

## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 13.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **15.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 2,761.3 [RPM]    lo: 1.9 [A]    kv: 186.5 [RPM/V]    kn: -19.40 [RPM/A]    kT: 5.71 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
14.9	10.0	2,603.6	149.0	126.7	46.5	85.05
14.9	11.0	2,584.2	163.9	141.2	52.2	86.17
14.9	12.0	2,564.8	178.8	155.5	57.9	86.97
14.9	13.0	2,545.4	193.7	169.6	63.6	87.53
14.9	14.0	2,526.0	208.6	183.4	69.3	87.90
14.9	15.0	2,506.7	223.5	197.0	75.0	88.13
14.9	16.0	2,487.3	238.4	210.3	80.8	88.23
14.9	17.0	2,467.9	253.3	223.4	86.5	88.21
14.9	18.0	2,448.5	268.2	236.3	92.2	88.12
14.9	19.0	2,429.1	283.1	249.0	97.9	87.95
14.9	20.0	2,409.7	298.0	261.4	103.6	87.72
14.8	21.0	2,390.3	310.8	273.6	109.3	88.04
14.8	22.0	2,371.0	325.6	285.6	115.0	87.71
14.8	23.0	2,351.6	340.4	297.3	120.7	87.34
14.8	24.0	2,332.2	355.2	308.8	126.4	86.94
14.8	25.0	2,312.8	370.0	320.1	132.2	86.50
14.8	26.0	2,293.4	384.8	331.1	137.9	86.04
14.8	27.0	2,274.0	399.6	341.9	143.6	85.56
14.8	28.0	2,254.6	414.4	352.5	149.3	85.06
14.8	29.0	2,235.2	429.2	362.8	155.0	84.53
14.8	30.0	2,215.9	444.0	372.9	160.7	83.99
14.8	31.0	2,196.5	458.8	382.8	166.4	83.43
14.8	32.0	2,177.1	473.6	392.4	172.1	82.86
14.8	33.0	2,157.7	488.4	401.9	177.8	82.28
14.8	34.0	2,138.3	503.2	411.0	183.6	81.68
14.7	35.0	2,118.9	514.5	420.0	189.3	81.63

Voltage	Current	Speed	Input Power	Output Power	Torque	Efficiency <sup>1</sup>
[V]	[A]	[RPM]	[W]	[W]	[Ncm]	[%]
14.7	36.0	2,099.5	529.2	428.7	195.0	81.01
14.7	37.0	2,080.2	543.9	437.2	200.7	80.38
14.7	38.0	2,060.8	558.6	445.4	206.4	79.74
14.7	39.0	2,041.4	573.3	453.5	212.1	79.10
14.7	40.0	2,022.0	588.0	461.2	217.8	78.44
14.7	41.0	2,002.6	602.7	468.8	223.5	77.78
14.7	42.0	1,983.2	617.4	476.1	229.2	77.11
14.7	43.0	1,963.8	632.1	483.2	235.0	76.44
14.7	44.0	1,944.4	646.8	490.1	240.7	75.77
14.7	45.0	1,925.1	661.5	496.7	246.4	75.09
14.7	46.0	1,905.7	676.2	503.1	252.1	74.40
14.7	47.0	1,886.3	690.9	509.3	257.8	73.71
14.6	48.0	1,866.9	700.8	515.2	263.5	73.51
14.6	49.0	1,847.5	715.4	520.9	269.2	72.81
14.6	50.0	1,828.1	730.0	526.4	274.9	72.10
14.6	51.0	1,808.7	744.6	531.6	280.7	71.39
14.6	52.0	1,789.4	759.2	536.6	286.4	70.68
14.6	53.0	1,770.0	773.8	541.4	292.1	69.96
14.6	54.0	1,750.6	788.4	545.9	297.8	69.24
14.6	55.0	1,731.2	803.0	550.2	303.5	68.52
14.6	56.0	1,711.8	817.6	554.3	309.2	67.80
14.6	57.0	1,692.4	832.2	558.1	314.9	67.07
14.6	58.0	1,673.0	846.8	561.7	320.6	66.34
14.6	59.0	1,653.6	861.4	565.1	326.4	65.61
14.6	60.0	1,634.3	876.0	568.3	332.1	64.87
14.6	61.0	1,614.9	890.6	571.2	337.8	64.14
14.5	62.0	1,595.5	899.0	573.9	343.5	63.84
14.5	63.0	1,576.1	913.5	576.4	349.2	63.09
14.5	64.0	1,556.7	928.0	578.6	354.9	62.35
14.5	65.0	1,537.3	942.5	580.5	360.6	61.60
14.5	66.0	1,517.9	957.0	582.3	366.3	60.85
14.5	67.0	1,498.6	971.5	583.9	372.0	60.10
14.5	68.0	1,479.2	986.0	585.2	377.8	59.35
14.5	69.0	1,459.8	1,000.5	586.2	383.5	58.59
14.5	70.0	1,440.4	1,015.0	587.0	389.2	57.84

nl = rpm with no load

lo = current with no load

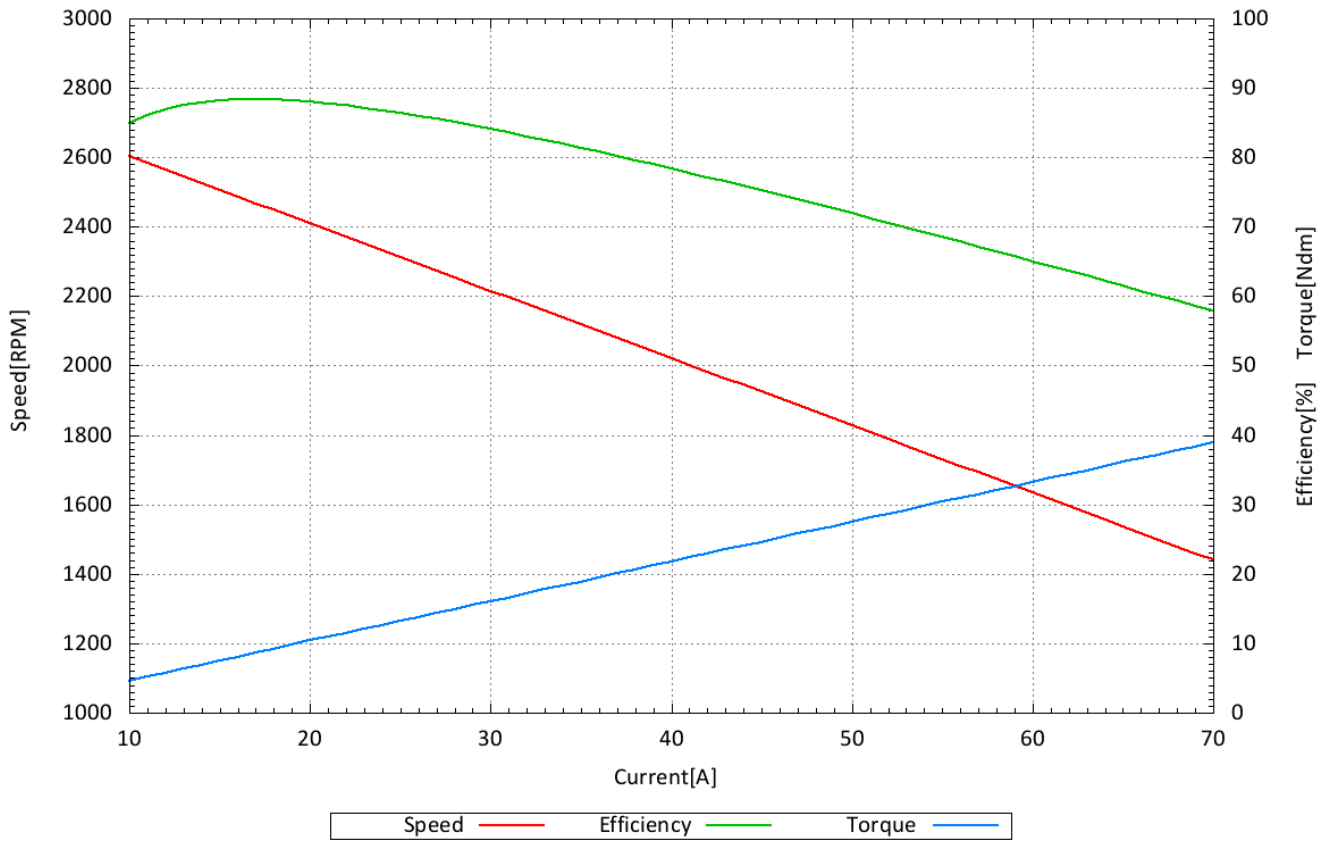
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_30\_B12\_P20\_15V\_MST60-130\_13032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 11.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **20.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 3,684.4 [RPM]    lo: 2.0 [A]    kv: 186.5 [RPM/V]    kn: -22.40 [RPM/A]    kT: 5.71 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
19.9	10.0	3,506.1	199.0	167.1	45.5	83.97
19.9	11.0	3,483.7	218.9	186.9	51.2	85.36
19.9	12.0	3,461.3	238.8	206.4	56.9	86.41
19.9	13.0	3,438.9	258.7	225.6	62.6	87.20
19.9	14.0	3,416.5	278.6	244.6	68.4	87.79
19.9	15.0	3,394.2	298.5	263.3	74.1	88.20
19.9	16.0	3,371.8	318.4	281.7	79.8	88.47
19.9	17.0	3,349.4	338.3	299.9	85.5	88.64
19.9	18.0	3,327.0	358.2	317.7	91.2	88.71
19.9	19.0	3,304.6	378.1	335.4	96.9	88.70
19.9	20.0	3,282.2	398.0	352.8	102.6	88.63
19.8	21.0	3,259.8	415.8	369.8	108.3	88.95
19.8	22.0	3,237.5	435.6	386.7	114.0	88.77
19.8	23.0	3,215.1	455.4	403.2	119.8	88.54
19.8	24.0	3,192.7	475.2	419.5	125.5	88.28
19.8	25.0	3,170.3	495.0	435.5	131.2	87.98
19.8	26.0	3,147.9	514.8	451.3	136.9	87.66
19.8	27.0	3,125.5	534.6	466.8	142.6	87.31
19.8	28.0	3,103.1	554.4	482.0	148.3	86.94
19.8	29.0	3,080.8	574.2	496.9	154.0	86.54
19.8	30.0	3,058.4	594.0	511.6	159.7	86.13
19.8	31.0	3,036.0	613.8	526.0	165.5	85.70
19.8	32.0	3,013.6	633.6	540.2	171.2	85.26
19.8	33.0	2,991.2	653.4	554.1	176.9	84.80
19.8	34.0	2,968.8	673.2	567.7	182.6	84.32
19.7	35.0	2,946.4	689.5	581.0	188.3	84.26

