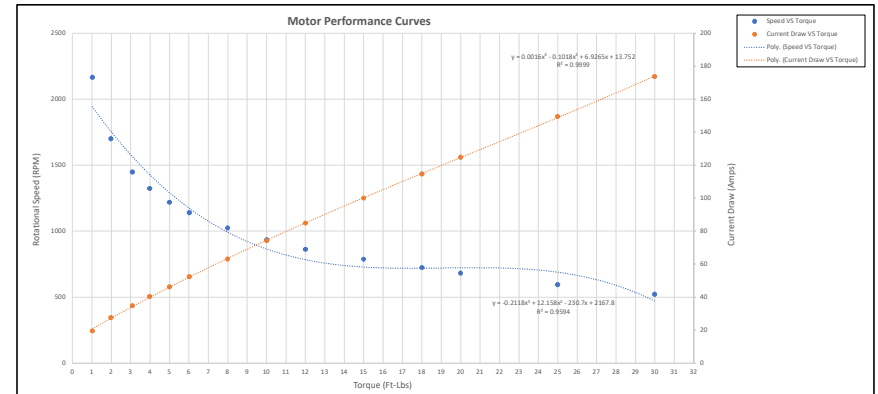
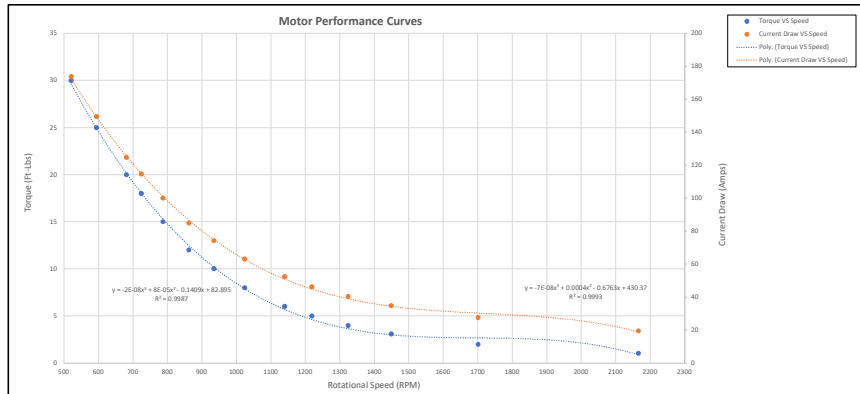
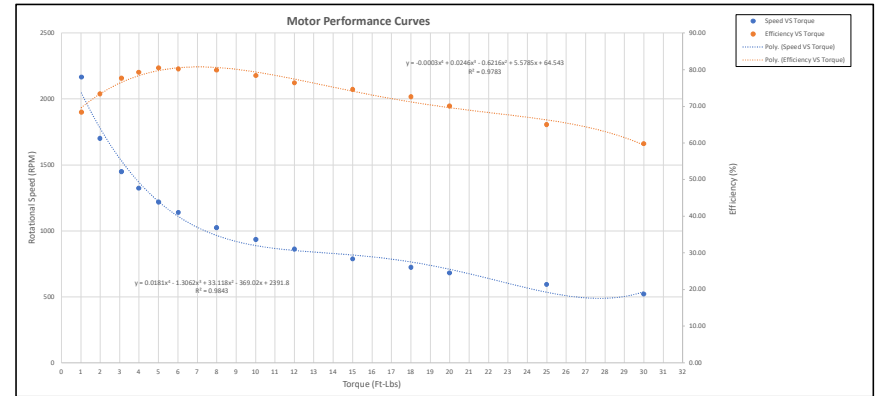
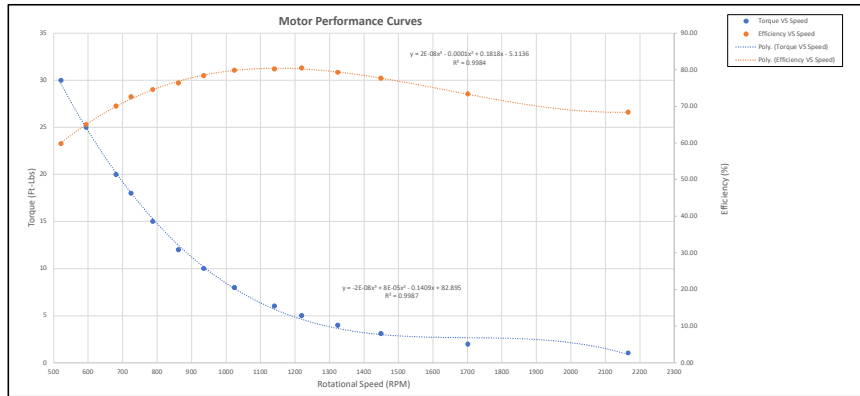


