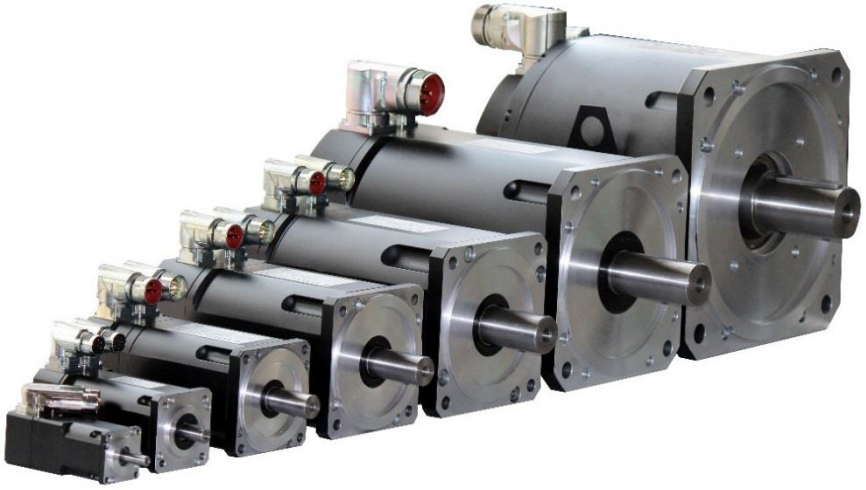
SANGALLI SERVOMOTORI



DSM5/DSF5/DSM7

Motor Curves

v. 10-2023

AC BRUSHLESS SERVOMOTORS - DSM5 Series

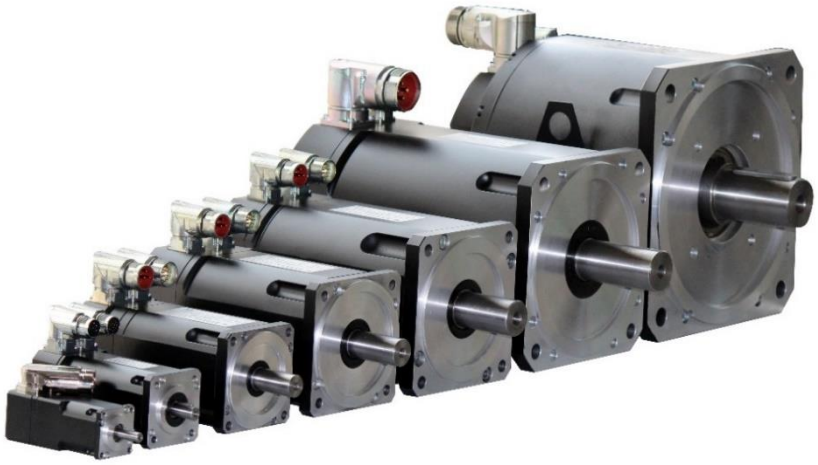
AC Synchronous Servomotors DSM5 Size 0 – 2 – 3 – 4 – 5 – 6 – 7 – 8

The DSM5 series of AC PM synchronous servomotors have been designed using the latest generation of magnets and construction techniques to provide very high performance with a wide range of available options.

The high torque to volume ratio, low cogging torque and low torque ripple provides the best solution for demanding applications where such characteristics are essential.

PRINCIPLE CHARACTERISTICS:

- Rare earth magnets for high performance
- Medium Inertia for high stability
- Compact design and low weight
- 90° right angle rotatable connectors
- High IP rating, smooth finish



CURVES DEFINTION:

The S1 and S3 curves are defined at the following operating conditions:

- Ambient Temperature 0÷40°C
- Altitude 1000m
- Max Temperature Rise 100K
- Mounted on test flange *(refer to table below)*
- Duty cycle according to IEC60034-1
- DcBus 560Vdc (***and 320Vdc where indicated by the symbol " * " near the motor type***)
- No Brake

Motor Size	Flange Dimensions (side x side x thickness) [mm]
SIZE 0	254x254x8
SIZE 2	254x254x8
SIZE 3	254x254x8
SIZE 4	305x305x15
SIZE 5	457x457x15
SIZE 6	457x457x15
SIZE 7	457x457x15
SIZE 8	457x457x15

DERATING RULES:

- Derating due to presence of brake 10%.
- Derating due to presence of encoder 6%
- Power derating 1%/K in a range of 40°C to 50°C up to 1000m above sea level, while for site altitudes of over 1000 m above sea level performance downgrade:
  - 6% at 2000 m above sea level
  - 17% at 3000 m above sea level
  - 30% at 4000 m above sea level
  - 55% at 5000 m above sea level

For additional details please refer to the User Manual

For custom curves please contact our team at info@sangalliservomotori.it

DEFINITIONS

Standstill torque at 20°C M_0 [Nm]
The standstill or standstill torque is delivered by the cold motor (20°C) at a speed of 0<n<100 rpm. It does not take into account any torque dissipation (due to iron, mechanical, saturation, wave deformity). With the same current, the stall torque decreases as the motor temperature increases.
(see Motor heating characteristic curves for values with hot motor)

Standstill current I_0 [A]
Current (rms value) applicable to the motor at a number of revolutions 0 <n <100 rpm. By applying this current to the cold engine (20 ° C), M_0 is delivered, the increase in overtemperature leads to a decrease in the torque with the same current I_0
(see Motor heating characteristic curves for values with hot motor)

Maximum mechanical revs N_{max_mec} [min-1]
The maximum mechanical revs indicate the maximum operating speed that is permitted at mechanical level.

Rotor moment of inertia Jr [kgcm²]
The inertia of the rotor without taking into consideration the transducer and the brake. (Kg cm2=kg*m2 *10-4).

Maximum torque M_{pk} [Nm]
Torque that is generated when the peak load is applied. The maximum torque is only available for short periods of time.

Peak current (pulse current) I_{pk} [A]
The peak current (rms value is up to 5 times the rated standstill current. The peak current of the servo amplifier used must be lower than the peak value of the motor.

Voltage constant k_e[mVmin]
Effective line to line voltage value at a speed of 1000rpm. The Ke is defined when operating without load (circuit open and motor driven) at a temperature of 20°C. The progress of the line to line voltage in these conditions is in linear proportion to the mechanical speed.

Torque constant k_t [Nm/A]
The torque constant indicates the ratio between M_0 and I_0 and does not take into account any dissipation.

Resistance R_{ff} @20°C [ohm]
Resistance between two phases at 20°C.

Inductance L_{ff} [mH]
Inductance between two phases measured at 1KHz.

Nominal torque M_n [Nm]
Rated torque that can be maintained indefinitely at a certain speed in continuous duty (S1).

Nominal torque S3 40% M_{nS3} [Nm]
Rated torque that can be maintained indefinitely (S1 duty) at a certain speed during intermittent duty with 40% duty cycle (S3 40%).

Nominal current I_n [A]
Rated current that can be maintained indefinitely at a certain speed in continuous duty (S1) while generating a maximum over temperature of 100K at an environmental temperature of 40°C and an altitude of <1000m asl.

Nominal current S3 40% I_{nS3} [A]
Rated torque that can be maintained indefinitely (S1 duty) at a certain speed during intermittent duty with 40% duty cycle (S3 40%) while generating a maximum over temperature of 100K at an environmental temperature of 40°C and an altitude of <1000m asl.

DSM5 Motor Series *(Click on motor Type to move to the related curve)*

Type	M_o Nm	I_o Arms	N_{max_mec} rpm	R_{ff} @20°C Ohm	L_{ff} mH	k_e Vrms/krpm	k_t Nm/Arms	M_{pk} Nm	I_{pk} Arms	J_r kg cm²
DSM5.04.1	0,19	0,8	8500	27	11	14,7	0,24	0,6	3,1	0,037
DSM5.05.1	0,38	1,2	8500	14	7,9	19	0,31	1,3	4,8	0,061
DSM5.21.1	0,7	1,6	8500	8,7	10,4	27	0,45	2,4	6,4	0,13
DSM5.21.2	0,7	1,0	8500	23	27	44	0,73	2,4	3,9	0,13
DSM5.22.1	1,4	2,8	8500	3,2	5,6	30	0,50	4,6	10,8	0,23
DSM5.22.2	1,4	1,7	8500	8,4	13	49	0,81	4,6	6,6	0,23
DSM5.31.1	1,5	1,6	7000	9	16	55	0,91	5,2	6,9	0,92
DSM5.31.2	1,5	1,1	7000	23	35	86	1,42	5,2	4,4	0,92
DSM5.32.1	2,9	3,2	7000	3,4	7	55	0,91	10	13,1	1,72
DSM5.32.2	2,9	2,0	7000	8,3	18	88	1,46	10	8,2	1,72
DSM5.33.1	4,2	4,6	7000	1,9	4,5	55	0,91	14	18,1	2,53
DSM5.33.2	4,2	2,9	7000	5	12	88	1,46	14	11,3	2,53
DSM5.34.1	5,3	5,8	6000	1,4	3,5	55	0,91	18	23,0	3,33
DSM5.34.2	5,3	3,4	6000	4	11	93	1,54	18	13,6	3,33
DSM5.41.1	4	4,4	6500	2,3	5,6	55	0,91	14	18,3	5
DSM5.41.2	4	2,5	6500	6,9	17,9	96	1,59	14	10,5	5
DSM5.42.1	7,6	7,8	6500	0,95	3,8	59	0,98	26	31,7	9,6
DSM5.42.2	7,6	4,7	6500	2,7	10,7	98	1,62	26	19,1	9,6
DSM5.43.1	11,3	11,6	6500	0,5	2,5	59	0,98	39	47,6	14
DSM5.43.2	11,3	7,0	6500	1,5	6,9	98	1,62	39	28,6	14
DSM5.51.1	10	9,8	6500	0,65	2,6	62	1,03	35	40,6	22
DSM5.51.2	10	6,5	6500	1,61	7	93	1,54	35	27,1	22
DSM5.52.1	19	16,0	6500	0,34	1,9	72	1,19	64	64,0	43
DSM5.52.2	19	12,4	6500	0,61	3,3	93	1,54	64	49,5	43
DSM5.53.1	27	20,9	5500	0,25	1,7	78	1,29	94	86,7	65
DSM5.53.2	27	15,4	5500	0,46	2,7	106	1,75	94	63,8	65
DSM5.54.1	35	24,9	5500	0,18	1,7	85	1,41	118	99,9	87
DSM5.54.2	35	20,0	5500	0,32	1,9	106	1,75	118	80,1	87
DSM5.61.1	15	11,5	5500	0,6	3,4	79	1,31	40	36,4	54
DSM5.61.2	15	9,1	5500	0,95	6,5	100	1,65	40	28,8	54
DSM5.62.1	28	23,8	5500	0,18	1,2	71	1,17	72	73,0	91
DSM5.62.2	28	12,6	5500	0,74	5,3	134	2,22	72	38,7	91
DSM5.63.1	50	28,0	4500	0,16	1,3	108	1,79	130	86,6	177
DSM5.63.2	50	17,9	4500	0,36	3,2	169	2,80	130	55,4	177
DSM5.64.1	70	39,2	4500	0,09	0,8	108	1,79	180	120,0	264
DSM5.64.2	70	26,1	4500	0,16	1,8	162	2,68	180	80,0	264
DSM5.71.1	76	36,5	4000	0,14	1,5	126	2,08	200	106,6	484
DSM5.71.2	76	25,1	4000	0,28	3,1	183	3,03	200	73,4	484
DSM5.72.1	147	70,5	4000	0,05	0,8	126	2,08	405	215,9	941
DSM5.72.2	147	41,1	4000	0,12	2,2	216	3,57	405	126,0	941
DSM5.73.1	230	103,0	4000	0,03	0,6	135	2,23	625	311,0	1398
DSM5.73.2	230	64,4	4000	0,08	1,5	216	3,57	625	194,4	1398
DSM5.81.1	126	38,9	1700	0,14	1,4	196	3,24	320	107,3	1130
DSM5.81.2	126	19,0	1700	0,5	5,8	401	6,63	320	52,4	1130
DSM5.82.1	220	46,2	1700	0,1	1,5	288	4,76	560	127,8	2220
DSM5.82.2	220	24,0	1700	0,38	5,4	555	9,18	560	66,3	2220
DSM5.83.1	320	62,6	1700	0,08	1,1	309	5,11	810	172,3	3310
DSM5.83.2	320	33,0	1700	0,26	4,1	586	9,69	810	90,8	3310
DSM5.84.1	410	60,2	1700	0,09	1,5	412	6,81	1040	165,9	4410
DSM5.84.2	410	37,7	1700	0,24	3,9	658	10,88	1040	103,9	4410
DSM5.30.1	1	1,7	7000	7,9	11	36	0,60	3,6	7,6	0,7
DSM5.30.2	1	1,1	7000	19	25	56	0,93	3,6	4,9	0,7
DSM5.40.1	2,1	3,3	6500	3,5	6,3	39	0,65	7,1	13,4	2,8
DSM5.40.2	2,1	2,1	6500	8,6	16	61	1,01	7,1	8,6	2,8
DSM5.50.1	5	7,4	6500	1	2,7	41	0,68	17	29,8	12
DSM5.50.2	5	4,6	6500	2,3	6,8	66	1,09	17	18,5	12
DSM5.60.2	8	6,0	5500	2,3	10	80	1,32	21	18,5	27

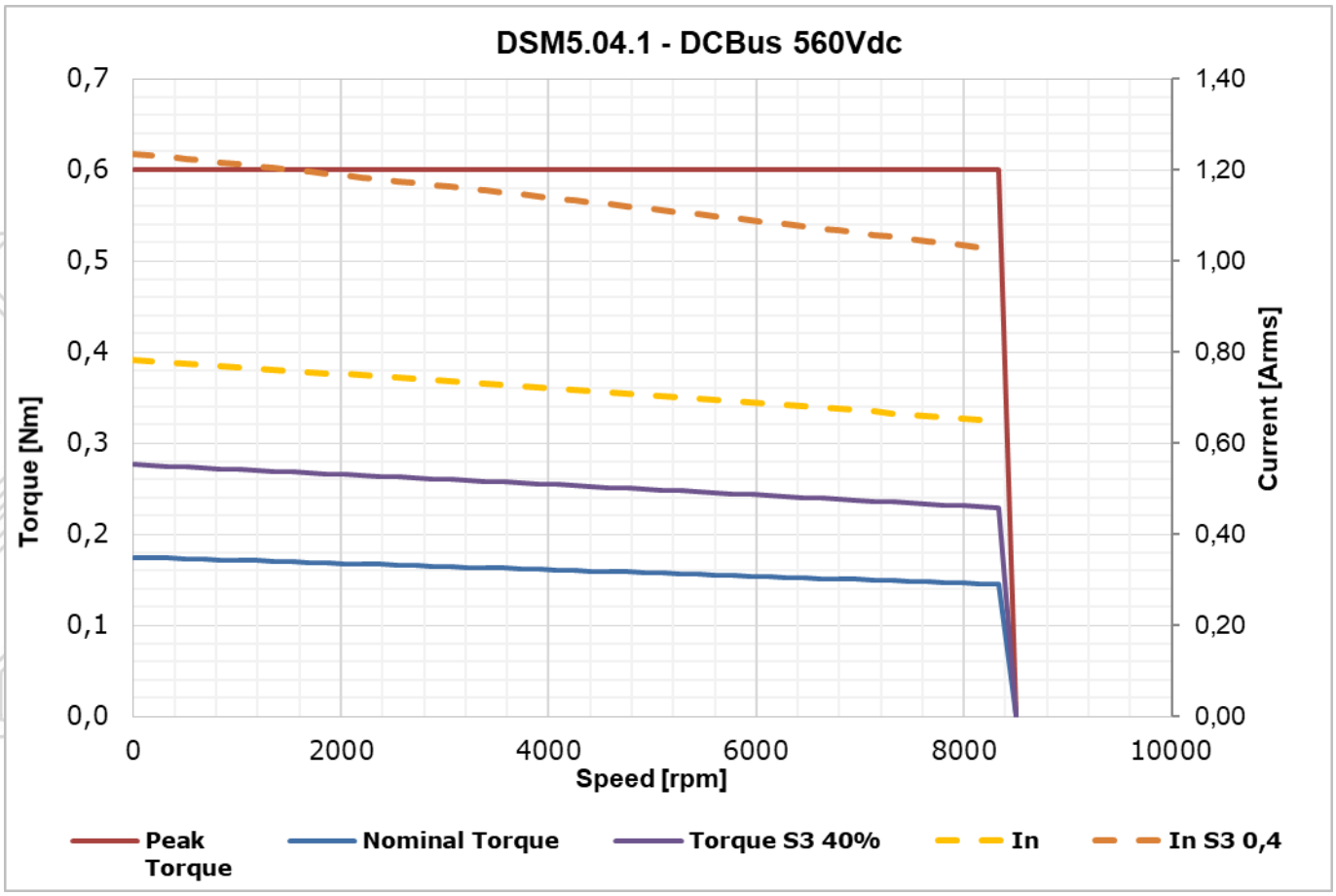
DSF5 Motor Series *(Click on motor Type to move to the related curve)*

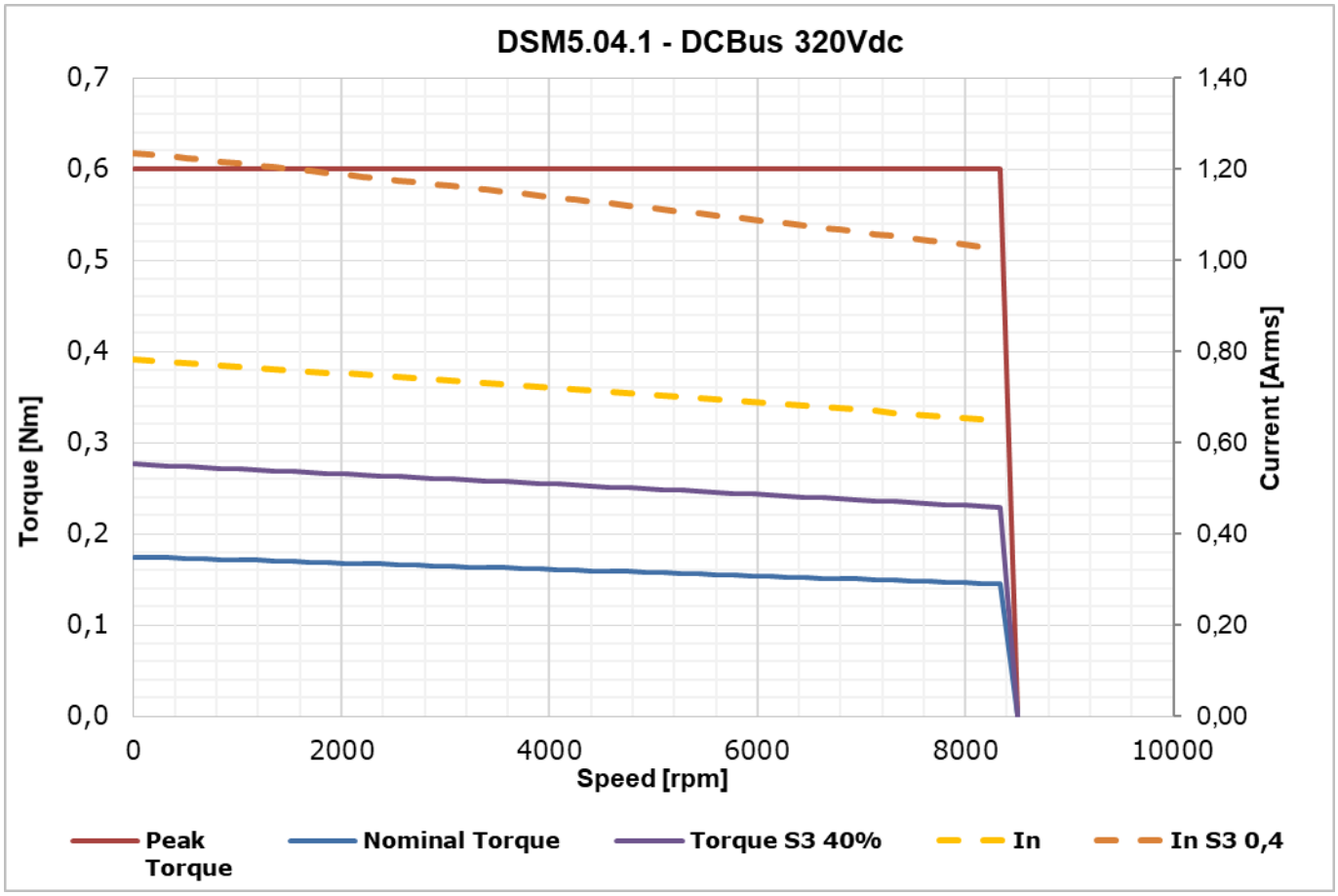
Type	Mo	Io	Nmax_mec	Rff @20°C	Lff	ke	kt	Mpk	Ipk	Jr
	Nm	Arms	rpm	Ohm	mH	Vrms/krpm	Nm/Arms	Nm	Arms	kg cm²
DSF5.51.1	14	13,7	6500	0,65	2,6	62	1,03	35	40,6	22
DSF5.51.2	14	9,1	6500	1,61	7	93	1,54	35	27,1	22
DSF5.52.1	26,5	22,3	6500	0,34	1,9	72	1,19	64	64,0	43
DSF5.52.2	26,5	17,2	6500	0,61	3,3	93	1,54	64	49,5	43
DSF5.53.1	38	29,5	5500	0,25	1,7	78	1,29	94	86,7	65
DSF5.53.2	38	21,7	5500	0,46	2,7	106	1,75	94	63,8	65
DSF5.54.1	49	34,9	5500	0,18	1,7	85	1,41	118	99,9	87
DSF5.54.2	49	27,9	5500	0,32	1,9	106	1,75	118	80,1	87
DSF5.62.1	39	33,2	5500	0,18	1,2	71	1,17	72	73,0	91
DSF5.62.2	39	17,6	5500	0,74	5,3	134	2,22	72	38,7	91
DSF5.63.1	71	39,7	4500	0,16	1,3	108	1,79	130	86,6	177
DSF5.63.2	71	25,4	4500	0,36	3,2	169	2,80	130	55,4	177
DSF5.64.1	98	54,9	4500	0,09	0,8	108	1,79	180	120,0	264
DSF5.64.2	98	36,6	4500	0,16	1,8	162	2,68	180	80,0	264
DSF5.71.1	100	48,0	4000	0,14	1,5	126	2,08	200	106,6	484
DSF5.71.2	100	33,0	4000	0,28	3,1	183	3,03	200	73,4	484
DSF5.72.1	190	91,2	4000	0,05	0,8	126	2,08	405	215,9	941
DSF5.72.2	190	53,2	4000	0,12	2,2	216	3,57	405	126,0	941
DSF5.73.1	300	134,4	4000	0,03	0,6	135	2,23	625	311,0	1398
DSF5.73.2	300	84,0	4000	0,08	1,5	216	3,57	625	194,4	1398

DSM7 Motor Series *(Click on motor Type to move to the related curve)*

Type	M_o	I_o	N_{max_mec}	R_{ff} @20°C	L_{ff}	k_e	k_t	M_{pk}	I_{pk}	J_r
	Nm	Arms	rpm	Ohm	mH	Vrms/krpm	Nm/Arms	Nm	Arms	kg cm²
DSM7.31.1	1,4	1,7	6000	9,6	14,8	49	0,81	5	7,2	1,9
DSM7.31.2	1,4	1,1	3500	24,2	36,9	80	1,32	5	4,6	1,9
DSM7.32.1	2,8	3,5	6000	3,4	6,8	48	0,79	9,5	14,0	2,7
DSM7.32.2	2,8	2,1	3500	9,2	18	79	1,31	9,5	8,6	2,7
DSM7.33.1	3,9	4,9	6000	2	4,3	48	0,79	13	19,6	3,5
DSM7.33.2	3,9	2,9	3500	5,3	11,4	80	1,32	13	12,4	3,5

Motor Torque vs. Speed Curve	DSM5.04.1*





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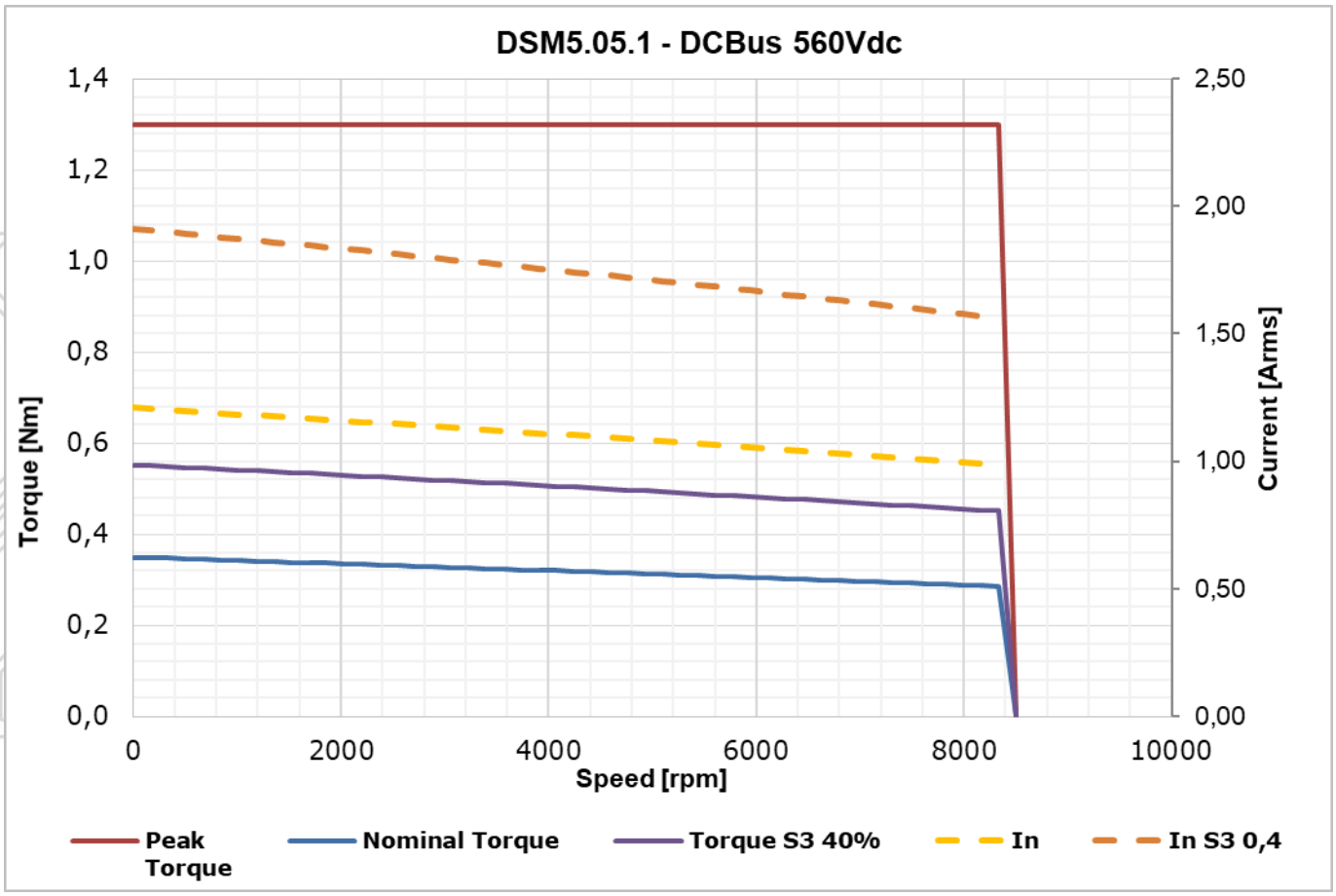
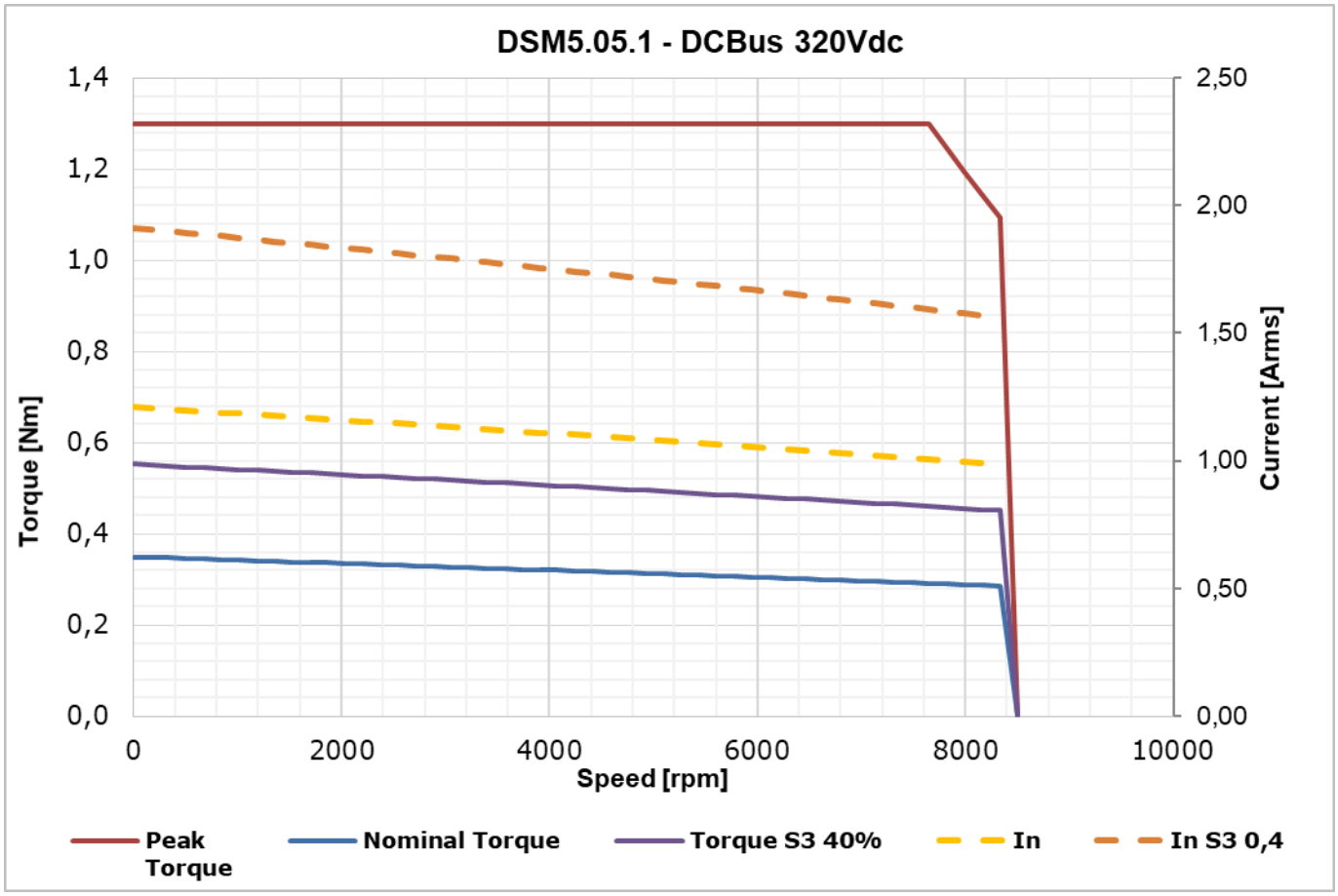
Motor Torque vs. Speed Curve	DSM5.05.1*





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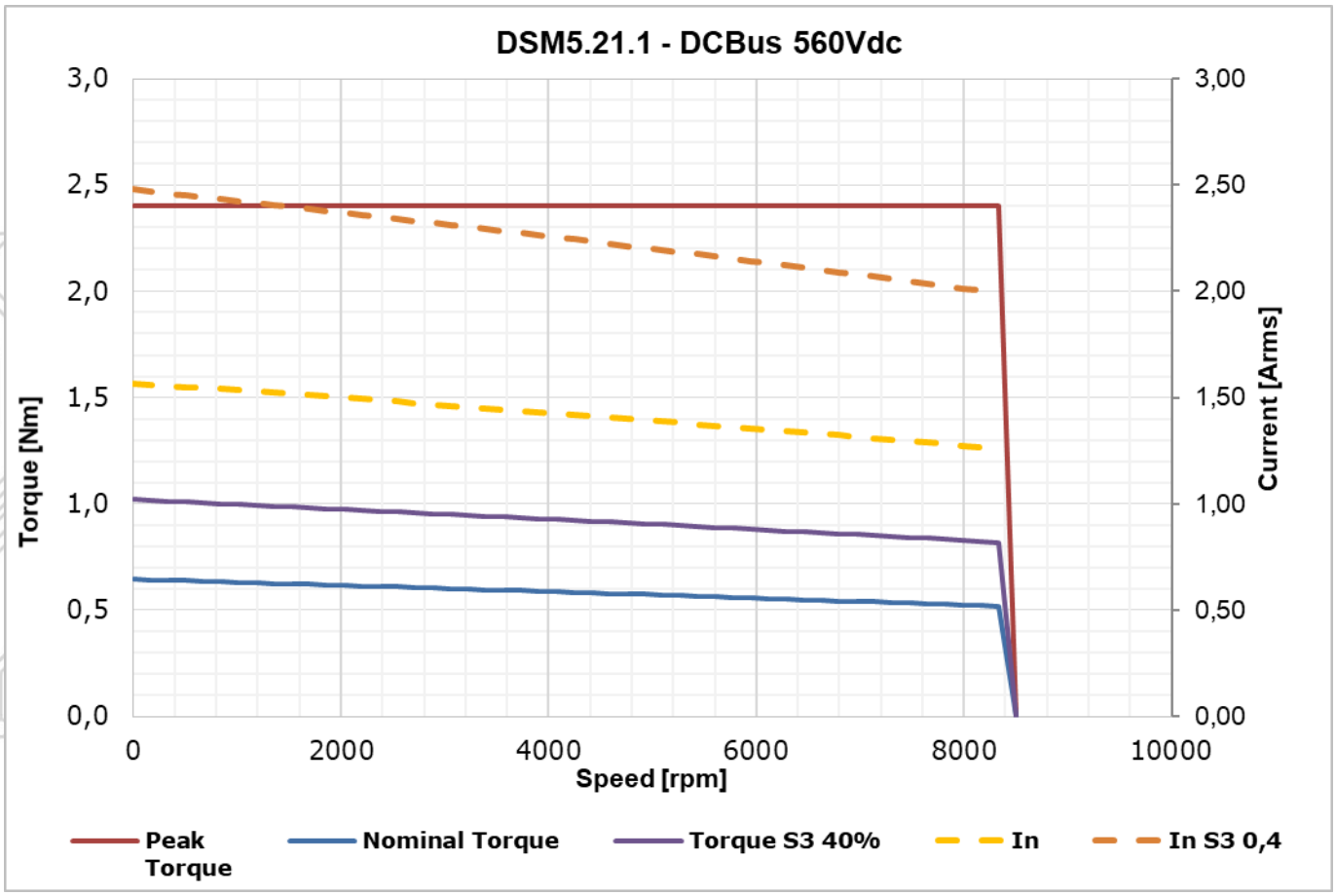
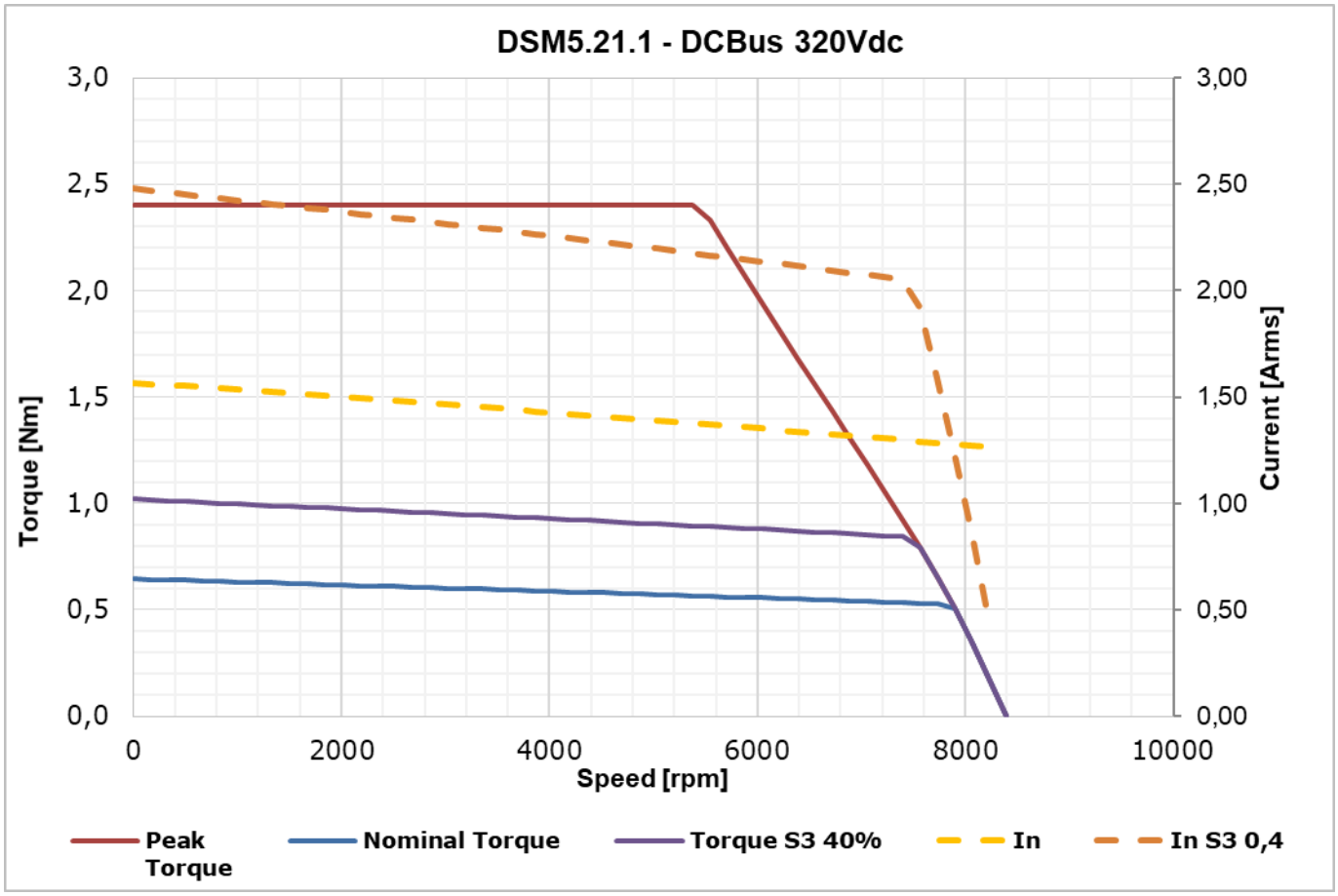
Motor Torque vs. Speed Curve	DSM5.21.1*





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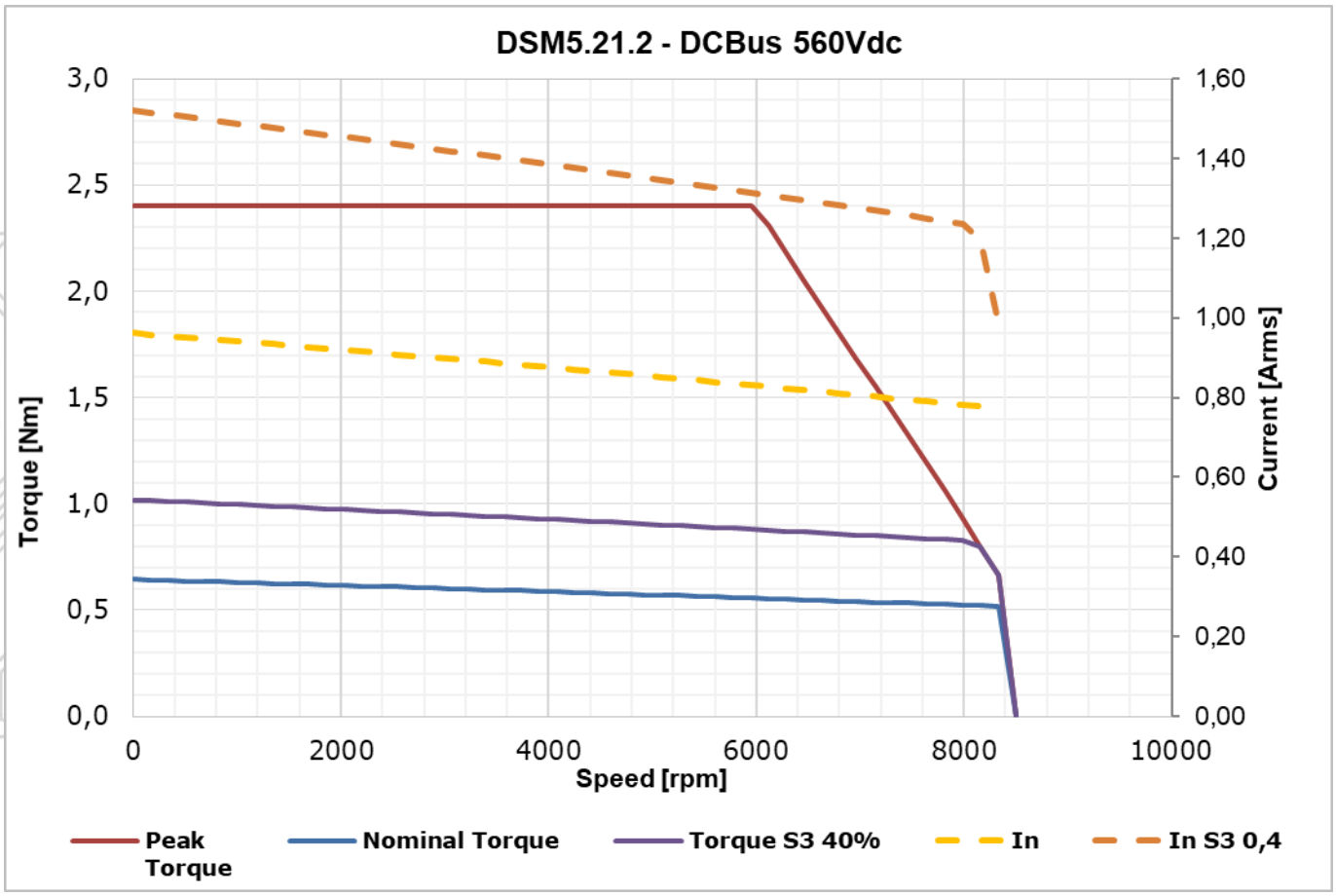
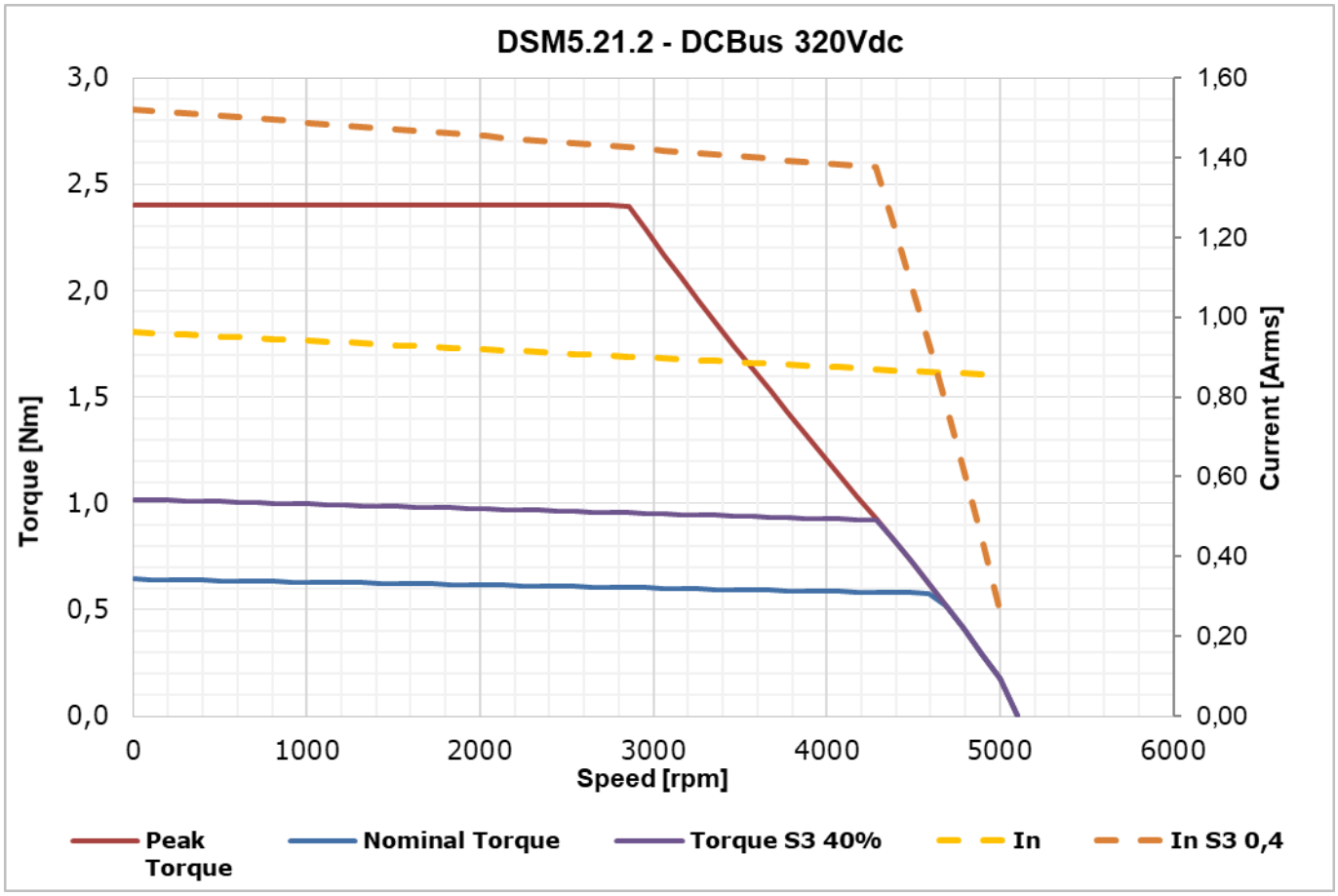
Motor Torque vs. Speed Curve	DSM5.21.2*





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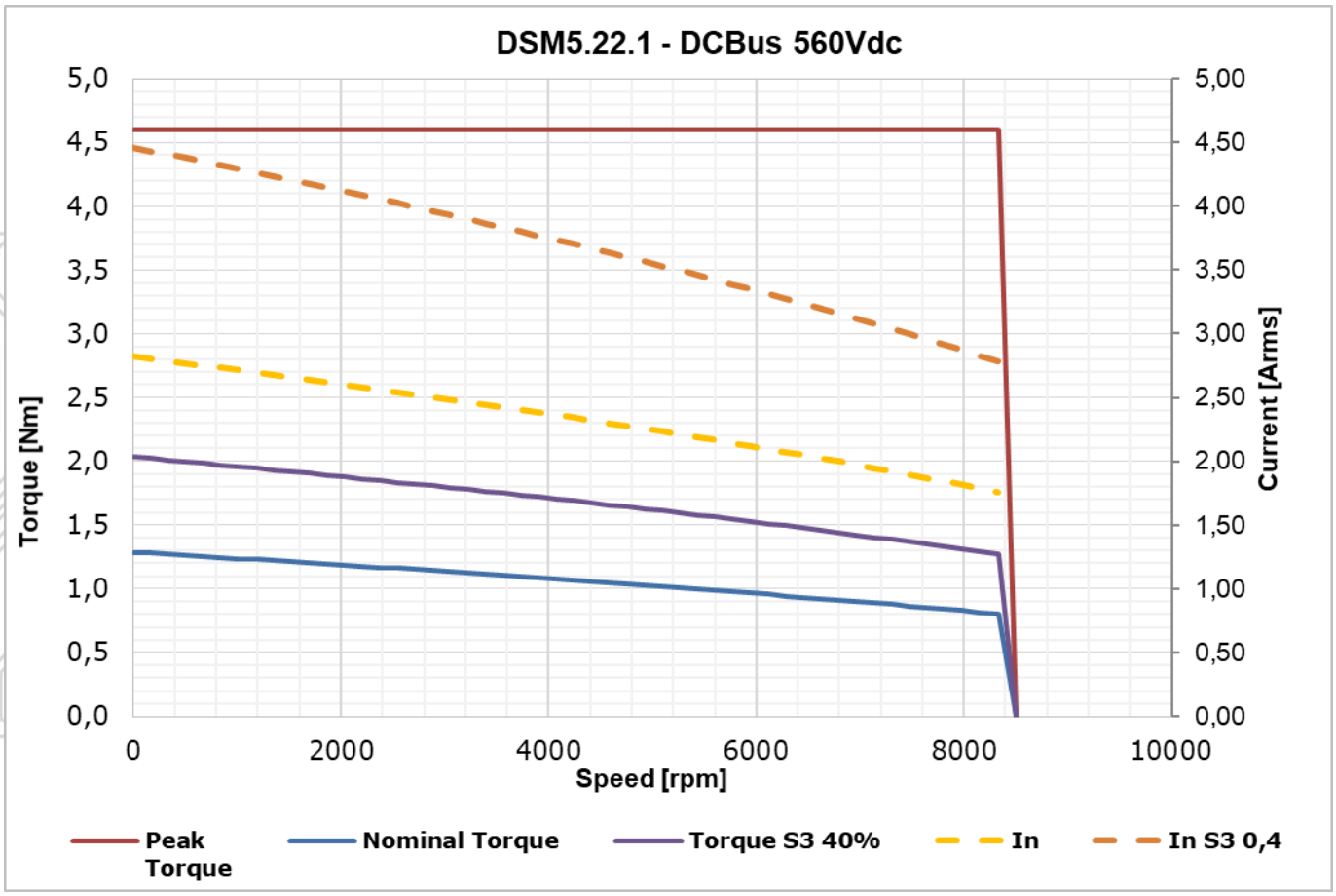
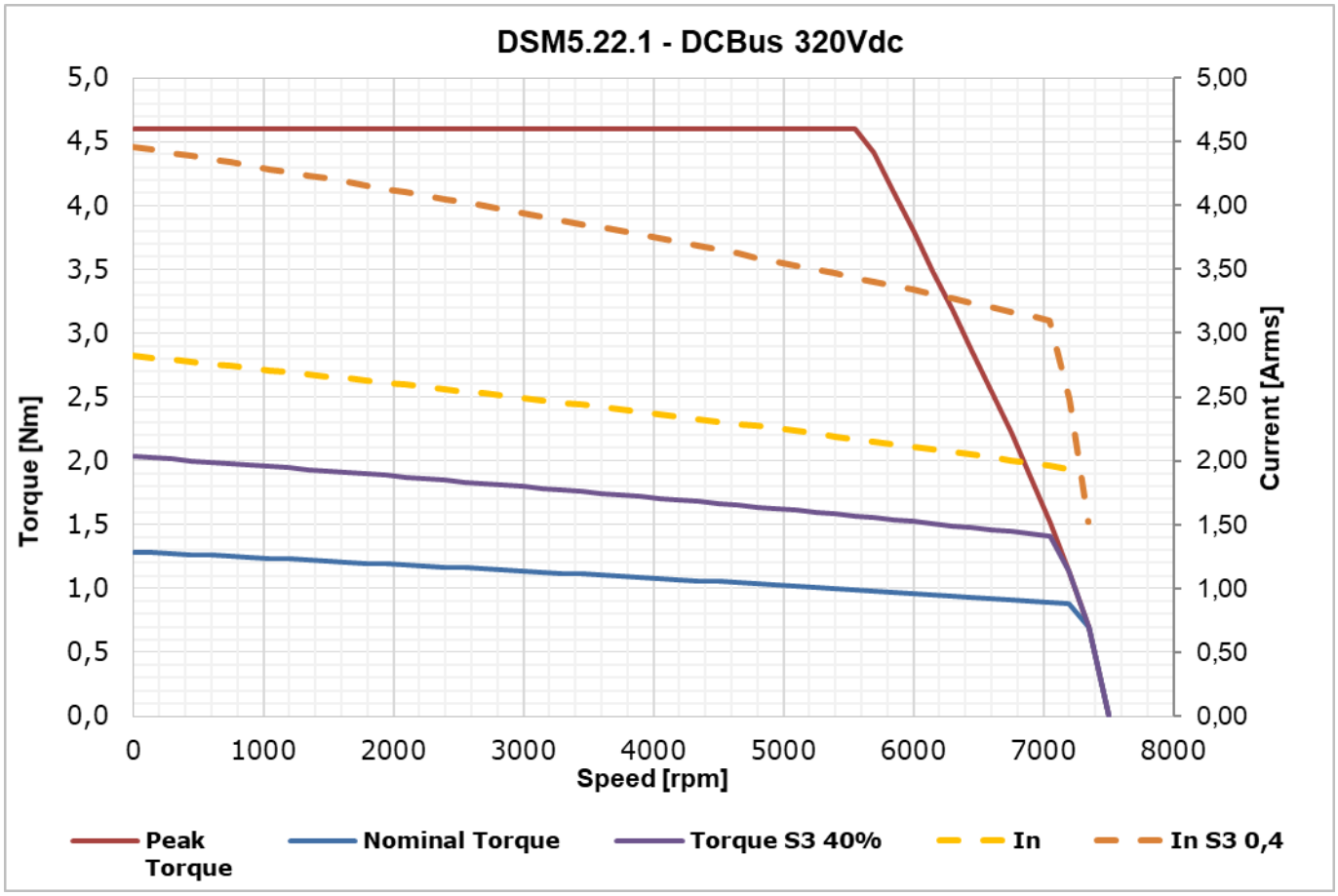
Motor Torque vs. Speed Curve	DSM5.22.1*





