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: **340.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 10,531.2 [RPM] Io: 3.5 [A] kV: 31.4 [RPM/V] kn: -44.47 [RPM/A] kT: 36.44 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
339.8	5.0	10,626.2	1,699.0	1,053.8	94.7	62.02
339.8	6.0	10,559.7	2,038.8	1,384.5	125.2	67.91
339.8	7.0	10,494.2	2,378.6	1,716.6	156.2	72.17
339.8	8.0	10,429.9	2,718.4	2,047.9	187.5	75.33
339.7	9.0	10,366.7	3,057.3	2,378.5	219.1	77.80
339.7	10.0	10,304.6	3,397.0	2,709.6	251.1	79.76
339.7	11.0	10,243.5	3,736.7	3,040.0	283.4	81.36
339.7	12.0	10,183.5	4,076.4	3,370.9	316.1	82.69
339.7	13.0	10,124.5	4,416.1	3,701.3	349.1	83.81
339.7	14.0	10,066.5	4,755.8	4,031.1	382.4	84.76
339.7	15.0	10,009.6	5,095.5	4,360.5	416.0	85.58
339.7	16.0	9,953.7	5,435.2	4,689.5	449.9	86.28
339.7	17.0	9,898.7	5,774.9	5,017.1	484.0	86.88
339.7	18.0	9,844.8	6,114.6	5,345.5	518.5	87.42
339.7	19.0	9,791.8	6,454.3	5,672.5	553.2	87.89
339.7	20.0	9,739.7	6,794.0	5,999.3	588.2	88.30
339.7	21.0	9,688.6	7,133.7	6,324.9	623.4	88.66
339.6	22.0	9,638.4	7,471.2	6,650.5	658.9	89.01
339.6	23.0	9,589.1	7,810.8	6,975.0	694.6	89.30
339.6	24.0	9,540.7	8,150.4	7,298.4	730.5	89.55
339.6	25.0	9,493.2	8,490.0	7,621.0	766.6	89.76
339.6	26.0	9,446.6	8,829.6	7,942.7	802.9	89.95
339.6	27.0	9,400.8	9,169.2	8,264.5	839.5	90.13
339.6	28.0	9,355.9	9,508.8	8,584.5	876.2	90.28
339.6	29.0	9,311.8	9,848.4	8,903.9	913.1	90.41
339.6	30.0	9,268.5	10,188.0	9,221.6	950.1	90.51

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
339.6	32.0	9,184.3	10,867.2	9,855.3	1,024.7	90.69
339.6	33.0	9,143.4	11,206.8	10,170.5	1,062.2	90.75
339.6	34.0	9,103.3	11,546.4	10,485.3	1,099.9	90.81
339.6	35.0	9,063.9	11,886.0	10,797.8	1,137.6	90.84
339.5	36.0	9,025.2	12,222.0	11,109.8	1,175.5	90.90
339.5	37.0	8,987.3	12,561.5	11,420.8	1,213.5	90.92
339.5	38.0	8,950.1	12,901.0	11,730.6	1,251.6	90.93
339.5	39.0	8,913.5	13,240.5	12,038.3	1,289.7	90.92
339.5	40.0	8,877.7	13,580.0	12,346.0	1,328.0	90.91
339.5	41.0	8,842.5	13,919.5	12,651.7	1,366.3	90.89
339.5	42.0	8,808.0	14,259.0	12,956.6	1,404.7	90.87
339.5	43.0	8,774.2	14,598.5	13,259.7	1,443.1	90.83
339.5	44.0	8,741.0	14,938.0	13,561.0	1,481.5	90.78
339.5	45.0	8,708.4	15,277.5	13,861.5	1,520.0	90.73
339.5	46.0	8,676.4	15,617.0	14,161.3	1,558.6	90.68
339.5	47.0	8,645.0	15,956.5	14,458.6	1,597.1	90.61
339.5	48.0	8,614.2	16,296.0	14,754.4	1,635.6	90.54
339.4	49.0	8,583.9	16,630.6	15,049.4	1,674.2	90.49
339.4	50.0	8,554.2	16,970.0	15,342.3	1,712.7	90.41
339.4	51.0	8,525.0	17,309.4	15,633.6	1,751.2	90.32
339.4	52.0	8,496.4	17,648.8	15,923.7	1,789.7	90.23
339.4	53.0	8,468.3	17,988.2	16,211.6	1,828.1	90.12
339.4	54.0	8,440.7	18,327.6	16,498.1	1,866.5	90.02
339.4	55.0	8,413.6	18,667.0	16,782.6	1,904.8	89.91
339.4	56.0	8,386.9	19,006.4	17,065.7	1,943.1	89.79
339.4	57.0	8,360.7	19,345.8	17,346.9	1,981.3	89.67
339.4	58.0	8,335.0	19,685.2	17,626.1	2,019.4	89.54
339.4	59.0	8,309.7	20,024.6	17,903.3	2,057.4	89.41
339.4	60.0	8,284.8	20,364.0	18,178.5	2,095.3	89.27
339.4	61.0	8,260.3	20,703.4	18,451.7	2,133.1	89.12
339.3	62.0	8,236.2	21,036.6	18,723.0	2,170.8	89.00
339.3	63.0	8,212.5	21,375.9	18,992.5	2,208.4	88.85
339.3	64.0	8,189.2	21,715.2	19,259.3	2,245.8	88.69
339.3	65.0	8,166.2	22,054.5	19,523.4	2,283.0	88.52
339.3	66.0	8,143.6	22,393.8	19,786.6	2,320.2	88.36
339.3	67.0	8,121.3	22,733.1	20,046.2	2,357.1	88.18
339.3	68.0	8,099.3	23,072.4	20,304.0	2,393.9	88.00
339.3	69.0	8,077.7	23,411.7	20,559.5	2,430.5	87.82
339.3	70.0	8,056.3	23,751.0	20,812.1	2,466.9	87.63

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
339.3	72.0	8,014.3	24,429.6	21,308.7	2,539.0	87.22
339.3	73.0	7,993.8	24,768.9	21,553.9	2,574.8	87.02
339.3	74.0	7,973.4	25,108.2	21,796.1	2,610.4	86.81
339.3	75.0	7,953.3	25,447.5	22,035.2	2,645.7	86.59

nl = rpm with no load

Io = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

[1] incl. Controller