Observations and Calculations:

Area, A(m^2)	0.000730617
Room Temp.	15◦C
Atmospheric Pressure, P(Pa)	103125
Conversion factor for transverse mechanism (units/mm)	0.003175
Density of manometric fluid, ρ_m (kg/m^3)	889
Density of air, ρ_{air} (kg/m^3)	1.247640825
Angle of inclination, θ	21.6
Exit velocity, u_0 (m/s)	29.55782567
Q_0 (m^3/s)	0.021595439
M_0 (m^4/s^2)	0.638314231
E_0 (m^5/s^3)	18.86718076

a) x/d = 0.5

Scale	**Radius, r (m)**	**Manometer Reading, h (cm)**	**u(r) (m/s)**	**r (m)**	**u**	**r*u**	**$r*u^2$**	**$r*u^3$**
0	0	16.9	29.471	0	30.820	0.000	0.000	0.000
10	0.003175	16.9	29.471	0.001	28.594	0.029	0.818	23.380
20	0.00635	16.9	29.471	0.002	27.302	0.055	1.491	40.700
30	0.009525	16.9	29.471	0.003	26.791	0.080	2.153	57.691
40	0.0127	16.9	29.471	0.004	26.914	0.108	2.897	77.979
50	0.015875	16.2	28.854	0.005	27.518	0.138	3.786	104.188
60	0.01905	0	0.000	0.006	28.454	0.171	4.858	138.225
				0.007	29.572	0.207	6.121	181.025
				0.008	30.721	0.246	7.550	231.953

				0.009	31.751	0.286	9.073	288.090
				0.01	32.512	0.325	10.571	343.674
				0.011	32.854	0.361	11.873	390.086
				0.012	32.626	0.392	12.774	416.751
				0.013	31.678	0.412	13.046	413.262
				0.014	29.860	0.418	12.483	372.738
				0.015	27.022	0.405	10.953	295.956
				0.016	23.013	0.368	8.473	194.990
				0.017	17.682	0.301	5.315	93.989
				0.018	10.881	0.196	2.131	23.190
				0.019	2.459	0.047	0.115	0.282

Q	0.028223113
M	0.990674278
E	28.93001786
Q/Q_0	1.306901556
M/M_0	1.552016594
E/E_0	1.53335139

b) x/d = 8

Scale	**Radius, r(mm)**	**Manometer Reading, h (cm)**	**u(r) (m/s)**	**r (m)**	**u**	**r*u**	**$r*u^2$**	**$r*u^3$**
0	0	11.5	24.311	0.000	24.892	0.000	0.000	0.000
1	0.003175	11	23.776	0.001	24.595	0.025	0.605	14.877
2	0.00635	10.3	23.007	0.002	24.267	0.049	1.178	28.581

3	0.009525	9.2	21.744	0.003	23.910	0.072	1.715	41.008
4	0.0127	7.5	19.633	0.004	23.526	0.094	2.214	52.085
5	0.015875	5.8	17.265	0.005	23.116	0.116	2.672	61.760
6	0.01905	4.5	15.207	0.006	22.681	0.136	3.087	70.008
7	0.022225	3.3	13.023	0.007	22.223	0.156	3.457	76.829
8	0.0254	2.2	10.633	0.008	21.744	0.174	3.782	82.241
9	0.028575	1.7	9.347	0.009	21.244	0.191	4.062	86.286
10	0.03175	1	7.169	0.010	20.725	0.207	4.295	89.021
11	0.034925	0.8	6.412	0.011	20.189	0.222	4.484	90.518
12	0.0381	0.4	4.534	0.012	19.637	0.236	4.627	90.866
13	0.041275	0.2	3.206	0.013	19.070	0.248	4.728	90.161
14	0.04445	0.1	2.267	0.014	18.491	0.259	4.787	88.508
15	0.047625	0.1	2.267	0.015	17.899	0.268	4.806	86.020
16	0.0508	0	0.000	0.016	17.298	0.277	4.787	82.812
				0.017	16.688	0.284	4.734	78.999
				0.018	16.070	0.289	4.648	74.699
				0.019	15.446	0.293	4.533	70.022
				0.020	14.818	0.296	4.392	65.079
				0.021	14.188	0.298	4.227	59.971
				0.022	13.555	0.298	4.042	54.792
				0.023	12.922	0.297	3.841	49.631
				0.024	12.291	0.295	3.626	44.563
				0.025	11.662	0.292	3.400	39.655
				0.026	11.038	0.287	3.168	34.965
				0.027	10.419	0.281	2.931	30.540
				0.028	9.807	0.275	2.693	26.413
				0.029	9.204	0.267	2.457	22.613