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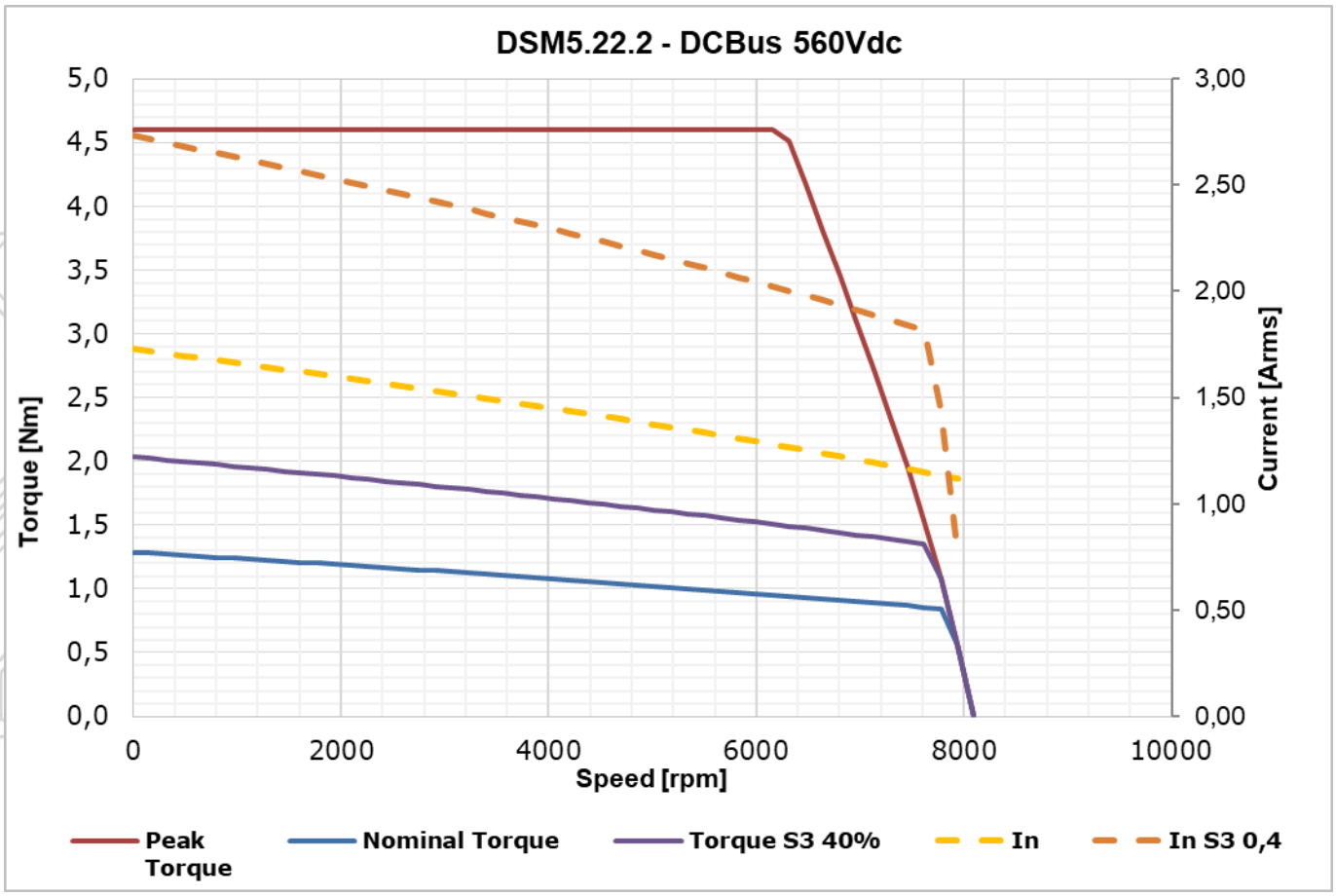
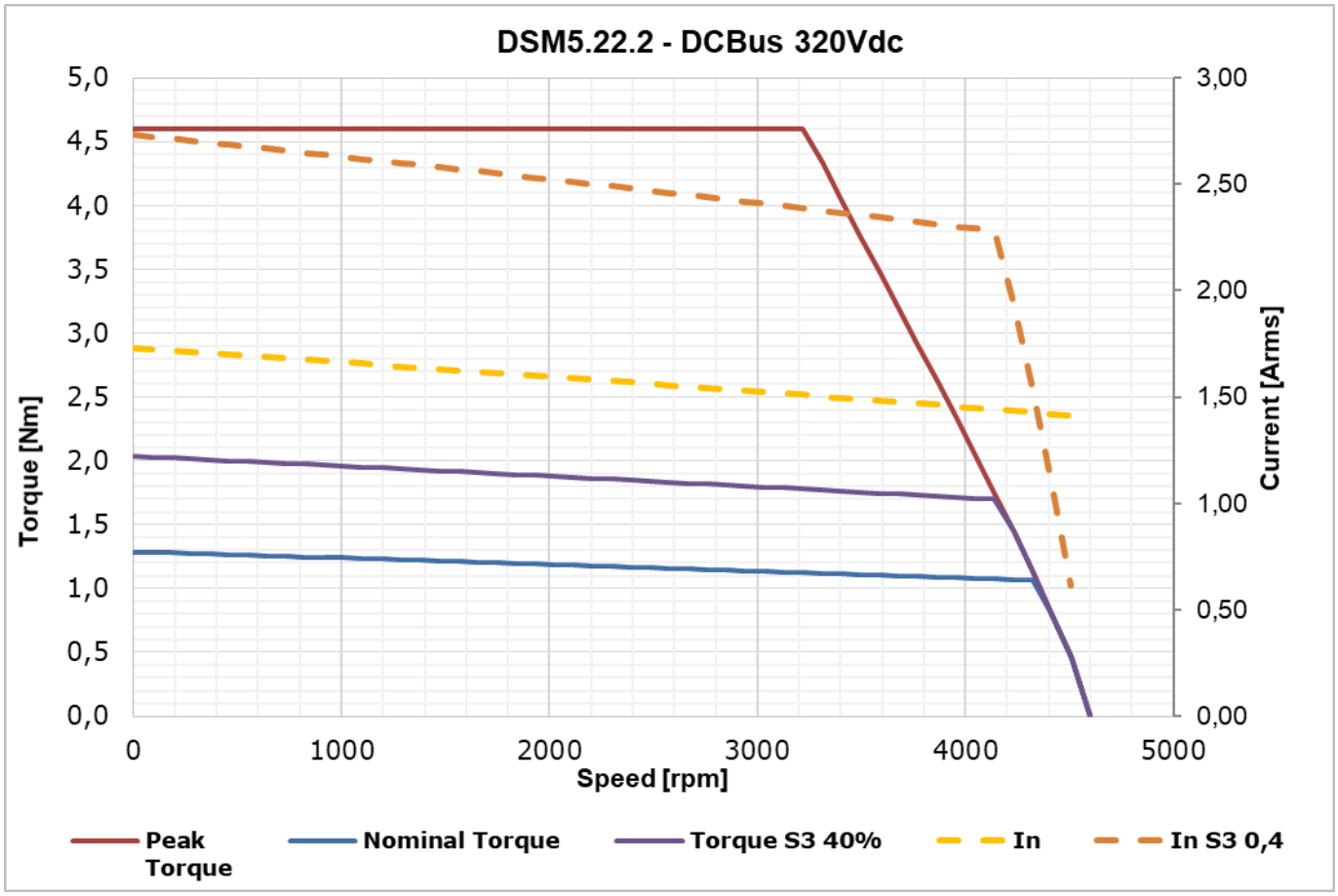
Motor Torque vs. Speed Curve	DSM5.22.2*





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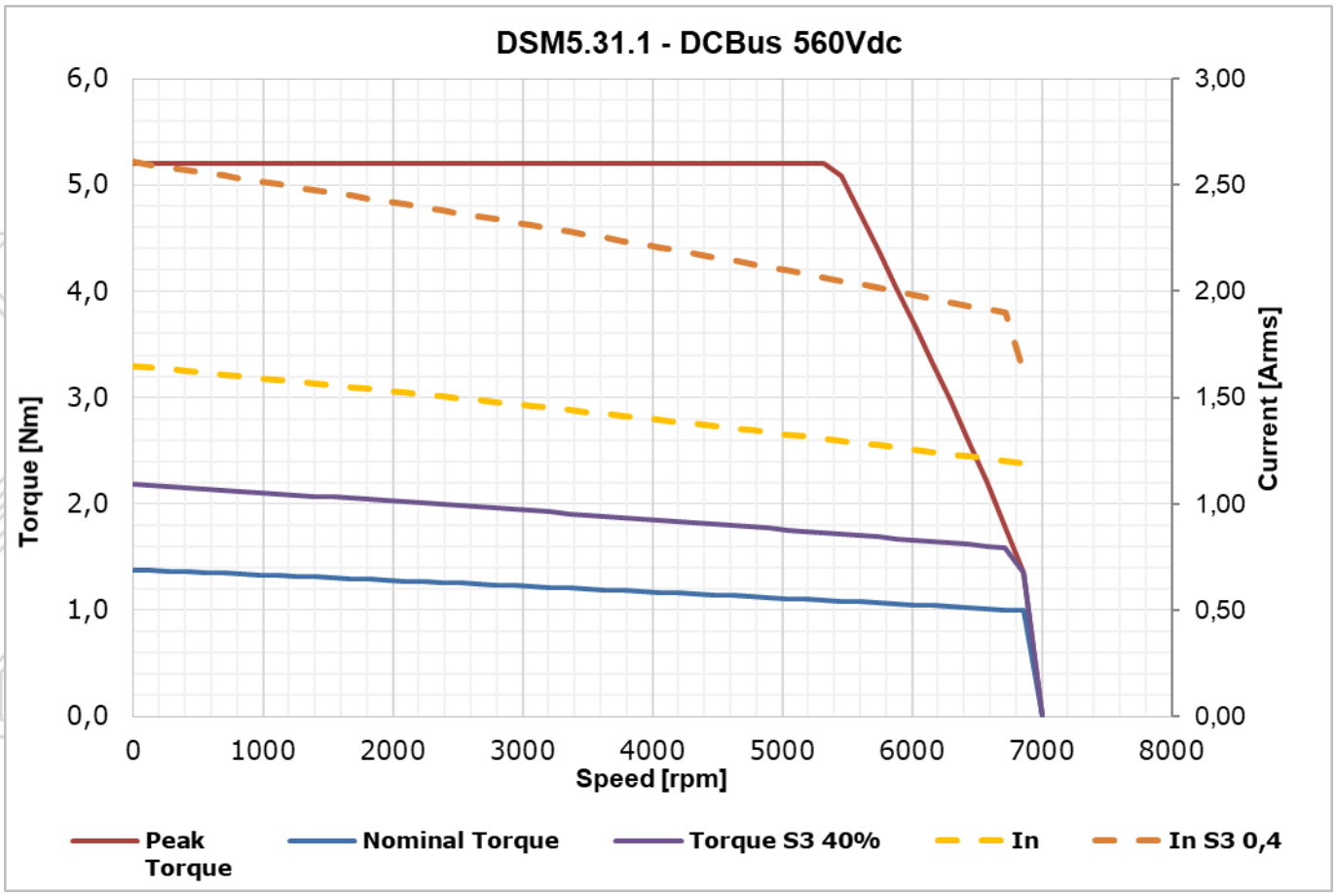
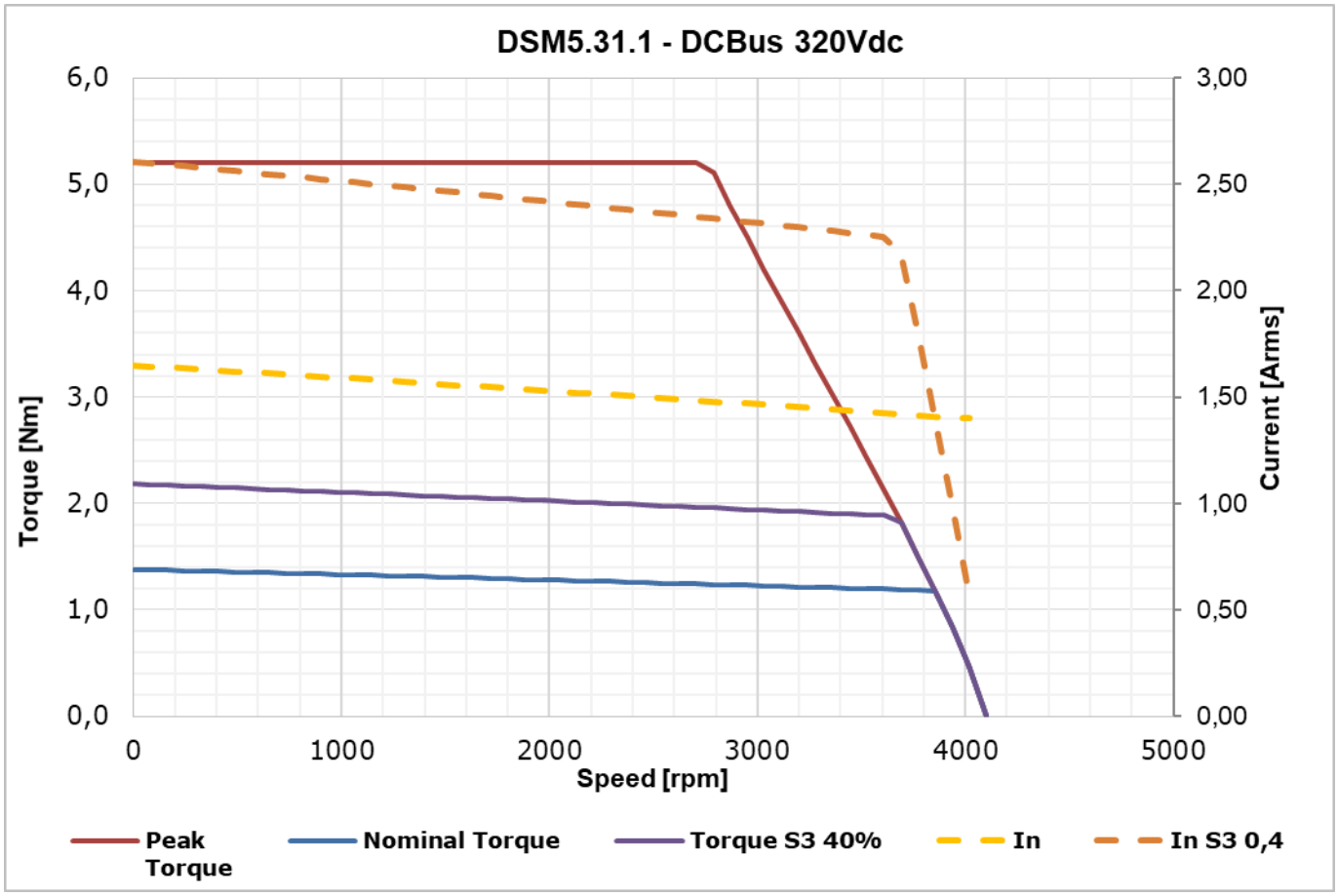
Motor Torque vs. Speed Curve	DSM5.31.1*





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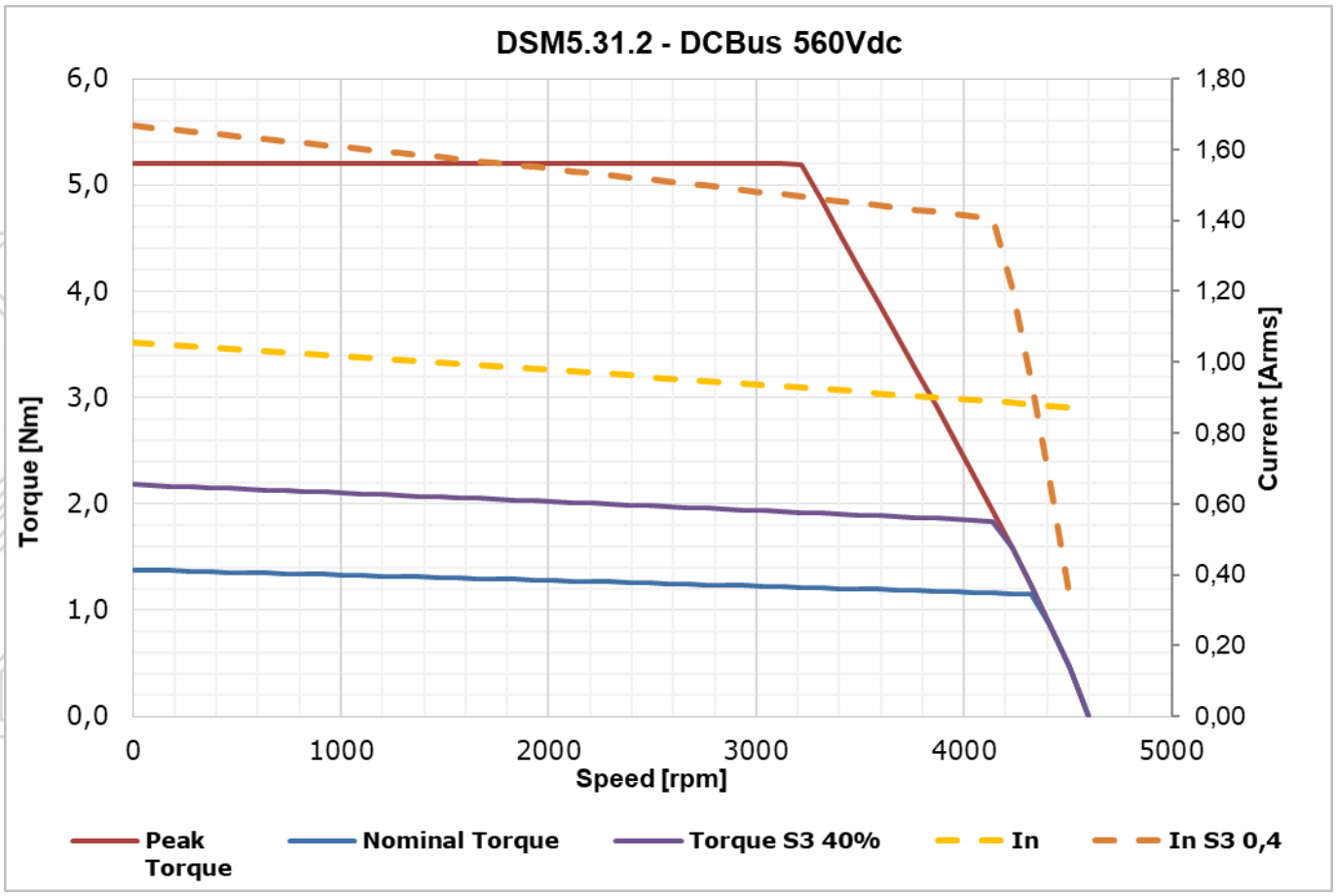
Motor Torque vs. Speed Curve	DSM5.31.2



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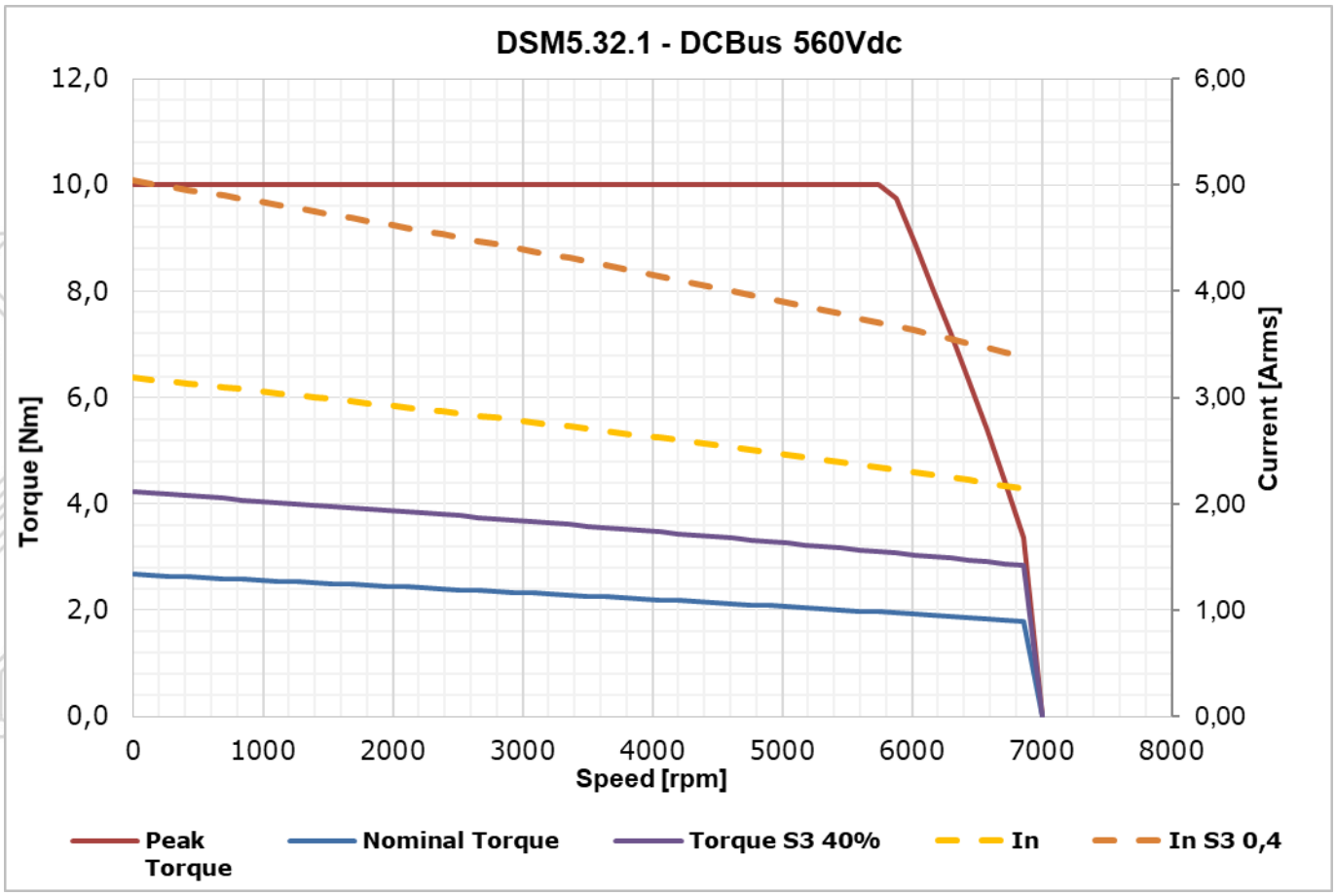
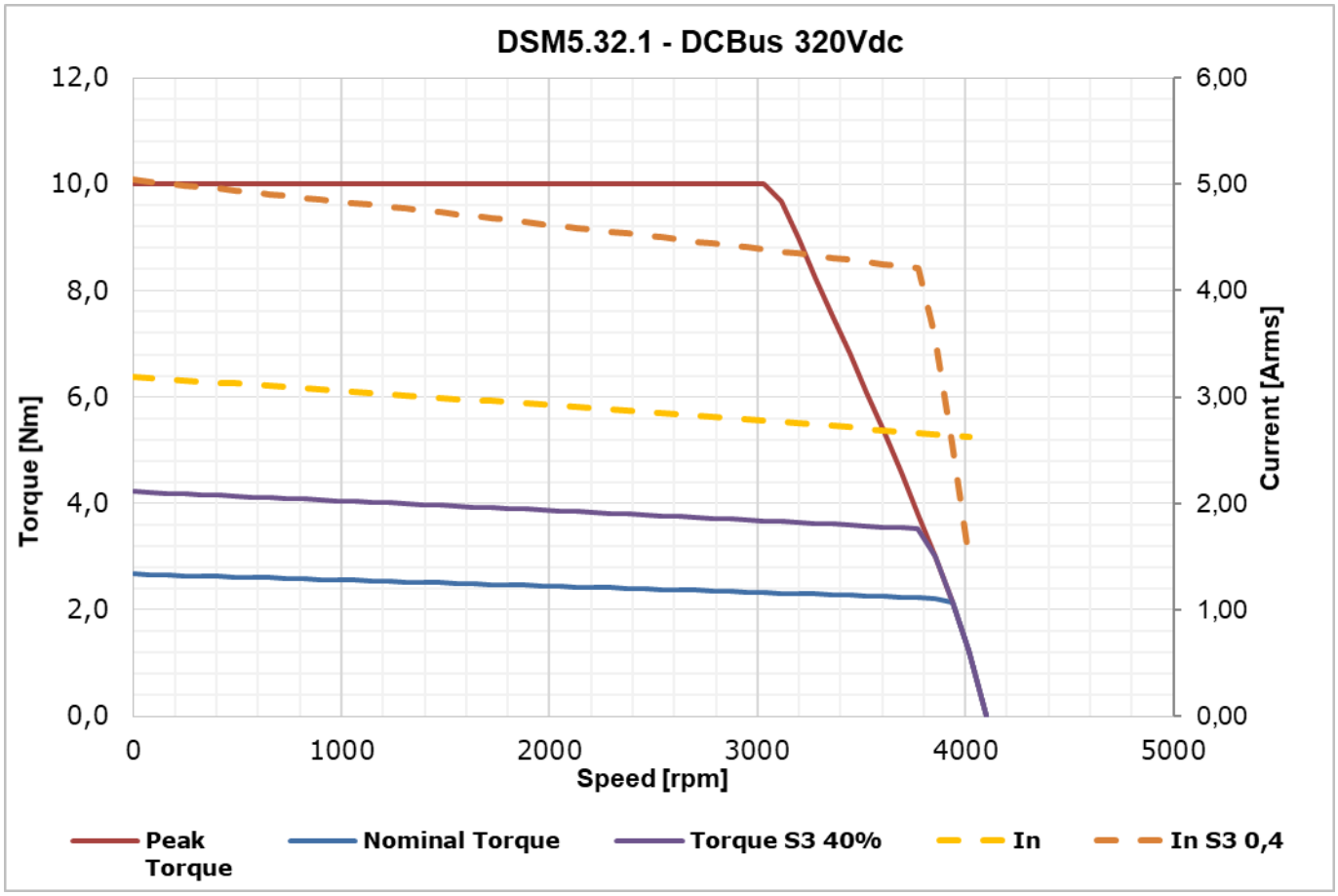
Motor Torque vs. Speed Curve	DSM5.32.1*





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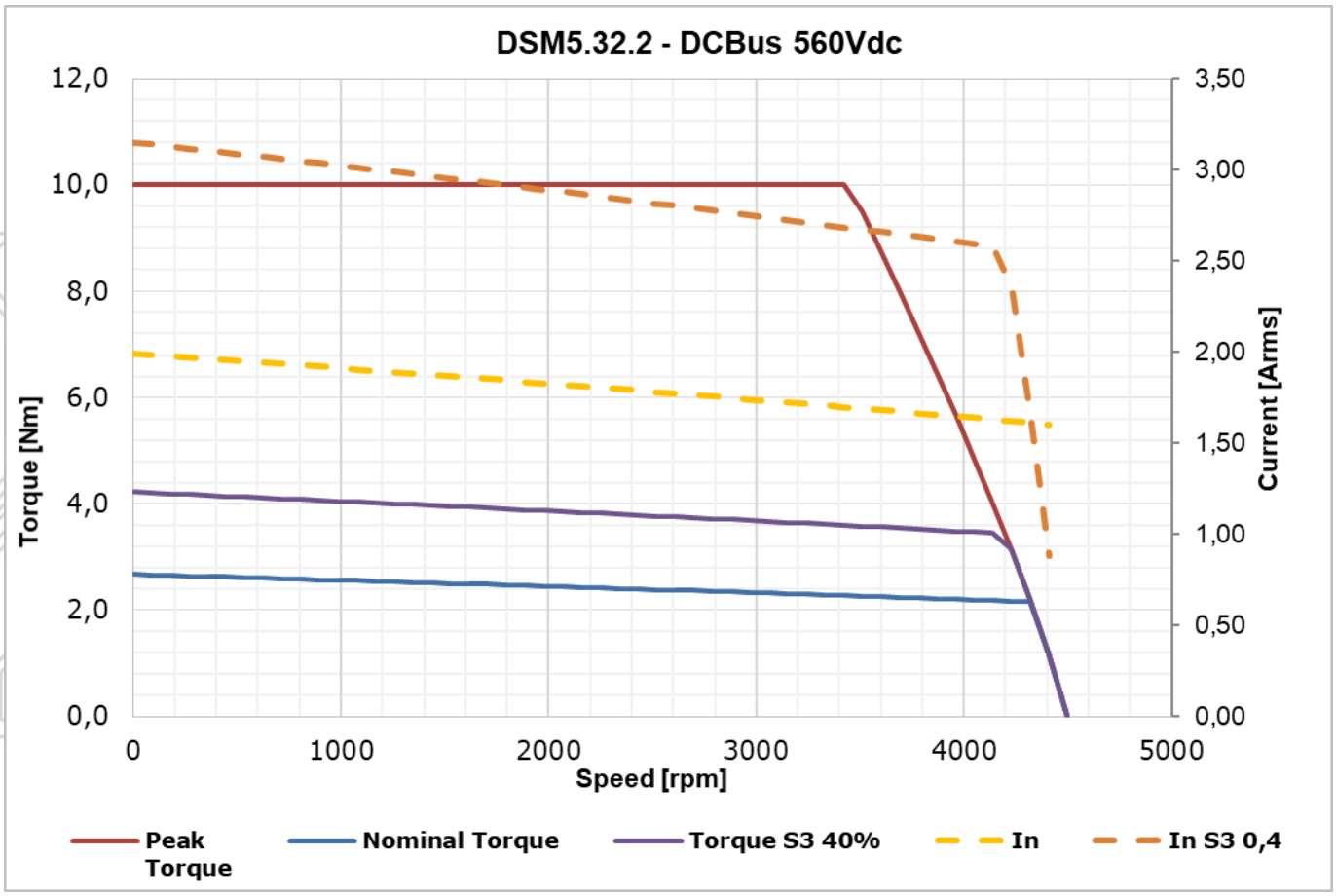
Motor Torque vs. Speed Curve	DSM5.32.2



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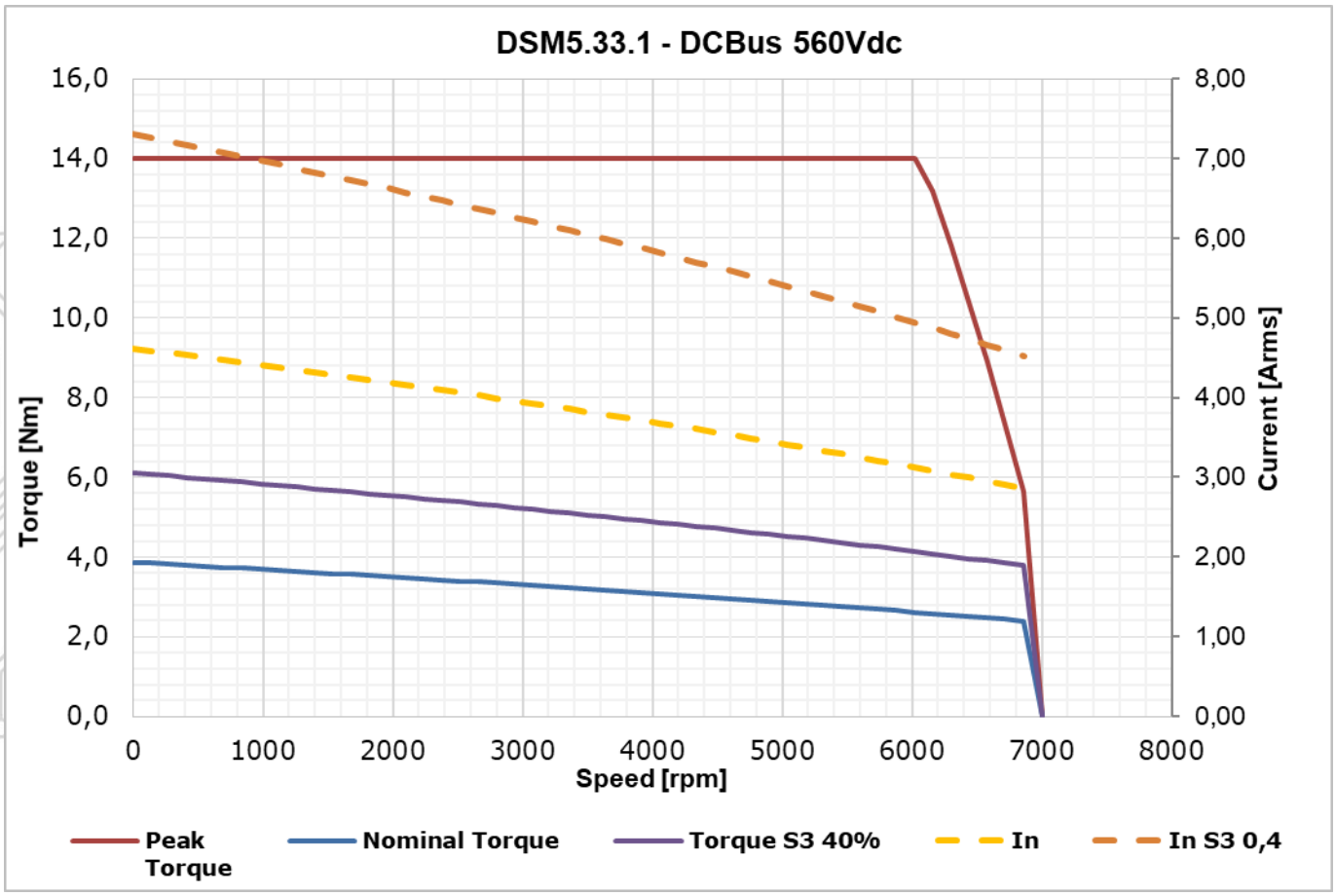
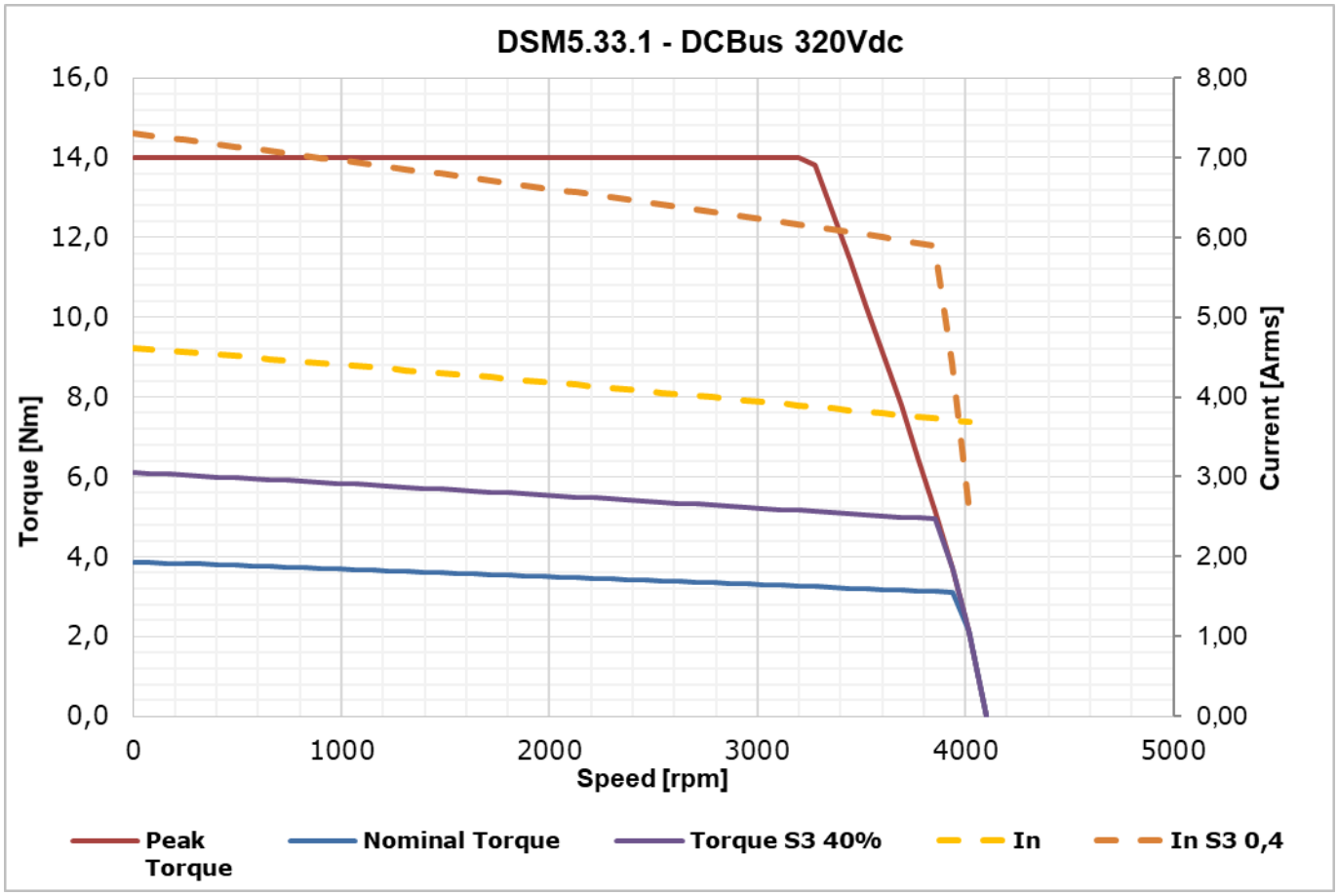
Motor Torque vs. Speed Curve	DSM5.33.1*





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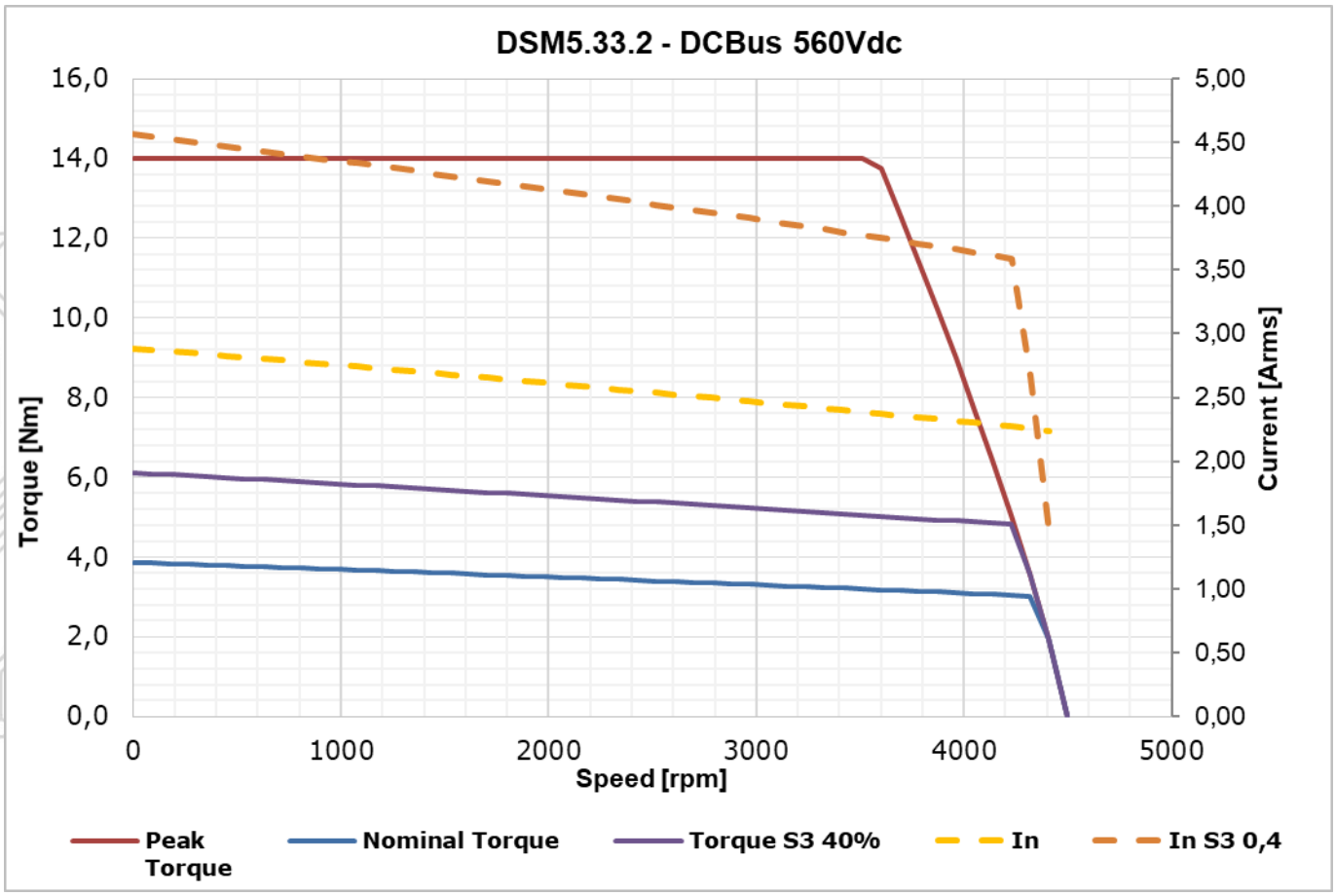
Motor Torque vs. Speed Curve	DSM5.33.2



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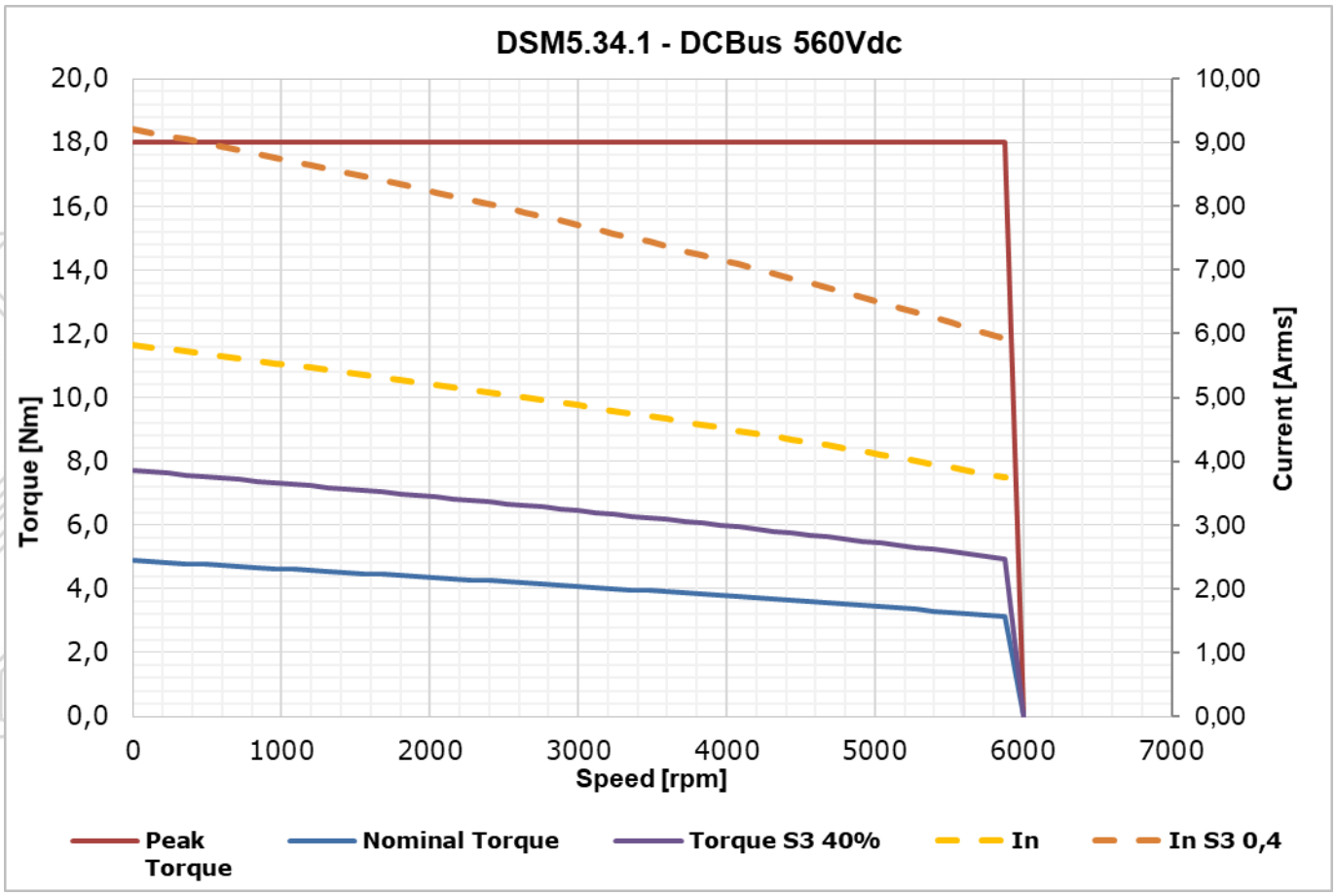
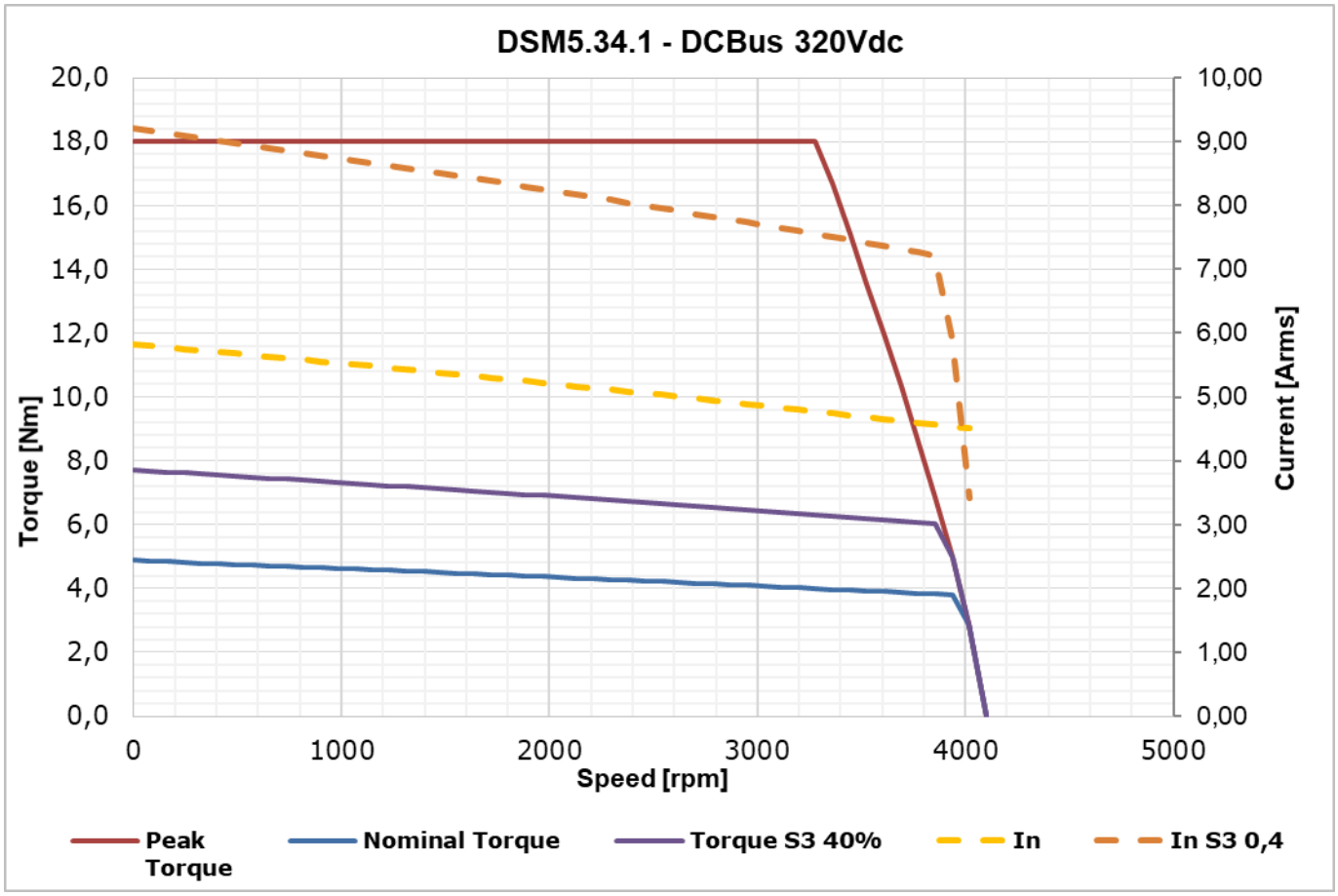
Motor Torque vs. Speed Curve	DSM5.34.1*





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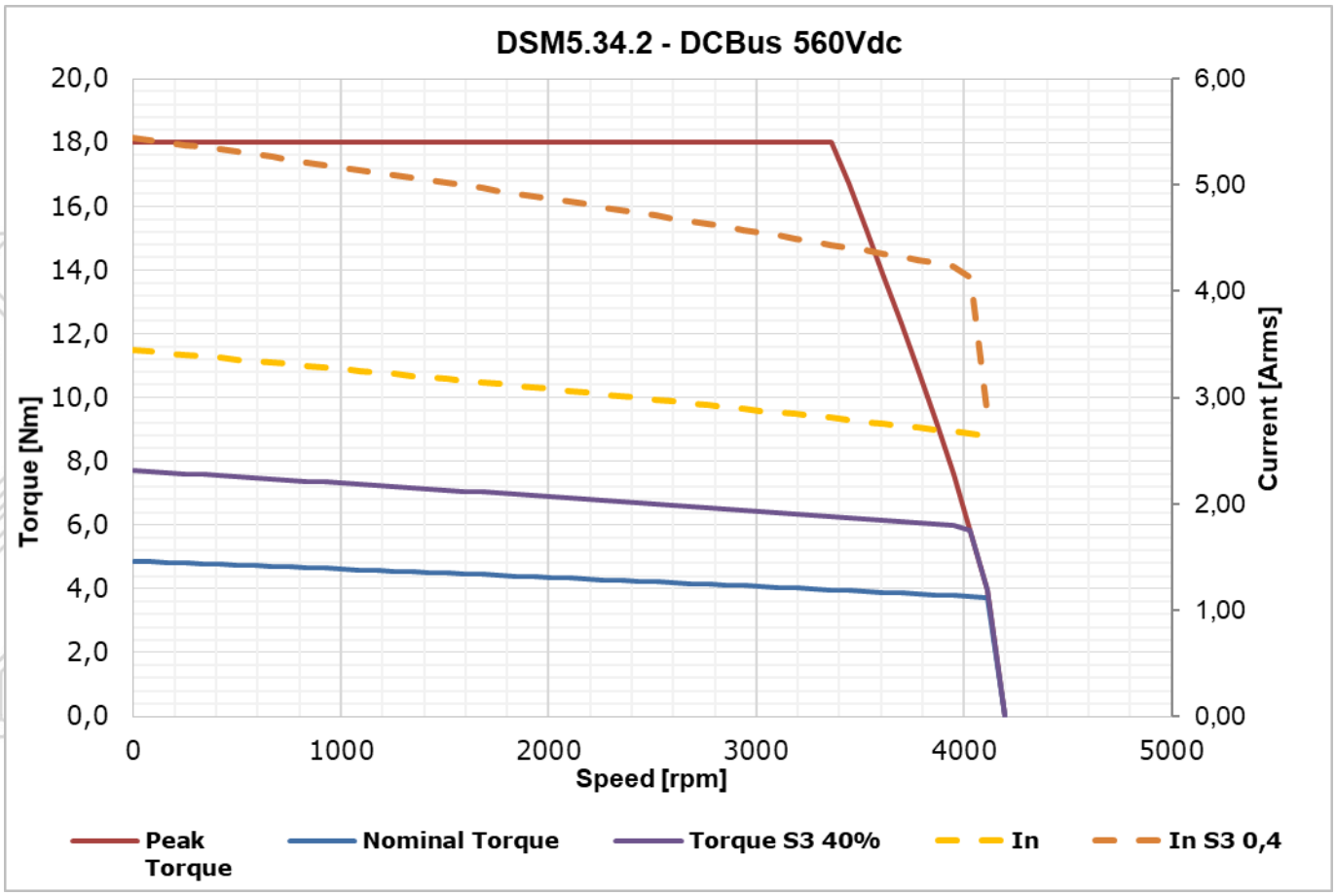
Motor Torque vs. Speed Curve	DSM5.34.2



