

$\Delta p = 9468.4 \text{ lb/ft}^2$
 $\gamma = 62.3 \text{ lb/ft}^3$
 $\nu = 1.05\text{E-}05 \text{ ft}^2/\text{s}$
 $e = 5.00\text{E-}06 \text{ ft}$

D1=	0.1558 ft
D2=	0.1558 ft
D3=	0.1142 ft
L1=	600 ft
L2=	900 ft
L3=	900 ft
K tee1=	20
K tee2=	60
K elbow=	30
K red=	0.04
K exp=	0.4

Iteration	Assume				Assume												Assume				Assume				Assume			
	Q1 (f3/s)	V1 (ft/s)	Re1	(D/e)1	f1	fT1	NUM	f2	(D/e)2	fT2	DEN2	Q2 (f3/s)	V2 (ft/s)	Re2	f2 (new)	%diff2	f3	(D/e)3	fT3	DEN3	Q3 (f3/s)	V3 (ft/s)	Re3	f3(new)	%diff3	Q1 (f3/s)	%diff Q	
1	0.1	5.245359	7.78E+04	3.12E+04	0.019	0.00976	120.8078	0.012	3.12E+04	9.76E-03	2978.24	0.201404	10.56436	1.57E+05	0.0165	37.91%	0.015000	2.28E+04	1.03E-02	17679.51	0.082663	8.070312	8.78E+04	0.018605	24.04%			
	0.1	5.245359	7.78E+04	3.12E+04	0.019	0.00976	120.8078	0.0165	3.12E+04	9.76E-03	4100.87	0.017636	9.002949	1.34E+05	0.017059	3.09%	0.018605	2.28E+04	1.03E-02	21684.86	0.074298	7.2536	7.89E+04	0.019013	2.46%			
	0.1	5.245359	7.78E+04	3.12E+04	0.019	0.00976	120.8078	0.017059	3.12E+04	9.76E-03	4226.88	0.016905	8.867742	1.32E+05	0.017109	0.29%	0.019013	2.28E+04	1.03E-02	22360.45	0.073503	7.176045	7.80E+04	0.019055	0.25%			
	0.1	5.245359	7.78E+04	3.12E+04	0.019	0.00976	120.8078	0.017109	3.12E+04	9.76E-03	4239.16	0.016814	8.854887	1.31E+05	0.017114	0.03%	0.019055	2.28E+04	1.03E-02	22409.37	0.073423	7.168209	7.80E+04	0.019059	0.02%	0.242237	142.24%	
Iteration	Q1 (f3/s)	V1 (ft/s)	Re1	(D/e)1	f1	fT1	NUM	f2	(D/e)2	fT2	DEN2	Q2 (f3/s)	V2 (ft/s)	Re2	f2 (new)	%diff2	f3	(D/e)3	fT3	DEN3	Q3 (f3/s)	V3 (ft/s)	Re3	f3(new)	%diff3	Q1 (f3/s)	%diff Q	
	2	0.23223	12.1813	1.81E+05	3.12E+04	0.016	0.00976	9.41191	0.012	3.12E+04	9.76E-03	2978.24	0.056216	2.948727	4.38E+04	0.0215	79.35%	0.015000	2.28E+04	1.03E-02	17679.51	0.023073	2.252587	2.45E+04	0.024669	80.58%		
	0.23223	12.1813	1.81E+05	3.12E+04	0.016	0.00976	9.41191	0.0215	3.12E+04	9.76E-03	5328.18	0.042029	2.204574	3.27E+04	0.023001	6.88%	0.024669	2.28E+04	1.03E-02	28957.46	0.018028	1.760097	1.91E+04	0.026208	7.15%			
	0.23223	12.1813	1.81E+05	3.12E+04	0.016	0.00976	9.41191	0.023001	3.12E+04	9.76E-03	5693.37	0.040659	2.132698	3.16E+04	0.023180	0.78%	0.026208	2.28E+04	1.03E-02	30752.22	0.017494	1.707963	1.86E+04	0.026405	0.86%			
0.23223	12.1813	1.81E+05	3.12E+04	0.016	0.00976	9.41191	0.023180	3.12E+04	9.76E-03	5737.49	0.040502	2.124483	3.15E+04	0.023201	0.09%	0.026405	2.28E+04	1.03E-02	30982.82	0.017429	1.701596	1.85E+04	0.026430	0.11%	0.057931	-75.05%		
