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: **100.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 3,168.8 [RPM] Io: 2.9 [A] kV: 32.2 [RPM/V] kn: -17.05 [RPM/A] kT: 36.11 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
100.0	5.0	3,178.5	500.0	383.4	115.2	76.69
100.0	6.0	3,155.0	600.0	481.7	145.8	80.28
100.0	7.0	3,131.9	700.0	579.9	176.8	82.84
100.0	8.0	3,109.1	800.0	677.5	208.1	84.69
100.0	9.0	3,086.6	900.0	774.8	239.7	86.09
100.0	10.0	3,064.4	1,000.0	871.9	271.7	87.19
100.0	11.0	3,042.6	1,100.0	968.6	304.0	88.06
100.0	12.0	3,021.0	1,200.0	1,064.9	336.6	88.74
100.0	13.0	2,999.7	1,300.0	1,160.7	369.5	89.28
100.0	14.0	2,978.7	1,400.0	1,256.1	402.7	89.72
100.0	15.0	2,958.0	1,500.0	1,351.2	436.2	90.08
100.0	16.0	2,937.6	1,600.0	1,445.5	469.9	90.35
99.9	17.0	2,917.5	1,698.3	1,539.8	504.0	90.67
99.9	18.0	2,897.6	1,798.2	1,633.1	538.2	90.82
99.9	19.0	2,878.0	1,898.1	1,726.3	572.8	90.95
99.9	20.0	2,858.8	1,998.0	1,818.7	607.5	91.03
99.9	21.0	2,839.7	2,097.9	1,910.9	642.6	91.09
99.9	22.0	2,821.0	2,197.8	2,002.3	677.8	91.11
99.9	23.0	2,802.5	2,297.7	2,093.1	713.2	91.09
99.9	24.0	2,784.3	2,397.6	2,183.6	748.9	91.07
99.9	25.0	2,766.3	2,497.5	2,273.2	784.7	91.02
99.9	26.0	2,748.6	2,597.4	2,362.5	820.8	90.96
99.9	27.0	2,731.1	2,697.3	2,451.0	857.0	90.87
99.9	28.0	2,713.9	2,797.2	2,539.0	893.4	90.77
99.9	29.0	2,697.0	2,897.1	2,626.6	930.0	90.66
99.9	30.0	2,680.3	2,997.0	2,713.3	966.7	90.54

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
99.9	32.0	2,647.6	3,196.8	2,884.8	1,040.5	90.24
99.9	33.0	2,631.5	3,296.7	2,969.8	1,077.7	90.08
99.9	34.0	2,615.8	3,396.6	3,054.0	1,114.9	89.91
99.9	35.0	2,600.2	3,496.5	3,137.6	1,152.3	89.74
99.9	36.0	2,584.9	3,596.4	3,220.4	1,189.7	89.55
99.8	37.0	2,569.8	3,692.6	3,302.8	1,227.3	89.44
99.8	38.0	2,554.9	3,792.4	3,384.5	1,265.0	89.24
99.8	39.0	2,540.2	3,892.2	3,465.3	1,302.7	89.03
99.8	40.0	2,525.8	3,992.0	3,545.6	1,340.5	88.82
99.8	41.0	2,511.5	4,091.8	3,625.0	1,378.3	88.59
99.8	42.0	2,497.5	4,191.6	3,704.2	1,416.3	88.37
99.8	43.0	2,483.7	4,291.4	3,782.3	1,454.2	88.14
99.8	44.0	2,470.0	4,391.2	3,859.7	1,492.2	87.90
99.8	45.0	2,456.6	4,491.0	3,936.5	1,530.2	87.65
99.8	46.0	2,443.3	4,590.8	4,012.7	1,568.3	87.41
99.8	47.0	2,430.2	4,690.6	4,087.9	1,606.3	87.15
99.8	48.0	2,417.4	4,790.4	4,162.5	1,644.3	86.89
99.8	49.0	2,404.7	4,890.2	4,236.6	1,682.4	86.63
99.8	50.0	2,392.1	4,990.0	4,309.6	1,720.4	86.36
99.8	51.0	2,379.8	5,089.8	4,382.1	1,758.4	86.10
99.8	52.0	2,367.6	5,189.6	4,453.9	1,796.4	85.82
99.8	53.0	2,355.6	5,289.4	4,524.8	1,834.3	85.54
99.8	54.0	2,343.8	5,389.2	4,594.9	1,872.1	85.26
99.8	55.0	2,332.1	5,489.0	4,664.5	1,910.0	84.98
99.8	56.0	2,320.6	5,588.8	4,733.2	1,947.7	84.69
99.7	57.0	2,309.3	5,682.9	4,801.3	1,985.4	84.49
99.7	58.0	2,298.1	5,782.6	4,868.2	2,022.9	84.19
99.7	59.0	2,287.0	5,882.3	4,934.5	2,060.4	83.89
99.7	60.0	2,276.1	5,982.0	5,000.2	2,097.8	83.59
99.7	61.0	2,265.4	6,081.7	5,065.1	2,135.1	83.28
99.7	62.0	2,254.8	6,181.4	5,129.0	2,172.2	82.98
99.7	63.0	2,244.3	6,281.1	5,192.4	2,209.3	82.67
99.7	64.0	2,234.0	6,380.8	5,254.8	2,246.2	82.35
99.7	65.0	2,223.7	6,480.5	5,316.1	2,282.9	82.03
99.7	66.0	2,213.7	6,580.2	5,377.0	2,319.5	81.72
99.7	67.0	2,203.7	6,679.9	5,436.7	2,355.9	81.39
99.7	68.0	2,193.9	6,779.6	5,496.0	2,392.2	81.07
99.7	69.0	2,184.2	6,879.3	5,554.2	2,428.3	80.74
99.7	70.0	2,174.6	6,979.0	5,611.6	2,464.2	80.41

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
99.7	72.0	2,155.7	7,178.4	5,723.3	2,535.3	79.73
99.7	73.0	2,146.5	7,278.1	5,778.2	2,570.6	79.39
99.7	74.0	2,137.3	7,377.8	5,832.0	2,605.7	79.05
99.7	75.0	2,128.2	7,477.5	5,884.7	2,640.5	78.70

nl = rpm with no load

Io = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

[1] incl. Controller