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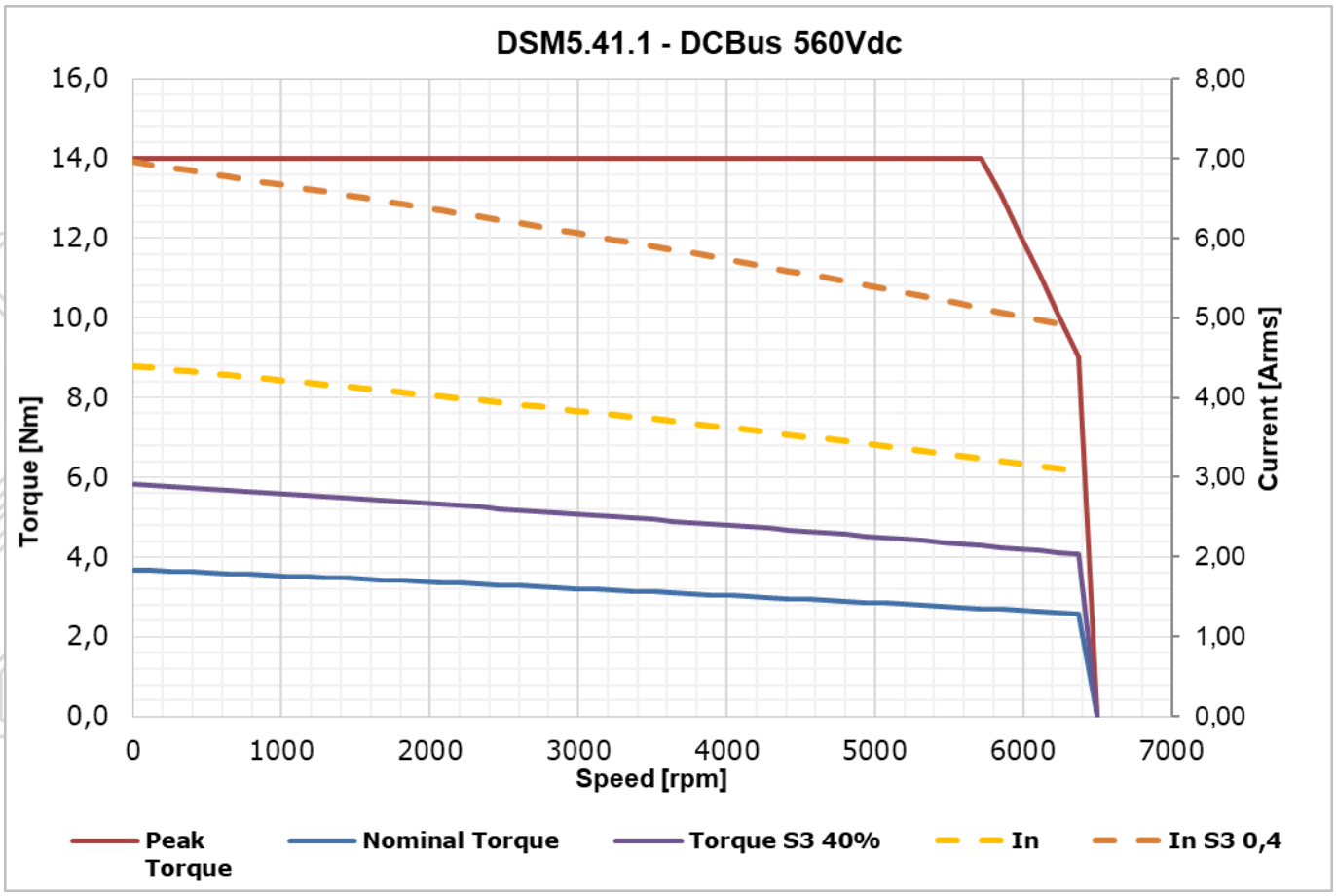
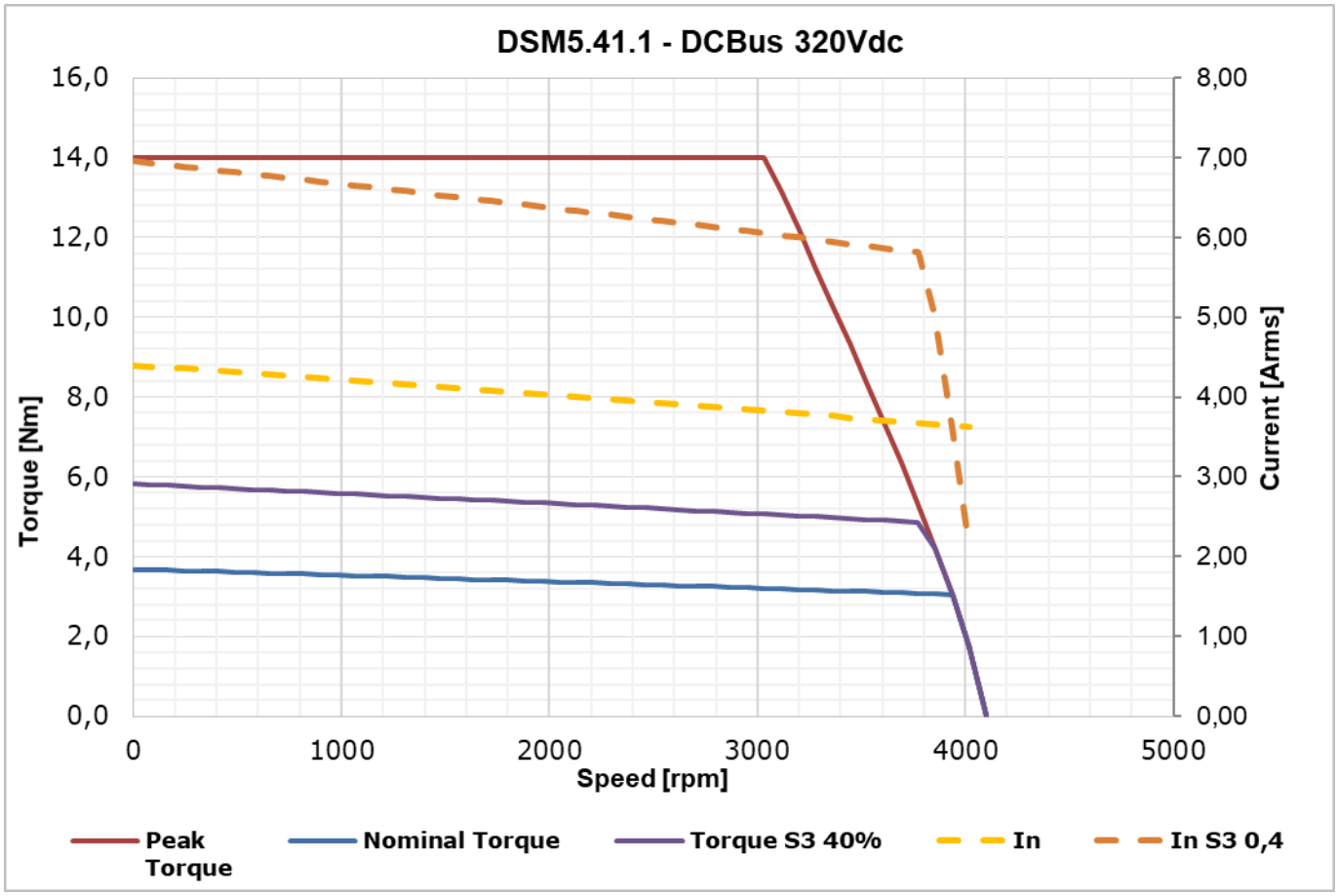
Motor Torque vs. Speed Curve	DSM5.41.1*





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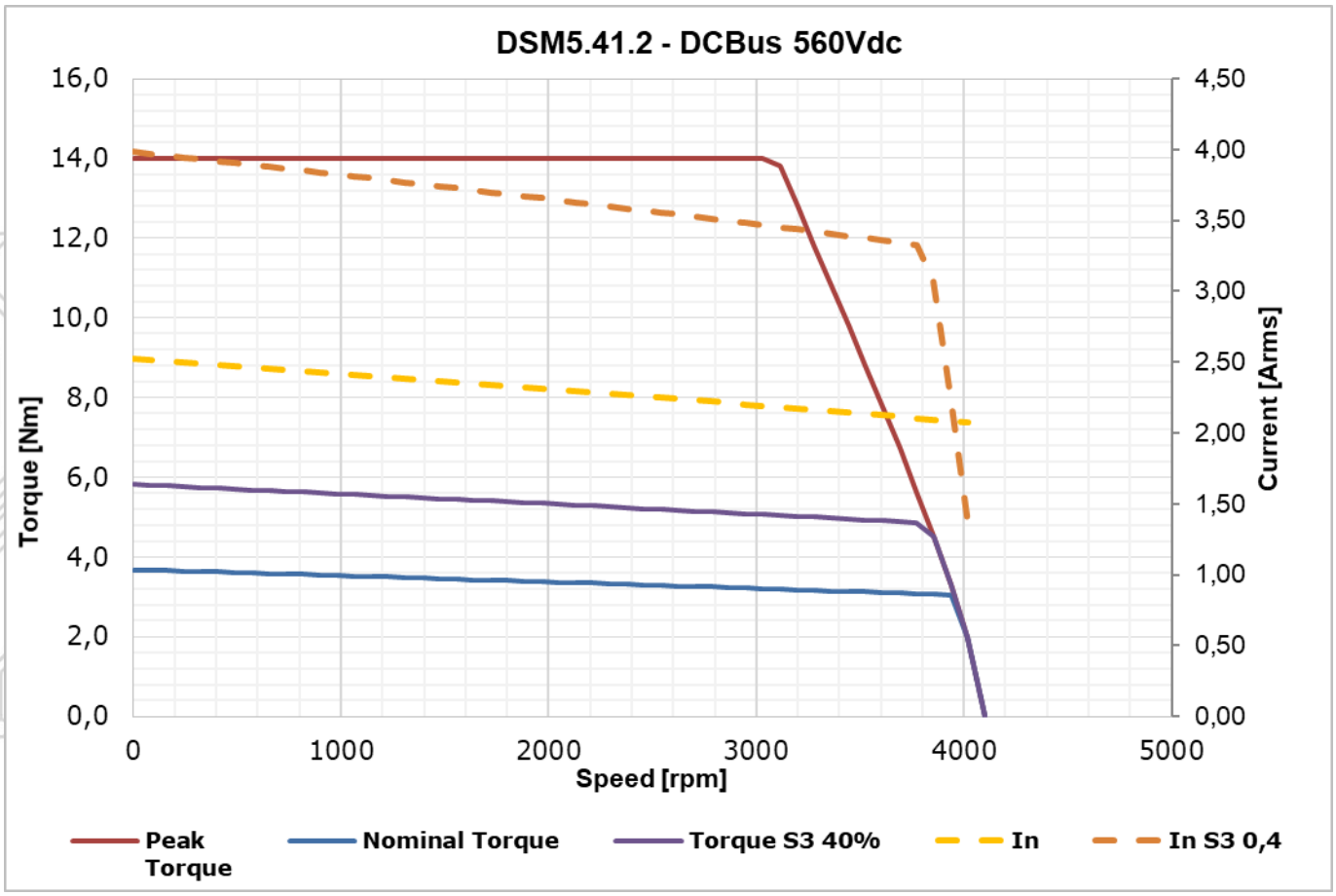
Motor Torque vs. Speed Curve	DSM5.41.2



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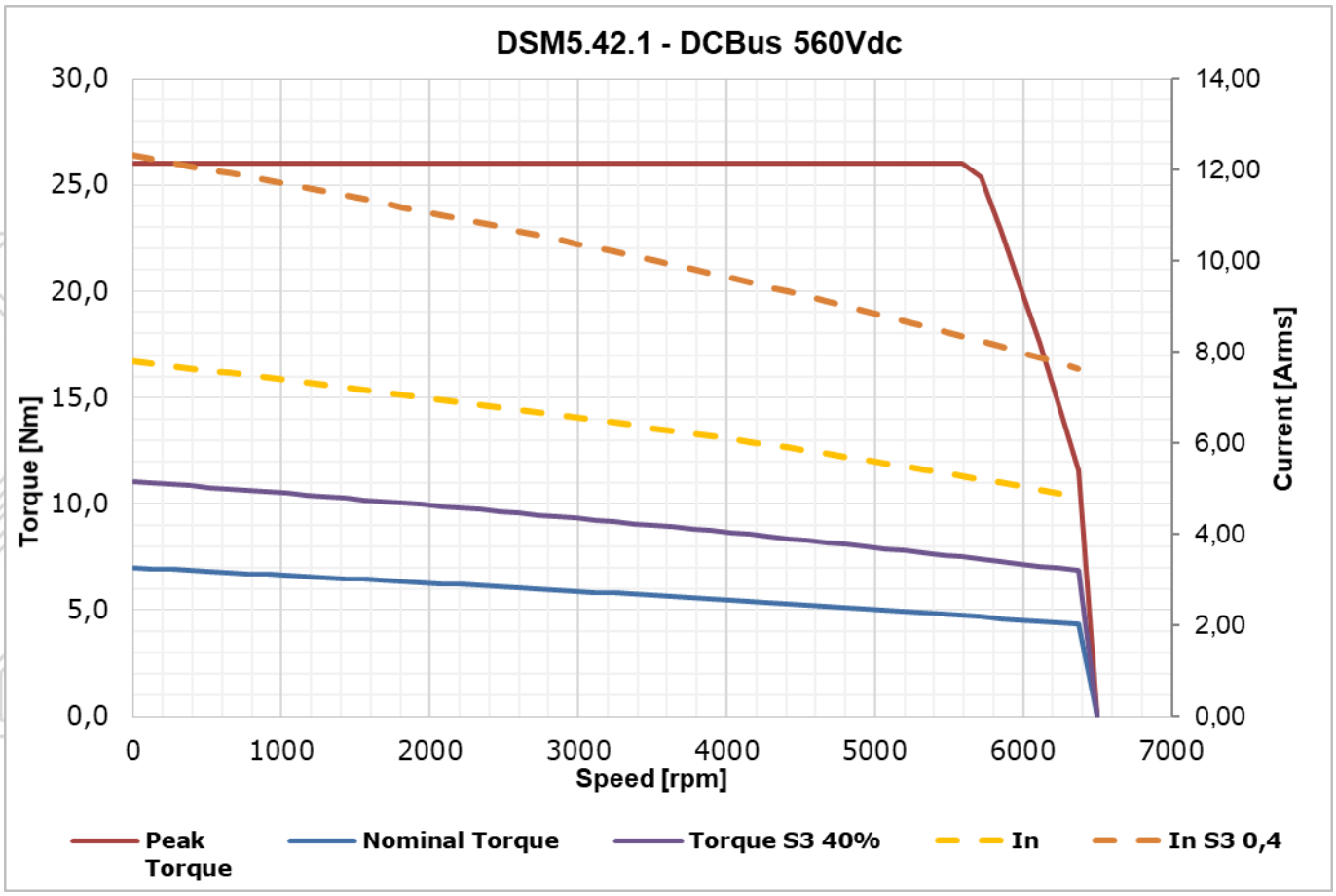
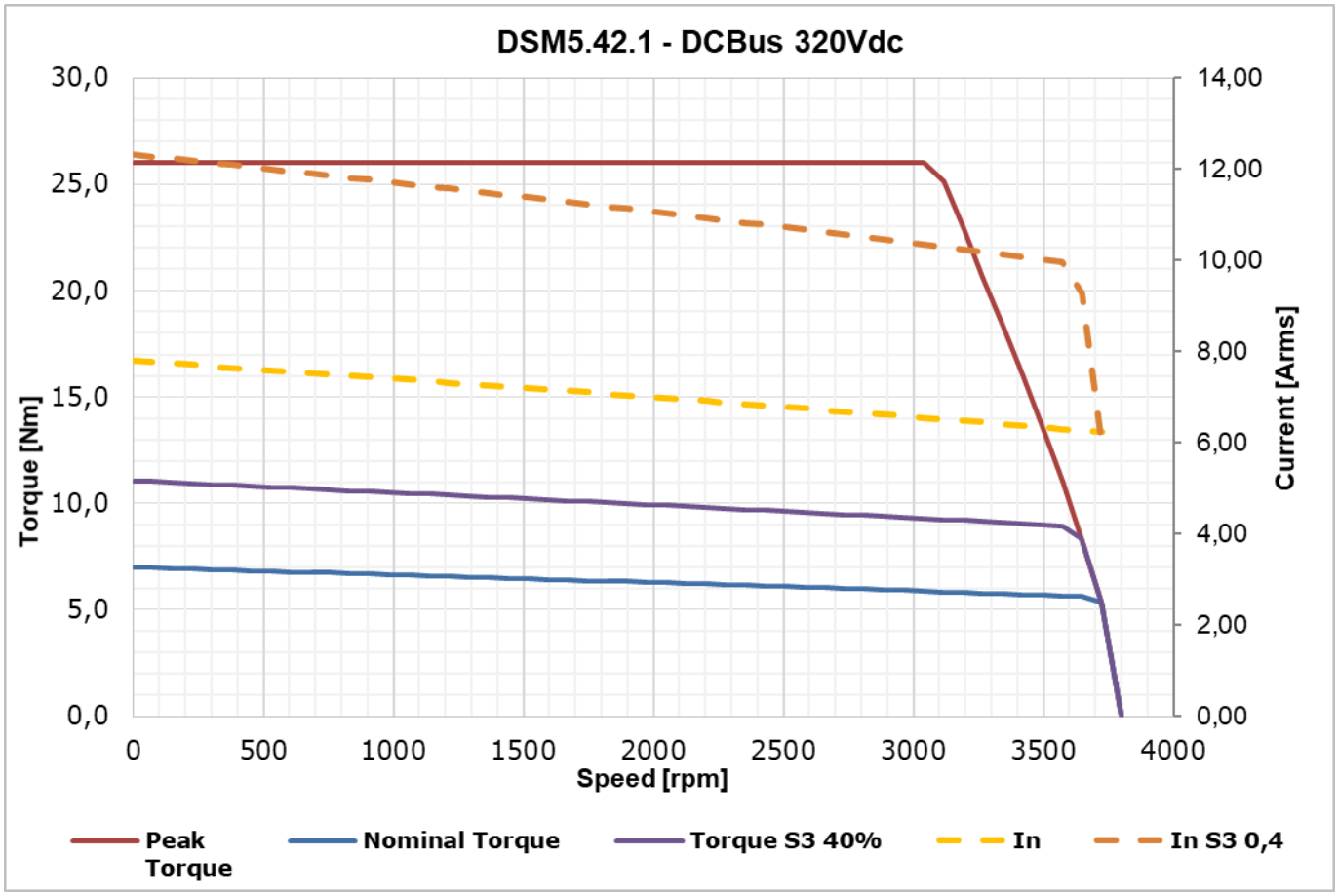
Motor Torque vs. Speed Curve	DSM5.42.1*





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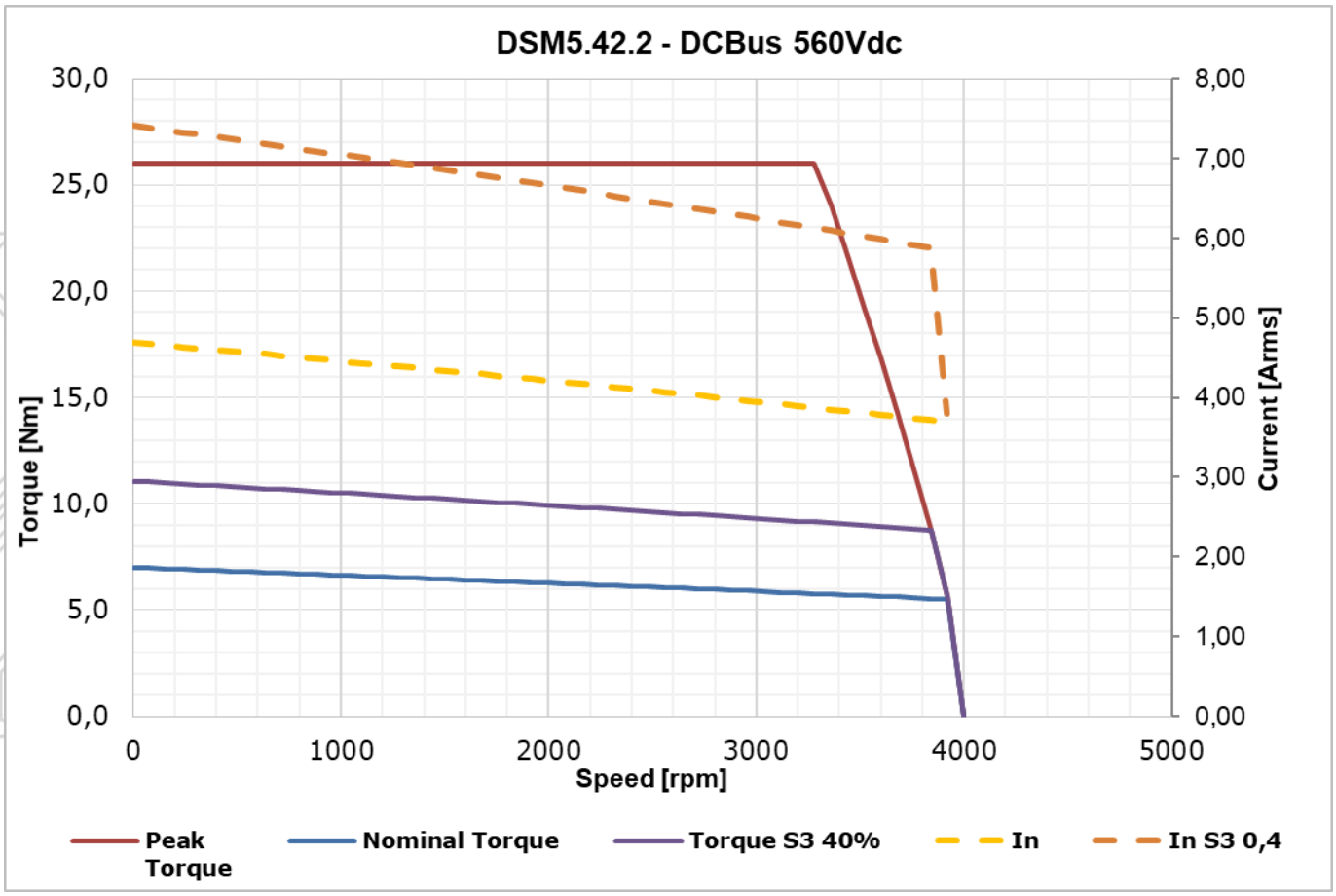
Motor Torque vs. Speed Curve	DSM5.42.2



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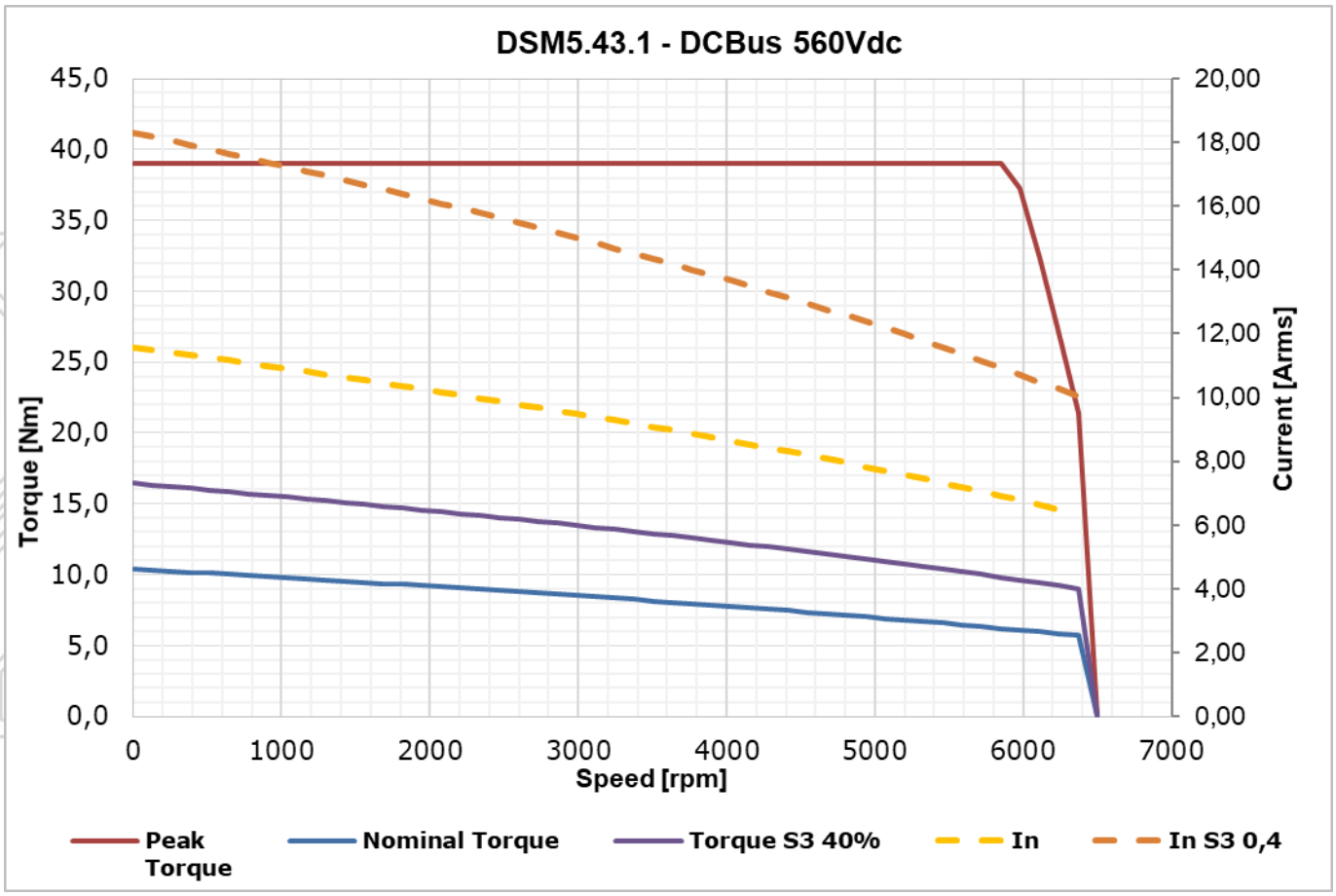
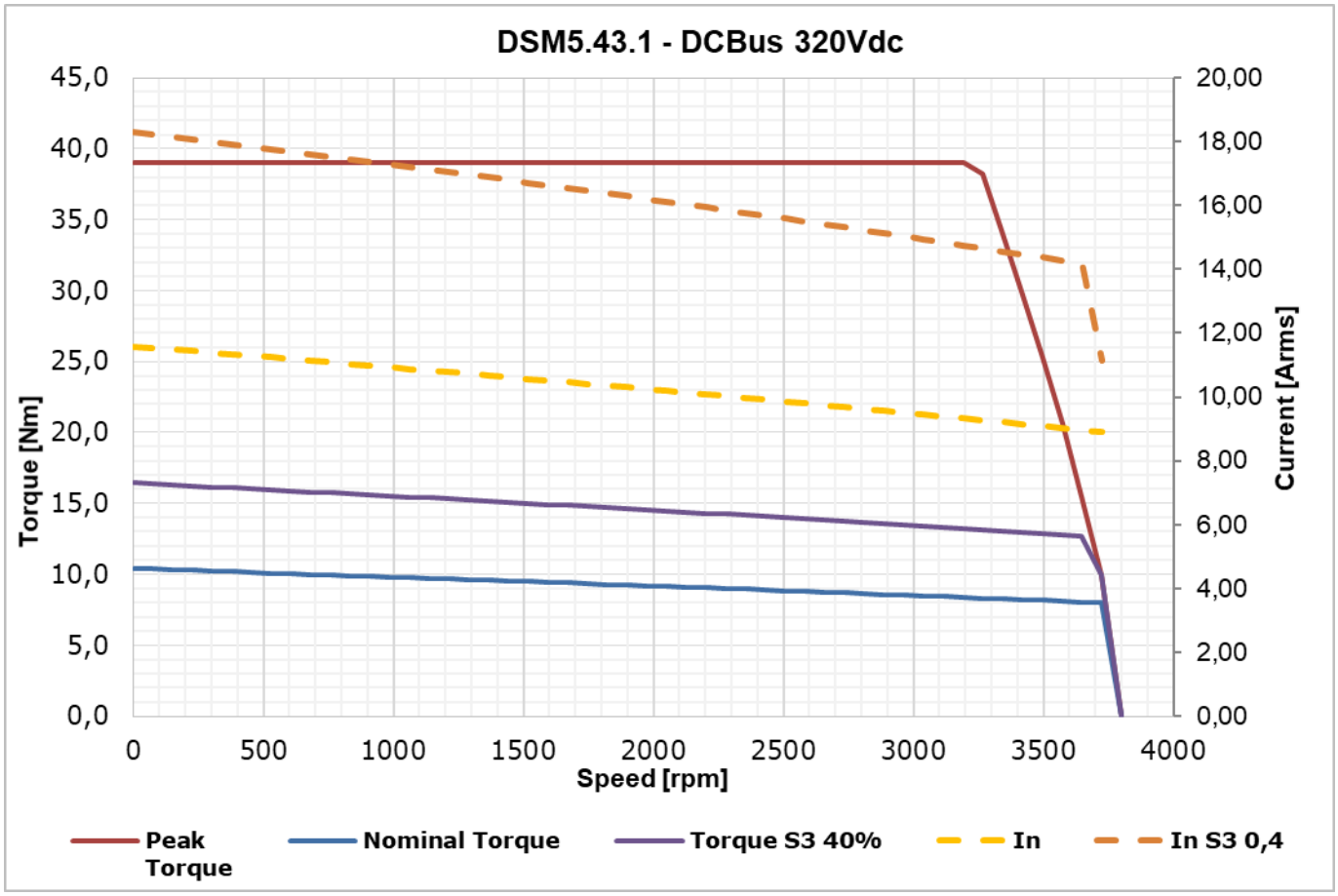
Motor Torque vs. Speed Curve	DSM5.43.1*





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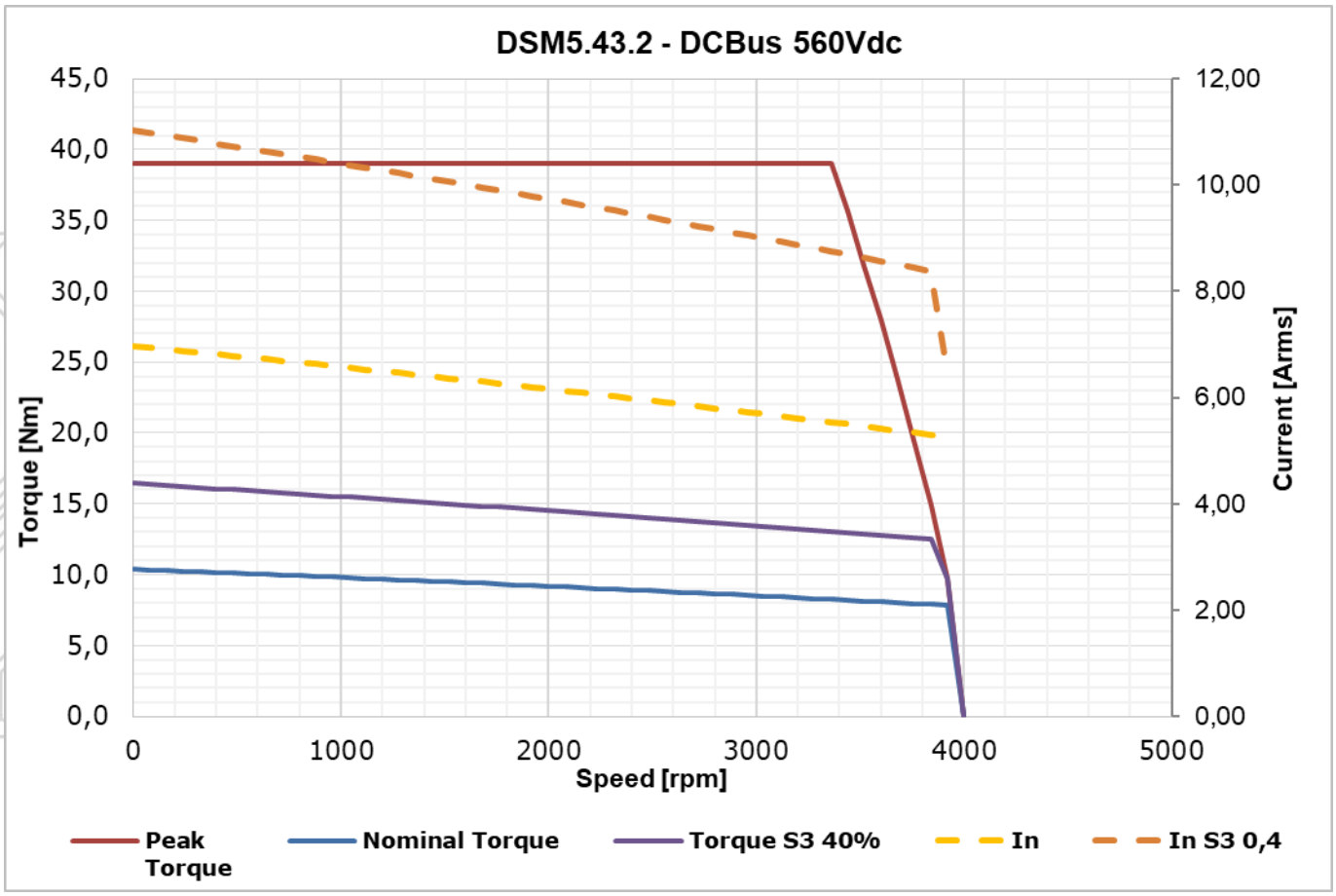
Motor Torque vs. Speed Curve	DSM5.43.2



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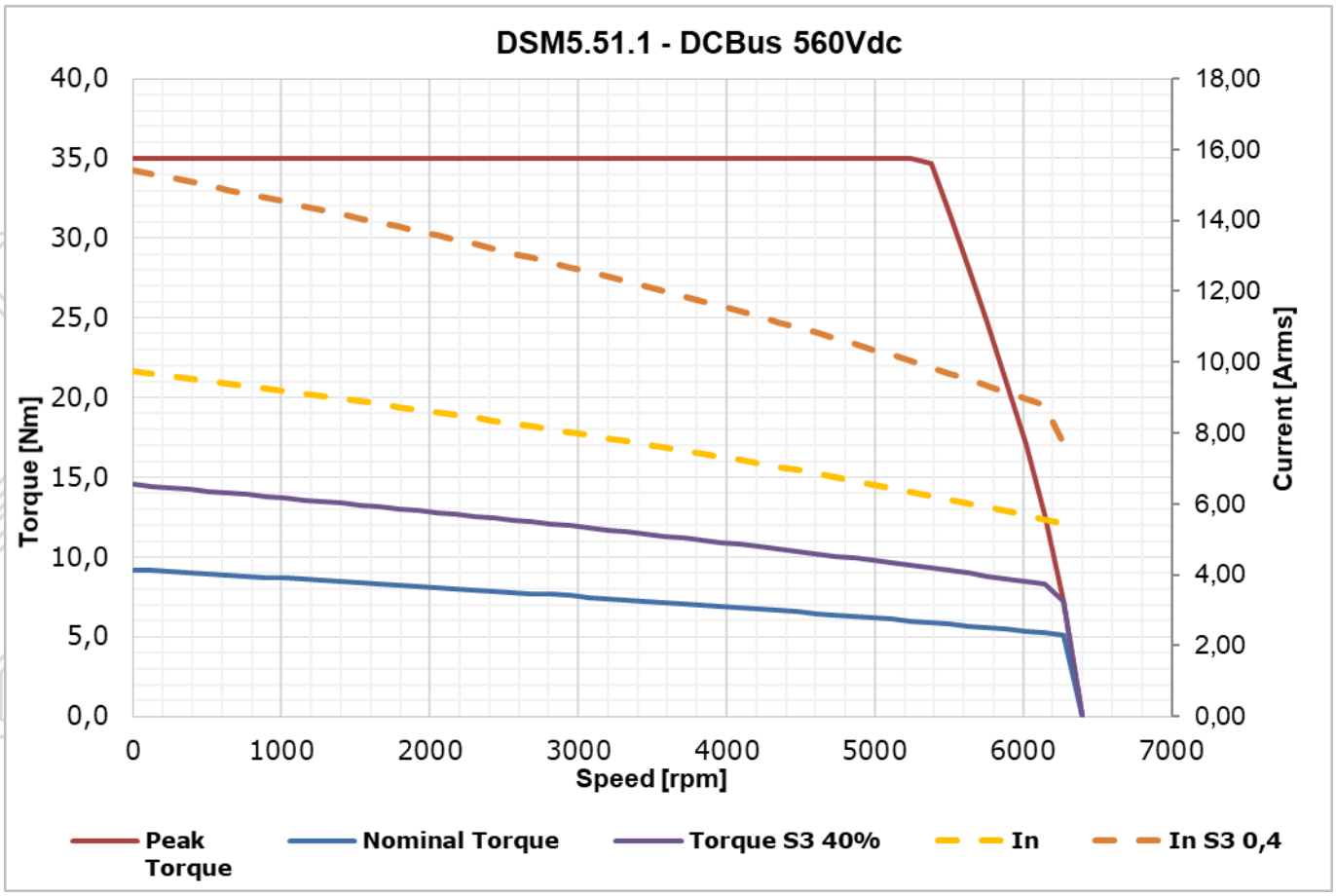
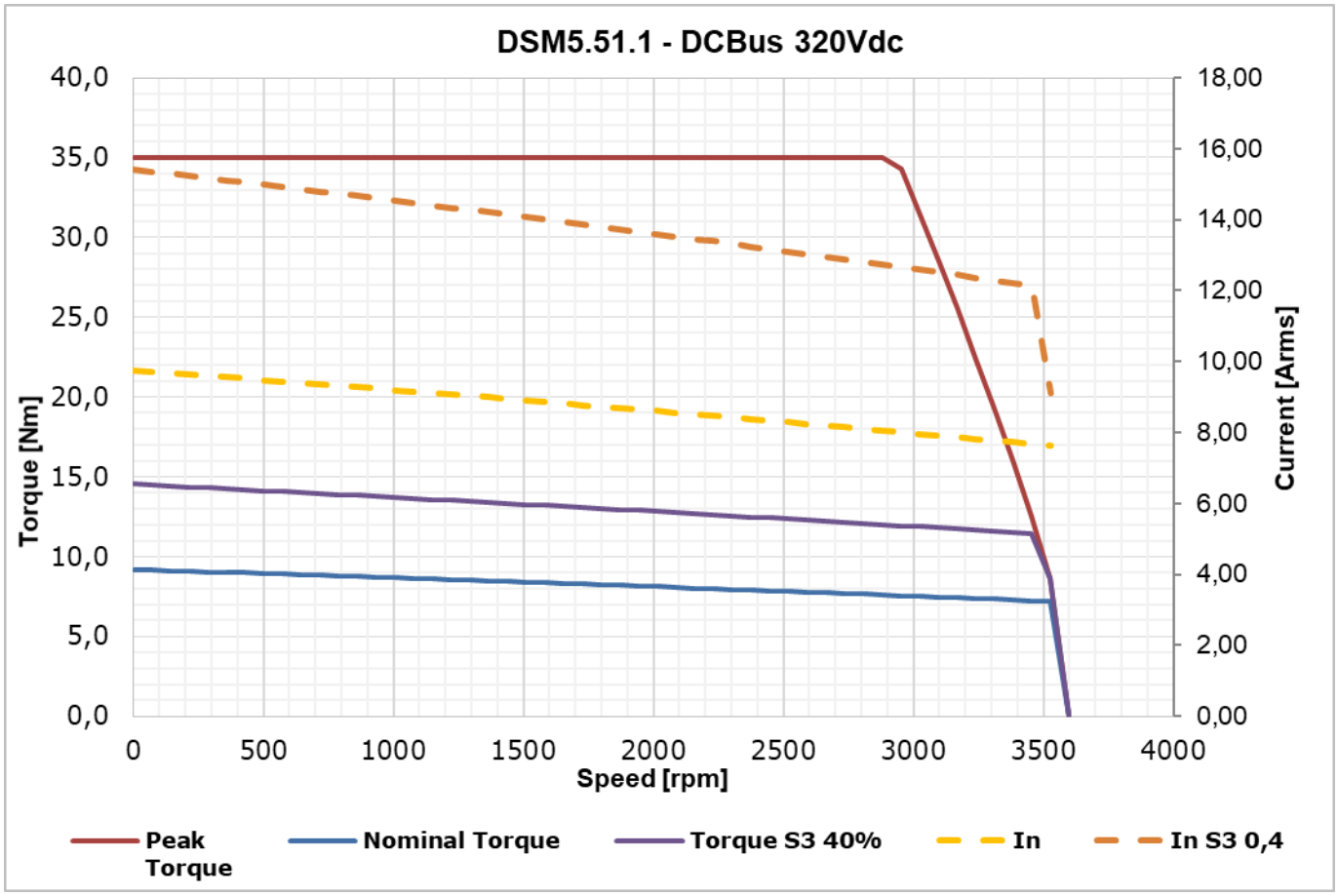
Motor Torque vs. Speed Curve	DSM5.51.1*





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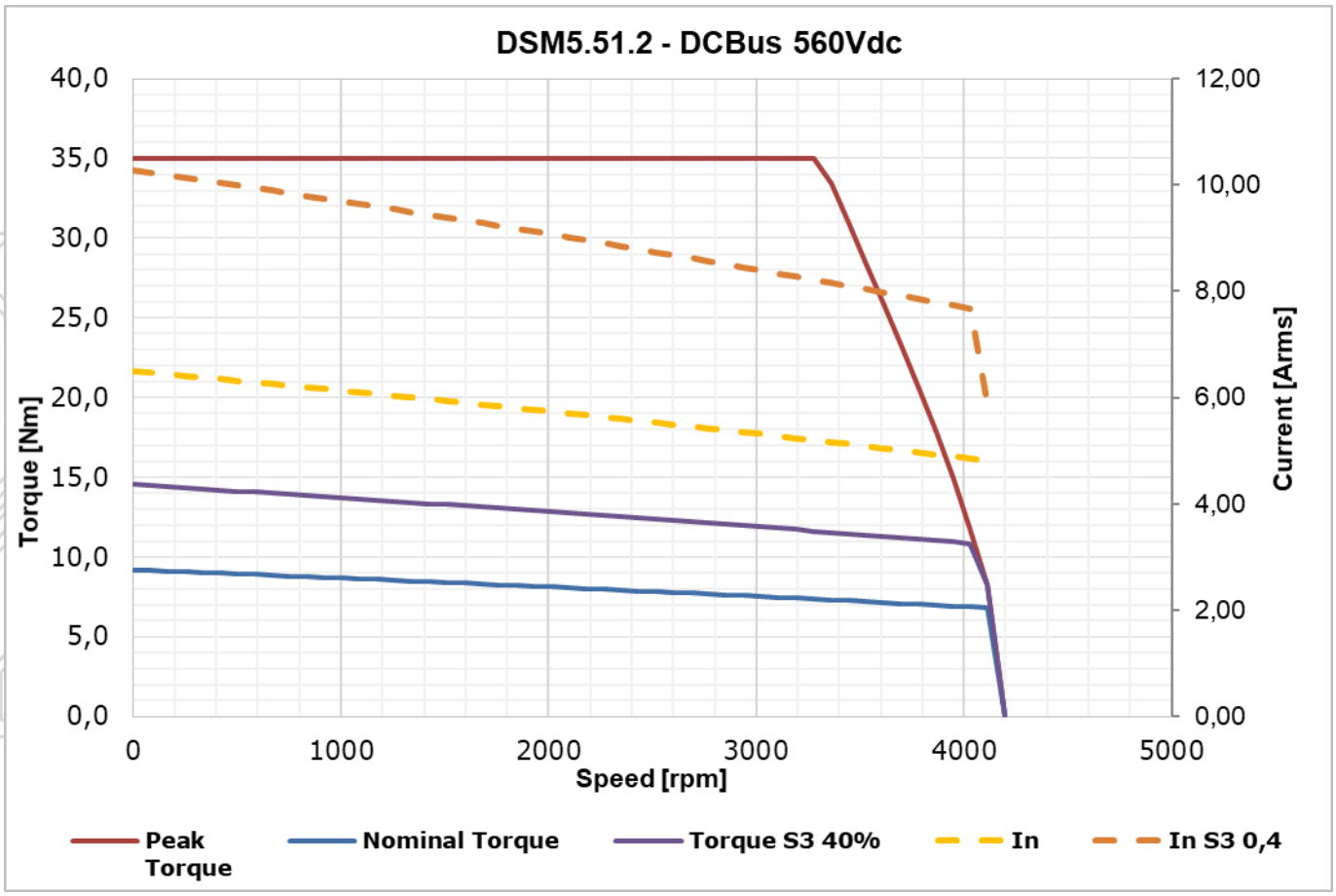
Motor Torque vs. Speed Curve	DSM5.51.2



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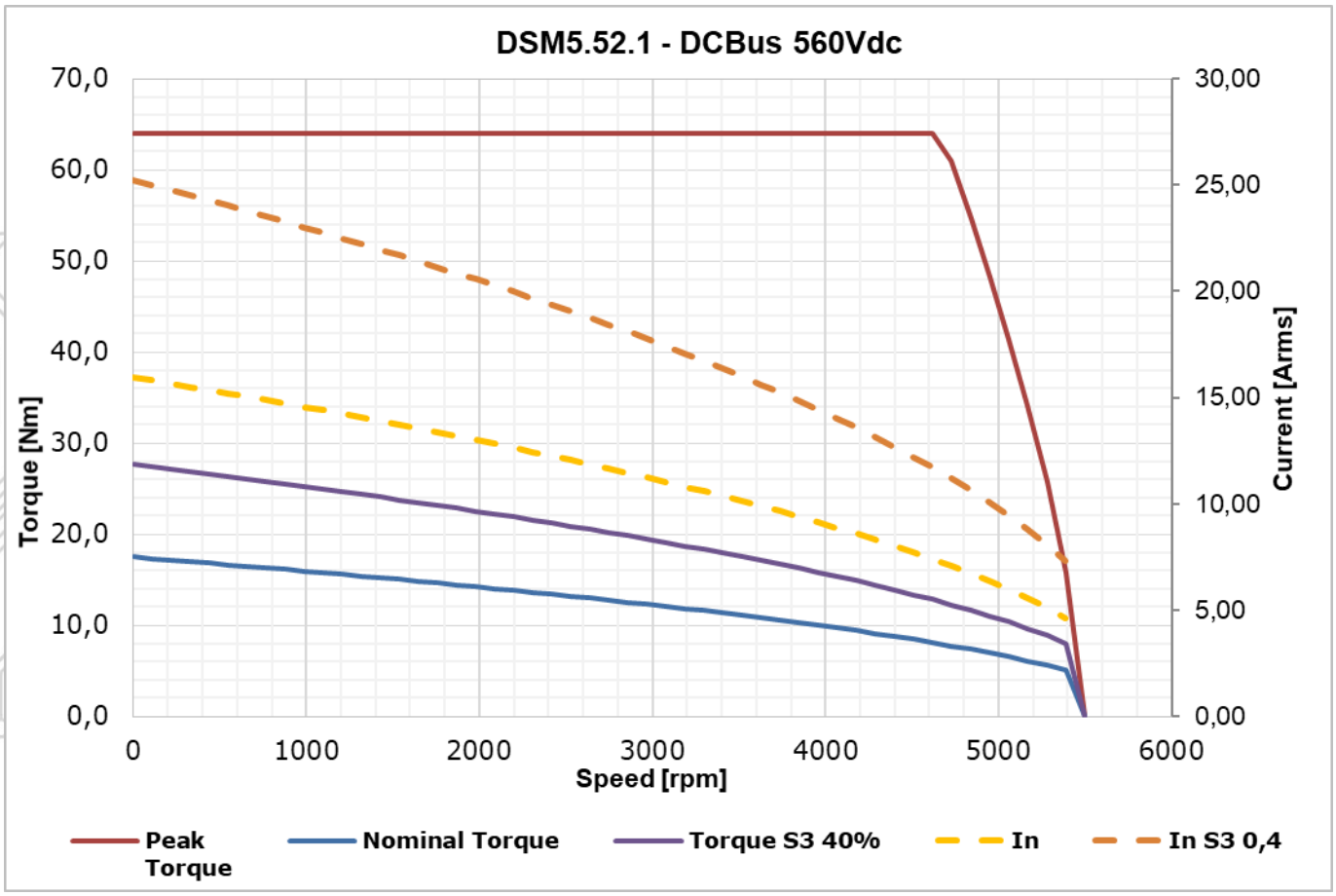
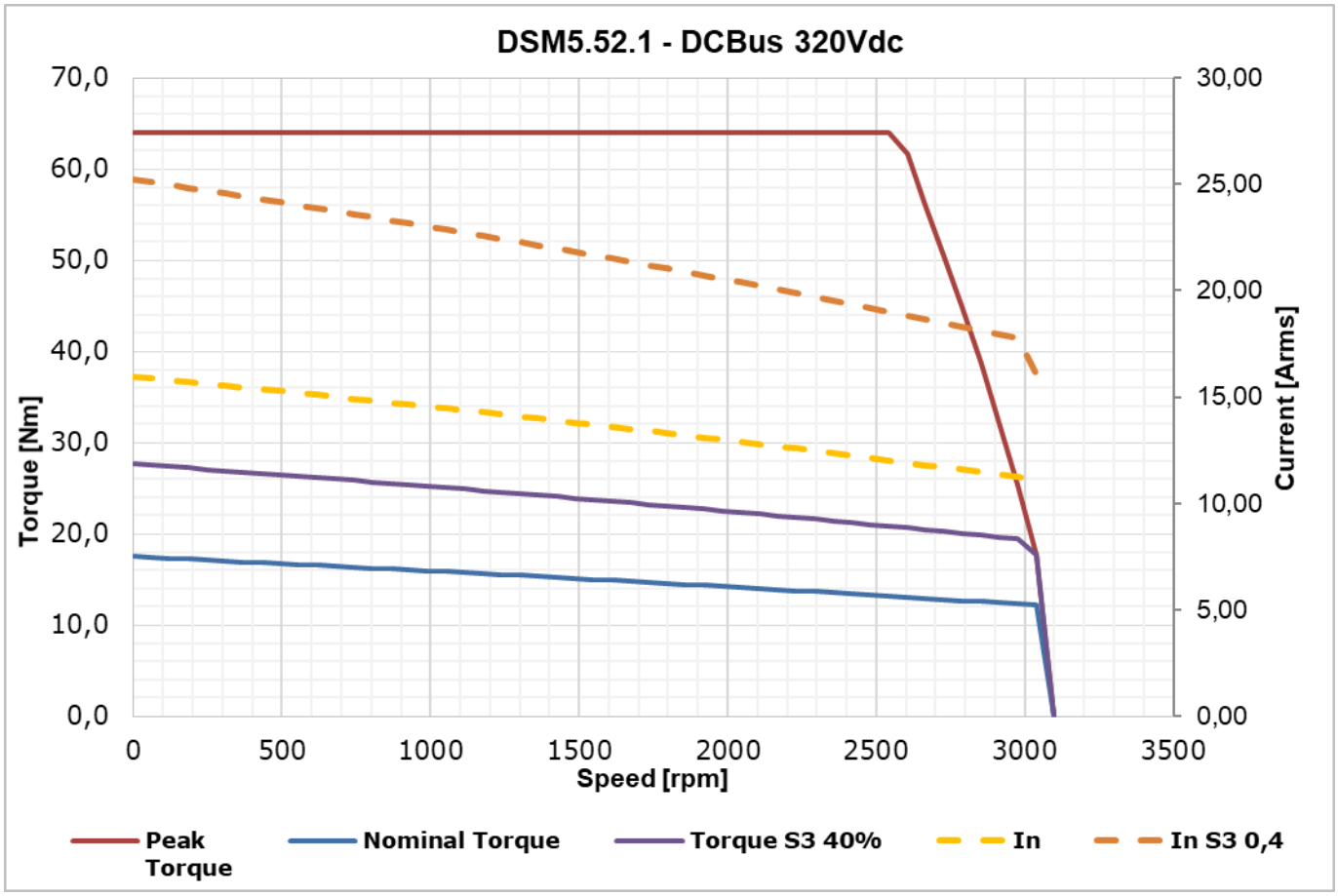
Motor Torque vs. Speed Curve	DSM5.52.1*





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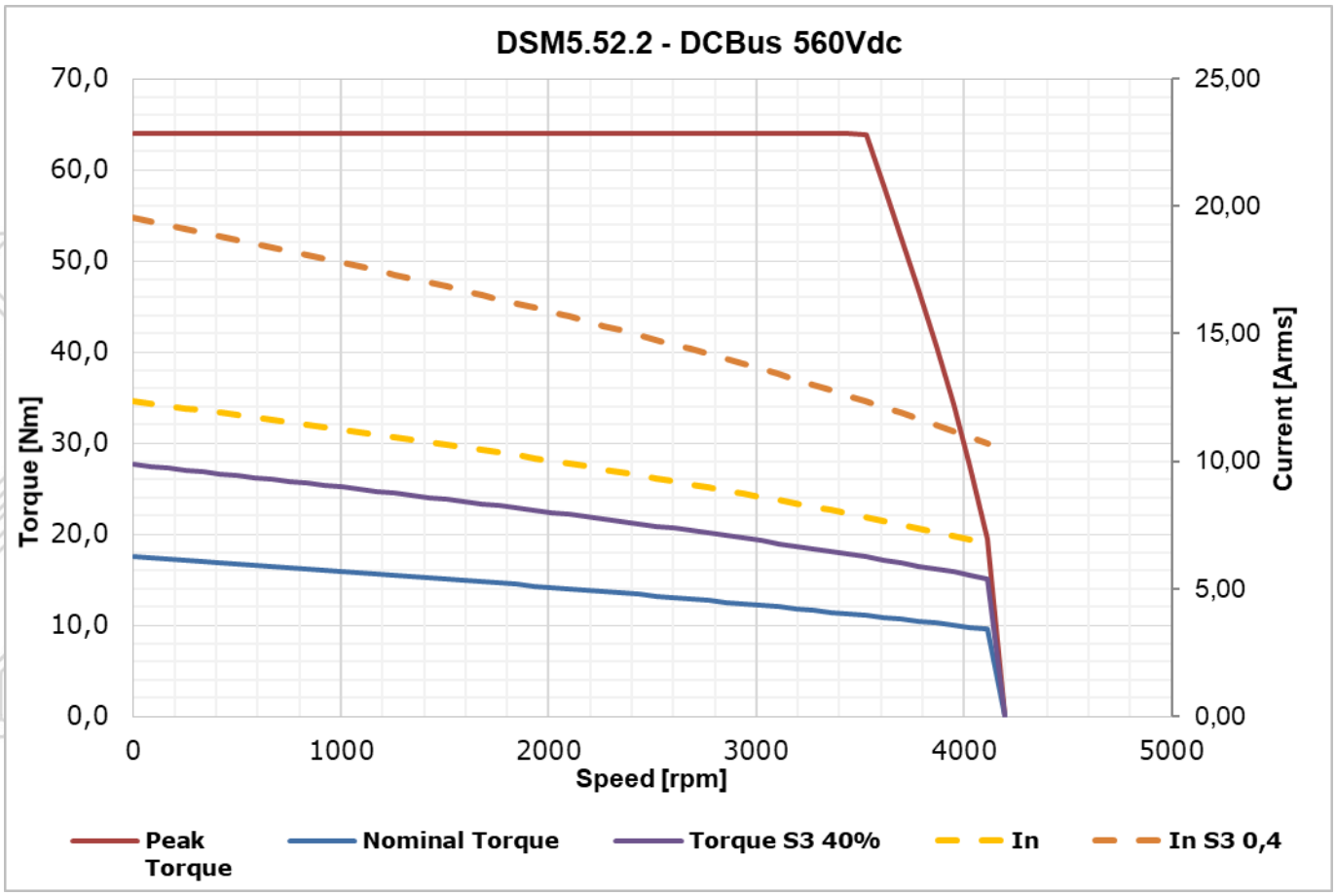
Motor Torque vs. Speed Curve	DSM5.52.2



