

## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **100.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 1,462.4 [RPM]    lo: 3.6 [A]    kv: 14.8 [RPM/V]    kn: -4.36 [RPM/A]    kT: 75.01 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
100.0	10.0	1,459.1	1,000.0	728.1	476.5	72.81
100.0	12.0	1,446.1	1,200.0	948.7	626.5	79.06
100.0	14.0	1,433.4	1,400.0	1,165.6	776.5	83.25
100.0	16.0	1,421.0	1,600.0	1,378.7	926.5	86.17
100.0	18.0	1,408.8	1,800.0	1,588.3	1,076.6	88.24
100.0	20.0	1,397.0	2,000.0	1,794.4	1,226.6	89.72
100.0	22.0	1,385.4	2,200.0	1,997.2	1,376.6	90.78
100.0	24.0	1,374.1	2,400.0	2,196.9	1,526.7	91.54
100.0	26.0	1,363.0	2,600.0	2,393.2	1,676.7	92.05
100.0	28.0	1,352.2	2,800.0	2,586.6	1,826.7	92.38
100.0	30.0	1,341.6	3,000.0	2,777.2	1,976.8	92.57
100.0	32.0	1,331.3	3,200.0	2,965.0	2,126.8	92.66
100.0	34.0	1,321.1	3,400.0	3,149.8	2,276.8	92.64
100.0	36.0	1,311.2	3,600.0	3,332.2	2,426.8	92.56
99.9	38.0	1,301.5	3,796.2	3,512.1	2,576.9	92.52
99.9	40.0	1,292.0	3,996.0	3,689.4	2,726.9	92.33
99.9	42.0	1,282.7	4,195.8	3,864.4	2,876.9	92.10
99.9	44.0	1,273.5	4,395.6	4,036.8	3,027.0	91.84
99.9	46.0	1,264.6	4,595.4	4,207.3	3,177.0	91.55
99.9	48.0	1,255.8	4,795.2	4,375.2	3,327.0	91.24
99.9	50.0	1,247.2	4,995.0	4,541.3	3,477.1	90.92
99.9	52.0	1,238.7	5,194.8	4,704.9	3,627.1	90.57
99.9	54.0	1,230.3	5,394.6	4,866.3	3,777.1	90.21
99.9	56.0	1,222.1	5,594.4	5,025.8	3,927.1	89.84
99.9	58.0	1,214.1	5,794.2	5,183.8	4,077.2	89.46
99.9	60.0	1,206.1	5,994.0	5,339.1	4,227.2	89.07

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
99.9	62.0	1,198.3	6,193.8	5,492.8	4,377.2	88.68
99.9	64.0	1,190.6	6,393.6	5,644.6	4,527.3	88.29
99.9	66.0	1,182.9	6,593.4	5,793.9	4,677.3	87.87
99.9	68.0	1,175.4	6,793.2	5,941.8	4,827.3	87.47
99.9	70.0	1,167.9	6,993.0	6,087.3	4,977.3	87.05
99.9	72.0	1,160.6	7,192.8	6,231.7	5,127.4	86.64
99.8	74.0	1,153.3	7,385.2	6,373.7	5,277.4	86.30
99.8	76.0	1,146.0	7,584.8	6,513.4	5,427.4	85.87
99.8	78.0	1,138.8	7,784.4	6,651.4	5,577.5	85.45
99.8	80.0	1,131.6	7,984.0	6,787.1	5,727.5	85.01
99.8	82.0	1,124.5	8,183.6	6,921.2	5,877.5	84.57
99.8	84.0	1,117.4	8,383.2	7,053.1	6,027.6	84.13
99.8	86.0	1,110.3	8,582.8	7,182.7	6,177.6	83.69
99.8	88.0	1,103.3	8,782.4	7,310.7	6,327.6	83.24
99.8	90.0	1,096.2	8,982.0	7,435.9	6,477.6	82.79
99.8	92.0	1,089.2	9,181.6	7,559.6	6,627.7	82.33
99.8	94.0	1,082.1	9,381.2	7,680.3	6,777.7	81.87
99.8	96.0	1,075.0	9,580.8	7,798.8	6,927.7	81.40
99.8	98.0	1,067.9	9,780.4	7,915.1	7,077.8	80.93
99.8	100.0	1,060.8	9,980.0	8,029.1	7,227.8	80.45
99.8	102.0	1,053.6	10,179.6	8,140.1	7,377.8	79.97
99.8	104.0	1,046.4	10,379.2	8,248.9	7,527.8	79.48
99.8	106.0	1,039.1	10,578.8	8,354.7	7,677.9	78.98
99.8	108.0	1,031.7	10,778.4	8,457.2	7,827.9	78.46
99.7	110.0	1,024.3	10,967.0	8,557.5	7,977.9	78.03

nl = rpm with no load

lo = current with no load

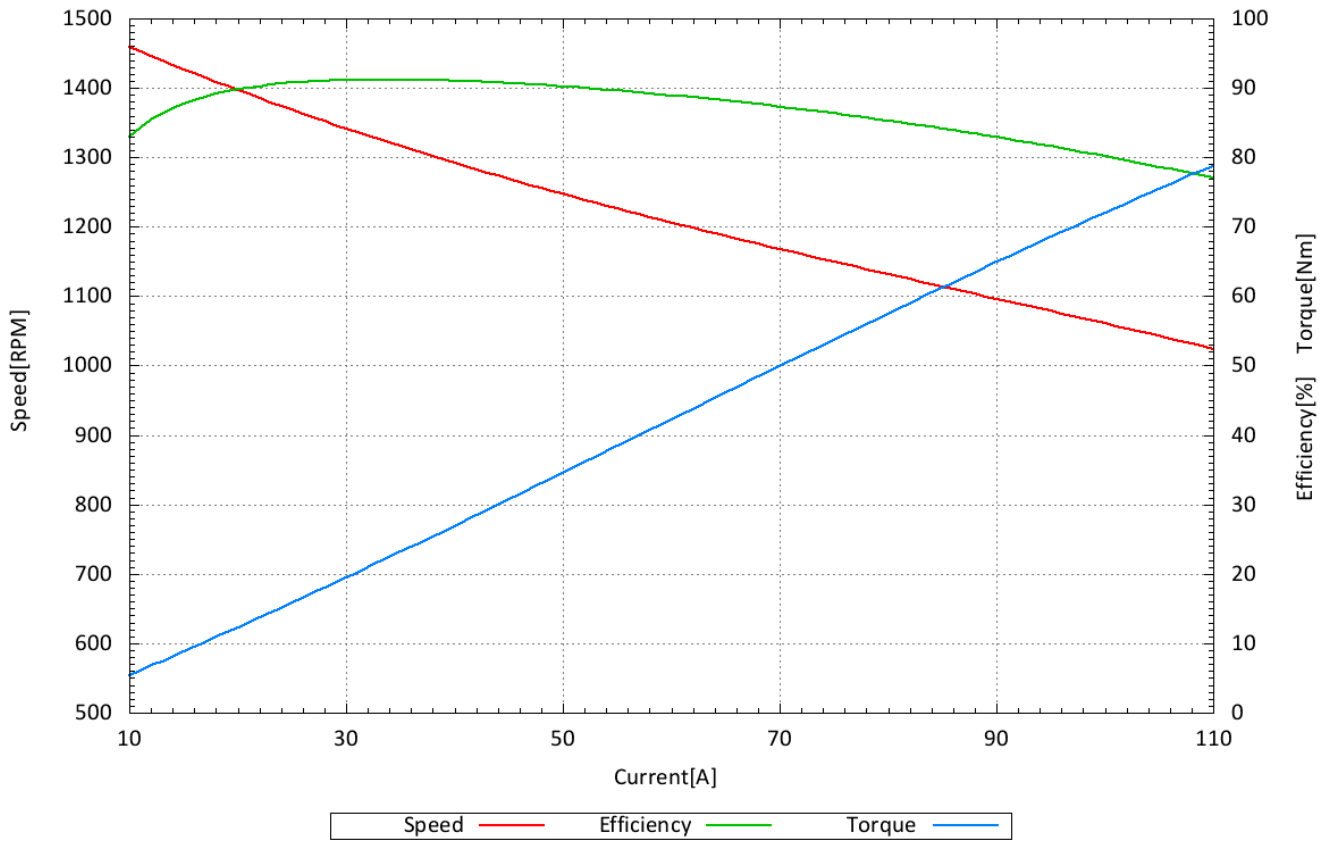
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP1450\_50\_B10\_P50\_V3\_HV\_RS\_100V\_MST400-133\_01042021



## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **125.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 1,817.6 [RPM]    lo: 4.3 [A]    kv: 14.7 [RPM/V]    kn: -4.93 [RPM/A]    kT: 76.13 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
125.3	10.0	1,820.2	1,253.0	833.5	437.3	66.52
125.3	12.0	1,805.1	1,503.6	1,114.3	589.5	74.11
125.3	14.0	1,790.4	1,754.2	1,390.8	741.8	79.28
125.3	16.0	1,776.0	2,004.8	1,662.7	894.0	82.94
125.3	18.0	1,762.0	2,255.4	1,930.6	1,046.3	85.60
125.3	20.0	1,748.3	2,506.0	2,194.2	1,198.5	87.56
125.3	22.0	1,734.9	2,756.6	2,454.1	1,350.8	89.03
125.2	24.0	1,721.8	3,004.8	2,710.0	1,503.0	90.19
125.2	26.0	1,709.0	3,255.2	2,962.4	1,655.3	91.01
125.2	28.0	1,696.6	3,505.6	3,211.5	1,807.6	91.61
125.2	30.0	1,684.4	3,756.0	3,456.9	1,959.8	92.04
125.2	32.0	1,672.4	4,006.4	3,699.0	2,112.1	92.33
125.2	34.0	1,660.8	4,256.8	3,938.0	2,264.3	92.51
125.2	36.0	1,649.3	4,507.2	4,173.8	2,416.6	92.60
125.2	38.0	1,638.2	4,757.6	4,406.8	2,568.8	92.63
125.2	40.0	1,627.3	5,008.0	4,637.0	2,721.1	92.59
125.2	42.0	1,616.6	5,258.4	4,864.2	2,873.3	92.50
125.2	44.0	1,606.1	5,508.8	5,088.8	3,025.6	92.38
125.2	46.0	1,595.8	5,759.2	5,310.5	3,177.8	92.21
125.2	48.0	1,585.8	6,009.6	5,530.1	3,330.1	92.02
125.2	50.0	1,575.9	6,260.0	5,746.8	3,482.3	91.80
125.2	52.0	1,566.2	6,510.4	5,961.2	3,634.6	91.56
125.2	54.0	1,556.7	6,760.8	6,173.3	3,786.9	91.31
125.1	56.0	1,547.3	7,005.6	6,382.6	3,939.1	91.11
125.1	58.0	1,538.1	7,255.8	6,590.0	4,091.4	90.82
125.1	60.0	1,529.1	7,506.0	6,795.1	4,243.6	90.53

