Bell & Gossett
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Column and Tube Elongation

200.B.05 *(Effective June 1, 2006)*

Inch Per 100 Feet of Column

Column Load	3"	4"	5"	6"	8"	10"	12"	14"	16"
500	.007	.005	.004	.003					
600	.008	.006	.005	.004					
800	.011	.008	.006	.005					
1000	.013	.010	.008	.006	.004				
1200	.016	.012	.009	.007	.005				
1400	.019	.014	.011	.008	.006				
1600	.021	.016	.012	.009	.007	.005			
1800	.024	.018	.014	.011	.008	.006			
2000	.027	.020	.015	.012	.009	.007			
2400	.032	.023	.019	.014	.010	.008	.006		
2800	.037	.027	.022	.016	.012	.010	.007		
3200	.043	.031	.025	.019	.014	.011	.008		
3600	.048	.035	.028	.021	.016	.012	.009	.008	
4000		.039	.031	.023	.017	.014	.010	.008	
4400		.043	.034	.026	.019	.015	.011	.009	
4800		.047	.037	.028	.021	.016	.013	.010	.009
5200		.051	.040	.030	.023	.018	.014	.011	.010
5600		.055	.043	.033	.024	.019	.015	.012	.011
6000			.046	.035	.026	.020	.016	.013	.011
6500			.050	.038	.028	.022	.017	.014	.012
7000			.054	.041	.030	.024	.018	.015	.013
7500			.058	.044	.033	.025	.020	.016	.014
8000			.062	.047	.035	.027	.021	.017	.015
9000				.053	.039	.030	.023	.019	.017
10,000				.059	.043	.034	.026	.021	.019
12,000				.070	.052	.041	.031	.025	.023
14,000				.082	.061	.048	.036	.029	.026
16,000				.094	.070	.054	.042	.034	.030
18,000					.078	.061	.047	.038	.034
20,000					.087	.068	.052	.042	.037
22,000					.096	.075	.057	.046	.041
24,000					.104	.082	.063	.050	.045
26,000					.113	.088	.068	.055	.049
28,000						.095	.073	.059	.052
30,000						.102	.078	.063	.056
32,000						.109	.083	.067	.060
34,000						.115	.089	.071	.064
36,000						.122	.094	.076	.068
38,000						.129	.099	.080	.071
40,000						.136	.104	.084	.075

Follow the horizontal Column Load line to the particular Column Size and read the column elongation per 100 feet of column. See back page for Column Load calculation.

Column Load Calculations

200.B.06 *(Effective June 1, 2006)*

Column Load = TPH x SG x (KW – K)

TPH = Total Pump Head (ft.)

SG = Specific Gravity

KW = Column Load Factor (See table below)

Column Size (in.)	Column Load Factor (KW)
3	2.26
4	3.58
5	5.85
6	8.34
8	16.71
10	29.90
12	42.80
14	52.80

EXAMPLE:

12RJ bowl with TPH = 669 ft., SG = 1.0, Column Size 8"
Temperature ambient, K = 7 (from the performance curve)

Column Load = TPH x SG x (KW – K)

$\quad\quad\quad\quad\quad$ = 669 X 1.0 X (16.7 – 7)

$\quad\quad\quad\quad\quad$ = 6496 lbs.

From the table on the front side, the column elongation equals 0.028 inches per 100 feet of column.

Subtract the total column elongation from the total shaft elongation. The resulting net shaft elongation is then compared to the available lateral.

This chart is based on ambient temperature and all high temperature application and all applications where insufficient column elongation is obtained should be referred to the factory.

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