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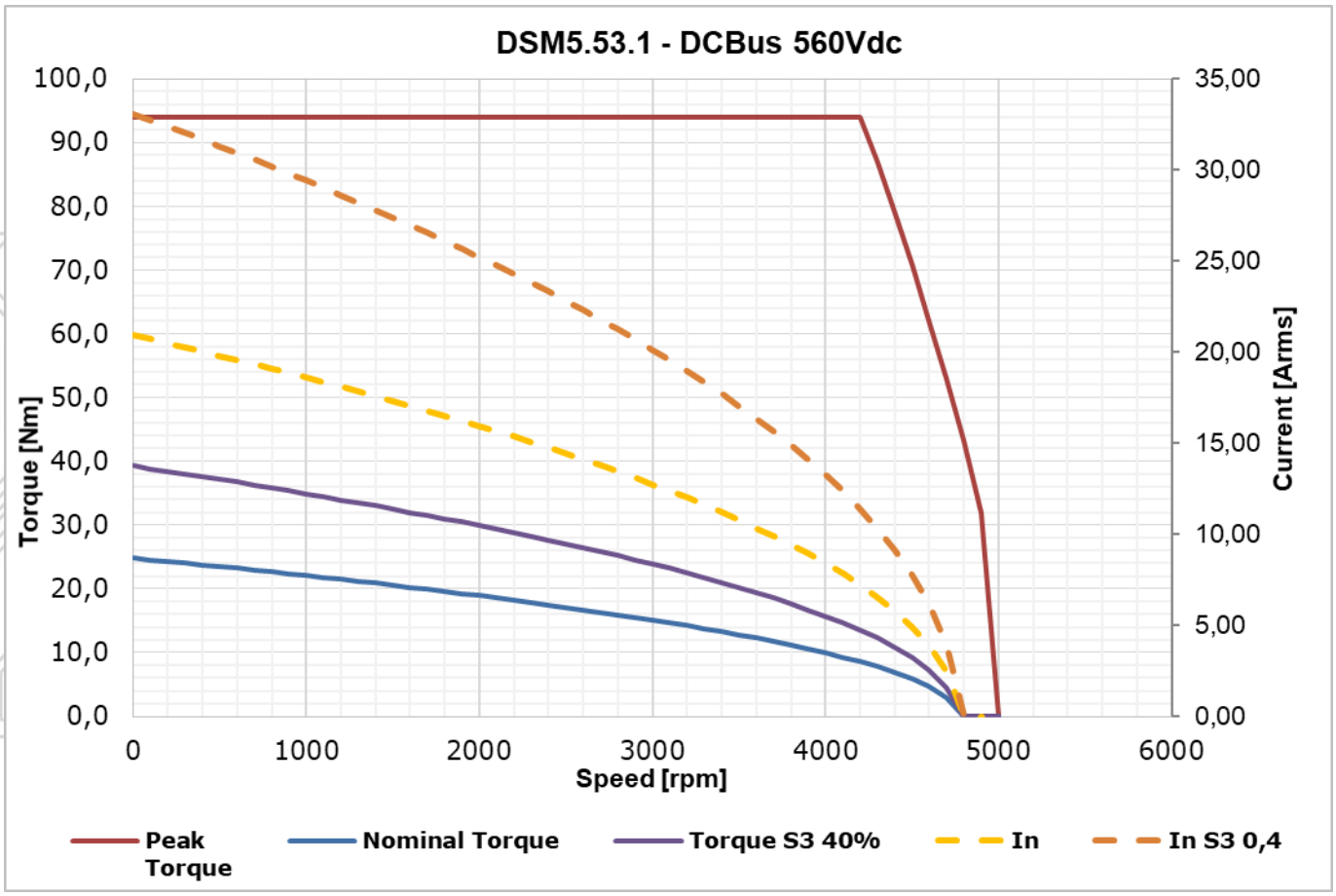
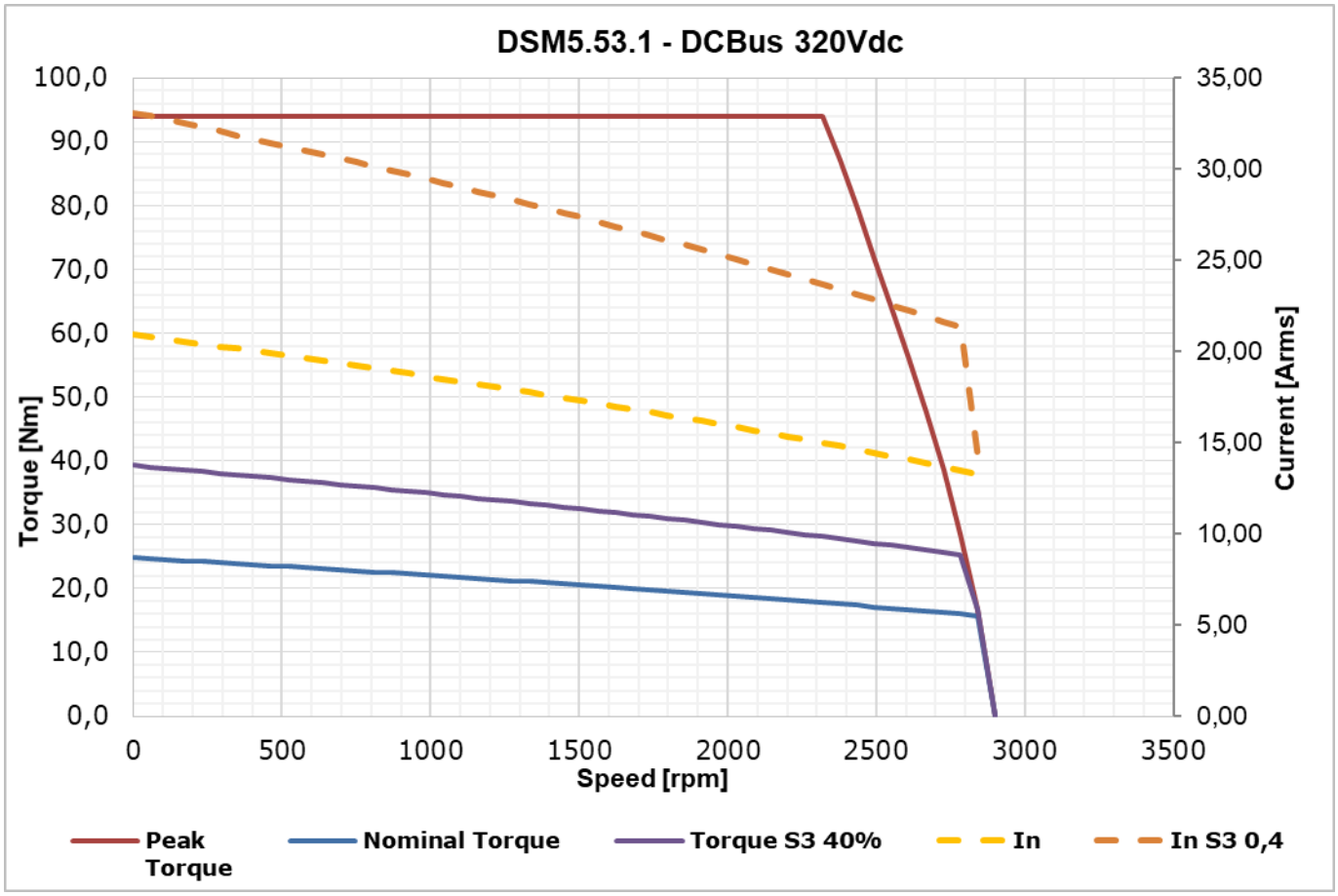
Motor Torque vs. Speed Curve	DSM5.53.1*





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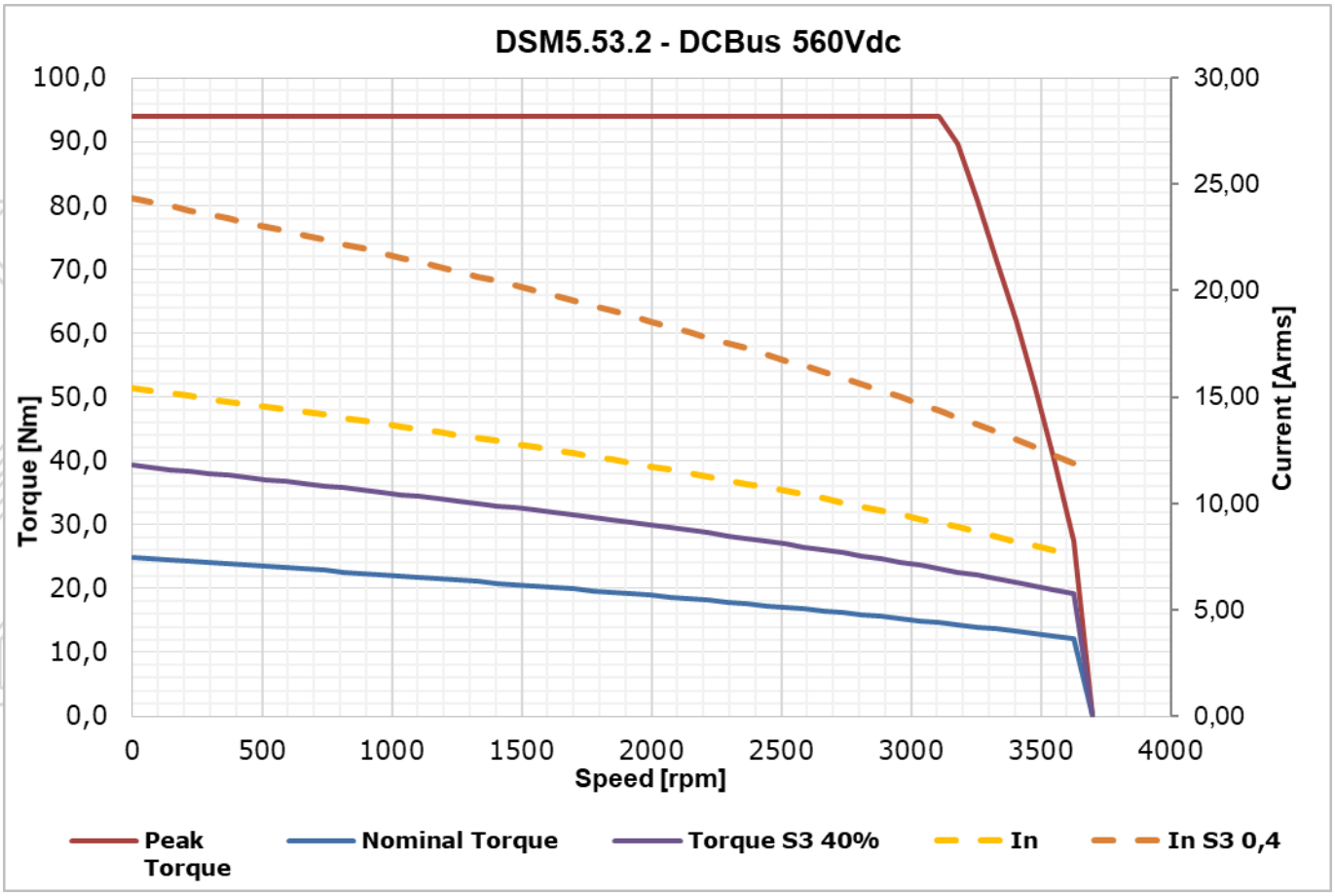
Motor Torque vs. Speed Curve	DSM5.53.2



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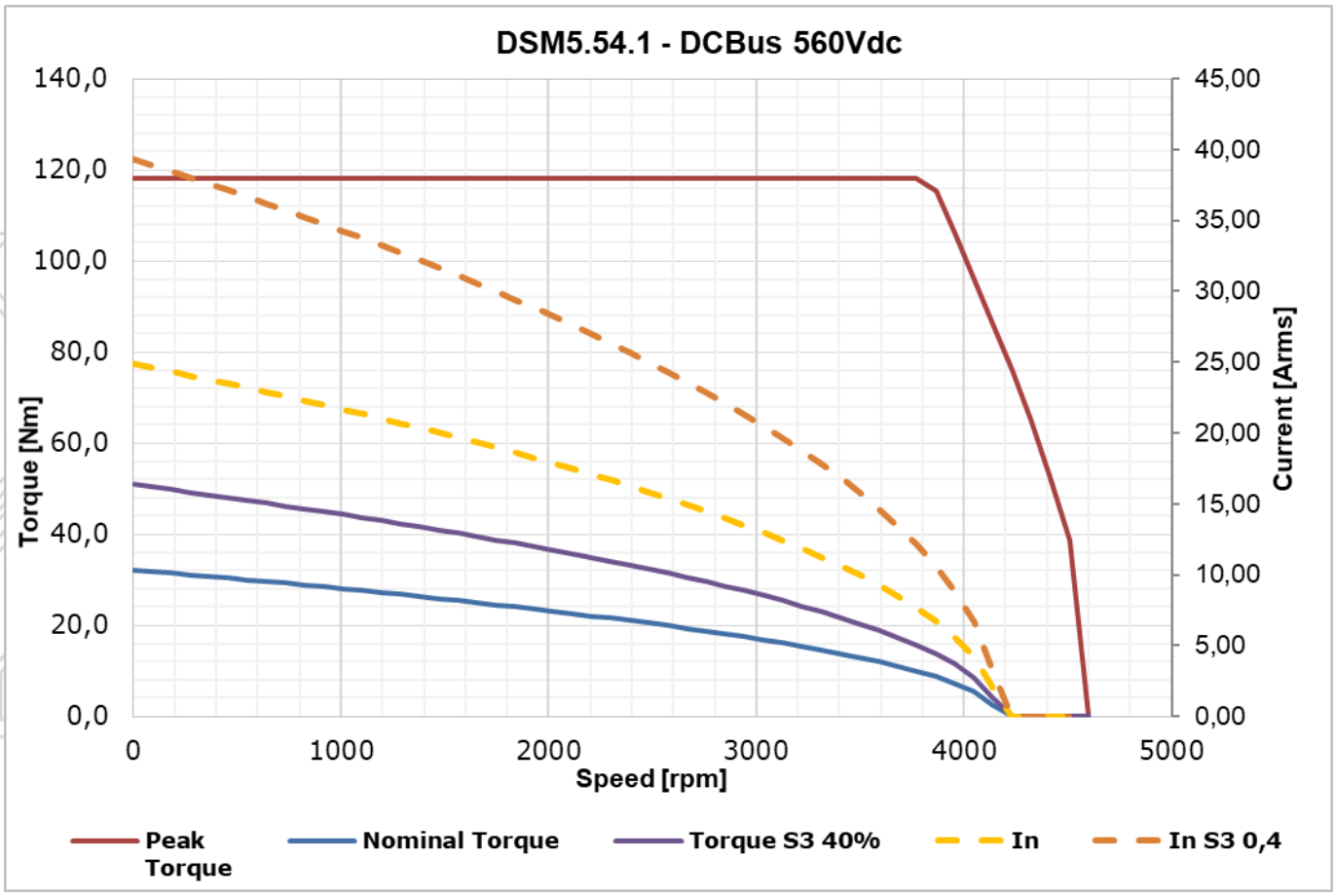
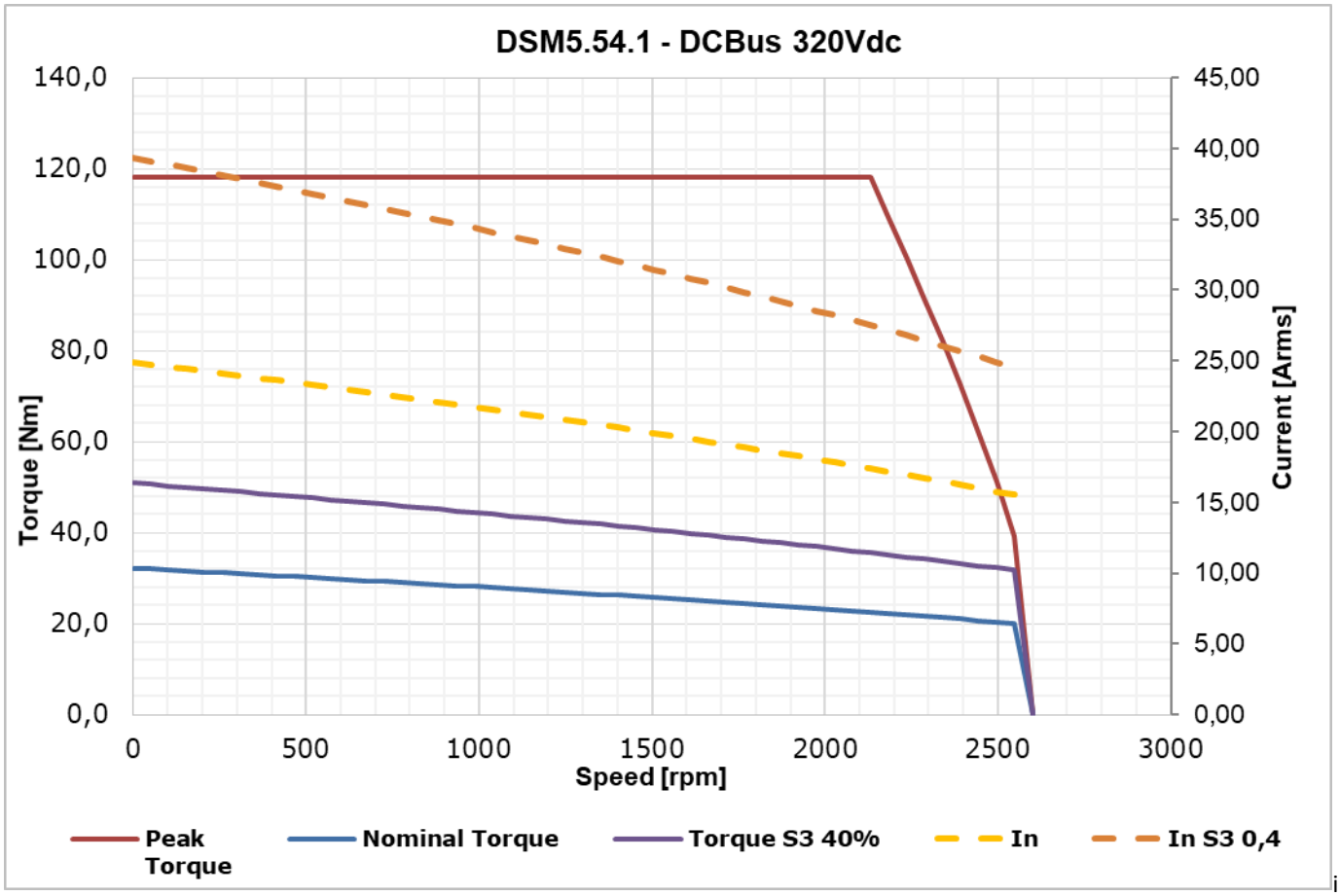
Motor Torque vs. Speed Curve	DSM5.54.1*





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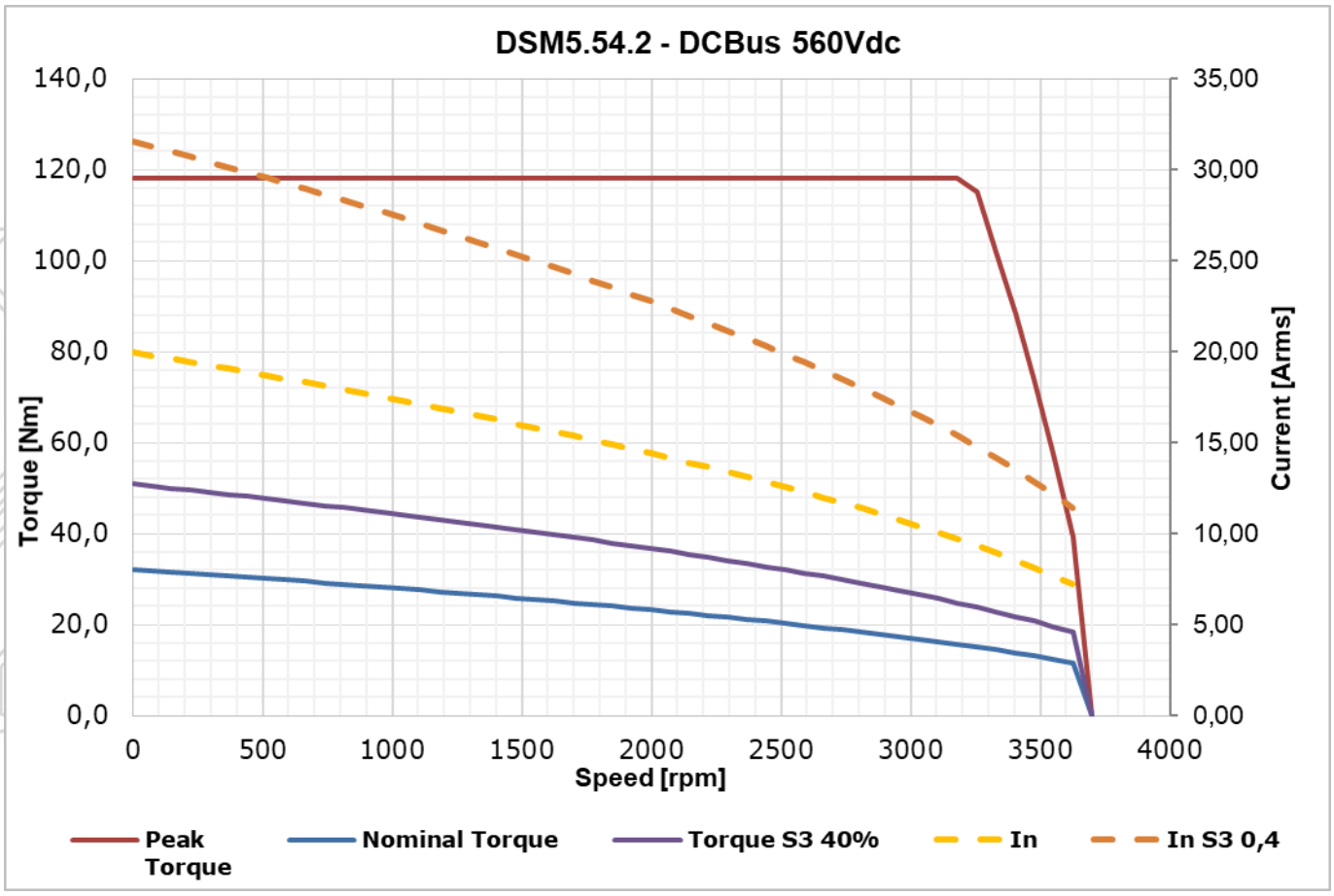
Motor Torque vs. Speed Curve	DSM5.54.2



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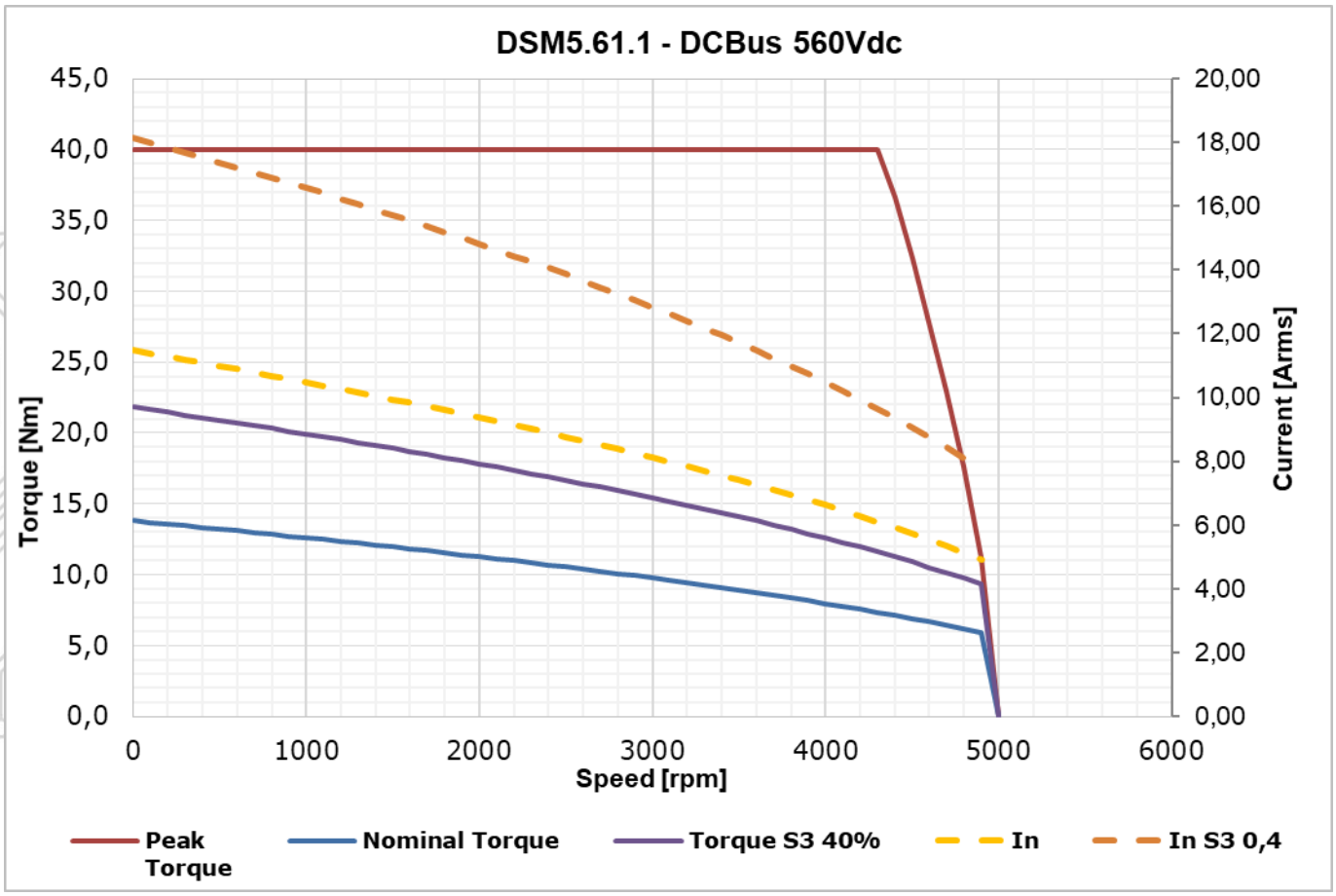
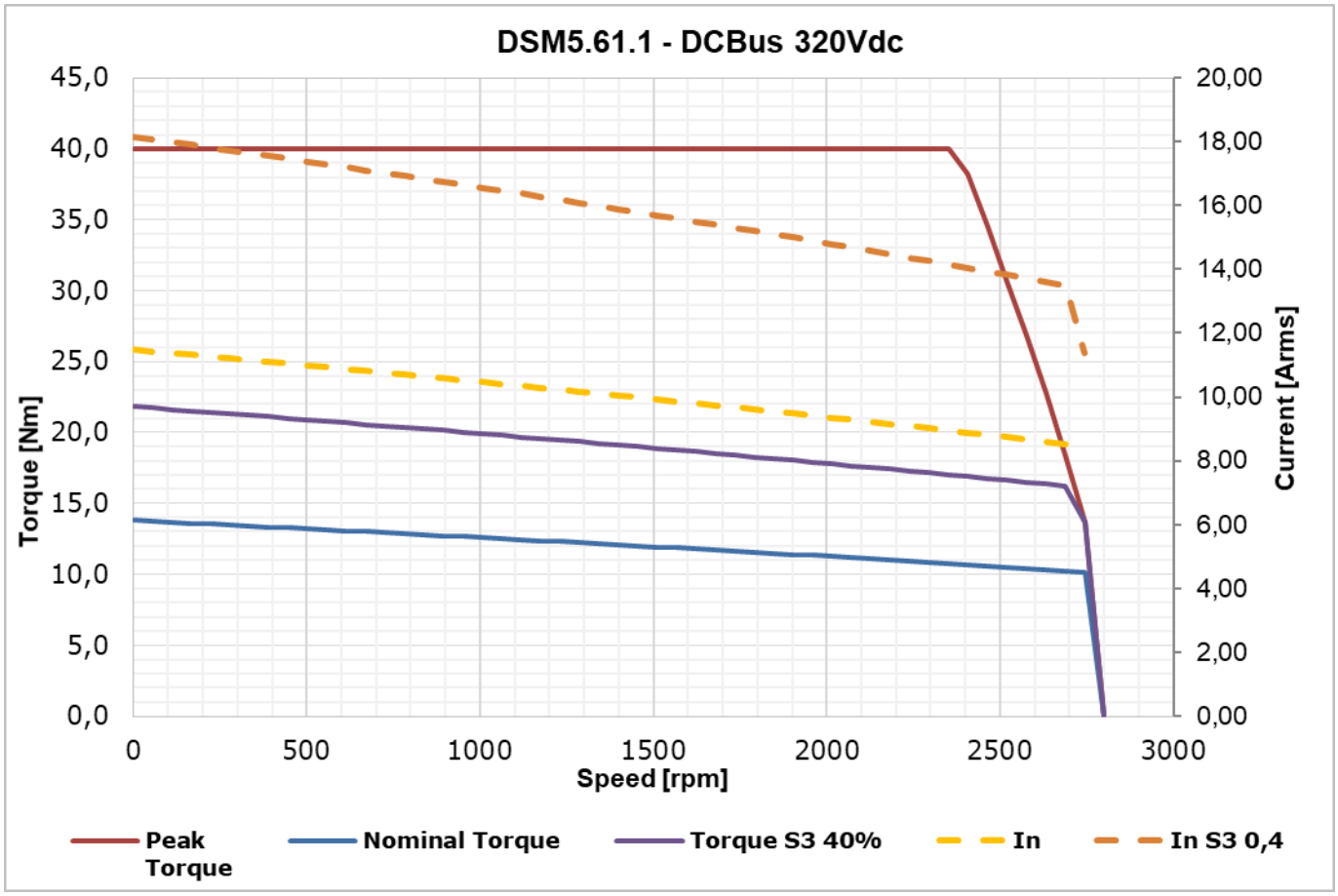
Motor Torque vs. Speed Curve	DSM5.61.1*





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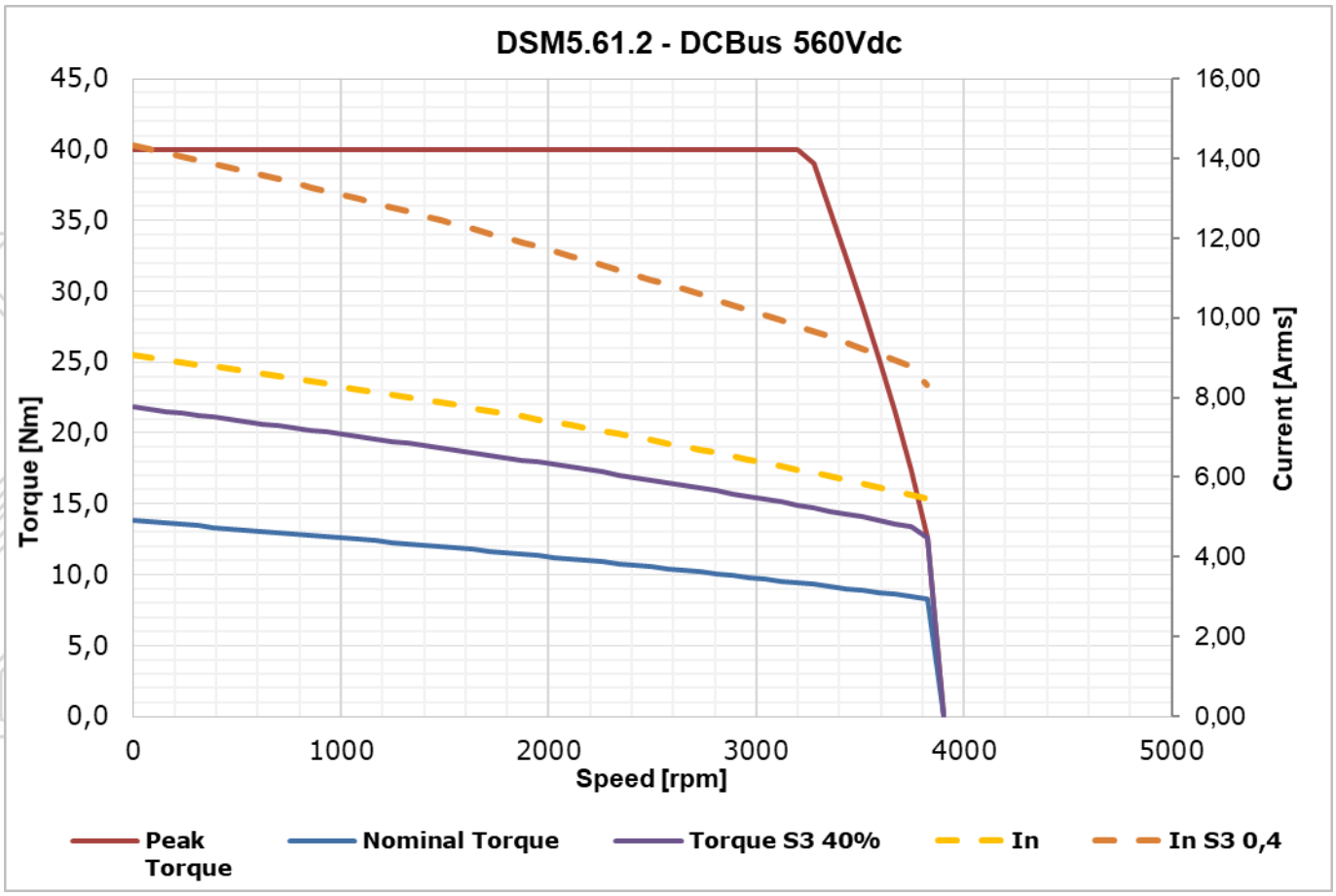
Motor Torque vs. Speed Curve	DSM5.61.2



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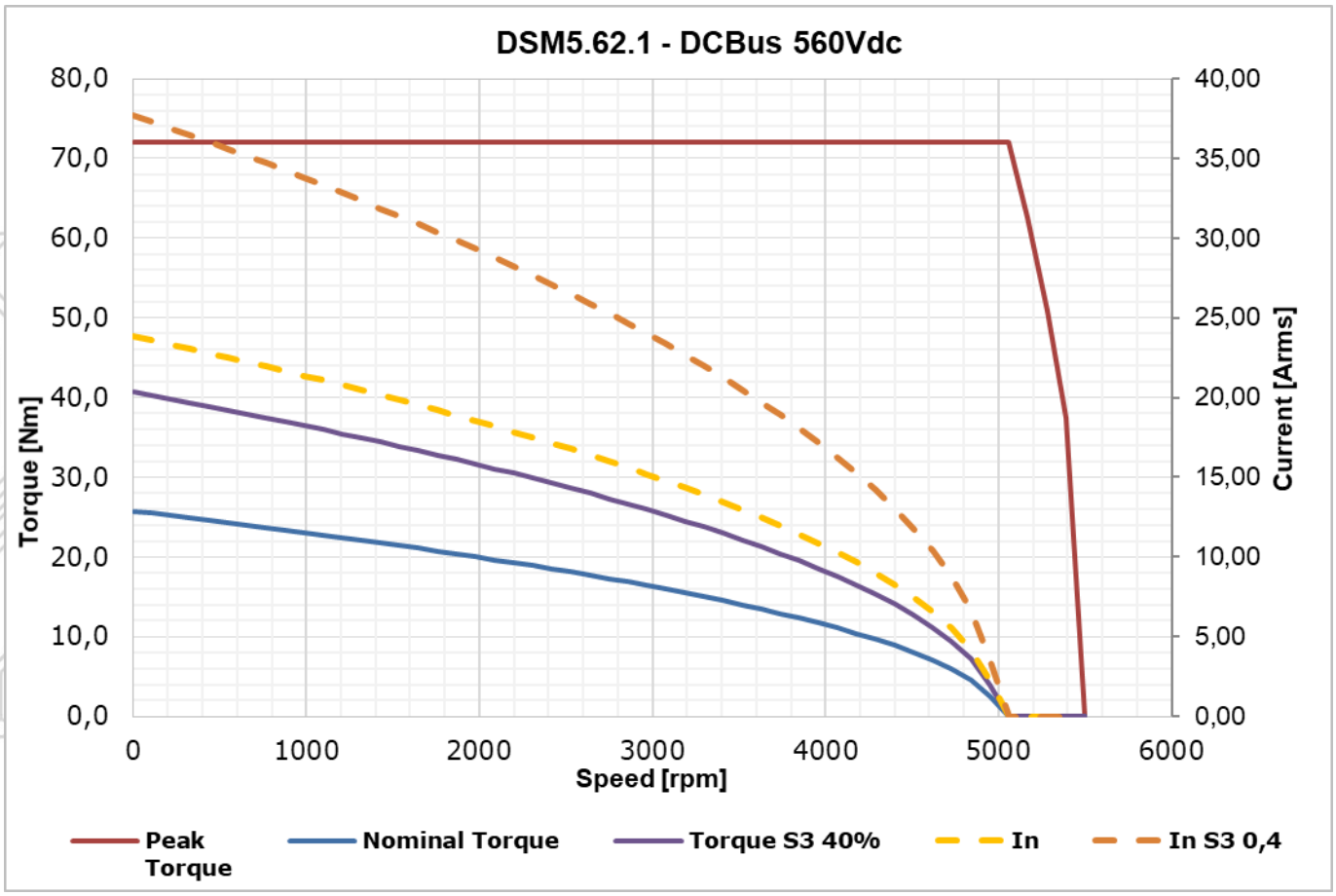
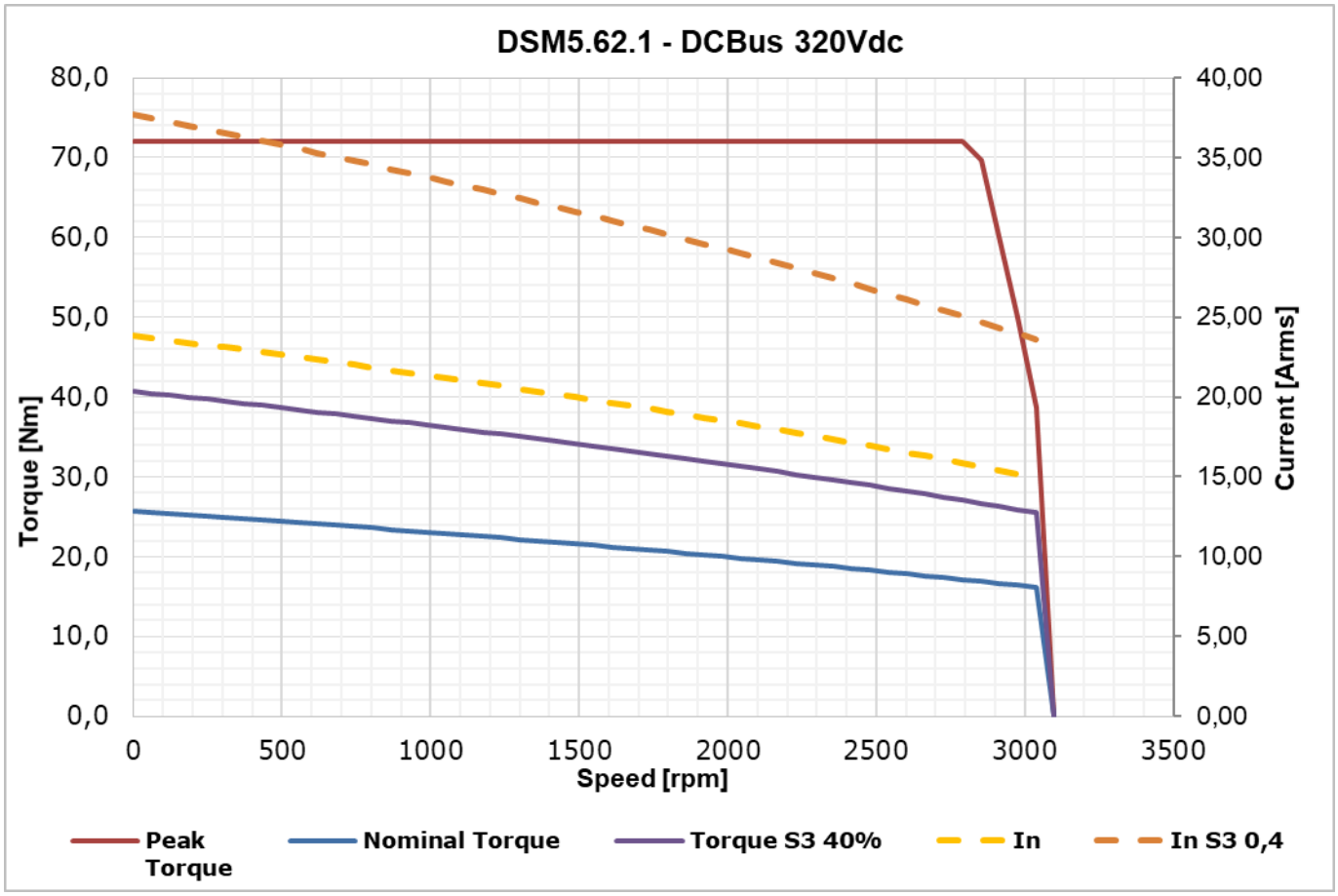
Motor Torque vs. Speed Curve	DSM5.62.1*





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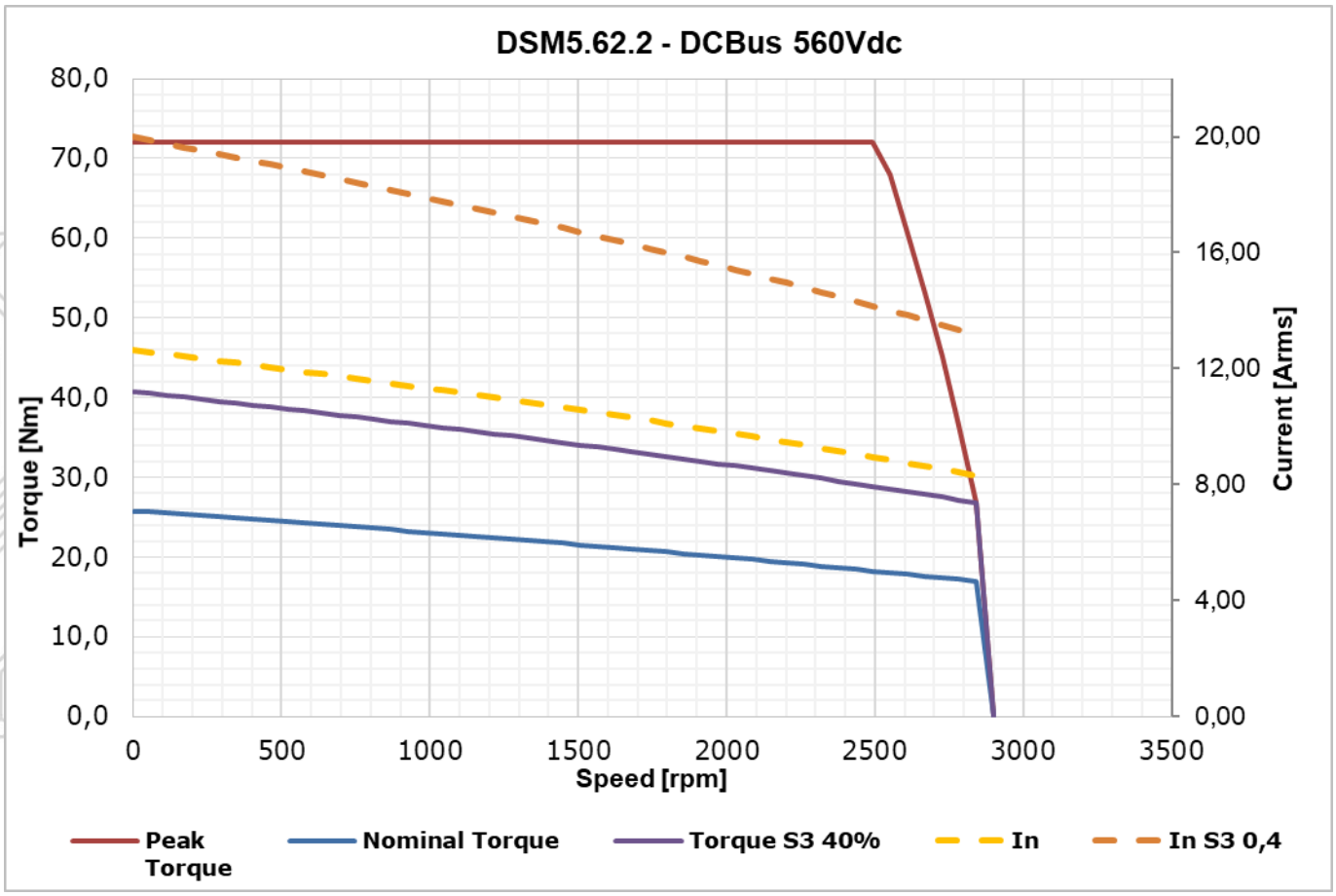
Motor Torque vs. Speed Curve	DSM5.62.2



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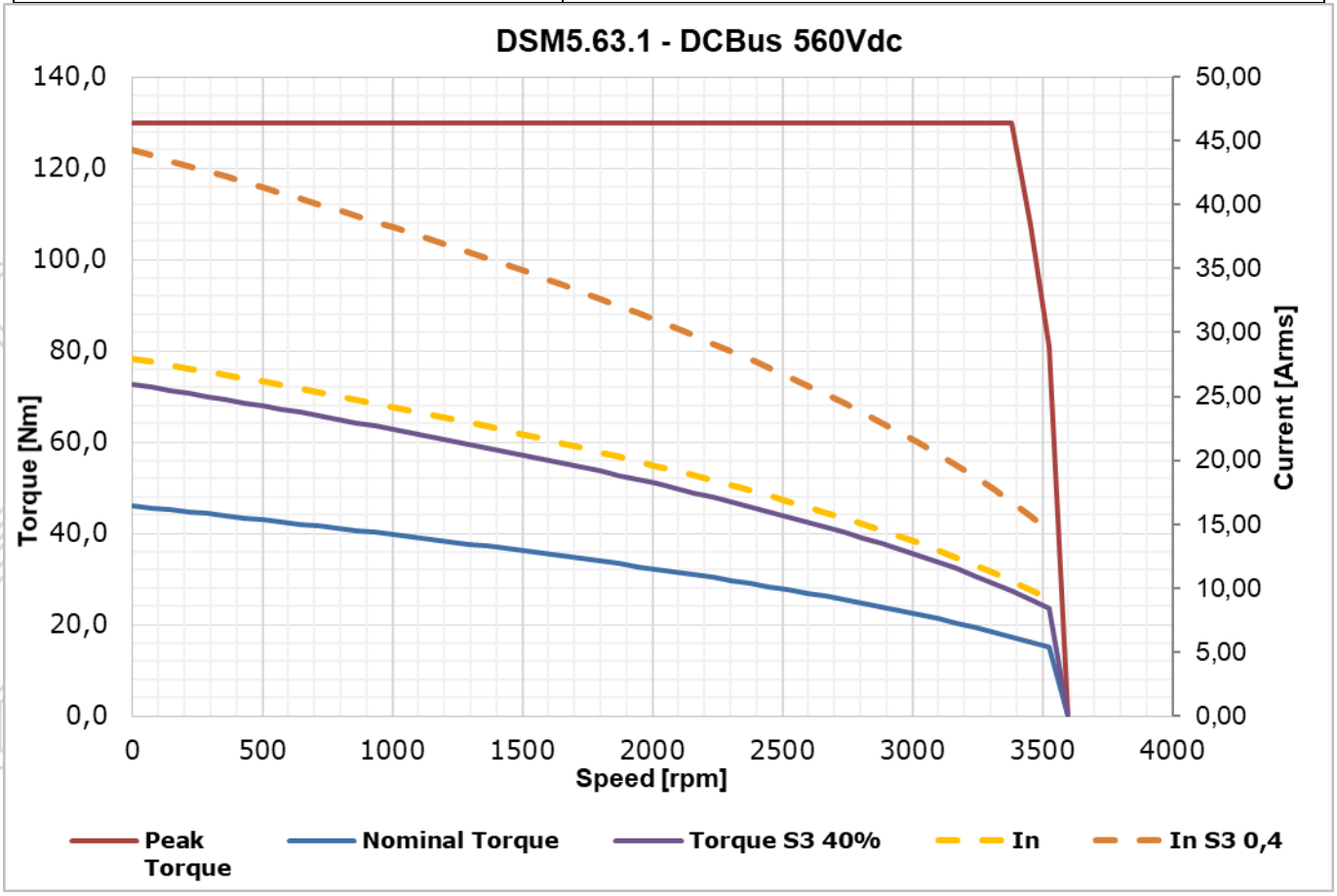
Motor Torque vs. Speed Curve	DSM5.63.1



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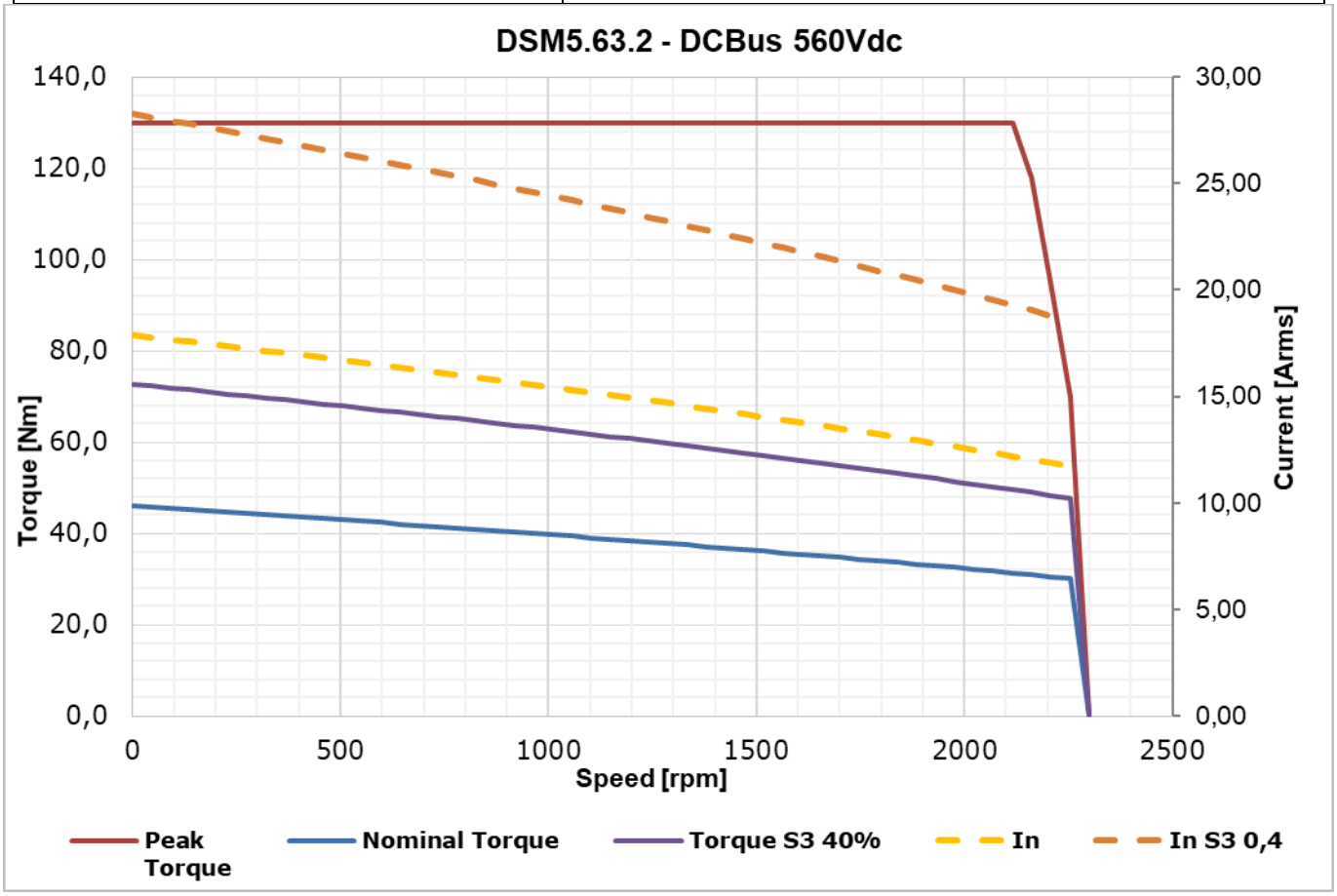
Motor Torque vs. Speed Curve	DSM5.63.2