Engineering Performance Test Report

Motor Part Number: ES-15-21

System Voltage [V]: 24 - (V ± 0.015)

Torque (Ft-Lbs)	Speed (RPM)	Applied Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
1.03	2166	23.7	19.5	0	0	19.5	0.62	0.42	68.40
1.98	1701	23.6	27.6	0	0	27.6	0.87	0.64	73.40
3.09	1449	23.5	34.8	0	0	34.8	1.1	0.85	77.70
3.98	1324	23.4	40.4	0	0	40.4	1.27	1	79.30
5	1219	23.3	46.2	0	0	46.2	1.44	1.16	80.50
6.02	1140	23.2	52.4	0	0	52.4	1.63	1.31	80.30
7.99	1024	23.1	63.1	0	0	63.1	1.95	1.56	79.90
10.01	935	22.9	74.2	0	0	74.2	2.27	1.78	78.40
12	862	22.7	84.9	0	0	84.9	2.58	1.97	76.40
15	787	22.5	100	0	0	100	3.01	2.25	74.60
18	724	22.2	114.7	0	0	114.7	3.42	2.48	72.60
19.99	681	22.1	124.8	0	0	124.8	3.7	2.59	70.10
24.99	594	21.7	149.5	0	0	149.5	4.35	2.82	65.00
29.99	521	21.3	173.8	0	0	173.8	4.97	2.97	59.80

