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: **110.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 3,481.0 [RPM]   Io: 2.9 [A]   kV: 32.1 [RPM/V]   kn: -18.27 [RPM/A] kT: 36.28 [Ncm/A]

Voltage	Current	Speed	Input Power	Output Power	Torque	Efficiency[1]
[V]	[A]	[RPM]	[W]	[W]	[Ncm]	[%]
110.1	5.0	3,496.2	550.5	409.7	111.9	74.42
110.1	6.0	3,470.4	660.6	520.1	143.1	78.72
110.1	7.0	3,445.1	770.7	629.9	174.6	81.73
110.1	8.0	3,420.1	880.8	739.2	206.4	83.93
110.1	9.0	3,395.6	990.9	848.1	238.5	85.59
110.1	10.0	3,371.3	1,101.0	956.4	270.9	86.87
110.1	11.0	3,347.5	1,211.1	1,064.3	303.6	87.88
110.0	12.0	3,324.0	1,320.0	1,171.7	336.6	88.76
110.0	13.0	3,300.9	1,430.0	1,278.3	369.8	89.39
110.0	14.0	3,278.2	1,540.0	1,384.5	403.3	89.90
110.0	15.0	3,255.8	1,650.0	1,490.3	437.1	90.32
110.0	16.0	3,233.7	1,760.0	1,595.3	471.1	90.64
110.0	17.0	3,212.0	1,870.0	1,700.0	505.4	90.91
110.0	18.0	3,190.6	1,980.0	1,803.9	539.9	91.11
110.0	19.0	3,169.5	2,090.0	1,907.5	574.7	91.27
110.0	20.0	3,148.8	2,200.0	2,010.1	609.6	91.37
110.0	21.0	3,128.4	2,310.0	2,112.4	644.8	91.45
110.0	22.0	3,108.3	2,420.0	2,214.1	680.2	91.49
110.0	23.0	3,088.4	2,530.0	2,315.0	715.8	91.50
110.0	24.0	3,068.9	2,640.0	2,415.5	751.6	91.49
110.0	25.0	3,049.7	2,750.0	2,515.0	787.5	91.45
110.0	26.0	3,030.8	2,860.0	2,614.3	823.7	91.41
110.0	27.0	3,012.2	2,970.0	2,712.8	860.0	91.34
110.0	28.0	2,993.9	3,080.0	2,810.7	896.5	91.26
110.0	29.0	2,975.8	3,190.0	2,907.8	933.1	91.15
110.0	30.0	2,958.0	3,300.0	3,004.4	969.9	91.04

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
109.9	32.0	2,923.2	3,516.8	3,195.9	1,044.0	90.87
109.9	33.0	2,906.2	3,626.7	3,290.5	1,081.2	90.73
109.9	34.0	2,889.4	3,736.6	3,384.3	1,118.5	90.57
109.9	35.0	2,872.9	3,846.5	3,477.5	1,155.9	90.41
109.9	36.0	2,856.6	3,956.4	3,570.3	1,193.5	90.24
109.9	37.0	2,840.6	4,066.3	3,662.1	1,231.1	90.06
109.9	38.0	2,824.8	4,176.2	3,753.6	1,268.9	89.88
109.9	39.0	2,809.2	4,286.1	3,844.0	1,306.7	89.69
109.9	40.0	2,793.8	4,396.0	3,933.8	1,344.6	89.49
109.9	41.0	2,778.6	4,505.9	4,023.0	1,382.6	89.28
109.9	42.0	2,763.7	4,615.8	4,111.4	1,420.6	89.07
109.9	43.0	2,748.9	4,725.7	4,199.1	1,458.7	88.86
109.9	44.0	2,734.4	4,835.6	4,286.0	1,496.8	88.63
109.9	45.0	2,720.0	4,945.5	4,372.3	1,535.0	88.41
109.9	46.0	2,705.9	5,055.4	4,457.8	1,573.2	88.18
109.9	47.0	2,691.9	5,165.3	4,542.7	1,611.5	87.95
109.9	48.0	2,678.1	5,275.2	4,626.6	1,649.7	87.70
109.9	49.0	2,664.4	5,385.1	4,709.8	1,688.0	87.46
109.9	50.0	2,651.0	5,495.0	4,792.4	1,726.3	87.21
109.8	51.0	2,637.7	5,599.8	4,874.2	1,764.6	87.04
109.8	52.0	2,624.5	5,709.6	4,955.0	1,802.9	86.78
109.8	53.0	2,611.5	5,819.4	5,035.0	1,841.1	86.52
109.8	54.0	2,598.7	5,929.2	5,114.2	1,879.3	86.26
109.8	55.0	2,586.0	6,039.0	5,192.7	1,917.5	85.99
109.8	56.0	2,573.4	6,148.8	5,270.3	1,955.7	85.71
109.8	57.0	2,561.0	6,258.6	5,347.1	1,993.8	85.44
109.8	58.0	2,548.6	6,368.4	5,422.9	2,031.9	85.15
109.8	59.0	2,536.4	6,478.2	5,497.9	2,069.9	84.87
109.8	60.0	2,524.4	6,588.0	5,572.1	2,107.8	84.58
109.8	61.0	2,512.4	6,697.8	5,645.3	2,145.7	84.29
109.8	62.0	2,500.5	6,807.6	5,717.5	2,183.5	83.99
109.8	63.0	2,488.8	6,917.4	5,789.0	2,221.2	83.69
109.8	64.0	2,477.1	7,027.2	5,859.4	2,258.8	83.38
109.8	65.0	2,465.5	7,137.0	5,928.7	2,296.3	83.07
109.8	66.0	2,454.0	7,246.8	5,996.9	2,333.6	82.75
109.8	67.0	2,442.6	7,356.6	6,064.5	2,370.9	82.44
109.8	68.0	2,431.3	7,466.4	6,130.9	2,408.0	82.11
109.8	69.0	2,420.0	7,576.2	6,196.2	2,445.0	81.78
109.7	70.0	2,408.8	7,679.0	6,260.6	2,481.9	81.53

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
109.7	72.0	2,386.5	7,898.4	6,385.8	2,555.2	80.85
109.7	73.0	2,375.5	8,008.1	6,446.9	2,591.6	80.50
109.7	74.0	2,364.5	8,117.8	6,506.7	2,627.8	80.15
109.7	75.0	2,353.5	8,227.5	6,565.4	2,663.9	79.80

nl = rpm with no load

Io = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

[1] incl. Controller