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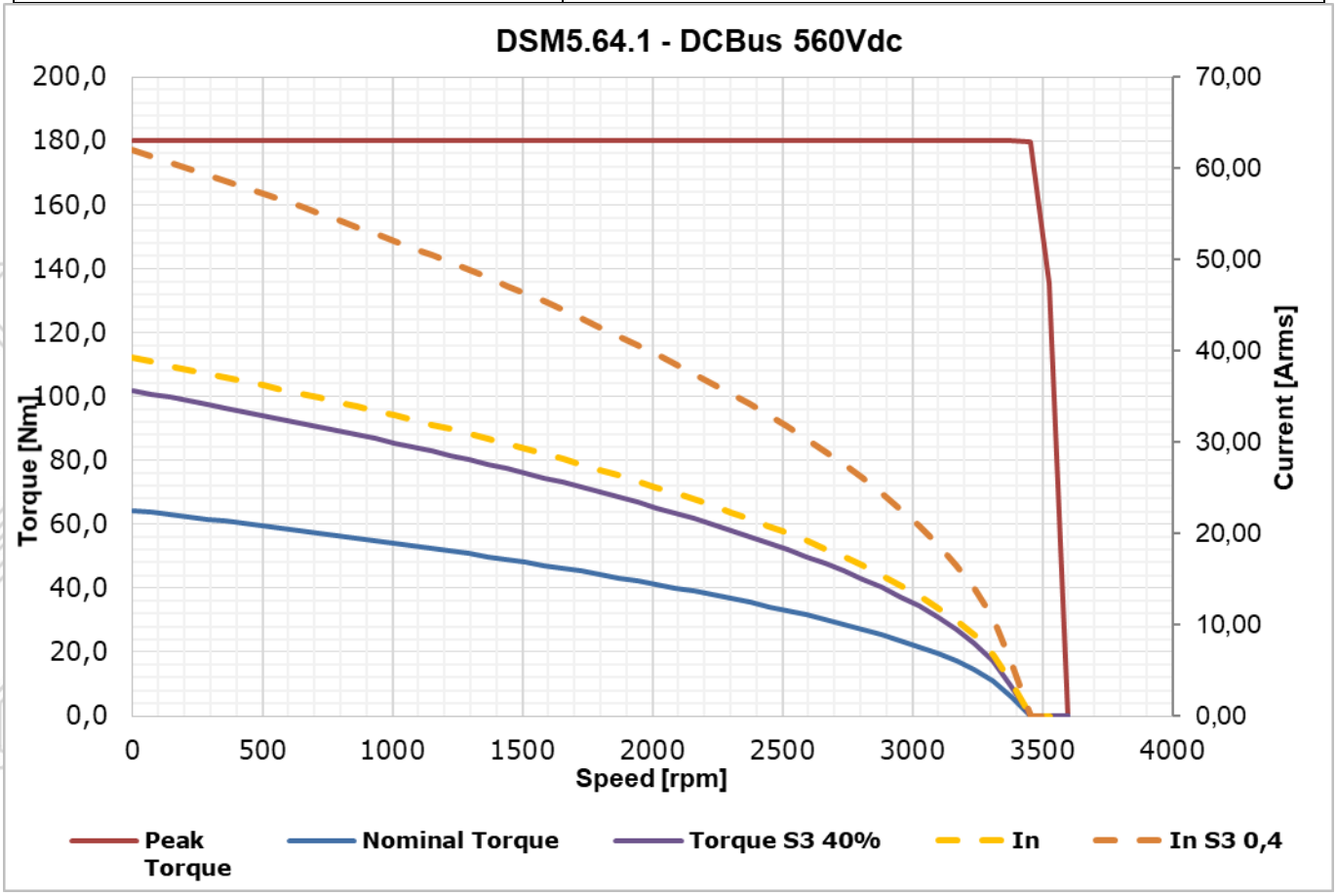
Motor Torque vs. Speed Curve	DSM5.64.1



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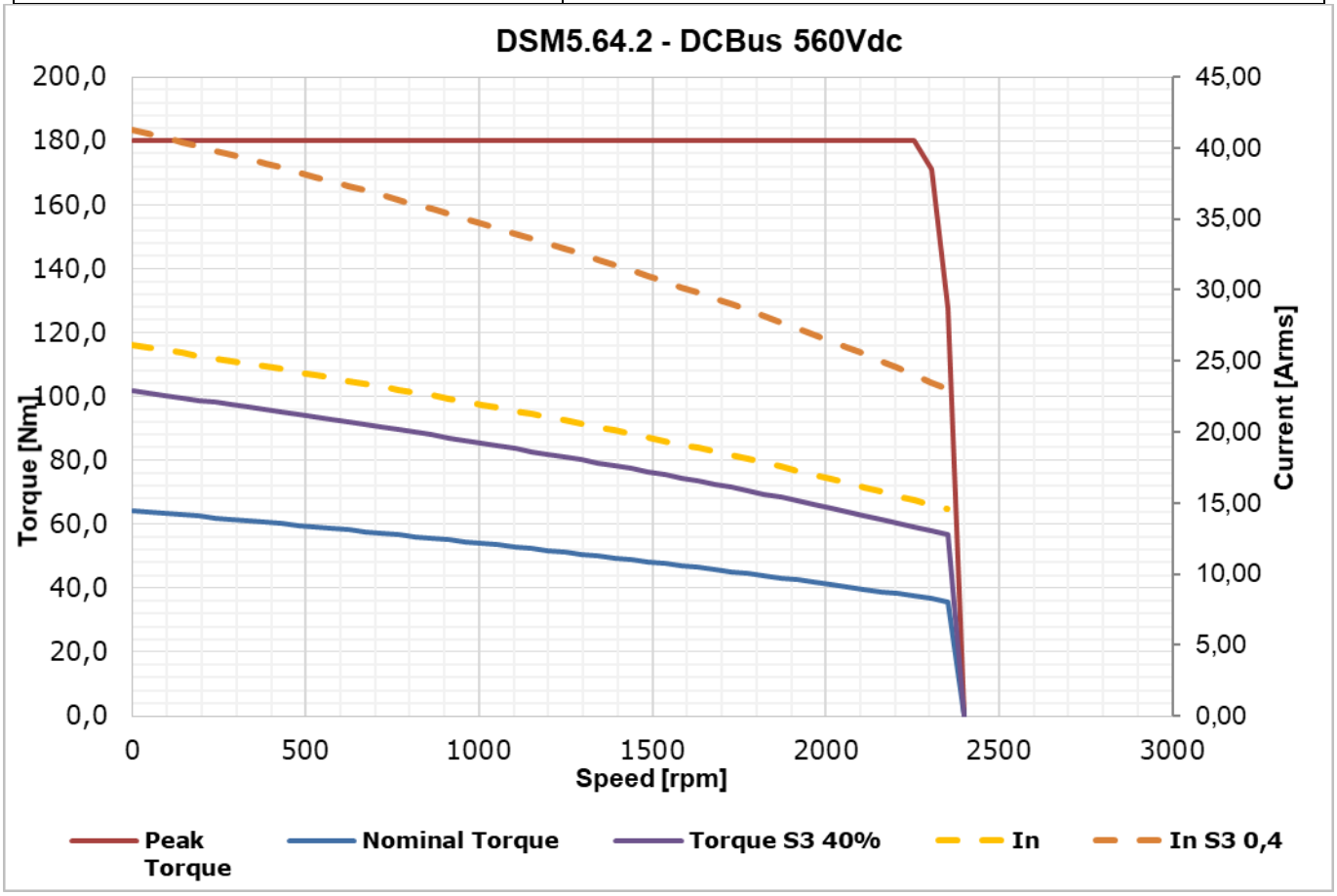
Motor Torque vs. Speed Curve	DSM5.64.2



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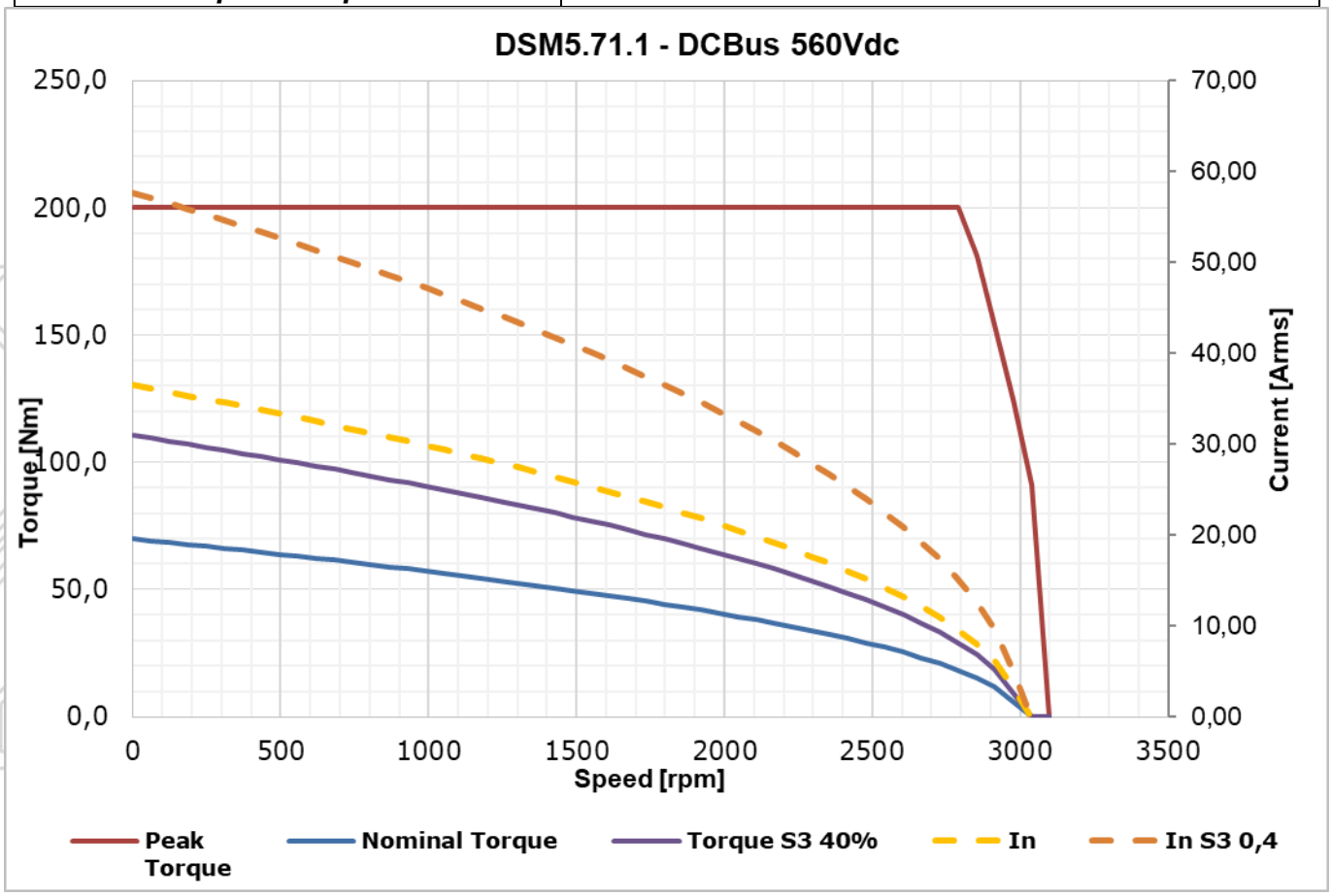
Motor Torque vs. Speed Curve	DSM5.71.1



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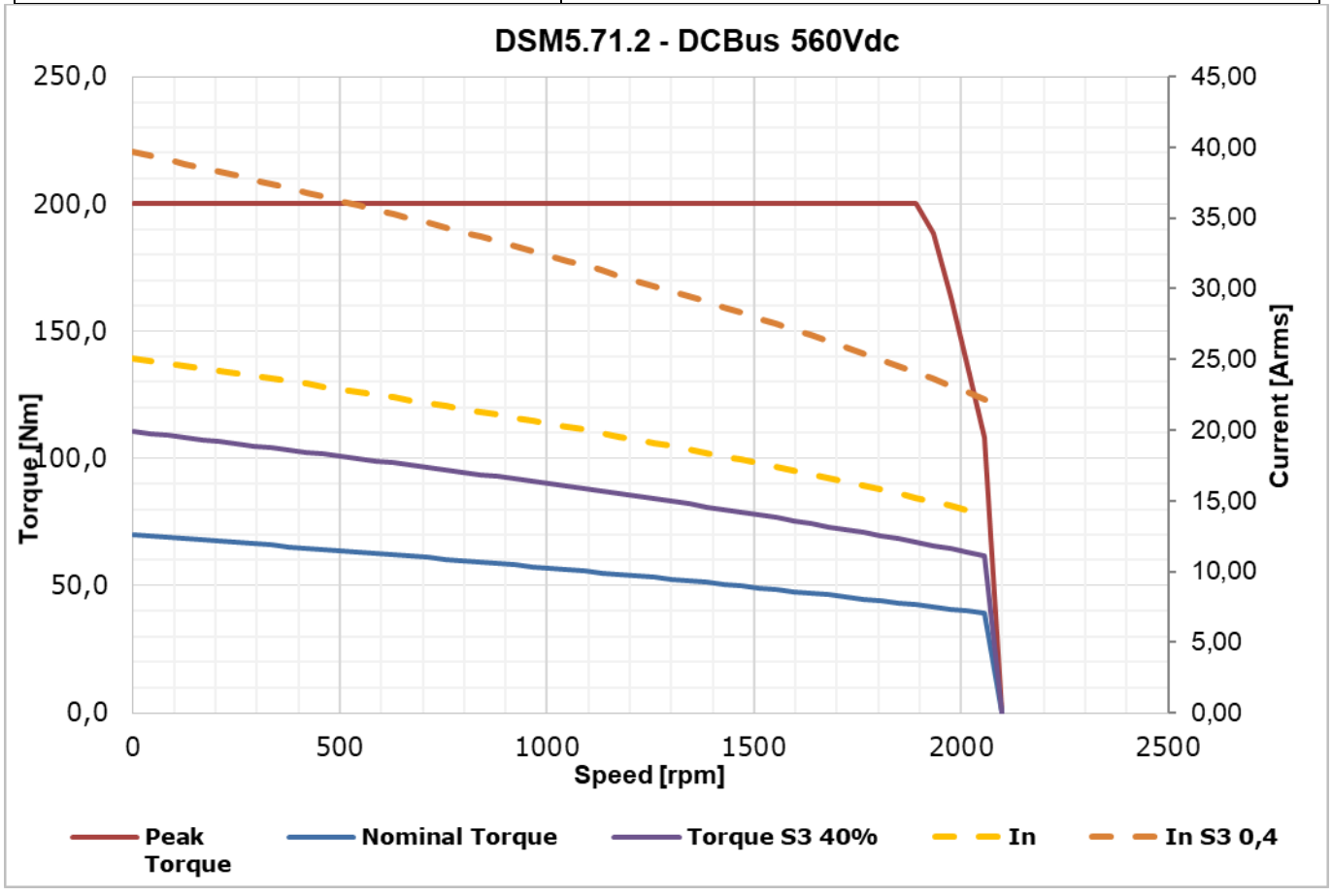
Motor Torque vs. Speed Curve	DSM5.71.2



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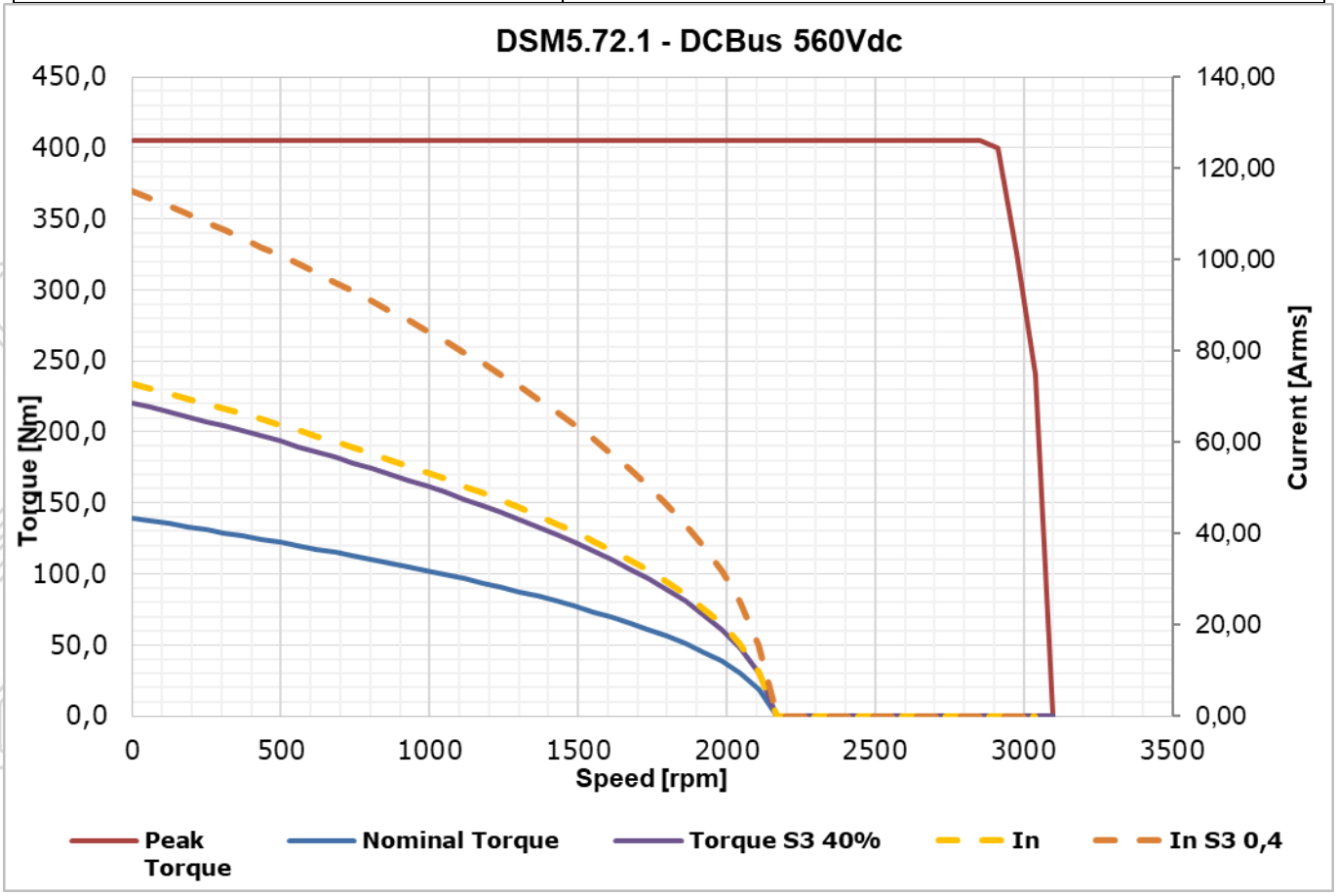
Motor Torque vs. Speed Curve	DSM5.72.1



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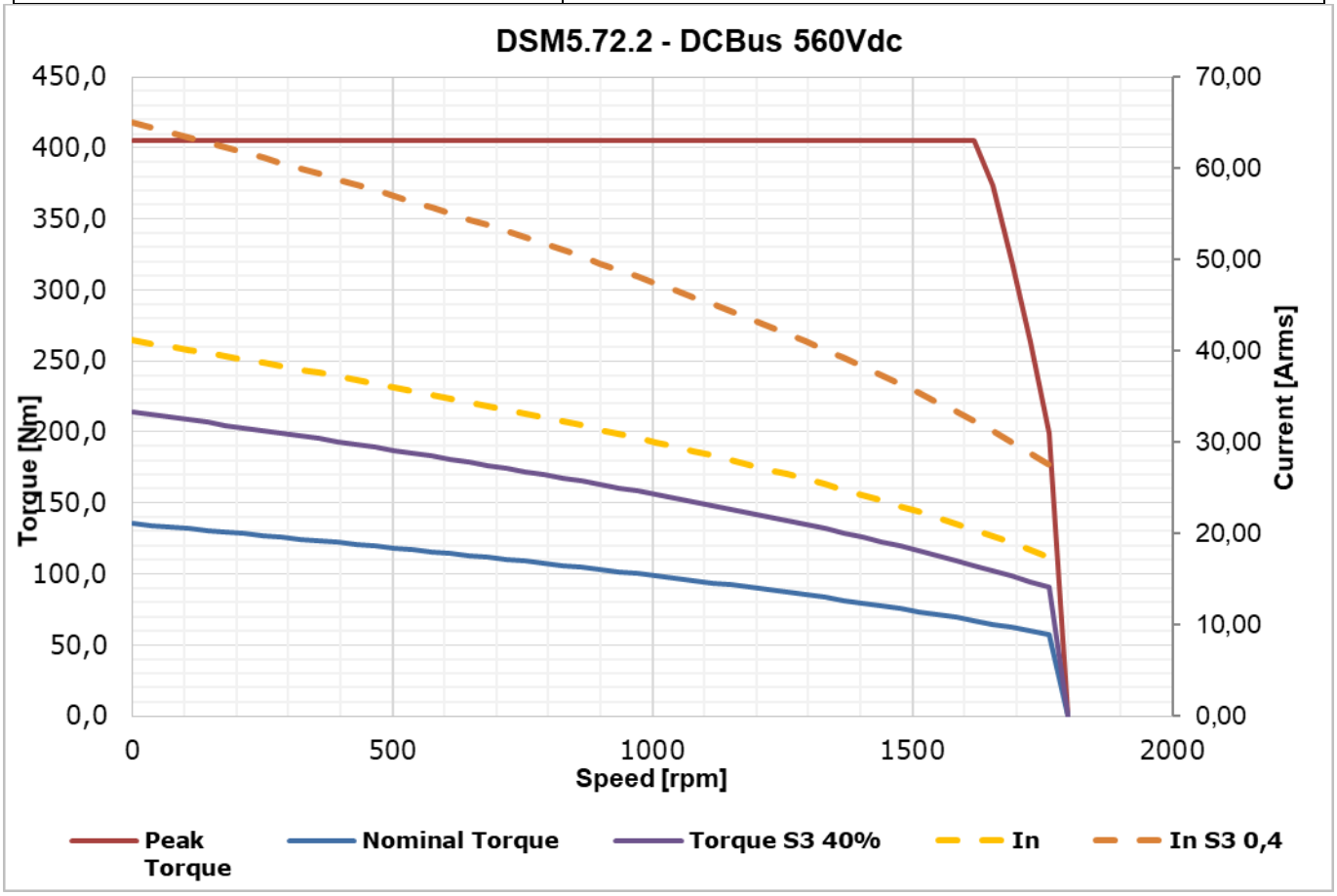
Motor Torque vs. Speed Curve	DSM5.72.2



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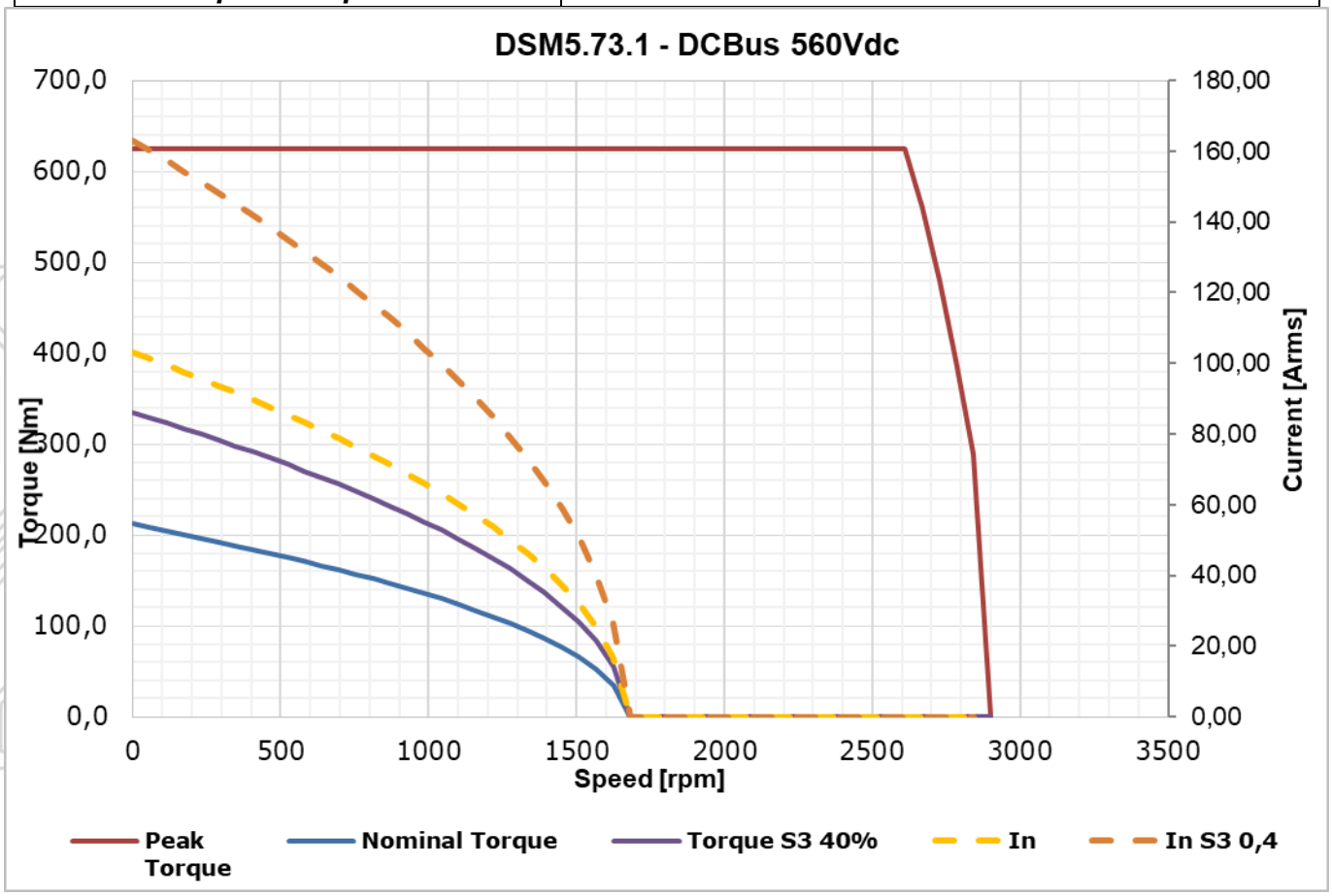
Motor Torque vs. Speed Curve	DSM5.73.1



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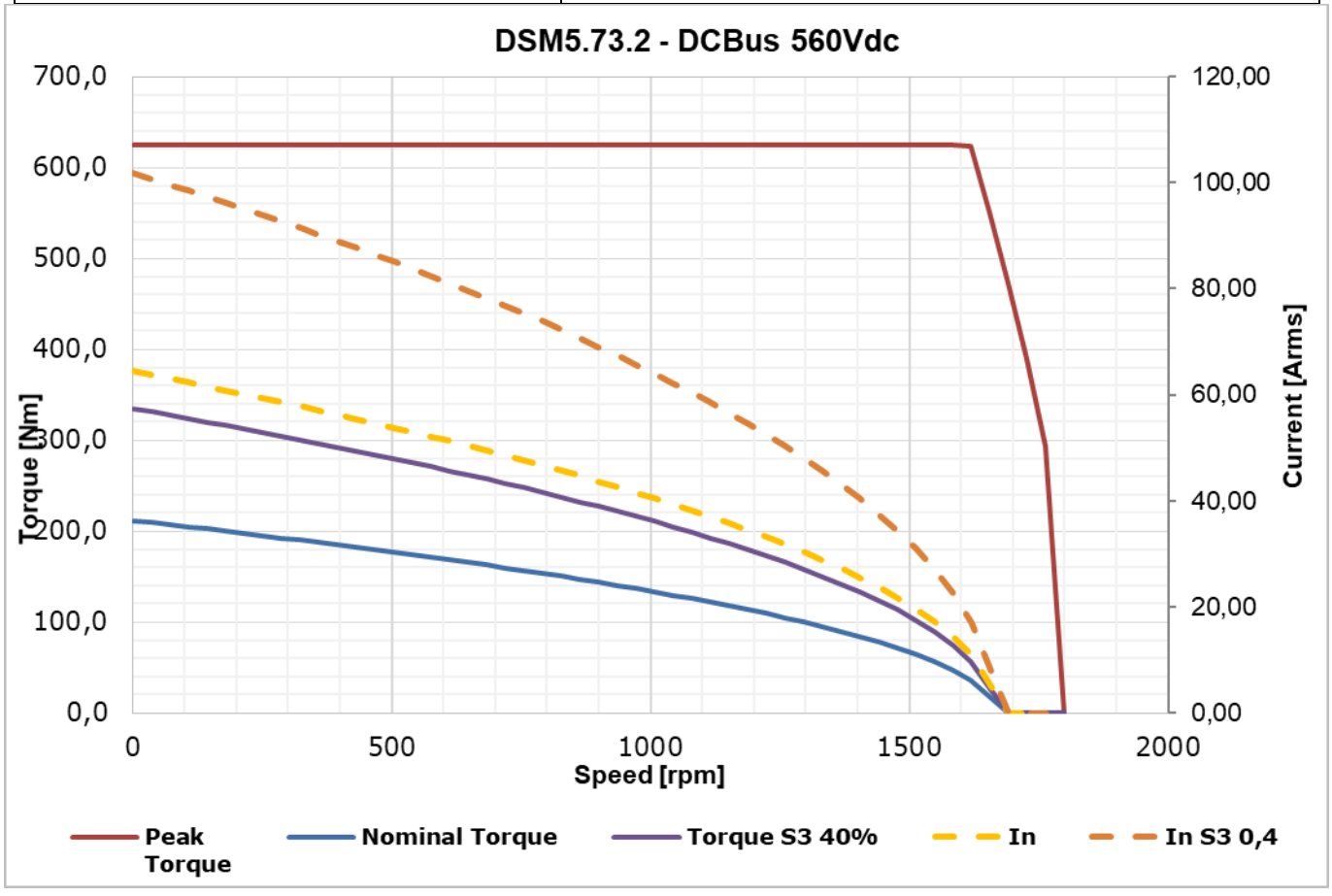
Motor Torque vs. Speed Curve	DSM5.73.2



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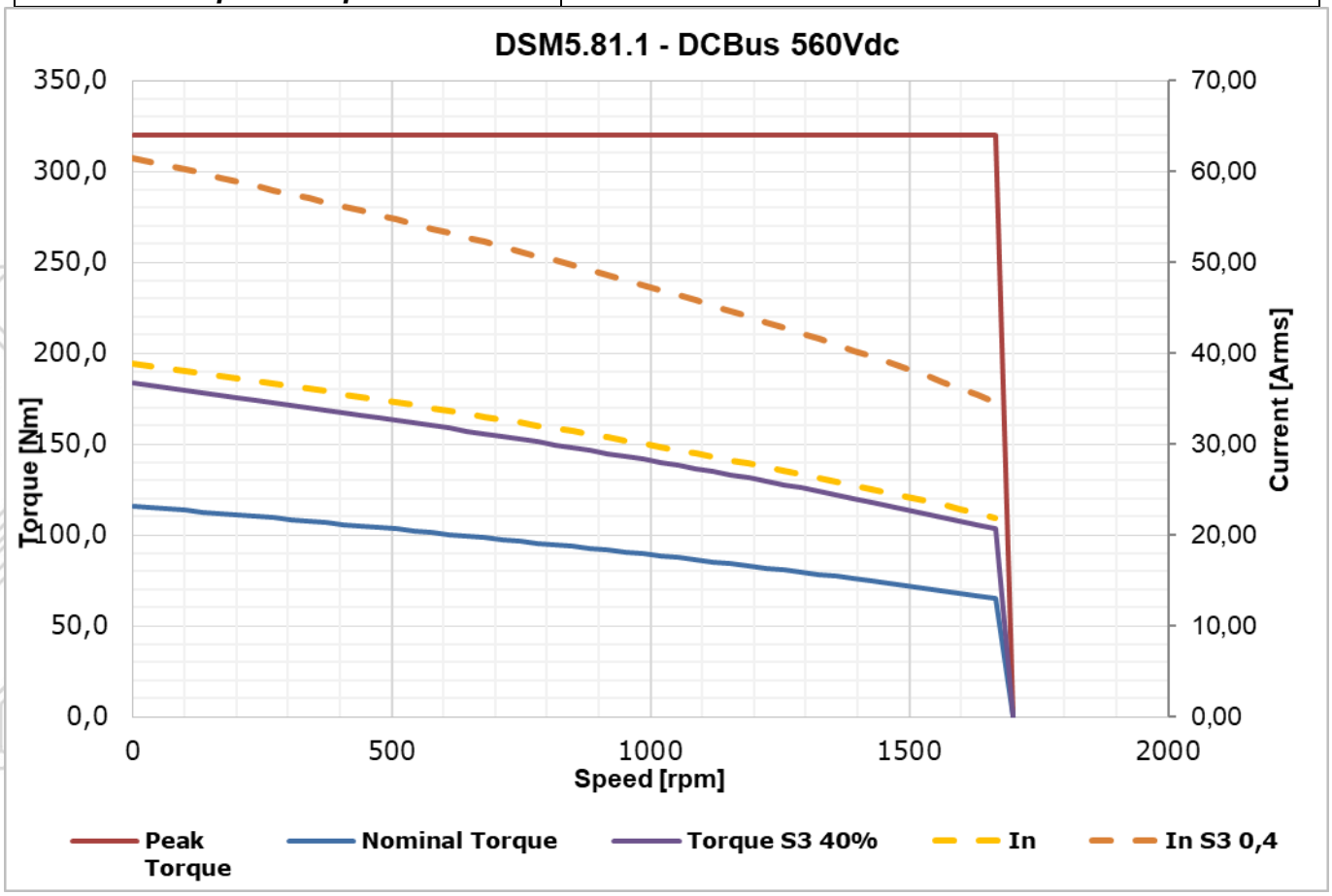
Motor Torque vs. Speed Curve	DSM5.81.1



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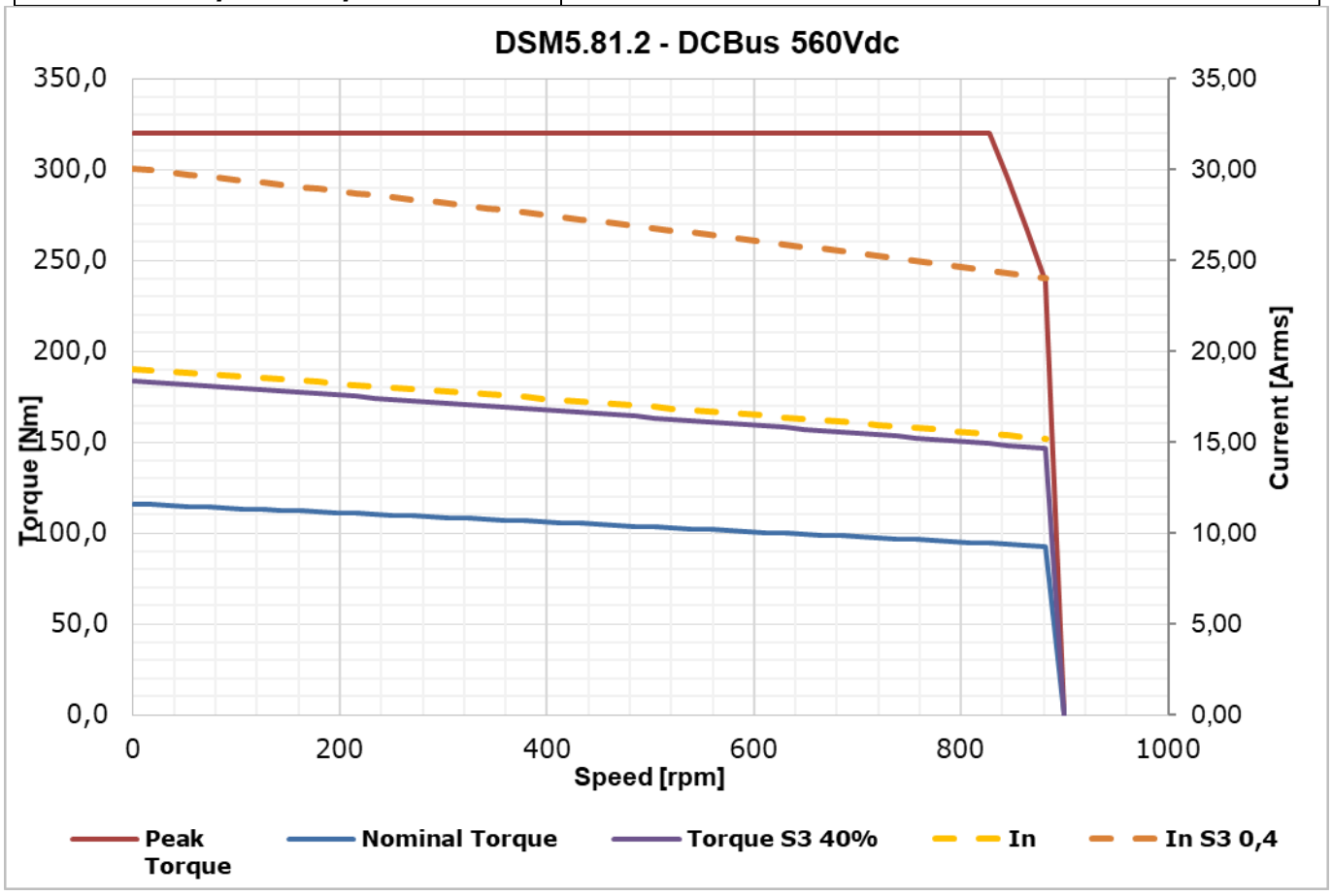
Motor Torque vs. Speed Curve	DSM5.81.2



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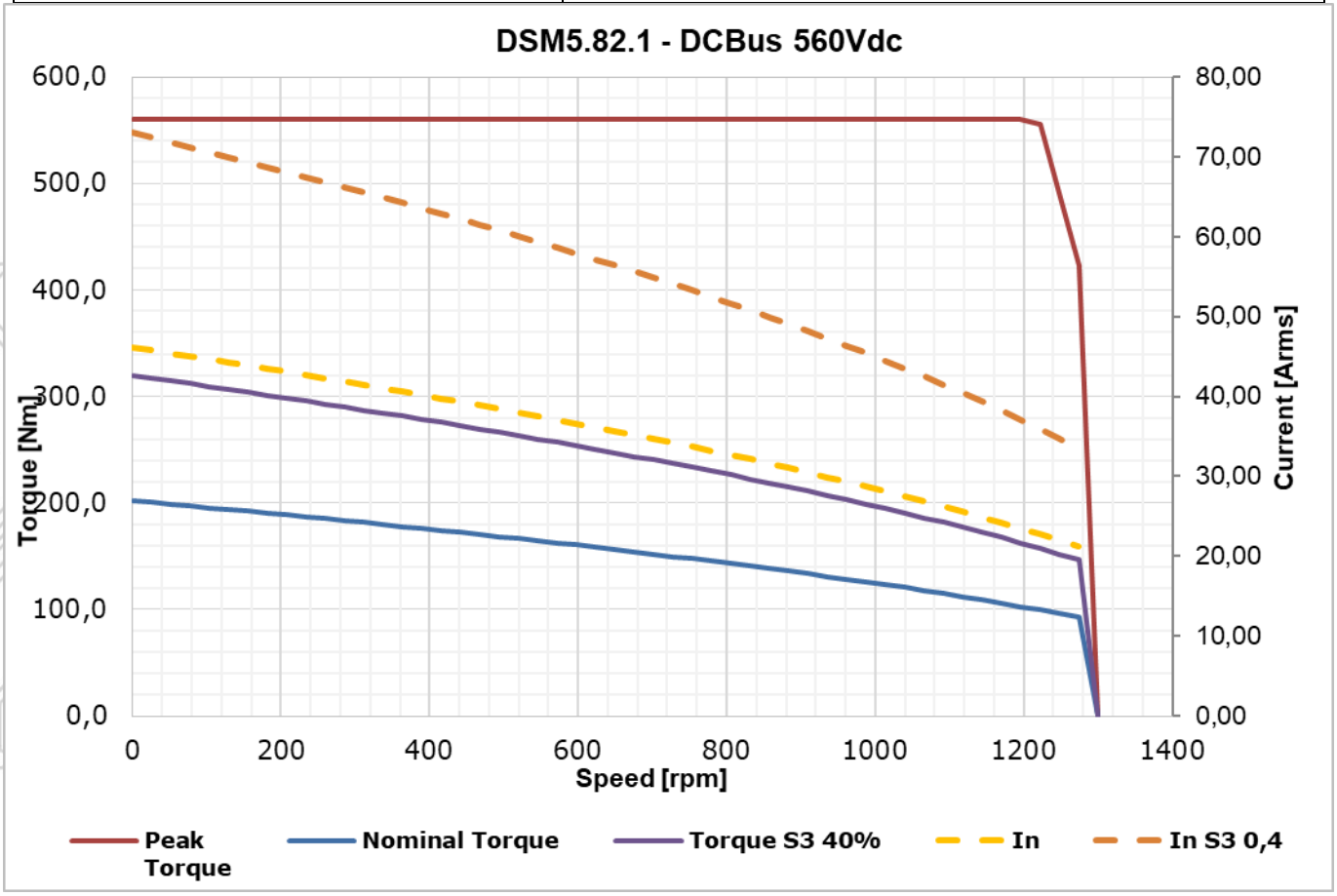
Motor Torque vs. Speed Curve	DSM5.82.1



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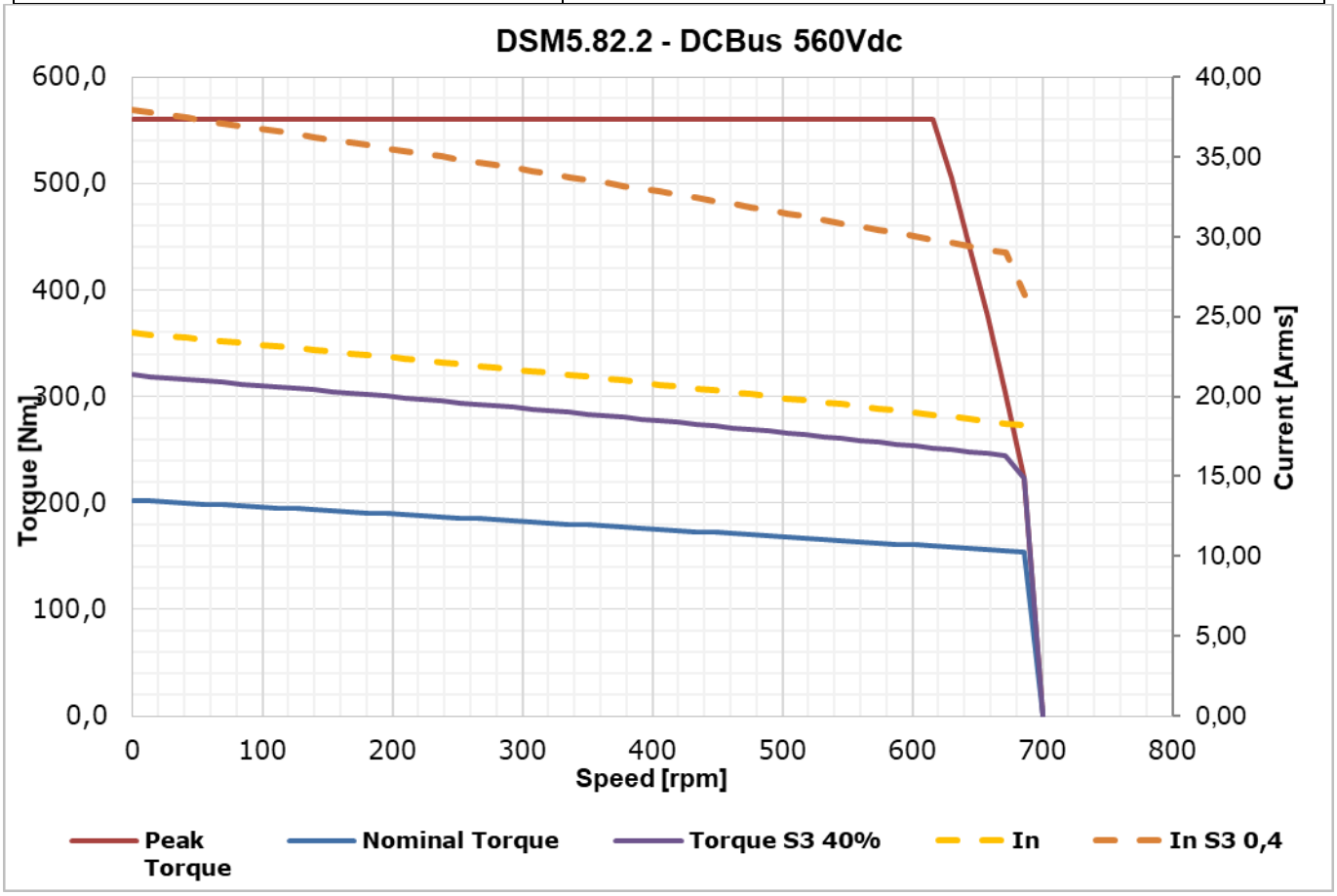
Motor Torque vs. Speed Curve	DSM5.82.2



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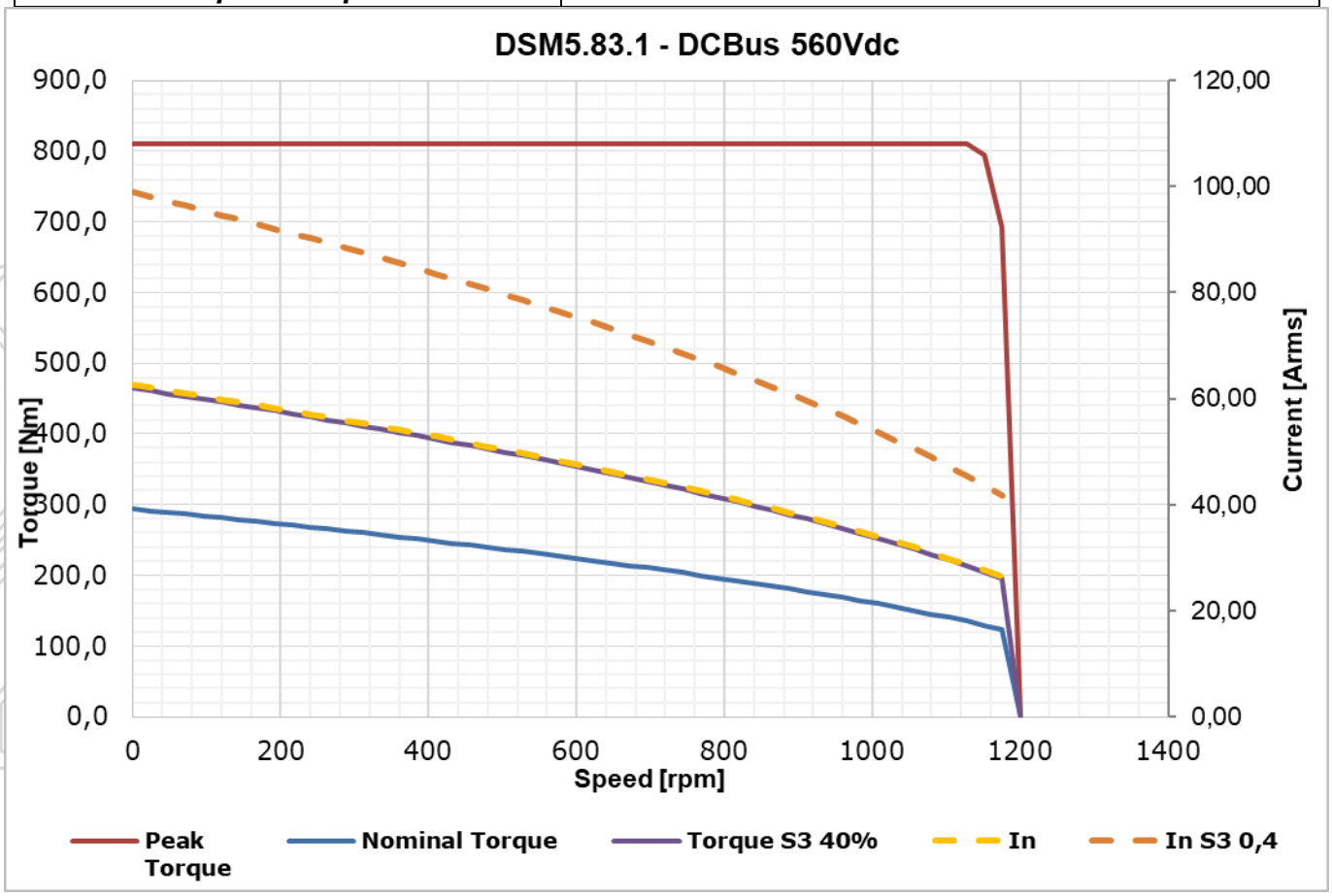
Motor Torque vs. Speed Curve	DSM5.83.1



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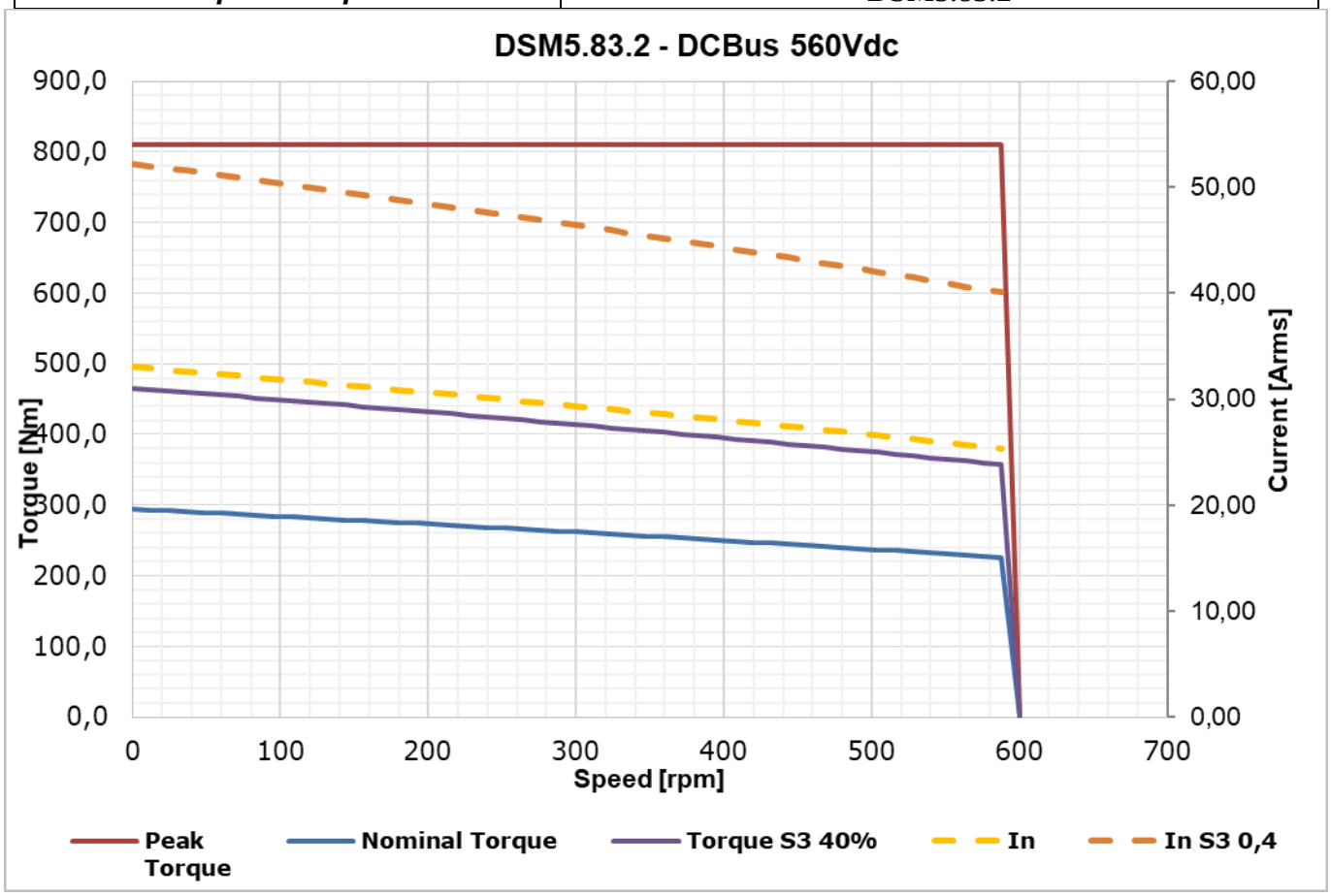
Motor Torque vs. Speed Curve	DSM5.83.2



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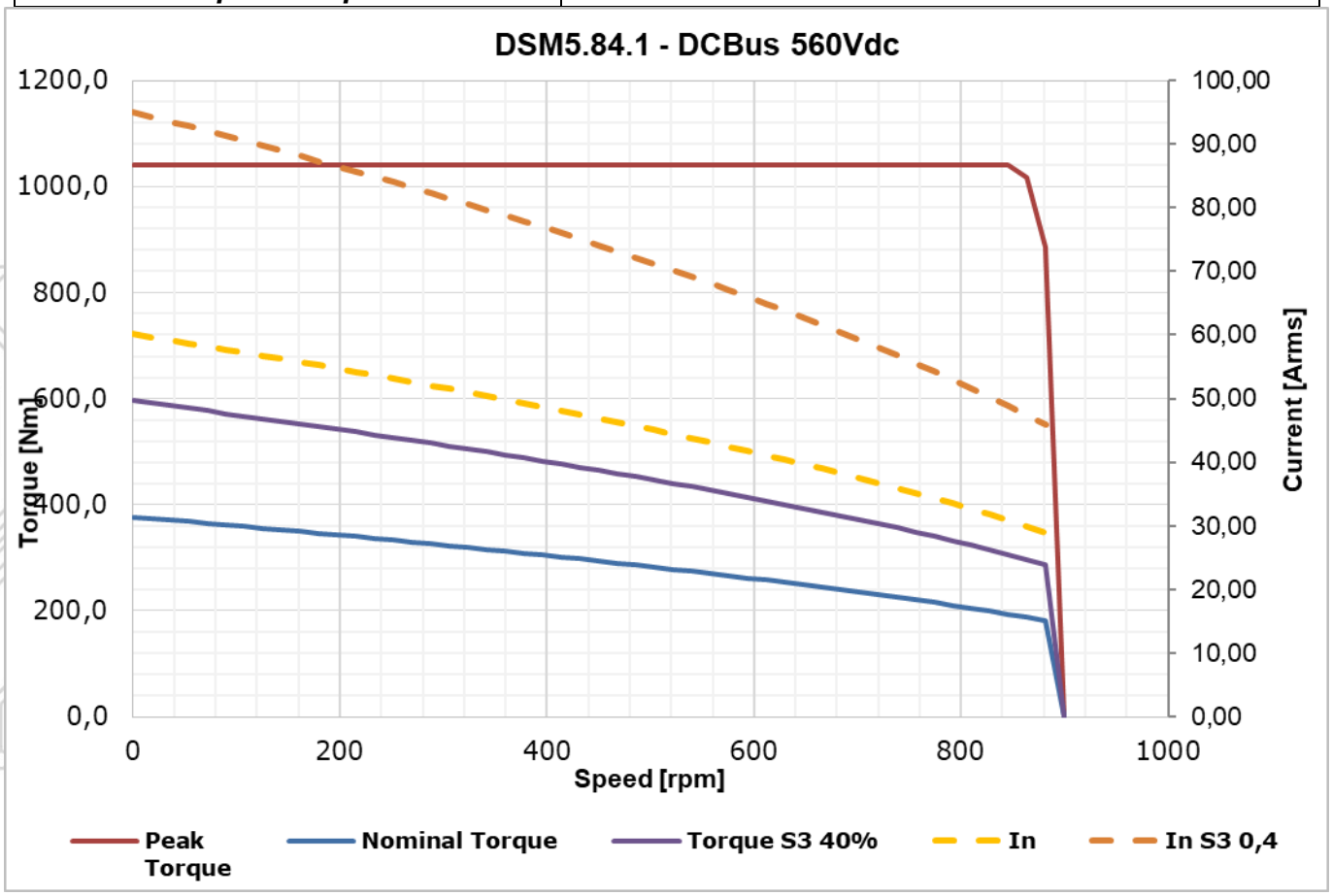
Motor Torque vs. Speed Curve	DSM5.84.1