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
125.1	62.0	1,520.2	7,756.2	6,998.1	4,395.9	90.23
125.1	64.0	1,511.4	8,006.4	7,198.4	4,548.1	89.91
125.1	66.0	1,502.8	8,256.6	7,397.2	4,700.4	89.59
125.1	68.0	1,494.3	8,506.8	7,593.5	4,852.6	89.26
125.1	70.0	1,485.8	8,757.0	7,787.3	5,004.9	88.93
125.1	72.0	1,477.5	9,007.2	7,979.2	5,157.1	88.59
125.1	74.0	1,469.3	9,257.4	8,169.3	5,309.4	88.25
125.1	76.0	1,461.1	9,507.6	8,356.7	5,461.7	87.90
125.1	78.0	1,453.0	9,757.8	8,542.0	5,613.9	87.54
125.1	80.0	1,444.9	10,008.0	8,724.8	5,766.2	87.18
125.1	82.0	1,436.9	10,258.2	8,905.5	5,918.4	86.81
125.1	84.0	1,429.0	10,508.4	9,084.5	6,070.7	86.45
125.1	86.0	1,421.1	10,758.6	9,260.7	6,222.9	86.08
125.0	88.0	1,413.2	11,000.0	9,434.7	6,375.2	85.77
125.0	90.0	1,405.3	11,250.0	9,605.9	6,527.4	85.39
125.0	92.0	1,397.4	11,500.0	9,774.8	6,679.7	85.00
125.0	94.0	1,389.6	11,750.0	9,941.7	6,831.9	84.61
125.0	96.0	1,381.7	12,000.0	10,105.5	6,984.2	84.21
125.0	98.0	1,373.8	12,250.0	10,266.7	7,136.4	83.81
125.0	100.0	1,365.8	12,500.0	10,424.8	7,288.7	83.40
125.0	102.0	1,357.9	12,750.0	10,581.0	7,441.0	82.99
125.0	104.0	1,349.9	13,000.0	10,733.8	7,593.2	82.57
125.0	106.0	1,341.8	13,250.0	10,883.4	7,745.5	82.14
125.0	108.0	1,333.6	13,500.0	11,029.5	7,897.7	81.70
125.0	110.0	1,325.4	13,750.0	11,173.0	8,050.0	81.26

nl = rpm with no load

lo = current with no load

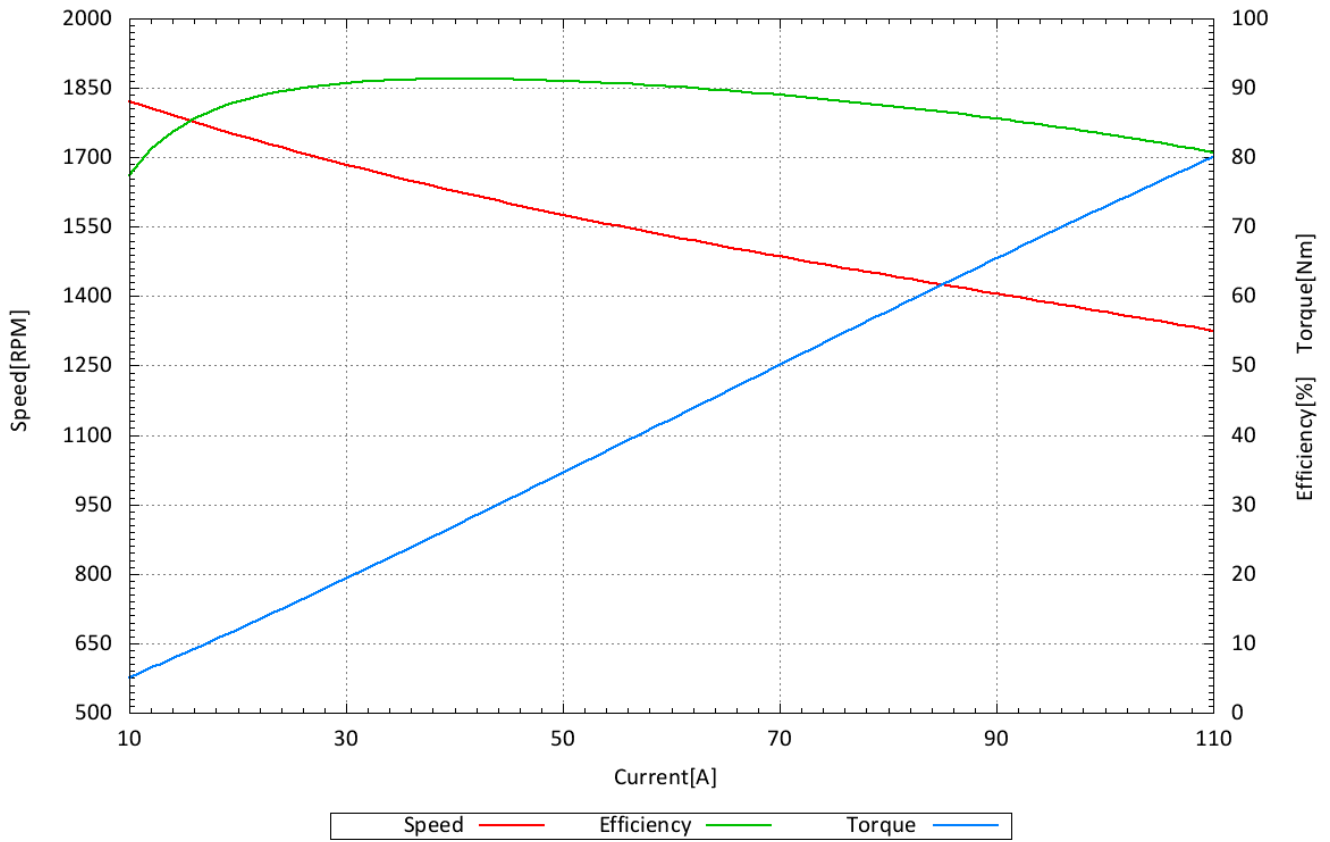
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP1450\_50\_B10\_P50\_V3\_HV\_RS\_125V\_MST400-133\_01042021



## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **150.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 2,180.3 [RPM]    lo: 3.9 [A]    kv: 14.6 [RPM/V]    kn: -5.58 [RPM/A]    kT: 75.92 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
150.5	10.0	2,183.3	1,505.0	1,060.0	463.6	70.43
150.5	12.0	2,166.1	1,806.0	1,396.2	615.5	77.31
150.5	14.0	2,149.2	2,107.0	1,726.9	767.3	81.96
150.5	16.0	2,132.7	2,408.0	2,052.7	919.1	85.24
150.5	18.0	2,116.7	2,709.0	2,374.0	1,071.0	87.63
150.5	20.0	2,100.9	3,010.0	2,690.2	1,222.8	89.38
150.5	22.0	2,085.6	3,311.0	3,002.2	1,374.6	90.67
150.5	24.0	2,070.6	3,612.0	3,310.0	1,526.5	91.64
150.5	26.0	2,056.0	3,913.0	3,613.4	1,678.3	92.34
150.4	28.0	2,041.7	4,211.2	3,913.1	1,830.2	92.92
150.4	30.0	2,027.7	4,512.0	4,208.6	1,982.0	93.28
150.4	32.0	2,014.0	4,812.8	4,500.3	2,133.8	93.51
150.4	34.0	2,000.6	5,113.6	4,788.6	2,285.7	93.64
150.4	36.0	1,987.6	5,414.4	5,073.4	2,437.5	93.70
150.4	38.0	1,974.8	5,715.2	5,354.7	2,589.3	93.69
150.4	40.0	1,962.3	6,016.0	5,632.9	2,741.2	93.63
150.4	42.0	1,950.0	6,316.8	5,907.6	2,893.0	93.52
150.4	44.0	1,938.1	6,617.6	6,179.8	3,044.9	93.39
150.4	46.0	1,926.3	6,918.4	6,448.4	3,196.7	93.21
150.4	48.0	1,914.8	7,219.2	6,714.3	3,348.5	93.01
150.4	50.0	1,903.6	7,520.0	6,977.9	3,500.4	92.79
150.4	52.0	1,892.5	7,820.8	7,238.0	3,652.2	92.55
150.4	54.0	1,881.7	8,121.6	7,495.8	3,804.0	92.29
150.4	56.0	1,871.0	8,422.4	7,750.8	3,955.9	92.03
150.4	58.0	1,860.6	8,723.2	8,003.5	4,107.7	91.75
150.4	60.0	1,850.3	9,024.0	8,253.5	4,259.6	91.46

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
150.3	62.0	1,840.2	9,318.6	8,501.0	4,411.4	91.23
150.3	64.0	1,830.3	9,619.2	8,746.2	4,563.2	90.92
150.3	66.0	1,820.5	9,919.8	8,989.0	4,715.1	90.62
150.3	68.0	1,810.8	10,220.4	9,228.9	4,866.9	90.30
150.3	70.0	1,801.3	10,521.0	9,466.9	5,018.7	89.98
150.3	72.0	1,791.9	10,821.6	9,702.5	5,170.6	89.66
150.3	74.0	1,782.6	11,122.2	9,935.5	5,322.4	89.33
150.3	76.0	1,773.5	11,422.8	10,166.9	5,474.3	89.01
150.3	78.0	1,764.4	11,723.4	10,395.2	5,626.1	88.67
150.3	80.0	1,755.4	12,024.0	10,621.2	5,777.9	88.33
150.3	82.0	1,746.5	12,324.6	10,845.2	5,929.8	88.00
150.3	84.0	1,737.6	12,625.2	11,066.1	6,081.6	87.65
150.3	86.0	1,728.8	12,925.8	11,284.9	6,233.4	87.31
150.3	88.0	1,720.0	13,226.4	11,501.1	6,385.3	86.96
150.3	90.0	1,711.3	13,527.0	11,714.9	6,537.1	86.60
150.3	92.0	1,702.6	13,827.6	11,926.2	6,689.0	86.25
150.3	94.0	1,693.9	14,128.2	12,134.5	6,840.8	85.89
150.2	96.0	1,685.2	14,419.2	12,340.1	6,992.6	85.58
150.2	98.0	1,676.5	14,719.6	12,543.1	7,144.5	85.21
150.2	100.0	1,667.8	15,020.0	12,743.1	7,296.3	84.84
150.2	102.0	1,659.1	15,320.4	12,940.4	7,448.1	84.46
150.2	104.0	1,650.3	15,620.8	13,134.2	7,600.0	84.08
150.2	106.0	1,641.5	15,921.2	13,325.1	7,751.8	83.69
150.2	108.0	1,632.7	16,221.6	13,513.3	7,903.6	83.30
150.2	110.0	1,623.8	16,522.0	13,697.9	8,055.5	82.91

