

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: **310.0 [V]**

Throttle setting: 100%

Calculated Motor Constants

nl: 9,606.0 [RPM] lo: 3.4 [A] kV: 31.4 [RPM/V] kn: -41.11 [RPM/A] kT: 36.63 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency ¹ [%]
310.1	5.0	9,690.5	1,550.5	974.2	96.0	62.83
310.1	6.0	9,629.2	1,860.6	1,280.6	127.0	68.83
310.1	7.0	9,569.0	2,170.7	1,586.3	158.3	73.08
310.1	8.0	9,509.8	2,480.8	1,891.1	189.9	76.23
310.1	9.0	9,451.6	2,790.9	2,195.3	221.8	78.66
310.0	10.0	9,394.4	3,100.0	2,499.8	254.1	80.64
310.0	11.0	9,338.2	3,410.0	2,803.6	286.7	82.22
310.0	12.0	9,282.9	3,720.0	3,106.8	319.6	83.52
310.0	13.0	9,228.6	4,030.0	3,408.6	352.7	84.58
310.0	14.0	9,175.2	4,340.0	3,710.7	386.2	85.50
310.0	15.0	9,122.8	4,650.0	4,011.5	419.9	86.27
310.0	16.0	9,071.3	4,960.0	4,312.7	454.0	86.95
310.0	17.0	9,020.7	5,270.0	4,612.7	488.3	87.53
310.0	18.0	8,971.0	5,580.0	4,911.4	522.8	88.02
310.0	19.0	8,922.2	5,890.0	5,209.8	557.6	88.45
310.0	20.0	8,874.2	6,200.0	5,508.0	592.7	88.84
310.0	21.0	8,827.1	6,510.0	5,805.1	628.0	89.17
310.0	22.0	8,780.8	6,820.0	6,101.0	663.5	89.46
310.0	23.0	8,735.4	7,130.0	6,397.0	699.3	89.72
310.0	24.0	8,690.8	7,440.0	6,691.0	735.2	89.93
309.9	25.0	8,647.0	7,747.5	6,985.1	771.4	90.16
309.9	26.0	8,604.0	8,057.4	7,278.3	807.8	90.33
309.9	27.0	8,561.7	8,367.3	7,570.7	844.4	90.48
309.9	28.0	8,520.3	8,677.2	7,862.5	881.2	90.61
309.9	29.0	8,479.5	8,987.1	8,153.4	918.2	90.72
309.9	30.0	8,439.6	9,297.0	8,442.9	955.3	90.81

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency ¹ [%]
309.9	32.0	8,361.8	9,916.8	9,020.0	1,030.1	90.96
309.9	33.0	8,324.0	10,226.7	9,307.9	1,067.8	91.02
309.9	34.0	8,286.9	10,536.6	9,594.4	1,105.6	91.06
309.9	35.0	8,250.4	10,846.5	9,879.6	1,143.5	91.09
309.9	36.0	8,214.7	11,156.4	10,163.8	1,181.5	91.10
309.9	37.0	8,179.5	11,466.3	10,447.4	1,219.7	91.11
309.9	38.0	8,145.1	11,776.2	10,731.0	1,258.1	91.12
309.9	39.0	8,111.2	12,086.1	11,012.5	1,296.5	91.12
309.8	40.0	8,078.0	12,392.0	11,293.1	1,335.0	91.13
309.8	41.0	8,045.4	12,701.8	11,573.6	1,373.7	91.12
309.8	42.0	8,013.3	13,011.6	11,852.2	1,412.4	91.09
309.8	43.0	7,981.9	13,321.4	12,130.0	1,451.2	91.06
309.8	44.0	7,951.0	13,631.2	12,407.0	1,490.1	91.02
309.8	45.0	7,920.7	13,941.0	12,683.2	1,529.1	90.98
309.8	46.0	7,890.9	14,250.8	12,957.7	1,568.1	90.93
309.8	47.0	7,861.6	14,560.6	13,231.5	1,607.2	90.87
309.8	48.0	7,832.9	14,870.4	13,503.9	1,646.3	90.81
309.8	49.0	7,804.6	15,180.2	13,775.5	1,685.5	90.75
309.8	50.0	7,776.9	15,490.0	14,045.9	1,724.7	90.68
309.8	51.0	7,749.6	15,799.8	14,315.5	1,764.0	90.61
309.8	52.0	7,722.8	16,109.6	14,583.0	1,803.2	90.52
309.8	53.0	7,696.5	16,419.4	14,850.1	1,842.5	90.44
309.8	54.0	7,670.6	16,729.2	15,115.8	1,881.8	90.36
309.7	55.0	7,645.1	17,033.5	15,380.2	1,921.1	90.29
309.7	56.0	7,620.1	17,343.2	15,643.5	1,960.4	90.20
309.7	57.0	7,595.4	17,652.9	15,905.4	1,999.7	90.10
309.7	58.0	7,571.1	17,962.6	16,166.1	2,039.0	90.00
309.7	59.0	7,547.3	18,272.3	16,425.1	2,078.2	89.89
309.7	60.0	7,523.7	18,582.0	16,682.6	2,117.4	89.78
309.7	61.0	7,500.6	18,891.7	16,938.5	2,156.5	89.66
309.7	62.0	7,477.8	19,201.4	17,193.9	2,195.7	89.55
309.7	63.0	7,455.3	19,511.1	17,446.7	2,234.7	89.42
309.7	64.0	7,433.1	19,820.8	17,698.3	2,273.7	89.29
309.7	65.0	7,411.2	20,130.5	17,948.1	2,312.6	89.16
309.7	66.0	7,389.6	20,440.2	18,196.8	2,351.5	89.02
309.7	67.0	7,368.3	20,749.9	18,443.7	2,390.3	88.89
309.7	68.0	7,347.3	21,059.6	18,688.1	2,428.9	88.74
309.7	69.0	7,326.5	21,369.3	18,931.4	2,467.5	88.59
309.6	70.0	7,306.0	21,672.0	19,173.0	2,506.0	88.47

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency ¹ [%]
309.6	72.0	7,265.6	22,291.2	19,649.8	2,582.6	88.15
309.6	73.0	7,245.7	22,600.8	19,885.0	2,620.7	87.98
309.6	74.0	7,226.0	22,910.4	20,118.5	2,658.7	87.81
309.6	75.0	7,206.4	23,220.0	20,350.0	2,696.6	87.64

nl = rpm with no load

lo = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

¹ incl. Controller