				0.030	8.611	0.258	2.224	19.154
				0.031	8.029	0.249	1.998	16.045
				0.032	7.460	0.239	1.781	13.285
				0.033	6.905	0.228	1.573	10.865
				0.034	6.366	0.216	1.378	8.771
				0.035	5.844	0.205	1.195	6.985
				0.036	5.341	0.192	1.027	5.483
				0.037	4.857	0.180	0.873	4.240
				0.038	4.395	0.167	0.734	3.226
				0.039	3.956	0.154	0.610	2.415
				0.040	3.541	0.142	0.502	1.776
				0.041	3.152	0.129	0.407	1.284
				0.042	2.791	0.117	0.327	0.913
				0.043	2.457	0.106	0.260	0.638
				0.044	2.154	0.095	0.204	0.440
				0.045	1.883	0.085	0.160	0.300
				0.046	1.644	0.076	0.124	0.205
				0.047	1.440	0.068	0.097	0.140
				0.048	1.272	0.061	0.078	0.099
				0.049	1.141	0.056	0.064	0.073
				0.050	1.048	0.052	0.055	0.058

Q	0.0598852
M	0.9381426
E	14.74685
Q/Q_0	2.7730475

M/M_0	1.4697191
E/E_0	0.7816138

c) x/d = 12

Scale	Radius, r(mm)	Manometer Reading, h (cm)	u(r) (m/s)	r (m)	u	r*u	$r*u^2$	$r*u^3$
0	0	4.9	15.869	0.000	15.939	0.000	0.000	0.000
1	0.003175	4.9	15.869	0.001	15.859	0.016	0.252	3.989
2	0.00635	4.4	15.037	0.002	15.763	0.032	0.497	7.834
3	0.009525	4.1	14.516	0.003	15.652	0.047	0.735	11.504
4	0.0127	3.6	13.602	0.004	15.526	0.062	0.964	14.970
5	0.015875	3.4	13.219	0.005	15.385	0.077	1.184	18.209
6	0.01905	3.1	12.622	0.006	15.231	0.091	1.392	21.198
7	0.022225	2.3	10.872	0.007	15.063	0.105	1.588	23.922
8	0.0254	2	10.138	0.008	14.882	0.119	1.772	26.368
9	0.028575	1.7	9.347	0.009	14.689	0.132	1.942	28.524
10	0.03175	1.4	8.482	0.010	14.484	0.145	2.098	30.387
11	0.034925	1.1	7.519	0.011	14.268	0.157	2.239	31.953
12	0.0381	0.8	6.412	0.012	14.042	0.169	2.366	33.224
13	0.041275	0.4	4.534	0.013	13.805	0.179	2.478	34.203
14	0.04445	0.3	3.927	0.014	13.559	0.190	2.574	34.898
15	0.047625	0.2	3.206	0.015	13.304	0.200	2.655	35.319
16	0.0508	0.1	2.267	0.016	13.040	0.209	2.721	35.478
17	0.053975	0.1	2.267	0.017	12.768	0.217	2.772	35.388
18	0.05715	0.1	2.267	0.018	12.489	0.225	2.808	35.066
19	0.060325	0.1	2.267	0.019	12.203	0.232	2.830	34.530

20	0.0635	0	0.000	0.020	11.911	0.238	2.838	33.799
				0.021	11.613	0.244	2.832	32.891
				0.022	11.310	0.249	2.814	31.828
				0.023	11.002	0.253	2.784	30.631
				0.024	10.690	0.257	2.743	29.319
				0.025	10.374	0.259	2.691	27.914
				0.026	10.056	0.261	2.629	26.436
				0.027	9.734	0.263	2.558	24.905
				0.028	9.411	0.264	2.480	23.339
				0.029	9.086	0.264	2.394	21.755
				0.030	8.761	0.263	2.303	20.172
				0.031	8.435	0.261	2.205	18.603
				0.032	8.109	0.259	2.104	17.062
				0.033	7.784	0.257	1.999	15.563
				0.034	7.460	0.254	1.892	14.115
				0.035	7.138	0.250	1.783	12.728
				0.036	6.818	0.245	1.674	11.410
				0.037	6.501	0.241	1.564	10.167
				0.038	6.188	0.235	1.455	9.003
				0.039	5.878	0.229	1.348	7.922
				0.040	5.573	0.223	1.243	6.925
				0.041	5.273	0.216	1.140	6.013
				0.042	4.979	0.209	1.041	5.185
				0.043	4.691	0.202	0.946	4.438
				0.044	4.409	0.194	0.855	3.772
				0.045	4.135	0.186	0.769	3.181

