

## Report calculated on Test Bench Results

Motor type: **NOVA 4-50-B4 P20**

Date: 25.03.2024

Bearing type: regular

Controller: Common ESC

### Measuring Parameter

Voltage: **15.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 4,937.4 [RPM]    lo: 6.3 [A]    kv: 332.8 [RPM/V]    kn: -8.63 [RPM/A]    kT: 3.19 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
15.0	15.0	4,902.5	225.0	142.2	27.7	63.20
15.0	20.0	4,852.1	300.0	222.0	43.7	74.01
14.9	25.0	4,802.4	372.5	300.2	59.7	80.60
14.9	30.0	4,753.5	447.0	376.3	75.6	84.19
14.9	35.0	4,705.2	521.5	451.3	91.6	86.55
14.9	40.0	4,657.7	596.0	524.8	107.6	88.06
14.9	45.0	4,610.7	670.5	596.3	123.5	88.93
14.9	50.0	4,564.5	745.0	666.8	139.5	89.50
14.9	55.0	4,518.8	819.5	735.8	155.5	89.79
14.9	60.0	4,473.7	894.0	803.5	171.5	89.87
14.8	65.0	4,429.2	962.0	869.2	187.4	90.35
14.8	70.0	4,385.2	1,036.0	934.0	203.4	90.16
14.8	75.0	4,341.7	1,110.0	997.5	219.4	89.87
14.8	80.0	4,298.7	1,184.0	1,059.7	235.4	89.50
14.8	85.0	4,256.2	1,258.0	1,120.1	251.3	89.04
14.8	90.0	4,214.2	1,332.0	1,179.6	267.3	88.56
14.8	95.0	4,172.5	1,406.0	1,237.9	283.3	88.04
14.8	100.0	4,131.3	1,480.0	1,294.4	299.2	87.46
14.8	105.0	4,090.5	1,554.0	1,350.2	315.2	86.88
14.7	110.0	4,050.0	1,617.0	1,404.7	331.2	86.87
14.7	115.0	4,009.8	1,690.5	1,457.9	347.2	86.24
14.7	120.0	3,970.0	1,764.0	1,509.5	363.1	85.57
14.7	125.0	3,930.4	1,837.5	1,560.3	379.1	84.92
14.7	130.0	3,891.1	1,911.0	1,609.9	395.1	84.25
14.7	135.0	3,852.0	1,984.5	1,658.3	411.1	83.56
14.7	140.0	3,813.2	2,058.0	1,705.1	427.0	82.85

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
14.7	145.0	3,774.6	2,131.5	1,751.1	443.0	82.15
14.6	150.0	3,736.1	2,190.0	1,795.8	459.0	82.00
14.6	155.0	3,697.8	2,263.0	1,839.0	474.9	81.26
14.6	160.0	3,659.6	2,336.0	1,881.3	490.9	80.53
14.6	165.0	3,621.5	2,409.0	1,922.4	506.9	79.80
14.6	170.0	3,583.5	2,482.0	1,962.3	522.9	79.06
14.6	175.0	3,545.6	2,555.0	2,000.5	538.8	78.30
14.6	180.0	3,507.7	2,628.0	2,037.9	554.8	77.55
14.6	185.0	3,469.8	2,701.0	2,074.0	570.8	76.79
14.5	190.0	3,431.9	2,755.0	2,108.9	586.8	76.55
14.5	195.0	3,394.0	2,827.5	2,142.1	602.7	75.76
14.5	200.0	3,356.0	2,900.0	2,174.4	618.7	74.98
14.5	205.0	3,318.0	2,972.5	2,205.3	634.7	74.19
14.5	210.0	3,279.8	3,045.0	2,234.5	650.6	73.38