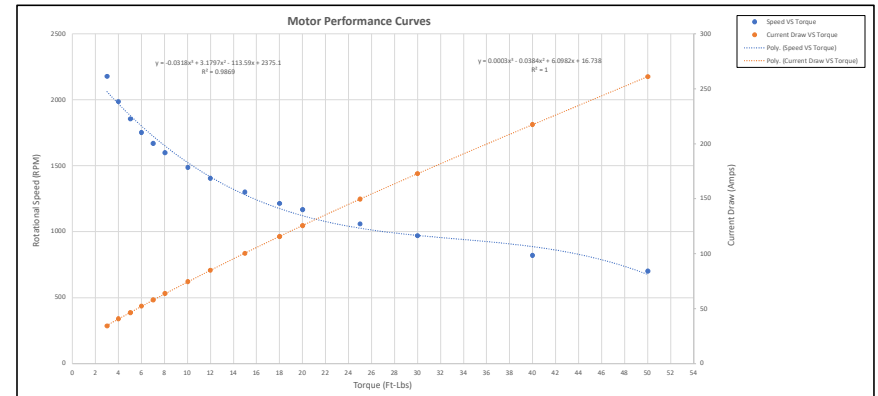
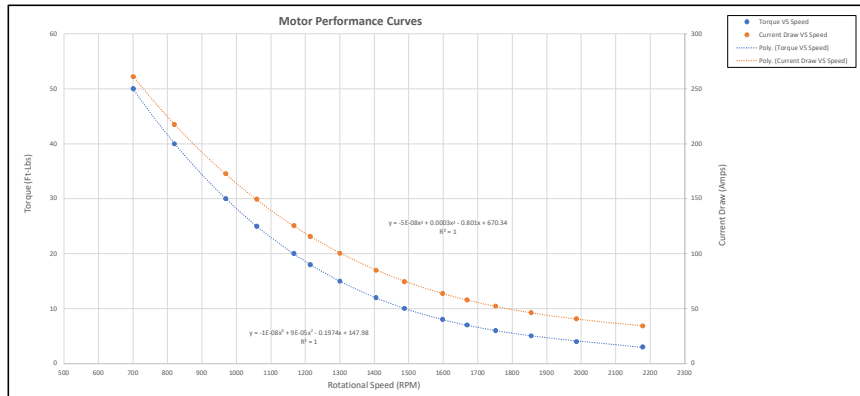
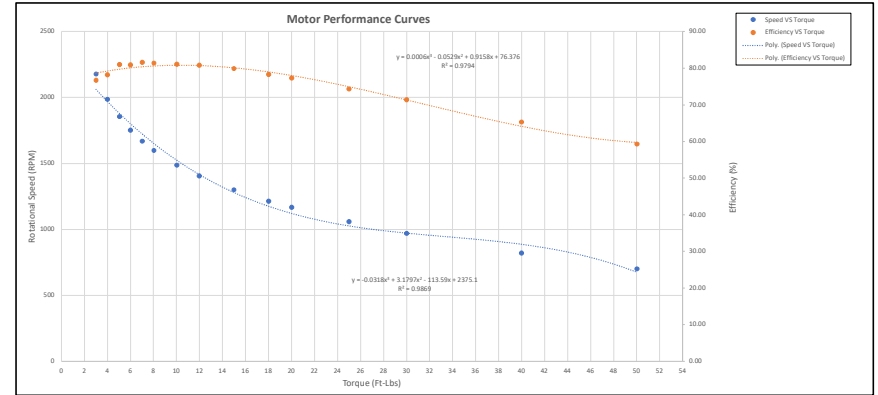
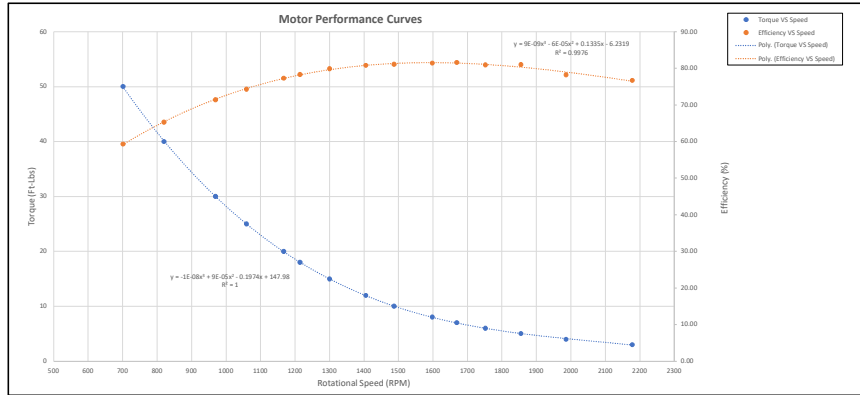


Engineering Performance Test Report

Motor Part Number: ES-15-21

System Voltage (V): 36 - (V ± 0.015)

Torque (Ft-Lbs)	Speed (RPM)	Applied Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
3.01	2178	35.6	34.2	0	0	34.2	1.63	1.25	76.70
4	1986	35.3	40.7	0	0	40.7	1.94	1.51	78.20
5.04	1855	35.4	46.3	0	0	46.3	2.2	1.78	81.00
6	1752	35.3	52.3	0	0	52.3	2.47	2	80.90
7.02	1669	35.3	57.9	0	0	57.9	2.73	2.23	81.60
8.04	1598	35.2	63.8	0	0	63.8	3	2.45	81.60
10.03	1487	35	74.6	0	0	74.6	3.5	2.84	81.10
11.98	1405	34.8	84.9	0	0	84.9	3.97	3.2	80.80
14.99	1300	34.6	100.2	0	0	100.2	4.65	3.71	79.90
18.01	1214	34.3	115.5	0	0	115.5	5.32	4.16	78.30
20.01	1167	34.2	125.5	0	0	125.5	5.75	4.45	77.30
25	1059	33.8	149.6	0	0	149.6	6.78	5.04	74.30
30	969	33.5	172.8	0	0	172.8	7.75	5.53	71.40
39.99	820	32.8	217.6	0	0	217.6	9.56	6.24	65.30
50.02	701	32.2	261.1	0	0	261.1	11.27	6.68	59.30

