

The Complete Line of

# PERFECT FLOW

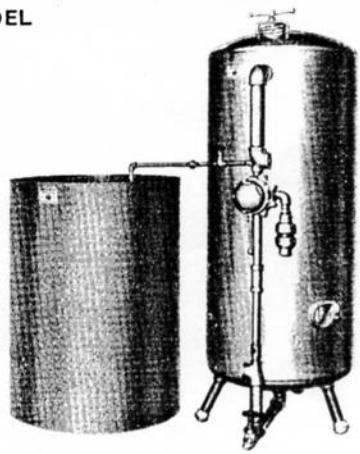
## WATER SOFTENERS

**ENRICH GUARANTEE**  
All parts on a Enrich softener are fully guaranteed for a fully year to be free from defects in material and factory workmanship under normal use and service.

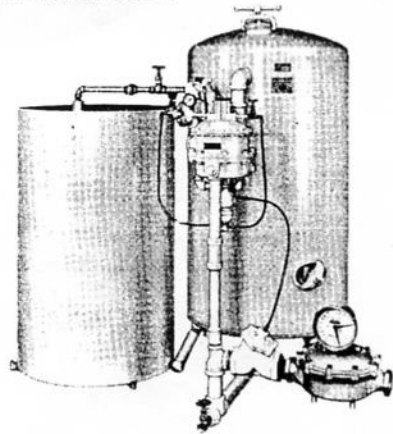
CUT-A-WAY VIEW



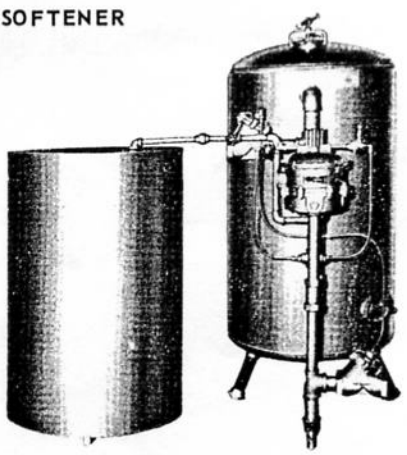
KSF MODEL



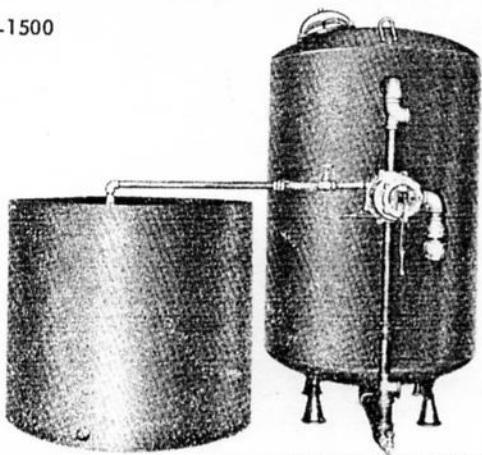
METER INITIATED SKOM



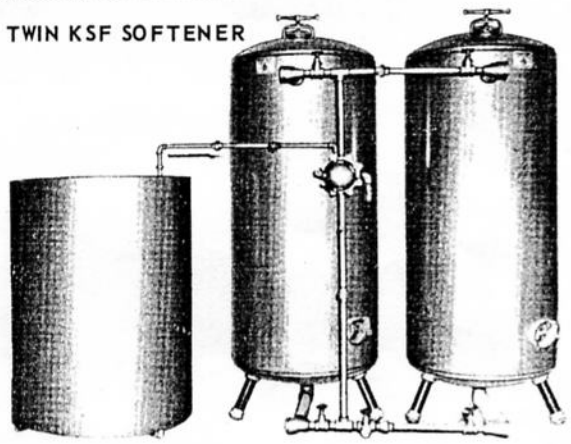
SKOM SOFTENER



KSF-1500



TWIN KSF SOFTENER



# ENRICH

# Soft Water

## Ion Exchange Method

Hard water is water that contains dissolved calcium and magnesium. If you get rid of the calcium and magnesium, the water becomes soft. Ion exchange is a method for removing these hardness producers.

Ion exchange, as used for water softening, involves the removal of the "hard" ions (calcium and magnesium) from the water and substituting other, "soft" ions in their place. The term "ion" is used because, when most materials dissolve in water (or some other liquids), they "ionize," or form ions. An ion is a single atom or, in some cases, a small group of atoms that carries a very small electrical charge either positive or negative. In water, there is no net charge because the positive charges always equal the negative charges.