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
19.7	36.0	2,924.1	709.2	594.1	194.0	83.77
19.7	37.0	2,901.7	728.9	606.9	199.7	83.26
19.7	38.0	2,879.3	748.6	619.4	205.4	82.75
19.7	39.0	2,856.9	768.3	631.7	211.2	82.22
19.7	40.0	2,834.5	788.0	643.7	216.9	81.69
19.7	41.0	2,812.1	807.7	655.4	222.6	81.15
19.7	42.0	2,789.7	827.4	666.9	228.3	80.60
19.7	43.0	2,767.4	847.1	678.1	234.0	80.05
19.7	44.0	2,745.0	866.8	689.1	239.7	79.49
19.7	45.0	2,722.6	886.5	699.7	245.4	78.93
19.7	46.0	2,700.2	906.2	710.1	251.1	78.36
19.7	47.0	2,677.8	925.9	720.2	256.8	77.79
19.6	48.0	2,655.4	940.8	730.1	262.6	77.60
19.6	49.0	2,633.0	960.4	739.7	268.3	77.02
19.6	50.0	2,610.7	980.0	749.0	274.0	76.43
19.6	51.0	2,588.3	999.6	758.1	279.7	75.84
19.6	52.0	2,565.9	1,019.2	766.9	285.4	75.24
19.6	53.0	2,543.5	1,038.8	775.4	291.1	74.64
19.6	54.0	2,521.1	1,058.4	783.6	296.8	74.04
19.6	55.0	2,498.7	1,078.0	791.6	302.5	73.44
19.6	56.0	2,476.3	1,097.6	799.3	308.2	72.83
19.6	57.0	2,454.0	1,117.2	806.8	314.0	72.22
19.6	58.0	2,431.6	1,136.8	814.0	319.7	71.60
19.6	59.0	2,409.2	1,156.4	820.9	325.4	70.99
19.6	60.0	2,386.8	1,176.0	827.6	331.1	70.37
19.6	61.0	2,364.4	1,195.6	833.9	336.8	69.75
19.5	62.0	2,342.0	1,209.0	840.0	342.5	69.48
19.5	63.0	2,319.6	1,228.5	845.9	348.2	68.85
19.5	64.0	2,297.3	1,248.0	851.5	353.9	68.23
19.5	65.0	2,274.9	1,267.5	856.8	359.6	67.60
19.5	66.0	2,252.5	1,287.0	861.8	365.4	66.96
19.5	67.0	2,230.1	1,306.5	866.6	371.1	66.33
19.5	68.0	2,207.7	1,326.0	871.1	376.8	65.69
19.5	69.0	2,185.3	1,345.5	875.3	382.5	65.06
19.5	70.0	2,162.9	1,365.0	879.3	388.2	64.42

nl = rpm with no load

lo = current with no load

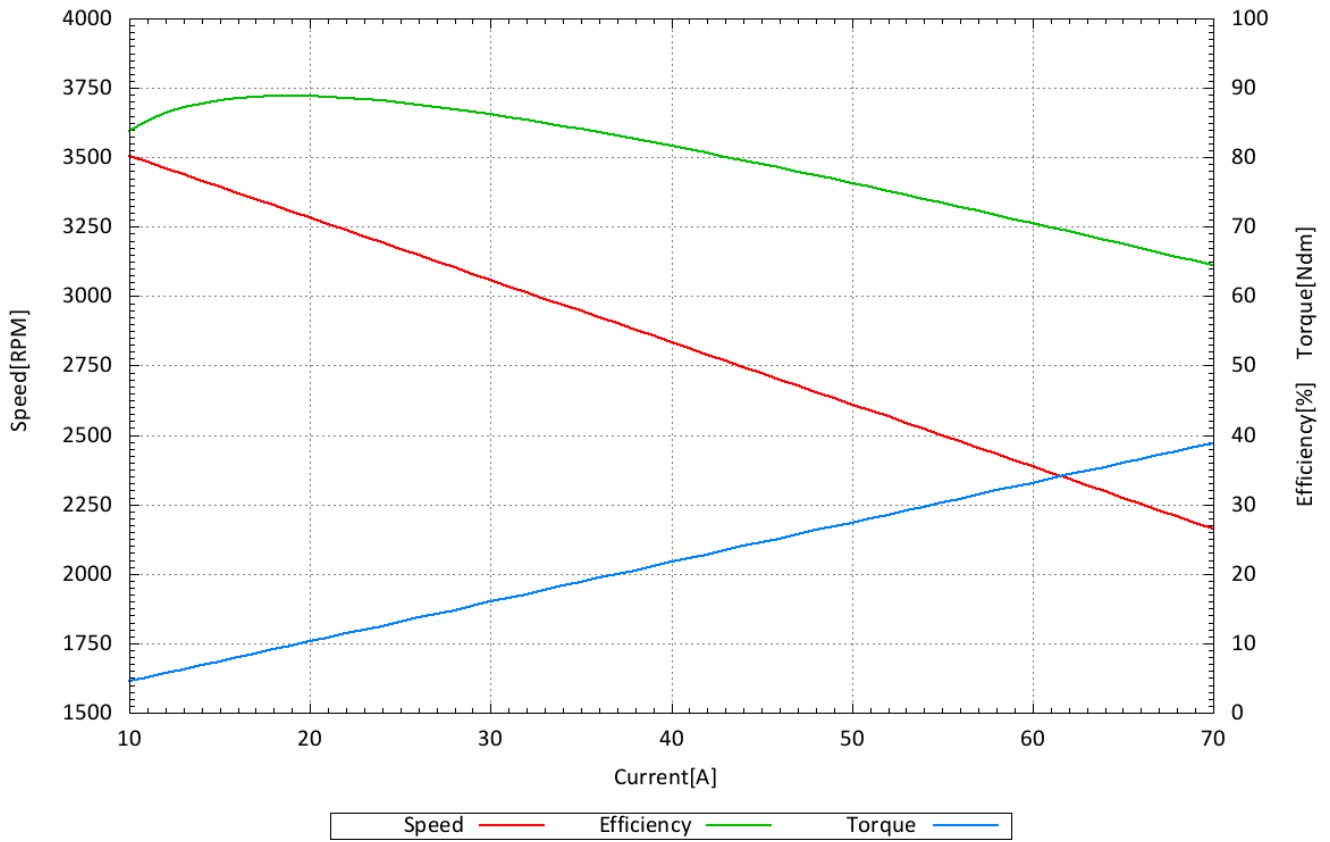
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_30\_B12\_P20\_20V\_MST60-130\_11032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 11.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **25.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 4,589.4 [RPM]    lo: 2.3 [A]    kv: 185.9 [RPM/V]    kn: -24.50 [RPM/A]    kT: 5.79 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
24.9	10.0	4,402.1	249.0	204.2	44.3	82.01
24.9	11.0	4,377.7	273.9	229.6	50.1	83.84
24.9	12.0	4,353.2	298.8	254.7	55.9	85.25
24.9	13.0	4,328.7	323.7	279.5	61.7	86.35
24.9	14.0	4,304.3	348.6	304.0	67.5	87.21
24.9	15.0	4,279.8	373.5	328.2	73.2	87.88
24.9	16.0	4,255.3	398.4	352.1	79.0	88.38
24.9	17.0	4,230.9	423.3	375.8	84.8	88.77
24.9	18.0	4,206.4	448.2	399.1	90.6	89.04
24.9	19.0	4,182.0	473.1	422.1	96.4	89.23
24.9	20.0	4,157.5	498.0	444.8	102.2	89.32
24.9	21.0	4,133.0	522.9	467.3	108.0	89.36
24.9	22.0	4,108.6	547.8	489.4	113.8	89.34
24.8	23.0	4,084.1	570.4	511.2	119.5	89.62
24.8	24.0	4,059.6	595.2	532.8	125.3	89.51
24.8	25.0	4,035.2	620.0	554.0	131.1	89.36
24.8	26.0	4,010.7	644.8	574.9	136.9	89.17
24.8	27.0	3,986.2	669.6	595.6	142.7	88.95
24.8	28.0	3,961.8	694.4	616.0	148.5	88.71
24.8	29.0	3,937.3	719.2	636.0	154.3	88.44
24.8	30.0	3,912.9	744.0	655.8	160.0	88.14
24.8	31.0	3,888.4	768.8	675.2	165.8	87.83
24.8	32.0	3,863.9	793.6	694.4	171.6	87.50
24.8	33.0	3,839.5	818.4	713.3	177.4	87.15
24.8	34.0	3,815.0	843.2	731.9	183.2	86.79
24.8	35.0	3,790.5	868.0	750.1	189.0	86.42

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
24.8	36.0	3,766.1	892.8	768.1	194.8	86.03
24.7	37.0	3,741.6	913.9	785.8	200.6	85.98
24.7	38.0	3,717.1	938.6	803.2	206.3	85.57
24.7	39.0	3,692.7	963.3	820.3	212.1	85.15
24.7	40.0	3,668.2	988.0	837.1	217.9	84.72
24.7	41.0	3,643.8	1,012.7	853.6	223.7	84.29
24.7	42.0	3,619.3	1,037.4	869.8	229.5	83.84
24.7	43.0	3,594.8	1,062.1	885.7	235.3	83.39
24.7	44.0	3,570.4	1,086.8	901.3	241.1	82.93
24.7	45.0	3,545.9	1,111.5	916.6	246.8	82.47
24.7	46.0	3,521.4	1,136.2	931.6	252.6	81.99
24.7	47.0	3,497.0	1,160.9	946.3	258.4	81.52
24.7	48.0	3,472.5	1,185.6	960.8	264.2	81.04
24.7	49.0	3,448.1	1,210.3	974.9	270.0	80.55
24.7	50.0	3,423.6	1,235.0	988.7	275.8	80.06
24.7	51.0	3,399.1	1,259.7	1,002.3	281.6	79.56
24.6	52.0	3,374.7	1,279.2	1,015.5	287.4	79.39
24.6	53.0	3,350.2	1,303.8	1,028.4	293.1	78.88
24.6	54.0	3,325.7	1,328.4	1,041.1	298.9	78.37
24.6	55.0	3,301.3	1,353.0	1,053.5	304.7	77.86
24.6	56.0	3,276.8	1,377.6	1,065.5	310.5	77.34
24.6	57.0	3,252.3	1,402.2	1,077.2	316.3	76.82
24.6	58.0	3,227.9	1,426.8	1,088.7	322.1	76.30
24.6	59.0	3,203.4	1,451.4	1,099.8	327.9	75.78
24.6	60.0	3,179.0	1,476.0	1,110.7	333.6	75.25
24.6	61.0	3,154.5	1,500.6	1,121.3	339.4	74.72
24.6	62.0	3,130.0	1,525.2	1,131.6	345.2	74.19
24.6	63.0	3,105.6	1,549.8	1,141.5	351.0	73.66
24.6	64.0	3,081.1	1,574.4	1,151.2	356.8	73.12
24.6	65.0	3,056.6	1,599.0	1,160.6	362.6	72.58
24.6	66.0	3,032.2	1,623.6	1,169.7	368.4	72.04
24.5	67.0	3,007.7	1,641.5	1,178.5	374.2	71.79
24.5	68.0	2,983.2	1,666.0	1,187.0	379.9	71.25
24.5	69.0	2,958.8	1,690.5	1,195.2	385.7	70.70
24.5	70.0	2,934.3	1,715.0	1,203.1	391.5	70.15