nl = rpm with no load

lo = current with no load

kV = specific rpm

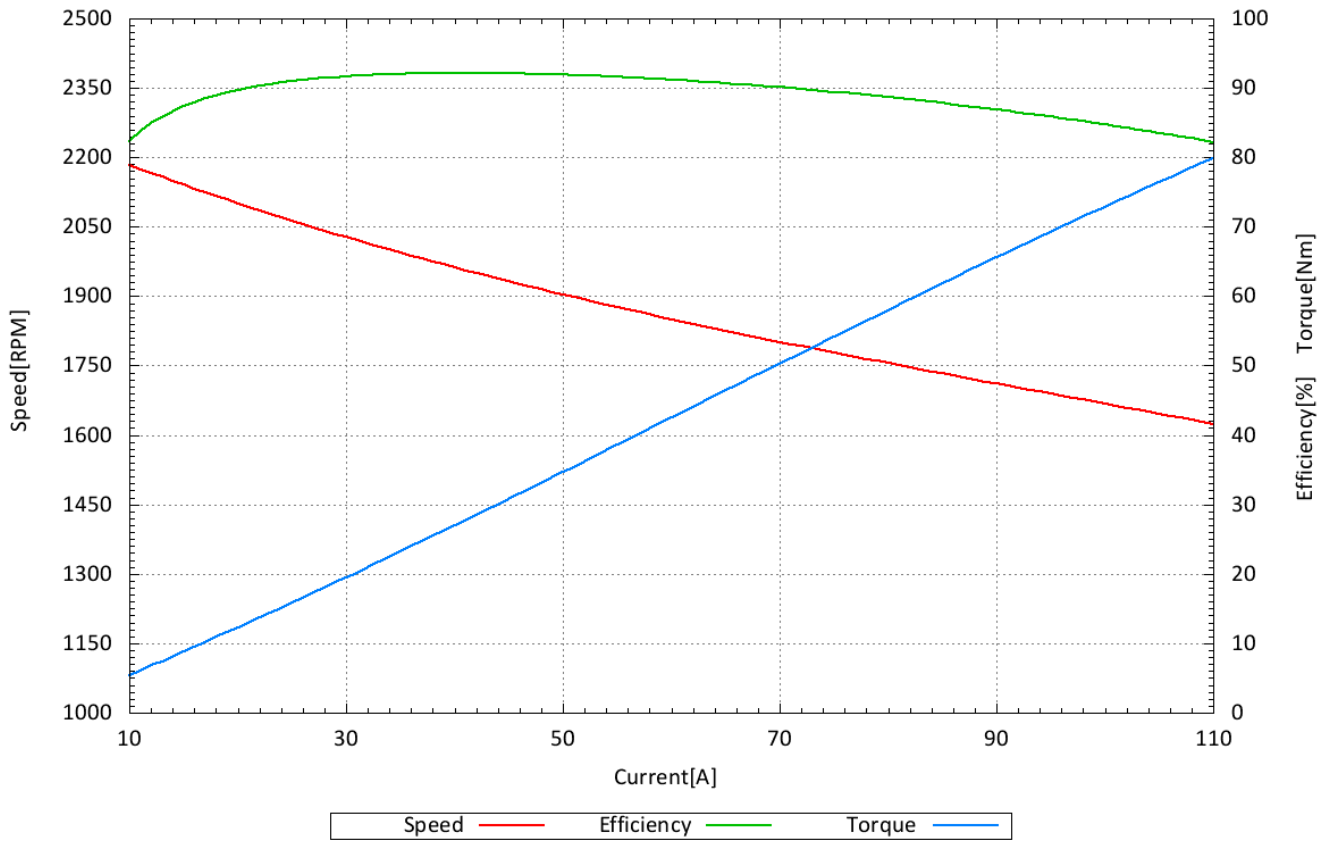
kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller



HP1450\_50\_B10\_P50\_V3\_HV\_RS\_150V\_MST400-133\_01042021



## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **175.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 2,537.9 [RPM]    lo: 4.3 [A]    kv: 14.6 [RPM/V]    kn: -6.24 [RPM/A]    kT: 75.99 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
175.4	10.0	2,544.3	1,754.0	1,155.3	433.6	65.87
175.4	12.0	2,524.9	2,104.8	1,548.1	585.5	73.55
175.4	14.0	2,505.9	2,455.6	1,935.3	737.5	78.81
175.4	16.0	2,487.4	2,806.4	2,317.0	889.5	82.56
175.4	18.0	2,469.3	3,157.2	2,693.2	1,041.5	85.30
175.4	20.0	2,451.7	3,508.0	3,064.2	1,193.5	87.35
175.4	22.0	2,434.4	3,858.8	3,430.1	1,345.5	88.89
175.3	24.0	2,417.6	4,207.2	3,791.0	1,497.4	90.11
175.3	26.0	2,401.1	4,557.8	4,147.3	1,649.4	90.99
175.3	28.0	2,385.0	4,908.4	4,499.1	1,801.4	91.66
175.3	30.0	2,369.3	5,259.0	4,846.6	1,953.4	92.16
175.3	32.0	2,353.9	5,609.6	5,189.8	2,105.4	92.52
175.3	34.0	2,338.9	5,960.2	5,529.0	2,257.4	92.77
175.3	36.0	2,324.2	6,310.8	5,864.0	2,409.3	92.92
175.3	38.0	2,309.8	6,661.4	6,195.3	2,561.3	93.00
175.3	40.0	2,295.8	7,012.0	6,523.2	2,713.3	93.03
175.3	42.0	2,282.0	7,362.6	6,847.2	2,865.3	93.00
175.3	44.0	2,268.6	7,713.2	7,168.1	3,017.3	92.93
175.3	46.0	2,255.4	8,063.8	7,485.4	3,169.3	92.83
175.3	48.0	2,242.5	8,414.4	7,799.3	3,321.2	92.69
175.3	50.0	2,229.8	8,765.0	8,110.1	3,473.2	92.53
175.3	52.0	2,217.4	9,115.6	8,417.9	3,625.2	92.35
175.3	54.0	2,205.3	9,466.2	8,723.0	3,777.2	92.15
175.2	56.0	2,193.4	9,811.2	9,025.1	3,929.2	91.99
175.2	58.0	2,181.7	10,161.6	9,324.2	4,081.2	91.76
175.2	60.0	2,170.2	10,512.0	9,620.3	4,233.1	91.52

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
175.2	62.0	2,158.9	10,862.4	9,913.8	4,385.1	91.27
175.2	64.0	2,147.7	11,212.8	10,204.2	4,537.1	91.01
175.2	66.0	2,136.8	11,563.2	10,492.6	4,689.1	90.74
175.2	68.0	2,126.0	11,913.6	10,777.9	4,841.1	90.47
175.2	70.0	2,115.4	12,264.0	11,060.9	4,993.1	90.19
175.2	72.0	2,104.9	12,614.4	11,340.8	5,145.0	89.90
175.2	74.0	2,094.6	12,964.8	11,618.8	5,297.0	89.62
175.2	76.0	2,084.4	13,315.2	11,894.0	5,449.0	89.33
175.2	78.0	2,074.2	13,665.6	12,165.9	5,601.0	89.03
175.2	80.0	2,064.2	14,016.0	12,435.8	5,753.0	88.73
175.2	82.0	2,054.3	14,366.4	12,703.2	5,905.0	88.42
175.2	84.0	2,044.5	14,716.8	12,967.8	6,056.9	88.12
175.2	86.0	2,034.7	15,067.2	13,229.5	6,208.9	87.80
175.1	88.0	2,025.0	15,408.8	13,488.8	6,360.9	87.54
175.1	90.0	2,015.4	15,759.0	13,745.6	6,512.9	87.22
175.1	92.0	2,005.7	16,109.2	13,998.7	6,664.9	86.90
175.1	94.0	1,996.2	16,459.4	14,249.9	6,816.8	86.58
175.1	96.0	1,986.6	16,809.6	14,497.6	6,968.8	86.25
175.1	98.0	1,977.0	17,159.8	14,742.3	7,120.8	85.91
175.1	100.0	1,967.4	17,510.0	14,983.8	7,272.8	85.57
175.1	102.0	1,957.9	17,860.2	15,223.1	7,424.8	85.23
175.1	104.0	1,948.2	18,210.4	15,457.8	7,576.8	84.88
175.1	106.0	1,938.6	18,560.6	15,690.0	7,728.7	84.53
175.1	108.0	1,928.9	18,910.8	15,918.5	7,880.7	84.18
175.1	110.0	1,919.2	19,261.0	16,144.0	8,032.7	83.82

nl = rpm with no load

lo = current with no load

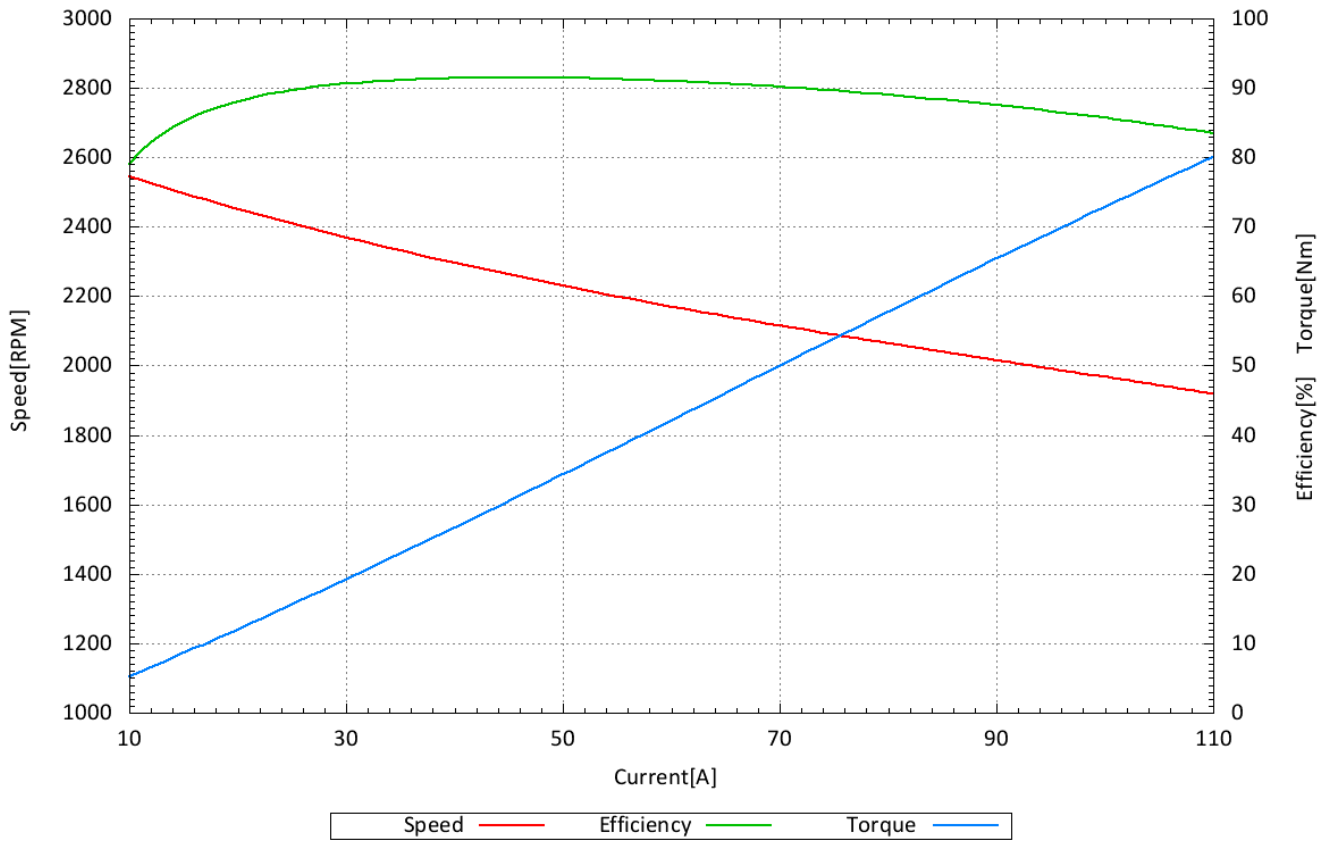
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP1450\_50\_B10\_P50\_V3\_HV\_RS\_175V\_MST400-133\_01042021



## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **200.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 2,894.3 [RPM]    lo: 4.4 [A]    kv: 14.6 [RPM/V]    kn: -6.88 [RPM/A]    kT: 76.40 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
200.4	10.0	2,904.7	2,004.0	1,298.8	427.0	64.81
200.4	12.0	2,883.0	2,404.8	1,750.5	579.8	72.79
200.4	14.0	2,861.8	2,805.6	2,195.5	732.6	78.25
200.4	16.0	2,841.1	3,206.4	2,634.2	885.4	82.16
200.4	18.0	2,820.9	3,607.2	3,066.9	1,038.2	85.02
200.4	20.0	2,801.2	4,008.0	3,493.7	1,191.0	87.17
200.4	22.0	2,782.0	4,408.8	3,914.9	1,343.8	88.80
200.4	24.0	2,763.2	4,809.6	4,330.6	1,496.6	90.04
200.4	26.0	2,744.9	5,210.4	4,741.1	1,649.4	90.99
200.4	28.0	2,726.9	5,611.2	5,146.4	1,802.2	91.72
200.4	30.0	2,709.5	6,012.0	5,547.1	1,955.0	92.27
200.4	32.0	2,692.4	6,412.8	5,942.9	2,107.8	92.67
200.4	34.0	2,675.7	6,813.6	6,334.2	2,260.6	92.96
200.4	36.0	2,659.4	7,214.4	6,721.1	2,413.4	93.16
200.3	38.0	2,643.5	7,611.4	7,103.9	2,566.2	93.33
200.3	40.0	2,627.9	8,012.0	7,482.5	2,719.0	93.39
200.3	42.0	2,612.7	8,412.6	7,857.3	2,871.8	93.40
200.3	44.0	2,597.8	8,813.2	8,228.2	3,024.6	93.36
200.3	46.0	2,583.2	9,213.8	8,595.3	3,177.4	93.29
200.3	48.0	2,568.9	9,614.4	8,958.7	3,330.2	93.18
200.3	50.0	2,555.0	10,015.0	9,319.1	3,483.0	93.05
200.3	52.0	2,541.3	10,415.6	9,675.7	3,635.8	92.90
200.3	54.0	2,527.9	10,816.2	10,029.2	3,788.6	92.72
200.3	56.0	2,514.7	11,216.8	10,379.2	3,941.4	92.53
200.3	58.0	2,501.8	11,617.4	10,726.3	4,094.2	92.33
200.3	60.0	2,489.2	12,018.0	11,070.6	4,247.0	92.12

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
200.3	62.0	2,476.8	12,418.6	11,411.8	4,399.8	91.89
200.3	64.0	2,464.5	12,819.2	11,749.4	4,552.6	91.65
200.3	66.0	2,452.5	13,219.8	12,084.7	4,705.4	91.41
200.3	68.0	2,440.7	13,620.4	12,417.0	4,858.2	91.17
200.2	70.0	2,429.0	14,014.0	12,746.2	5,011.0	90.95
200.2	72.0	2,417.5	14,414.4	13,072.7	5,163.8	90.69
200.2	74.0	2,406.2	14,814.8	13,396.6	5,316.6	90.43
200.2	76.0	2,394.9	15,215.2	13,716.9	5,469.4	90.15
200.2	78.0	2,383.9	15,615.6	14,035.3	5,622.2	89.88
200.2	80.0	2,372.9	16,016.0	14,350.3	5,775.0	89.60
200.2	82.0	2,362.0	16,416.4	14,662.5	5,927.9	89.32
200.2	84.0	2,351.3	16,816.8	14,972.4	6,080.7	89.03
200.2	86.0	2,340.6	17,217.2	15,278.7	6,233.5	88.74
200.2	88.0	2,329.9	17,617.6	15,581.7	6,386.3	88.44
200.2	90.0	2,319.3	18,018.0	15,881.9	6,539.1	88.14
200.2	92.0	2,308.8	18,418.4	16,179.5	6,691.9	87.84
200.2	94.0	2,298.3	18,818.8	16,473.6	6,844.7	87.54
200.2	96.0	2,287.8	19,219.2	16,764.5	6,997.5	87.23
200.2	98.0	2,277.3	19,619.6	17,051.9	7,150.3	86.91
200.2	100.0	2,266.8	20,020.0	17,336.0	7,303.1	86.59
200.1	102.0	2,256.3	20,410.2	17,616.7	7,455.9	86.31
200.1	104.0	2,245.7	20,810.4	17,893.3	7,608.7	85.98
200.1	106.0	2,235.2	21,210.6	18,167.3	7,761.5	85.65
200.1	108.0	2,224.5	21,610.8	18,436.3	7,914.3	85.31
200.1	110.0	2,213.8	22,011.0	18,701.8	8,067.1	84.97

nl = rpm with no load

lo = current with no load

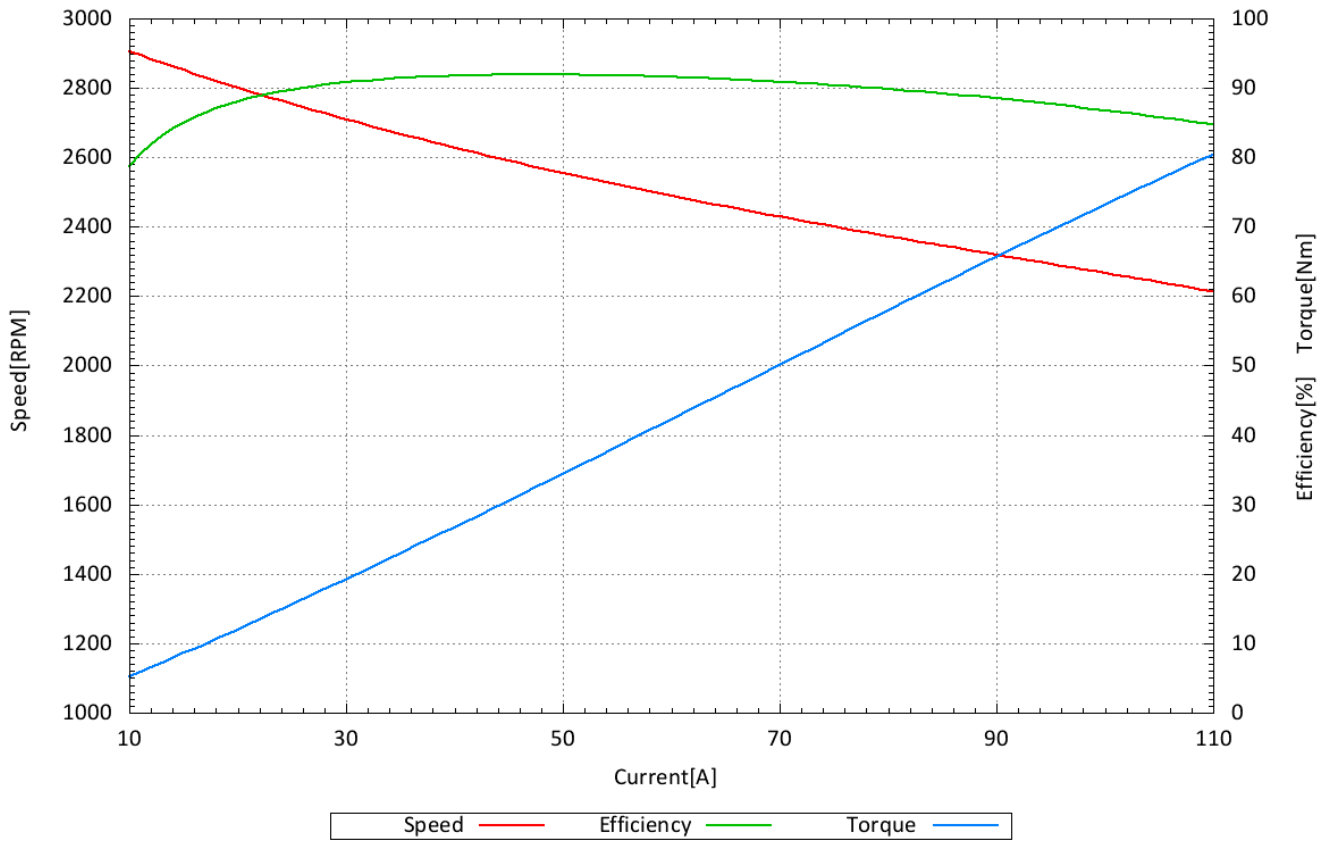
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP1450\_50\_B10\_P50\_V3\_HV\_RS\_200V\_MST400-133\_01042021



## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **225.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 3,251.2 [RPM]    lo: 4.7 [A]            kv: 14.6 [RPM/V]    kn: -7.51 [RPM/A]    kT: 76.54 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
225.5	10.0	3,265.6	2,255.0	1,397.3	408.6	61.96
225.5	12.0	3,241.7	2,706.0	1,906.8	561.7	70.47
225.5	14.0	3,218.3	3,157.0	2,409.0	714.8	76.31
225.5	16.0	3,195.6	3,608.0	2,904.4	867.9	80.50
225.5	18.0	3,173.3	4,059.0	3,392.9	1,021.0	83.59
225.5	20.0	3,151.6	4,510.0	3,874.9	1,174.1	85.92
225.5	22.0	3,130.4	4,961.0	4,350.4	1,327.1	87.69
225.5	24.0	3,109.8	5,412.0	4,820.4	1,480.2	89.07
225.5	26.0	3,089.6	5,863.0	5,284.4	1,633.3	90.13
225.5	28.0	3,069.9	6,314.0	5,742.9	1,786.4	90.96
225.4	30.0	3,050.7	6,762.0	6,196.1	1,939.5	91.63
225.4	32.0	3,032.0	7,212.8	6,644.2	2,092.6	92.12
225.4	34.0	3,013.6	7,663.6	7,087.1	2,245.7	92.48
225.4	36.0	2,995.7	8,114.4	7,524.9	2,398.7	92.74
225.4	38.0	2,978.3	8,565.2	7,958.7	2,551.8	92.92
225.4	40.0	2,961.2	9,016.0	8,387.8	2,704.9	93.03
225.4	42.0	2,944.5	9,466.8	8,812.6	2,858.0	93.09
225.4	44.0	2,928.2	9,917.6	9,233.2	3,011.1	93.10
225.4	46.0	2,912.3	10,368.4	9,650.0	3,164.2	93.07
225.4	48.0	2,896.7	10,819.2	10,062.8	3,317.3	93.01
225.4	50.0	2,881.4	11,270.0	10,471.3	3,470.3	92.91
225.4	52.0	2,866.5	11,720.8	10,876.7	3,623.4	92.80
225.4	54.0	2,851.8	12,171.6	11,278.1	3,776.5	92.66
225.4	56.0	2,837.5	12,622.4	11,676.5	3,929.6	92.51
225.4	58.0	2,823.4	13,073.2	12,071.1	4,082.7	92.34
225.3	60.0	2,809.6	13,518.0	12,462.6	4,235.8	92.19



Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
225.3	62.0	2,796.1	13,968.6	12,851.0	4,388.9	92.00
225.3	64.0	2,782.8	14,419.2	13,235.7	4,541.9	91.79
225.3	66.0	2,769.7	14,869.8	13,617.5	4,695.0	91.58
225.3	68.0	2,756.8	15,320.4	13,996.0	4,848.1	91.36
225.3	70.0	2,744.1	15,771.0	14,371.5	5,001.2	91.13
225.3	72.0	2,731.6	16,221.6	14,744.0	5,154.3	90.89
225.3	74.0	2,719.3	16,672.2	15,113.6	5,307.4	90.65
225.3	76.0	2,707.1	17,122.8	15,479.8	5,460.5	90.40
225.3	78.0	2,695.1	17,573.4	15,843.0	5,613.5	90.15
225.3	80.0	2,683.2	18,024.0	16,203.2	5,766.6	89.90
225.3	82.0	2,671.4	18,474.6	16,560.3	5,919.7	89.64
225.3	84.0	2,659.7	18,925.2	16,914.2	6,072.8	89.37
225.3	86.0	2,648.1	19,375.8	17,264.9	6,225.9	89.11
225.3	88.0	2,636.6	19,826.4	17,612.7	6,379.0	88.83
225.2	90.0	2,625.2	20,268.0	17,957.4	6,532.1	88.60
225.2	92.0	2,613.7	20,718.4	18,297.5	6,685.1	88.32
225.2	94.0	2,602.4	21,168.8	18,635.6	6,838.2	88.03
225.2	96.0	2,591.0	21,619.2	18,969.4	6,991.3	87.74
225.2	98.0	2,579.7	22,069.6	19,300.3	7,144.4	87.45
225.2	100.0	2,568.3	22,520.0	19,626.8	7,297.5	87.15
225.2	102.0	2,556.9	22,970.4	19,949.6	7,450.6	86.85
225.2	104.0	2,545.5	23,420.8	20,268.7	7,603.7	86.54
225.2	106.0	2,534.0	23,871.2	20,583.2	7,756.7	86.23
225.2	108.0	2,522.5	24,321.6	20,894.2	7,909.8	85.91
225.2	110.0	2,510.9	24,772.0	21,200.7	8,062.9	85.58

nl = rpm with no load

lo = current with no load

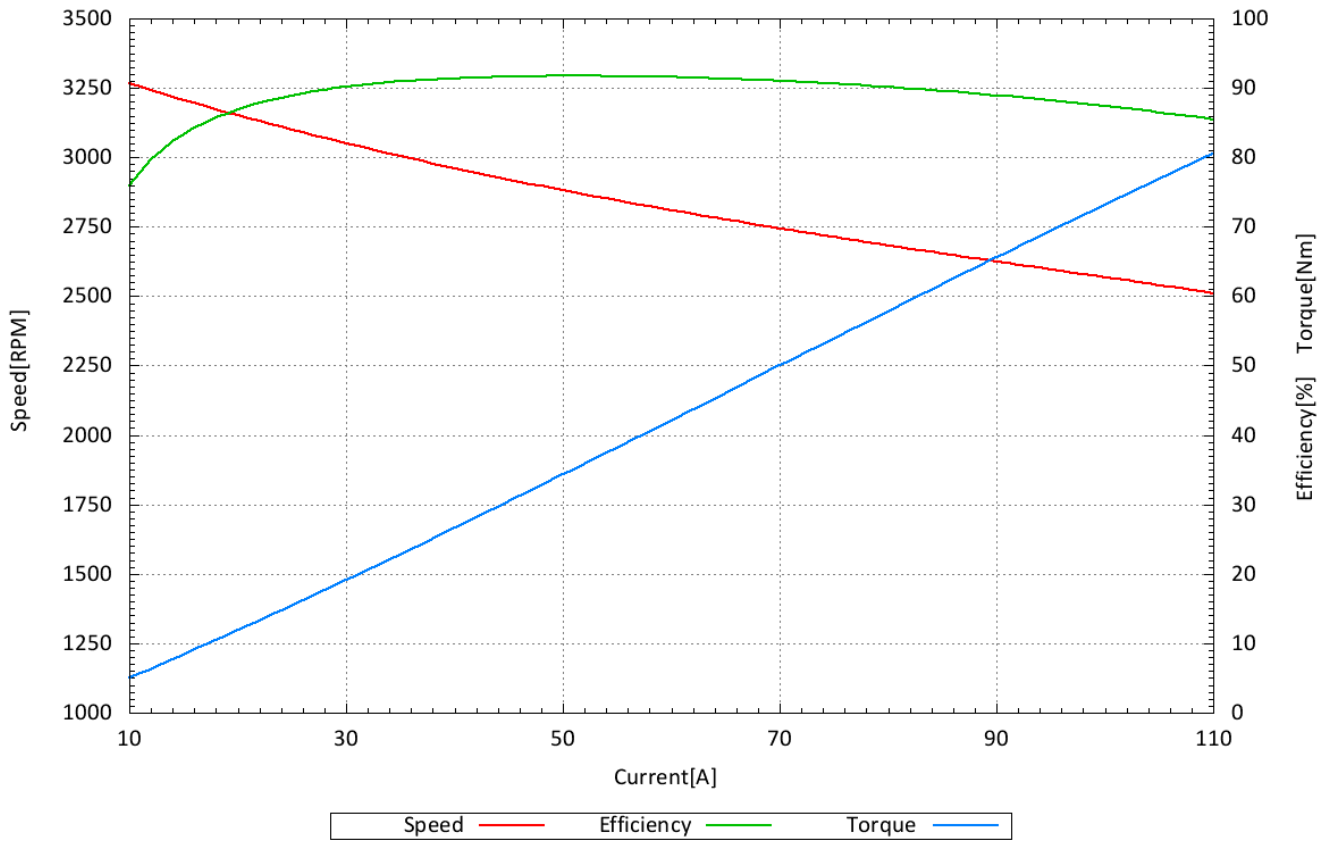
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP1450\_50\_B10\_P50\_V3\_HV\_RS\_225V\_MST400-133\_01042021



## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **250.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 3,603.7 [RPM]    lo: 4.5 [A]    kv: 14.5 [RPM/V]    kn: -8.09 [RPM/A]    kT: 76.49 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
250.5	10.0	3,615.4	2,505.0	1,589.4	419.8	63.45
250.5	12.0	3,590.0	3,006.0	2,153.4	572.8	71.64
250.5	14.0	3,565.2	3,507.0	2,709.8	725.8	77.27
250.5	16.0	3,541.0	4,008.0	3,258.7	878.8	81.30
250.5	18.0	3,517.3	4,509.0	3,800.4	1,031.8	84.29
250.5	20.0	3,494.2	5,010.0	4,335.0	1,184.7	86.53
250.5	22.0	3,471.6	5,511.0	4,863.1	1,337.7	88.24
250.4	24.0	3,449.5	6,009.6	5,384.9	1,490.7	89.60
250.4	26.0	3,428.0	6,510.4	5,900.5	1,643.7	90.63
250.4	28.0	3,406.9	7,011.2	6,409.7	1,796.6	91.42
250.4	30.0	3,386.4	7,512.0	6,913.7	1,949.6	92.04
250.4	32.0	3,366.3	8,012.8	7,412.0	2,102.6	92.50
250.4	34.0	3,346.7	8,513.6	7,905.1	2,255.6	92.85
250.4	36.0	3,327.5	9,014.4	8,392.9	2,408.6	93.11
250.4	38.0	3,308.7	9,515.2	8,875.2	2,561.5	93.27
250.4	40.0	3,290.4	10,016.0	9,353.3	2,714.5	93.38
250.4	42.0	3,272.4	10,516.8	9,826.5	2,867.5	93.44
250.4	44.0	3,254.9	11,017.6	10,295.4	3,020.5	93.45
250.4	46.0	3,237.7	11,518.4	10,759.4	3,173.4	93.41
250.4	48.0	3,220.9	12,019.2	11,219.7	3,326.4	93.35
250.4	50.0	3,204.5	12,520.0	11,676.0	3,479.4	93.26
250.3	52.0	3,188.4	13,015.6	12,128.2	3,632.4	93.18
250.3	54.0	3,172.6	13,516.2	12,576.4	3,785.4	93.05
250.3	56.0	3,157.1	14,016.8	13,020.4	3,938.3	92.89
250.3	58.0	3,141.9	14,517.4	13,461.2	4,091.3	92.72
250.3	60.0	3,127.1	15,018.0	13,898.8	4,244.3	92.55

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
250.3	62.0	3,112.4	15,518.6	14,332.1	4,397.3	92.35
250.3	64.0	3,098.1	16,019.2	14,762.3	4,550.2	92.15
250.3	66.0	3,083.9	16,519.8	15,188.8	4,703.2	91.94
250.3	68.0	3,070.0	17,020.4	15,612.2	4,856.2	91.73
250.3	70.0	3,056.4	17,521.0	16,032.7	5,009.2	91.51
250.3	72.0	3,042.9	18,021.6	16,449.4	5,162.2	91.28
250.3	74.0	3,029.6	18,522.2	16,862.6	5,315.1	91.04
250.3	76.0	3,016.5	19,022.8	17,273.0	5,468.1	90.80
250.3	78.0	3,003.5	19,523.4	17,679.8	5,621.1	90.56
250.2	80.0	2,990.7	20,016.0	18,083.6	5,774.1	90.35
250.2	82.0	2,978.1	20,516.4	18,484.6	5,927.1	90.10
250.2	84.0	2,965.5	21,016.8	18,881.2	6,080.0	89.84
250.2	86.0	2,953.1	21,517.2	19,275.4	6,233.0	89.58
250.2	88.0	2,940.8	22,017.6	19,666.3	6,386.0	89.32
250.2	90.0	2,928.5	22,518.0	20,053.3	6,539.0	89.05
250.2	92.0	2,916.3	23,018.4	20,436.7	6,691.9	88.78
250.2	94.0	2,904.2	23,518.8	20,817.2	6,844.9	88.51
250.2	96.0	2,892.1	24,019.2	21,193.8	6,997.9	88.24
250.2	98.0	2,880.0	24,519.6	21,566.6	7,150.9	87.96
250.2	100.0	2,868.0	25,020.0	21,936.3	7,303.9	87.67
250.2	102.0	2,855.9	25,520.4	22,301.0	7,456.8	87.38
250.2	104.0	2,843.9	26,020.8	22,662.9	7,609.8	87.10
250.2	106.0	2,831.8	26,521.2	23,020.2	7,762.8	86.80
250.2	108.0	2,819.7	27,021.6	23,373.6	7,915.8	86.50
250.1	110.0	2,807.5	27,511.0	23,722.0	8,068.7	86.23

