

Performance Correction Factors

200.A.03 *(Effective June 1, 2006)*

Use the multipliers listed below to derate head, capacity and efficiency for special materials, bowls and impellers. Apply both multipliers listed if both bowl and impeller are of special construction.

MODEL	Bowl Multiplier		Impeller Multiplier	
	C.I. CL30 without Enamel or Coating	D.I. and other Material without Enamel or Coating	C.I. CL30, Aluminum-Brz	D.I. and other Material
5C, 5T, 5RWA	1.00	0.99	0.98	0.98
6C, 6D, 6RA	0.98	0.97	0.98	0.97
7C, 7RA, 7T, 7WA	0.98	0.97	0.98	0.97
8DH	0.98	0.97	0.99	0.97
8RA, 8RJ	0.98	0.97	0.98	0.97
9RA, 9WA, 9RC, 9T	0.98	0.97	0.98	0.97
10DH	0.99	0.98	0.99	0.98
10RA, 10WA	0.98	0.97	0.99	0.97
10RJ	0.98	0.98	0.99	0.98
10L	0.99	0.98	0.99	0.98
11C, 11WA	0.99	0.98	0.99	0.98
11RA	0.98	0.97	0.99	0.97
12C, 12DH, 12FR, 12FD	0.99	0.98	0.99	0.98
12WA, 12RJ	0.99	0.98	0.99	0.98
13C, 13RA	0.98	0.97	0.99	0.97
14DH, 14F, 14H, 14RH, 14RJ	0.99	0.98	0.99	0.98
15F, 16RG	0.99	0.99	0.99	0.97
16B	0.99	0.98	0.99	0.97
16DH	1.00	0.99	1.00	0.99
18B, 18C, 18G, 18H, 18L	0.99	0.99	0.99	0.97
18D	1.00	1.00	0.99	0.97
20B, 20C	0.99	0.99	0.99	0.97
20E, 20G	0.98	0.98	0.99	0.97
24C, 24D, 24E, 24F, 24G	0.99	0.98	0.99	0.98
26G, 28B, 28C, 28G	0.99	0.98	0.99	0.98
30B	0.99	0.98	0.99	0.98

Example:

Customer's rating is 1000 GPM at 50 ft. head with a 316 SS bowl and impeller construction. A 12RJMO at 1760 RPM was selected.

From the table, both the bowl and impeller correction is 0.98. To determine pump efficiency, the rating must be corrected:

$$\text{Corrected Capacity} = \frac{1000 \text{ GPM}}{0.98 \times 0.98} = 1041 \text{ GPM}$$

$$\text{Corrected Head} = \frac{50 \text{ ft.}}{0.98 \times 0.98} = 52 \text{ ft.}$$

Referring to the bowl assembly performance curve, the efficiency at the corrected rating is 85% minus 3 points derate for one stage which equals 82%. This efficiency must now be derated:

$$\text{The pump efficiency} = 82\% \times 0.98 \times 0.98 = 78.8\%$$

Therefore, the pump performance is 1000 GPM, 50 ft. and 78.8% efficiency.

$$\text{BHP} = \frac{1000 \times 50}{3960 \times 0.788} = 16.02 \text{ HP}$$

Bowl Assembly Pressure Limits

200.A.04 *(Effective June 1, 2006)*

MODEL	Maximum Bowl Working Pressure (PSIG) ¹	
	Cast Iron CL 30	Ductile Iron ³ Double Bolting
	Std. Bolts (Grade 8)	Std. Bolts (Grade 8)
5C	480	720
5T, 5RWA	480	720
6C	420	720
6DH ²	200	–
6RA	430	790
7C	415	720
7RA	430	790
7T	310	720
7WA	364	680
8DHC	364	600
8DHO ²	300	–
8RA	430	790
8RJ	425	790
9B	375	790
9RA	450	850
9WA	530	920
9RC	400	860
9T	530	920
10DH	322	600
10LC	244	500
10RA	450	850
10RJ	430	790
10WA	375	790
11C,11WA	380	680
11RA	400	632
12C	340	680
12DH	327	600
12FD	440	830
12FR	300	600
12WA	390	720
12RJ	340	632
13C	327	632

MODEL	Maximum Bowl Working Pressure (PSIG) ¹	
	Cast Iron CL 30	Ductile Iron ³ Double Bolting
	Std. Bolts (Grade 8)	Std. Bolts (Grade 8)
13RA	430	680
14DH	330	700
14F	330	700
14H	330	700
14RH	330	700
14RJ	340	720
15F	260	410
16DH	240	480
16DM	335	620
16B	322	643
16RG	420	750
18C	300	520
18B	348	656
18D	308	562
18G	225	293
18H	373	537
18L	190	350
20B	290	420
20C	230	420
20E	310	570
20G	270	530
24C	270	490
24D	290	540
24E	260	460
24F	320	580
24G	250	450
26G	230	340
28B	220	370
28C	200	–
28G	190	330
30B	190	310

Notes:

1. Pressure units based on maximum operating pressure of pump at any point on performance curve, normally occurring at shutoff.
2. Threaded bowl connection.
3. To insure proper sealing at bowl mating surfaces:
Either O-ring or liquid gasket material recommended on all ductile iron, double-bolted bowl assemblies.

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