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: **330.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 10,204.8 [RPM] Io: 3.4 [A] kV: 31.4 [RPM/V] kn: -43.10 [RPM/A] kT: 36.59 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
329.8	5.0	10,291.2	1,649.0	1,037.8	96.3	62.94
329.8	6.0	10,227.4	1,978.8	1,359.1	126.9	68.68
329.8	7.0	10,164.7	2,308.6	1,680.8	157.9	72.80
329.8	8.0	10,103.0	2,638.4	2,001.7	189.2	75.87
329.8	9.0	10,042.3	2,968.2	2,324.1	221.0	78.30
329.8	10.0	9,982.6	3,298.0	2,644.8	253.0	80.19
329.8	11.0	9,923.9	3,627.8	2,967.0	285.5	81.79
329.8	12.0	9,866.1	3,957.6	3,288.6	318.3	83.10
329.8	13.0	9,809.4	4,287.4	3,609.7	351.4	84.19
329.8	14.0	9,753.5	4,617.2	3,930.3	384.8	85.12
329.8	15.0	9,698.7	4,947.0	4,251.5	418.6	85.94
329.8	16.0	9,644.7	5,276.8	4,571.2	452.6	86.63
329.7	17.0	9,591.7	5,604.9	4,891.6	487.0	87.27
329.7	18.0	9,539.5	5,934.6	5,210.6	521.6	87.80
329.7	19.0	9,488.3	6,264.3	5,529.5	556.5	88.27
329.7	20.0	9,438.0	6,594.0	5,848.0	591.7	88.69
329.7	21.0	9,388.5	6,923.7	6,165.4	627.1	89.05
329.7	22.0	9,339.9	7,253.4	6,481.7	662.7	89.36
329.7	23.0	9,292.2	7,583.1	6,797.9	698.6	89.65
329.7	24.0	9,245.2	7,912.8	7,113.0	734.7	89.89
329.7	25.0	9,199.2	8,242.5	7,428.3	771.1	90.12
329.7	26.0	9,153.9	8,572.2	7,741.6	807.6	90.31
329.7	27.0	9,109.5	8,901.9	8,054.2	844.3	90.48
329.7	28.0	9,065.9	9,231.6	8,366.9	881.3	90.63
329.7	29.0	9,023.0	9,561.3	8,677.8	918.4	90.76
329.6	30.0	8,981.0	9,888.0	8,987.3	955.6	90.89

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
329.6	32.0	8,899.1	10,547.2	9,604.3	1,030.6	91.06
329.6	33.0	8,859.4	10,876.8	9,911.2	1,068.3	91.12
329.6	34.0	8,820.3	11,206.4	10,216.6	1,106.1	91.17
329.6	35.0	8,782.0	11,536.0	10,521.7	1,144.1	91.21
329.6	36.0	8,744.4	11,865.6	10,824.6	1,182.1	91.23
329.6	37.0	8,707.5	12,195.2	11,127.3	1,220.3	91.24
329.6	38.0	8,671.3	12,524.8	11,427.9	1,258.5	91.24
329.6	39.0	8,635.7	12,854.4	11,728.2	1,296.9	91.24
329.6	40.0	8,600.9	13,184.0	12,025.9	1,335.2	91.22
329.6	41.0	8,566.7	13,513.6	12,323.5	1,373.7	91.19
329.6	42.0	8,533.1	13,843.2	12,619.2	1,412.2	91.16
329.6	43.0	8,500.2	14,172.8	12,913.2	1,450.7	91.11
329.5	44.0	8,467.9	14,498.0	13,206.5	1,489.3	91.09
329.5	45.0	8,436.3	14,827.5	13,498.2	1,527.9	91.03
329.5	46.0	8,405.2	15,157.0	13,788.2	1,566.5	90.97
329.5	47.0	8,374.8	15,486.5	14,076.8	1,605.1	90.90
329.5	48.0	8,344.9	15,816.0	14,363.9	1,643.7	90.82
329.5	49.0	8,315.6	16,145.5	14,649.6	1,682.3	90.73
329.5	50.0	8,286.9	16,475.0	14,933.1	1,720.8	90.64
329.5	51.0	8,258.7	16,804.5	15,215.3	1,759.3	90.54
329.5	52.0	8,231.1	17,134.0	15,496.3	1,797.8	90.44
329.5	53.0	8,204.0	17,463.5	15,775.2	1,836.2	90.33
329.5	54.0	8,177.4	17,793.0	16,052.0	1,874.5	90.22
329.5	55.0	8,151.3	18,122.5	16,327.7	1,912.8	90.10
329.5	56.0	8,125.8	18,452.0	16,601.7	1,951.0	89.97
329.5	57.0	8,100.7	18,781.5	16,873.6	1,989.1	89.84
329.4	58.0	8,076.1	19,105.2	17,142.9	2,027.0	89.73
329.4	59.0	8,051.9	19,434.6	17,411.1	2,064.9	89.59
329.4	60.0	8,028.3	19,764.0	17,677.0	2,102.6	89.44
329.4	61.0	8,005.0	20,093.4	17,940.9	2,140.2	89.29
329.4	62.0	7,982.2	20,422.8	18,203.3	2,177.7	89.13
329.4	63.0	7,959.9	20,752.2	18,463.3	2,215.0	88.97
329.4	64.0	7,937.9	21,081.6	18,720.7	2,252.1	88.80
329.4	65.0	7,916.3	21,411.0	18,976.5	2,289.1	88.63
329.4	66.0	7,895.2	21,740.4	19,230.2	2,325.9	88.45
329.4	67.0	7,874.4	22,069.8	19,481.3	2,362.5	88.27
329.4	68.0	7,854.0	22,399.2	19,729.4	2,398.8	88.08
329.4	69.0	7,833.9	22,728.6	19,975.9	2,435.0	87.89
329.4	70.0	7,814.2	23,058.0	20,220.2	2,471.0	87.69

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
329.3	72.0	7,775.8	23,709.6	20,700.6	2,542.2	87.31
329.3	73.0	7,757.1	24,038.9	20,936.8	2,577.4	87.10
329.3	74.0	7,738.7	24,368.2	21,170.8	2,612.4	86.88
329.3	75.0	7,720.6	24,697.5	21,401.0	2,647.0	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