

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: **270.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 8,445.9 [RPM] lo: 3.5 [A] kV: 31.7 [RPM/V] kn: -37.56 [RPM/A] kT: 36.63 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency ¹ [%]
270.1	5.0	8,517.4	1,350.5	859.8	96.4	63.67
270.1	6.0	8,462.6	1,620.6	1,125.5	127.0	69.45
270.1	7.0	8,408.6	1,890.7	1,392.1	158.1	73.63
270.1	8.0	8,355.5	2,160.8	1,657.2	189.4	76.69
270.1	9.0	8,303.2	2,430.9	1,923.4	221.2	79.12
270.1	10.0	8,251.8	2,701.0	2,188.8	253.3	81.04
270.1	11.0	8,201.2	2,971.1	2,453.7	285.7	82.58
270.1	12.0	8,151.4	3,241.2	2,717.9	318.4	83.85
270.0	13.0	8,102.4	3,510.0	2,982.4	351.5	84.97
270.0	14.0	8,054.1	3,780.0	3,246.3	384.9	85.88
270.0	15.0	8,006.7	4,050.0	3,509.8	418.6	86.66
270.0	16.0	7,960.1	4,320.0	3,772.8	452.6	87.33
270.0	17.0	7,914.2	4,590.0	4,035.3	486.9	87.91
270.0	18.0	7,869.1	4,860.0	4,297.4	521.5	88.42
270.0	19.0	7,824.7	5,130.0	4,558.3	556.3	88.86
270.0	20.0	7,781.1	5,400.0	4,818.9	591.4	89.24
270.0	21.0	7,738.2	5,670.0	5,079.2	626.8	89.58
270.0	22.0	7,696.0	5,940.0	5,338.4	662.4	89.87
270.0	23.0	7,654.5	6,210.0	5,596.6	698.2	90.12
270.0	24.0	7,613.8	6,480.0	5,853.9	734.2	90.34
270.0	25.0	7,573.7	6,750.0	6,111.0	770.5	90.53
270.0	26.0	7,534.3	7,020.0	6,367.1	807.0	90.70
270.0	27.0	7,495.7	7,290.0	6,622.6	843.7	90.85
270.0	28.0	7,457.6	7,560.0	6,877.1	880.6	90.97
270.0	29.0	7,420.3	7,830.0	7,130.2	917.6	91.06
270.0	30.0	7,383.6	8,100.0	7,383.4	954.9	91.15

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency ¹ [%]
270.0	32.0	7,312.2	8,640.0	7,885.5	1,029.8	91.27
269.9	33.0	7,277.4	8,906.7	8,136.0	1,067.6	91.35
269.9	34.0	7,243.2	9,176.6	8,384.5	1,105.4	91.37
269.9	35.0	7,209.7	9,446.5	8,632.6	1,143.4	91.38
269.9	36.0	7,176.7	9,716.4	8,879.5	1,181.5	91.39
269.9	37.0	7,144.4	9,986.3	9,125.3	1,219.7	91.38
269.9	38.0	7,112.6	10,256.2	9,370.7	1,258.1	91.37
269.9	39.0	7,081.4	10,526.1	9,614.4	1,296.5	91.34
269.9	40.0	7,050.8	10,796.0	9,857.1	1,335.0	91.30
269.9	41.0	7,020.7	11,065.9	10,098.8	1,373.6	91.26
269.9	42.0	6,991.2	11,335.8	10,339.7	1,412.3	91.21
269.9	43.0	6,962.3	11,605.7	10,579.1	1,451.0	91.15
269.9	44.0	6,933.8	11,875.6	10,817.5	1,489.8	91.09
269.9	45.0	6,905.9	12,145.5	11,054.6	1,528.6	91.02
269.9	46.0	6,878.5	12,415.4	11,290.9	1,567.5	90.94
269.9	47.0	6,851.7	12,685.3	11,525.3	1,606.3	90.86
269.9	48.0	6,825.3	12,955.2	11,759.7	1,645.3	90.77
269.9	49.0	6,799.4	13,225.1	11,992.0	1,684.2	90.68
269.9	50.0	6,774.0	13,495.0	12,223.2	1,723.1	90.58
269.9	51.0	6,749.0	13,764.9	12,453.0	1,762.0	90.47
269.9	52.0	6,724.6	14,034.8	12,681.9	1,800.9	90.36
269.9	53.0	6,700.5	14,304.7	12,909.4	1,839.8	90.25
269.8	54.0	6,677.0	14,569.2	13,135.4	1,878.6	90.16
269.8	55.0	6,653.8	14,839.0	13,360.1	1,917.4	90.03
269.8	56.0	6,631.1	15,108.8	13,584.0	1,956.2	89.91
269.8	57.0	6,608.8	15,378.6	13,805.5	1,994.8	89.77
269.8	58.0	6,587.0	15,648.4	14,026.9	2,033.5	89.64
269.8	59.0	6,565.5	15,918.2	14,245.8	2,072.0	89.49
269.8	60.0	6,544.4	16,188.0	14,463.8	2,110.5	89.35
269.8	61.0	6,523.8	16,457.8	14,680.0	2,148.8	89.20
269.8	62.0	6,503.5	16,727.6	14,895.1	2,187.1	89.05
269.8	63.0	6,483.5	16,997.4	15,108.7	2,225.3	88.89
269.8	64.0	6,463.9	17,267.2	15,320.2	2,263.3	88.72
269.8	65.0	6,444.7	17,537.0	15,530.5	2,301.2	88.56
269.8	66.0	6,425.8	17,806.8	15,739.3	2,339.0	88.39
269.8	67.0	6,407.3	18,076.6	15,946.3	2,376.6	88.22
269.8	68.0	6,389.1	18,346.4	16,151.2	2,414.0	88.03
269.8	69.0	6,371.2	18,616.2	16,354.8	2,451.3	87.85
269.8	70.0	6,353.6	18,886.0	16,557.2	2,488.5	87.67

Voltage	Current	Speed	Input Power	Output Power	Torque	Efficiency ¹
[V]	[A]	[RPM]	[W]	[W]	[Ncm]	[%]
269.8	72.0	6,319.3	19,425.6	16,955.5	2,562.2	87.28
269.8	73.0	6,302.5	19,695.4	17,151.3	2,598.7	87.08
269.7	74.0	6,286.1	19,957.8	17,346.3	2,635.1	86.91
269.7	75.0	6,269.9	20,227.5	17,538.6	2,671.2	86.71

nl = rpm with no load

lo = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

¹ incl. Controller