nl = rpm with no load

lo = current with no load

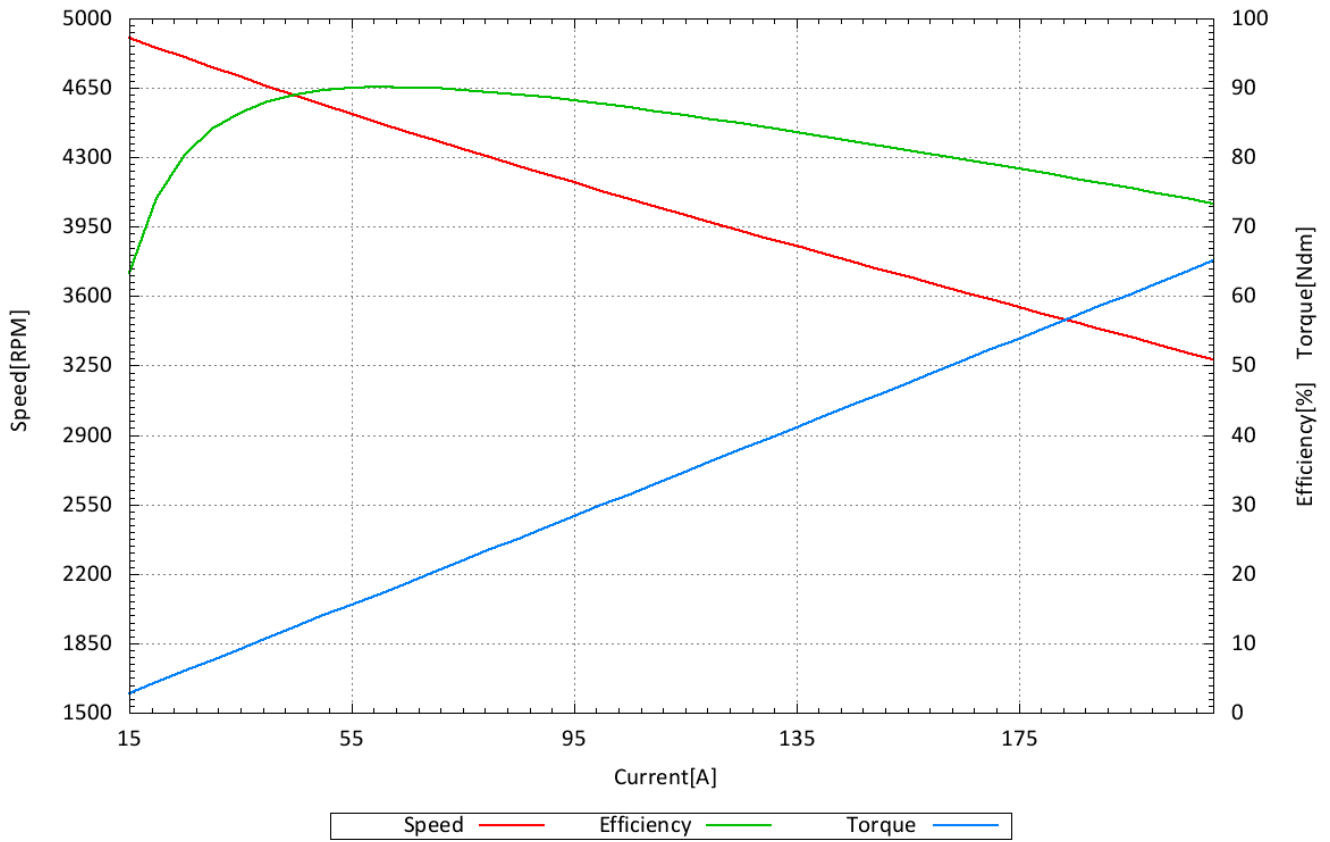
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_50\_B4\_P20\_15V\_25032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-50-B4 P20**

Date: 25.03.2024

Bearing type: regular

Controller: Common ESC

### Measuring Parameter

Voltage: **20.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 6,567.2 [RPM]    lo: 6.7 [A]    kv: 331.6 [RPM/V]    kn: -9.70 [RPM/A]    kT: 3.18 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
20.0	15.0	6,543.3	300.0	180.2	26.3	60.07
20.0	20.0	6,481.2	400.0	286.4	42.2	71.60
20.0	25.0	6,420.6	500.0	391.3	58.2	78.26
19.9	30.0	6,361.2	597.0	493.6	74.1	82.68
19.9	35.0	6,303.2	696.5	594.1	90.0	85.29
19.9	40.0	6,246.3	796.0	692.7	105.9	87.02
19.9	45.0	6,190.6	895.5	789.6	121.8	88.17
19.9	50.0	6,135.9	995.0	885.4	137.8	88.99
19.9	55.0	6,082.4	1,094.5	979.0	153.7	89.45
19.9	60.0	6,029.8	1,194.0	1,070.9	169.6	89.69
19.9	65.0	5,978.2	1,293.5	1,161.3	185.5	89.78
19.9	70.0	5,927.4	1,393.0	1,250.1	201.4	89.74
19.9	75.0	5,877.5	1,492.5	1,338.1	217.4	89.65
19.9	80.0	5,828.4	1,592.0	1,423.9	233.3	89.44
19.9	85.0	5,780.0	1,691.5	1,508.4	249.2	89.17
19.8	90.0	5,732.3	1,782.0	1,591.4	265.1	89.30
19.8	95.0	5,685.2	1,881.0	1,672.9	281.0	88.94
19.8	100.0	5,638.7	1,980.0	1,753.7	297.0	88.57
19.8	105.0	5,592.7	2,079.0	1,832.5	312.9	88.15
19.8	110.0	5,547.2	2,178.0	1,910.0	328.8	87.70
19.8	115.0	5,502.1	2,277.0	1,986.1	344.7	87.22
19.8	120.0	5,457.4	2,376.0	2,060.8	360.6	86.73
19.8	125.0	5,413.0	2,475.0	2,134.7	376.6	86.25
19.8	130.0	5,368.8	2,574.0	2,206.7	392.5	85.73
19.8	135.0	5,324.9	2,673.0	2,277.3	408.4	85.20
19.8	140.0	5,281.1	2,772.0	2,346.5	424.3	84.65