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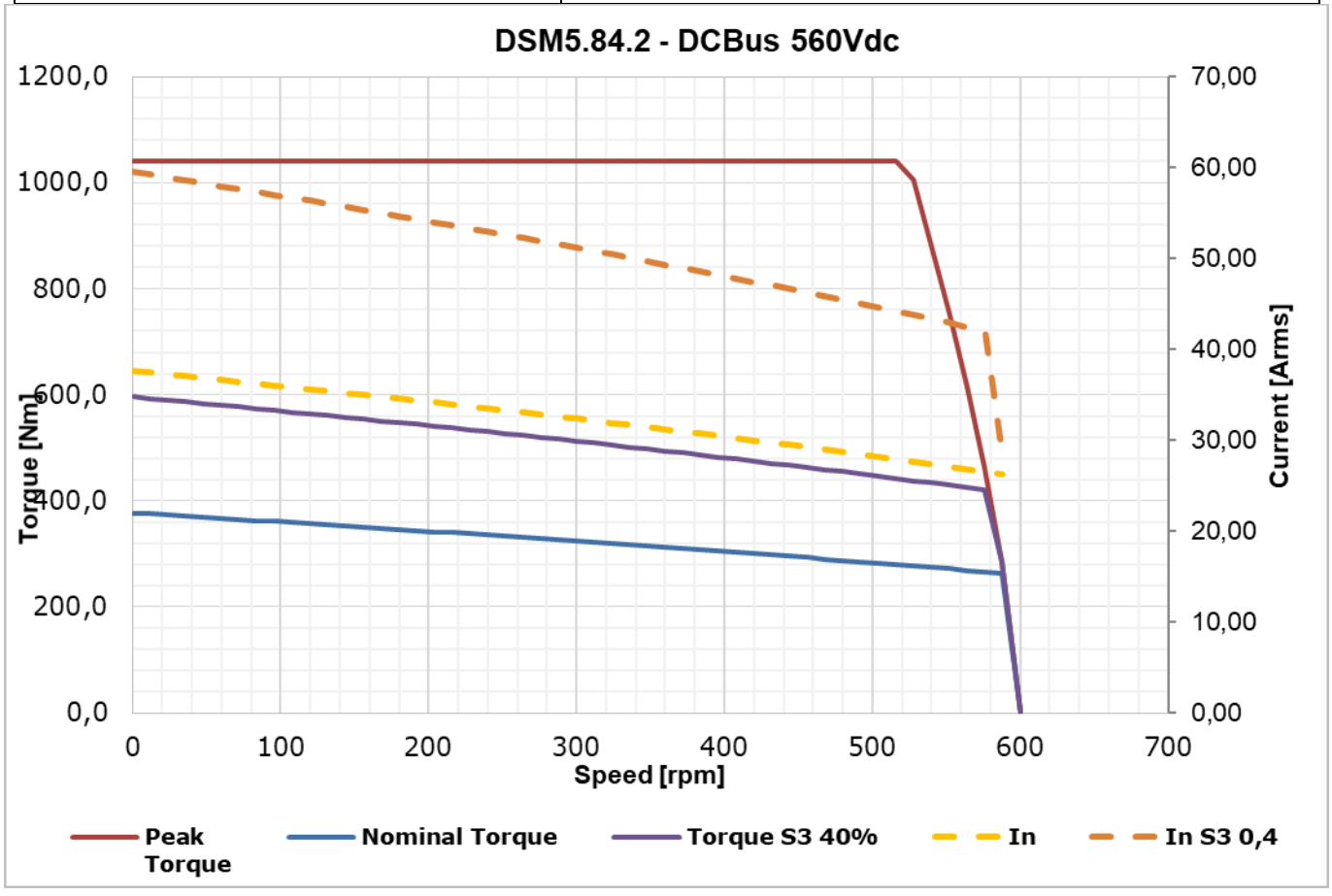
Motor Torque vs. Speed Curve	DSM5.84.2



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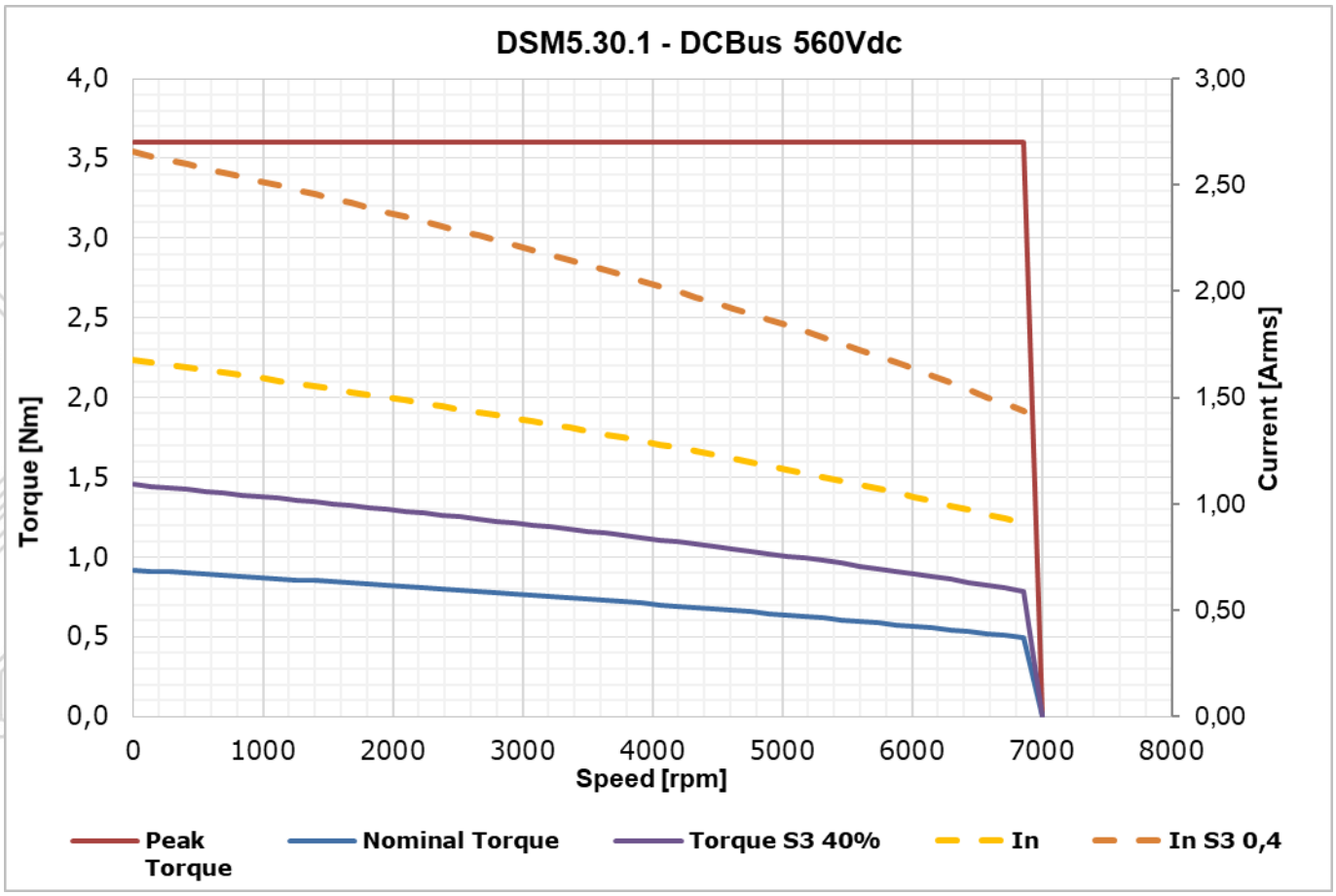
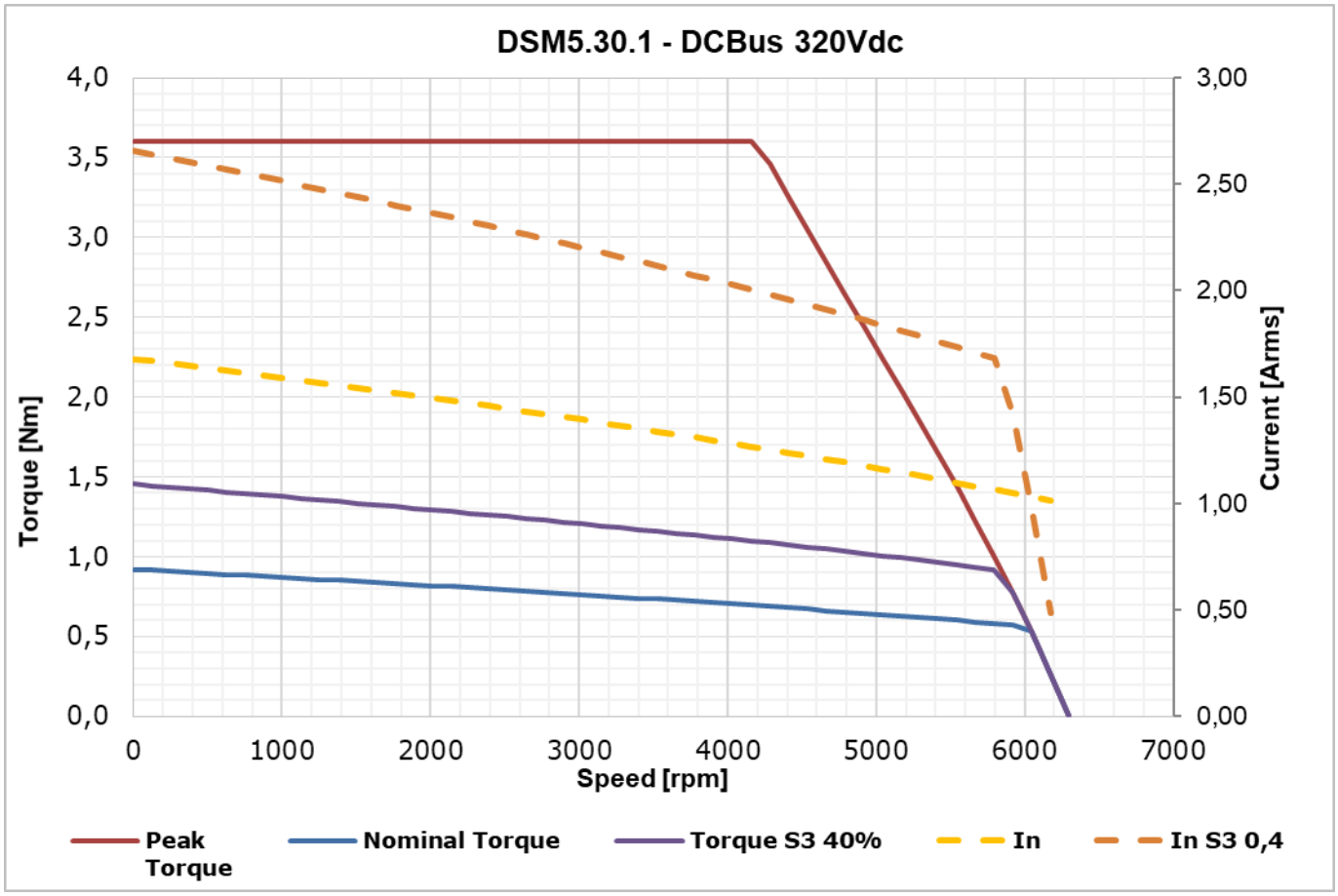
Motor Torque vs. Speed Curve	DSM5.30.1*





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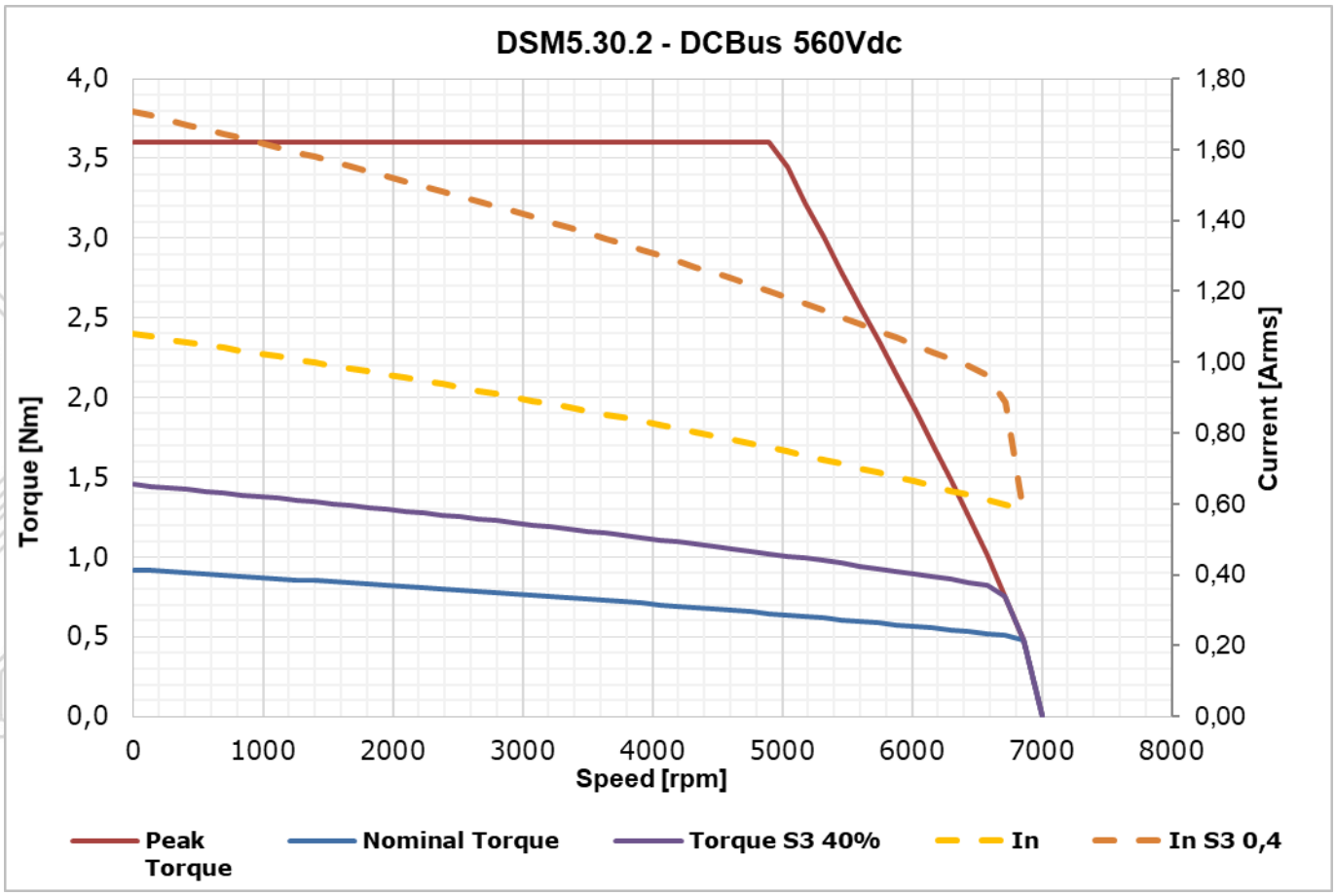
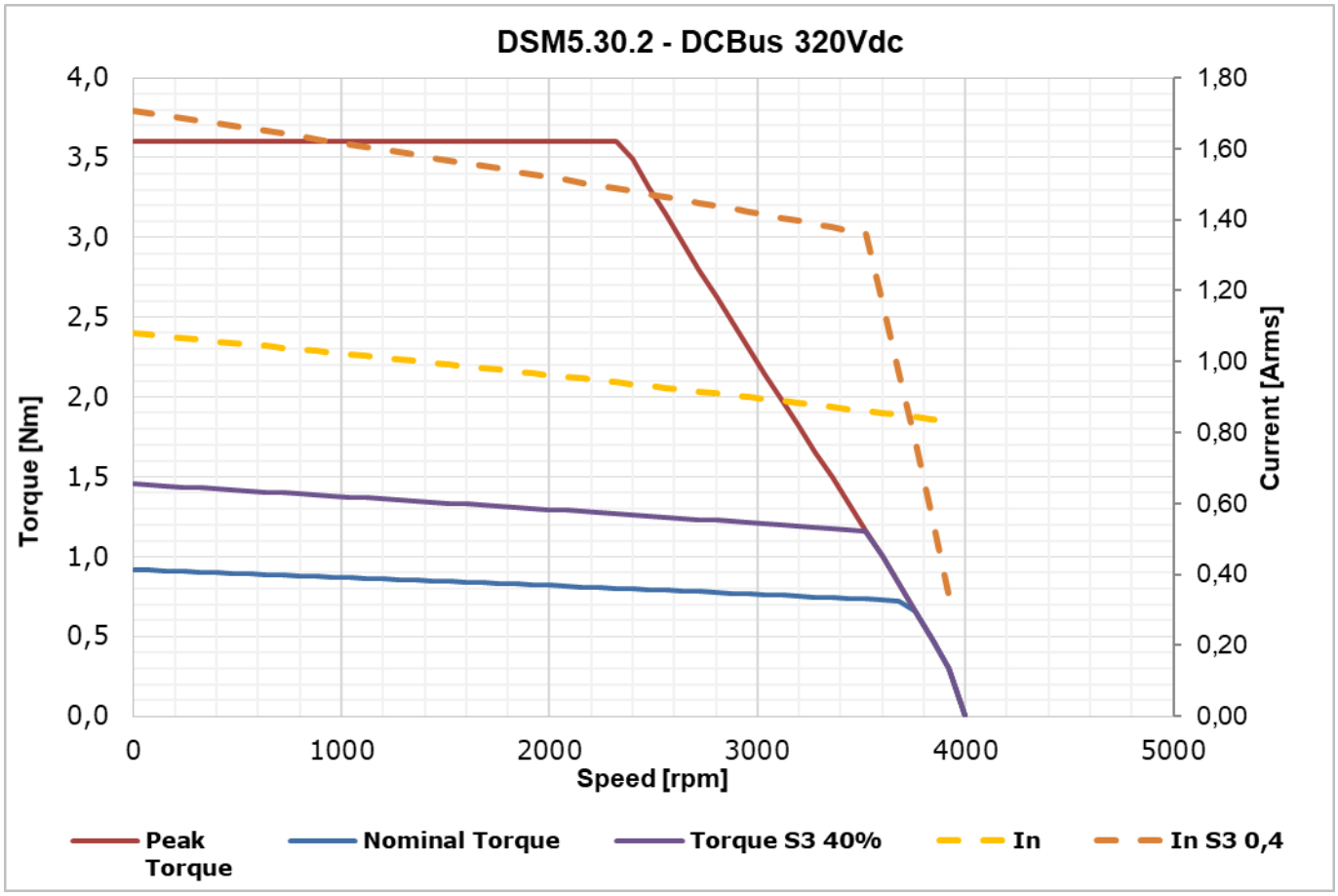
Motor Torque vs. Speed Curve	DSM5.30.2*





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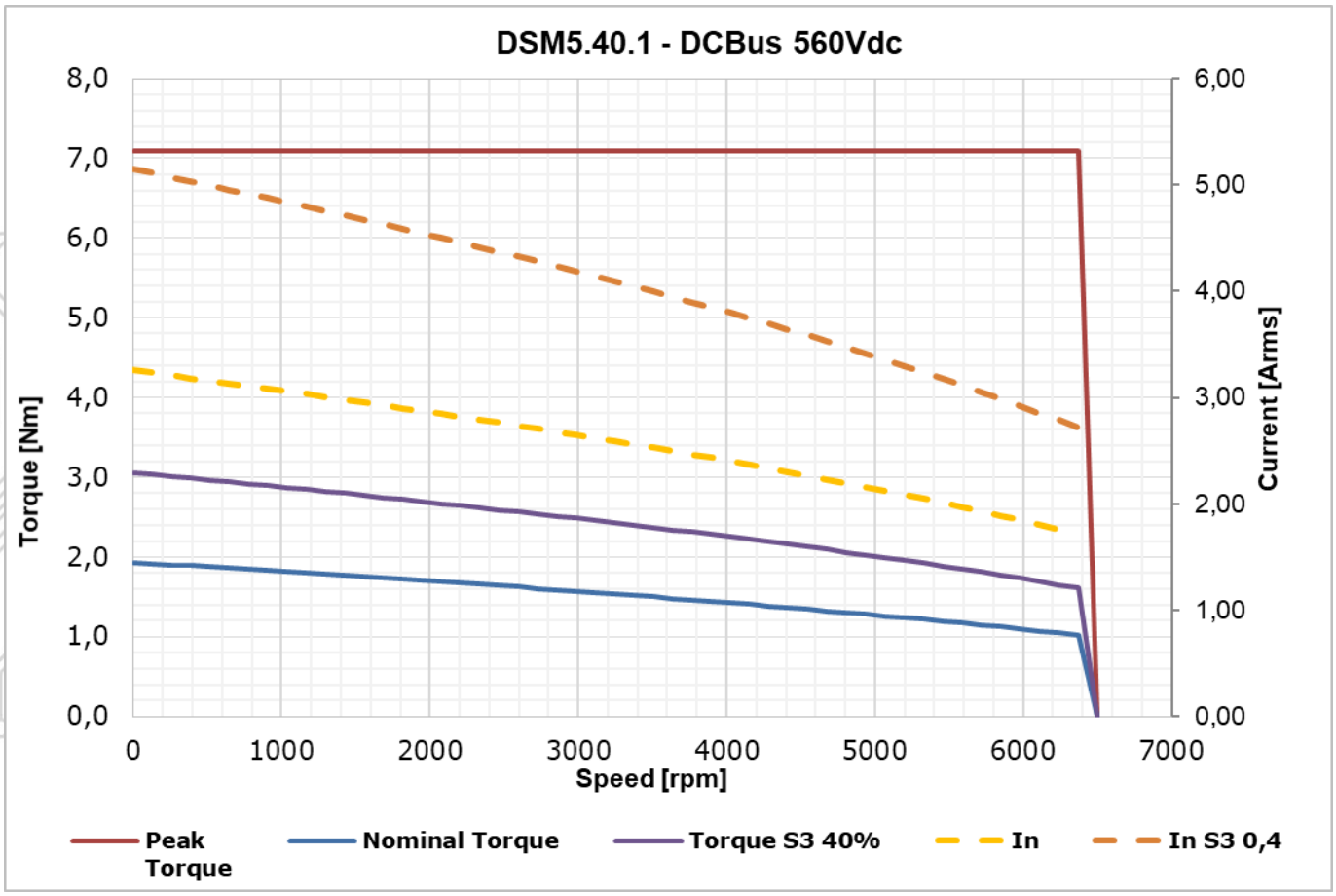
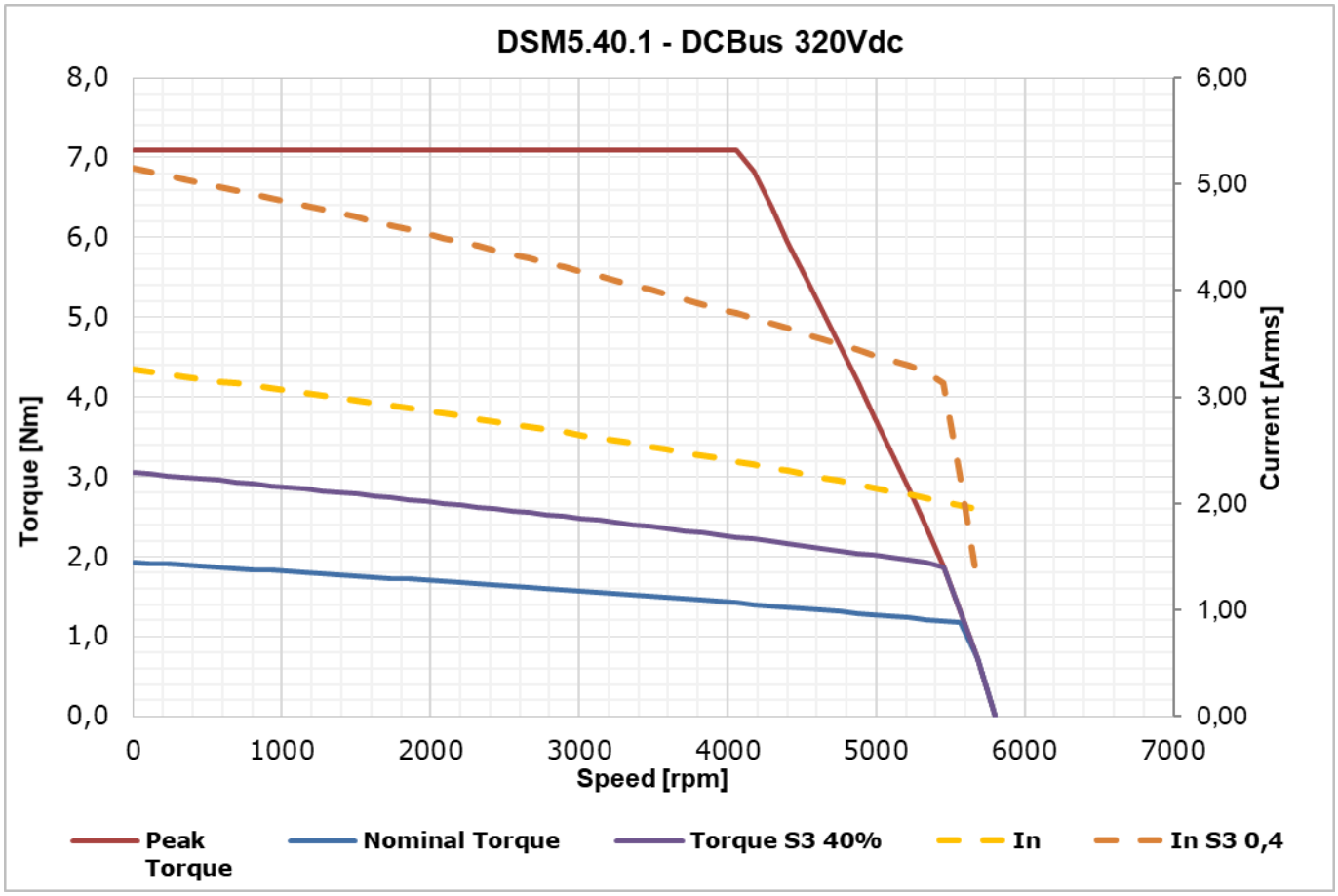
Motor Torque vs. Speed Curve	DSM5.40.1*





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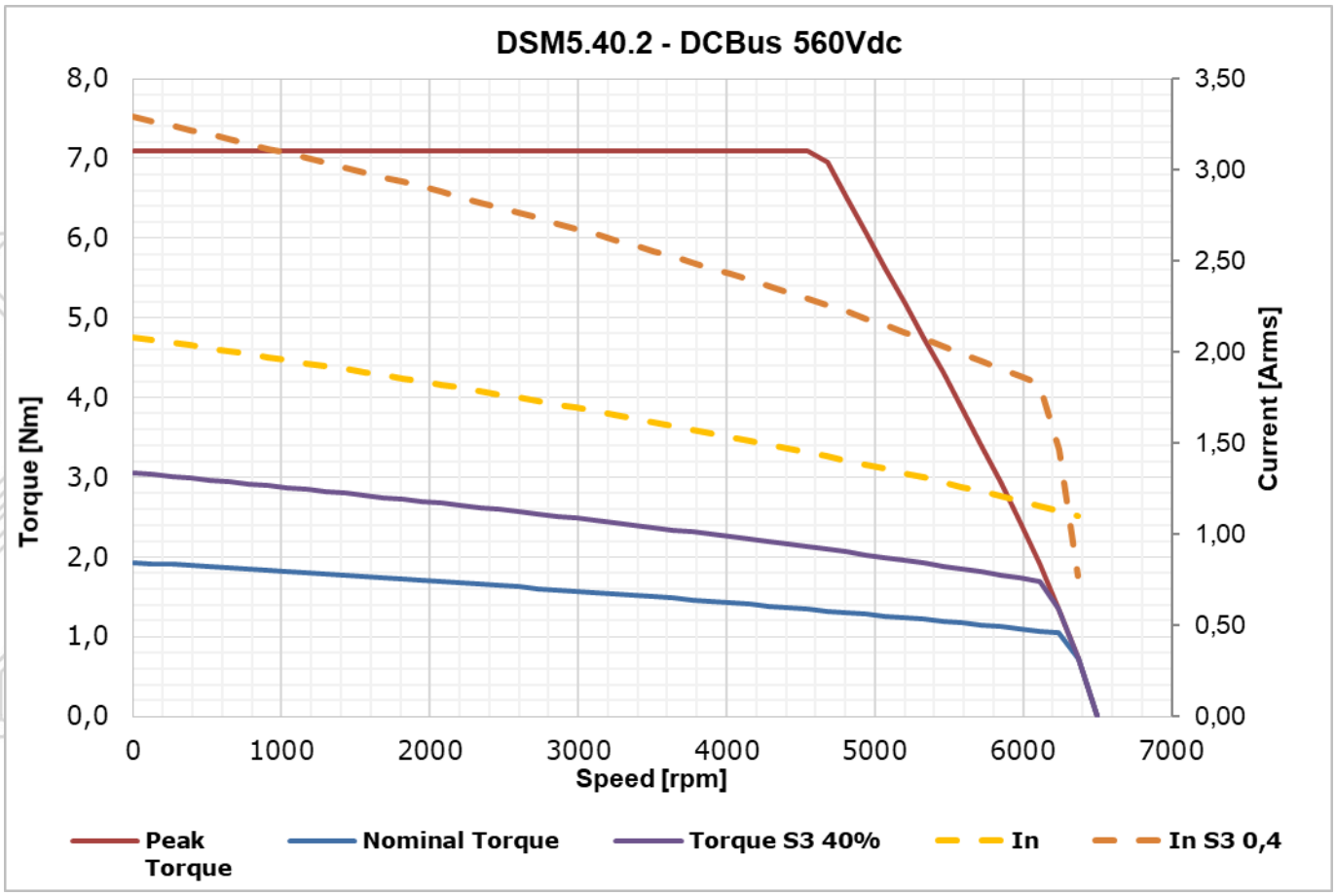
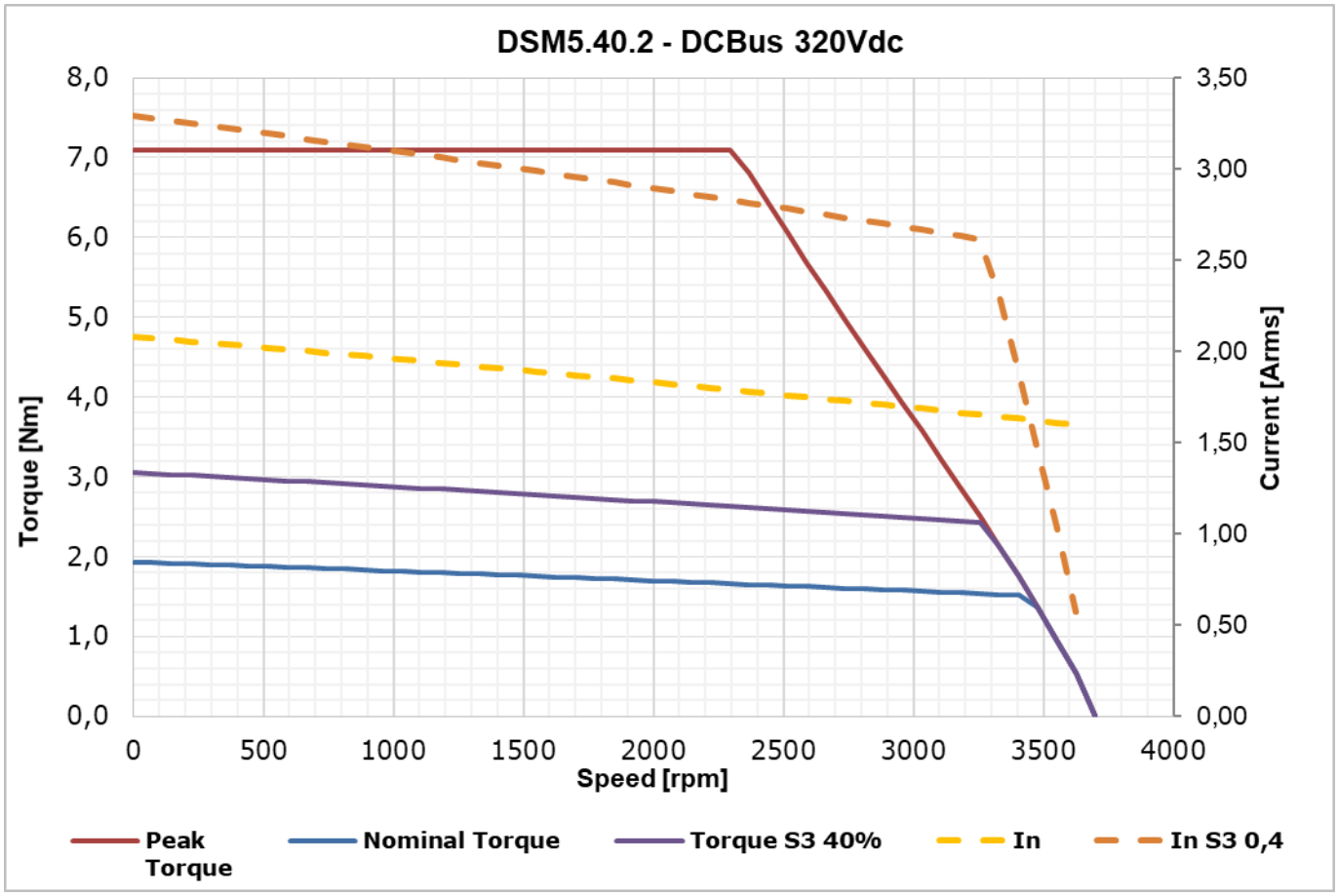
Motor Torque vs. Speed Curve	DSM5.40.2*





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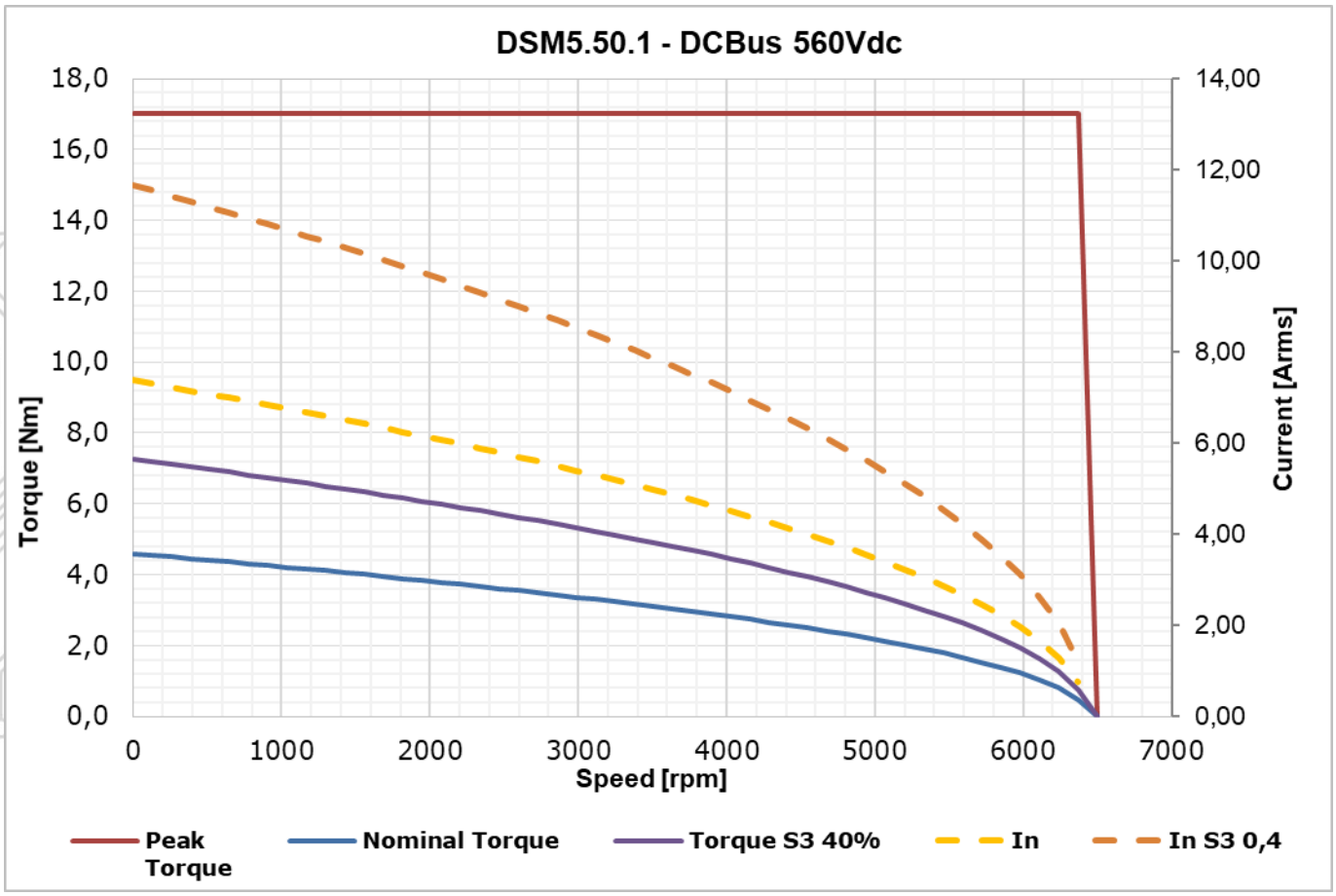
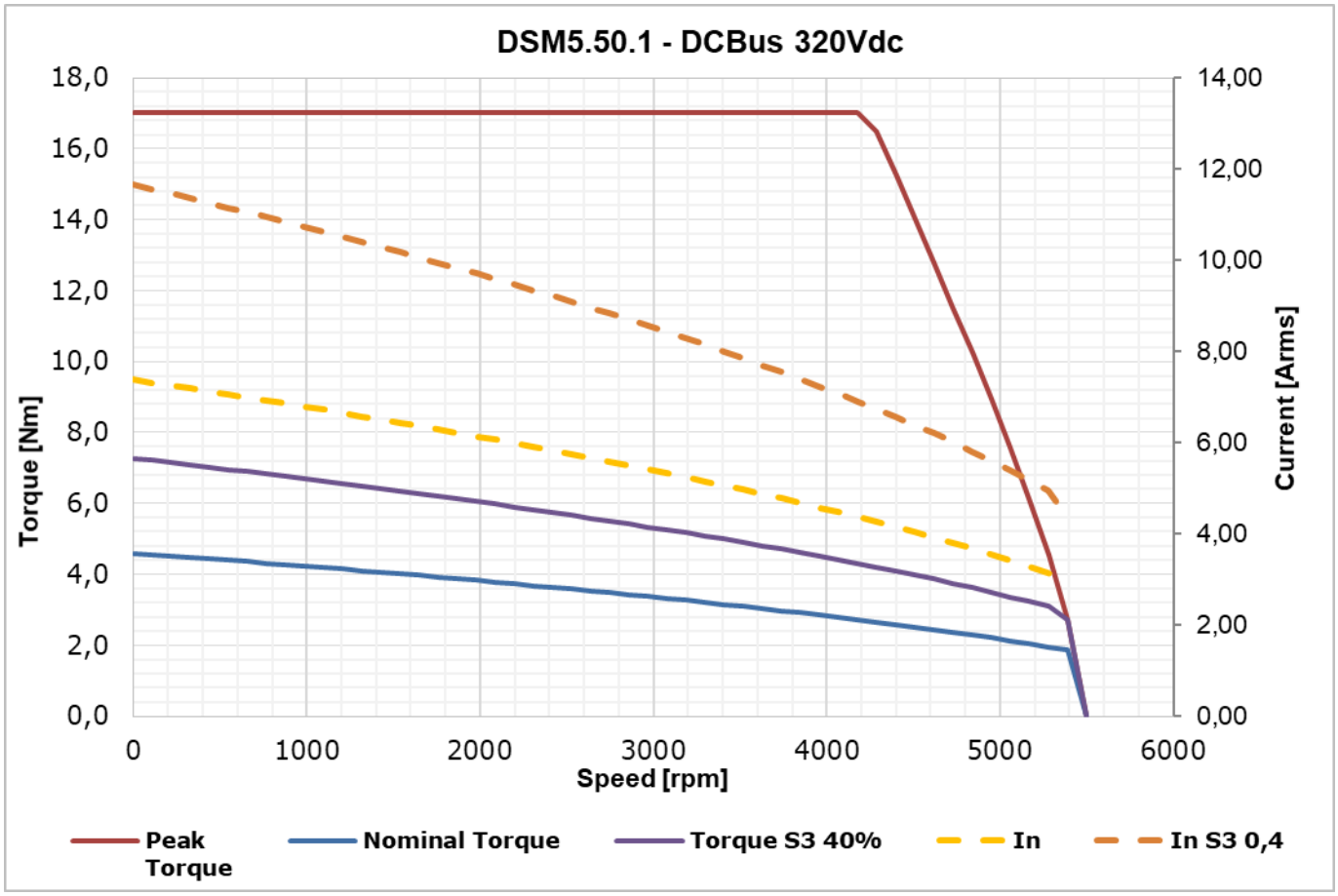
Motor Torque vs. Speed Curve	DSM5.50.1*





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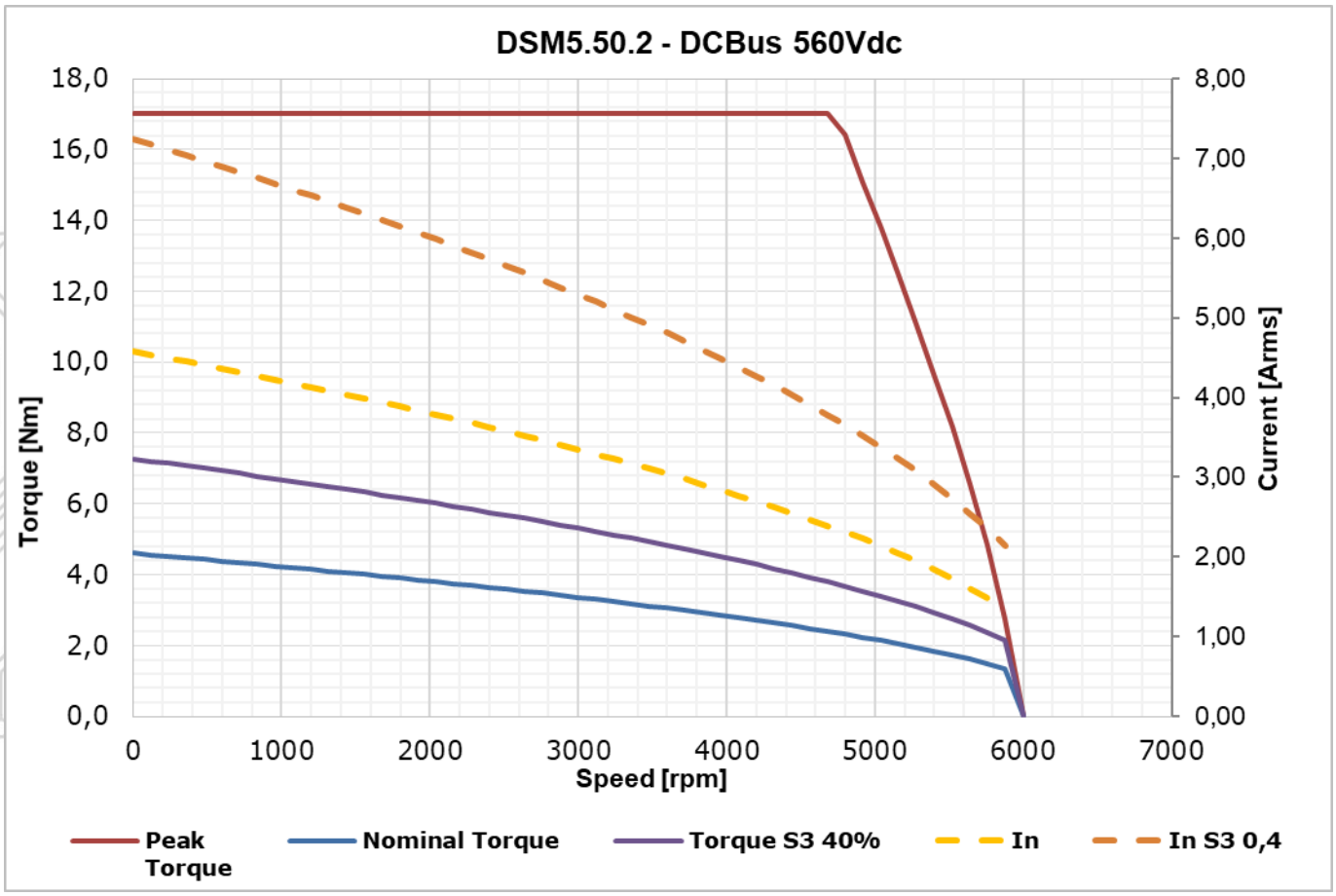
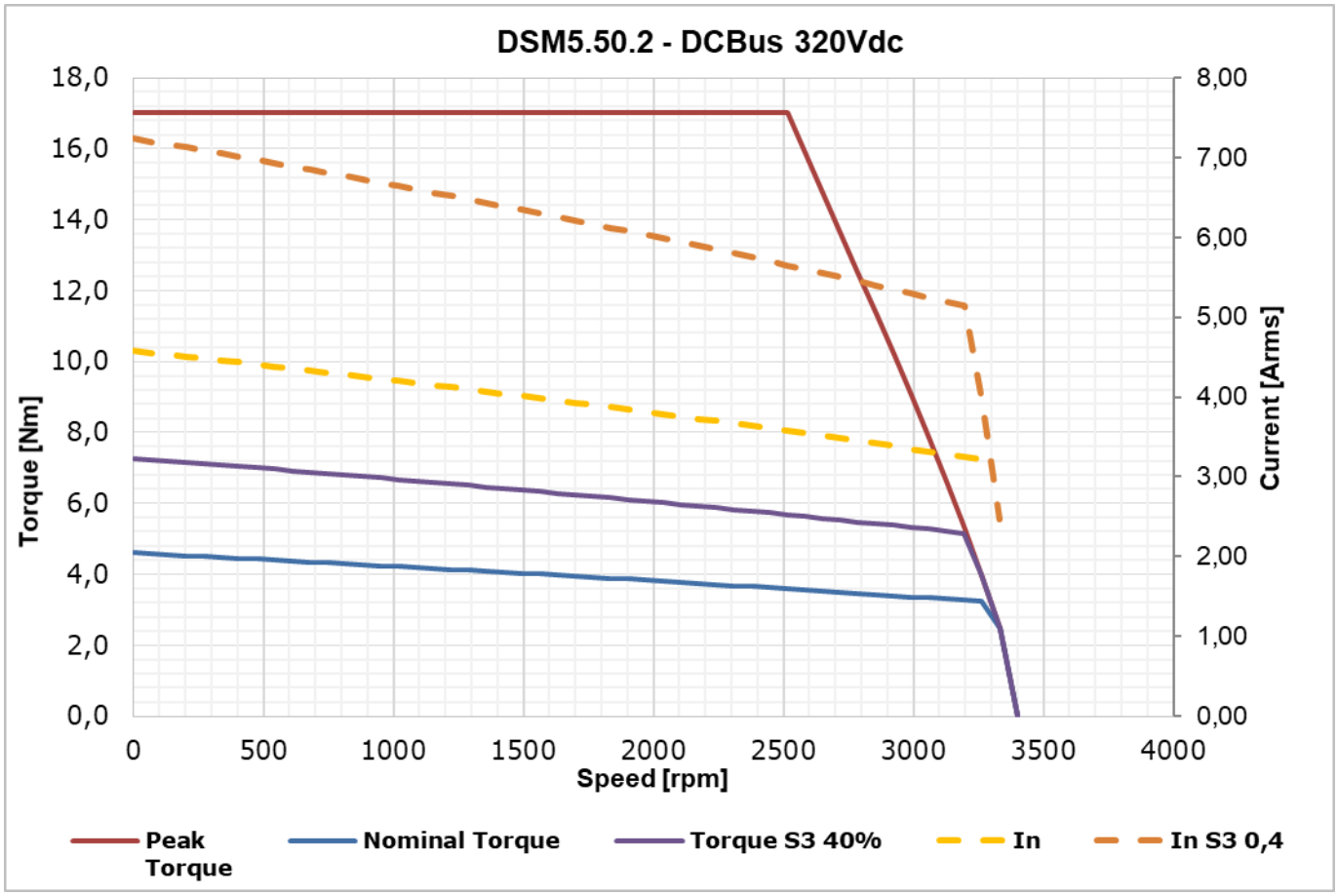
Motor Torque vs. Speed Curve	DSM5.50.2*





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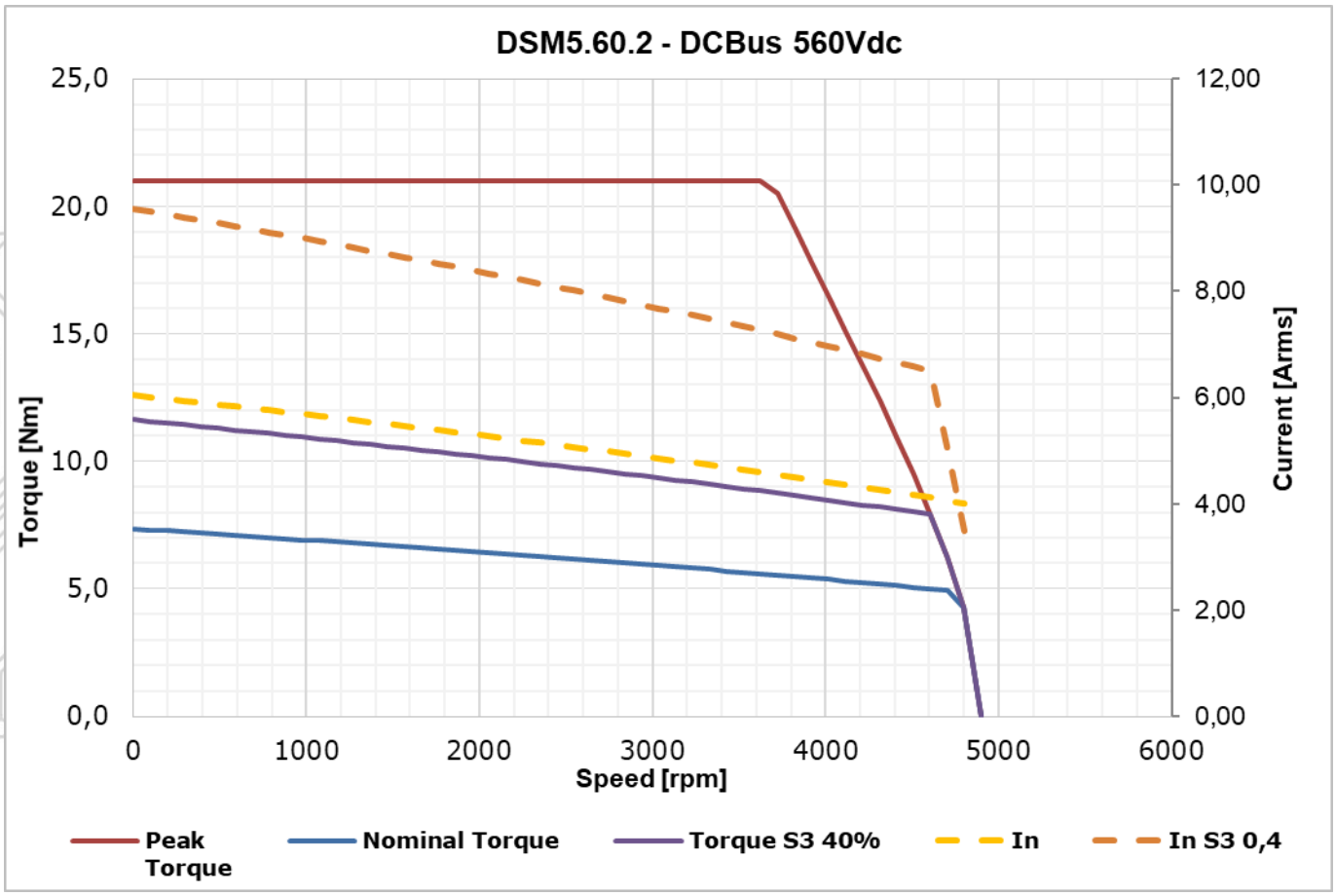
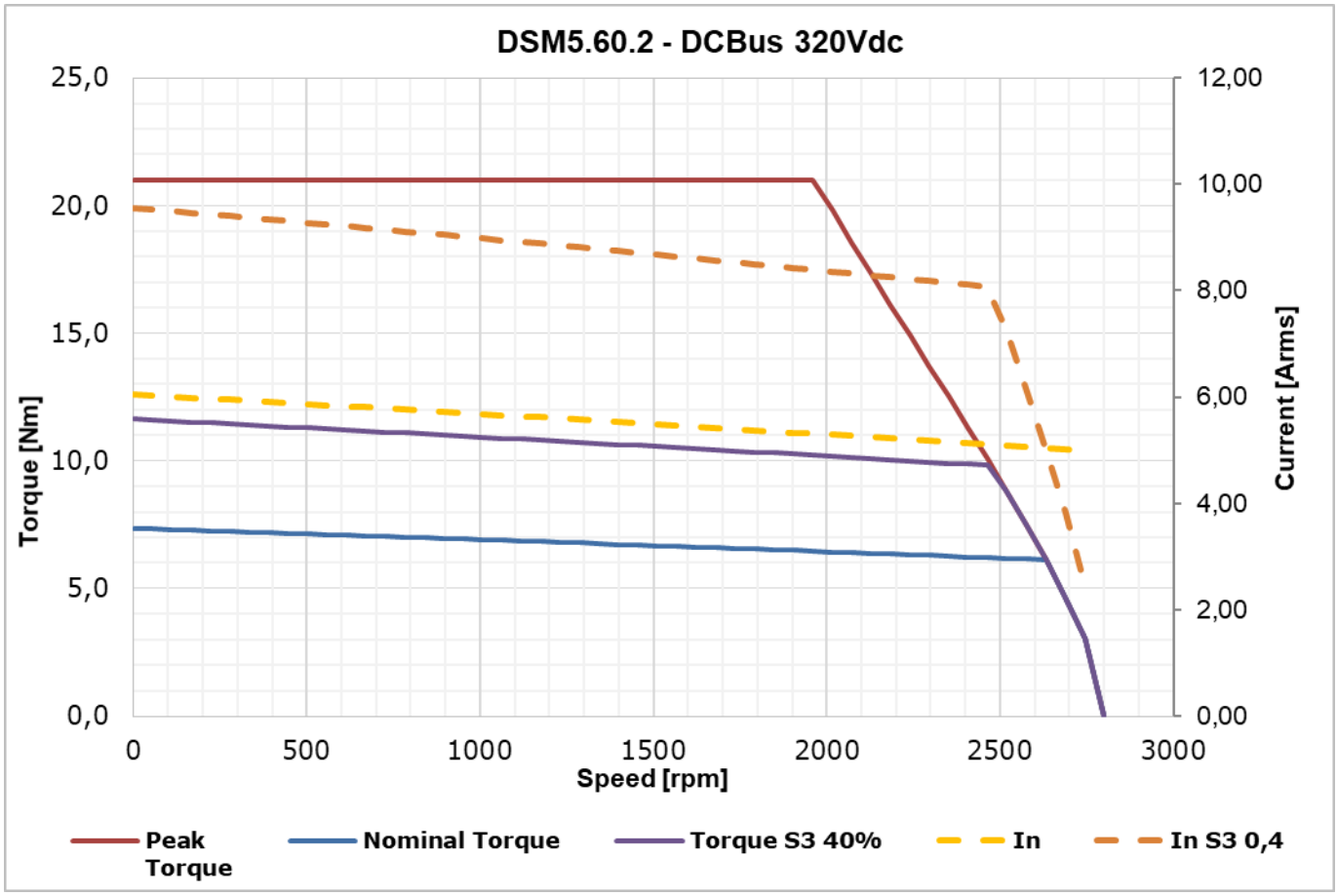
Motor Torque vs. Speed Curve	DSM5.60.2*