				0.046	3.868	0.178	0.688	2.663
				0.047	3.610	0.170	0.612	2.211
				0.048	3.360	0.161	0.542	1.821
				0.049	3.120	0.153	0.477	1.489
				0.050	2.890	0.145	0.418	1.207
				0.051	2.670	0.136	0.364	0.971
				0.052	2.461	0.128	0.315	0.775
				0.053	2.264	0.120	0.272	0.615
				0.054	2.079	0.112	0.233	0.485
				0.055	1.906	0.105	0.200	0.381
				0.056	1.747	0.098	0.171	0.298
				0.057	1.601	0.091	0.146	0.234
				0.058	1.469	0.085	0.125	0.184
				0.059	1.353	0.080	0.108	0.146
				0.060	1.251	0.075	0.094	0.118
				0.061	1.166	0.071	0.083	0.097
				0.062	1.096	0.068	0.075	0.082
				0.063	1.044	0.066	0.069	0.072

Q	0.0682777
M	0.7204491
E	7.5269093
Q/Q_0	3.1616728
M/M_0	1.1286746
E/E_0	0.3989419

d) x/d = 15

Scale	Radius, r(mm)	Manometer Reading, h (cm)	u(r) (m/s)	r (m)	u	r*u	$r*u^2$	$r*u^3$
0	0	3.2	12.824	0.000	12.869	0.000	0.000	0.000
1	0.003175	3.1	12.622	0.001	12.792	0.013	0.164	2.093
2	0.00635	3	12.417	0.002	12.708	0.025	0.323	4.104
3	0.009525	2.7	11.780	0.003	12.617	0.038	0.478	6.025
4	0.0127	2.5	11.335	0.004	12.519	0.050	0.627	7.848
5	0.015875	2.3	10.872	0.005	12.415	0.062	0.771	9.568
6	0.01905	2.1	10.389	0.006	12.305	0.074	0.908	11.178
7	0.022225	1.8	9.618	0.007	12.188	0.085	1.040	12.674
8	0.0254	1.7	9.347	0.008	12.066	0.097	1.165	14.053
9	0.028575	1.5	8.780	0.009	11.938	0.107	1.283	15.312
10	0.03175	1.2	7.853	0.010	11.804	0.118	1.393	16.449
11	0.034925	1.1	7.519	0.011	11.666	0.128	1.497	17.462
12	0.0381	0.8	6.412	0.012	11.522	0.138	1.593	18.353
13	0.041275	0.7	5.998	0.013	11.373	0.148	1.681	19.122
14	0.04445	0.5	5.069	0.014	11.219	0.157	1.762	19.769
15	0.047625	0.4	4.534	0.015	11.061	0.166	1.835	20.298
16	0.0508	0.3	3.927	0.016	10.898	0.174	1.900	20.710
17	0.053975	0.2	3.206	0.017	10.731	0.182	1.958	21.009
18	0.05715	0.1	2.267	0.018	10.561	0.190	2.007	21.200
19	0.060325	0.1	2.267	0.019	10.386	0.197	2.050	21.286
20	0.0635	0.1	2.267	0.020	10.208	0.204	2.084	21.273
21	0.066675	0.1	2.267	0.021	10.026	0.211	2.111	21.165
22	0.06985	0	0.000	0.022	9.841	0.217	2.131	20.969

