

TABLE 4. SCREW PUMPS

SIZE	G. P. M.	MAX. REV.	SUCTION INCHES	DISCHARGE INCHES
2	2- 15	1600	2	1½
2½	10- 20	1600	2	1½
3	20- 50	1600	2½	2½
3¼	40- 60	1600	3	2½
3½	55- 100	1500	4	3
4	85- 200	1400	4	4
5	175- 275	1200	5	4
5¼	200- 325	1200	5	4
6	275- 475	1200	6	6
7	300- 600	1000	8	6
8	450- 750	875	8	8
9	700-1000	720	10	10
10	800-1400	700	12	12
12	1200-2100	600	14	14
16	1750-4200	425	16	15

Continuously Operating Return Pumps

The piston speed in feet per minute should not be more than 10 times the square root of the number of inches in the length of stroke.

TABLE 5. SIZES, REVOLUTIONS PER MIN. HEADS PUMPED AGAINST, POWER REQUIRED* AND BOILER HORSE POWER FOR SEVERAL COMMERCIAL SIZES OF CENTRIFUGAL BOILER FEED PUMPS

SIZE OF PUMP INCHES	BRAKE H. P.	PIPE SIZES INCHES		CAPACITY GALLONS PER MIN.	BOILER H. P. SERVED WITHOUT FACTOR OF SAFETY
		Suction	Discharge		
Two Stage for 100 lb. Working Pressure					
2	13.3	2½	2	100	1450
2½	16.9	3	2½	150	2175
3	23.6	4	3	225	3262
4	37.2	5	4	400	5800
5	57.0	6	5	620	8990
6	76.5	8	6	900	13,000
8	125.0	10	8	1600	23,000
Three Stage for 150 lb. Working Pressure					
2	19.9	2½	2	100	1450
2½	25.4	3	2½	150	2175
3	35.4	4	3	225	3262
4	55.8	5	4	400	5800
5	85.5	6	5	620	8990
6	114.7	8	6	900	13,000
8	187.5	10	8	1600	23,000
Four Stage for 250 lb. Working Pressure					
2	33.2	2½	2	100	1450
2½	42.3	3	2½	150	2175
3	59.0	4	3	225	3262
4	93.0	5	4	400	5800
5	143.0	6	5	620	8990
6	192.0	8	6	900	13,000
8	312.5	10	8	1600	23,000

The volumetric displacement rate of water pistons should not be less than twice the maximum rate of flow of the condensate to be handled.

The quantities of condensate to be handled from direct radiation,

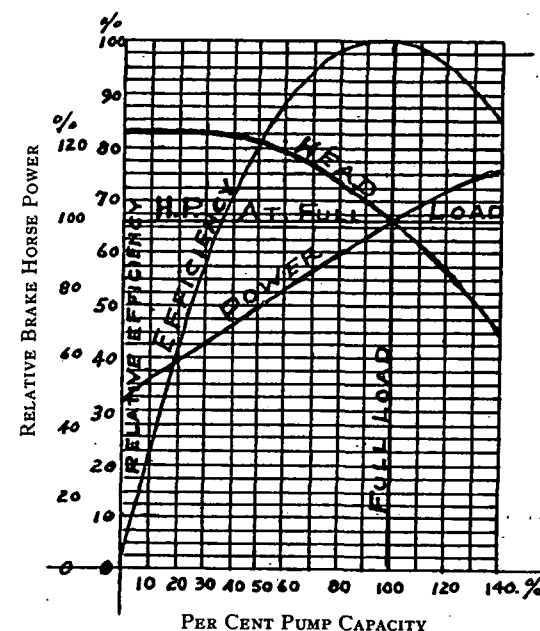


FIG. 2. TYPICAL CHARACTERISTICS OF CENTRIFUGAL BOILER FEED PUMPS

direct-indirect radiation and indirect or fan blast radiation may be estimated as follows:

$$\begin{aligned} \text{For direct radiation} \quad W &= 0.3 R^* \\ \text{For direct-indirect radiation} \quad W &= 0.6 R^* \\ \text{For indirect radiation} \quad W &= \frac{Q \times 60 \times T}{55.6 \times H} \end{aligned}$$

where

W = pounds of condensate per hour.

R = square feet of radiation.

Q = cubic feet of air per minute.

T = temperature rise of air in deg. fahr.

H = the latent heat of steam in the system in B.t.u. per pound.

The normal capacity of standard centrifugal pumps should be based on condensate at a temperature of not over 180 deg. fahr. For temperatures of condensate above this the capacity should be increased as in Table 6.

*Note: that this is greater than the standard 0.25 lb. of condensate per square foot, to take care of heating-up periods.