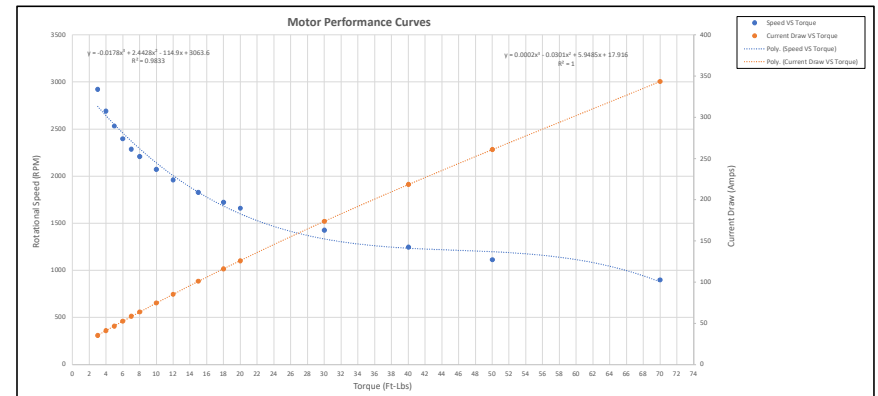
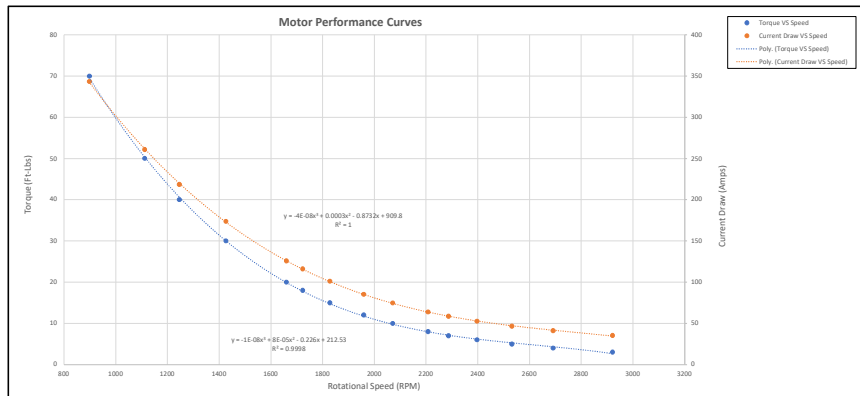
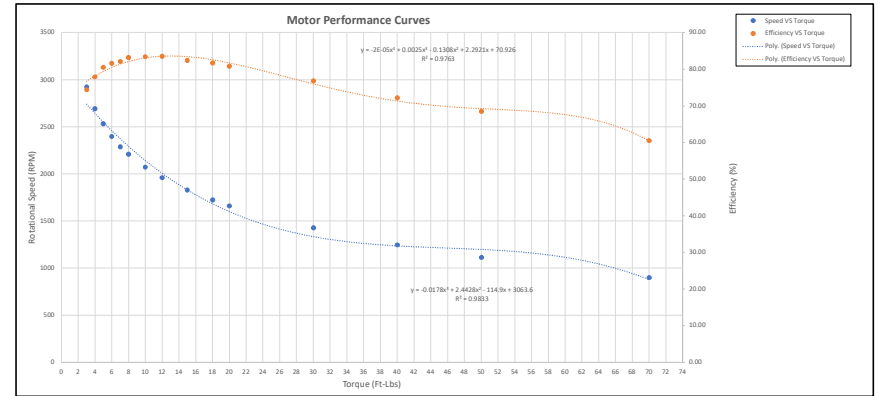
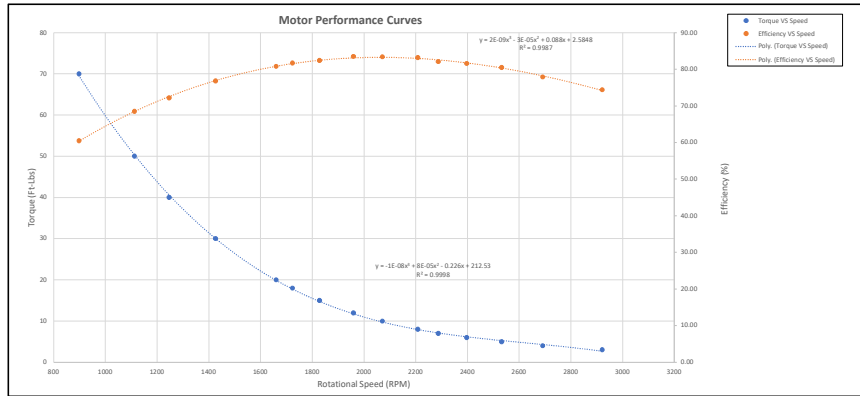


