Parameter	Feed water
pH	6.5 – 8.0
Turbidity (NTU.)	≤ 1.0
Iron (ppm as Fe)	≤ 0.1
Chlorine (ppm as Cl <sub>2</sub> )	≤ 0.2

\* Wide range of product besides above items are available.

\* All designs and specifications will be subject to change with or without prior notice.



**DENKO THAI CO., LTD.**

922/1-2 Moo 5 Soi Bearing Tadmai, Srinakarin Rd., Muang, Samutprakarn 10270 Thailand

Tel. : 66(0)2758-5071 (Auto) Fax. : 66(0)2758-5072 Website : www.denkothaicom