



DATA SHEET

Water
Softeners

SF



The Dayliff SF range of Water Softeners are ion exchange type softeners for the removal of hardness in water. The units have been carefully designed to provide the highest levels of performance for all types of domestic, industrial and institutional applications. Particular features include:-

- Three model range with capacities of 1, 6 and 15 m³/hr with higher capacities being available using paired units. The compact SF300 model features the resin vessel mounted inside the brine tank while the larger SF600 & 900 models are supplied with a separate brine tank.
- Technology leading GE Osmonics Autotrol electronic control valves providing fully automatic process control and volumetric regeneration.
- Tried and tested Dayliff CXD non-corroding GRP resin vessels featuring practical clamp-retained access covers, high efficiency under-drains and diffusers and high pressure capacity. The two larger models are fitted with side mount covers for resin access.
- High performance Dow Resin with enhanced exchange capacity and increased life.
- Generously sized brine tanks with all necessary fittings for reliable regeneration.

Dayliff SF softeners provide a most effective, reliable and economic solution for all boiler feed and other general softening requirements. The combination of quality components, integrated design and assured Davis & Shirliff quality ensures efficient and dependable softeners that can be relied upon to give many years of trouble free operation.

THE SOFTENING PROCESS

The softening process occurs when hardness ions (Calcium and Magnesium) are replaced with Sodium ions in a specially formulated cation resin media. The resin is pre-charged with Sodium ions by a brine rinse process, these being progressively exchanged with Calcium and Magnesium ions until the media is saturated. When this occurs resin regeneration is carried out and the cycle repeated. Hardness is measured in ppm (gms/m³) Calcium Carbonate (CaCO₃) and for general analysis soft water is <60ppm CaCO₃, medium water <120ppm CaCO₃, hard water <300ppm CaCO₃ and very hard water > 300 ppm CaCO₃.

SOFTENER SIZING

Softeners are rated by their exchange capacity, which is the quantity of Calcium that is removable between regenerations and is determined by the resin performance and specified in gms CaCO₃. Equipment sizing is then computed on the basis of the raw water hardness and the required brine regeneration period, 24hrs generally being the minimum. An example for sizing an SF600 unit is as follows:-

Exchange Capacity: If resin capacity is 75gms CaCO₃/litre* and resin volume 350litres = 75x350 = 26,250gms CaCO₃

Softening Capacity: Assume water hardness = 300ppm CaCO₃ = 26,250/300 = 87.5m³

Flow Rate: Assuming a 20hr operating period/day required flow rate = 87.5/20 = 4.4m³/hr, therefore SF 600 is suitable

Note that softening performance is reduced by increased TDS levels and it is necessary to compute compensated hardness when TDS levels are greater than 400ppm as follows:-

$$\text{Compensated Hardness (ppm CaCO}_3\text{)} = \frac{\text{Measured Hardness (ppmCaCO}_3\text{)} \times 9,000}{9,000 - \text{TDS level (ppm)}}$$