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
19.7	145.0	5,237.4	2,856.5	2,414.3	440.2	84.52
19.7	150.0	5,193.8	2,955.0	2,481.2	456.2	83.97
19.7	155.0	5,150.1	3,053.5	2,546.1	472.1	83.38
19.7	160.0	5,106.4	3,152.0	2,609.5	488.0	82.79
19.7	165.0	5,062.6	3,250.5	2,671.4	503.9	82.19
19.7	170.0	5,018.6	3,349.0	2,731.8	519.8	81.57
19.7	175.0	4,974.4	3,447.5	2,791.1	535.8	80.96
19.7	180.0	4,930.0	3,546.0	2,848.3	551.7	80.32
19.7	185.0	4,885.2	3,644.5	2,903.7	567.6	79.67
19.7	190.0	4,840.0	3,743.0	2,957.4	583.5	79.01
19.7	195.0	4,794.5	3,841.5	3,009.5	599.4	78.34
19.6	200.0	4,748.4	3,920.0	3,060.1	615.4	78.06
19.6	205.0	4,701.8	4,018.0	3,108.3	631.3	77.36
19.6	210.0	4,654.6	4,116.0	3,154.6	647.2	76.64

nl = rpm with no load

lo = current with no load

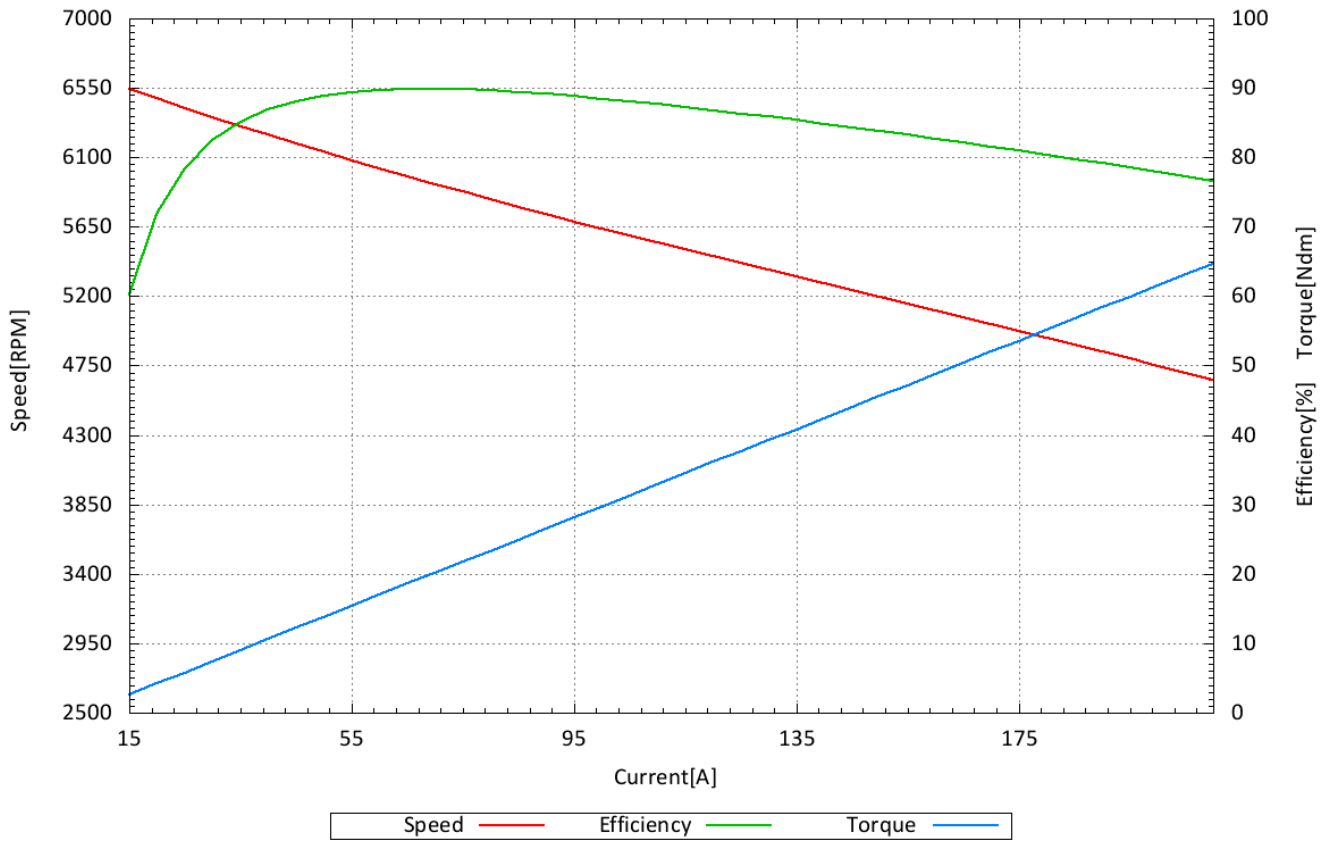
kV = specific rpm

kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller

HP430\_50\_B4\_P20\_20V\_25032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-50-B4 P20**

Date: 25.03.2024

Bearing type: regular

Controller: Common ESC

### Measuring Parameter

Voltage: **25.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 8,252.8 [RPM]    lo: 7.1 [A]    kv: 333.3 [RPM/V]    kn: -11.46 [RPM/A]    kT: 3.20 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
