TECH TIP #11

STEAM BOILER RATINGS & FEED PUMP CAPACITY REQUIRED (ON-OFF OPERATION)

ON-OFF pump operation is used on smaller boilers. Modulating feed water should normally be considered on boilers larger than 100 boiler HP. (See Tech Tip 10)

Equivalent Boiler HP	BTU/hr. (1000's)	Steam Lb/per hr.	EDR Rating Sq., Ft.	Cond. Rate GPM	Pump Cap.* Reqd. GPM
20	670	690	2790	1.38	3
30	1005	1035	4185	2.07	6
40	1340	1380	5580	2.76	9
50	1675	1725	6975	3.45	9
60	2010	2070	8370	4.14	12
70	2345	2415	9765	4.83	15
80	2680	2760	11160	5.52	15
100	3350	3450	13950	6.90	22½
125	4185	4313	17438	8.62	22½
150	5025	5175	20935	10.40	30
200	6695	6900	27915	13.8	45
250	8370	8625	34895	17.3	45
300	10045	10350	41875	20.7	60
350	11720	12075	48825	24.2	75
400	13390	13800	55830	27.6	75
450	15064	15520	63000	31.1	97½
500	16740	17250	69790	34.5	97½
550	18411	18975	77000	37.95	120
600	20085	20700	83750	41.4	120
650	21759	22425	91000	44.85	150
700	23432	24150	98000	48.3	150
750	25106	25875	105000	51.75	150
800	26780	27600	112000	55.2	187½
1000	33475	34500	140000	69.00	200

*Note: Boiler HP x .069 GPM of feed water required to maintain boiler water level at 100% load. Pumps should be selected to provide two to three times the condensate rate shown in the above Table.
Pump capacity listed in the Table are based on an approximate 3 to 1 ratio.

Sizing Receivers for Boiler Feed Pumps

On boilers 20 - 75 boiler HP, use 1.4 gal/BHP for sizing boiler feed tank. Use 1.2 gal/BHP on boilers larger than 75 BHP.

Useful Conversion Data/Formula

1 Boiler HP = 34.5 lbs. of water evaporated per hour from and at 212°F
1 Boiler HP = 33.475 BTUH or 970 BTUH per lb. of water.
1 Boiler HP = 140 sq. ft. EDR.
1 BTU is required to raise 1 lb. of water 1°F between 32°F and 212°F.

Above courtesy of Burks Pumps and Skidmore Pumps

7