nl = rpm with no load

lo = current with no load

kV = specific rpm

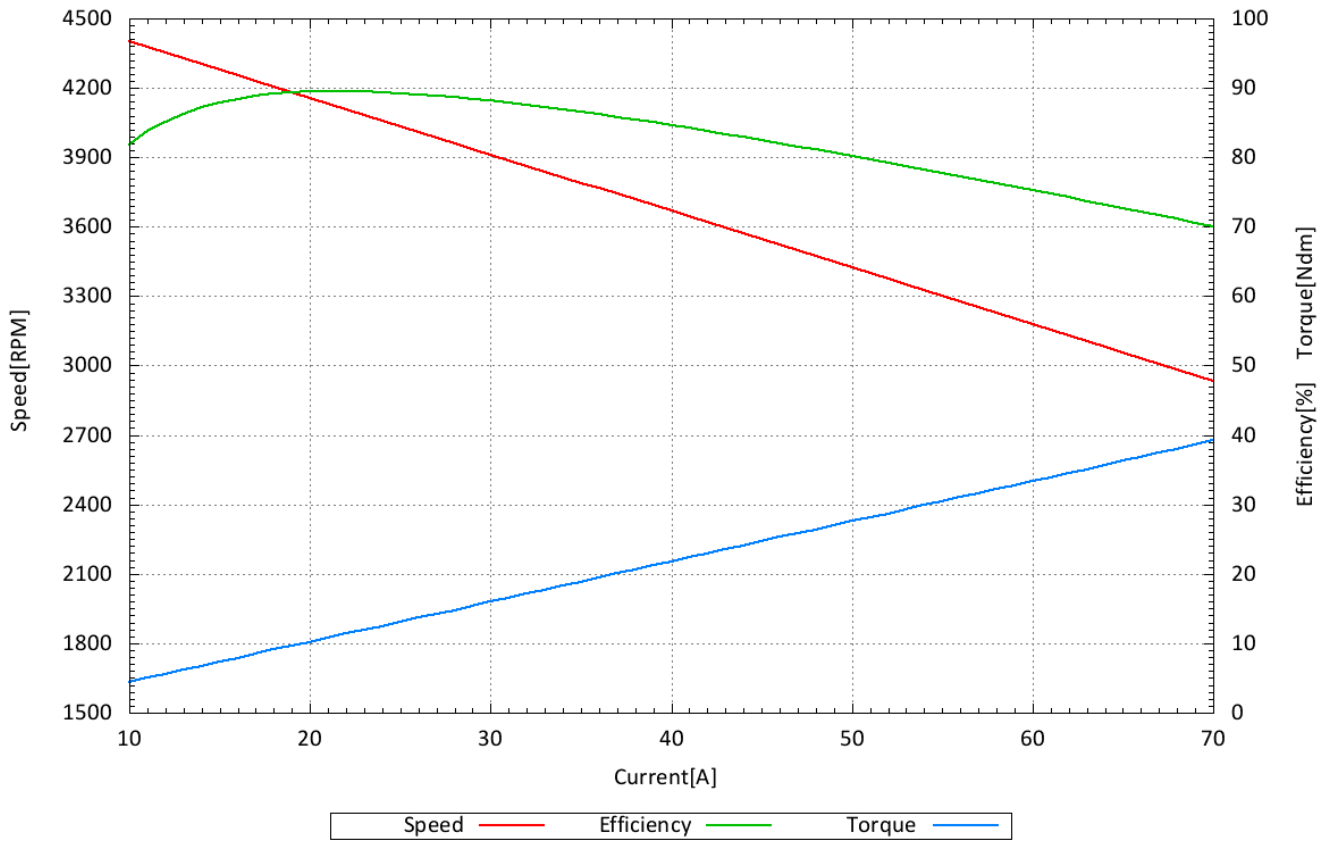
kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller



HP430\_30\_B12\_P20\_25V\_MST60-130\_11032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 11.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **30.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 5,537.1 [RPM]    lo: 1.9 [A]    kv: 186.4 [RPM/V]    kn: -27.60 [RPM/A]    kT: 5.65 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
29.9	10.0	5,315.1	299.0	253.0	45.5	84.62
29.9	11.0	5,287.6	328.9	283.0	51.1	86.05
29.9	12.0	5,260.0	358.8	312.6	56.8	87.14
29.9	13.0	5,232.4	388.7	341.9	62.4	87.96
29.9	14.0	5,204.9	418.6	370.9	68.0	88.61
29.9	15.0	5,177.3	448.5	399.6	73.7	89.09
29.9	16.0	5,149.7	478.4	427.9	79.3	89.44
29.9	17.0	5,122.2	508.3	455.9	85.0	89.69
29.9	18.0	5,094.6	538.2	483.5	90.6	89.84
29.9	19.0	5,067.1	568.1	510.9	96.3	89.93
29.9	20.0	5,039.5	598.0	537.9	101.9	89.95
29.8	21.0	5,011.9	625.8	564.6	107.6	90.22
29.8	22.0	4,984.4	655.6	591.0	113.2	90.14
29.8	23.0	4,956.8	685.4	617.0	118.9	90.02
29.8	24.0	4,929.2	715.2	642.7	124.5	89.86
29.8	25.0	4,901.7	745.0	668.1	130.2	89.68
29.8	26.0	4,874.1	774.8	693.1	135.8	89.46
29.8	27.0	4,846.6	804.6	717.9	141.4	89.23
29.8	28.0	4,819.0	834.4	742.3	147.1	88.96
29.8	29.0	4,791.4	864.2	766.4	152.7	88.68
29.8	30.0	4,763.9	894.0	790.2	158.4	88.39
29.8	31.0	4,736.3	923.8	813.6	164.0	88.07
29.8	32.0	4,708.7	953.6	836.7	169.7	87.74
29.8	33.0	4,681.2	983.4	859.5	175.3	87.40
29.8	34.0	4,653.6	1,013.2	881.9	181.0	87.04
29.7	35.0	4,626.0	1,039.5	904.0	186.6	86.97

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
29.7	36.0	4,598.5	1,069.2	925.8	192.3	86.59
29.7	37.0	4,570.9	1,098.9	947.3	197.9	86.21
29.7	38.0	4,543.4	1,128.6	968.5	203.6	85.81
29.7	39.0	4,515.8	1,158.3	989.3	209.2	85.41
29.7	40.0	4,488.2	1,188.0	1,009.8	214.8	85.00
29.7	41.0	4,460.7	1,217.7	1,030.0	220.5	84.58
29.7	42.0	4,433.1	1,247.4	1,049.8	226.1	84.16
29.7	43.0	4,405.5	1,277.1	1,069.3	231.8	83.73
29.7	44.0	4,378.0	1,306.8	1,088.5	237.4	83.30
29.7	45.0	4,350.4	1,336.5	1,107.4	243.1	82.86
29.7	46.0	4,322.9	1,366.2	1,126.0	248.7	82.42
29.7	47.0	4,295.3	1,395.9	1,144.2	254.4	81.97
29.7	48.0	4,267.7	1,425.6	1,162.1	260.0	81.51
29.6	49.0	4,240.2	1,450.4	1,179.6	265.7	81.33
29.6	50.0	4,212.6	1,480.0	1,196.9	271.3	80.87
29.6	51.0	4,185.0	1,509.6	1,213.8	277.0	80.40
29.6	52.0	4,157.5	1,539.2	1,230.4	282.6	79.94
29.6	53.0	4,129.9	1,568.8	1,246.6	288.2	79.46
29.6	54.0	4,102.4	1,598.4	1,262.6	293.9	78.99
29.6	55.0	4,074.8	1,628.0	1,278.2	299.5	78.51
29.6	56.0	4,047.2	1,657.6	1,293.5	305.2	78.03
29.6	57.0	4,019.7	1,687.2	1,308.4	310.8	77.55
29.6	58.0	3,992.1	1,716.8	1,323.1	316.5	77.06
29.6	59.0	3,964.5	1,746.4	1,337.4	322.1	76.58
29.6	60.0	3,937.0	1,776.0	1,351.3	327.8	76.09
29.6	61.0	3,909.4	1,805.6	1,365.0	333.4	75.60
29.5	62.0	3,881.8	1,829.0	1,378.3	339.1	75.36
29.5	63.0	3,854.3	1,858.5	1,391.3	344.7	74.86
29.5	64.0	3,826.7	1,888.0	1,404.0	350.4	74.36
29.5	65.0	3,799.2	1,917.5	1,416.4	356.0	73.86
29.5	66.0	3,771.6	1,947.0	1,428.4	361.6	73.36
29.5	67.0	3,744.0	1,976.5	1,440.0	367.3	72.86
29.5	68.0	3,716.5	2,006.0	1,451.4	372.9	72.36
29.5	69.0	3,688.9	2,035.5	1,462.5	378.6	71.85
29.5	70.0	3,661.3	2,065.0	1,473.2	384.2	71.34