A commercial, water softening ion exchange resin is a fine, bead-like material, each bead being about the size of a pin head. Although these beads appear to be solid, they are actually quite porous. The many tiny tunnels and cavities inside the beads greatly increase the total effective area. Located on these external and internal surfaces are numerous exchange sites, chemically-active centers at which the exchange of ions occurs.

In water softening by ion exchange, "hard" ions (calcium and magnesium) are extracted from the water and "soft" ions (sodium) are substituted. To do this, the ion exchange resin is "preloaded" with sodium ions by treating the resin with a solution of sodium chloride (common salt). The water is softened as it passes through a bed, or layer, of the ion exchange resin. In this way the calcium and magnesium ions are removed, and the water is soft when it leaves the resin bed.

Like every other natural process, ion exchange cannot continue indefinitely. After a while the exchanger can no longer extract the hard ions by replacing them with sodium, because all the sodium ions have been exchanged. This point is called the exhaustion point. The softening capacity of the resin can be restored by a process known as *regeneration*.

In regeneration, the exchange process is temporarily reversed. A salt solution is fed through the resin bed for 20 to 30 minutes. The sodium ions in the salt solution strip the calcium and magnesium ions from the resin, and once again occupy the exchange sites. The displaced calcium and magnesium ions are discarded. As a result of regeneration, the resin is again charged with sodium ions, and the exchanger can be used for water softening again. A high quality exchanger can be used for years with these successive cycles of temporary exhaustion and regeneration—and still be as good as new.

## Enrich Features That Insure Dependable Service

Manufactured By



บริษัท เอ็นวิเทรด เอ็นจิเนียริ่ง จำกัด

514 Eakthani Building  
Soi Ramkamhaeng 39 (Theplila 1)  
Prachauithit Rd., Wangthonglang Bangkok 10310  
Tel. (02) 934-7391-3 Fax. (662) 934-7394

# HOW ENRICH MAKES HARD WATER ZERO SOFT

Hard water from your main supply line enters the inlet of the ENRICH Water Softener, Flows through the High Capacity Resin and leaves at the outlet end thoroughly softened.

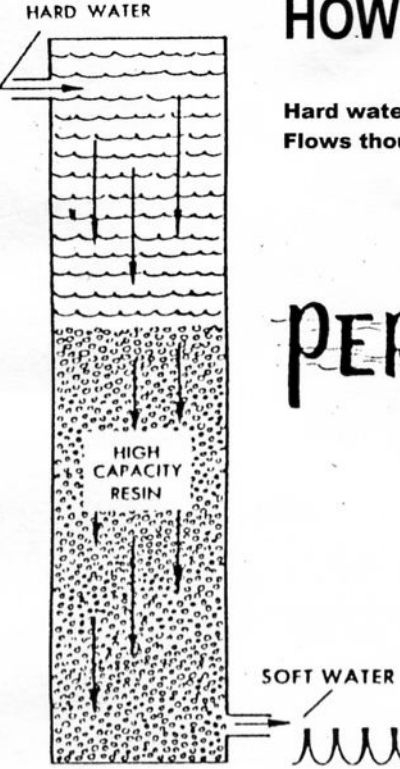
Regeneration in ENRICH Water Softeners is simple and easy. It is done by merely positioning a lever, or it can be done automatically with a timing or water metering device that initiates the controls to complete this regeneration.

## PERFECTO FLOW WATER SOFTENERS

do the BIG jobs easily

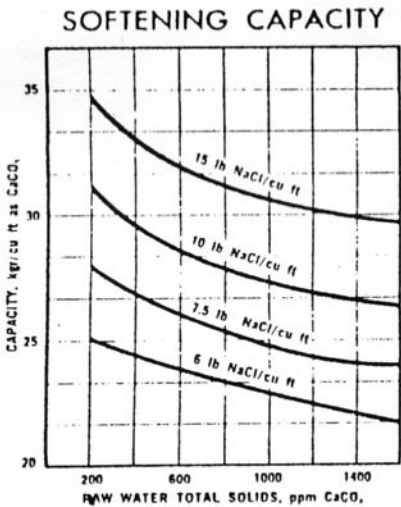
**INDUSTRIAL - COMMERCIAL**

A larger flow rate is accomplished by allowing a non-restricted flow to bypass the control valve to provide full service flow through the softener. Super-Flo piping, with larger inlet and outlet connections aid on providing full pressure and non-restricted flow.



