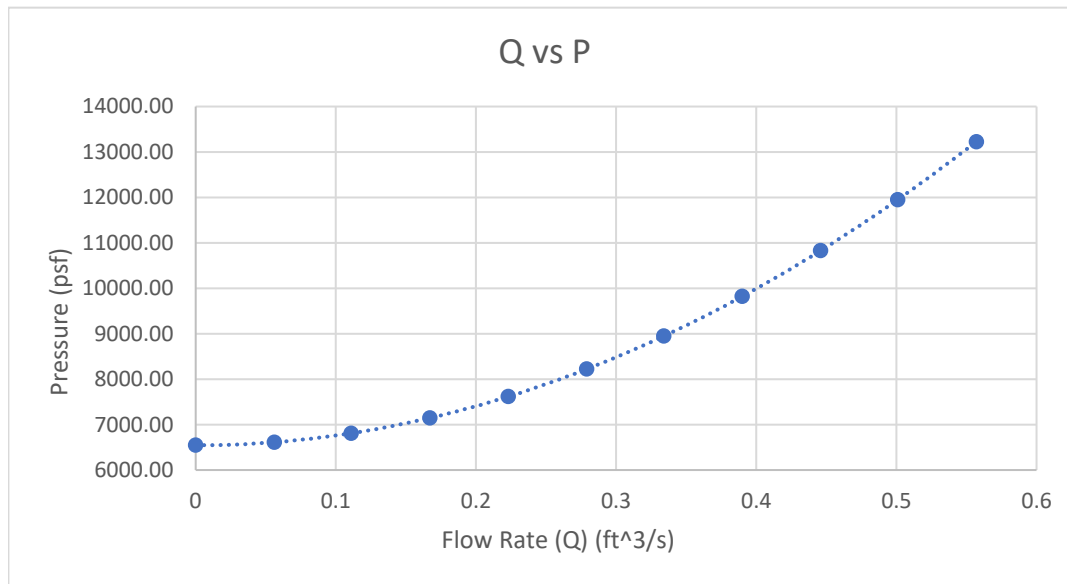


Variable	Value	Units
P1	13224.71	psf
P2	5760	psf
gamma (γ) Ethyl Alcohol	49.01	lb/ft^3
Z1	26	ft
Z2	42	ft
hL minor	19.35	ft
hL major	116.96	ft
Reynolds number	279000	
g	32.2	ft/s ²
Q	0.557	ft ³ /s
roughness	1148.33	
Friction factor	0.0207	
k short elbow	0.621	
k inward pipe inlet	0.78	
V	23.87	ft/s
A	0.02333	ft ²
pipe ID	0.17225	ft
v	1.473E-05	ft ² /s

Bernoullis Equation		
$P_1 = P_2 + \gamma(Z_2 - Z_1) + \gamma(h_L)$		
P1=	13224.71	psf
Reynolds Number		
Re=	2.79E+05	
Roughness		
D/epsilon	1148.33	
$\Delta P / \gamma h$		
h=	9.38	ft

Pressure	Flow rate
10,800 psf	0.45 ft ³ /s
75 psi	197.5 gpm



Flow Rate gpm	Flow Rate ft ³ /s	V	Re	hL elbows	hL inlet	hL valve	hL major
250	0.557	23.87	2.79E+05	10.99	6.90	1.47	117.00
225	0.501	21.47	2.51E+05	8.89	5.59	1.19	94.66
200	0.446	19.12	2.24E+05	7.05	4.43	0.94	75.02
175	0.39	16.72	1.95E+05	5.39	3.38	0.72	57.36
150	0.334	14.32	1.67E+05	3.95	2.48	0.53	42.07
125	0.279	11.96	1.40E+05	2.76	1.73	0.37	29.36
100	0.223	9.56	1.12E+05	1.76	1.11	0.23	18.75
75	0.167	7.16	8.37E+04	0.99	0.62	0.13	10.52
50	0.111	4.76	5.56E+04	0.44	0.27	0.06	4.65
25	0.056	2.40	2.81E+04	0.11	0.07	0.01	1.18
0	0	0.00	0.00E+00	0.00	0.00	0.00	0.00

hL total	P1
136.37	13227.46
110.32	11951.16
87.43	10829.16
66.85	9820.66
49.03	8947.27
34.21	8220.99
21.86	7615.41
12.26	7144.94
5.42	6809.58
1.38	6611.71
0.00	6544.16