3	0.23223	12.1813	1.81E+05	3.12E+04	0.016	0.00976	9.41191	0.012	3.12E+04	9.76E-03	2978.24	0.056216	2.948727	4.38E+04	0.0215	79.35%	0.015000	2.28E+04	1.03E-02	17679.51	0.023073	2.252587	2.45E+04	0.024669	80.58%			
	0.23223	12.1813	1.81E+05	3.12E+04	0.016	0.00976	9.41191	0.0215	3.12E+04	9.76E-03	5328.18	0.042029	2.204574	3.27E+04	0.023001	6.88%	0.024669	2.28E+04	1.03E-02	28957.46	0.018028	1.760097	1.91E+04	0.026208	7.15%			
	0.23223	12.1813	1.81E+05	3.12E+04	0.016	0.00976	9.41191	0.023001	3.12E+04	9.76E-03	5693.37	0.040659	2.132698	3.16E+04	0.023180	0.78%	0.026208	2.28E+04	1.03E-02	30752.22	0.017494	1.707963	1.86E+04	0.026405	0.86%			
	0.23223	12.1813	1.81E+05	3.12E+04	0.016	0.00976	9.41191	0.023180	3.12E+04	9.76E-03	5737.49	0.040502	2.124483	3.15E+04	0.023201	0.09%	0.026405	2.28E+04	1.03E-02	30982.82	0.017429	1.701596	1.85E+04	0.026430	0.11%	0.057931	-75.05%	
Iteration	Q1 (f3/s)	V1 (ft/s)	Re1	(D/e)1	f1	fT1	NUM	f2	(D/e)2	fT2	DEN2	Q2 (f3/s)	V2 (ft/s)	Re2	f2 (new)	%diff2	f3	(D/e)3	fT3	DEN3	Q3 (f3/s)	V3 (ft/s)	Re3	f3(new)	%diff3	Q1 (f3/s)	%diff Q	
	4	0.195	10.22845	1.52E+05	3.12E+04	0.017	0.00976	48.1375	0.012	3.12E+04	9.76E-03	2978.24	0.127134	6.686841	9.89E+04	0.0181	50.80%	0.015000	2.28E+04	1.03E-02	17679.51	0.05218	5.0943	5.54E+04	0.020479	45.66%		
	0.195	10.22845	1.52E+05	3.12E+04	0.017	0.00976	48.1375	0.0181	3.12E+04	9.76E-03	4482.72	0.103627	5.435583	8.07E+04	0.018866	4.25%	0.020479	2.28E+04	1.03E-02	24069.91	0.04472	4.365987	4.75E+04	0.021179	3.87%			
	0.195	10.22845	1.52E+05	3.12E+04	0.017	0.00976	48.1375	0.018866	3.12E+04	9.76E-03	4672.65	0.101499	5.323966	7.90E+04	0.018947	0.43%	0.021179	2.28E+04	1.03E-02	24886.28	0.043981	4.293779	4.67E+04	0.021257	0.41%			
0.195	10.22845	1.52E+05	3.12E+04	0.017	0.00976	48.1375	0.018947	3.12E+04	9.76E-03	4692.68	0.101282	5.312591	7.88E+04	0.018955	0.04%	0.021257	2.28E+04	1.03E-02	24977.26	0.0439	4.285952	4.66E+04	0.021265	0.05%	0.145182	-25.55%		
Iteration	Q1 (f3/s)	V1 (ft/s)	Re1	(D/e)1	f1	fT1	NUM	f2	(D/e)2	fT2	DEN2	Q2 (f3/s)	V2 (ft/s)	Re2	f2 (new)	%diff2	f3	(D/e)3	fT3	DEN3	Q3 (f3/s)	V3 (ft/s)	Re3	f3(new)	%diff3	Q1 (f3/s)	%diff Q	
	5	0.1595	8.366348	1.24E+05	3.12E+04	0.017	0.00976	79.77968	0.012	3.12E+04	9.76E-03	2978.24	0.163669	8.585029	1.27E+05	0.0172	43.47%	0.015000	2.28E+04	1.03E-02	17679.51	0.067176	6.558264	7.13E+04	0.019413	36.77%		
	0.1595	8.366348	1.24E+05	3.12E+04	0.017	0.00976	79.77968	0.0172	3.12E+04	9.76E-03	4265.67	0.136758	7.173446	1.06E+05	0.017834	3.59%	0.019413	2.28E+04	1.03E-02	22826.36	0.059119	5.771726	6.28E+04	0.019940	3.32%			