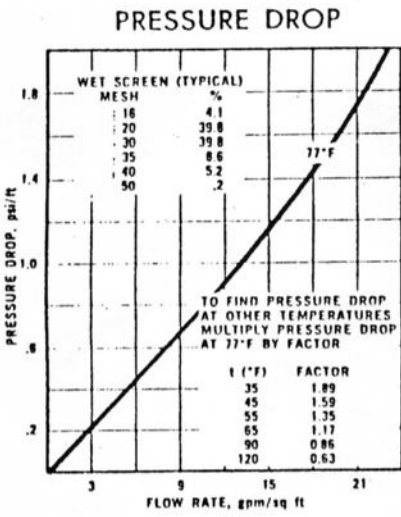
## High Capacity Ion Exchange Resin Makes Great Salt Savings Possible

Regular capacity, on commercial equipment, is based on 30,000 grains exchange per cubic foot of high capacity resin when regenerated with 15 pounds of ordinary rock salt. However, when less salt is used, the loss of exchange is not in direct proportion to the reduction in salt. See chart at left. This makes it possible to obtain 20,000 grains exchange per cubic foot of resin when regenerated with only 6 pounds of rock salt.



### WATER ANALYSIS

Envitrade engineering feels that no installation of water treatment equipment should take place until an analysis of the water has been made. In most cases, if municipal water is to be used, the analysis can be obtained from the local water department. Their analysis may show the total hardness content as ppm (parts per million) instead of grains. Divide ppm by factor of 17.1 to convert to grains per gallon. If analysis is not available, or a new private well is to be used, send pint sample of raw water to us



This modern, fully equipped laboratory is maintained to scientifically analyze water and provide technical advice to anyone requiring assistance in water treatment problems. There is no charge for this service.

### PRODUCT DEVELOPMENT

A systematic program of product development and testing takes place at ENRICH and particular attention is given to quality control of the firm's many products. Since the year of its founding, the company has been manufacturing equipment to conform to high standards of workmanship and efficiency. Due to this policy of constant improvement, ENRICH reserves the right to modify its products, or change its prices, at any time without notice.



## Specifications

DETERMINE SIZE YOU NEED  
FROM THESE COLUMNS



SEE INSTRUCTIONS BELOW

	PERFECTO LOW Fully Automatic Regeneration SPECIFY MODEL NO.	PERFECTO LOW Manual Regeneration SPECIFY MODEL NO.	STANDARD FLOW RATE (GPM)	PEAK FLOW RATE (GPM)	CAPACITY RANGE				PERFECTO-FLOW SERVICE PIPE SIZE	FLOOR SPACE REQUIRED	OVERALL HEIGHT INCHES	SIZE OF TANKS		SALT STORAGE (POUNDS)	BACKWASH FLOW RATE (GPM)	CUBIC FT HIGH CAPACITY RESIN	APPROXIMATE SHIPPING WEIGHT (POUNDS)
					MAXIMUM		MINIMUM					MINERAL INCHES	BRINE INCHES				
					GRAINS	SALT USED (LBS.)	GRAINS	SALT USED (LBS.)									
S I N G L E  U N I T S	SKOM-105	KSF-105	20	30	105,000	52½	70,000	21	1"	3½ x 2'	60	16.54	20 x 48	300	7	3	850
	SKOM-150	KSF-150	30	45	150,000	75	100,000	30	1½"	4 x 3'	65	20.48	24 x 48	500	11	5	1,150
	SKOM-210	KSF-210	40	62	210,000	105	140,000	42	1½"	5 x 3½'	65	24.48	24 x 48	500	15	7	1,325
	SKOM-270	KSF-270	40	62	270,000	135	180,000	54	1½"	5 x 3½'	77	24.60	30 x 48	700	15	9	1,625
	SKOM-330	KSF-330	70	98	330,000	165	220,000	66	2"	5½ x 4'	68	30 x 48	30 x 48	700	25	11	1,900
	SKOM-450	KSF-450	70	98	450,000	225	300,000	90	2"	6 x 5'	80	30 x 60	36 x 48	900	25	15	2,400
	SKOM-600	KSF-600	100	140	600,000	300	400,000	120	2"	7 x 5½'	84	36.60	42 x 48	1,200	35	20	3,100
	SKOM-750	KSF-750	100	140	750,000	375	500,000	150	2½"	7 x 5½'	96	36 x 72	42 x 48	1,200	35	25	3,600
	SKOM-900	KSF-900	140	175	900,000	450	600,000	180	2½"	8 x 6'	100	42 x 72	46 x 60	2,000	45	30	4,825
	SKOM-1200	KSF-1200	180	250	1,200,000	600	800,000	240	3"	9 x 6½'	104	48 x 72	54 x 60	2,500	60	40	5,925
	SKOM-1500-3	KSF-1500-3	200	300	1,500,000	750	1,000,000	300	3"	10 x 7½'	106	54 x 72	60 x 60	3,200	80	50	7,225
	SKOM-1500-4	KSF-1500-4	225	325	1,500,000	750	1,000,000	300	4"	10 x 7½'	108	54 x 72	60 x 60	3,200	80	50	7,300
T W I N  U N I T S	TWSKOM-105	TWKSF-105	40	60	210,000	105	140,000	42	1"	6 x 3'	60	16.54	20 x 48	300	7	7	1,475
	TWSKOM-150	TWKSF-150	60	90	300,000	150	200,000	60	1½"	6½ x 3'	65	20.48	24 x 48	500	11	10	2,000
	TWSKOM-210	TWKSF-210	80	124	420,000	210	280,000	84	1½"	7 x 4'	65	24.48	24 x 48	500	15	14	2,350
	TWSKOM-270	TWKSF-270	80	124	540,000	270	360,000	108	1½"	7 x 4'	77	24.60	30 x 48	700	15	18	2,800
	TWSKOM-330	TWKSF-330	140	196	660,000	330	440,000	132	2"	8½ x 4'	68	30 x 48	30 x 48	700	25	22	3,375
	TWSKOM-450	TWKSF-450	140	196	900,000	450	600,000	180	2"	9 x 5'	80	30 x 60	36 x 48	900	25	30	4,200
	TWSKOM-600	TWKSF-600	200	280	1,200,000	600	800,000	240	2"	10½ x 6'	84	36.60	42 x 48	1,200	35	40	5,425
	TWSKOM-750	TWKSF-750	200	280	1,500,000	750	1,000,000	300	2½"	10½ x 6'	96	36 x 72	42 x 48	1,200	35	50	6,425
	TWSKOM-900	TWKSF-900	280	350	1,800,000	900	1,200,000	360	2½"	12 x 6'	100	42 x 72	48 x 60	2,000	45	60	8,675
	TWSKOM-1200	TWKSF-1200	360	500	2,400,000	1,200	1,600,000	480	3"	13½ x 7'	104	48 x 72	54 x 60	2,500	60	80	10,700
	TWSKOM-1500-3	TWKSF-1500-3	400	600	3,000,000	1,500	2,000,000	600	3"	15 x 8'	106	54 x 72	60 x 60	3,200	80	100	13,100
	TWSKOM-1500-4	TWKSF-1500-4	450	650	3,000,000	1,500	2,000,000	600	4"	15 x 8'	108	54 x 72	60 x 60	3,200	80	100	13,300