25.0	15.0	8,237.2	375.0	219.1	25.4	58.43
25.0	20.0	8,163.2	500.0	354.8	41.5	70.95
25.0	25.0	8,090.9	625.0	487.2	57.5	77.95
25.0	30.0	8,020.2	750.0	617.3	73.5	82.31
24.9	35.0	7,950.9	871.5	745.2	89.5	85.51
24.9	40.0	7,883.2	996.0	871.8	105.6	87.53
24.9	45.0	7,816.8	1,120.5	995.4	121.6	88.83
24.9	50.0	7,751.8	1,245.0	1,117.0	137.6	89.72
24.9	55.0	7,688.1	1,369.5	1,236.6	153.6	90.30
24.9	60.0	7,625.7	1,494.0	1,354.4	169.6	90.65
24.9	65.0	7,564.4	1,618.5	1,471.0	185.7	90.89
24.9	70.0	7,504.2	1,743.0	1,585.0	201.7	90.94
24.9	75.0	7,445.1	1,867.5	1,697.3	217.7	90.89
24.9	80.0	7,387.1	1,992.0	1,807.8	233.7	90.76
24.9	85.0	7,330.0	2,116.5	1,916.7	249.7	90.56
24.9	90.0	7,273.8	2,241.0	2,024.6	265.8	90.34
24.9	95.0	7,218.4	2,365.5	2,130.2	281.8	90.05
24.8	100.0	7,163.9	2,480.0	2,234.1	297.8	90.08
24.8	105.0	7,110.0	2,604.0	2,336.4	313.8	89.72
24.8	110.0	7,056.9	2,728.0	2,438.0	329.9	89.37
24.8	115.0	7,004.4	2,852.0	2,537.2	345.9	88.96
24.8	120.0	6,952.4	2,976.0	2,634.8	361.9	88.54
24.8	125.0	6,901.0	3,100.0	2,731.0	377.9	88.10
24.8	130.0	6,850.0	3,224.0	2,825.6	393.9	87.64
24.8	135.0	6,799.4	3,348.0	2,919.3	410.0	87.20
24.8	140.0	6,749.2	3,472.0	3,010.9	426.0	86.72