nl = rpm with no load

lo = current with no load

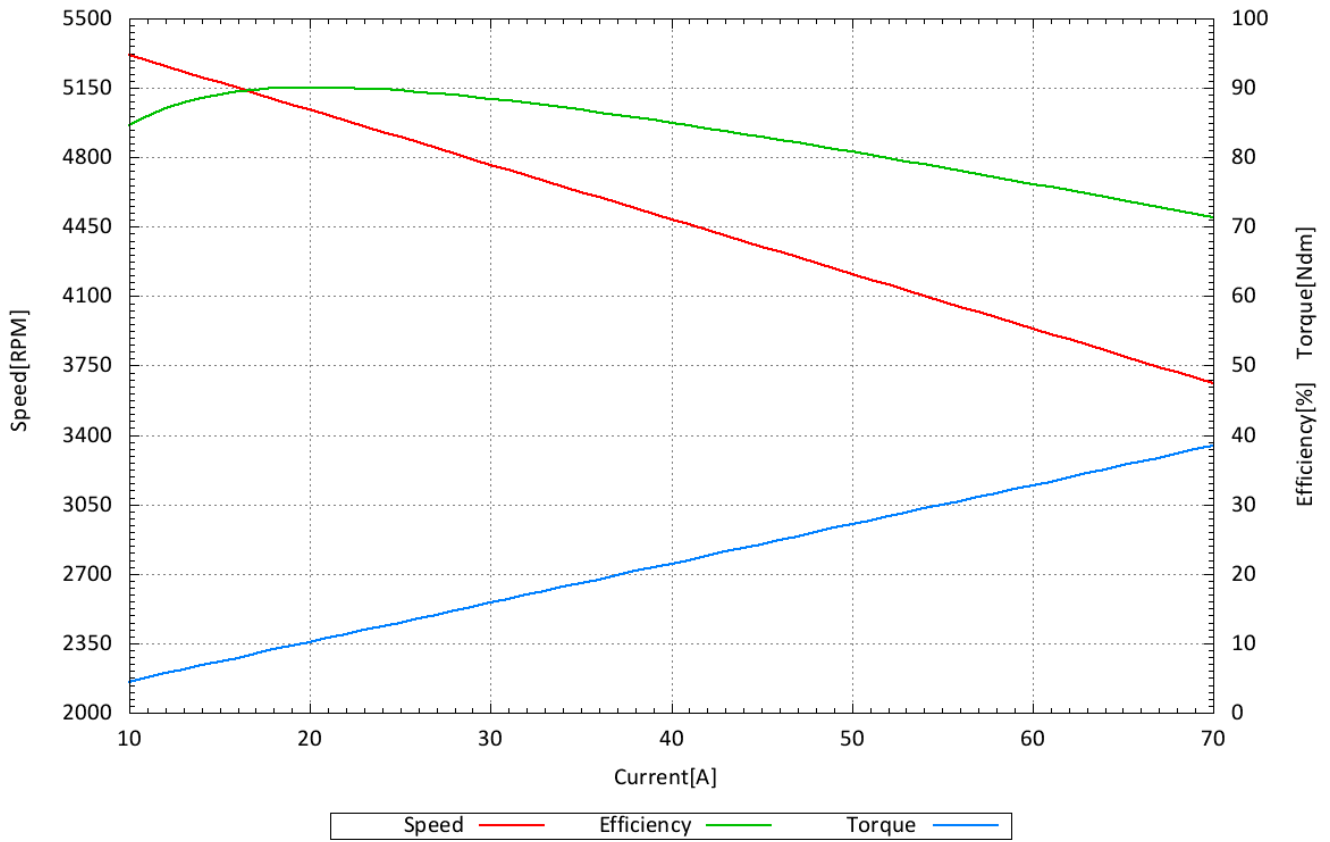
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_30\_B12\_P20\_30V\_MST60-130\_11032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 11.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **35.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 6,429.1 [RPM]    lo: 2.1 [A]    kv: 185.5 [RPM/V]    kn: -29.20 [RPM/A]    kT: 5.73 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
34.9	10.0	6,199.2	349.0	293.0	45.1	83.95
34.9	11.0	6,170.1	383.9	328.6	50.9	85.60
34.9	12.0	6,140.9	418.8	363.9	56.6	86.88
34.9	13.0	6,111.8	453.7	398.8	62.3	87.90
34.9	14.0	6,082.6	488.6	433.3	68.0	88.69
34.9	15.0	6,053.4	523.5	467.6	73.8	89.32
34.9	16.0	6,024.3	558.4	501.5	79.5	89.81
34.9	17.0	5,995.1	593.3	535.0	85.2	90.17
34.9	18.0	5,966.0	628.2	568.2	90.9	90.44
34.9	19.0	5,936.8	663.1	600.9	96.7	90.63
34.9	20.0	5,907.6	698.0	633.4	102.4	90.75
34.9	21.0	5,878.5	732.9	665.6	108.1	90.81
34.9	22.0	5,849.3	767.8	697.3	113.8	90.82
34.8	23.0	5,820.2	800.4	728.8	119.6	91.05
34.8	24.0	5,791.0	835.2	759.9	125.3	90.98
34.8	25.0	5,761.8	870.0	790.5	131.0	90.87
34.8	26.0	5,732.7	904.8	820.9	136.8	90.73
34.8	27.0	5,703.5	939.6	850.9	142.5	90.56
34.8	28.0	5,674.4	974.4	880.6	148.2	90.38
34.8	29.0	5,645.2	1,009.2	910.0	153.9	90.17
34.8	30.0	5,616.0	1,044.0	938.9	159.7	89.93
34.8	31.0	5,586.9	1,078.8	967.6	165.4	89.69
34.8	32.0	5,557.7	1,113.6	995.8	171.1	89.42
34.8	33.0	5,528.6	1,148.4	1,023.8	176.8	89.15
34.8	34.0	5,499.4	1,183.2	1,051.4	182.6	88.86
34.8	35.0	5,470.2	1,218.0	1,078.5	188.3	88.55

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
34.8	36.0	5,441.1	1,252.8	1,105.5	194.0	88.24
34.7	37.0	5,411.9	1,283.9	1,132.0	199.7	88.17
34.7	38.0	5,382.8	1,318.6	1,158.1	205.5	87.83
34.7	39.0	5,353.6	1,353.3	1,184.0	211.2	87.49
34.7	40.0	5,324.4	1,388.0	1,209.4	216.9	87.13
34.7	41.0	5,295.3	1,422.7	1,234.6	222.6	86.78
34.7	42.0	5,266.1	1,457.4	1,259.4	228.4	86.41
34.7	43.0	5,237.0	1,492.1	1,283.8	234.1	86.04
34.7	44.0	5,207.8	1,526.8	1,307.9	239.8	85.66
34.7	45.0	5,178.6	1,561.5	1,331.6	245.5	85.27
34.7	46.0	5,149.5	1,596.2	1,355.0	251.3	84.89
34.7	47.0	5,120.3	1,630.9	1,378.0	257.0	84.49
34.7	48.0	5,091.2	1,665.6	1,400.7	262.7	84.10
34.7	49.0	5,062.0	1,700.3	1,423.0	268.4	83.69
34.7	50.0	5,032.8	1,735.0	1,445.0	274.2	83.29
34.7	51.0	5,003.7	1,769.7	1,466.6	279.9	82.87
34.6	52.0	4,974.5	1,799.2	1,487.9	285.6	82.70
34.6	53.0	4,945.4	1,833.8	1,508.8	291.4	82.28
34.6	54.0	4,916.2	1,868.4	1,529.4	297.1	81.86
34.6	55.0	4,887.0	1,903.0	1,549.7	302.8	81.43
34.6	56.0	4,857.9	1,937.6	1,569.5	308.5	81.00
34.6	57.0	4,828.7	1,972.2	1,589.1	314.3	80.57
34.6	58.0	4,799.6	2,006.8	1,608.3	320.0	80.14
34.6	59.0	4,770.4	2,041.4	1,627.1	325.7	79.71
34.6	60.0	4,741.2	2,076.0	1,645.6	331.4	79.27
34.6	61.0	4,712.1	2,110.6	1,663.7	337.2	78.83
34.6	62.0	4,682.9	2,145.2	1,681.5	342.9	78.38
34.6	63.0	4,653.8	2,179.8	1,699.0	348.6	77.94
34.6	64.0	4,624.6	2,214.4	1,716.0	354.3	77.49
34.6	65.0	4,595.4	2,249.0	1,732.8	360.1	77.05
34.6	66.0	4,566.3	2,283.6	1,749.1	365.8	76.60
34.5	67.0	4,537.1	2,311.5	1,765.2	371.5	76.37
34.5	68.0	4,507.9	2,346.0	1,780.9	377.2	75.91
34.5	69.0	4,478.8	2,380.5	1,796.2	383.0	75.45
34.5	70.0	4,449.6	2,415.0	1,811.2	388.7	75.00

