

Column Friction Loss Open and Enclosed Line-Shaft 4"-12"

COL. SIZE	4"		5"			6"				8"			
TUBE SIZE	1 1/2	2	1 1/2	2	2 1/2	1 1/2	2	2 1/2	3	1 1/2	2	2 1/2	3
SHAFT SIZE	1	1 1/4	1	1 1/4	1 1/2	1	1 1/4	1 1/2	1 15/16	1	1 1/4	1 1/2	1 15/16
					1 11/16			1 11/16				1 11/16	2 3/16
GPM	COLUMN FRICTION LOSS (IN FEET) PER 100 FEET OF COLUMN												
100	2.90	5.30		.90	1.20								
200	9.50	17.00	2.20	3.10	4.00	.73	.95	1.40	2.20				
300	19.00		4.50	6.40	8.30	1.60	2.00	2.90	4.50				
400			7.50	10.50		2.70	3.40	4.70	7.60		.61	.74	1.05
500			11.20			3.80	4.90	6.90	11.80		.91	1.10	1.55
600						5.20	7.00	9.50	17.10		1.30	1.55	2.20
700						7.00	9.00	12.50		.98	1.80	2.10	2.90
800						8.90	12.00	16.20		1.30	2.20	2.70	3.70
900						11.50	14.50			1.60	2.80	3.20	4.70
1000										1.90	3.30	3.90	5.40
1200										2.60	4.50	5.50	7.50
1400										3.50	5.95	7.20	9.98
1600										4.50	7.55	9.20	13.00
1800										5.50	9.40	14.00	16.40
2000										6.70	12.50		
2200										7.90	15.10		
2400										9.40			
2600										11.00			
2800										12.80			
3000										14.70			
3200										16.70			

COL. SIZE	10"				12"			
TUBE SIZE	1 1/2	2	2 1/2	3	2	2 1/2	3	3 1/2
SHAFT SIZE	1	1 1/4	1 1/2	1 15/16	1 1/4	1 1/2	1 15/16	2 7/16
			1 11/16	2 3/16		1 11/16	2 3/16	
GPM	COLUMN FRICTION LOSS (IN FEET) PER 100 FEET OF COLUMN							
700			.50	.62				
800		.58	.67	.80				
900		.72	.83	1.00				
1000		.89	1.00	1.17				
1200	1.08	1.20	1.38	1.65				
1400	1.40	1.59	1.81	2.18		.90		1.02
1600	1.79	2.20	2.30	2.78		1.11	1.04	1.30
1800	2.20	2.50	2.88	3.50	.99	1.36	1.29	1.65
2000	2.69	3.02	3.50	4.25	1.20	1.60	1.57	1.95
2200	3.20	3.60	4.10	5.05	1.42	1.89	1.85	2.35
2400	3.75	4.20	4.80	5.95	1.68	2.18	2.18	2.76
2600	4.33	4.90	5.60	6.90	1.92	2.50	2.50	3.23
2800	5.00	5.60	6.40	7.90	2.20	2.87	2.90	3.69
3000	5.65	6.40	7.25	8.95	2.50	3.20	3.30	4.20
3200	6.35	7.15	8.20	9.99	2.80	3.60	3.72	4.73
3400	7.05	8.00	9.10	12.00	3.15	4.00	4.15	5.28
3600	7.85	8.90	10.50	13.50	3.50	4.40	4.60	5.90
3800	8.70	9.80	12.50	14.50	3.85	4.80	5.15	5.55
4000	9.60	12.00	13.50		4.20	5.25	5.65	7.25
4200	10.60	14.50	14.90		4.60	5.80	6.15	7.85
4400	11.60				5.10	6.30	6.70	8.60
4600	12.70	14.40			5.50	6.80	7.25	9.30
4800	13.80	15.60			5.90	7.30	7.90	10.10
5000	15.00				6.40	8.70	8.55	11.10
5500					7.60	10.40	10.30	13.30
6000					9.00	12.20	12.30	15.80
6500					10.60	14.10	14.40	
7000					12.30	16.20	16.80	
7500					14.10			
8000					16.00			

Note: For open line-shaft use shaft size, for enclosed line-shaft use tube size.