

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: **240.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 7,508.2 [RPM] lo: 3.4 [A] kV: 31.8 [RPM/V] kn: -33.88 [RPM/A] kT: 36.56 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency ¹ [%]
240.0	5.0	7,568.1	1,200.0	780.6	98.5	65.05
240.0	6.0	7,518.9	1,440.0	1,020.4	129.6	70.86
240.0	7.0	7,470.4	1,680.0	1,259.5	161.0	74.97
240.0	8.0	7,422.7	1,920.0	1,497.9	192.7	78.01
240.0	9.0	7,375.7	2,160.0	1,735.5	224.7	80.35
240.0	10.0	7,329.4	2,400.0	1,972.6	257.0	82.19
240.0	11.0	7,283.9	2,640.0	2,209.0	289.6	83.67
240.0	12.0	7,239.1	2,880.0	2,444.8	322.5	84.89
239.9	13.0	7,195.0	3,118.7	2,679.3	355.6	85.91
239.9	14.0	7,151.6	3,358.6	2,913.3	389.0	86.74
239.9	15.0	7,109.0	3,598.5	3,146.8	422.7	87.45
239.9	16.0	7,067.0	3,838.4	3,379.1	456.6	88.03
239.9	17.0	7,025.7	4,078.3	3,611.0	490.8	88.54
239.9	18.0	6,985.1	4,318.2	3,842.5	525.3	88.98
239.9	19.0	6,945.1	4,558.1	4,072.8	560.0	89.35
239.9	20.0	6,905.8	4,798.0	4,302.2	594.9	89.67
239.9	21.0	6,867.2	5,037.9	4,531.2	630.1	89.94
239.9	22.0	6,829.2	5,277.8	4,759.3	665.5	90.18
239.9	23.0	6,791.8	5,517.7	4,986.5	701.1	90.37
239.9	24.0	6,755.1	5,757.6	5,212.8	736.9	90.54
239.9	25.0	6,719.0	5,997.5	5,438.2	772.9	90.67
239.9	26.0	6,683.5	6,237.4	5,663.5	809.2	90.80
239.9	27.0	6,648.6	6,477.3	5,887.4	845.6	90.89
239.9	28.0	6,614.3	6,717.2	6,110.5	882.2	90.97
239.9	29.0	6,580.5	6,957.1	6,332.9	919.0	91.03
239.9	30.0	6,547.4	7,197.0	6,554.7	956.0	91.08

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency ¹ [%]
239.8	32.0	6,482.9	7,673.6	6,995.9	1,030.5	91.17
239.8	33.0	6,451.4	7,913.4	7,215.3	1,068.0	91.18
239.8	34.0	6,420.6	8,153.2	7,434.3	1,105.7	91.18
239.8	35.0	6,390.2	8,393.0	7,652.1	1,143.5	91.17
239.8	36.0	6,360.4	8,632.8	7,868.8	1,181.4	91.15
239.8	37.0	6,331.1	8,872.6	8,085.2	1,219.5	91.13
239.8	38.0	6,302.4	9,112.4	8,300.6	1,257.7	91.09
239.8	39.0	6,274.1	9,352.2	8,515.7	1,296.1	91.06
239.8	40.0	6,246.4	9,592.0	8,729.9	1,334.6	91.01
239.8	41.0	6,219.1	9,831.8	8,943.1	1,373.2	90.96
239.8	42.0	6,192.3	10,071.6	9,155.6	1,411.9	90.90
239.8	43.0	6,166.0	10,311.4	9,367.2	1,450.7	90.84
239.8	44.0	6,140.2	10,551.2	9,578.1	1,489.6	90.78
239.8	45.0	6,114.9	10,791.0	9,788.4	1,528.6	90.71
239.8	46.0	6,090.0	11,030.8	9,997.9	1,567.7	90.64
239.8	47.0	6,065.5	11,270.6	10,206.7	1,606.9	90.56
239.7	48.0	6,041.5	11,505.6	10,414.3	1,646.1	90.51
239.7	49.0	6,017.9	11,745.3	10,621.9	1,685.5	90.44
239.7	50.0	5,994.8	11,985.0	10,827.8	1,724.8	90.34
239.7	51.0	5,972.0	12,224.7	11,033.7	1,764.3	90.26
239.7	52.0	5,949.7	12,464.4	11,238.6	1,803.8	90.17
239.7	53.0	5,927.8	12,704.1	11,443.0	1,843.4	90.07
239.7	54.0	5,906.2	12,943.8	11,646.3	1,883.0	89.98
239.7	55.0	5,885.1	13,183.5	11,848.7	1,922.6	89.88
239.7	56.0	5,864.3	13,423.2	12,050.6	1,962.3	89.77
239.7	57.0	5,843.9	13,662.9	12,251.7	2,002.0	89.67
239.7	58.0	5,823.8	13,902.6	12,451.7	2,041.7	89.56
239.7	59.0	5,804.1	14,142.3	12,650.8	2,081.4	89.45
239.7	60.0	5,784.8	14,382.0	12,849.3	2,121.1	89.34
239.7	61.0	5,765.7	14,621.7	13,047.1	2,160.9	89.23
239.7	62.0	5,747.0	14,861.4	13,243.7	2,200.6	89.12
239.7	63.0	5,728.7	15,101.1	13,439.7	2,240.3	89.00
239.7	64.0	5,710.6	15,340.8	13,634.7	2,280.0	88.88
239.6	65.0	5,692.9	15,574.0	13,829.1	2,319.7	88.80
239.6	66.0	5,675.4	15,813.6	14,022.5	2,359.4	88.67
239.6	67.0	5,658.3	16,053.2	14,214.9	2,399.0	88.55
239.6	68.0	5,641.4	16,292.8	14,406.4	2,438.6	88.42
239.6	69.0	5,624.8	16,532.4	14,597.3	2,478.2	88.30
239.6	70.0	5,608.4	16,772.0	14,786.7	2,517.7	88.16

Voltage	Current	Speed	Input Power	Output Power	Torque	Efficiency ¹
[V]	[A]	[RPM]	[W]	[W]	[Ncm]	[%]
239.6	72.0	5,576.5	17,251.2	15,162.8	2,596.5	87.89
239.6	73.0	5,561.0	17,490.8	15,349.5	2,635.8	87.76
239.6	74.0	5,545.6	17,730.4	15,535.2	2,675.1	87.62
239.6	75.0	5,530.5	17,970.0	15,719.4	2,714.2	87.48

nl = rpm with no load

lo = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

¹ incl. Controller