Test Bench Measurement

Motor type: **HP 875-50-A8 S P30**

Date: 17.02.2021

Bearing type: RS

Controller: MST 400-133

Measuring Parameter

Voltage: **280.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 8,747.4 [RPM] Io: 3.5 [A] kV: 31.7 [RPM/V] kn: -38.54 [RPM/A] kT: 36.56 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
280.1	5.0	8,821.6	1,400.5	862.8	93.4	61.61
280.1	6.0	8,765.4	1,680.6	1,141.9	124.4	67.94
280.1	7.0	8,710.0	1,960.7	1,421.1	155.8	72.48
280.1	8.0	8,655.5	2,240.8	1,699.5	187.5	75.84
280.1	9.0	8,601.8	2,520.9	1,977.2	219.5	78.43
280.1	10.0	8,549.0	2,801.0	2,254.2	251.8	80.48
280.1	11.0	8,497.0	3,081.1	2,531.5	284.5	82.16
280.1	12.0	8,445.9	3,361.2	2,807.3	317.4	83.52
280.1	13.0	8,395.5	3,641.3	3,082.4	350.6	84.65
280.1	14.0	8,346.0	3,921.4	3,357.0	384.1	85.61
280.1	15.0	8,297.3	4,201.5	3,630.2	417.8	86.40
280.1	16.0	8,249.4	4,481.6	3,903.0	451.8	87.09
280.1	17.0	8,202.3	4,761.7	4,175.3	486.1	87.69
280.1	18.0	8,155.9	5,041.8	4,447.2	520.7	88.21
280.1	19.0	8,110.3	5,321.9	4,717.9	555.5	88.65
280.0	20.0	8,065.5	5,600.0	4,987.5	590.5	89.06
280.0	21.0	8,021.4	5,880.0	5,256.7	625.8	89.40
280.0	22.0	7,978.1	6,160.0	5,524.9	661.3	89.69
280.0	23.0	7,935.5	6,440.0	5,792.1	697.0	89.94
280.0	24.0	7,893.7	6,720.0	6,058.3	732.9	90.15
280.0	25.0	7,852.5	7,000.0	6,323.6	769.0	90.34
280.0	26.0	7,812.1	7,280.0	6,588.0	805.3	90.49
280.0	27.0	7,772.4	7,560.0	6,852.4	841.9	90.64
280.0	28.0	7,733.3	7,840.0	7,115.2	878.6	90.75
280.0	29.0	7,695.0	8,120.0	7,376.5	915.4	90.84
280.0	30.0	7,657.3	8,400.0	7,637.8	952.5	90.93

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
280.0	32.0	7,583.9	8,960.0	8,157.1	1,027.1	91.04
280.0	33.0	7,548.2	9,240.0	8,415.1	1,064.6	91.07
280.0	34.0	7,513.2	9,520.0	8,672.7	1,102.3	91.10
280.0	35.0	7,478.7	9,800.0	8,928.9	1,140.1	91.11
280.0	36.0	7,444.9	10,080.0	9,184.8	1,178.1	91.12
279.9	37.0	7,411.8	10,356.3	9,438.9	1,216.1	91.14
279.9	38.0	7,379.2	10,636.2	9,692.6	1,254.3	91.13
279.9	39.0	7,347.2	10,916.1	9,945.2	1,292.6	91.11
279.9	40.0	7,315.8	11,196.0	10,196.9	1,331.0	91.08
279.9	41.0	7,285.0	11,475.9	10,447.7	1,369.5	91.04
279.9	42.0	7,254.8	11,755.8	10,697.6	1,408.1	91.00
279.9	43.0	7,225.1	12,035.7	10,945.9	1,446.7	90.95
279.9	44.0	7,196.0	12,315.6	11,194.2	1,485.5	90.89
279.9	45.0	7,167.5	12,595.5	11,441.1	1,524.3	90.83
279.9	46.0	7,139.4	12,875.4	11,686.3	1,563.1	90.76
279.9	47.0	7,112.0	13,155.3	11,931.9	1,602.1	90.70
279.9	48.0	7,085.0	13,435.2	12,175.2	1,641.0	90.62
279.9	49.0	7,058.5	13,715.1	12,418.7	1,680.1	90.55
279.9	50.0	7,032.6	13,995.0	12,660.3	1,719.1	90.46
279.9	51.0	7,007.2	14,274.9	12,901.5	1,758.2	90.38
279.9	52.0	6,982.2	14,554.8	13,141.4	1,797.3	90.29
279.8	53.0	6,957.7	14,829.4	13,380.2	1,836.4	90.23
279.8	54.0	6,933.7	15,109.2	13,617.9	1,875.5	90.13
279.8	55.0	6,910.2	15,389.0	13,855.4	1,914.7	90.03
279.8	56.0	6,887.1	15,668.8	14,091.1	1,953.8	89.93
279.8	57.0	6,864.4	15,948.6	14,325.7	1,992.9	89.82
279.8	58.0	6,842.2	16,228.4	14,559.6	2,032.0	89.72
279.8	59.0	6,820.5	16,508.2	14,791.9	2,071.0	89.60
279.8	60.0	6,799.1	16,788.0	15,023.2	2,110.0	89.49
279.8	61.0	6,778.2	17,067.8	15,253.8	2,149.0	89.37
279.8	62.0	6,757.6	17,347.6	15,483.5	2,188.0	89.25
279.8	63.0	6,737.5	17,627.4	15,711.2	2,226.8	89.13
279.8	64.0	6,717.7	17,907.2	15,938.7	2,265.7	89.01
279.8	65.0	6,698.3	18,187.0	16,164.1	2,304.4	88.88
279.8	66.0	6,679.3	18,466.8	16,388.9	2,343.1	88.75
279.8	67.0	6,660.7	18,746.6	16,612.5	2,381.7	88.62
279.8	68.0	6,642.4	19,026.4	16,834.7	2,420.2	88.48
279.8	69.0	6,624.4	19,306.2	17,055.4	2,458.6	88.34
279.7	70.0	6,606.8	19,579.0	17,275.1	2,496.9	88.23

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
279.7	72.0	6,572.5	20,138.4	17,710.6	2,573.2	87.94
279.7	73.0	6,555.9	20,418.1	17,926.7	2,611.2	87.80
279.7	74.0	6,539.5	20,697.8	18,140.7	2,649.0	87.65
279.7	75.0	6,523.4	20,977.5	18,353.6	2,686.7	87.49

nl = rpm with no load

Io = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

[1] incl. Controller