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
24.8	145.0	6,699.3	3,596.0	3,100.8	442.0	86.23
24.8	150.0	6,649.5	3,720.0	3,189.2	458.0	85.73
24.8	155.0	6,600.0	3,844.0	3,276.1	474.0	85.23
24.8	160.0	6,550.6	3,968.0	3,362.0	490.1	84.73
24.7	165.0	6,501.3	4,075.5	3,445.6	506.1	84.54
24.7	170.0	6,451.9	4,199.0	3,527.5	522.1	84.01
24.7	175.0	6,402.5	4,322.5	3,607.8	538.1	83.47
24.7	180.0	6,353.0	4,446.0	3,687.0	554.2	82.93
24.7	185.0	6,303.4	4,569.5	3,763.8	570.2	82.37
24.7	190.0	6,253.5	4,693.0	3,838.8	586.2	81.80
24.7	195.0	6,203.4	4,816.5	3,912.0	602.2	81.22
24.7	200.0	6,153.0	4,940.0	3,983.3	618.2	80.63
24.7	205.0	6,102.1	5,063.5	4,053.2	634.3	80.05
24.7	210.0	6,050.9	5,187.0	4,120.6	650.3	79.44

nl = rpm with no load

lo = current with no load

kV = specific rpm

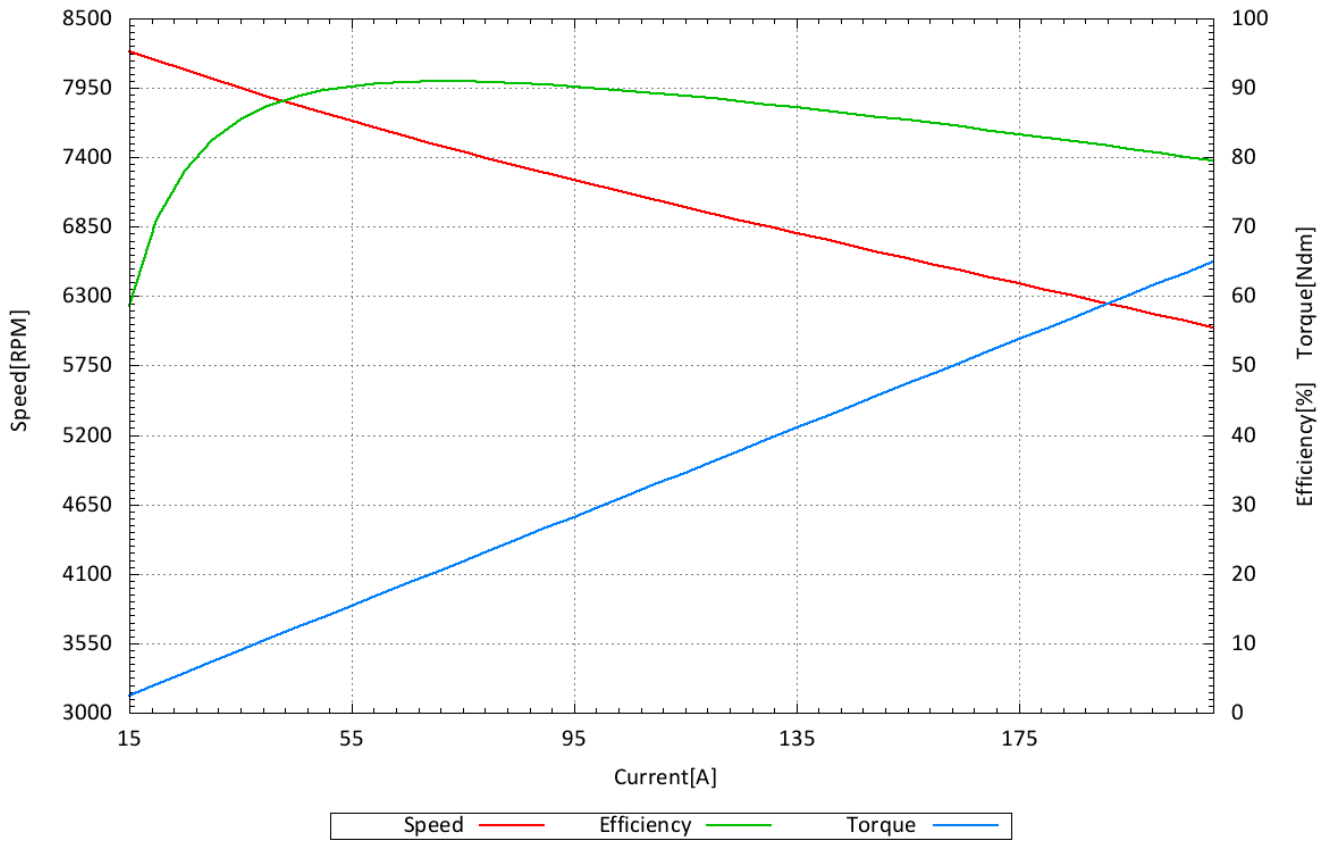
kn = rpm drop per Amp

kT = torque constant

<sup>1</sup> incl. Controller



HP430\_50\_B4\_P20\_25V\_25032024



## Report calculated on Test Bench Results

Motor type: **NOVA 4-50-B4 P20**

Date: 25.03.2024

Bearing type: regular

Controller: Common ESC

### Measuring Parameter

Voltage: **30.0 [V]**

Throttle setting: 100%

### Calculated Motor Constants

nl: 9,891.2 [RPM]    lo: 6.5 [A]    kv: 332.4 [RPM/V]    kn: -12.56 [RPM/A]    kT: 3.18 [Ncm/A]

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
30.0	15.0	9,871.5	450.0	279.1	27.0	62.02
30.0	20.0	9,788.9	600.0	439.8	42.9	73.29
30.0	25.0	9,708.1	750.0	597.8	58.8	79.70
30.0	30.0	9,629.1	900.0	753.2	74.7	83.69
30.0	35.0	9,551.8	1,050.0	906.2	90.6	86.31
29.9	40.0	9,476.2	1,196.0	1,056.8	106.5	88.37
29.9	45.0	9,402.2	1,345.5	1,205.1	122.4	89.57
29.9	50.0	9,329.8	1,495.0	1,350.2	138.2	90.32