nl = rpm with no load

lo = current with no load

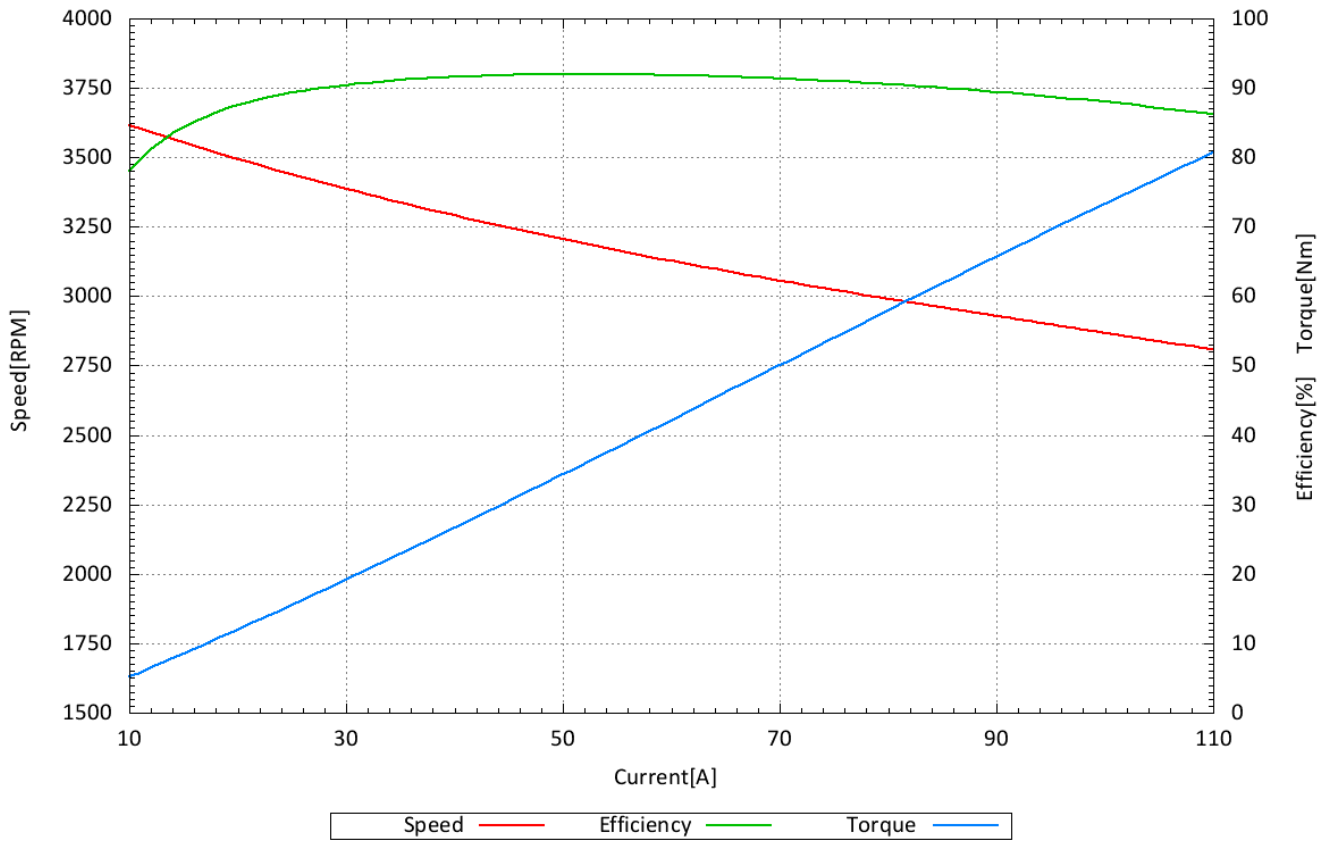
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP1450\_50\_B10\_P50\_V3\_HV\_RS\_250V\_MST400-133\_01042021



## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **275.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 3,950.4 [RPM]    lo: 4.7 [A]            kv: 14.5 [RPM/V]    kn: -8.64 [RPM/A]    kT: 76.83 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
275.5	10.0	3,965.5	2,755.0	1,695.5	408.3	61.54
275.4	12.0	3,938.3	3,304.8	2,317.8	562.0	70.13
275.4	14.0	3,911.6	3,855.6	2,931.7	715.7	76.04
275.4	16.0	3,885.6	4,406.4	3,537.2	869.3	80.27
275.4	18.0	3,860.2	4,957.2	4,135.4	1,023.0	83.42
275.4	20.0	3,835.4	5,508.0	4,726.1	1,176.7	85.80
275.4	22.0	3,811.2	6,058.8	5,309.3	1,330.3	87.63
275.4	24.0	3,787.5	6,609.6	5,885.9	1,484.0	89.05
275.4	26.0	3,764.4	7,160.4	6,455.9	1,637.7	90.16
275.4	28.0	3,741.9	7,711.2	7,019.2	1,791.3	91.03
275.4	30.0	3,719.8	8,262.0	7,576.5	1,945.0	91.70
275.4	32.0	3,698.3	8,812.8	8,128.0	2,098.7	92.23
275.4	34.0	3,677.3	9,363.6	8,673.3	2,252.3	92.63
275.4	36.0	3,656.7	9,914.4	9,213.3	2,406.0	92.93
275.4	38.0	3,636.7	10,465.2	9,748.2	2,559.7	93.15
275.4	40.0	3,617.0	11,016.0	10,277.2	2,713.3	93.29
275.3	42.0	3,597.8	11,562.6	10,801.7	2,867.0	93.42
275.3	44.0	3,579.1	12,113.2	11,321.7	3,020.7	93.47
275.3	46.0	3,560.7	12,663.8	11,836.2	3,174.3	93.46
275.3	48.0	3,542.8	13,214.4	12,346.9	3,328.0	93.44
275.3	50.0	3,525.2	13,765.0	12,853.0	3,481.7	93.37
275.3	52.0	3,508.0	14,315.6	13,354.5	3,635.3	93.29
275.3	54.0	3,491.1	14,866.2	13,852.1	3,789.0	93.18
275.3	56.0	3,474.6	15,416.8	14,345.9	3,942.7	93.05
275.3	58.0	3,458.4	15,967.4	14,835.3	4,096.3	92.91
275.3	60.0	3,442.5	16,518.0	15,321.2	4,250.0	92.75

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
275.3	62.0	3,426.8	17,068.6	15,802.8	4,403.7	92.58
275.3	64.0	3,411.5	17,619.2	16,281.0	4,557.3	92.40
275.3	66.0	3,396.5	18,169.8	16,756.1	4,711.0	92.22
275.3	68.0	3,381.6	18,720.4	17,226.9	4,864.7	92.02
275.2	70.0	3,367.1	19,264.0	17,694.6	5,018.3	91.85
275.2	72.0	3,352.7	19,814.4	18,158.6	5,172.0	91.64
275.2	74.0	3,338.5	20,364.8	18,619.0	5,325.7	91.43
275.2	76.0	3,324.6	20,915.2	19,076.3	5,479.3	91.21
275.2	78.0	3,310.8	21,465.6	19,530.0	5,633.0	90.98
275.2	80.0	3,297.2	22,016.0	19,980.4	5,786.7	90.75
275.2	82.0	3,283.7	22,566.4	20,426.8	5,940.3	90.52
275.2	84.0	3,270.4	23,116.8	20,870.5	6,094.0	90.28
275.2	86.0	3,257.1	23,667.2	21,309.8	6,247.7	90.04
275.2	88.0	3,244.0	24,217.6	21,745.9	6,401.3	89.79
275.2	90.0	3,231.0	24,768.0	22,178.8	6,555.0	89.55
275.2	92.0	3,218.0	25,318.4	22,607.5	6,708.7	89.29
275.2	94.0	3,205.1	25,868.8	23,032.4	6,862.3	89.04
275.2	96.0	3,192.3	26,419.2	23,454.3	7,016.0	88.78
275.2	98.0	3,179.5	26,969.6	23,872.0	7,169.7	88.51
275.1	100.0	3,166.7	27,510.0	24,285.2	7,323.3	88.28
275.1	102.0	3,153.9	28,060.2	24,694.7	7,477.0	88.01
275.1	104.0	3,141.1	28,610.4	25,100.1	7,630.7	87.73
275.1	106.0	3,128.2	29,160.6	25,500.1	7,784.3	87.45
275.1	108.0	3,115.4	29,710.8	25,897.2	7,938.0	87.16
275.1	110.0	3,102.4	30,261.0	26,288.5	8,091.7	86.87

nl = rpm with no load

lo = current with no load

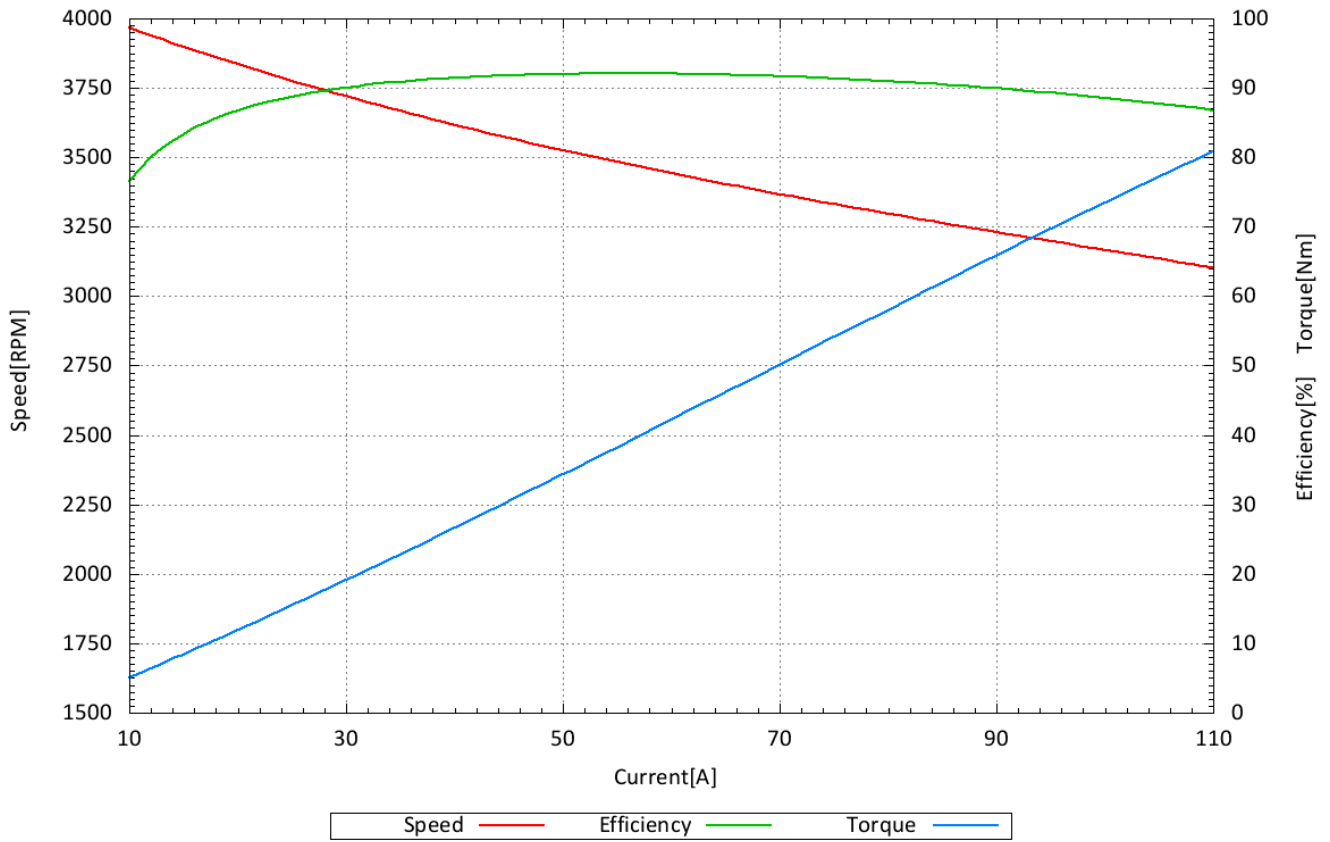
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP1450\_50\_B10\_P50\_V3\_HV\_RS\_275V\_MST400-133\_01042021





## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **300.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 4,303.3 [RPM]    lo: 5.0 [A]    kv: 14.5 [RPM/V]    kn: -9.22 [RPM/A]    kT: 76.91 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
300.4	10.0	4,328.4	3,004.0	1,744.6	384.9	58.08
300.4	12.0	4,298.9	3,604.8	2,425.1	538.7	67.27
300.4	14.0	4,270.0	4,205.6	3,097.0	692.6	73.64
300.4	16.0	4,241.8	4,806.4	3,759.7	846.4	78.22
300.3	18.0	4,214.3	5,405.4	4,414.1	1,000.2	81.66
300.3	20.0	4,187.5	6,006.0	5,060.5	1,154.0	84.26
300.3	22.0	4,161.3	6,606.6	5,699.0	1,307.8	86.26
300.3	24.0	4,135.7	7,207.2	6,330.5	1,461.7	87.84
300.3	26.0	4,110.7	7,807.8	6,954.3	1,615.5	89.07
300.3	28.0	4,086.4	8,408.4	7,571.3	1,769.3	90.04
300.3	30.0	4,062.5	9,009.0	8,181.3	1,923.1	90.81
300.3	32.0	4,039.3	9,609.6	8,785.2	2,076.9	91.42
300.3	34.0	4,016.6	10,210.2	9,382.7	2,230.7	91.90
300.3	36.0	3,994.4	10,810.8	9,974.6	2,384.6	92.27
300.3	38.0	3,972.7	11,411.4	10,560.3	2,538.4	92.54
300.3	40.0	3,951.5	12,012.0	11,140.3	2,692.2	92.74
300.3	42.0	3,930.8	12,612.6	11,715.1	2,846.0	92.88
300.3	44.0	3,910.6	13,213.2	12,284.7	2,999.8	92.97
300.3	46.0	3,890.8	13,813.8	12,849.1	3,153.6	93.02
300.3	48.0	3,871.4	14,414.4	13,409.0	3,307.5	93.03
300.2	50.0	3,852.5	15,010.0	13,964.0	3,461.3	93.03
300.2	52.0	3,834.0	15,610.4	14,514.5	3,615.1	92.98
300.2	54.0	3,815.8	16,210.8	15,060.1	3,768.9	92.90
300.2	56.0	3,798.0	16,811.2	15,601.6	3,922.7	92.80
300.2	58.0	3,780.6	17,411.6	16,139.4	4,076.6	92.69
300.2	60.0	3,763.5	18,012.0	16,672.5	4,230.4	92.56

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
300.2	62.0	3,746.7	18,612.4	17,201.6	4,384.2	92.42
300.2	64.0	3,730.3	19,212.8	17,727.1	4,538.0	92.27
300.2	66.0	3,714.1	19,813.2	18,248.3	4,691.8	92.10
300.2	68.0	3,698.2	20,413.6	18,765.8	4,845.6	91.93
300.2	70.0	3,682.5	21,014.0	19,279.6	4,999.5	91.75
300.2	72.0	3,667.1	21,614.4	19,789.6	5,153.3	91.56
300.2	74.0	3,652.0	22,214.8	20,296.3	5,307.1	91.36
300.2	76.0	3,637.0	22,815.2	20,798.7	5,460.9	91.16
300.2	78.0	3,622.2	23,415.6	21,297.4	5,614.7	90.95
300.1	80.0	3,607.7	24,008.0	21,793.2	5,768.5	90.77
300.1	82.0	3,593.2	24,608.2	22,284.7	5,922.4	90.56
300.1	84.0	3,579.0	25,208.4	22,773.1	6,076.2	90.34
300.1	86.0	3,564.8	25,808.6	23,256.9	6,230.0	90.11
300.1	88.0	3,550.8	26,408.8	23,737.5	6,383.8	89.88
300.1	90.0	3,536.9	27,009.0	24,214.2	6,537.6	89.65
300.1	92.0	3,523.0	27,609.2	24,686.8	6,691.5	89.42
300.1	94.0	3,509.3	28,209.4	25,156.0	6,845.3	89.18
300.1	96.0	3,495.6	28,809.6	25,620.8	6,999.1	88.93
300.1	98.0	3,481.9	29,409.8	26,081.2	7,152.9	88.68
300.1	100.0	3,468.2	30,010.0	26,537.1	7,306.7	88.43
300.1	102.0	3,454.6	30,610.2	26,989.5	7,460.5	88.17
300.1	104.0	3,440.9	31,210.4	27,437.0	7,614.4	87.91
300.1	106.0	3,427.2	31,810.6	27,879.7	7,768.2	87.64
300.1	108.0	3,413.5	32,410.8	28,318.1	7,922.0	87.37
300.1	110.0	3,399.8	33,011.0	28,752.0	8,075.8	87.10

nl = rpm with no load

lo = current with no load

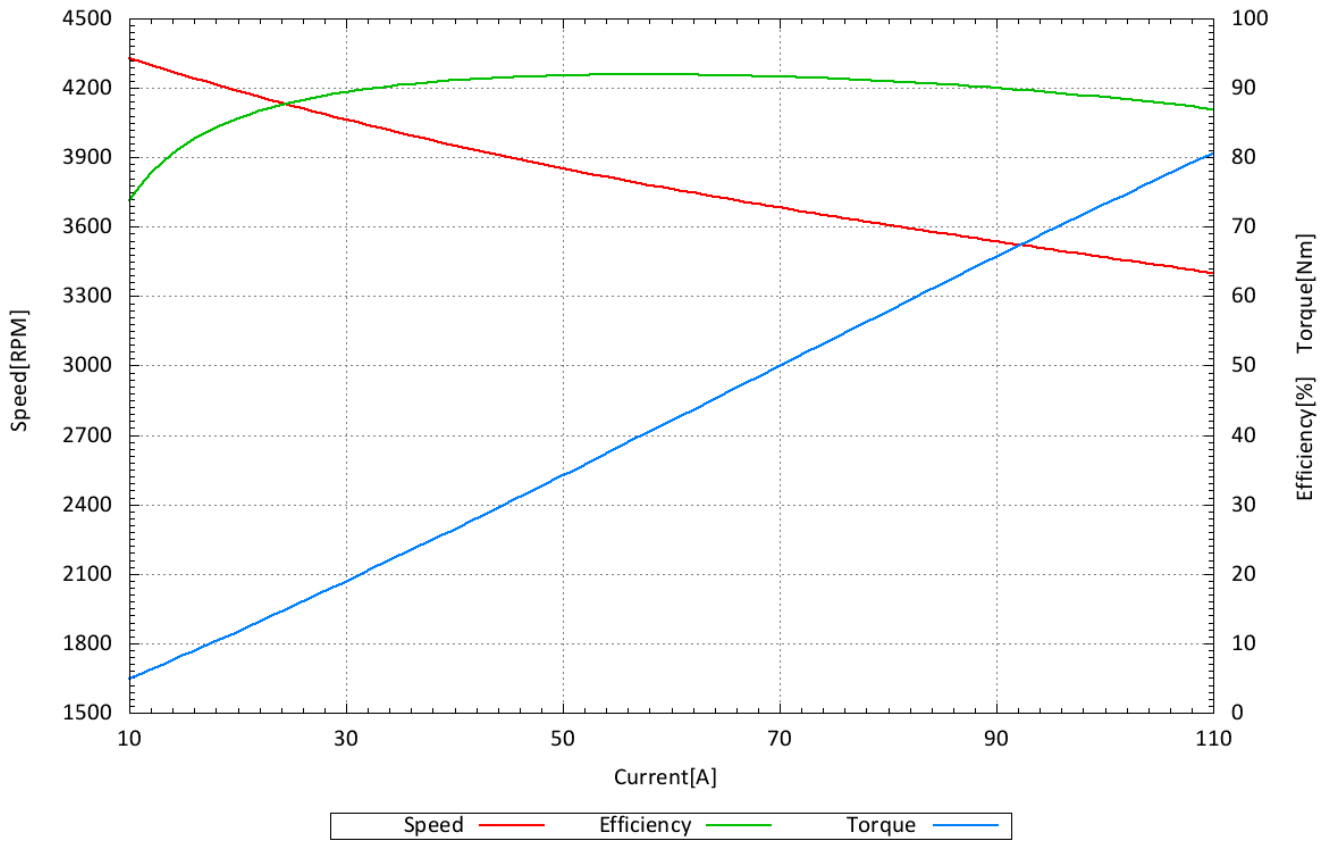
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP1450\_50\_B10\_P50\_V3\_HV\_RS\_300V\_MST400-133\_01042021



## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **325.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 4,643.3 [RPM]    lo: 4.8 [A]    kv: 14.4 [RPM/V]    kn: -9.69 [RPM/A]    kT: 76.83 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
325.0	10.0	4,668.3	3,250.0	1,944.2	397.7	59.82
325.0	12.0	4,637.1	3,900.0	2,677.6	551.4	68.66
325.0	14.0	4,606.7	4,550.0	3,401.5	705.1	74.76
325.0	16.0	4,577.0	5,200.0	4,116.2	858.8	79.16
325.0	18.0	4,548.0	5,850.0	4,821.7	1,012.4	82.42
324.9	20.0	4,519.7	6,498.0	5,519.2	1,166.1	84.94
324.9	22.0	4,492.0	7,147.8	6,208.4	1,319.8	86.86
324.9	24.0	4,465.1	7,797.6	6,889.4	1,473.4	88.35
324.9	26.0	4,438.8	8,447.4	7,563.2	1,627.1	89.53
324.9	28.0	4,413.1	9,097.2	8,229.8	1,780.8	90.46
324.9	30.0	4,388.0	9,747.0	8,888.8	1,934.4	91.19
324.9	32.0	4,363.5	10,396.8	9,541.5	2,088.1	91.77
324.9	34.0	4,339.6	11,046.6	10,187.7	2,241.8	92.22
324.9	36.0	4,316.3	11,696.4	10,827.3	2,395.4	92.57
324.9	38.0	4,293.5	12,346.2	11,461.1	2,549.1	92.83
324.9	40.0	4,271.2	12,996.0	12,089.1	2,702.8	93.02
324.9	42.0	4,249.5	13,645.8	12,711.2	2,856.4	93.15
324.9	44.0	4,228.2	14,295.6	13,328.0	3,010.1	93.23
324.9	46.0	4,207.4	14,945.4	13,939.6	3,163.8	93.27
324.8	48.0	4,187.1	15,590.4	14,546.3	3,317.5	93.30
324.8	50.0	4,167.2	16,240.0	15,147.5	3,471.1	93.27
324.8	52.0	4,147.8	16,889.6	15,744.6	3,624.8	93.22
324.8	54.0	4,128.7	17,539.2	16,336.6	3,778.5	93.14
324.8	56.0	4,110.1	18,188.8	16,924.1	3,932.1	93.05
324.8	58.0	4,091.8	18,838.4	17,507.3	4,085.8	92.93
324.8	60.0	4,073.8	19,488.0	18,086.0	4,239.5	92.81