- Choose size from this column based on peak flow rate needed for intermittent operation. If uniform flow is required 24 hours a day, choose from standard flow rate column.
- Divide grain hardness of raw water into maximum (regular) capacity of size chosen to obtain the "gallons" of soft water the size will deliver between each regeneration.
- If quantity of soft water between regenerations is more than needed in 48 hours, you can save money on salt by more frequent regeneration using lower salt dosage shown.
- Raw water incoming line and meter should be this large to obtain the flow rates shown.
- Plan to install near raw water service and open drain. Automatic models require constant 110 v. AC electric current. Brine tank can be placed short distance from the mineral tank (or tanks) if necessary. See tank sizes column.
- Provide space above height shown to pour gravel and resin into top of mineral tank (or tanks) during installation. Gravel should be leveled through side handholes.

**AUTOMATIC SINGLE MODELS** include one mineral tank with Perfecto-Flow piping. One Solomatic valve, two diaphragm valves, and one automatic backwash control mounted. One pilot valve with electric timer. High capacity resin and gravel supporting bed. One brine tank, gravel, automatic brine valve assembled in special tube chamber with air interlocking from Solomatic valve to brine tank.

**AUTOMATIC TWIN MODELS** include two mineral tanks with Perfecto-Flow piping. Two Solomatic valves, four diaphragm valves, and two automatic backwash controls mounted. Two pilot valves with electric timers. High capacity resin and gravel supporting beds. One brine tank, gravel, two automatic brine valves assembled in two special tube chambers with air interlocking from Solomatic valves to brine tank.

**MANUAL SINGLE MODELS** include one mineral tank with Perfecto-Flow piping. One Solo valve and backwash control mounted. High capacity resin and gravel supporting bed. One brine tank, gravel, brine line, and brine saturator with all interlocking from Solo valve to brine tank.

**MANUAL TWIN MODELS** include two mineral tanks with Perfecto-Flow piping. One Solo valve and backwash control. High capacity resin and gravel supporting beds. One brine tank, gravel, brine line, and brine saturator with all interlocking from Solo valve to brine tank.

**INCLUDED WITH ALL MODELS** — Soap test kit and full installation and operating instructions. Mineral tanks wrapped and shipped securely fastened to skids. Brine tanks wrapped. Resin and gravel in bags or drums.