29.9	55.0	9,258.9	1,644.5	1,494.1	154.1	90.86
29.9	60.0	9,189.4	1,794.0	1,635.9	170.0	91.19
29.9	65.0	9,121.3	1,943.5	1,775.7	185.9	91.37
29.9	70.0	9,054.5	2,093.0	1,913.4	201.8	91.42
29.9	75.0	8,989.0	2,242.5	2,049.3	217.7	91.38
29.9	80.0	8,924.6	2,392.0	2,183.2	233.6	91.27
29.9	85.0	8,861.5	2,541.5	2,315.3	249.5	91.10
29.9	90.0	8,799.4	2,691.0	2,444.7	265.3	90.85
29.9	95.0	8,738.3	2,840.5	2,573.2	281.2	90.59
29.9	100.0	8,678.2	2,990.0	2,700.0	297.1	90.30
29.9	105.0	8,619.1	3,139.5	2,825.1	313.0	89.99
29.9	110.0	8,560.7	3,289.0	2,948.5	328.9	89.65
29.8	115.0	8,503.2	3,427.0	3,070.3	344.8	89.59
29.8	120.0	8,446.4	3,576.0	3,190.4	360.7	89.22
29.8	125.0	8,390.3	3,725.0	3,308.9	376.6	88.83
29.8	130.0	8,334.8	3,874.0	3,424.9	392.4	88.41
29.8	135.0	8,279.9	4,023.0	3,540.2	408.3	88.00
29.8	140.0	8,225.5	4,172.0	3,653.9	424.2	87.58

Voltage [V]	Current [A]	Speed [RPM]	Input Power [W]	Output Power [W]	Torque [Ncm]	Efficiency <sup>1</sup> [%]
29.8	145.0	8,171.5	4,321.0	3,766.0	440.1	87.16
29.8	150.0	8,118.0	4,470.0	3,876.5	456.0	86.72
29.8	155.0	8,064.7	4,619.0	3,985.4	471.9	86.28
29.8	160.0	8,011.7	4,768.0	4,092.6	487.8	85.83
29.8	165.0	7,959.0	4,917.0	4,198.2	503.7	85.38
29.8	170.0	7,906.4	5,066.0	4,301.2	519.5	84.90
29.8	175.0	7,853.8	5,215.0	4,403.4	535.4	84.44
29.8	180.0	7,801.4	5,364.0	4,503.9	551.3	83.97
29.8	185.0	7,748.9	5,513.0	4,602.6	567.2	83.49
29.7	190.0	7,696.3	5,643.0	4,699.5	583.1	83.28
29.7	195.0	7,643.6	5,791.5	4,794.6	599.0	82.79
29.7	200.0	7,590.7	5,940.0	4,887.8	614.9	82.29
29.7	205.0	7,537.5	6,088.5	4,979.1	630.8	81.78
29.7	210.0	7,484.0	6,237.0	5,067.6	646.6	81.25

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\_50\_B4\_P20\_30V\_25032024