nl = rpm with no load

lo = current with no load

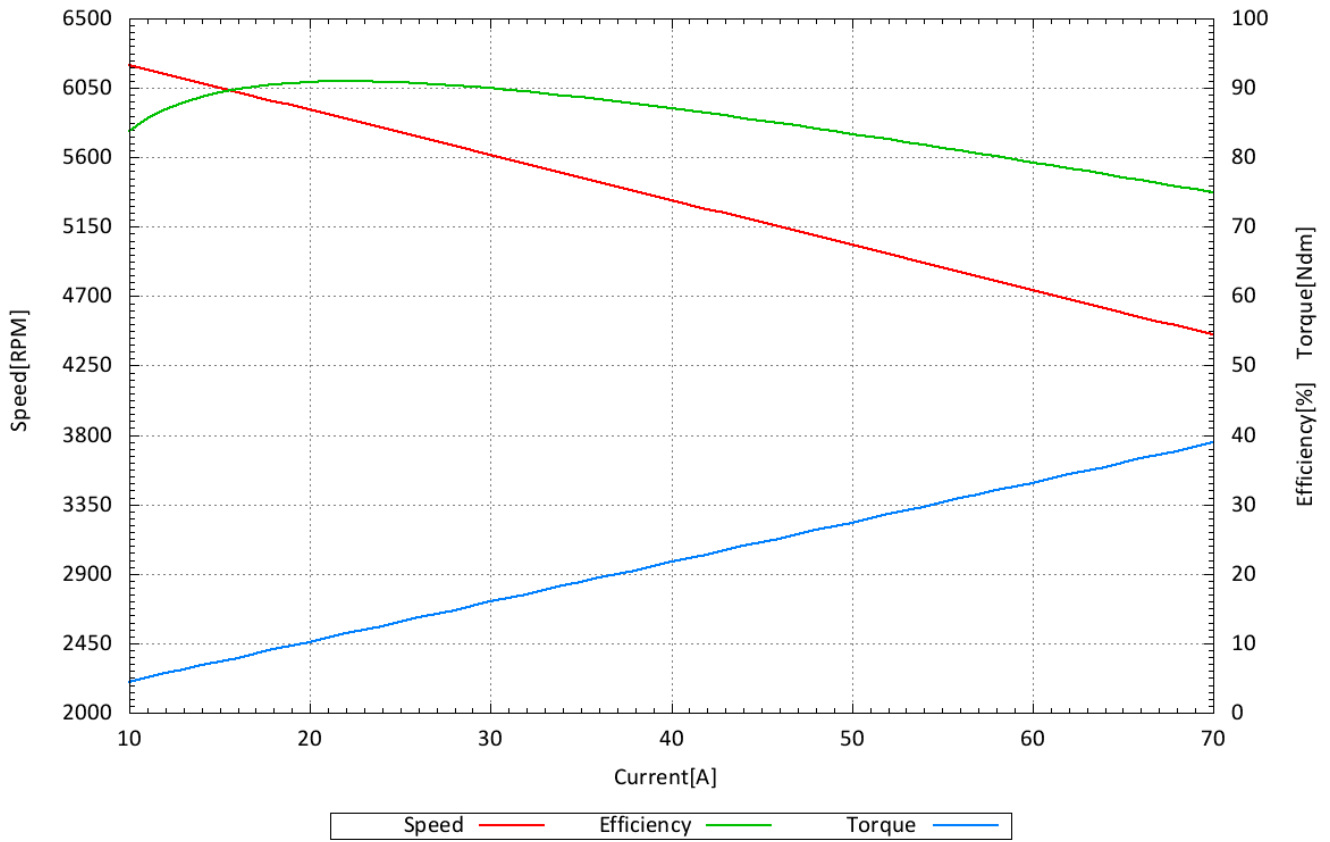
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_30\_B12\_P20\_35V\_MST60-130\_11032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 11.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **40.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 7,318.6 [RPM]    lo: 2.4 [A]    kv: 184.8 [RPM/V]    kn: -31.40 [RPM/A]    kT: 5.79 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
39.9	10.0	7,078.5	399.0	328.2	44.3	82.26
39.9	11.0	7,047.2	438.9	369.5	50.1	84.19
39.9	12.0	7,015.8	478.8	410.4	55.9	85.71
39.9	13.0	6,984.4	518.7	450.8	61.6	86.92
39.9	14.0	6,953.0	558.6	491.0	67.4	87.89
39.9	15.0	6,921.7	598.5	530.7	73.2	88.68
39.9	16.0	6,890.3	638.4	570.0	79.0	89.29
39.9	17.0	6,858.9	678.3	609.0	84.8	89.79
39.9	18.0	6,827.5	718.2	647.6	90.6	90.17
39.9	19.0	6,796.2	758.1	685.9	96.4	90.47
39.9	20.0	6,764.8	798.0	723.6	102.2	90.68
39.9	21.0	6,733.4	837.9	761.1	107.9	90.84
39.9	22.0	6,702.0	877.8	798.2	113.7	90.93
39.8	23.0	6,670.7	915.4	834.8	119.5	91.20
39.8	24.0	6,639.3	955.2	871.2	125.3	91.20
39.8	25.0	6,607.9	995.0	907.1	131.1	91.17
39.8	26.0	6,576.6	1,034.8	942.7	136.9	91.10
39.8	27.0	6,545.2	1,074.6	977.8	142.7	90.99
39.8	28.0	6,513.8	1,114.4	1,012.6	148.4	90.87
39.8	29.0	6,482.4	1,154.2	1,047.0	154.2	90.72
39.8	30.0	6,451.1	1,194.0	1,081.1	160.0	90.54
39.8	31.0	6,419.7	1,233.8	1,114.7	165.8	90.35
39.8	32.0	6,388.3	1,273.6	1,148.0	171.6	90.14
39.8	33.0	6,356.9	1,313.4	1,180.9	177.4	89.91
39.8	34.0	6,325.6	1,353.2	1,213.3	183.2	89.66
39.8	35.0	6,294.2	1,393.0	1,245.5	189.0	89.41



Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
39.8	36.0	6,262.8	1,432.8	1,277.2	194.8	89.14
39.7	37.0	6,231.4	1,468.9	1,308.6	200.5	89.09
39.7	38.0	6,200.1	1,508.6	1,339.6	206.3	88.80
39.7	39.0	6,168.7	1,548.3	1,370.2	212.1	88.50
39.7	40.0	6,137.3	1,588.0	1,400.4	217.9	88.19
39.7	41.0	6,105.9	1,627.7	1,430.3	223.7	87.87
39.7	42.0	6,074.6	1,667.4	1,459.7	229.5	87.55
39.7	43.0	6,043.2	1,707.1	1,488.8	235.3	87.21
39.7	44.0	6,011.8	1,746.8	1,517.5	241.1	86.88
39.7	45.0	5,980.4	1,786.5	1,545.8	246.8	86.53
39.7	46.0	5,949.1	1,826.2	1,573.8	252.6	86.18
39.7	47.0	5,917.7	1,865.9	1,601.4	258.4	85.82
39.7	48.0	5,886.3	1,905.6	1,628.6	264.2	85.46
39.7	49.0	5,854.9	1,945.3	1,655.3	270.0	85.09
39.7	50.0	5,823.6	1,985.0	1,681.8	275.8	84.72
39.7	51.0	5,792.2	2,024.7	1,707.8	281.6	84.35
39.6	52.0	5,760.8	2,059.2	1,733.5	287.4	84.18
39.6	53.0	5,729.5	2,098.8	1,758.8	293.1	83.80
39.6	54.0	5,698.1	2,138.4	1,783.7	298.9	83.41
39.6	55.0	5,666.7	2,178.0	1,808.2	304.7	83.02
39.6	56.0	5,635.3	2,217.6	1,832.3	310.5	82.62
39.6	57.0	5,604.0	2,257.2	1,856.1	316.3	82.23
39.6	58.0	5,572.6	2,296.8	1,879.5	322.1	81.83
39.6	59.0	5,541.2	2,336.4	1,902.5	327.9	81.43
39.6	60.0	5,509.8	2,376.0	1,925.1	333.6	81.02
39.6	61.0	5,478.5	2,415.6	1,947.3	339.4	80.61
39.6	62.0	5,447.1	2,455.2	1,969.2	345.2	80.21
39.6	63.0	5,415.7	2,494.8	1,990.7	351.0	79.79
39.6	64.0	5,384.3	2,534.4	2,011.7	356.8	79.38
39.6	65.0	5,353.0	2,574.0	2,032.5	362.6	78.96
39.6	66.0	5,321.6	2,613.6	2,052.8	368.4	78.54
39.5	67.0	5,290.2	2,646.5	2,072.7	374.1	78.32
39.5	68.0	5,258.8	2,686.0	2,092.3	379.9	77.90
39.5	69.0	5,227.5	2,725.5	2,111.6	385.7	77.47
39.5	70.0	5,196.1	2,765.0	2,130.4	391.5	77.05

nl = rpm with no load

lo = current with no load

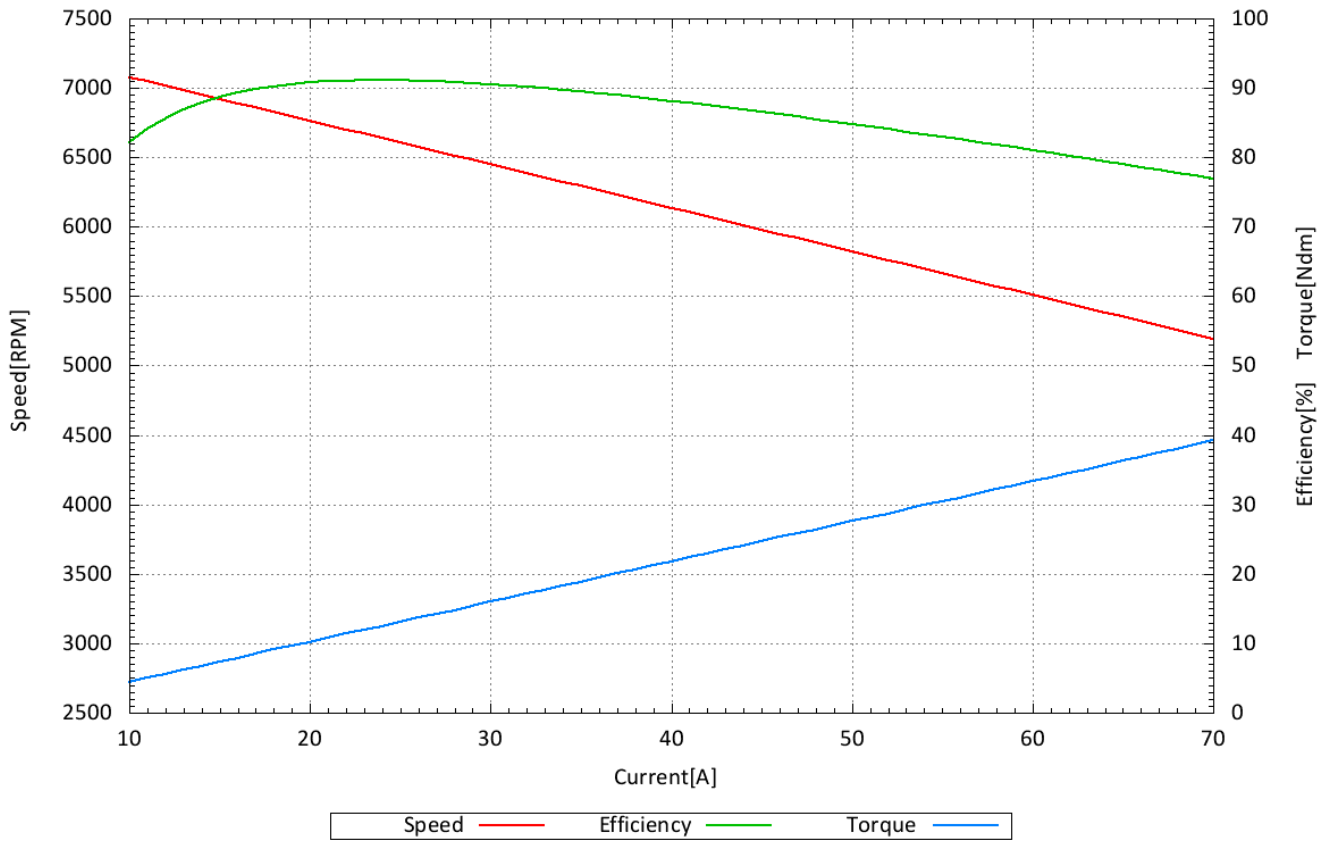
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_30\_B12\_P20\_40V\_MST60-130\_11032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 11.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **45.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 8,262.9 [RPM]    lo: 2.4 [A]    kv: 185.4 [RPM/V]    kn: -34.20 [RPM/A]    kT: 5.77 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
44.9	10.0	8,001.6	449.0	369.4	44.1	82.28
44.9	11.0	7,967.4	493.9	416.0	49.9	84.23
44.9	12.0	7,933.3	538.8	462.2	55.6	85.78
44.9	13.0	7,899.1	583.7	507.9	61.4	87.01
44.9	14.0	7,864.9	628.6	553.2	67.2	88.01
44.9	15.0	7,830.7	673.5	598.0	72.9	88.80
44.9	16.0	7,796.6	718.4	642.6	78.7	89.44
44.9	17.0	7,762.4	763.3	686.6	84.5	89.96
44.9	18.0	7,728.2	808.2	730.3	90.2	90.36
44.9	19.0	7,694.0	853.1	773.6	96.0	90.68
44.9	20.0	7,659.9	898.0	816.3	101.8	90.91
44.9	21.0	7,625.7	942.9	858.8	107.5	91.08
44.9	22.0	7,591.5	987.8	900.8	113.3	91.19
44.8	23.0	7,557.3	1,030.4	942.4	119.1	91.46
44.8	24.0	7,523.1	1,075.2	983.6	124.8	91.48
44.8	25.0	7,489.0	1,120.0	1,024.3	130.6	91.46
44.8	26.0	7,454.8	1,164.8	1,064.7	136.4	91.40
44.8	27.0	7,420.6	1,209.6	1,104.6	142.2	91.32
44.8	28.0	7,386.4	1,254.4	1,144.2	147.9	91.21
44.8	29.0	7,352.3	1,299.2	1,183.3	153.7	91.08
44.8	30.0	7,318.1	1,344.0	1,221.9	159.4	90.92
44.8	31.0	7,283.9	1,388.8	1,260.2	165.2	90.74
44.8	32.0	7,249.7	1,433.6	1,298.1	171.0	90.55
44.8	33.0	7,215.6	1,478.4	1,335.6	176.8	90.34
44.8	34.0	7,181.4	1,523.2	1,372.7	182.5	90.12
44.8	35.0	7,147.2	1,568.0	1,409.3	188.3	89.88

