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: **150.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 4,735.6 [RPM] Io: 3.1 [A] kV: 32.0 [RPM/V] kn: -23.30 [RPM/A] kT: 36.41 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
150.3	5.0	4,761.6	751.5	553.0	110.9	73.58
150.3	6.0	4,728.9	901.8	698.2	141.0	77.43
150.3	7.0	4,696.6	1,052.1	843.5	171.5	80.17
150.3	8.0	4,664.8	1,202.4	989.2	202.5	82.27
150.2	9.0	4,633.4	1,351.8	1,134.4	233.8	83.92
150.2	10.0	4,602.5	1,502.0	1,279.6	265.5	85.20
150.2	11.0	4,572.0	1,652.2	1,424.8	297.6	86.24
150.2	12.0	4,542.0	1,802.4	1,569.6	330.0	87.08
150.2	13.0	4,512.5	1,952.6	1,714.4	362.8	87.80
150.2	14.0	4,483.3	2,102.8	1,858.7	395.9	88.39
150.2	15.0	4,454.6	2,253.0	2,003.1	429.4	88.91
150.2	16.0	4,426.3	2,403.2	2,146.6	463.1	89.32
150.2	17.0	4,398.4	2,553.4	2,290.1	497.2	89.69
150.2	18.0	4,371.0	2,703.6	2,433.3	531.6	90.00
150.2	19.0	4,344.0	2,853.8	2,576.1	566.3	90.27
150.2	20.0	4,317.4	3,004.0	2,718.1	601.2	90.48
150.2	21.0	4,291.1	3,154.2	2,860.2	636.5	90.68
150.2	22.0	4,265.3	3,304.4	3,001.1	671.9	90.82
150.2	23.0	4,239.9	3,454.6	3,142.2	707.7	90.96
150.2	24.0	4,214.9	3,604.8	3,282.1	743.6	91.05
150.2	25.0	4,190.2	3,755.0	3,421.7	779.8	91.12
150.2	26.0	4,166.0	3,905.2	3,560.8	816.2	91.18
150.1	27.0	4,142.1	4,052.7	3,699.1	852.8	91.28
150.1	28.0	4,118.6	4,202.8	3,836.8	889.6	91.29
150.1	29.0	4,095.5	4,352.9	3,974.0	926.6	91.30
150.1	30.0	4,072.7	4,503.0	4,110.1	963.7	91.27

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
150.1	32.0	4,028.3	4,803.2	4,380.8	1,038.5	91.21
150.1	33.0	4,006.6	4,953.3	4,515.0	1,076.1	91.15
150.1	34.0	3,985.2	5,103.4	4,648.6	1,113.9	91.09
150.1	35.0	3,964.2	5,253.5	4,781.1	1,151.7	91.01
150.1	36.0	3,943.6	5,403.6	4,913.1	1,189.7	90.92
150.1	37.0	3,923.3	5,553.7	5,044.4	1,227.8	90.83
150.1	38.0	3,903.3	5,703.8	5,174.4	1,265.9	90.72
150.1	39.0	3,883.6	5,853.9	5,304.0	1,304.2	90.61
150.1	40.0	3,864.3	6,004.0	5,432.7	1,342.5	90.48
150.1	41.0	3,845.3	6,154.1	5,560.2	1,380.8	90.35
150.1	42.0	3,826.6	6,304.2	5,687.0	1,419.2	90.21
150.1	43.0	3,808.2	6,454.3	5,813.2	1,457.7	90.07
150.0	44.0	3,790.1	6,600.0	5,938.0	1,496.1	89.97
150.0	45.0	3,772.3	6,750.0	6,062.2	1,534.6	89.81
150.0	46.0	3,754.8	6,900.0	6,185.5	1,573.1	89.64
150.0	47.0	3,737.7	7,050.0	6,308.0	1,611.6	89.47
150.0	48.0	3,720.8	7,200.0	6,429.1	1,650.0	89.29
150.0	49.0	3,704.1	7,350.0	6,549.6	1,688.5	89.11
150.0	50.0	3,687.8	7,500.0	6,669.0	1,726.9	88.92
150.0	51.0	3,671.8	7,650.0	6,787.4	1,765.2	88.72
150.0	52.0	3,656.0	7,800.0	6,904.8	1,803.5	88.52
150.0	53.0	3,640.5	7,950.0	7,021.2	1,841.7	88.32
150.0	54.0	3,625.2	8,100.0	7,136.7	1,879.9	88.11
150.0	55.0	3,610.2	8,250.0	7,250.8	1,917.9	87.89
150.0	56.0	3,595.5	8,400.0	7,364.4	1,955.9	87.67
150.0	57.0	3,581.0	8,550.0	7,476.4	1,993.7	87.44
150.0	58.0	3,566.8	8,700.0	7,587.6	2,031.4	87.21
150.0	59.0	3,552.8	8,850.0	7,697.7	2,069.0	86.98
150.0	60.0	3,539.0	9,000.0	7,806.4	2,106.4	86.74
150.0	61.0	3,525.5	9,150.0	7,914.3	2,143.7	86.50
149.9	62.0	3,512.2	9,293.8	8,020.9	2,180.8	86.30
149.9	63.0	3,499.1	9,443.7	8,126.6	2,217.8	86.05
149.9	64.0	3,486.3	9,593.6	8,230.8	2,254.5	85.80
149.9	65.0	3,473.6	9,743.5	8,334.0	2,291.1	85.53
149.9	66.0	3,461.2	9,893.4	8,435.8	2,327.4	85.27
149.9	67.0	3,449.0	10,043.3	8,536.8	2,363.6	85.00
149.9	68.0	3,437.0	10,193.2	8,636.3	2,399.5	84.73
149.9	69.0	3,425.2	10,343.1	8,734.7	2,435.2	84.45
149.9	70.0	3,413.6	10,493.0	8,831.7	2,470.6	84.17

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
149.9	72.0	3,390.9	10,792.8	9,021.9	2,540.7	83.59
149.9	73.0	3,379.8	10,942.7	9,114.8	2,575.3	83.30
149.9	74.0	3,369.0	11,092.6	9,206.7	2,609.6	83.00
149.9	75.0	3,358.3	11,242.5	9,297.0	2,643.6	82.70

nl = rpm with no load
Io = current with no load
kV = specific rpm
kn = rpm drop per Amp
kT = torque constant
[1] incl. Controller