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: **190.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 5,968.3 [RPM] Io: 3.3 [A] kV: 31.9 [RPM/V] kn: -28.04 [RPM/A] kT: 36.54 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
190.2	5.0	6,007.5	951.0	666.9	106.0	70.12
190.2	6.0	5,967.9	1,141.2	849.3	135.9	74.42
190.2	7.0	5,928.9	1,331.4	1,031.9	166.2	77.50
190.2	8.0	5,890.4	1,521.6	1,215.2	197.0	79.86
190.2	9.0	5,852.4	1,711.8	1,398.6	228.2	81.70
190.2	10.0	5,815.0	1,902.0	1,582.0	259.8	83.18
190.2	11.0	5,778.2	2,092.2	1,765.7	291.8	84.39
190.2	12.0	5,741.8	2,282.4	1,949.3	324.2	85.41
190.2	13.0	5,706.0	2,472.6	2,132.6	356.9	86.25
190.1	14.0	5,670.7	2,661.4	2,316.0	390.0	87.02
190.1	15.0	5,636.0	2,851.5	2,499.5	423.5	87.66
190.1	16.0	5,601.7	3,041.6	2,682.6	457.3	88.20
190.1	17.0	5,568.0	3,231.7	2,865.3	491.4	88.66
190.1	18.0	5,534.7	3,421.8	3,047.5	525.8	89.06
190.1	19.0	5,502.0	3,611.9	3,230.0	560.6	89.43
190.1	20.0	5,469.7	3,802.0	3,411.5	595.6	89.73
190.1	21.0	5,438.0	3,992.1	3,592.8	630.9	90.00
190.1	22.0	5,406.7	4,182.2	3,773.6	666.5	90.23
190.1	23.0	5,376.0	4,372.3	3,953.8	702.3	90.43
190.1	24.0	5,345.7	4,562.4	4,133.6	738.4	90.60
190.1	25.0	5,315.9	4,752.5	4,313.2	774.8	90.76
190.1	26.0	5,286.6	4,942.6	4,491.4	811.3	90.87
190.1	27.0	5,257.7	5,132.7	4,669.5	848.1	90.98
190.1	28.0	5,229.3	5,322.8	4,846.4	885.0	91.05
190.1	29.0	5,201.4	5,512.9	5,023.1	922.2	91.12
190.1	30.0	5,173.9	5,703.0	5,198.7	959.5	91.16

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
190.1	32.0	5,120.3	6,083.2	5,548.0	1,034.7	91.20
190.1	33.0	5,094.2	6,273.3	5,721.4	1,072.5	91.20
190.0	34.0	5,068.6	6,460.0	5,893.8	1,110.4	91.24
190.0	35.0	5,043.3	6,650.0	6,065.6	1,148.5	91.21
190.0	36.0	5,018.6	6,840.0	6,236.7	1,186.7	91.18
190.0	37.0	4,994.2	7,030.0	6,406.6	1,225.0	91.13
190.0	38.0	4,970.3	7,220.0	6,575.3	1,263.3	91.07
190.0	39.0	4,946.8	7,410.0	6,743.7	1,301.8	91.01
190.0	40.0	4,923.7	7,600.0	6,910.7	1,340.3	90.93
190.0	41.0	4,901.0	7,790.0	7,076.9	1,378.9	90.85
190.0	42.0	4,878.8	7,980.0	7,242.1	1,417.5	90.75
190.0	43.0	4,856.9	8,170.0	7,405.9	1,456.1	90.65
190.0	44.0	4,835.5	8,360.0	7,569.3	1,494.8	90.54
190.0	45.0	4,814.5	8,550.0	7,731.0	1,533.4	90.42
190.0	46.0	4,793.8	8,740.0	7,892.0	1,572.1	90.30
190.0	47.0	4,773.6	8,930.0	8,052.2	1,610.8	90.17
190.0	48.0	4,753.7	9,120.0	8,210.8	1,649.4	90.03
190.0	49.0	4,734.3	9,310.0	8,368.7	1,688.0	89.89
190.0	50.0	4,715.2	9,500.0	8,525.5	1,726.6	89.74
190.0	51.0	4,696.5	9,690.0	8,681.1	1,765.1	89.59
190.0	52.0	4,678.1	9,880.0	8,835.2	1,803.5	89.42
190.0	53.0	4,660.2	10,070.0	8,988.7	1,841.9	89.26
189.9	54.0	4,642.6	10,254.6	9,140.5	1,880.1	89.14
189.9	55.0	4,625.4	10,444.5	9,291.7	1,918.3	88.96
189.9	56.0	4,608.5	10,634.4	9,441.1	1,956.3	88.78
189.9	57.0	4,592.0	10,824.3	9,589.6	1,994.2	88.59
189.9	58.0	4,575.8	11,014.2	9,736.9	2,032.0	88.40
189.9	59.0	4,560.0	11,204.1	9,882.8	2,069.6	88.21
189.9	60.0	4,544.5	11,394.0	10,027.7	2,107.1	88.01
189.9	61.0	4,529.4	11,583.9	10,171.3	2,144.4	87.81
189.9	62.0	4,514.6	11,773.8	10,313.4	2,181.5	87.60
189.9	63.0	4,500.1	11,963.7	10,454.7	2,218.5	87.39
189.9	64.0	4,486.0	12,153.6	10,594.3	2,255.2	87.17
189.9	65.0	4,472.1	12,343.5	10,732.4	2,291.7	86.95
189.9	66.0	4,458.7	12,533.4	10,869.8	2,328.0	86.73
189.9	67.0	4,445.5	12,723.3	11,005.2	2,364.0	86.50
189.9	68.0	4,432.6	12,913.2	11,139.4	2,399.8	86.26
189.9	69.0	4,420.0	13,103.1	11,272.1	2,435.3	86.03
189.9	70.0	4,407.8	13,293.0	11,403.9	2,470.6	85.79

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency[1] [%]
189.9	72.0	4,384.2	13,672.8	11,662.4	2,540.2	85.30
189.9	73.0	4,372.8	13,862.7	11,789.6	2,574.6	85.05
189.8	74.0	4,361.8	14,045.2	11,915.7	2,608.7	84.84
189.8	75.0	4,351.0	14,235.0	12,039.7	2,642.4	84.58

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