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
44.8	36.0	7,113.0	1,612.8	1,445.5	194.1	89.63
44.8	37.0	7,078.8	1,657.6	1,481.3	199.8	89.37
44.7	38.0	7,044.7	1,698.6	1,516.8	205.6	89.29
44.7	39.0	7,010.5	1,743.3	1,551.7	211.4	89.01
44.7	40.0	6,976.3	1,788.0	1,586.3	217.1	88.72
44.7	41.0	6,942.1	1,832.7	1,620.4	222.9	88.42
44.7	42.0	6,908.0	1,877.4	1,654.2	228.7	88.11
44.7	43.0	6,873.8	1,922.1	1,687.6	234.4	87.80
44.7	44.0	6,839.6	1,966.8	1,720.5	240.2	87.48
44.7	45.0	6,805.4	2,011.5	1,753.0	246.0	87.15
44.7	46.0	6,771.2	2,056.2	1,785.0	251.7	86.81
44.7	47.0	6,737.1	2,100.9	1,816.8	257.5	86.47
44.7	48.0	6,702.9	2,145.6	1,848.0	263.3	86.13
44.7	49.0	6,668.7	2,190.3	1,878.9	269.1	85.78
44.7	50.0	6,634.5	2,235.0	1,909.3	274.8	85.43
44.7	51.0	6,600.4	2,279.7	1,939.3	280.6	85.07
44.7	52.0	6,566.2	2,324.4	1,969.0	286.4	84.71
44.6	53.0	6,532.0	2,363.8	1,998.2	292.1	84.53
44.6	54.0	6,497.8	2,408.4	2,027.0	297.9	84.16
44.6	55.0	6,463.7	2,453.0	2,055.4	303.7	83.79
44.6	56.0	6,429.5	2,497.6	2,083.3	309.4	83.41
44.6	57.0	6,395.3	2,542.2	2,110.9	315.2	83.03
44.6	58.0	6,361.1	2,586.8	2,138.0	321.0	82.65
44.6	59.0	6,326.9	2,631.4	2,164.8	326.7	82.27
44.6	60.0	6,292.8	2,676.0	2,191.1	332.5	81.88
44.6	61.0	6,258.6	2,720.6	2,217.0	338.3	81.49
44.6	62.0	6,224.4	2,765.2	2,242.4	344.0	81.10
44.6	63.0	6,190.2	2,809.8	2,267.5	349.8	80.70
44.6	64.0	6,156.1	2,854.4	2,292.2	355.6	80.31
44.6	65.0	6,121.9	2,899.0	2,316.5	361.3	79.91
44.6	66.0	6,087.7	2,943.6	2,340.3	367.1	79.51
44.6	67.0	6,053.5	2,988.2	2,363.7	372.9	79.10
44.5	68.0	6,019.3	3,026.0	2,386.7	378.6	78.87
44.5	69.0	5,985.2	3,070.5	2,409.4	384.4	78.47
44.5	70.0	5,951.0	3,115.0	2,431.6	390.2	78.06

nl = rpm with no load

lo = current with no load

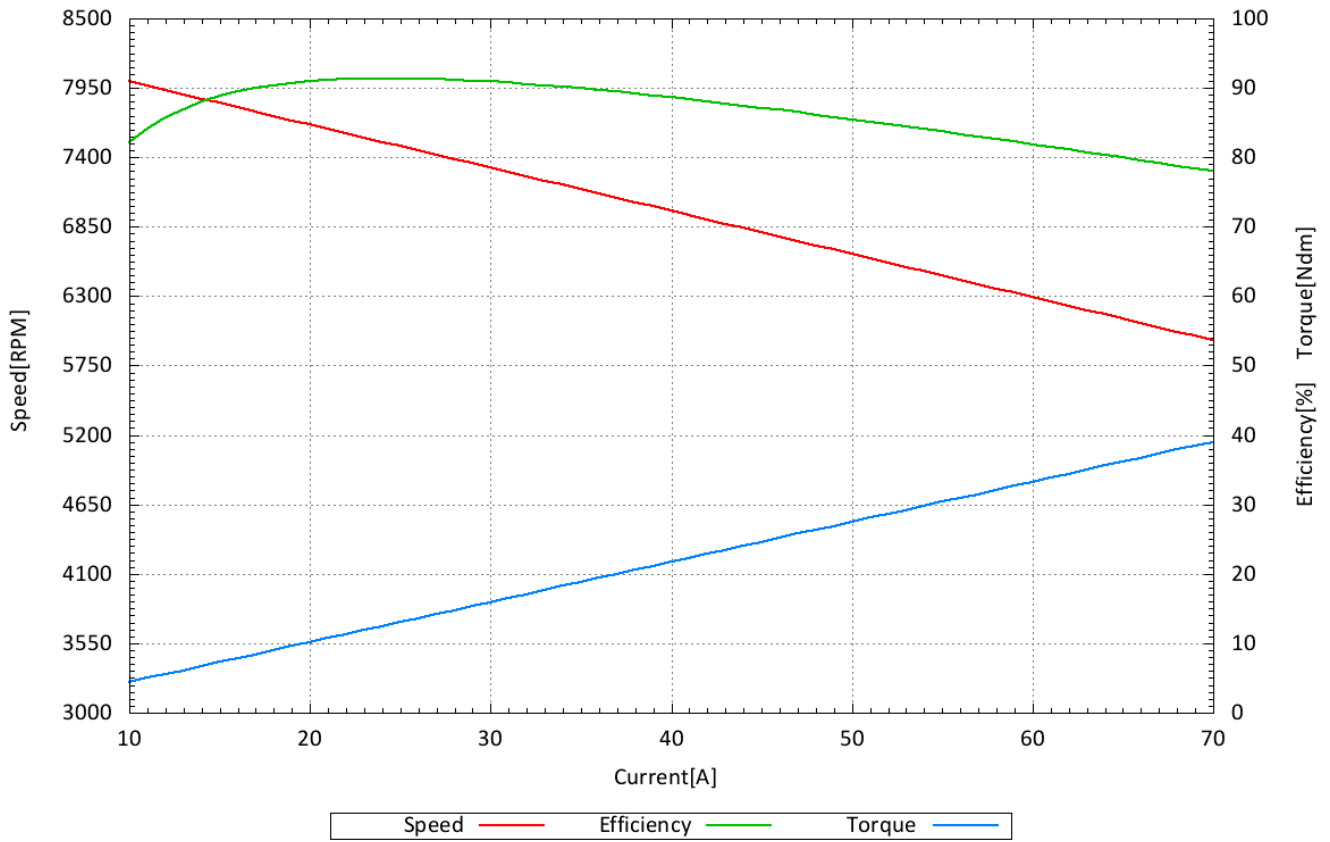
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_30\_B12\_P20\_45V\_MST60-130\_11032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 11.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **50.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 9,190.3 [RPM]    lo: 2.3 [A]    kv: 185.5 [RPM/V]    kn: -36.70 [RPM/A]    kT: 5.72 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
49.9	10.0	8,907.4	499.0	411.2	44.1	82.40
49.9	11.0	8,870.7	548.9	462.5	49.8	84.26
49.9	12.0	8,834.0	598.8	513.5	55.5	85.76
49.9	13.0	8,797.3	648.7	564.1	61.2	86.96
49.9	14.0	8,760.6	698.6	614.2	67.0	87.92
49.9	15.0	8,723.9	748.5	663.8	72.7	88.68
49.9	16.0	8,687.2	798.4	713.0	78.4	89.31
49.9	17.0	8,650.4	848.3	761.8	84.1	89.81
49.9	18.0	8,613.7	898.2	810.2	89.8	90.20
49.9	19.0	8,577.0	948.1	858.0	95.5	90.50
49.9	20.0	8,540.3	998.0	905.5	101.2	90.73
49.9	21.0	8,503.6	1,047.9	952.6	107.0	90.90
49.9	22.0	8,466.9	1,097.8	999.2	112.7	91.02
49.8	23.0	8,430.2	1,145.4	1,045.2	118.4	91.26
49.8	24.0	8,393.5	1,195.2	1,091.0	124.1	91.28
49.8	25.0	8,356.8	1,245.0	1,136.3	129.8	91.27
49.8	26.0	8,320.1	1,294.8	1,181.1	135.6	91.22
49.8	27.0	8,283.4	1,344.6	1,225.4	141.3	91.14
49.8	28.0	8,246.7	1,394.4	1,269.4	147.0	91.04
49.8	29.0	8,210.0	1,444.2	1,312.9	152.7	90.91
49.8	30.0	8,173.3	1,494.0	1,356.0	158.4	90.76
49.8	31.0	8,136.6	1,543.8	1,398.6	164.1	90.59
49.8	32.0	8,099.9	1,593.6	1,440.8	169.9	90.41
49.8	33.0	8,063.2	1,643.4	1,482.6	175.6	90.21
49.8	34.0	8,026.5	1,693.2	1,523.9	181.3	90.00
49.8	35.0	7,989.8	1,743.0	1,564.7	187.0	89.77

