

CAPACITY AND FLOW CHART

Table One

Amount of water per foot in excavations

Diameter of pool of water	U. S. Gallons per foot of depth
1'	6
2'	24
3'	53
4'	94
5'	147
6'	212
7'	288
8'	376
9'	476
10'	587
15'	1320
20'	2350
25'	3672
30'	5275
35'	7200
40'	9400
45'	11900
50'	14700

Table Two

Approximate flow of streams in U.S. gallons per minute (Stream flow rate: 1' per second)

Depth of stream at midpoint	Width of Stream in feet			
	1	3	5	10
1"	14	43	72	144
2"	39	121	202	404
3"	71	221	370	740
4"	108	338	569	1139
5"	148	470	794	1588
6"	190	614	1040	2080
7"	244	771	1304	2608
8"		935	1582	3164
9"		1106	1879	3759
10"		1286	2196	4392
11"		1486	2542	5084
12"		1674	2866	5732
13"		1864	3204	6408
14"		2086	3592	7184
15"		2296	3968	7936
16"		2516	4360	8720
17"		2770	4788	9576
18"		2964	5160	10320
19"		3192	5576	11152

EFFECT OF CHANGE OF SPEED OR SLIGHT CHANGE OF IMPELLER DIAMETER ON CENTRIFUGAL PUMP

H: Head in feet
G: Gallons per minute

D: Diameter of impeller in inches
P: Brake horsepower

R: Revolutions per minute

Capacity varies directly as the speed or diameter:

$$G_2 = G_1 (R_2/R_1) \quad \text{or,} \quad G_2 = G_1 (d_2/d_1)$$

Head varies as the square of the speed or diameter:

$$H_2 = H_1 (R_2/R_1)^2 \quad \text{or,} \quad H_2 = H_1 (d_2/d_1)^2$$

Horsepower varies as the cube of the speed or diameter:

$$P_2 = P_1 (R_2/R_1)^3 \quad \text{or,} \quad P_2 = P_1 (d_2/d_1)^3$$

PULLEYS

D: Diameter of driver
r: RPM of driven
 $D = dr/R$

d: Diameter of driven
C: Distance between shafts
 $d = DR/r$ $R = dr/D$

R: RPM of driver
 $r = DR/d$

Length of belt: $\frac{3.1416 (D-d)}{2}$ plus 2C