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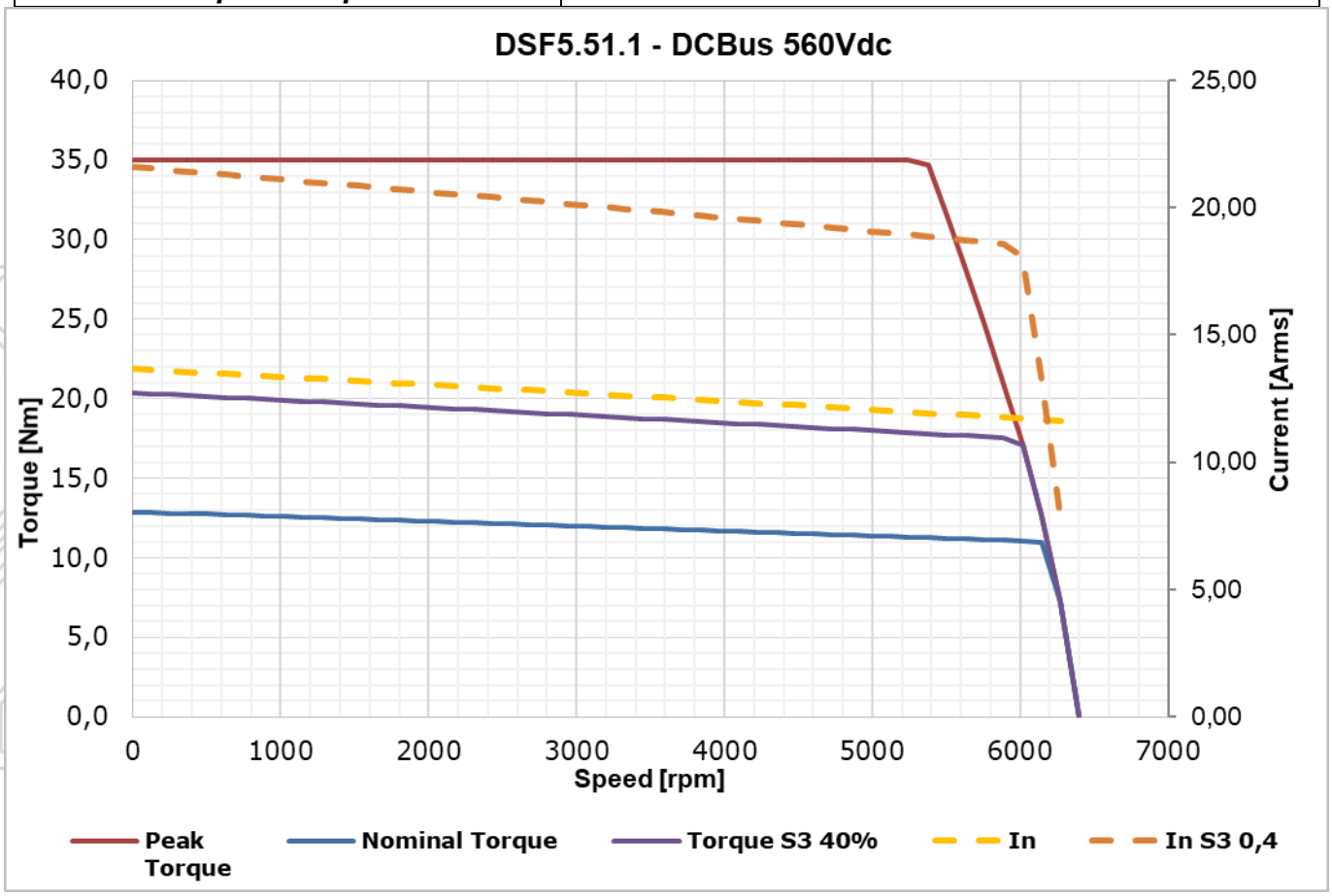
Motor Torque vs. Speed Curve	DSF5.51.1



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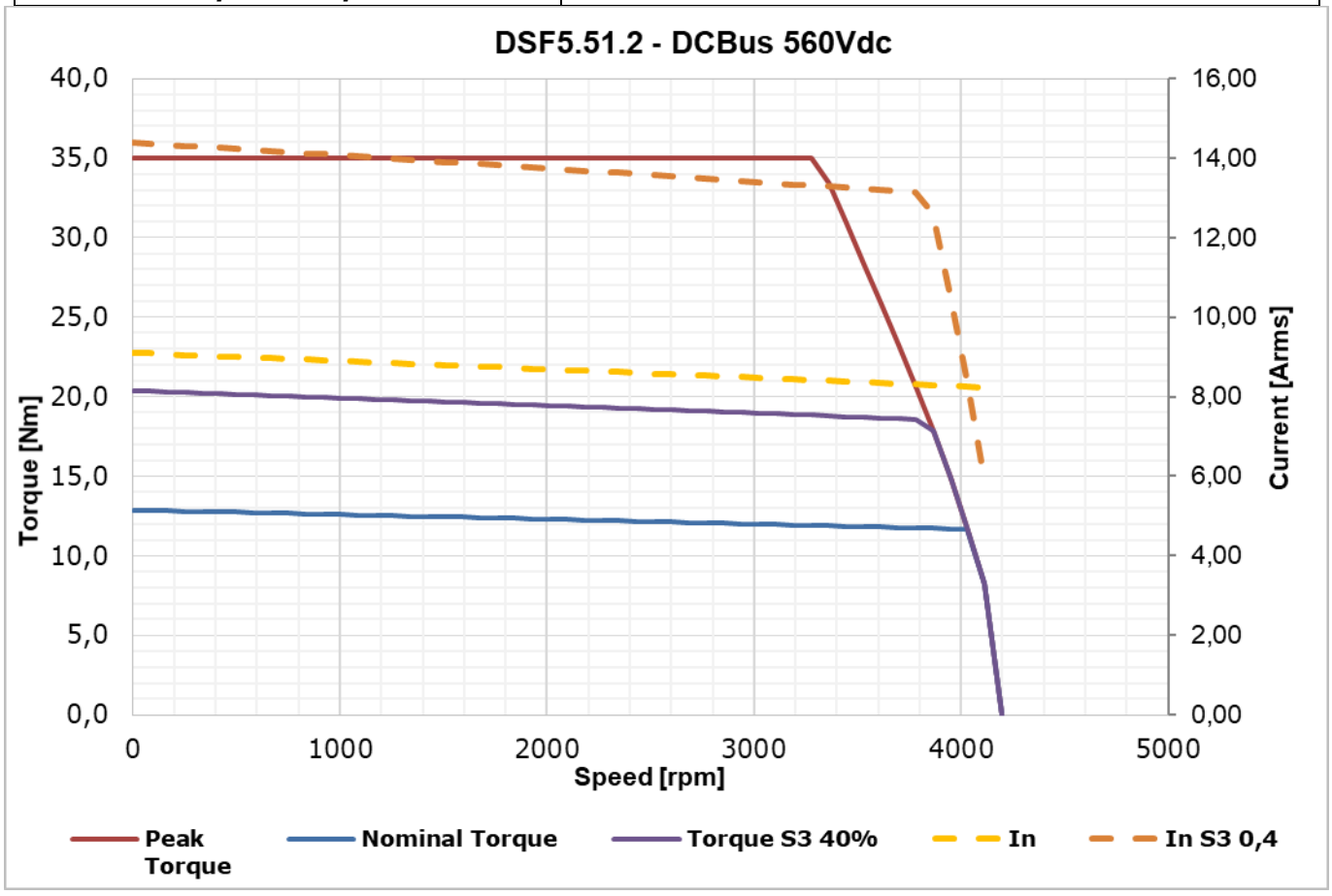
Motor Torque vs. Speed Curve	DSF5.51.2



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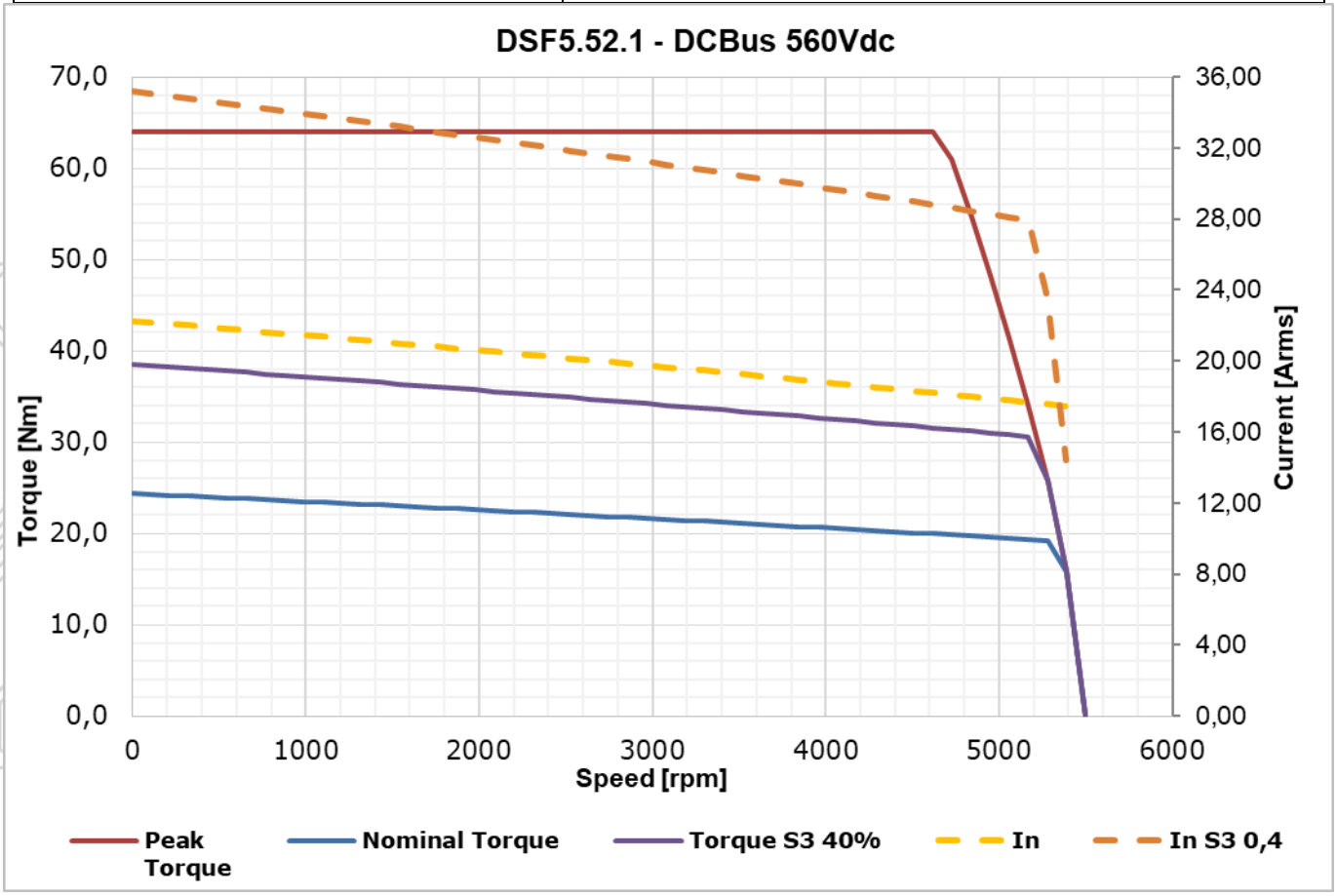
Motor Torque vs. Speed Curve	DSF5.52.1



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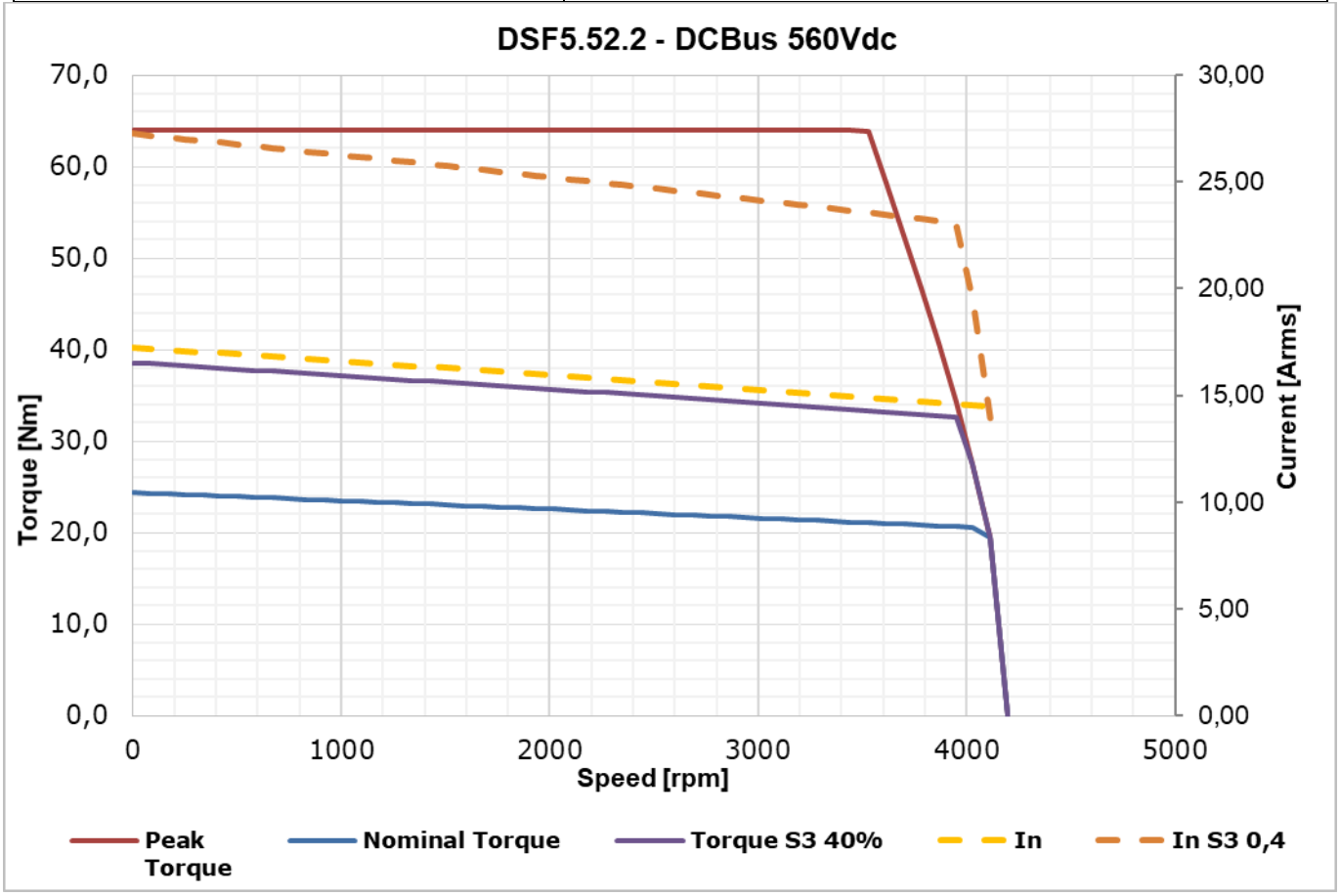
Motor Torque vs. Speed Curve	DSF5.52.2



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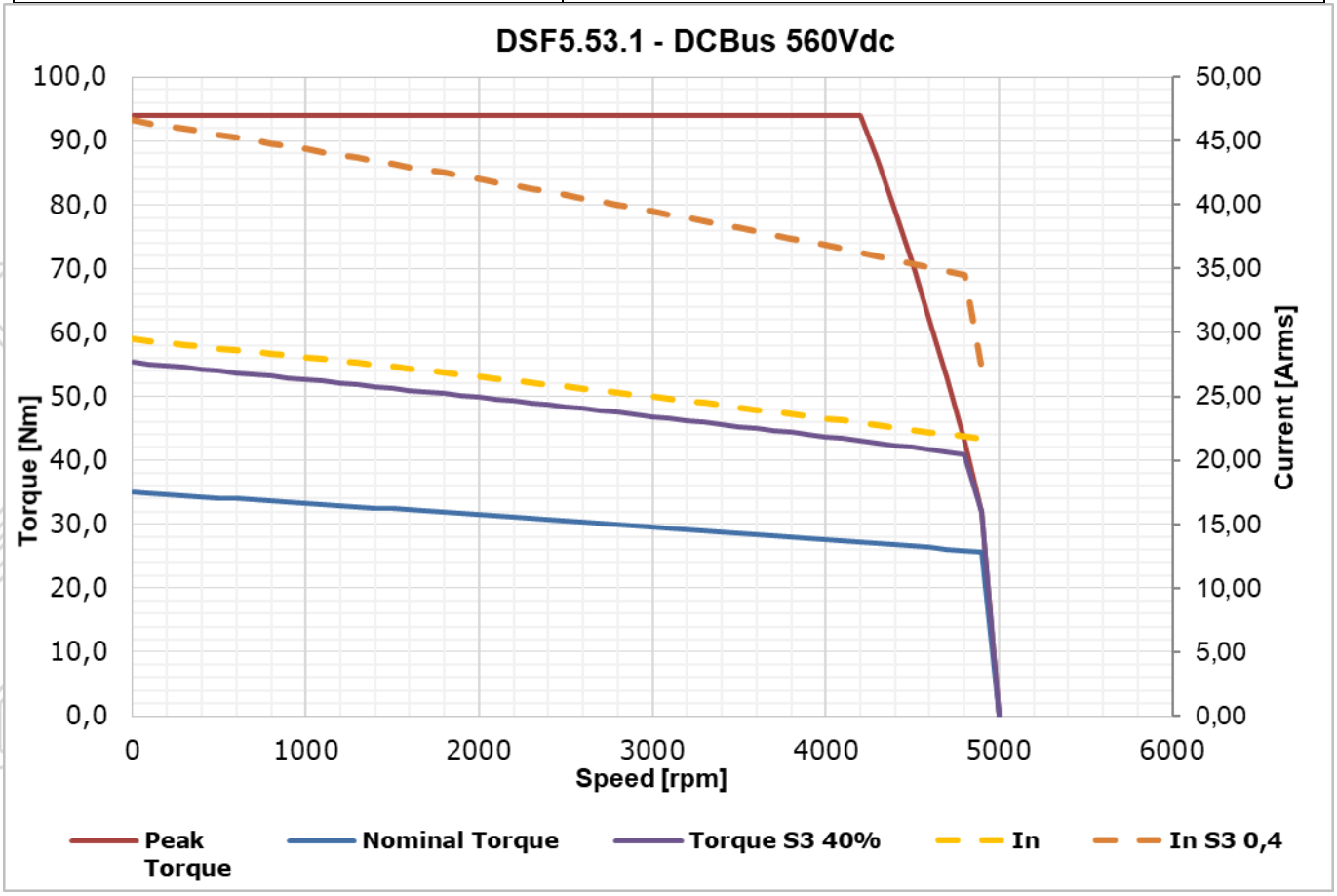
Motor Torque vs. Speed Curve	DSF5.53.1



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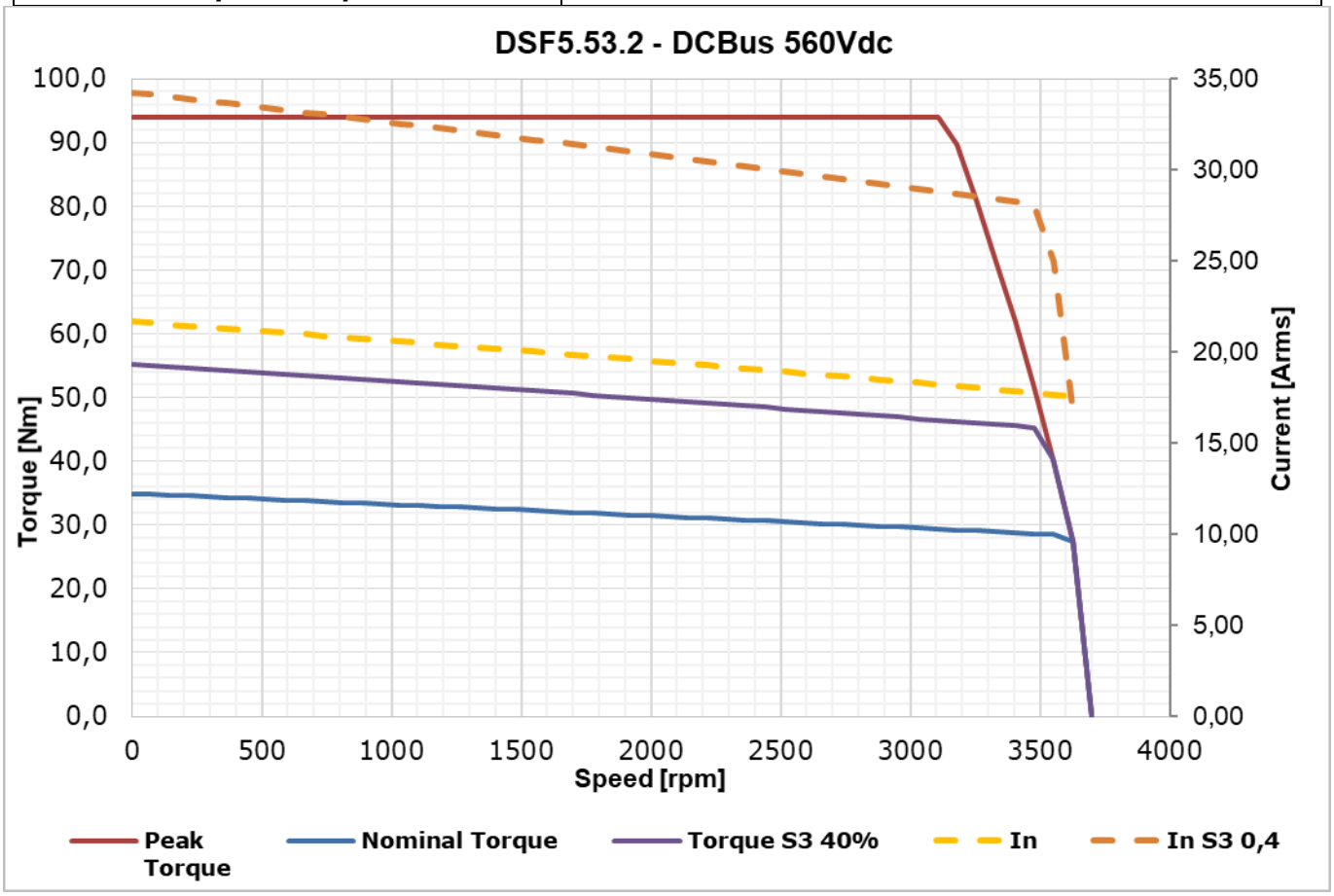
Motor Torque vs. Speed Curve	DSF5.53.2



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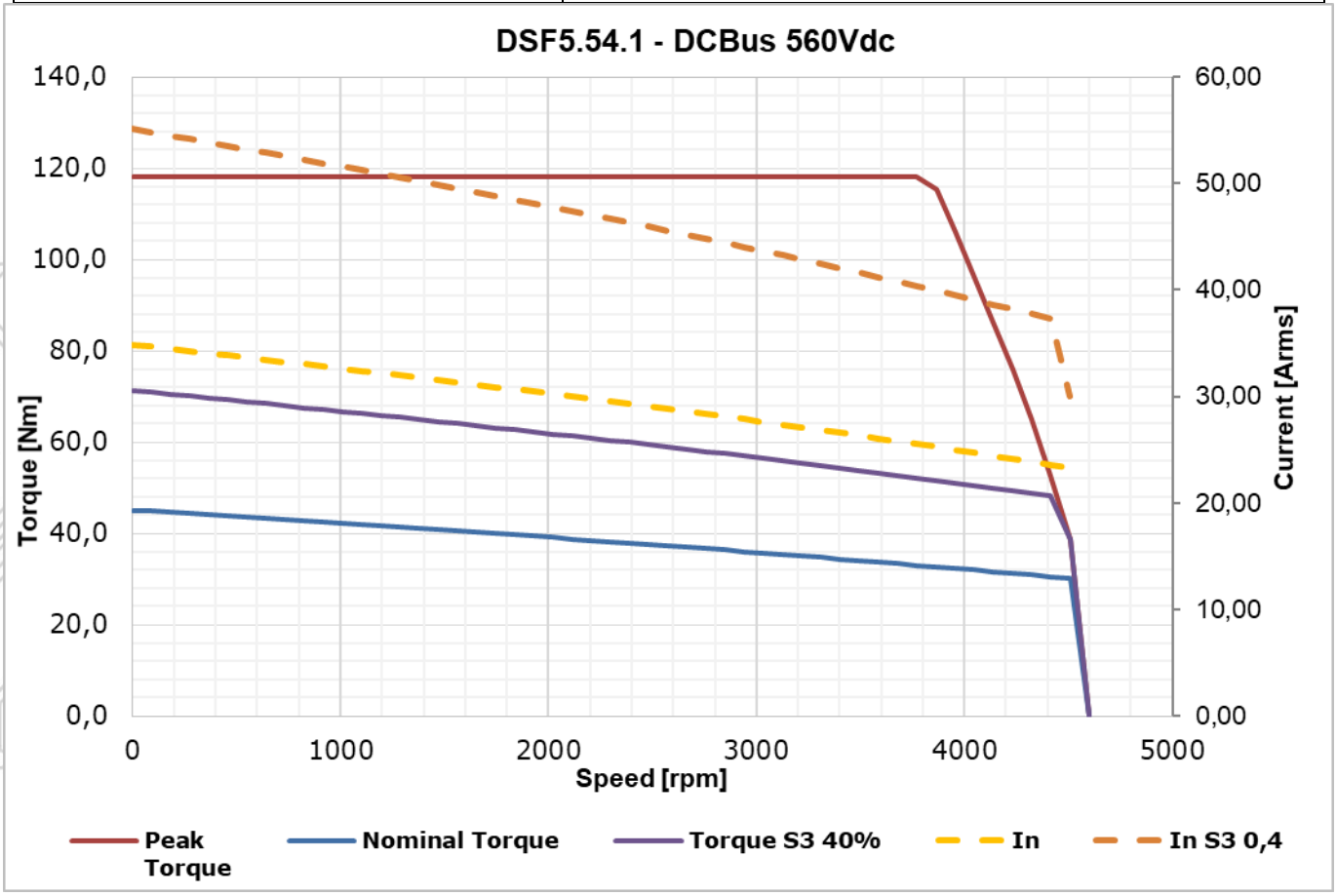
Motor Torque vs. Speed Curve	DSF5.54.1



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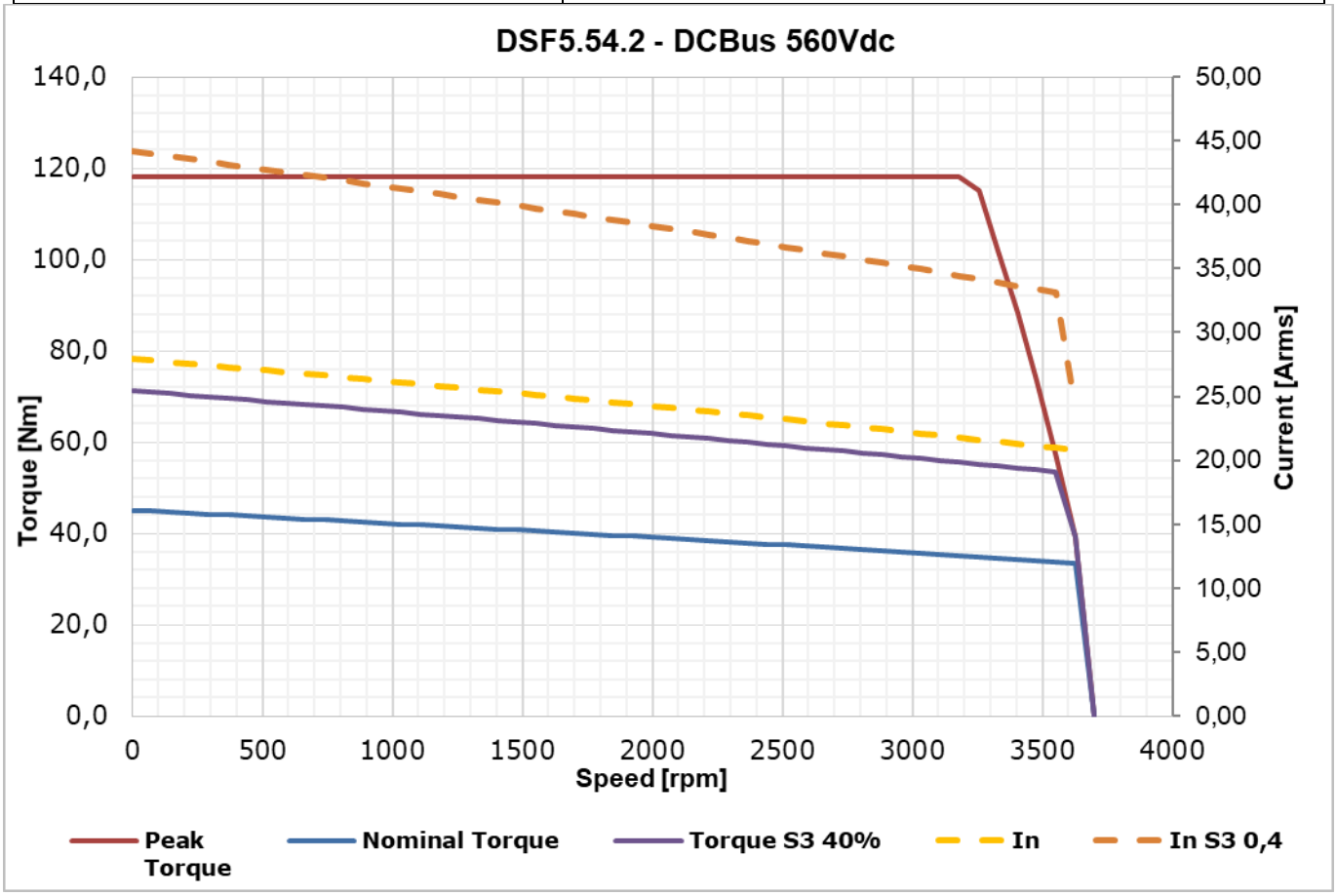
Motor Torque vs. Speed Curve	DSF5.54.2



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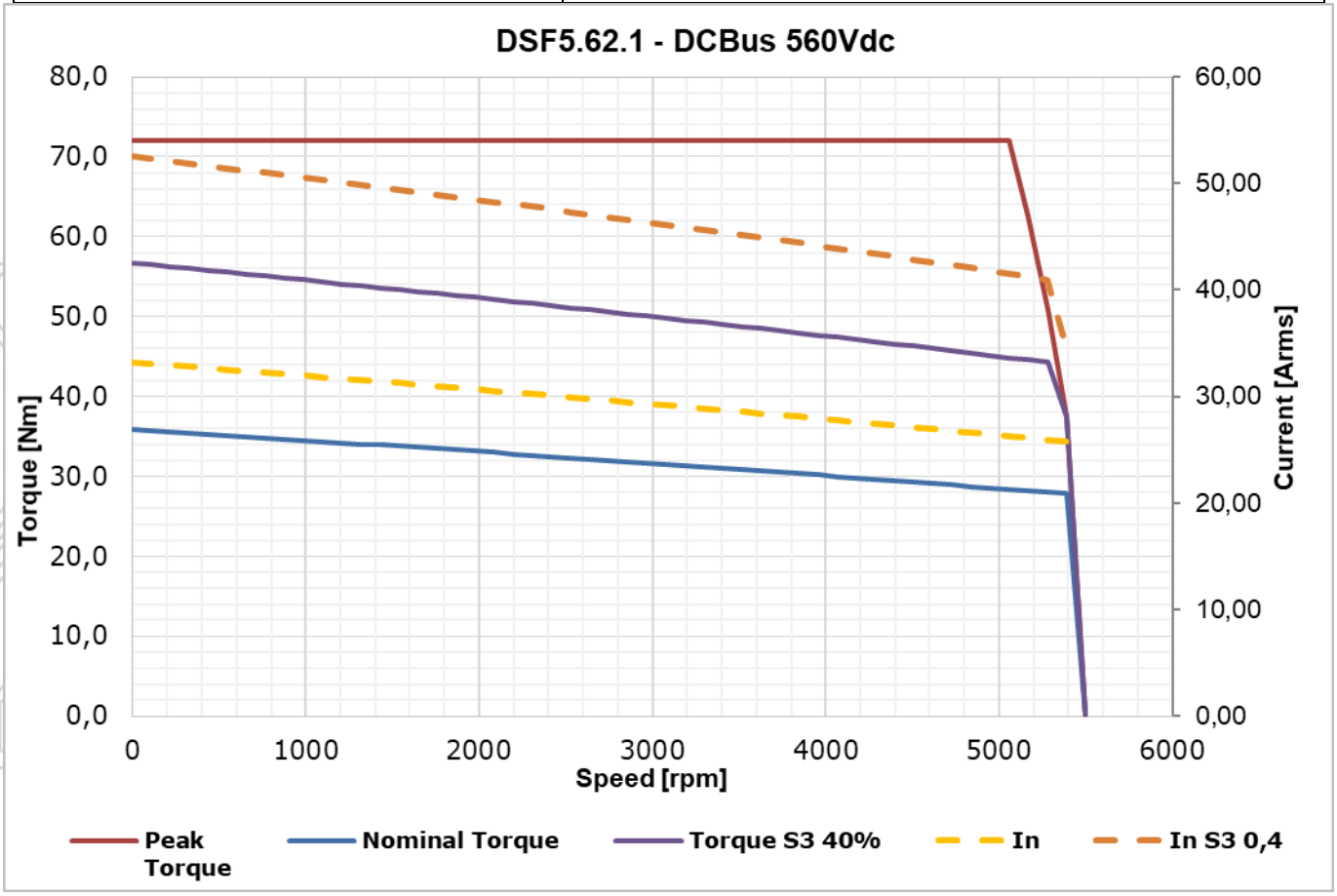
Motor Torque vs. Speed Curve	DSF5.62.1



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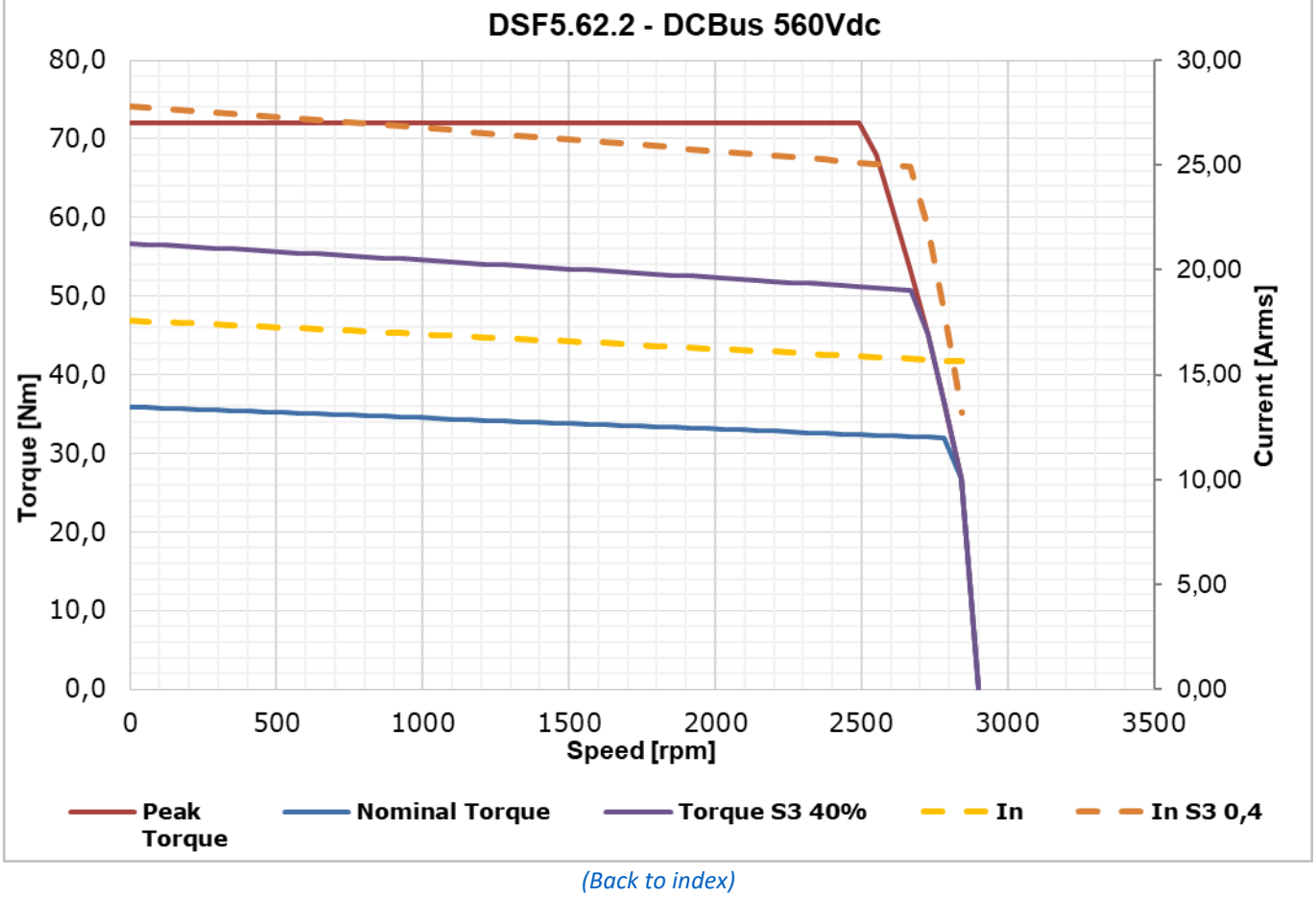
Motor Torque vs. Speed Curve	DSF5.62.2



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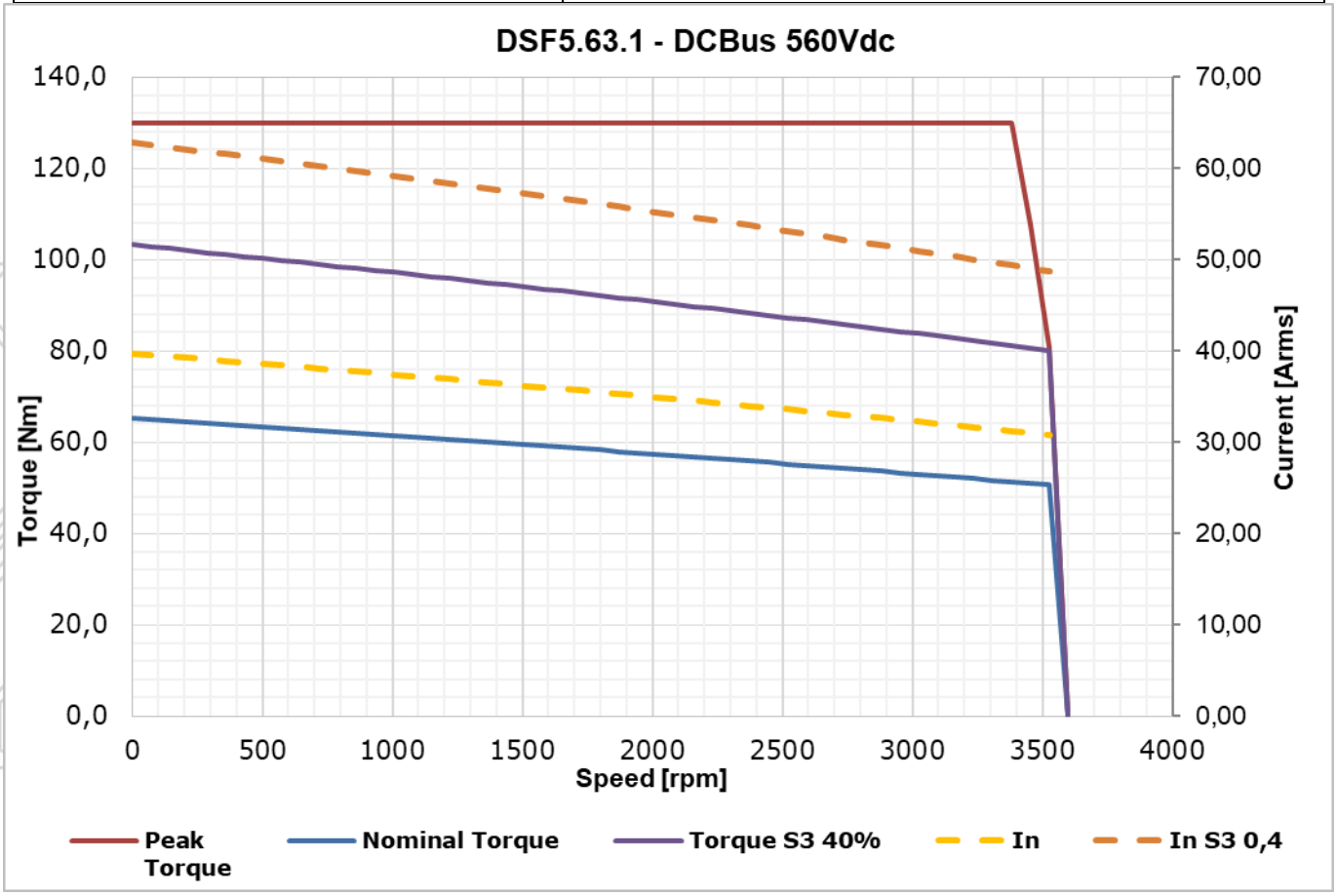
Motor Torque vs. Speed Curve	DSF5.63.1



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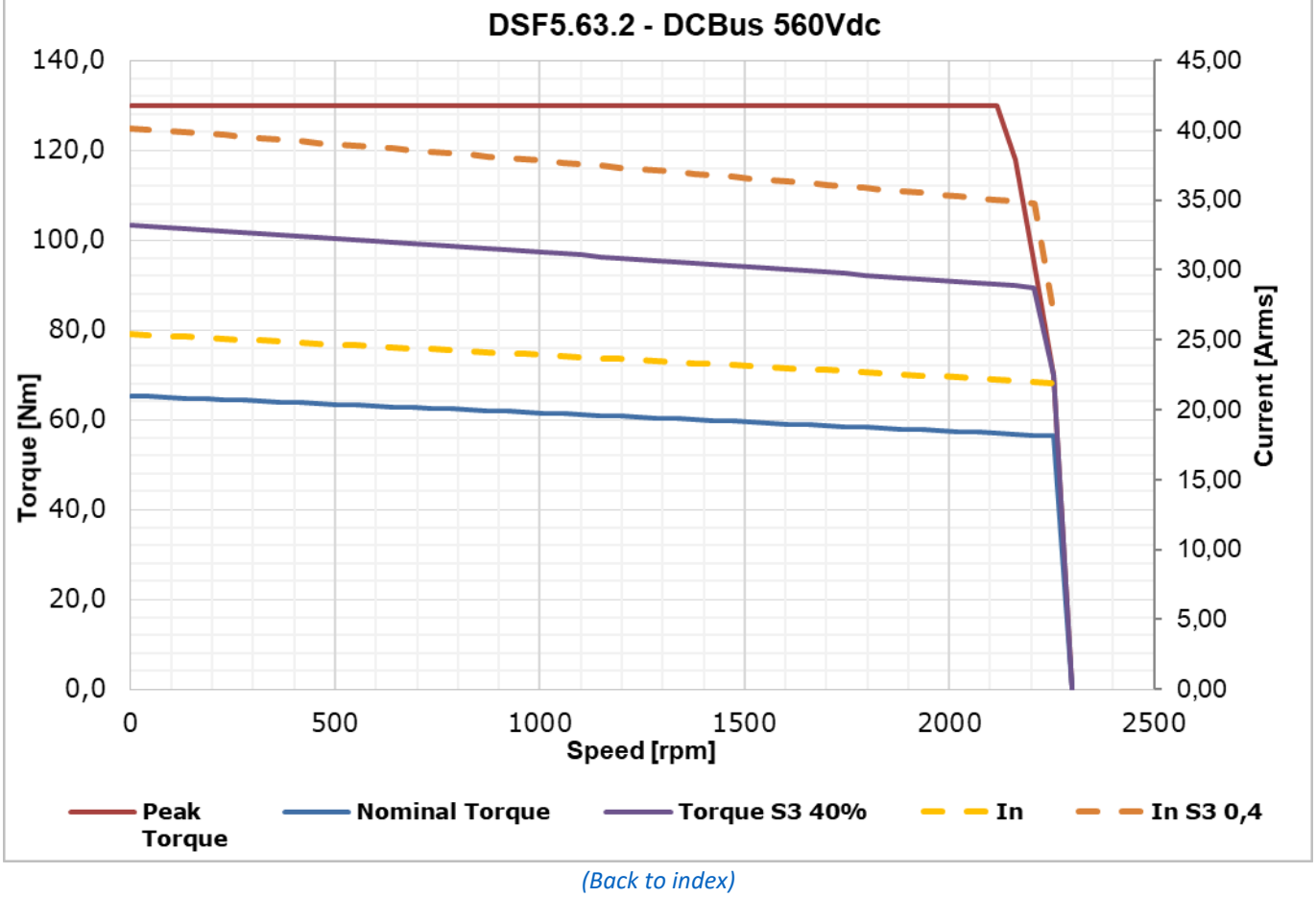
Motor Torque vs. Speed Curve	DSF5.63.2



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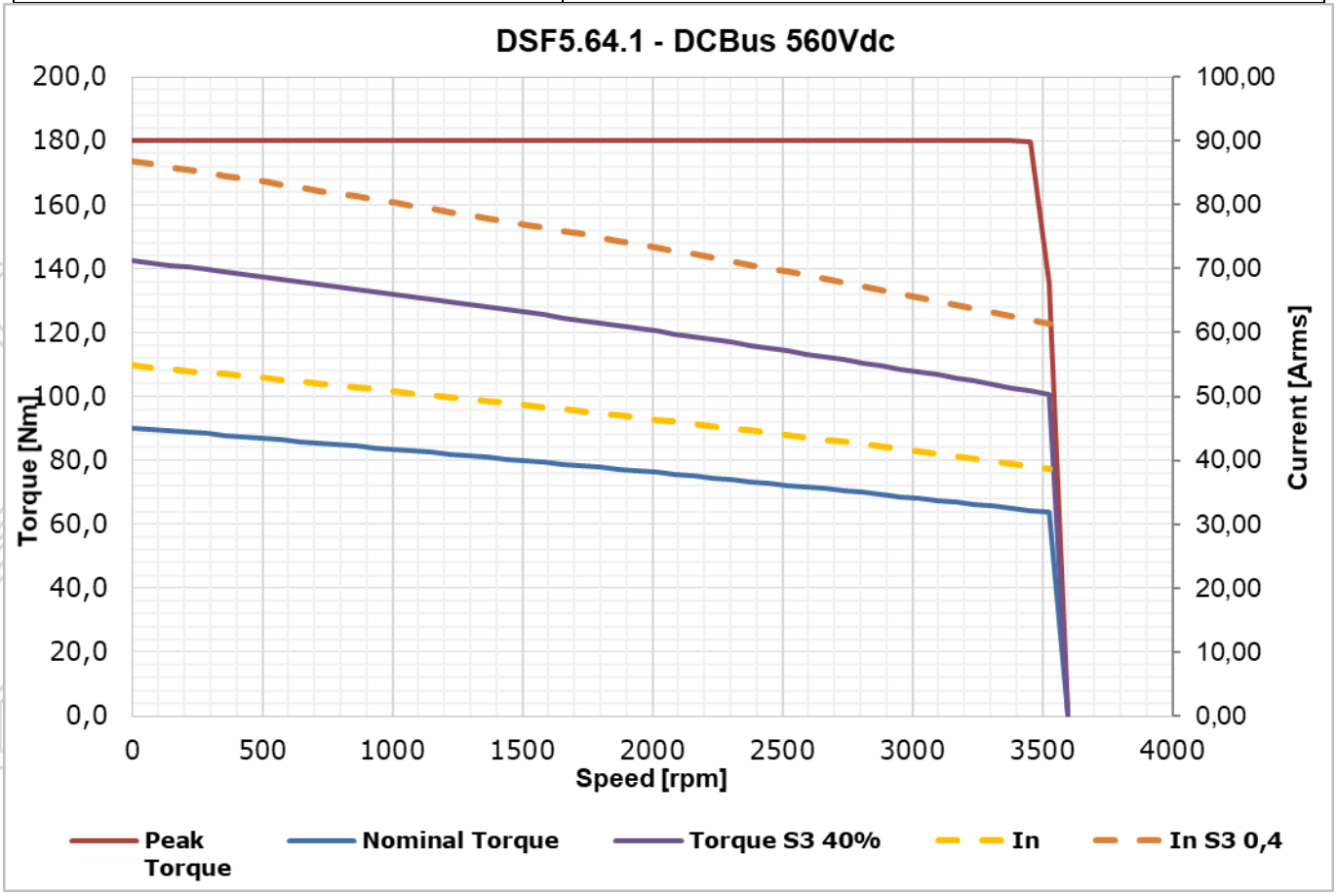
Motor Torque vs. Speed Curve	DSF5.64.1



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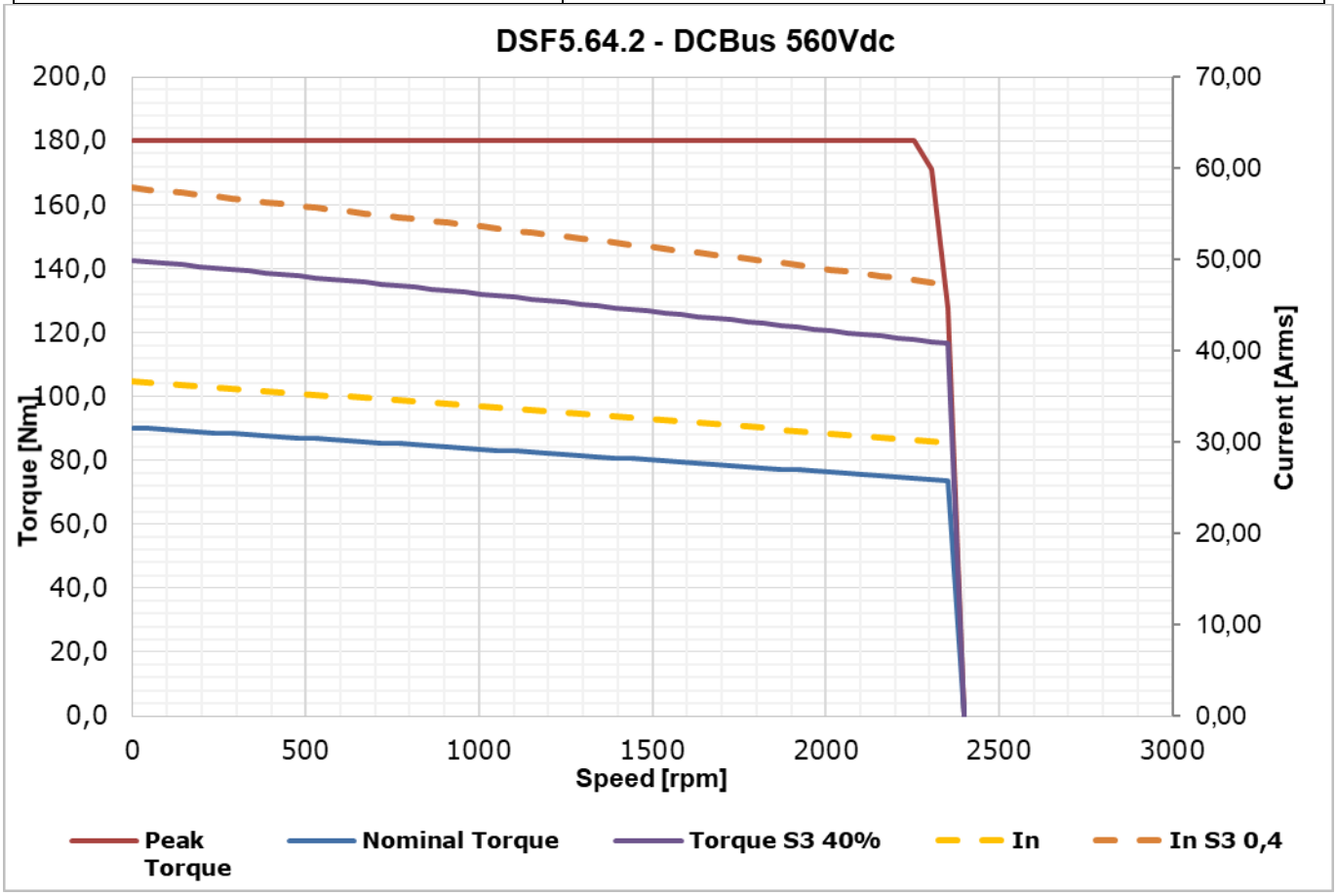
Motor Torque vs. Speed Curve	DSF5.64.2