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
49.8	36.0	7,953.1	1,792.8	1,605.1	192.7	89.53
49.8	37.0	7,916.4	1,842.6	1,645.2	198.4	89.28
49.7	38.0	7,879.7	1,888.6	1,684.7	204.2	89.21
49.7	39.0	7,843.0	1,938.3	1,723.8	209.9	88.93
49.7	40.0	7,806.3	1,988.0	1,762.5	215.6	88.66
49.7	41.0	7,769.6	2,037.7	1,800.7	221.3	88.37
49.7	42.0	7,732.9	2,087.4	1,838.5	227.0	88.08
49.7	43.0	7,696.2	2,137.1	1,875.8	232.8	87.77
49.7	44.0	7,659.5	2,186.8	1,912.8	238.5	87.47
49.7	45.0	7,622.8	2,236.5	1,949.3	244.2	87.16
49.7	46.0	7,586.1	2,286.2	1,985.3	249.9	86.84
49.7	47.0	7,549.4	2,335.9	2,020.9	255.6	86.51
49.7	48.0	7,512.6	2,385.6	2,056.0	261.3	86.18
49.7	49.0	7,475.9	2,435.3	2,090.7	267.1	85.85
49.7	50.0	7,439.2	2,485.0	2,125.0	272.8	85.51
49.7	51.0	7,402.5	2,534.7	2,158.8	278.5	85.17
49.7	52.0	7,365.8	2,584.4	2,192.2	284.2	84.83
49.7	53.0	7,329.1	2,634.1	2,225.2	289.9	84.48
49.6	54.0	7,292.4	2,678.4	2,257.8	295.6	84.29
49.6	55.0	7,255.7	2,728.0	2,289.8	301.4	83.94
49.6	56.0	7,219.0	2,777.6	2,321.4	307.1	83.58
49.6	57.0	7,182.3	2,827.2	2,352.7	312.8	83.22
49.6	58.0	7,145.6	2,876.8	2,383.4	318.5	82.85
49.6	59.0	7,108.9	2,926.4	2,413.7	324.2	82.48
49.6	60.0	7,072.2	2,976.0	2,443.6	329.9	82.11
49.6	61.0	7,035.5	3,025.6	2,473.1	335.7	81.74
49.6	62.0	6,998.8	3,075.2	2,502.1	341.4	81.36
49.6	63.0	6,962.1	3,124.8	2,530.6	347.1	80.98
49.6	64.0	6,925.4	3,174.4	2,558.7	352.8	80.61
49.6	65.0	6,888.7	3,224.0	2,586.4	358.5	80.22
49.6	66.0	6,852.0	3,273.6	2,613.7	364.3	79.84
49.6	67.0	6,815.3	3,323.2	2,640.5	370.0	79.46
49.6	68.0	6,778.6	3,372.8	2,666.8	375.7	79.07
49.5	69.0	6,741.9	3,415.5	2,692.8	381.4	78.84
49.5	70.0	6,705.2	3,465.0	2,718.3	387.1	78.45

nl = rpm with no load

lo = current with no load

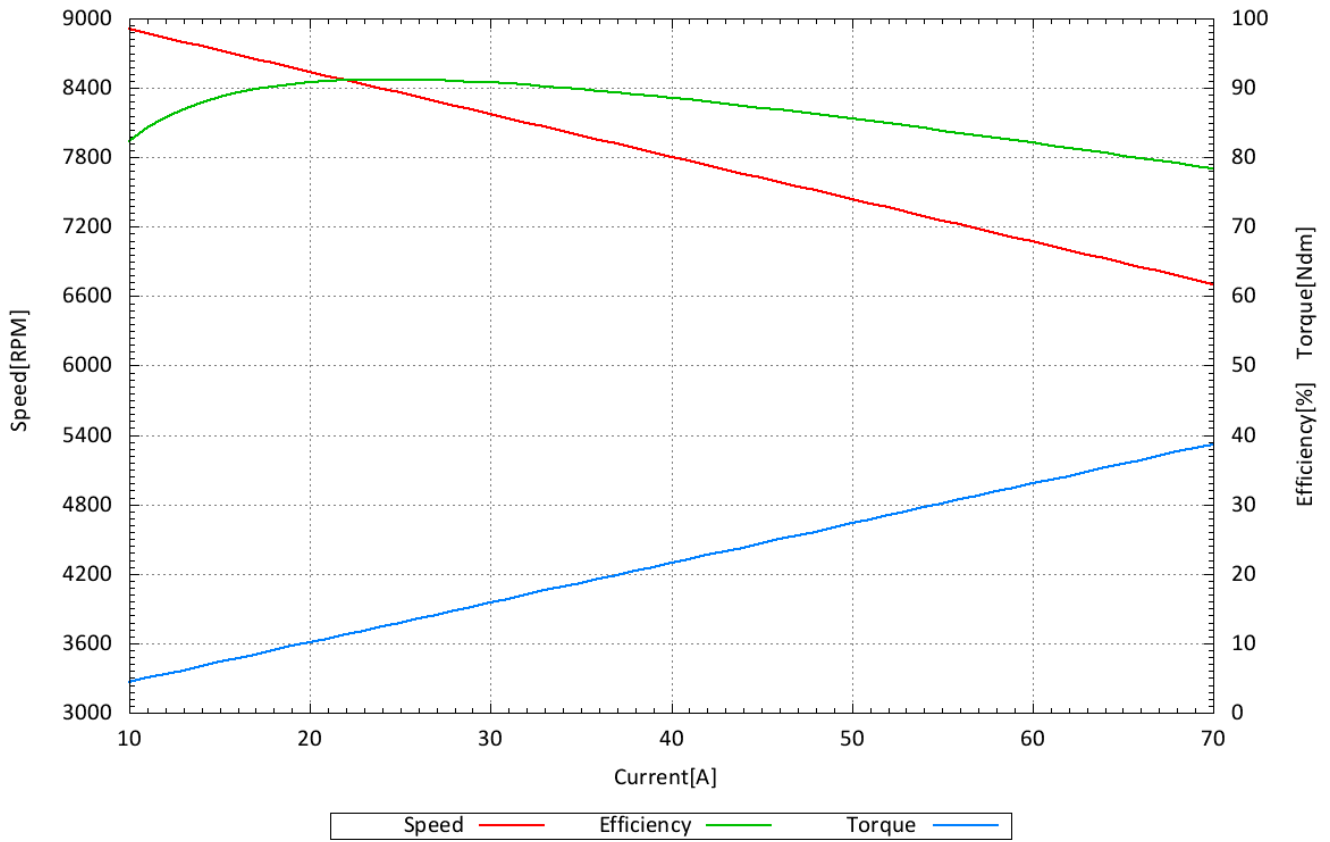
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_30\_B12\_P20\_50V\_MST60-130\_11032024





## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 11.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **55.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 10,082.0 [RPM] lo: 2.2 [A] kv: 184.8 [RPM/V] kn: -38.20 [RPM/A] kT: 5.72 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
54.9	10.0	9,783.3	549.0	458.4	44.7	83.49
54.9	11.0	9,745.1	603.9	514.9	50.5	85.27
54.9	12.0	9,706.9	658.8	571.1	56.2	86.68
54.9	13.0	9,668.7	713.7	626.7	61.9	87.82
54.9	14.0	9,630.5	768.6	682.0	67.6	88.73
54.9	15.0	9,592.3	823.5	736.7	73.3	89.46
54.9	16.0	9,554.1	878.4	791.0	79.1	90.05
54.9	17.0	9,516.0	933.3	844.8	84.8	90.52
54.9	18.0	9,477.8	988.2	898.2	90.5	90.89
54.9	19.0	9,439.6	1,043.1	951.1	96.2	91.18
54.9	20.0	9,401.4	1,098.0	1,003.6	101.9	91.40
54.9	21.0	9,363.2	1,152.9	1,055.6	107.7	91.56
54.8	22.0	9,325.0	1,205.6	1,107.1	113.4	91.83
54.8	23.0	9,286.8	1,260.4	1,158.2	119.1	91.89
54.8	24.0	9,248.6	1,315.2	1,208.8	124.8	91.91
54.8	25.0	9,210.4	1,370.0	1,259.0	130.5	91.90
54.8	26.0	9,172.2	1,424.8	1,308.7	136.2	91.85
54.8	27.0	9,134.1	1,479.6	1,358.0	142.0	91.78
54.8	28.0	9,095.9	1,534.4	1,406.8	147.7	91.68
54.8	29.0	9,057.7	1,589.2	1,455.1	153.4	91.56
54.8	30.0	9,019.5	1,644.0	1,503.0	159.1	91.42
54.8	31.0	8,981.3	1,698.8	1,550.4	164.8	91.27
54.8	32.0	8,943.1	1,753.6	1,597.4	170.6	91.09
54.8	33.0	8,904.9	1,808.4	1,643.9	176.3	90.91
54.8	34.0	8,866.7	1,863.2	1,690.0	182.0	90.70
54.8	35.0	8,828.5	1,918.0	1,735.6	187.7	90.49