OPERATING CONDITIONS

Raw Water Appearance: Clear

Iron: <0.1ppm

Residual Chlorine: <1ppm

Bacteria: Free

Temperature Range: 5°C-40°C

Min Inlet Pressure: 1.7 Bar

Max Operating Pressure: 3 Bar

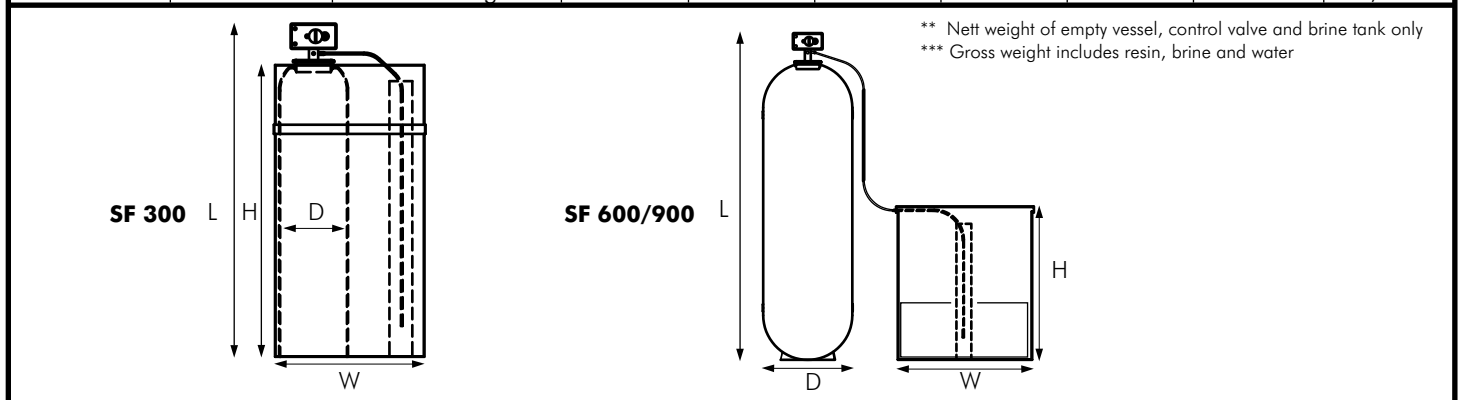
PERFORMANCE DATA

Model	Resin Volume (l)	Exchange Capacity* (gms CaCO ₃)	Indicative Softening Capacity (m ³)			Max. Flow (m ³ /hr)	Brine Tank Capacity (l)
			100 ppm	200 ppm	300 ppm		
SF 300	50	3,750	40	20	13	1	300
SF 600	350	26,250	260	130	90	6	600
SF 900	750	56,250	560	280	190	15	1,200

*Based upon Dowex HCR-S/S resin with capacity of 75gms CaCO₃/litre: capacity should be adjusted according to performance of resin used.

SPECIFICATIONS AND DIMENSIONS

Model	Softener Vessel	Valve Type	Pipe Size	L(mm)	D(mm)	H(mm)	W(mm)	Weight (kgs)	
								Nett**	Gross***
SF 300	CXD 300	Autotrol Logix 255	1"	1450	300	1270	650	50	600
SF 600	CXD 600	Autotrol Logix 278	1.5"	2200	620	1000	900	100	1,600
SF 900	CXD 900	Autotrol Magnum	2"	2400	925	1200	1210	170	2,200



NB. Contents herein are not warranted. The right is reserved to amend specifications without notice.

DT98A-08/07

AVAILABLE FROM

D&S DAVIS & SHIRTLIFF
know H₂Ow through experience
www.dayliff.com

KENYA

NAIROBI - HEAD OFFICE
TEL: (254 20) 558335, 6968000, FAX: 557617
d&s@dayliff.com
WESTLANDS
TEL: (254 20) 4446011, 4446016, FAX: 4442568
westlands@dayliff.com
ELDORET
TEL: (254 53) 2061306, FAX: 2062335
d&s@eld.dayliff.com
KISUMU
TEL: (254 57) 2024763, FAX: 2023103
d&s@ksm.dayliff.com

MOMBASA

TEL: (254 41) 2490861, 2492626, FAX: 2490868
d&s@mbsa.dayliff.com
NAKURU
TEL: (254 51) 2213146, 2213248, FAX: 2212956
d&s@nkr.dayliff.com
UGANDA
KAMPALA
TEL: (256 41) 346337/8, FAX: 346335
d&s@ug.dayliff.com

TANZANIA

DAR ES SALAAM
TEL: (255 22) 2112515/6, FAX: 2112513
office@tz.dayliff.com
ARUSHA
TEL: (255 25) 2502517/8, FAX: 2502516
office@ars.tz.dayliff.com
ZANZIBAR
TEL: (255 24) 2234660/1, FAX: 2234664
office@znz.tz.dayliff.com

ZAMBIA

LUSAKA
TEL: (260 1) 288010/11, FAX: (01) 288010
lusaka@zm.dayliff.com
KITWE
TEL: (260 2) 221747, TEL/FAX: 221767
kitwe@zm.dayliff.com
RWANDA
KIGALI
TEL: (250) 504033/9
sales@dayliff.co.rw