

Velocity Sweep

Water Tunnel Verification Test Data

Project: 30cm Flow Visualization Water Tunnel
 Organization: Oklahoma State University

Serial No.: 81114
 PO No.: E089406

Pump: (2) Gusher Series 7600SH
 HP: 7.5 ea.

Probe: Measurement Science Enterprise miniLDV-G5-240
 Location: Approximately 20cm from Test Section Entrance

Engineering Laboratory Design

Date: 1/15/2015
 Engineer: MKT

Starting Water Temp (°F): 47
 Ending Water Temp (°F): 63

Start: 11:00 AM
 Finish: 4:30 PM

Frequency Sweep:

Pump No. 1 Inverter Frequency (Hz)	Pump No. 2 Inverter Frequency (Hz)	u (m/s)	Velocity RMS	u (ft/s)	Q (m³/s)	Pump 1		Pump 2		Pump 1			Pump 1			Pump 2			Pump 2		
						Motor RPM	Pump RPM	Motor RPM	Pump RPM	Inverter (Amps) L1 L2 L3			Motor (Amps) T1 T2 T3			Inverter (Amps) L1 L2 L3			Motor (Amps) T1 T2 T3		
70	70	1.0540	0.696	3.458	0.095	2068	1124	2070	1125	17.2	16.8	18.7	14.5	14.7	14.7	16.0	17.4	15.9	13.5	13.5	13.8
67	67	1.0030	0.847	3.291	0.090	1925	1072	1925	1072	15.4	15.0	16.8	13.1	13.2	13.3	14.4	15.3	14.3	12.6	12.7	12.8
60	60	0.9045	0.687	2.968	0.081	1780	972	1781	972	11.3	11.4	13.0	11.0	10.9	11.1	10.9	12.5	10.7	10.6	10.8	10.9
55	55	0.8241	0.717	2.704	0.074	1633	888	1630	887	9.4	9.2	10.9	10.3	10.3	10.3	9.3	9.8	8.8	9.8	9.9	10
50	50	0.7511	0.750	2.464	0.068	1485	809	1482	807	8.0	7.2	7.9	9.1	9.2	9.2	7.3	7.1	7.1	9	9	9.1
45	45	0.6779	0.771	2.224	0.061	1338	732	1338	730	5.4	6.0	7.1	8.2	8.2	8.3	5.2	6.4	5.6	8.2	8.2	8.4
40	40	0.6030	0.765	1.978	0.054	1190	651	1189	650	4.4	4.7	5.3	7.8	7.7	7.6	3.9	5.2	4.5	7.9	7.7	7.8
35	35	0.5277	0.675	1.731	0.047	1043	570	1041	569	3.6	3.5	4.1	6.9	6.9	7.0	3.2	3.5	3.4	7.1	7.1	7.1
30	30	0.4535	0.734	1.488	0.041	894	489	893	488	2.8	2.5	3.2	6.6	6.7	6.7	2.7	2.5	2.4	6.7	6.9	6.9
25	25	0.3806	0.647	1.249	0.034	746	406	745	407	1.7	2.2	2.6	6.3	6.3	6.3	1.5	2.3	2.1	6.6	6.6	6.7
20	20	0.3067	0.631	1.006	0.028	597	325	596	326	1.1	1.9	2.1	6.5	6.5	7.1	1.1	1.7	1.7	7.3	6.5	7.3
15	15	0.2312	0.508	0.759	0.021	448	245	447	244	0.8	1.4	1.6	5.5	5.5	5.8	0.7	1.3	1.3	5.7	5.9	5.7
10	10	0.1548	0.314	0.508	0.014	299	164	298	163	0.5	1.1	1.2	5.2	5.2	5.5	0.6	1.0	1	5.5	5.7	5.7
5	5	0.0788	0.691	0.258	0.007	149	81	149	81	0.5	1.1	1.2	4.8	4.9	4.9	0.5	0.9	0.9	5	5.1	5.1