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
54.8	36.0	8,790.3	1,972.8	1,780.7	193.4	90.26
54.7	37.0	8,752.2	2,023.9	1,825.4	199.2	90.19
54.7	38.0	8,714.0	2,078.6	1,869.7	204.9	89.95
54.7	39.0	8,675.8	2,133.3	1,913.5	210.6	89.69
54.7	40.0	8,637.6	2,188.0	1,956.8	216.3	89.43
54.7	41.0	8,599.4	2,242.7	1,999.6	222.1	89.16
54.7	42.0	8,561.2	2,297.4	2,042.0	227.8	88.88
54.7	43.0	8,523.0	2,352.1	2,084.0	233.5	88.60
54.7	44.0	8,484.8	2,406.8	2,125.4	239.2	88.31
54.7	45.0	8,446.6	2,461.5	2,166.5	244.9	88.01
54.7	46.0	8,408.5	2,516.2	2,207.1	250.7	87.71
54.7	47.0	8,370.3	2,570.9	2,247.2	256.4	87.41
54.7	48.0	8,332.1	2,625.6	2,286.8	262.1	87.10
54.7	49.0	8,293.9	2,680.3	2,326.0	267.8	86.78
54.7	50.0	8,255.7	2,735.0	2,364.7	273.5	86.46
54.6	51.0	8,217.5	2,784.6	2,403.0	279.2	86.29
54.6	52.0	8,179.3	2,839.2	2,440.8	285.0	85.97
54.6	53.0	8,141.1	2,893.8	2,478.1	290.7	85.64
54.6	54.0	8,102.9	2,948.4	2,515.1	296.4	85.30
54.6	55.0	8,064.7	3,003.0	2,551.5	302.1	84.97
54.6	56.0	8,026.6	3,057.6	2,587.5	307.8	84.63
54.6	57.0	7,988.4	3,112.2	2,623.1	313.6	84.28
54.6	58.0	7,950.2	3,166.8	2,658.1	319.3	83.94
54.6	59.0	7,912.0	3,221.4	2,692.8	325.0	83.59
54.6	60.0	7,873.8	3,276.0	2,726.9	330.7	83.24
54.6	61.0	7,835.6	3,330.6	2,760.6	336.4	82.89
54.6	62.0	7,797.4	3,385.2	2,793.9	342.2	82.53
54.6	63.0	7,759.2	3,439.8	2,826.7	347.9	82.18
54.6	64.0	7,721.0	3,494.4	2,859.0	353.6	81.82
54.6	65.0	7,682.8	3,549.0	2,890.9	359.3	81.46
54.5	66.0	7,644.7	3,597.0	2,922.3	365.0	81.24
54.5	67.0	7,606.5	3,651.5	2,953.3	370.8	80.88
54.5	68.0	7,568.3	3,706.0	2,983.8	376.5	80.51
54.5	69.0	7,530.1	3,760.5	3,013.8	382.2	80.14
54.5	70.0	7,491.9	3,815.0	3,043.4	387.9	79.78

nl = rpm with no load

lo = current with no load

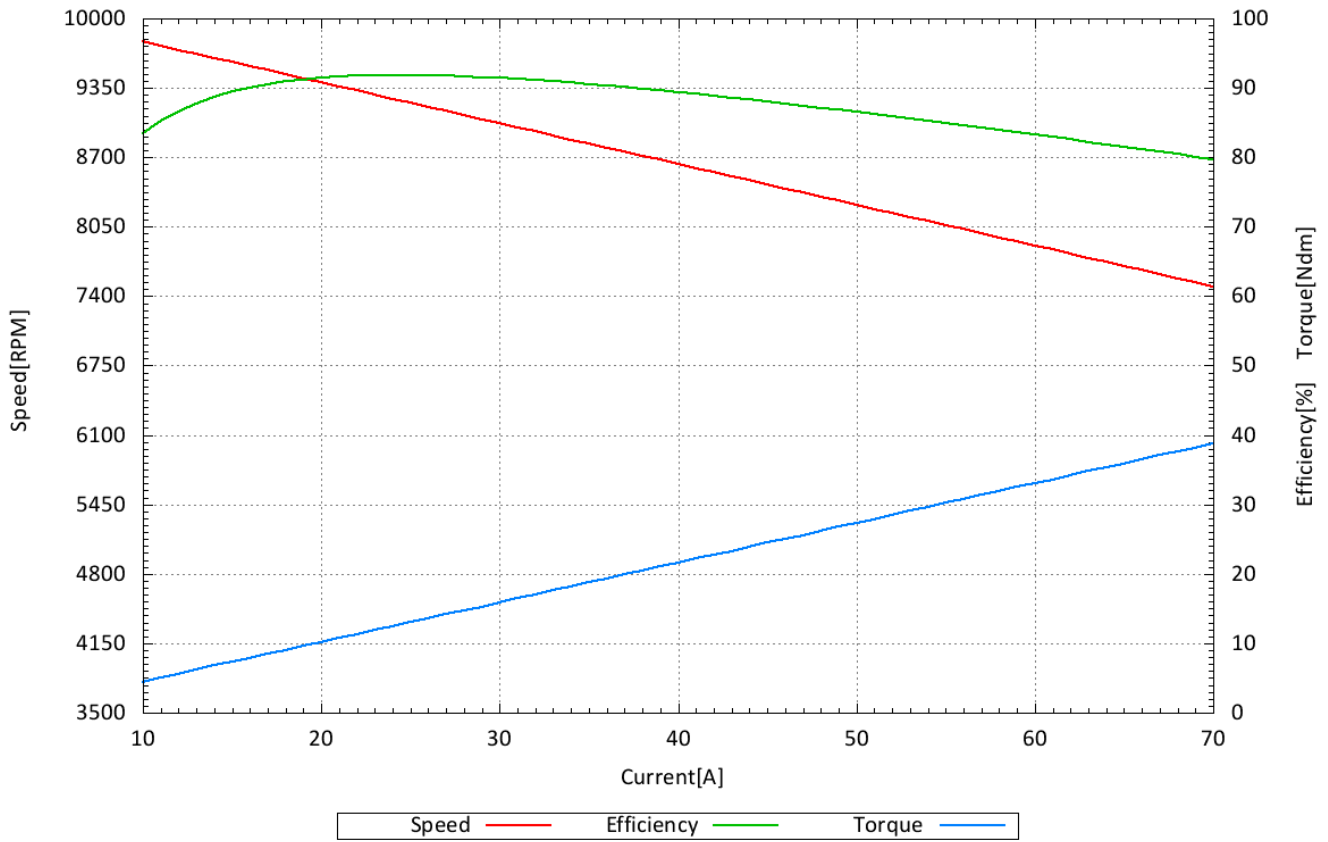
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_30\_B12\_P20\_55V\_MST60-130\_11032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-30-B12 P20**

Date: 11.03.2024

Bearing type: regular

Controller: MST 60-130

### Measuring Parameter

Voltage: **60.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 10,954.6 [RPM] lo: 2.4 [A] kv: 184.2 [RPM/V] kn: -39.80 [RPM/A] kT: 5.76 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
59.9	10.0	10,653.5	599.0	486.5	43.6	81.22
59.9	11.0	10,613.8	658.9	548.7	49.4	83.28
59.9	12.0	10,574.0	718.8	610.5	55.1	84.93
59.9	13.0	10,534.2	778.7	671.7	60.9	86.26
59.9	14.0	10,494.4	838.6	732.6	66.7	87.36
59.9	15.0	10,454.7	898.5	792.9	72.4	88.24
59.9	16.0	10,414.9	958.4	852.7	78.2	88.97
59.9	17.0	10,375.1	1,018.3	912.0	83.9	89.56
59.9	18.0	10,335.3	1,078.2	970.8	89.7	90.04
59.9	19.0	10,295.6	1,138.1	1,029.2	95.5	90.43
59.9	20.0	10,255.8	1,198.0	1,087.1	101.2	90.74
59.9	21.0	10,216.0	1,257.9	1,144.5	107.0	90.98
59.8	22.0	10,176.3	1,315.6	1,201.4	112.7	91.32
59.8	23.0	10,136.5	1,375.4	1,257.9	118.5	91.45
59.8	24.0	10,096.7	1,435.2	1,313.8	124.3	91.54
59.8	25.0	10,056.9	1,495.0	1,369.3	130.0	91.59
59.8	26.0	10,017.2	1,554.8	1,424.4	135.8	91.62
59.8	27.0	9,977.4	1,614.6	1,479.0	141.6	91.60
59.8	28.0	9,937.6	1,674.4	1,533.0	147.3	91.56
59.8	29.0	9,897.8	1,734.2	1,586.6	153.1	91.49
59.8	30.0	9,858.1	1,794.0	1,639.7	158.8	91.40
59.8	31.0	9,818.3	1,853.8	1,692.3	164.6	91.29
59.8	32.0	9,778.5	1,913.6	1,744.4	170.3	91.16
59.8	33.0	9,738.8	1,973.4	1,796.0	176.1	91.01
59.8	34.0	9,699.0	2,033.2	1,847.2	181.9	90.85
59.8	35.0	9,659.2	2,093.0	1,897.9	187.6	90.68

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
59.8	36.0	9,619.4	2,152.8	1,948.1	193.4	90.49
59.7	37.0	9,579.7	2,208.9	1,997.8	199.2	90.45
59.7	38.0	9,539.9	2,268.6	2,047.2	204.9	90.24
59.7	39.0	9,500.1	2,328.3	2,095.9	210.7	90.02
59.7	40.0	9,460.3	2,388.0	2,144.2	216.4	89.79
59.7	41.0	9,420.6	2,447.7	2,192.1	222.2	89.56
59.7	42.0	9,380.8	2,507.4	2,239.4	228.0	89.31
59.7	43.0	9,341.0	2,567.1	2,286.2	233.7	89.06
59.7	44.0	9,301.3	2,626.8	2,332.6	239.5	88.80
59.7	45.0	9,261.5	2,686.5	2,378.5	245.2	88.53
59.7	46.0	9,221.7	2,746.2	2,423.9	251.0	88.26
59.7	47.0	9,181.9	2,805.9	2,468.8	256.8	87.99
59.7	48.0	9,142.2	2,865.6	2,513.3	262.5	87.71
59.7	49.0	9,102.4	2,925.3	2,557.2	268.3	87.42
59.7	50.0	9,062.6	2,985.0	2,600.7	274.0	87.13
59.7	51.0	9,022.8	3,044.7	2,643.8	279.8	86.83
59.6	52.0	8,983.1	3,099.2	2,686.4	285.6	86.68
59.6	53.0	8,943.3	3,158.8	2,728.4	291.3	86.38
59.6	54.0	8,903.5	3,218.4	2,770.0	297.1	86.07
59.6	55.0	8,863.7	3,278.0	2,811.1	302.9	85.76
59.6	56.0	8,824.0	3,337.6	2,851.7	308.6	85.44
59.6	57.0	8,784.2	3,397.2	2,891.8	314.4	85.12
59.6	58.0	8,744.4	3,456.8	2,931.5	320.1	84.80
59.6	59.0	8,704.7	3,516.4	2,970.7	325.9	84.48
59.6	60.0	8,664.9	3,576.0	3,009.3	331.6	84.15
59.6	61.0	8,625.1	3,635.6	3,047.5	337.4	83.83
59.6	62.0	8,585.3	3,695.2	3,085.3	343.2	83.49
59.6	63.0	8,545.6	3,754.8	3,122.6	348.9	83.16
59.6	64.0	8,505.8	3,814.4	3,159.4	354.7	82.83
59.6	65.0	8,466.0	3,874.0	3,195.7	360.5	82.49
59.5	66.0	8,426.2	3,927.0	3,231.5	366.2	82.29
59.5	67.0	8,386.5	3,986.5	3,266.8	372.0	81.95
59.5	68.0	8,346.7	4,046.0	3,301.7	377.7	81.60
59.5	69.0	8,306.9	4,105.5	3,336.1	383.5	81.26
59.5	70.0	8,267.2	4,165.0	3,370.0	389.3	80.91

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

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