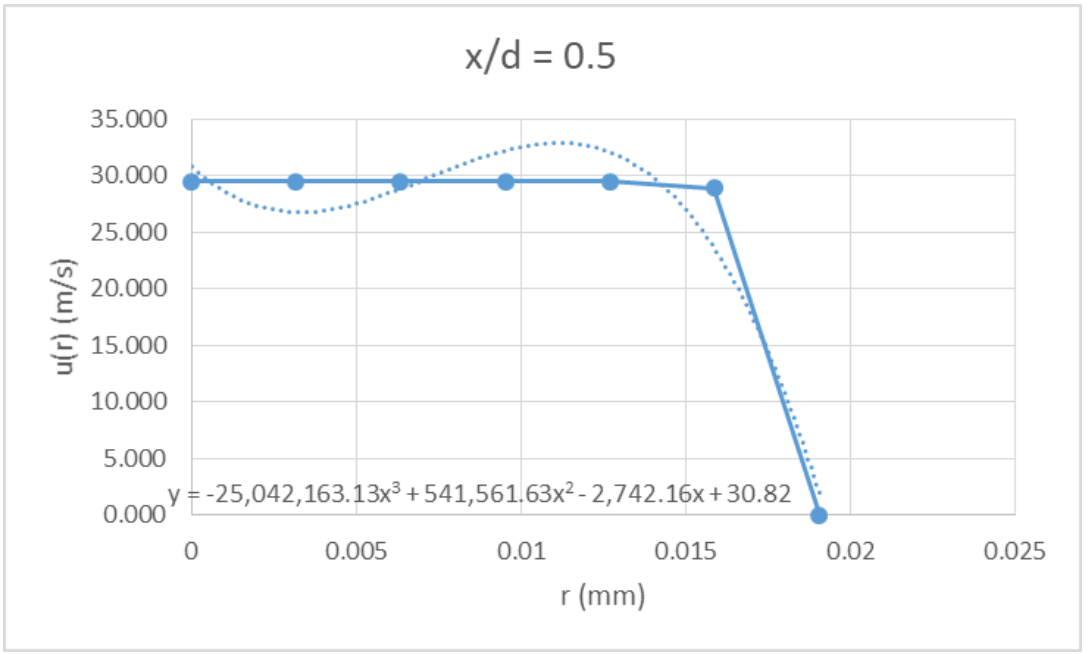
				0.023	9.653	0.222	2.143	20.690
				0.024	9.463	0.227	2.149	20.335
				0.025	9.269	0.232	2.148	19.910
				0.026	9.073	0.236	2.140	19.421
				0.027	8.875	0.240	2.127	18.875
				0.028	8.675	0.243	2.107	18.278
				0.029	8.473	0.246	2.082	17.638
				0.030	8.269	0.248	2.051	16.960
				0.031	8.063	0.250	2.015	16.251
				0.032	7.856	0.251	1.975	15.517
				0.033	7.648	0.252	1.930	14.764
				0.034	7.439	0.253	1.882	13.999
				0.035	7.230	0.253	1.829	13.226
				0.036	7.019	0.253	1.774	12.451
				0.037	6.809	0.252	1.715	11.678
				0.038	6.598	0.251	1.654	10.914
				0.039	6.387	0.249	1.591	10.161
				0.040	6.176	0.247	1.526	9.423
				0.041	5.966	0.245	1.459	8.705
				0.042	5.756	0.242	1.391	8.009
				0.043	5.547	0.239	1.323	7.338
				0.044	5.339	0.235	1.254	6.694
				0.045	5.131	0.231	1.185	6.080
				0.046	4.926	0.227	1.116	5.497
				0.047	4.721	0.222	1.048	4.947
				0.048	4.519	0.217	0.980	4.429

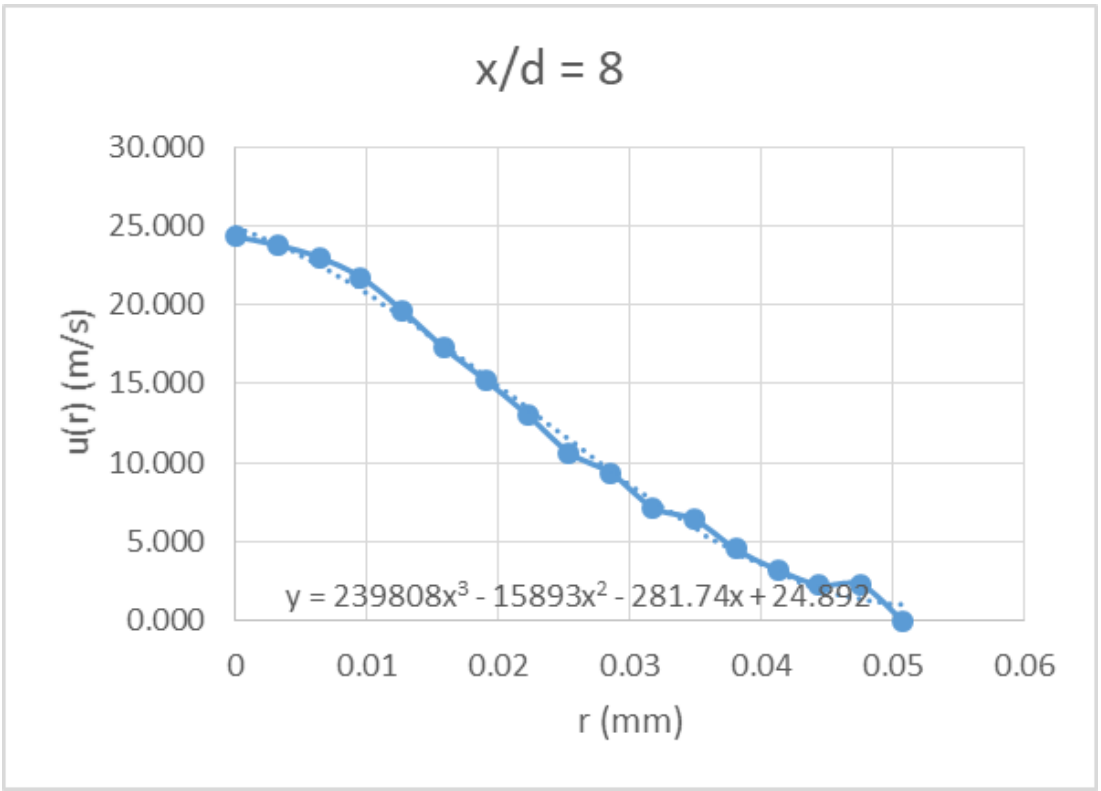
				0.049	4.318	0.212	0.914	3.945
				0.050	4.120	0.206	0.849	3.495
				0.051	3.923	0.200	0.785	3.079
				0.052	3.729	0.194	0.723	2.697
				0.053	3.538	0.188	0.663	2.347
				0.054	3.349	0.181	0.606	2.029
				0.055	3.164	0.174	0.551	1.742
				0.056	2.982	0.167	0.498	1.484
				0.057	2.803	0.160	0.448	1.255
				0.058	2.627	0.152	0.400	1.052
				0.059	2.456	0.145	0.356	0.874
				0.060	2.288	0.137	0.314	0.719
				0.061	2.125	0.130	0.275	0.585
				0.062	1.966	0.122	0.240	0.471
				0.063	1.811	0.114	0.207	0.374
				0.064	1.661	0.106	0.177	0.293
				0.065	1.516	0.099	0.149	0.227
				0.066	1.376	0.091	0.125	0.172
				0.067	1.242	0.083	0.103	0.128
				0.068	1.113	0.076	0.084	0.094
				0.069	0.989	0.068	0.068	0.067
				0.070	0.872	0.061	0.053	0.046