	0.1595	8.366348	1.24E+05	3.12E+04	0.017	0.00976	79.77968	0.017834	3.12E+04	9.76E-03	4418.09	0.134378	7.048622	1.05E+05	0.017897	0.35%	0.019940	2.28E+04	1.03E-02	23441.37	0.059383	5.69551	6.17E+04	0.019996	0.06%			
0.1595	8.366348	1.24E+05	3.12E+04	0.017	0.00976	79.77968	0.017897	3.12E+04	9.76E-03	4433.49	0.134145	7.036368	1.04E+05	0.017903	0.03%	0.019996	2.28E+04	1.03E-02	23506.97	0.058257	5.687557	6.19E+04	0.020002	0.03%	0.192402	20.63%		
Iteration	Q1 (f3/s)	V1 (ft/s)	Re1	(D/e)1	f1	fT1	NUM	f2	(D/e)2	fT2	DEN2	Q2 (f3/s)	V2 (ft/s)	Re2	f2 (new)	%diff2	f3	(D/e)3	fT3	DEN3	Q3 (f3/s)	V3 (ft/s)	Re3	f3(new)	%diff3	Q1 (f3/s)	%diff Q	
	6	0.1752	9.189869	1.36E+05	3.12E+04	0.017	0.00976	66.43081	0.012	3.12E+04	9.76E-03	2978.24	0.143935	7.833942	1.16E+05	0.0175	46.06%	0.015000	2.28E+04	1.03E-02	17679.51	0.061298	5.984495	6.51E+04	0.019788	39.90%		
	0.1752	9.189869	1.36E+05	3.12E+04	0.017	0.00976	66.43081	0.0175	3.12E+04	9.76E-03	4342.18	0.123689	6.487925	9.63E+04	0.018196	3.82%	0.019788	2.28E+04	1.03E-02	23264.26	0.053437	5.216966	5.67E+04	0.020374	3.34%			
	0.1752	9.189869	1.36E+05	3.12E+04	0.017	0.00976	66.43081	0.018196	3.12E+04	9.76E-03	4507.48	0.1214	6.367857	9.45E+04	0.018265	0.38%	0.020374	2.28E+04	1.03E-02	23947.96	0.052668	5.141957	5.59E+04	0.020438	0.35%			
0.1752	9.189869	1.36E+05	3.12E+04	0.017	0.00976	66.43081	0.018265	3.12E+04	9.76E-03	4524.44	0.121172	6.355907	9.43E+04	0.018272	0.04%	0.020438	2.28E+04	1.03E-02	24022.06	0.052587	5.13402	5.58E+04	0.020445	0.04%	0.173759	-0.82%		
Iteration	Q1 (f3/s)	V1 (ft/s)	Re1	(D/e)1	f1	fT1	NUM	f2	(D/e)2	fT2	DEN2	Q2 (f3/s)	V2 (ft/s)	Re2	f2 (new)	%diff2	f3	(D/e)3	fT3	DEN3	Q3 (f3/s)	V3 (ft/s)	Re3	f3(new)	%diff3	Q1 (f3/s)	%diff Q	
	7	0.1741	9.13217	1.36E+05	3.12E+04	0.017	0.00976	67.39958	0.012	3.12E+04	9.76E-03	2978.24	0.150435	7.890858	1.17E+05	0.0175	45.85%	0.015000	2.28E+04	1.03E-02	17679.51	0.061744	6.027974	6.56E+04	0.019758	39.65%		
	0.1741	9.13217	1.36E+05	3.12E+04	0.017	0.00976	67.39958	0.0175	3.12E+04	9.76E-03	4336.05	0.124676	6.539685	9.70E+04	0.018167	3.80%	0.019758	2.28E+04	1.03E-02	23229.12	0.053866	5.258842	5.72E+04	0.020339	3.32%			
	0.1741	9.13217	1.36E+05	3.12E+04	0.017	0.00976	67.39958	0.018167	3.12E+04	9.76E-03	4500.29	0.122379	6.419238	9.52E+04	0.018235	0.38%	0.020339	2.28E+04	1.03E-02	23907.21	0.053096	5.183726	5.64E+04	0.020402	0.35%			
0.1741	9.13217	1.36E+05	3.12E+04	0.017	0.00976	67.39958	0.018235	3.12E+04	9.76E-03	4517.13	0.122151	6.407263	9.51E+04	0.018248	0.04%	0.020402	2.28E+04	1.03E-02	23980.62	0.053015	5.175787	5.63E+04	0.020409	0.04%	0.175166	0.61%		