70	0	0.5664	1.066	1.858	0.051	2069	1127	0	0	18.0	16.9	20.0	13.7	13.8	13.9	-	-	-	-	-	-
65	0	0.5283	0.944	1.733	0.048	1924	1048	0	0	15.1	13.9	16.8	12.2	12.2	12.4	-	-	-	-	-	-
60	0	0.4921	1.024	1.615	0.044	1777	969	0	0	12.3	12.1	14.1	11.1	11.2	11.1	-	-	-	-	-	-
55	0	0.4519	1.009	1.483	0.041	1631	890	0	0	10.2	9.4	12.1	9.8	10.1	10.1	-	-	-	-	-	-
50	0	0.4093	0.931	1.343	0.037	1484	810	0	0	8.0	7.9	9.4	8.9	9.0	9.0	-	-	-	-	-	-
45	0	0.3694	0.842	1.212	0.033	1335	730	0	0	6.4	6.4	7.8	8.0	8.1	8.2	-	-	-	-	-	-
40	0	0.3304	0.940	1.084	0.030	1189	649	0	0	5.2	4.8	6.3	7.7	7.8	7.7	-	-	-	-	-	-
35	0	0.2904	0.914	0.953	0.026	1041	569	0	0	3.6	4.0	5.0	6.9	7.1	7.0	-	-	-	-	-	-
30	0	0.2501	0.831	0.821	0.023	894	488	0	0	2.8	3.0	4.0	6.6	6.7	6.6	-	-	-	-	-	-
25	0	0.2097	0.834	0.688	0.019	745	407	0	0	2.0	2.4	3.1	6.3	6.4	6.3	-	-	-	-	-	-
20	0	0.1686	0.759	0.553	0.015	596	326	0	0	1.6	1.7	2.3	6.9	7.0	7.0	-	-	-	-	-	-
15	0	0.1273	0.839	0.418	0.011	447	245	0	0	1.2	1.2	1.7	5.7	5.8	5.7	-	-	-	-	-	-
10	0	0.0857	0.574	0.281	0.008	298	163	0	0	0.9	0.9	1.3	5.2	5.5	5.3	-	-	-	-	-	-
5	0	0.0435	1.321	0.143	0.004	148	81	0	0	0.8	0.8	1.1	4.7	4.8	4.8	-	-	-	-	-	-
0	70	0.5329	1.347	1.748	0.048	0	0	2071	1128	-	-	-	-	-	-	17.2	18.7	17.1	13.7	13.8	13.8
0	65	0.4956	1.192	1.626	0.045	0	0	1924	1050	-	-	-	-	-	-	14	15.4	14.5	12	12.1	12.5
0	60	0.4590	1.104	1.506	0.041	0	0	1780	969	-	-	-	-	-	-	11.3	12.9	11.8	11.1	11	11.1
0	55	0.4215	1.290	1.383	0.038	0	0	1633	891	-	-	-	-	-	-	8.6	10.9	10.1	10	9.9	10
0	50	0.3839	1.307	1.260	0.035	0	0	1486	812	-	-	-	-	-	-	7.1	8.8	8.1	8.9	9.1	9.3
0	45	0.3472	1.231	1.139	0.031	0	0	1338	731	-	-	-	-	-	-	5.6	7.3	6.3	8.3	8.5	8.5
0	40	0.3095	1.483	1.015	0.028	0	0	1191	651	-	-	-	-	-	-	4.4	5.5	4.9	7.7	7.8	7.9
0	35	0.2723	1.435	0.893	0.025	0	0	1043	570	-	-	-	-	-	-	3	4.6	4.1	7.1	7.1	7.4
0	30	0.2346	1.300	0.770	0.021	0	0	894	489	-	-	-	-	-	-	2.5	3.5	3	6.9	7	7
0	25	0.1967	1.132	0.645	0.018	0	0	745	406	-	-	-	-	-	-	1.8	2.6	2.2	6.7	6.6	6.8
0	20	0.1585	0.951	0.520	0.014	0	0	597	327	-	-	-	-	-	-	1.4	1.9	1.6	6.7	7.3	7.4
0	15	0.1203	0.880	0.395	0.011	0	0	451	247	-	-	-	-	-	-	1	1.5	1.2	5.7	5.7	5.8
0	10	0.0808	0.851	0.265	0.007	0	0	299	164	-	-	-	-	-	-	0.6	1.3	1.1	5.6	5.7	5.8
0	5	0.0412	0.803	0.135	0.004	0	0	149	82	-	-	-	-	-	-	0.7	1.1	0.8	5.2	5.1	5.2