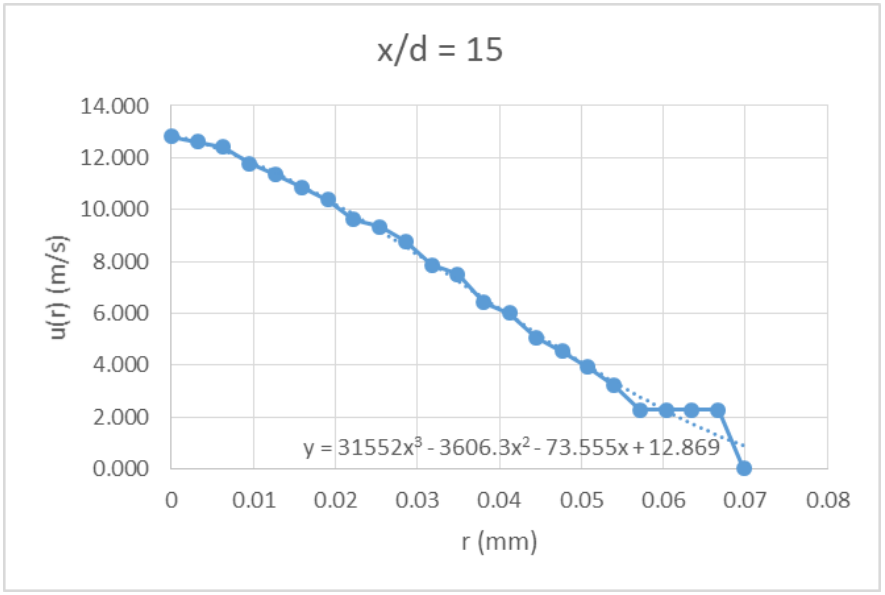
Q	0.0758904
M	0.6579445
E	5.4987044

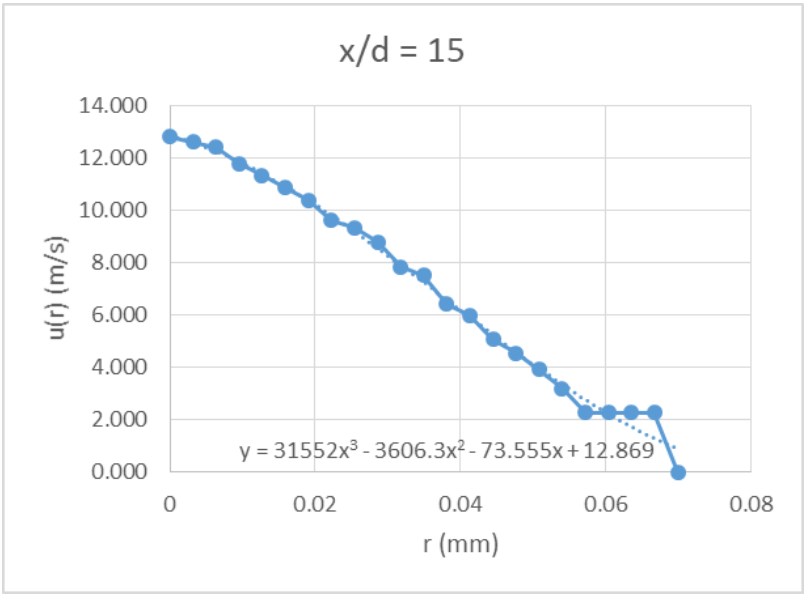
Q/Q_0	3.5141874
M/M_0	1.0307534
E/E_0	0.2914428

