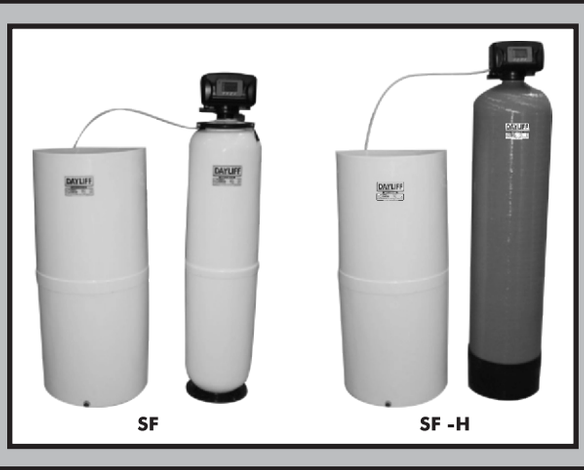
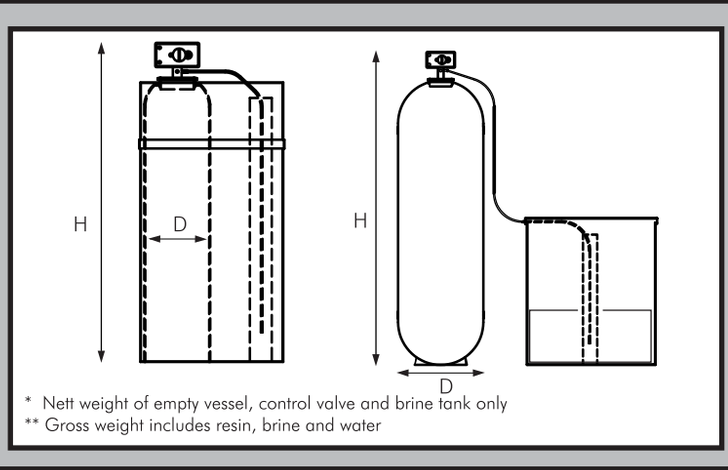
SF
Water Softeners





* Nett weight of empty vessel, control valve and brine tank only
** Gross weight includes resin, brine and water

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:

- An extended model range with capacities from 1 to 20m^3/hr with higher capacities being available using paired units.
- Technology leading Dayliff electronic control valves providing fully automatic process control and volumetric regeneration.
- High performance resin with enhanced 75gms $CaCO_3$/litre exchange capacity and increased life.
- Generously sized brine tanks with all the necessary fittings for reliable regeneration.
- An option of a Low Pressure vessel rated at a maximum of 3 bar using tried and tested Dayliff CXD non-corroding GRP vessels or High Pressure Dayliff PXD (designated H-version) vessels rated at a maximum of 10 bar using high specification Dayliff Structural pressure tanks.

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 Dayliff quality ensures efficient and dependable softeners that can be relied upon to give many years of trouble free operation

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 $CaCO_3$. 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 $CaCO_3$/litre and resin volume 350litres, =75x350 = 26,250gms $CaCO_3$

Softening Capacity: Assume water hardness = 300ppm $CaCO_3$ = 26,250/300 = 87.5m^3

Flow Rate: Assuming a 20hr operating period/day required flow rate = 87.5/20 = 4.4m^3/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:-

$$\textbf{Compensated Hardness}\ (\text{ppm } CaCO_3) = \frac{\text{Measured Hardness (ppm}CaCO_3) \times 9{,}000}{9{,}000 - \text{TDS level (ppm)}}$$

Operating Conditions

***Raw Water Appearance*:** Clear
***Residual Chlorine*:** <1ppm
***Temperature Range*:** 5°C-40°C
Max Operating Pressure : 3Bar (SF model); 10Bar (SF-H model)
***Iron*:** <0.1ppm
***Bacteria*:** Free
Min Inlet Pressure: 1.7 Bar

EQUIPMENT SPECIFICATION

Model	Resin Volume (Litres)	Exchange Capacity (gms of $CaCO_3$)	Softening Capacity			Rated Service Flow (m^3/hr)	Brine Tank Volume (Litres)	Dimensions (mm)		Outlet Sizes (")	Weights (kg)	
			100ppm	200ppm	300ppm			D	H		Nett	Gross
SF 200H	18	1,350	14	7	5	2	100	200	900	1	5	20
SF 240H	40	3,000	30	15	10	2.5	200	250	1370	1	15	30
SF 300	50	3,750	40	20	13	3	300	300	1450	1	50	90
SF 400H	100	7,500	75	40	25	5	500	400	1830	1	30	90
SF 500H	175	13,125	130	65	45	10	500	550	1770	2	40	150
SF 600	350	26,250	260	130	90	10	600	620	2200	2	100	400
SF 900	750	56,250	560	280	190	17	1,200	925	2400	2	170	800
SF 900H	550	41,250	410	205	140	17	1,200	930	2150	2	110	580