

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: **90.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 2,858.5 [RPM] lo: 2.8 [A] kV: 32.2 [RPM/V] kn: -15.84 [RPM/A] kT: 35.99 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency ¹ [%]
90.0	5.0	2,867.6	450.0	349.2	116.3	77.61
90.0	6.0	2,845.9	540.0	436.3	146.4	80.80
90.0	7.0	2,824.5	630.0	523.5	177.0	83.10
90.0	8.0	2,803.4	720.0	610.3	207.9	84.77
90.0	9.0	2,782.6	810.0	697.0	239.2	86.05
90.0	10.0	2,762.1	900.0	783.6	270.9	87.06
90.0	11.0	2,741.8	990.0	869.4	302.8	87.82
90.0	12.0	2,721.9	1,080.0	955.2	335.1	88.44
90.0	13.0	2,702.2	1,170.0	1,040.8	367.8	88.96
90.0	14.0	2,682.7	1,260.0	1,125.7	400.7	89.34
90.0	15.0	2,663.6	1,350.0	1,210.6	434.0	89.67
90.0	16.0	2,644.7	1,440.0	1,294.8	467.5	89.91
90.0	17.0	2,626.0	1,530.0	1,378.8	501.4	90.12
90.0	18.0	2,607.7	1,620.0	1,462.3	535.5	90.27
90.0	19.0	2,589.5	1,710.0	1,545.4	569.9	90.37
89.9	20.0	2,571.7	1,798.0	1,628.0	604.5	90.54
89.9	21.0	2,554.0	1,887.9	1,710.1	639.4	90.58
89.9	22.0	2,536.6	1,977.8	1,791.7	674.5	90.59
89.9	23.0	2,519.5	2,067.7	1,872.7	709.8	90.57
89.9	24.0	2,502.6	2,157.6	1,953.5	745.4	90.54
89.9	25.0	2,485.9	2,247.5	2,033.4	781.1	90.47
89.9	26.0	2,469.5	2,337.4	2,113.1	817.1	90.40
89.9	27.0	2,453.3	2,427.3	2,191.9	853.2	90.30
89.9	28.0	2,437.3	2,517.2	2,270.3	889.5	90.19
89.9	29.0	2,421.6	2,607.1	2,348.2	926.0	90.07
89.9	30.0	2,406.0	2,697.0	2,425.6	962.7	89.94

Voltage	Current	Speed	Input Power	Output Power	Torque	Efficiency ¹
[V]	[A]	[RPM]	[W]	[W]	[Ncm]	[%]
89.9	32.0	2,375.6	2,876.8	2,578.3	1,036.4	89.62
89.9	33.0	2,360.7	2,966.7	2,653.8	1,073.5	89.45
89.9	34.0	2,346.0	3,056.6	2,728.4	1,110.6	89.26
89.9	35.0	2,331.5	3,146.5	2,802.6	1,147.9	89.07
89.9	36.0	2,317.2	3,236.4	2,876.2	1,185.3	88.87
89.9	37.0	2,303.1	3,326.3	2,949.1	1,222.8	88.66
89.9	38.0	2,289.3	3,416.2	3,021.6	1,260.4	88.45
89.8	39.0	2,275.5	3,502.2	3,093.0	1,298.0	88.32
89.8	40.0	2,262.0	3,592.0	3,164.0	1,335.7	88.08
89.8	41.0	2,248.7	3,681.8	3,234.1	1,373.4	87.84
89.8	42.0	2,235.5	3,771.6	3,303.6	1,411.2	87.59
89.8	43.0	2,222.6	3,861.4	3,372.5	1,449.0	87.34
89.8	44.0	2,209.8	3,951.2	3,440.8	1,486.9	87.08
89.8	45.0	2,197.1	4,041.0	3,508.0	1,524.7	86.81
89.8	46.0	2,184.7	4,130.8	3,574.9	1,562.6	86.54
89.8	47.0	2,172.4	4,220.6	3,640.8	1,600.4	86.26
89.8	48.0	2,160.3	4,310.4	3,706.3	1,638.3	85.98
89.8	49.0	2,148.3	4,400.2	3,770.7	1,676.1	85.69
89.8	50.0	2,136.5	4,490.0	3,834.3	1,713.8	85.40
89.8	51.0	2,124.8	4,579.8	3,897.5	1,751.6	85.10
89.8	52.0	2,113.3	4,669.6	3,959.6	1,789.2	84.79
89.8	53.0	2,101.9	4,759.4	4,021.0	1,826.8	84.48
89.8	54.0	2,090.7	4,849.2	4,081.7	1,864.3	84.17
89.8	55.0	2,079.6	4,939.0	4,141.6	1,901.8	83.86
89.8	56.0	2,068.7	5,028.8	4,200.7	1,939.1	83.53
89.8	57.0	2,057.9	5,118.6	4,259.2	1,976.4	83.21
89.8	58.0	2,047.2	5,208.4	4,316.6	2,013.5	82.88
89.7	59.0	2,036.6	5,292.3	4,373.1	2,050.5	82.63
89.7	60.0	2,026.2	5,382.0	4,429.1	2,087.4	82.29
89.7	61.0	2,015.9	5,471.7	4,484.1	2,124.1	81.95
89.7	62.0	2,005.7	5,561.4	4,538.3	2,160.7	81.60
89.7	63.0	1,995.6	5,651.1	4,591.5	2,197.1	81.25
89.7	64.0	1,985.6	5,740.8	4,643.7	2,233.3	80.89
89.7	65.0	1,975.8	5,830.5	4,695.5	2,269.4	80.53
89.7	66.0	1,966.0	5,920.2	4,746.1	2,305.3	80.17
89.7	67.0	1,956.4	6,009.9	4,795.9	2,340.9	79.80
89.7	68.0	1,946.8	6,099.6	4,844.7	2,376.4	79.43
89.7	69.0	1,937.3	6,189.3	4,892.5	2,411.6	79.05
89.7	70.0	1,928.0	6,279.0	4,939.7	2,446.6	78.67

Voltage	Current	Speed	Input Power	Output Power	Torque	Efficiency ¹
[V]	[A]	[RPM]	[W]	[W]	[Ncm]	[%]
89.7	72.0	1,909.5	6,458.4	5,030.9	2,515.9	77.90
89.7	73.0	1,900.4	6,548.1	5,074.9	2,550.1	77.50
89.7	74.0	1,891.4	6,637.8	5,118.2	2,584.1	77.11
89.7	75.0	1,882.4	6,727.5	5,160.3	2,617.8	76.70

nl = rpm with no load

lo = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

¹ incl. Controller