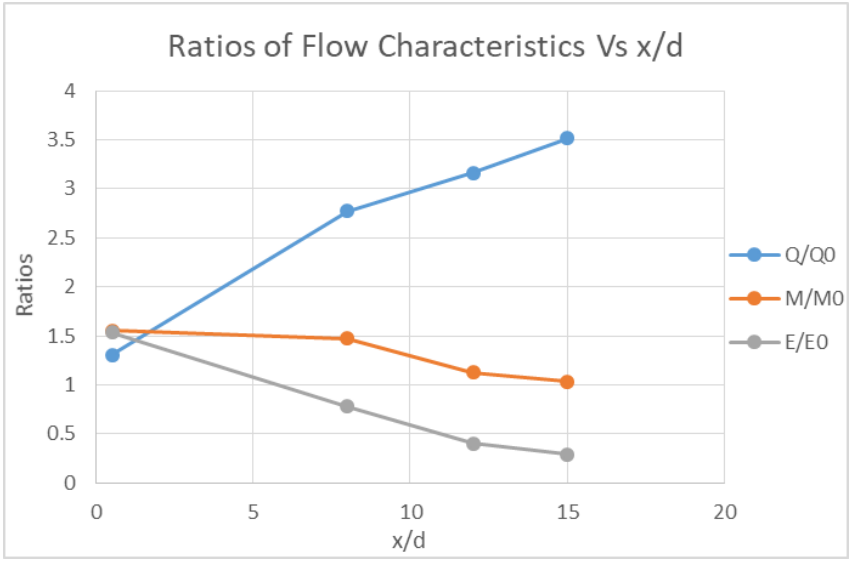
Plots:






x/d = 15
14.000
12.000
10.000
8.000
6.000
4.000
2.000
0.000
u(r) (m/s)
y = 31552x³ - 3606.3x² - 73.555x + 12.869
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
r (mm)


x/d = 15
14.000
12.000
10.000
8.000
6.000
4.000
2.000
0.000
u(r) (m/s)
y = 31552x³ - 3606.3x² - 73.555x + 12.869
0
0.02
0.04
0.06
0.08
r (mm)


Ratios of Flow Characteristics Vs x/d
4
3.5
3
2.5
2
1.5
1
0.5
0
Ratios
0
5
10
15
20
x/d
Q/Q0
M/M0
E/E0

Error Analysis:

$\triangle u_0$ (m/s)	0.08693478
$\triangle Q_0$	6.3516E-05
$\triangle M_0$	0.00375479
$\triangle E_0$	0.16647512

a) x/d = 0.5

$\triangle$u	**$\triangle$r*u**	**$\triangle$r*u^2**	**$\triangle$r*u^3**
0.820	0.000	0.000	0.000
0.798	0.001	0.046	1.957
0.785	0.002	0.086	3.512
0.780	0.002	0.125	5.042
0.782	0.003	0.168	6.797
0.788	0.004	0.217	8.954
0.798	0.005	0.272	11.628
0.809	0.006	0.335	14.863
0.821	0.007	0.404	18.599
0.832	0.007	0.475	22.638
0.840	0.008	0.546	26.623
0.843	0.009	0.609	30.035
0.841	0.010	0.659	32.235
0.832	0.011	0.685	32.561
0.814	0.011	0.681	30.486
0.786	0.012	0.637	25.824
0.746	0.012	0.549	18.966
0.693	0.012	0.417	11.052

0.625	0.011	0.245	3.998
0.541	0.010	0.051	0.187

△Q	0.000846415
△M	0.056070814
△E	2.39770188
$\triangle Q/Q_0$	0.043038006
$\triangle M/M_0$	0.096971533
$\triangle E/E_0$	0.14061278

b) x/d = 8

△u	**△r*u**	**△r*u²**	**△r*u³**
0.892	0	0	0
0.889	0.000889	0.043734	1.613444
0.886	0.001772	0.085993	3.130162
0.882	0.002647	0.126594	4.540318
0.879	0.003515	0.165373	5.835857
0.875	0.004373	0.202184	7.0105
0.870	0.005222	0.236898	8.059699
0.866	0.006061	0.269405	8.980594
0.861	0.00689	0.299609	9.771932
0.856	0.007707	0.327436	10.43399
0.851	0.008512	0.352823	10.96845
0.846	0.009305	0.375728	11.37836
0.841	0.010086	0.396121	11.6679
0.835	0.010854	0.41399	11.84239

