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: **220.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 6,895.6 [RPM] Io: 3.3 [A] kV: 31.8 [RPM/V] kn: -31.55 [RPM/A] kT: 36.58 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
220.3	5.0	6,943.7	1,101.5	757.7	104.2	68.79
220.3	6.0	6,898.6	1,321.8	971.7	134.5	73.51
220.3	7.0	6,854.2	1,542.1	1,186.5	165.3	76.94
220.3	8.0	6,810.4	1,762.4	1,400.7	196.4	79.48
220.3	9.0	6,767.3	1,982.7	1,615.1	227.9	81.46
220.3	10.0	6,724.8	2,203.0	1,828.9	259.7	83.02
220.3	11.0	6,682.9	2,423.3	2,042.8	291.9	84.30
220.3	12.0	6,641.7	2,643.6	2,257.0	324.5	85.37
220.3	13.0	6,601.0	2,863.9	2,470.5	357.4	86.27
220.3	14.0	6,561.0	3,084.2	2,683.7	390.6	87.01
220.3	15.0	6,521.6	3,304.5	2,896.4	424.1	87.65
220.3	16.0	6,482.8	3,524.8	3,109.3	458.0	88.21
220.2	17.0	6,444.6	3,743.4	3,321.7	492.2	88.74
220.2	18.0	6,407.0	3,963.6	3,533.2	526.6	89.14
220.2	19.0	6,370.0	4,183.8	3,744.2	561.3	89.49
220.2	20.0	6,333.6	4,404.0	3,955.6	596.4	89.82
220.2	21.0	6,297.7	4,624.2	4,165.4	631.6	90.08
220.2	22.0	6,262.5	4,844.4	4,375.5	667.2	90.32
220.2	23.0	6,227.8	5,064.6	4,584.1	702.9	90.51
220.2	24.0	6,193.6	5,284.8	4,793.1	739.0	90.70
220.2	25.0	6,160.0	5,505.0	5,000.6	775.2	90.84
220.2	26.0	6,127.0	5,725.2	5,208.0	811.7	90.97
220.2	27.0	6,094.5	5,945.4	5,414.0	848.3	91.06
220.2	28.0	6,062.6	6,165.6	5,619.9	885.2	91.15
220.2	29.0	6,031.2	6,385.8	5,825.1	922.3	91.22
220.2	30.0	6,000.3	6,606.0	6,029.0	959.5	91.27

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
220.2	32.0	5,940.1	7,046.4	6,435.1	1,034.5	91.32
220.2	33.0	5,910.8	7,266.6	6,637.3	1,072.3	91.34
220.2	34.0	5,882.0	7,486.8	6,837.8	1,110.1	91.33
220.2	35.0	5,853.7	7,707.0	7,038.4	1,148.2	91.33
220.2	36.0	5,825.9	7,927.2	7,237.5	1,186.3	91.30
220.1	37.0	5,798.6	8,143.7	7,436.1	1,224.6	91.31
220.1	38.0	5,771.8	8,363.8	7,633.2	1,262.9	91.27
220.1	39.0	5,745.5	8,583.9	7,830.1	1,301.4	91.22
220.1	40.0	5,719.6	8,804.0	8,026.0	1,340.0	91.16
220.1	41.0	5,694.3	9,024.1	8,220.7	1,378.6	91.10
220.1	42.0	5,669.4	9,244.2	8,414.5	1,417.3	91.02
220.1	43.0	5,644.9	9,464.3	8,607.5	1,456.1	90.95
220.1	44.0	5,620.9	9,684.4	8,799.3	1,494.9	90.86
220.1	45.0	5,597.4	9,904.5	8,990.5	1,533.8	90.77
220.1	46.0	5,574.3	10,124.6	9,180.5	1,572.7	90.67
220.1	47.0	5,551.7	10,344.7	9,369.4	1,611.6	90.57
220.1	48.0	5,529.5	10,564.8	9,557.8	1,650.6	90.47
220.1	49.0	5,507.7	10,784.9	9,744.4	1,689.5	90.35
220.1	50.0	5,486.4	11,005.0	9,930.8	1,728.5	90.24
220.1	51.0	5,465.5	11,225.1	10,115.6	1,767.4	90.12
220.1	52.0	5,445.0	11,445.2	10,299.5	1,806.3	89.99
220.1	53.0	5,424.9	11,665.3	10,482.5	1,845.2	89.86
220.1	54.0	5,405.2	11,885.4	10,664.6	1,884.1	89.73
220.1	55.0	5,386.0	12,105.5	10,845.6	1,922.9	89.59
220.1	56.0	5,367.1	12,325.6	11,025.0	1,961.6	89.45
220.0	57.0	5,348.6	12,540.0	11,203.8	2,000.3	89.34
220.0	58.0	5,330.5	12,760.0	11,381.3	2,038.9	89.20
220.0	59.0	5,312.8	12,980.0	11,557.7	2,077.4	89.04
220.0	60.0	5,295.4	13,200.0	11,732.8	2,115.8	88.88
220.0	61.0	5,278.4	13,420.0	11,906.8	2,154.1	88.72
220.0	62.0	5,261.8	13,640.0	12,079.9	2,192.3	88.56
220.0	63.0	5,245.6	13,860.0	12,252.0	2,230.4	88.40
220.0	64.0	5,229.7	14,080.0	12,422.4	2,268.3	88.23
220.0	65.0	5,214.1	14,300.0	12,591.8	2,306.1	88.05
220.0	66.0	5,198.9	14,520.0	12,760.3	2,343.8	87.88
220.0	67.0	5,184.0	14,740.0	12,927.3	2,381.3	87.70
220.0	68.0	5,169.5	14,960.0	13,093.1	2,418.6	87.52
220.0	69.0	5,155.3	15,180.0	13,257.9	2,455.8	87.34
220.0	70.0	5,141.4	15,400.0	13,420.9	2,492.7	87.15

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
220.0	72.0	5,114.6	15,840.0	13,743.5	2,566.0	86.76
220.0	73.0	5,101.7	16,060.0	13,903.3	2,602.4	86.57
220.0	74.0	5,089.0	16,280.0	14,061.1	2,638.5	86.37
220.0	75.0	5,076.7	16,500.0	14,217.9	2,674.4	86.17

nl = rpm with no load

Io = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

[1] incl. Controller