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: **230.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 7,204.3 [RPM] Io: 3.4 [A] kV: 31.8 [RPM/V] kn: -32.74 [RPM/A] kT: 36.67 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
230.3	5.0	7,262.0	1,151.5	760.5	100.0	66.04
230.2	6.0	7,214.6	1,381.2	985.9	130.5	71.38
230.2	7.0	7,168.0	1,611.4	1,211.5	161.4	75.18
230.2	8.0	7,122.1	1,841.6	1,437.2	192.7	78.04
230.2	9.0	7,076.9	2,071.8	1,663.0	224.4	80.27
230.2	10.0	7,032.4	2,302.0	1,888.2	256.4	82.02
230.2	11.0	6,988.6	2,532.2	2,112.8	288.7	83.44
230.2	12.0	6,945.5	2,762.4	2,337.6	321.4	84.62
230.2	13.0	6,903.0	2,992.6	2,562.6	354.5	85.63
230.2	14.0	6,861.2	3,222.8	2,786.4	387.8	86.46
230.2	15.0	6,820.1	3,453.0	3,010.3	421.5	87.18
230.2	16.0	6,779.6	3,683.2	3,233.1	455.4	87.78
230.2	17.0	6,739.8	3,913.4	3,456.3	489.7	88.32
230.2	18.0	6,700.6	4,143.6	3,678.2	524.2	88.77
230.2	19.0	6,662.0	4,373.8	3,899.8	559.0	89.16
230.2	20.0	6,624.1	4,604.0	4,121.1	594.1	89.51
230.2	21.0	6,586.8	4,834.2	4,342.1	629.5	89.82
230.2	22.0	6,550.1	5,064.4	4,562.1	665.1	90.08
230.2	23.0	6,514.0	5,294.6	4,781.2	700.9	90.30
230.2	24.0	6,478.5	5,524.8	5,000.0	737.0	90.50
230.1	25.0	6,443.6	5,752.5	5,218.0	773.3	90.71
230.1	26.0	6,409.2	5,982.6	5,435.1	809.8	90.85
230.1	27.0	6,375.5	6,212.7	5,651.6	846.5	90.97
230.1	28.0	6,342.3	6,442.8	5,867.2	883.4	91.07
230.1	29.0	6,309.7	6,672.9	6,082.2	920.5	91.15
230.1	30.0	6,277.7	6,903.0	6,296.6	957.8	91.21

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
230.1	32.0	6,215.2	7,363.2	6,722.0	1,032.8	91.29
230.1	33.0	6,184.8	7,593.3	6,934.0	1,070.6	91.32
230.1	34.0	6,154.9	7,823.4	7,144.7	1,108.5	91.33
230.1	35.0	6,125.5	8,053.5	7,355.0	1,146.6	91.33
230.1	36.0	6,096.6	8,283.6	7,563.5	1,184.7	91.31
230.1	37.0	6,068.3	8,513.7	7,771.8	1,223.0	91.29
230.1	38.0	6,040.5	8,743.8	7,979.1	1,261.4	91.25
230.1	39.0	6,013.1	8,973.9	8,185.3	1,299.9	91.21
230.1	40.0	5,986.2	9,204.0	8,390.7	1,338.5	91.16
230.1	41.0	5,959.9	9,434.1	8,595.4	1,377.2	91.11
230.1	42.0	5,933.9	9,664.2	8,798.4	1,415.9	91.04
230.0	43.0	5,908.5	9,890.0	9,000.8	1,454.7	91.01
230.0	44.0	5,883.5	10,120.0	9,202.3	1,493.6	90.93
230.0	45.0	5,859.0	10,350.0	9,402.7	1,532.5	90.85
230.0	46.0	5,834.9	10,580.0	9,602.3	1,571.5	90.76
230.0	47.0	5,811.3	10,810.0	9,800.2	1,610.4	90.66
230.0	48.0	5,788.1	11,040.0	9,998.1	1,649.5	90.56
230.0	49.0	5,765.3	11,270.0	10,194.2	1,688.5	90.45
230.0	50.0	5,742.9	11,500.0	10,389.1	1,727.5	90.34
230.0	51.0	5,721.0	11,730.0	10,583.1	1,766.5	90.22
230.0	52.0	5,699.4	11,960.0	10,775.9	1,805.5	90.10
230.0	53.0	5,678.2	12,190.0	10,967.8	1,844.5	89.97
230.0	54.0	5,657.5	12,420.0	11,158.2	1,883.4	89.84
230.0	55.0	5,637.1	12,650.0	11,347.6	1,922.3	89.70
230.0	56.0	5,617.1	12,880.0	11,536.2	1,961.2	89.57
230.0	57.0	5,597.5	13,110.0	11,723.4	2,000.0	89.42
230.0	58.0	5,578.2	13,340.0	11,909.0	2,038.7	89.27
230.0	59.0	5,559.3	13,570.0	12,094.0	2,077.4	89.12
230.0	60.0	5,540.7	13,800.0	12,276.9	2,115.9	88.96
230.0	61.0	5,522.5	14,030.0	12,459.2	2,154.4	88.80
229.9	62.0	5,504.6	14,253.8	12,640.2	2,192.8	88.68
229.9	63.0	5,487.1	14,483.7	12,820.1	2,231.1	88.51
229.9	64.0	5,469.8	14,713.6	12,997.9	2,269.2	88.34
229.9	65.0	5,452.9	14,943.5	13,174.7	2,307.2	88.16
229.9	66.0	5,436.3	15,173.4	13,350.4	2,345.1	87.99
229.9	67.0	5,420.0	15,403.3	13,524.3	2,382.8	87.80
229.9	68.0	5,404.0	15,633.2	13,697.2	2,420.4	87.62
229.9	69.0	5,388.3	15,863.1	13,868.4	2,457.8	87.43
229.9	70.0	5,372.8	16,093.0	14,038.4	2,495.1	87.23

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
229.9	72.0	5,342.7	16,552.8	14,373.2	2,569.0	86.83
229.9	73.0	5,328.1	16,782.7	14,538.7	2,605.7	86.63
229.9	74.0	5,313.7	17,012.6	14,701.9	2,642.1	86.42
229.9	75.0	5,299.5	17,242.5	14,864.1	2,678.4	86.21

nl = rpm with no load

Io = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

[1] incl. Controller