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
324.8	62.0	4,056.3	20,137.6	18,660.8	4,393.1	92.67
324.8	64.0	4,039.0	20,787.2	19,231.3	4,546.8	92.52
324.8	66.0	4,022.0	21,436.8	19,797.7	4,700.5	92.35
324.8	68.0	4,005.4	22,086.4	20,360.3	4,854.1	92.18
324.8	70.0	3,989.0	22,736.0	20,918.9	5,007.8	92.01
324.8	72.0	3,972.8	23,385.6	21,473.4	5,161.5	91.82
324.8	74.0	3,956.9	24,035.2	22,024.4	5,315.2	91.63
324.7	76.0	3,941.2	24,677.2	22,570.9	5,468.8	91.46
324.7	78.0	3,925.7	25,326.6	23,114.0	5,622.5	91.26
324.7	80.0	3,910.4	25,976.0	23,653.3	5,776.2	91.06
324.7	82.0	3,895.3	26,625.4	24,188.5	5,929.8	90.85
324.7	84.0	3,880.3	27,274.8	24,719.9	6,083.5	90.63
324.7	86.0	3,865.5	27,924.2	25,247.8	6,237.2	90.42
324.7	88.0	3,850.8	28,573.6	25,771.2	6,390.8	90.19
324.7	90.0	3,836.1	29,223.0	26,290.3	6,544.5	89.96
324.7	92.0	3,821.6	29,872.4	26,806.0	6,698.2	89.73
324.7	94.0	3,807.1	30,521.8	27,316.7	6,851.8	89.50
324.7	96.0	3,792.7	31,171.2	27,823.8	7,005.5	89.26
324.7	98.0	3,778.3	31,820.6	28,326.3	7,159.2	89.02
324.7	100.0	3,763.9	32,470.0	28,823.7	7,312.8	88.77
324.7	102.0	3,749.5	33,119.4	29,317.0	7,466.5	88.52
324.7	104.0	3,735.1	33,768.8	29,805.6	7,620.2	88.26
324.6	106.0	3,720.7	34,407.6	30,289.5	7,773.9	88.03
324.6	108.0	3,706.2	35,056.8	30,767.6	7,927.5	87.77
324.6	110.0	3,691.7	35,706.0	31,241.4	8,081.2	87.50

nl = rpm with no load

lo = current with no load

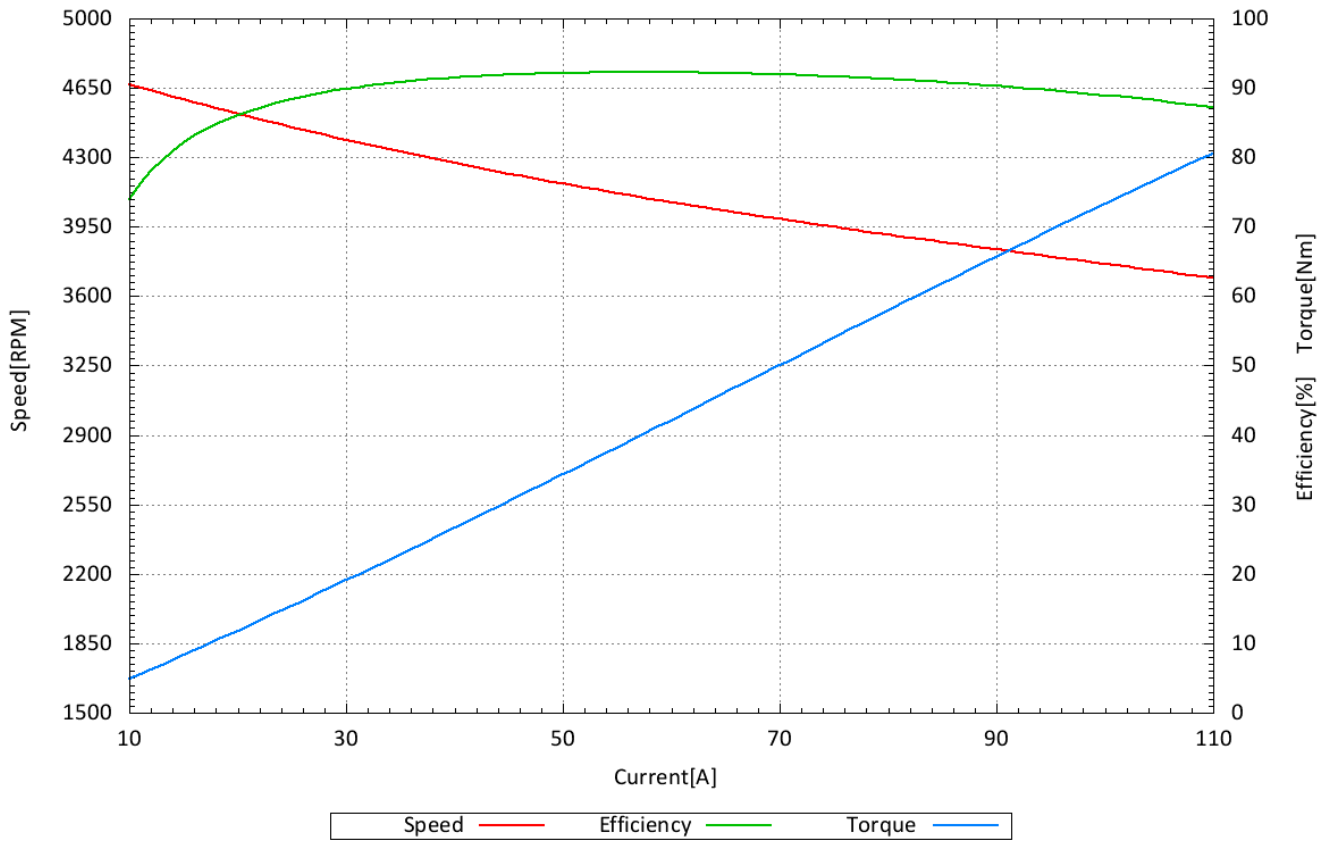
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP1450\_50\_B10\_P50\_V3\_HV\_RS\_325V\_MST400-133\_01042021



## Test Bench Report

Motor type: **NOVA 30-50-B10 P50 HV**

Date: 01.04.2021

Bearing type: RS

Controller: MST 400-133

## Measuring Parameter

Voltage: **350.0 [V]**

Throttle setting: 100%

## Calculated Motor Constants

nl: 5,016.7 [RPM]    lo: 4.9 [A]    kv: 14.5 [RPM/V]    kn: -10.46 [RPM/A]    kT: 76.44 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
349.8	10.0	5,046.7	3,498.0	2,073.3	392.3	59.27
349.8	12.0	5,012.5	4,197.6	2,861.8	545.2	68.18
349.7	14.0	4,979.2	4,895.8	3,640.0	698.1	74.35
349.7	16.0	4,946.7	5,595.2	4,407.8	850.9	78.78
349.7	18.0	4,915.0	6,294.6	5,166.5	1,003.8	82.08
349.7	20.0	4,884.1	6,994.0	5,916.1	1,156.7	84.59
349.7	22.0	4,854.0	7,693.4	6,656.8	1,309.6	86.53
349.7	24.0	4,824.6	8,392.8	7,389.0	1,462.5	88.04
349.7	26.0	4,796.0	9,092.2	8,113.1	1,615.4	89.23
349.7	28.0	4,768.1	9,791.6	8,829.4	1,768.3	90.17
349.7	30.0	4,740.8	10,491.0	9,537.4	1,921.1	90.91
349.7	32.0	4,714.3	11,190.4	10,238.9	2,074.0	91.50
349.7	34.0	4,688.3	11,889.8	10,933.1	2,226.9	91.95
349.6	36.0	4,663.1	12,585.6	11,621.0	2,379.8	92.34
349.6	38.0	4,638.4	13,284.8	12,302.1	2,532.7	92.60
349.6	40.0	4,614.3	13,984.0	12,977.0	2,685.6	92.80
349.6	42.0	4,590.8	14,683.2	13,646.0	2,838.5	92.94
349.6	44.0	4,567.9	15,382.4	14,308.9	2,991.3	93.02
349.6	46.0	4,545.4	16,081.6	14,966.2	3,144.2	93.06
349.6	48.0	4,523.5	16,780.8	15,618.4	3,297.1	93.07
349.6	50.0	4,502.1	17,480.0	16,265.3	3,450.0	93.05
349.6	52.0	4,481.2	18,179.2	16,907.3	3,602.9	93.00
349.6	54.0	4,460.7	18,878.4	17,544.2	3,755.8	92.93
349.6	56.0	4,440.6	19,577.6	18,176.2	3,908.7	92.84
349.5	58.0	4,421.0	20,271.0	18,803.4	4,061.5	92.76
349.5	60.0	4,401.7	20,970.0	19,426.1	4,214.4	92.64

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
349.5	62.0	4,382.8	21,669.0	20,044.4	4,367.3	92.50
349.5	64.0	4,364.3	22,368.0	20,658.6	4,520.2	92.36
349.5	66.0	4,346.1	23,067.0	21,268.3	4,673.1	92.20
349.5	68.0	4,328.1	23,766.0	21,873.2	4,826.0	92.04
349.5	70.0	4,310.5	24,465.0	22,474.5	4,978.9	91.86
349.5	72.0	4,293.2	25,164.0	23,071.7	5,131.8	91.69
349.5	74.0	4,276.1	25,863.0	23,664.0	5,284.6	91.50
349.5	76.0	4,259.2	26,562.0	24,252.5	5,437.5	91.31
349.5	78.0	4,242.6	27,261.0	24,837.3	5,590.4	91.11
349.4	80.0	4,226.1	27,952.0	25,417.3	5,743.3	90.93
349.4	82.0	4,209.8	28,650.8	25,993.4	5,896.2	90.72
349.4	84.0	4,193.7	29,349.6	26,565.4	6,049.1	90.51
349.4	86.0	4,177.7	30,048.4	27,133.0	6,202.0	90.30
349.4	88.0	4,161.8	30,747.2	27,695.7	6,354.8	90.08
349.4	90.0	4,145.9	31,446.0	28,253.7	6,507.7	89.85
349.4	92.0	4,130.2	32,144.8	28,808.0	6,660.6	89.62
349.4	94.0	4,114.5	32,843.6	29,357.3	6,813.5	89.39
349.4	96.0	4,098.8	33,542.4	29,901.6	6,966.4	89.15
349.4	98.0	4,083.2	34,241.2	30,441.5	7,119.3	88.90
349.3	100.0	4,067.5	34,930.0	30,975.8	7,272.2	88.68
349.3	102.0	4,051.8	35,628.6	31,504.5	7,425.0	88.42
349.3	104.0	4,036.0	36,327.2	32,027.9	7,577.9	88.17
349.3	106.0	4,020.2	37,025.8	32,546.2	7,730.8	87.90
349.3	108.0	4,004.3	37,724.4	33,058.7	7,883.7	87.63
349.3	110.0	3,988.2	38,423.0	33,564.3	8,036.6	87.35

nl = rpm with no load

lo = current with no load

kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller



HP1450\_50\_B10\_P50\_V3\_HV\_RS\_350V\_MST400-133\_01042021

