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: **210.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 6,597.0 [RPM] Io: 3.2 [A] kV: 31.8 [RPM/V] kn: -30.54 [RPM/A] kT: 36.59 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
210.3	5.0	6,641.4	1,051.5	721.2	103.7	68.59
210.3	6.0	6,597.7	1,261.8	930.0	134.6	73.70
210.3	7.0	6,554.6	1,472.1	1,138.7	165.9	77.35
210.2	8.0	6,512.1	1,681.6	1,346.8	197.5	80.09
210.2	9.0	6,470.3	1,891.8	1,554.3	229.4	82.16
210.2	10.0	6,429.2	2,102.0	1,761.3	261.6	83.79
210.2	11.0	6,388.6	2,312.2	1,968.2	294.2	85.12
210.2	12.0	6,348.7	2,522.4	2,174.7	327.1	86.21
210.2	13.0	6,309.4	2,732.6	2,379.9	360.2	87.09
210.2	14.0	6,270.7	2,942.8	2,584.6	393.6	87.83
210.2	15.0	6,232.6	3,153.0	2,789.5	427.4	88.47
210.2	16.0	6,195.1	3,363.2	2,993.3	461.4	89.00
210.2	17.0	6,158.2	3,573.4	3,196.1	495.6	89.44
210.2	18.0	6,121.9	3,783.6	3,399.0	530.2	89.84
210.2	19.0	6,086.1	3,993.8	3,600.3	564.9	90.15
210.2	20.0	6,051.0	4,204.0	3,802.0	600.0	90.44
210.2	21.0	6,016.3	4,414.2	4,001.9	635.2	90.66
210.2	22.0	5,982.3	4,624.4	4,202.3	670.8	90.87
210.2	23.0	5,948.8	4,834.6	4,401.2	706.5	91.04
210.2	24.0	5,915.8	5,044.8	4,599.2	742.4	91.17
210.2	25.0	5,883.4	5,255.0	4,797.0	778.6	91.28
210.2	26.0	5,851.6	5,465.2	4,994.1	815.0	91.38
210.2	27.0	5,820.2	5,675.4	5,189.8	851.5	91.44
210.2	28.0	5,789.4	5,885.6	5,385.4	888.3	91.50
210.1	29.0	5,759.1	6,092.9	5,580.4	925.3	91.59
210.1	30.0	5,729.3	6,303.0	5,774.1	962.4	91.61

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
210.1	32.0	5,671.2	6,723.2	6,159.8	1,037.2	91.62
210.1	33.0	5,642.8	6,933.3	6,351.1	1,074.8	91.60
210.1	34.0	5,615.0	7,143.4	6,542.1	1,112.6	91.58
210.1	35.0	5,587.7	7,353.5	6,732.1	1,150.5	91.55
210.1	36.0	5,560.8	7,563.6	6,920.9	1,188.5	91.50
210.1	37.0	5,534.4	7,773.7	7,109.5	1,226.7	91.46
210.1	38.0	5,508.4	7,983.8	7,297.0	1,265.0	91.40
210.1	39.0	5,482.9	8,193.9	7,484.3	1,303.5	91.34
210.1	40.0	5,457.9	8,404.0	7,670.2	1,342.0	91.27
210.1	41.0	5,433.2	8,614.1	7,855.1	1,380.6	91.19
210.1	42.0	5,409.1	8,824.2	8,040.0	1,419.4	91.11
210.1	43.0	5,385.3	9,034.3	8,223.5	1,458.2	91.03
210.1	44.0	5,362.0	9,244.4	8,406.3	1,497.1	90.93
210.1	45.0	5,339.1	9,454.5	8,588.5	1,536.1	90.84
210.1	46.0	5,316.6	9,664.6	8,769.4	1,575.1	90.74
210.1	47.0	5,294.5	9,874.7	8,949.8	1,614.2	90.63
210.1	48.0	5,272.8	10,084.8	9,129.5	1,653.4	90.53
210.1	49.0	5,251.5	10,294.9	9,308.2	1,692.6	90.42
210.0	50.0	5,230.5	10,500.0	9,485.7	1,731.8	90.34
210.0	51.0	5,210.0	10,710.0	9,662.9	1,771.1	90.22
210.0	52.0	5,189.8	10,920.0	9,839.1	1,810.4	90.10
210.0	53.0	5,170.0	11,130.0	10,014.8	1,849.8	89.98
210.0	54.0	5,150.5	11,340.0	10,189.0	1,889.1	89.85
210.0	55.0	5,131.4	11,550.0	10,362.4	1,928.4	89.72
210.0	56.0	5,112.7	11,760.0	10,535.6	1,967.8	89.59
210.0	57.0	5,094.3	11,970.0	10,707.4	2,007.1	89.45
210.0	58.0	5,076.2	12,180.0	10,878.2	2,046.4	89.31
210.0	59.0	5,058.5	12,390.0	11,048.5	2,085.7	89.17
210.0	60.0	5,041.1	12,600.0	11,217.9	2,125.0	89.03
210.0	61.0	5,023.9	12,810.0	11,386.4	2,164.3	88.89
210.0	62.0	5,007.2	13,020.0	11,553.6	2,203.4	88.74
210.0	63.0	4,990.7	13,230.0	11,720.4	2,242.6	88.59
210.0	64.0	4,974.5	13,440.0	11,886.0	2,281.7	88.44
210.0	65.0	4,958.6	13,650.0	12,050.5	2,320.7	88.28
210.0	66.0	4,942.9	13,860.0	12,213.7	2,359.6	88.12
210.0	67.0	4,927.6	14,070.0	12,376.7	2,398.5	87.96
210.0	68.0	4,912.5	14,280.0	12,538.3	2,437.3	87.80
210.0	69.0	4,897.7	14,490.0	12,699.1	2,476.0	87.64
210.0	70.0	4,883.2	14,700.0	12,858.8	2,514.6	87.48

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
209.9	72.0	4,854.9	15,112.8	13,175.3	2,591.5	87.18
209.9	73.0	4,841.1	15,322.7	13,332.0	2,629.8	87.01
209.9	74.0	4,827.5	15,532.6	13,487.2	2,667.9	86.83
209.9	75.0	4,814.2	15,742.5	13,641.6	2,705.9	86.65

nl = rpm with no load

Io = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

[1] incl. Controller