0.829	0.01161	0.429335	11.90803
0.823	0.012352	0.442172	11.87188
0.818	0.013081	0.45253	11.74165
0.812	0.013796	0.460448	11.52559
0.805	0.014499	0.46598	11.23238
0.799	0.015188	0.469189	10.87093
0.793	0.015864	0.470151	10.45037
0.787	0.016527	0.468948	9.979803
0.781	0.017177	0.465673	9.468293
0.775	0.017815	0.460428	8.924702
0.768	0.018441	0.45332	8.357618
0.762	0.019055	0.444464	7.77526
0.756	0.019659	0.433981	7.185398
0.750	0.020251	0.421997	6.59529
0.744	0.020833	0.408644	6.011619
0.738	0.021406	0.394055	5.440446
0.732	0.02197	0.37837	4.887171
0.727	0.022526	0.361731	4.356507
0.721	0.023075	0.344281	3.852459
0.716	0.023618	0.326168	3.378321
0.710	0.024155	0.30754	2.936671
0.705	0.024688	0.288548	2.529384
0.700	0.025217	0.269344	2.157652
0.696	0.025744	0.250082	1.822011
0.691	0.02627	0.230919	1.522377
0.687	0.026796	0.212011	1.258089
0.683	0.027323	0.193518	1.02796

0.679	0.027853	0.175602	0.830335
0.676	0.028387	0.158429	0.66316
0.673	0.028926	0.142167	0.524051
0.670	0.029472	0.12699	0.410379
0.667	0.030027	0.113075	0.319359
0.665	0.030592	0.100606	0.248144
0.663	0.031169	0.089777	0.19394
0.662	0.031759	0.080786	0.154122
0.661	0.032365	0.073845	0.126365
0.660	0.032988	0.069175	0.108795

△Q	0.005679
△M	0.1151951
△E	2.25727
$\triangle Q/Q_0$	0.271126
$\triangle M/M_0$	0.1891131
$\triangle E/E_0$	0.1265366

c) x/d = 12

△u	**△r*u**	**△r*u^2**	**△r*u^3**
0.939	0	0	0
0.938	0.000938	0.029764	0.70805
0.938	0.001875	0.059119	1.397875
0.937	0.00281	0.087964	2.065237
0.936	0.003742	0.116204	2.706254

0.934	0.004672	0.143749	3.317413
0.933	0.005598	0.170516	3.895582
0.931	0.00652	0.196425	4.438018
0.930	0.007439	0.221403	4.942371
0.928	0.008353	0.245385	5.40668
0.926	0.009262	0.268309	5.829374
0.924	0.010167	0.290119	6.209268
0.922	0.011066	0.310765	6.545547
0.920	0.011959	0.330204	6.837761
0.918	0.012847	0.348396	7.085811
0.915	0.01373	0.365308	7.28993
0.913	0.014606	0.380913	7.450671
0.910	0.015475	0.395189	7.568881
0.908	0.016339	0.408118	7.645688
0.905	0.017196	0.419689	7.682475
0.902	0.018046	0.429894	7.680859
0.899	0.018889	0.438733	7.642667
0.897	0.019726	0.446207	7.569913
0.894	0.020556	0.452324	7.464774
0.891	0.021379	0.457096	7.329564
0.888	0.022196	0.460539	7.166711
0.885	0.023006	0.462675	6.978734
0.882	0.023809	0.463528	6.768217
0.879	0.024605	0.463127	6.537785
0.876	0.025395	0.461504	6.290085
0.873	0.026179	0.458696	6.027761
0.870	0.026957	0.454742	5.753432

0.866	0.027728	0.449685	5.469675
0.863	0.028493	0.443572	5.179004
0.860	0.029253	0.436452	4.883853
0.857	0.030007	0.428377	4.586556
0.854	0.030756	0.419404	4.28934
0.851	0.031501	0.40959	3.9943
0.848	0.03224	0.398995	3.703396
0.846	0.032975	0.387684	3.418438
0.843	0.033707	0.375721	3.141077
0.840	0.034434	0.363175	2.872797
0.837	0.035158	0.350117	2.61491
0.834	0.03588	0.336617	2.368551
0.832	0.036599	0.322753	2.134675
0.829	0.037316	0.308599	1.914057
0.827	0.038032	0.294236	1.707292
0.824	0.038746	0.279744	1.514796
0.822	0.03946	0.265207	1.336815
0.820	0.040174	0.250709	1.173423
0.818	0.040889	0.236339	1.024539
0.816	0.041604	0.222186	0.889928
0.814	0.042322	0.208342	0.76922
0.812	0.043042	0.194902	0.661919
0.810	0.043765	0.181963	0.567419
0.809	0.044491	0.169624	0.485023
0.808	0.045222	0.157987	0.41396
0.806	0.045958	0.147159	0.35341