Engineering Performance Test Report

Motor Part Number: ES-15-21

System Voltage (V): 48 - (I² * 0.015)

Torque (Ft-Lbs)	Speed (RPM)	Applied Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
3.01	2921	47.8	35.2	0	0	35.2	2.25	1.68	74.40
3.99	2691	47.7	41.1	0	0	41.1	2.63	2.05	77.98
4.98	2532	47.6	46.7	0	0	46.7	2.98	2.44	80.50
5.99	2397	47.5	52.6	0	0	52.6	3.35	2.73	81.60
7.01	2287	47.4	58.6	0	0	58.6	3.72	3.05	82.10
8	2208	47.3	63.8	0	0	63.8	4.05	3.36	83.20
9.99	2071	47.2	74.7	0	0	74.7	4.72	3.94	83.40
12	1959	46.9	85.2	0	0	85.2	5.36	4.48	83.50
14.99	1828	46.7	101.1	0	0	101.1	6.33	5.22	82.40
18	1723	46.5	116	0	0	116	7.23	5.9	81.70
20	1660	46.3	125.9	0	0	125.9	7.82	6.32	80.80
30.02	1426	45.6	173.7	0	0	173.7	10.61	8.15	76.80
40.02	1246	44.9	218.5	0	0	218.5	13.15	9.5	72.20
50.03	1112	44.2	260.9	0	0	260.9	15.45	10.59	68.50
70	898	43	343.4	0	0	343.4	19.8	11.97	60.50



Engineering Performance Test Report

Motor Part Number: ES-15-21

System Voltage (V): 72 - (V * 0.030)

Torque (Ft-Lbs)	Speed (RPM)	Applied Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
3	4381	71.4	35.3	0	0	35.3	3.38	2.5	74.00
4	4039	71.2	41.2	0	0	41.2	3.96	3.07	77.00
5.01	3793	71.1	47.4	0	0	47.4	4.51	3.62	80.10
6	3604	70.9	53.5	0	0	53.5	5.08	4.12	81.00
7	3451	70.7	59.5	0	0	59.5	5.63	4.6	81.70
8	3331	70.5	65	0	0	65	6.14	5.07	82.60
9.99	3139	70.1	75.6	0	0	75.6	7.11	5.97	84.00
11.99	2984	69.8	86.5	0	0	86.5	8.09	6.81	84.20
15.02	2804	69.3	103.3	0	0	103.3	9.5	8.02	84.40
18.01	2657	68.8	117.1	0	0	117.1	10.8	9.11	84.40
20	2575	68.5	126.6	0	0	126.6	11.62	9.8	84.40
25.01	2394	67.7	151	0	0	151	13.7	11.4	83.20
29.99	2241	67	175.5	0	0	175.5	15.75	12.8	81.20
40	1995	65.5	219.4	0	0	219.4	19.24	15.2	79.00
50	1814	64.4	264.6	0	0	264.6	22.82	17.27	75.70