0.805	0.046699	0.137248	0.302527
0.804	0.047447	0.128366	0.260464
0.803	0.048203	0.120628	0.226407
0.803	0.048966	0.114155	0.1996
0.802	0.049738	0.109071	0.179387
0.802	0.05052	0.105504	0.165247

△Q	0.0103968
△M	0.1481998
△E	1.9202523
$\triangle Q/Q_0$	0.4907352
$\triangle M/M_0$	0.2388129
$\triangle E/E_0$	0.1052975

d) x/d = 15

△u	**△r*u**	**△r*u^2**	**△r*u^3**
0.869	0	0	0
0.868	0.000868	0.022217	0.426298
0.868	0.001735	0.044108	0.840775
0.867	0.002601	0.065634	1.24212
0.866	0.003465	0.086754	1.629128
0.865	0.004327	0.107434	2.000694
0.864	0.005187	0.127638	2.35582
0.863	0.006044	0.147334	2.693611
0.862	0.006899	0.16649	3.013279

0.861	0.007752	0.185077	3.314141
0.860	0.008601	0.203067	3.595619
0.859	0.009448	0.220435	3.857238
0.858	0.010292	0.237157	4.098627
0.856	0.011132	0.253211	4.319511
0.855	0.01197	0.268576	4.519718
0.854	0.012804	0.283234	4.699166
0.852	0.013634	0.297168	4.857869
0.851	0.014461	0.310363	4.995928
0.849	0.015284	0.322806	5.113531
0.848	0.016103	0.334485	5.210947
0.846	0.016918	0.345391	5.288521
0.844	0.017729	0.355515	5.346674
0.843	0.018537	0.36485	5.385896
0.841	0.01934	0.373391	5.40674
0.839	0.020139	0.381136	5.409821
0.837	0.020934	0.388082	5.395808
0.836	0.021725	0.394229	5.365421
0.834	0.022511	0.399579	5.319426
0.832	0.023294	0.404133	5.258629
0.830	0.024072	0.407897	5.183874
0.828	0.024846	0.410875	5.096032
0.826	0.025615	0.413075	4.996004
0.824	0.026381	0.414505	4.88471
0.822	0.027142	0.415176	4.763086
0.821	0.027899	0.415096	4.632081
0.819	0.028651	0.41428	4.492649

0.817	0.0294	0.41274	4.345748
0.815	0.030145	0.410491	4.192333
0.813	0.030886	0.407549	4.033352
0.811	0.031622	0.403931	3.869743
0.809	0.032355	0.399655	3.702428
0.807	0.033084	0.394739	3.532313
0.805	0.03381	0.389205	3.360277
0.803	0.034532	0.383072	3.187177
0.801	0.03525	0.376365	3.01384
0.799	0.035965	0.369105	2.841059
0.797	0.036677	0.361316	2.669593
0.795	0.037385	0.353024	2.500161
0.794	0.038091	0.344254	2.333445
0.792	0.038794	0.335033	2.170081
0.790	0.039494	0.325389	2.01066
0.788	0.040191	0.31535	1.855728
0.786	0.040886	0.304944	1.705783
0.785	0.041579	0.294203	1.561271
0.783	0.04227	0.283156	1.422589
0.781	0.042959	0.271835	1.290082
0.779	0.043647	0.260273	1.164044
0.778	0.044332	0.248502	1.044715
0.776	0.045017	0.236555	0.932284
0.775	0.045701	0.224468	0.826886
0.773	0.046384	0.212275	0.728607
0.772	0.047066	0.200012	0.63748

0.770	0.047748	0.187716	0.553488
0.769	0.04843	0.175423	0.476567
0.767	0.049112	0.163173	0.406605
0.766	0.049794	0.151003	0.343444
0.765	0.050477	0.138954	0.286885
0.764	0.051162	0.127066	0.236687
0.762	0.051847	0.115379	0.192571
0.761	0.052534	0.103936	0.154224
0.760	0.053223	0.09278	0.121302

△Q	0.01227476
△M	0.15450714
△E	1.63595954
$\triangle Q/Q_0$	0.57873167
$\triangle M/M_0$	0.24811824
$\triangle E/E_0$	0.08928083