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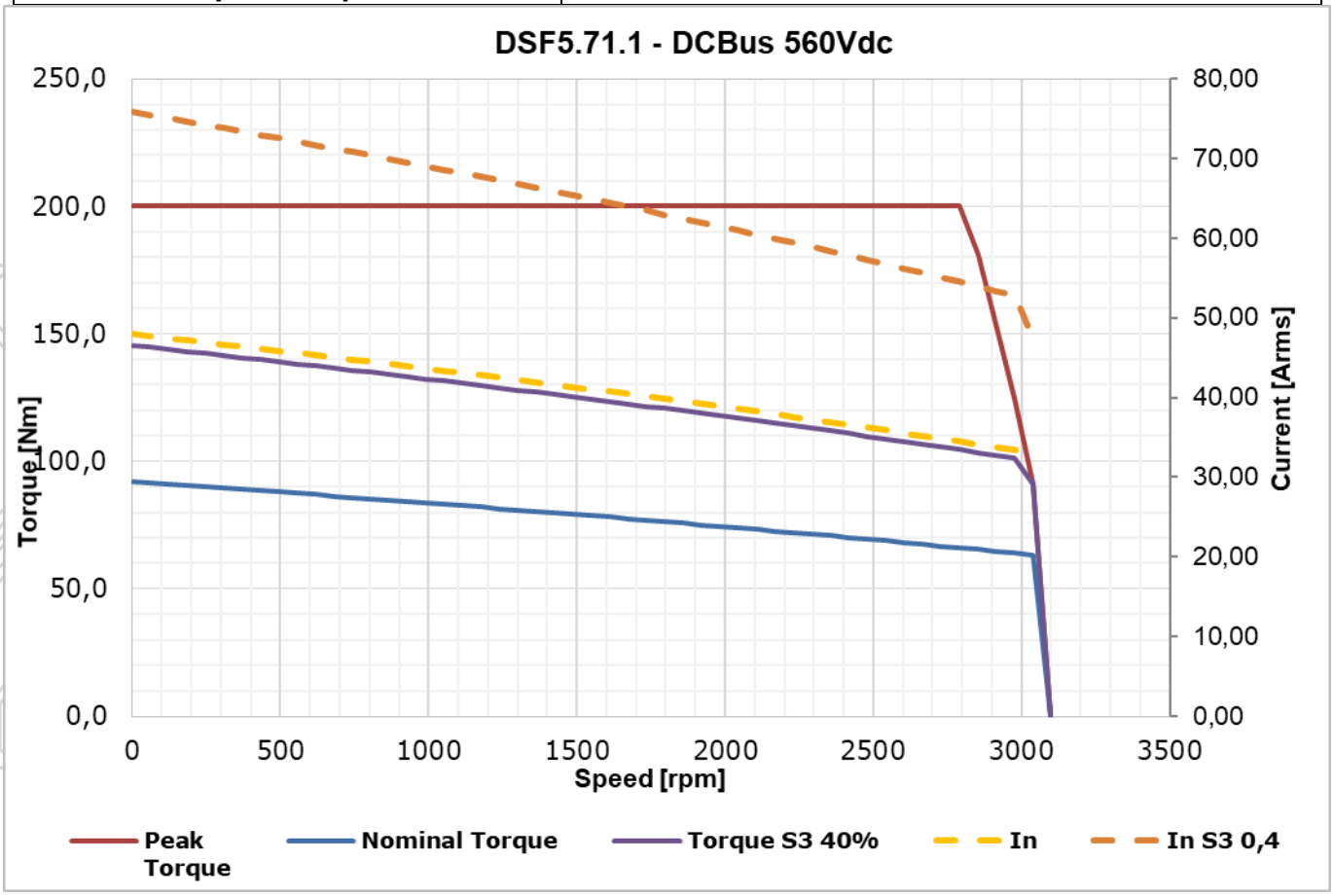
Motor Torque vs. Speed Curve	DSF5.71.1



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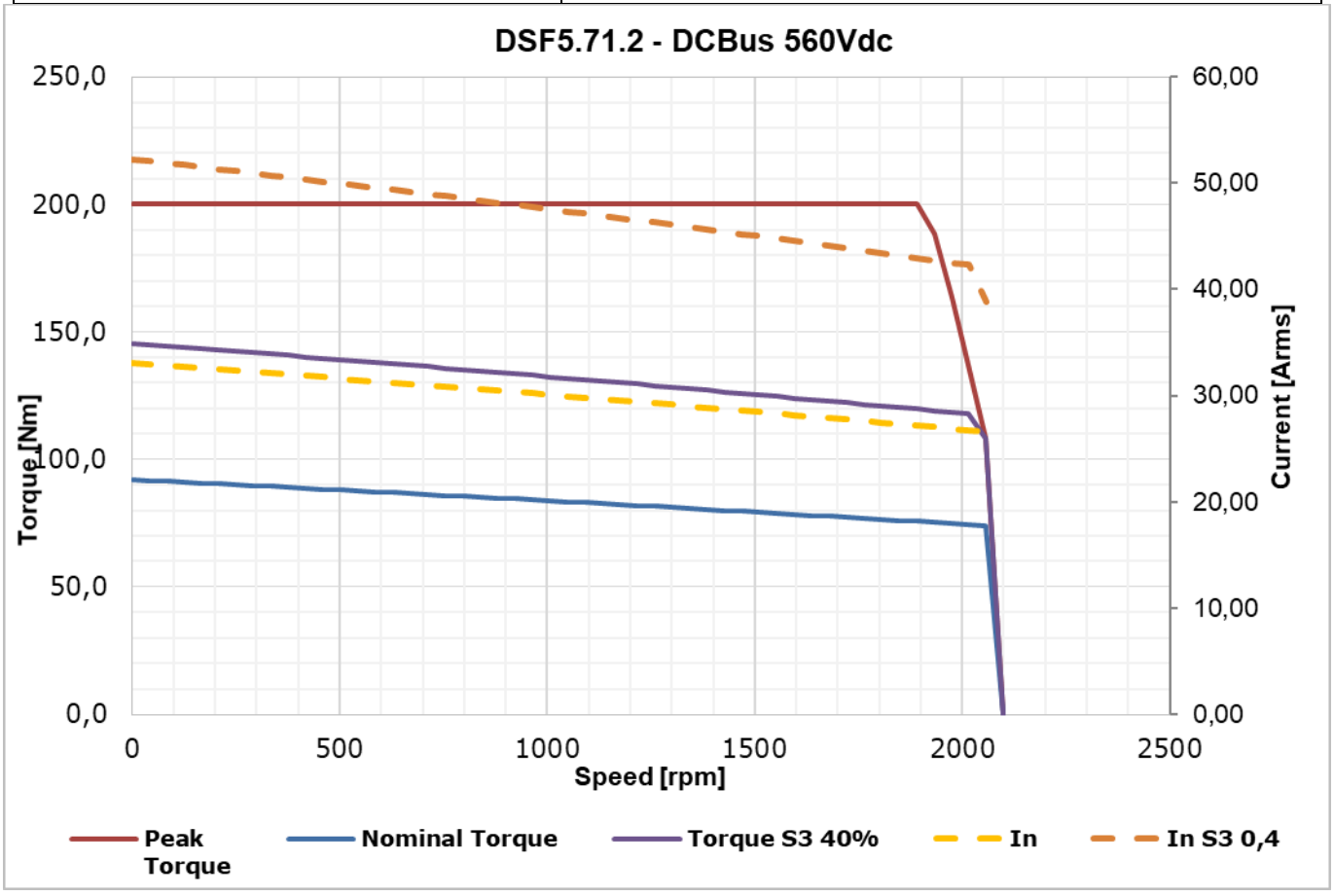
Motor Torque vs. Speed Curve	DSF5.71.2



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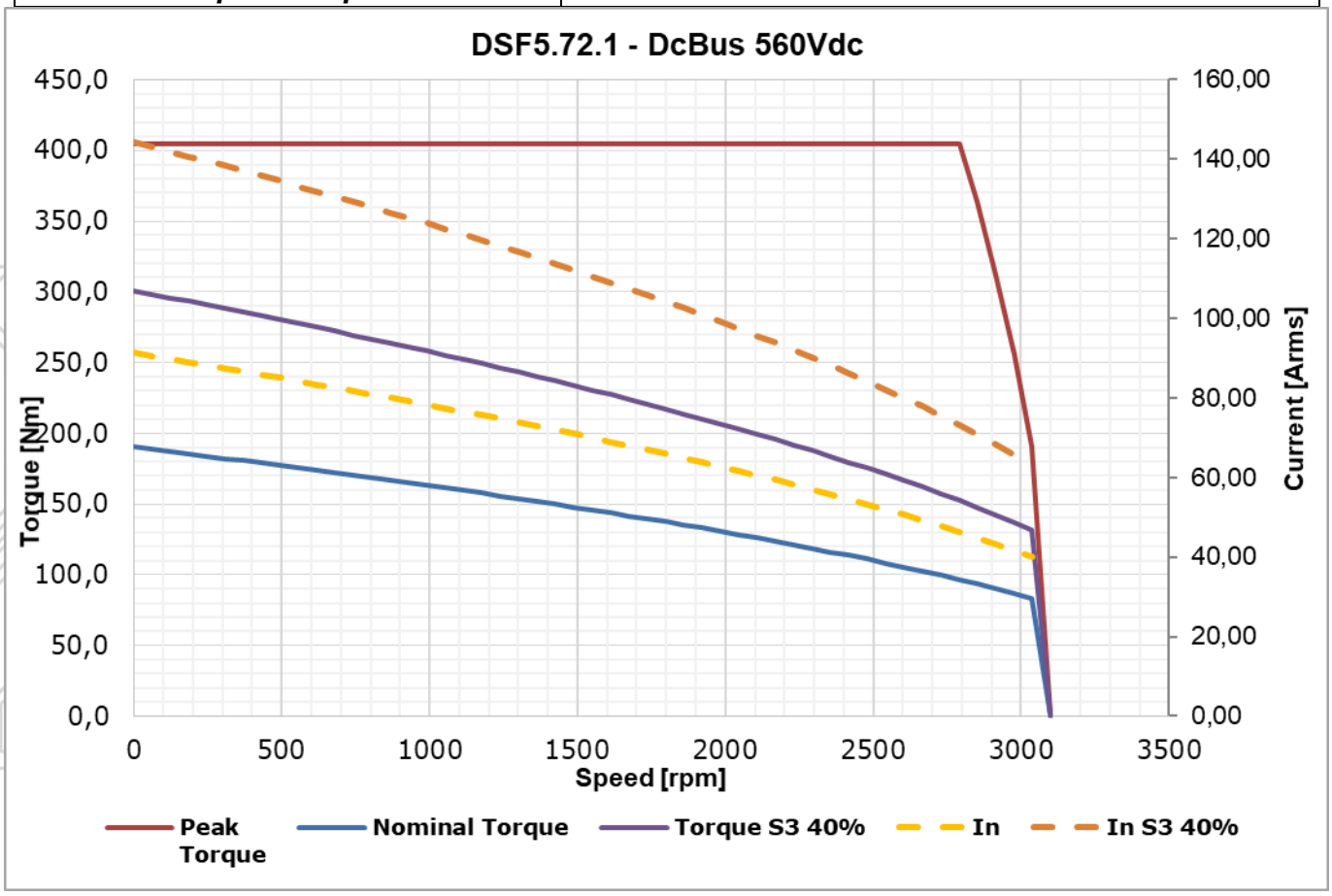
Motor Torque vs. Speed Curve	DSF5.72.1



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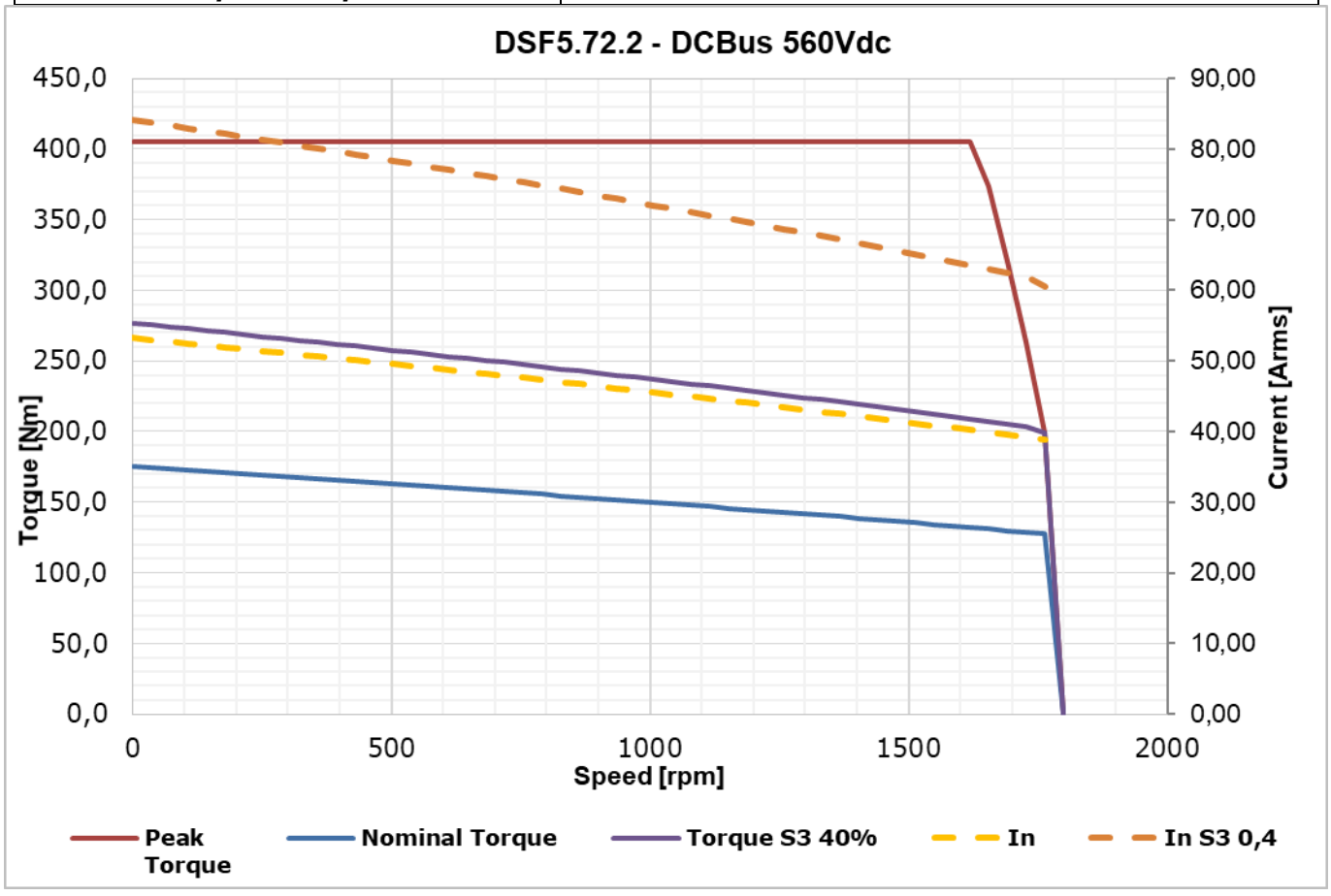
Motor Torque vs. Speed Curve	DSF5.72.2



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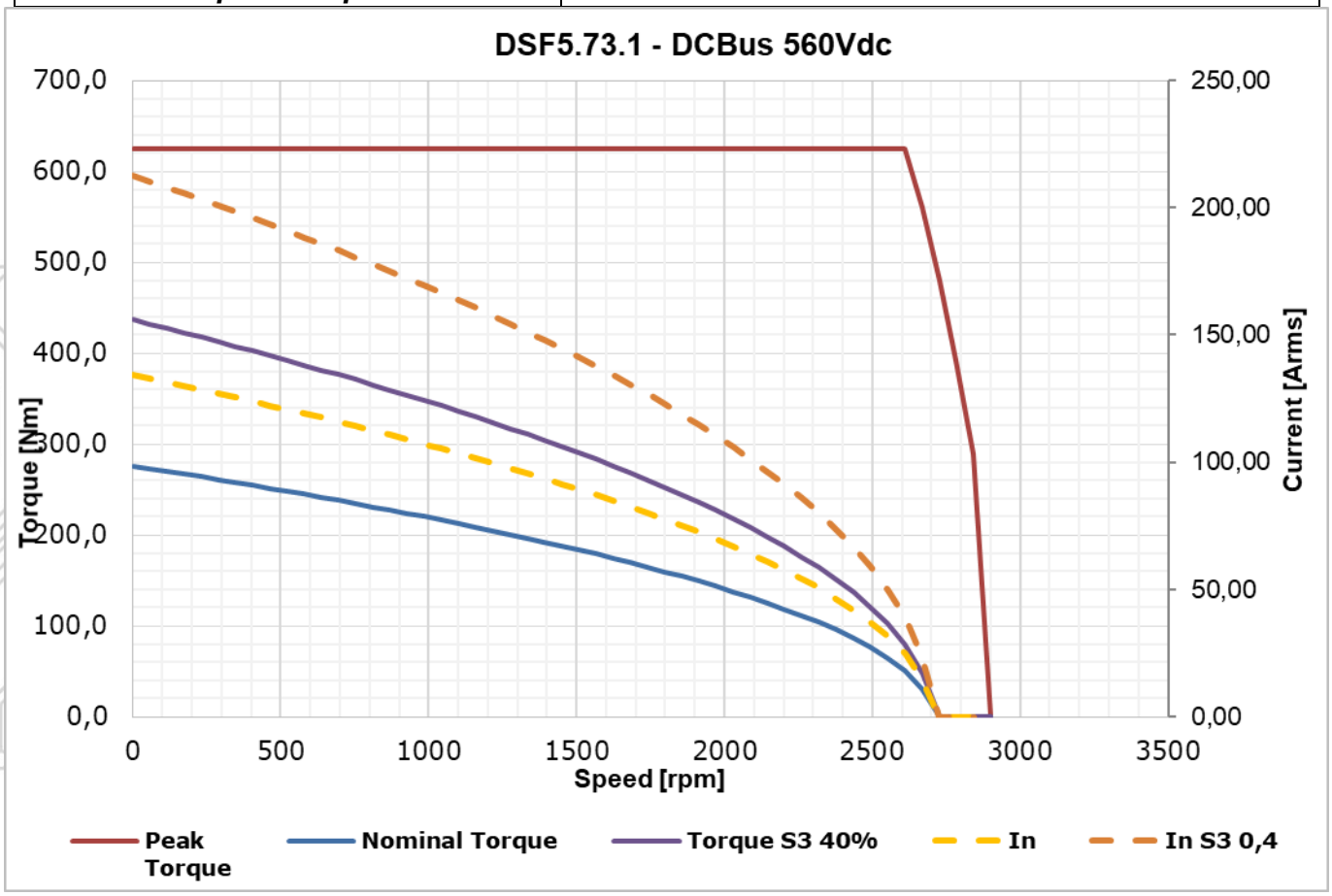
Motor Torque vs. Speed Curve	DSF5.73.1



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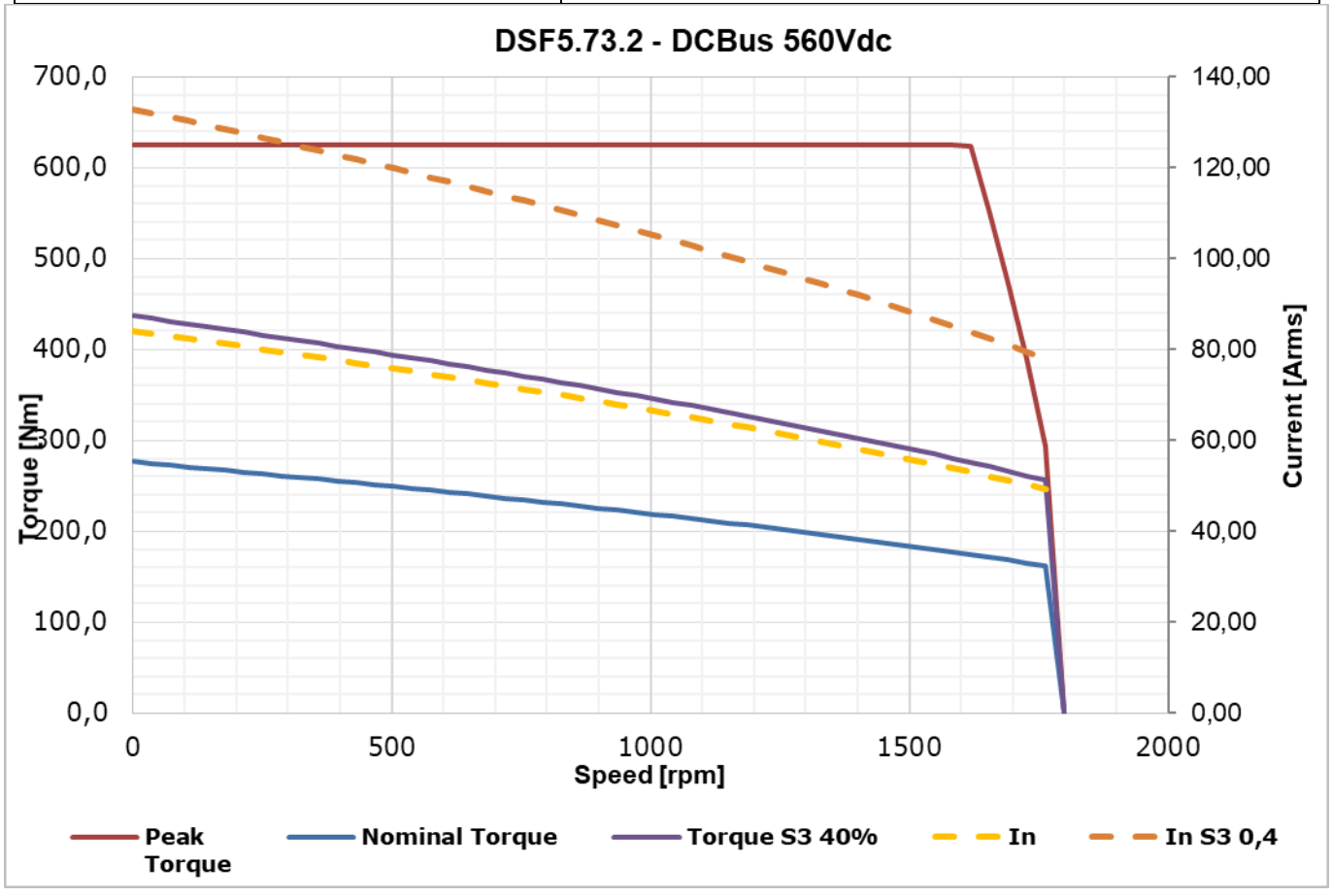
Motor Torque vs. Speed Curve	DSF5.73.2



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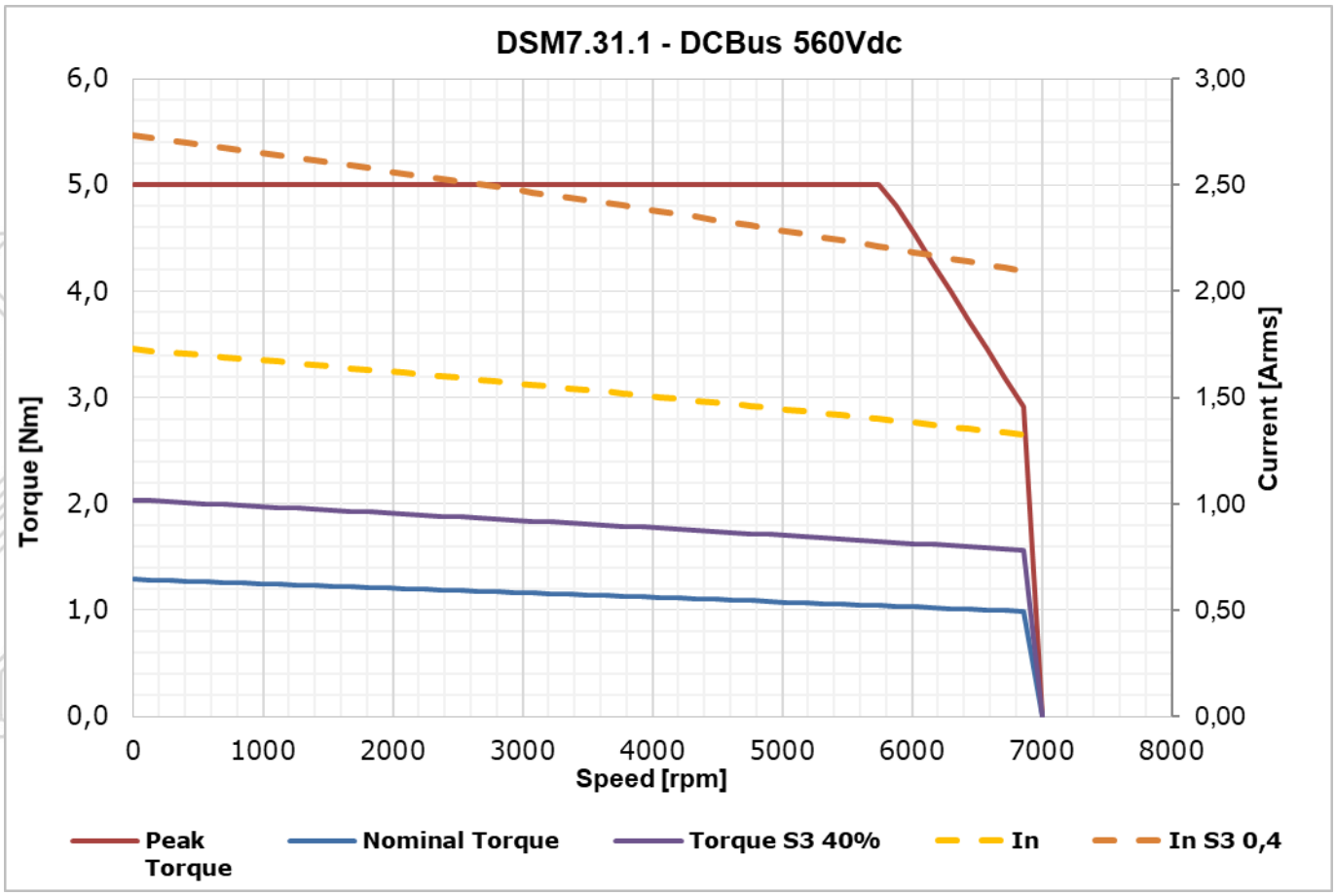
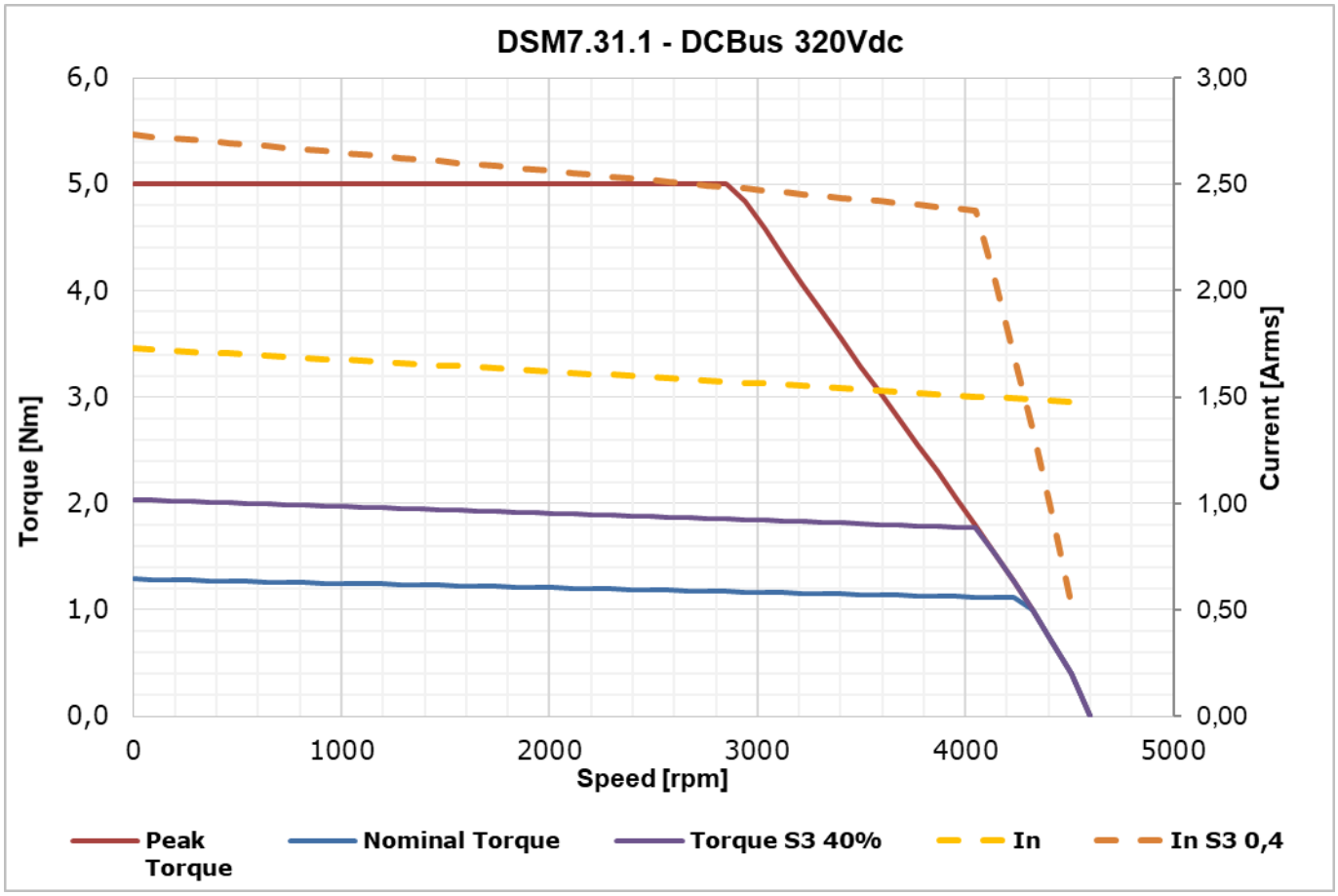
Motor Torque vs. Speed Curve	DSM7.31.1*





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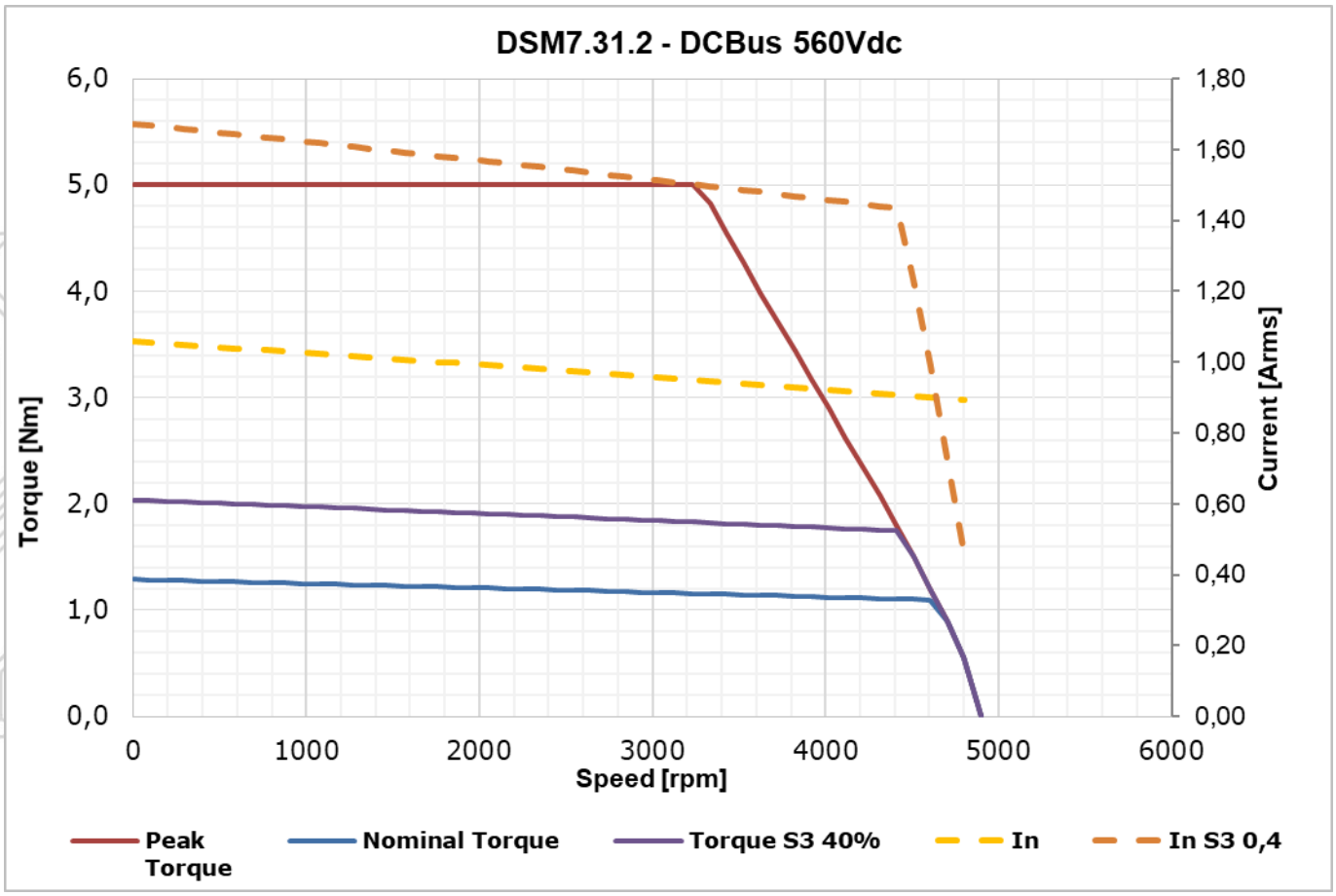
Motor Torque vs. Speed Curve	DSM7.31.2



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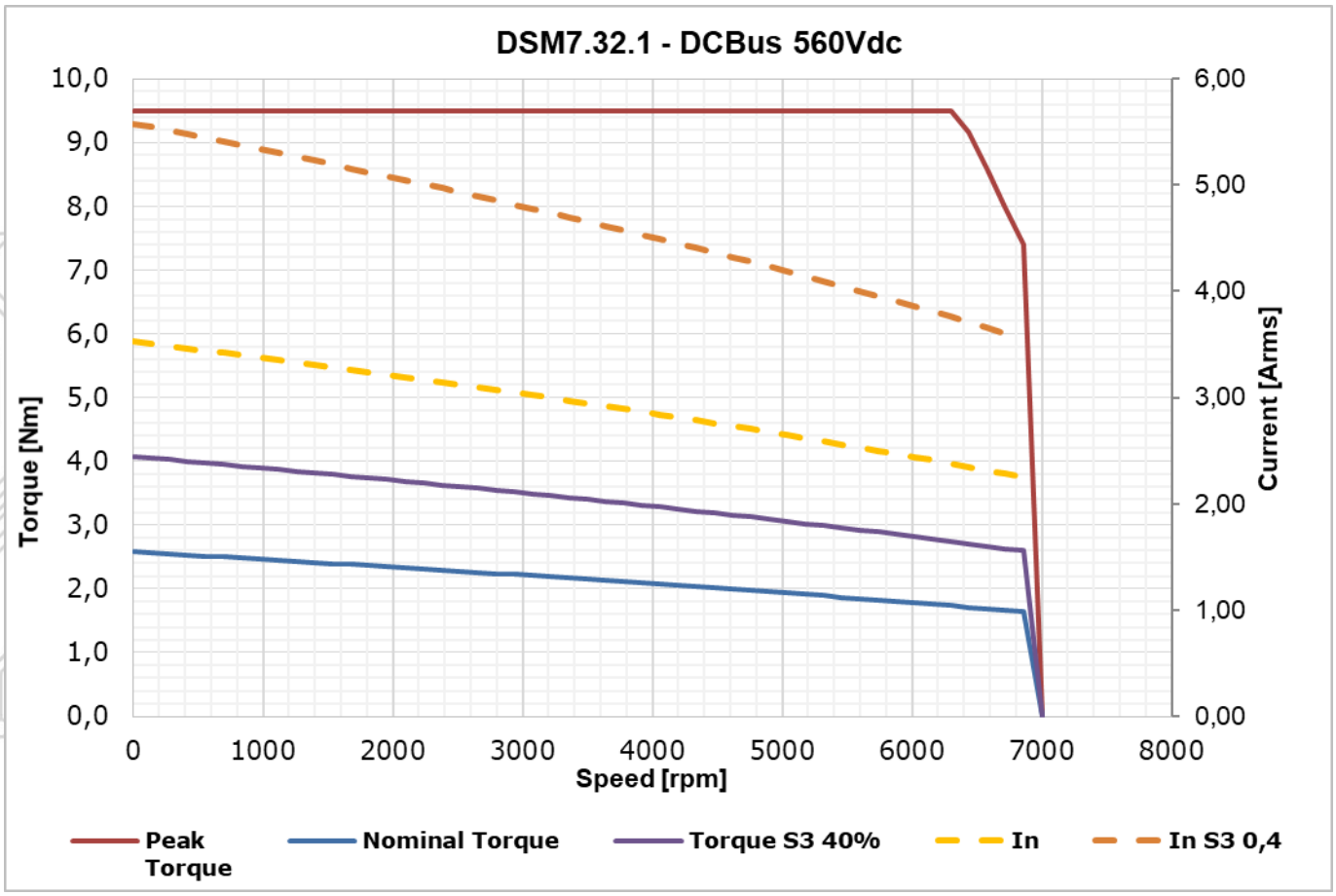
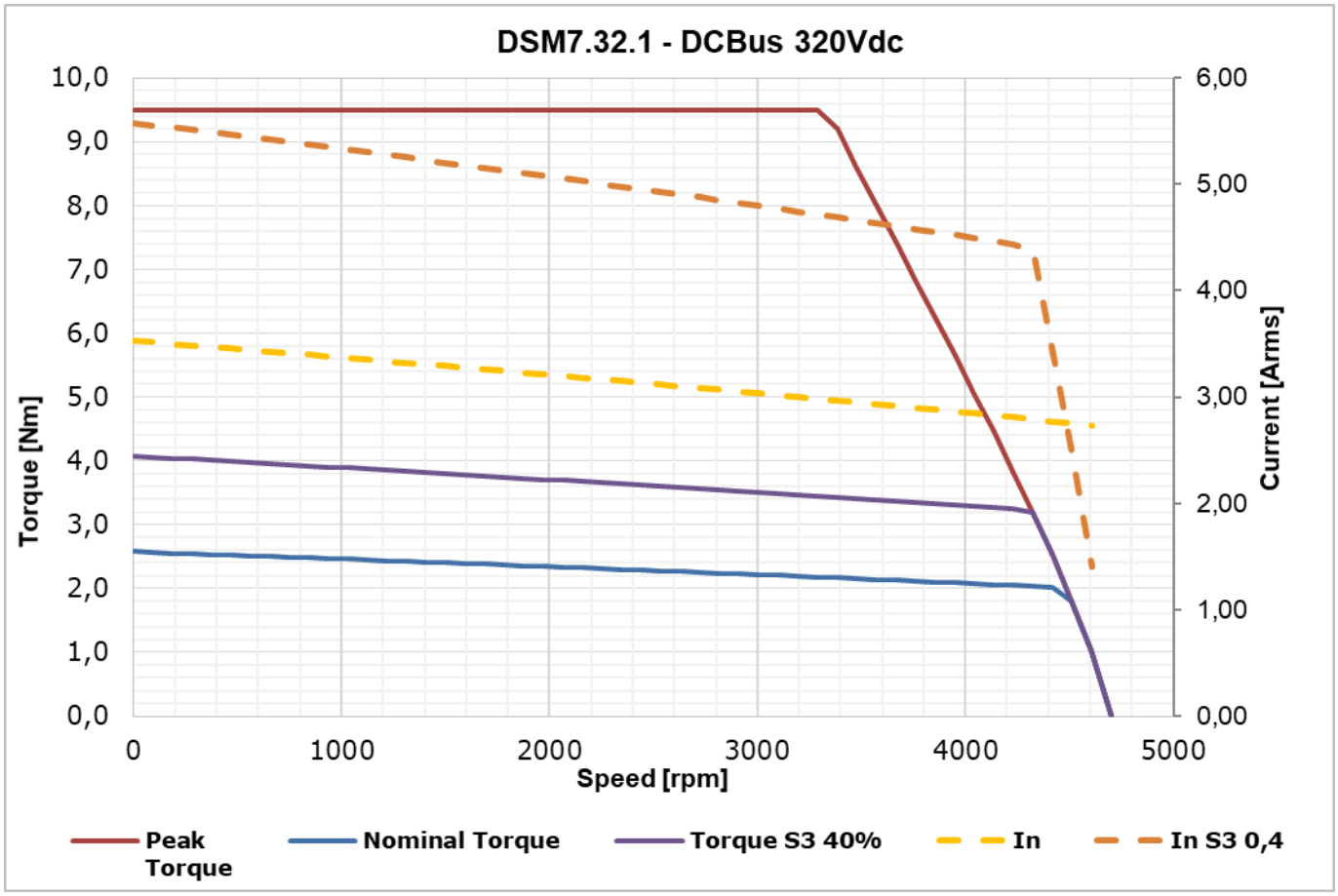
Motor Torque vs. Speed Curve	DSM7.32.1*





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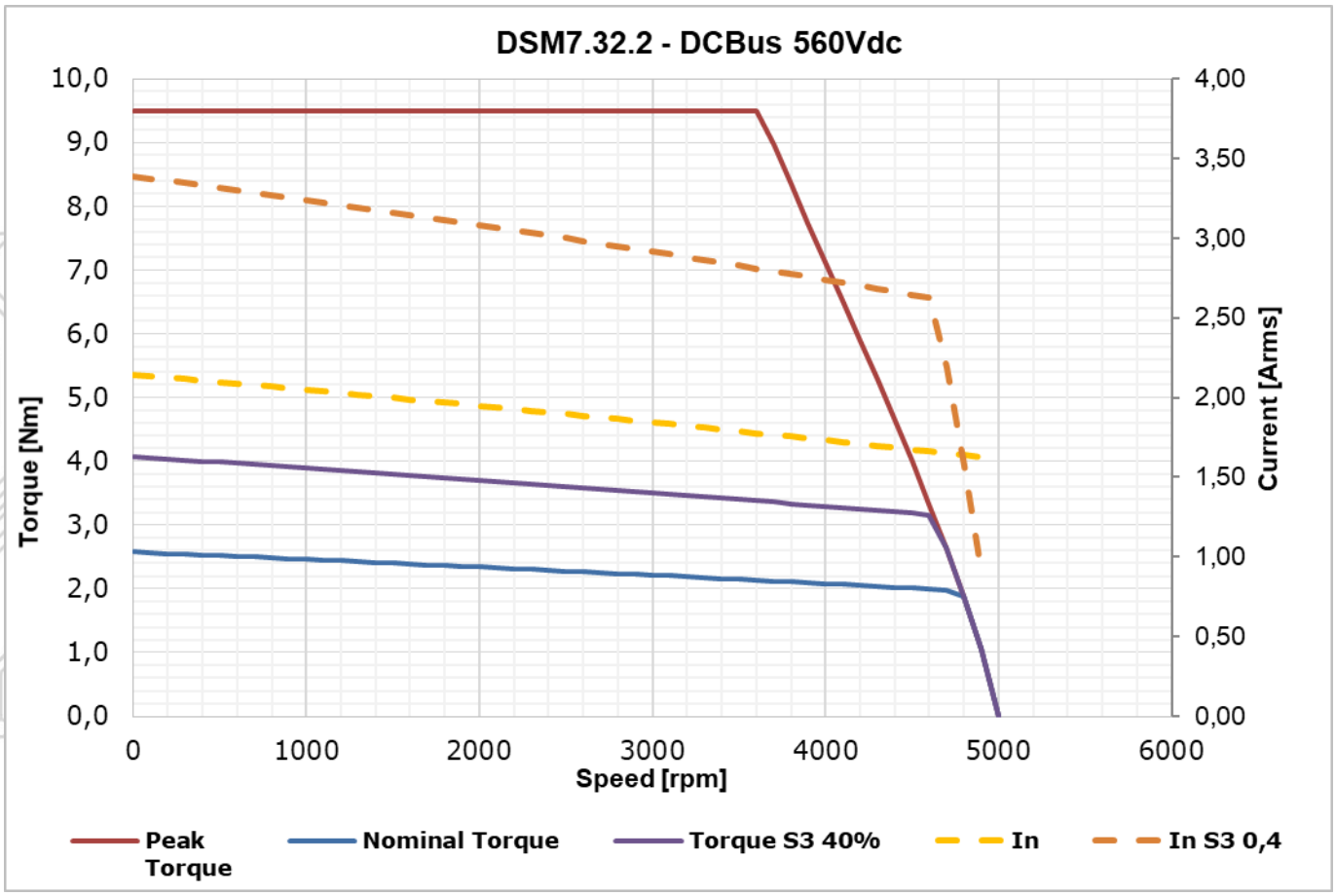
Motor Torque vs. Speed Curve	DSM7.32.2



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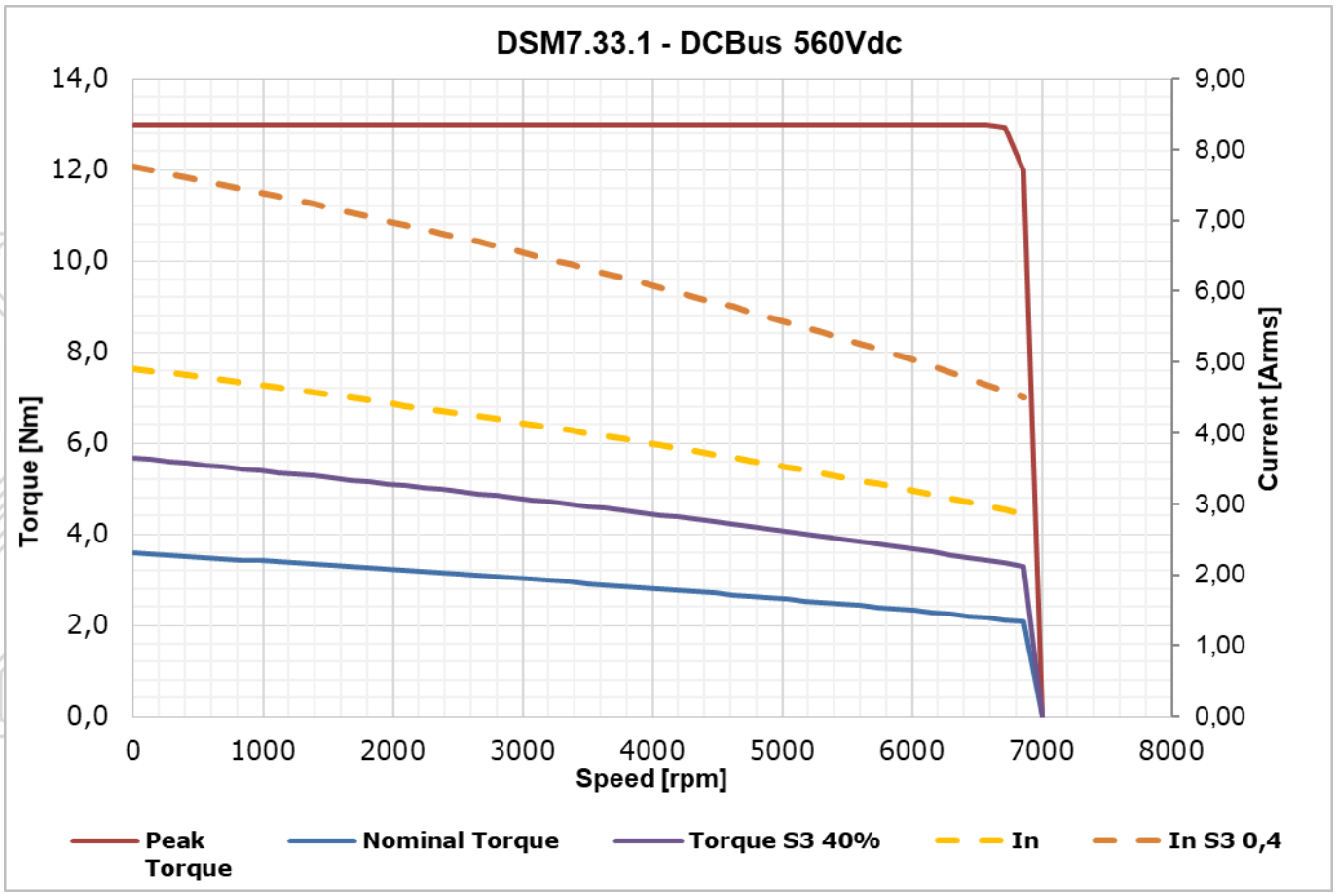
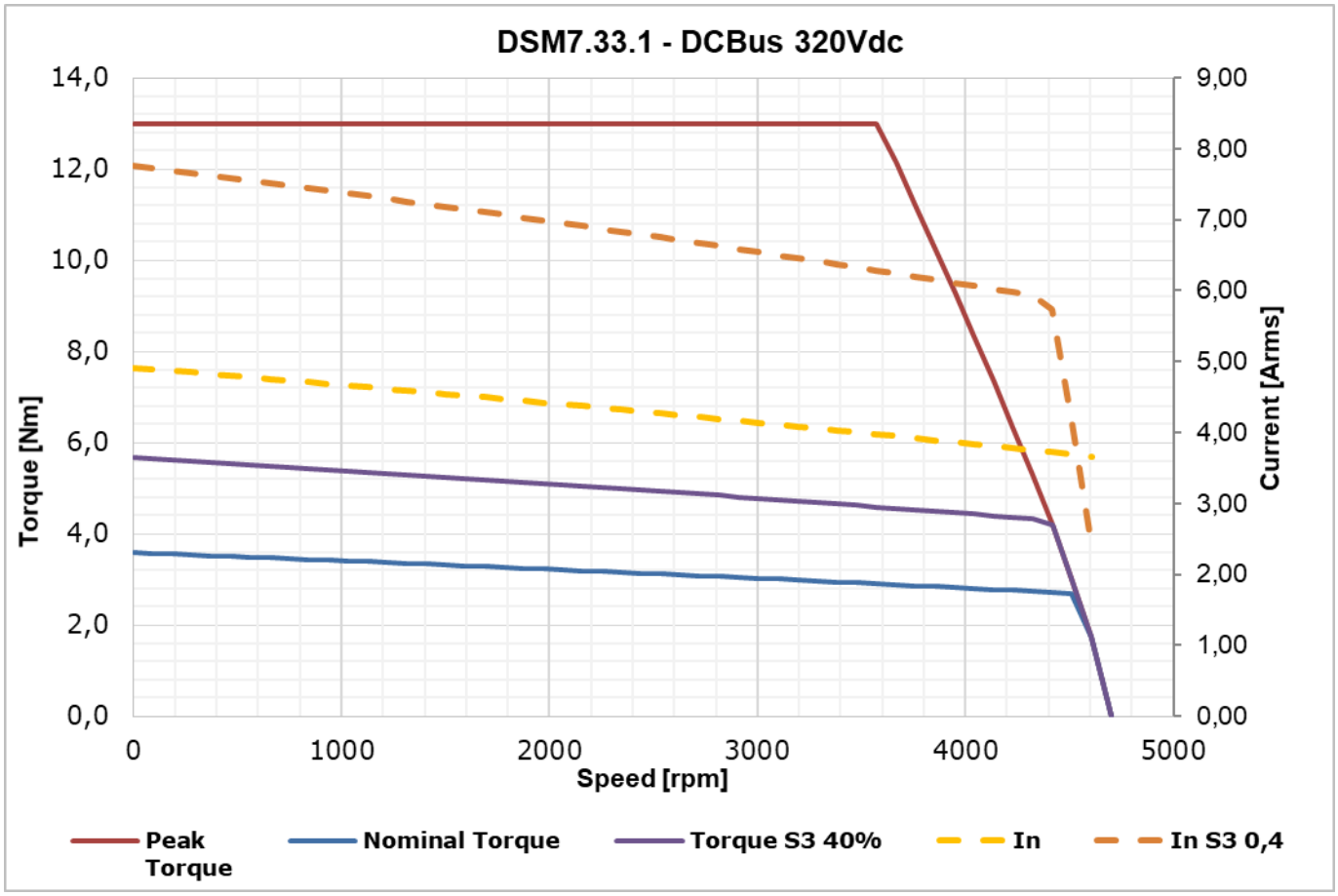
Motor Torque vs. Speed Curve	DSM7.33.1*





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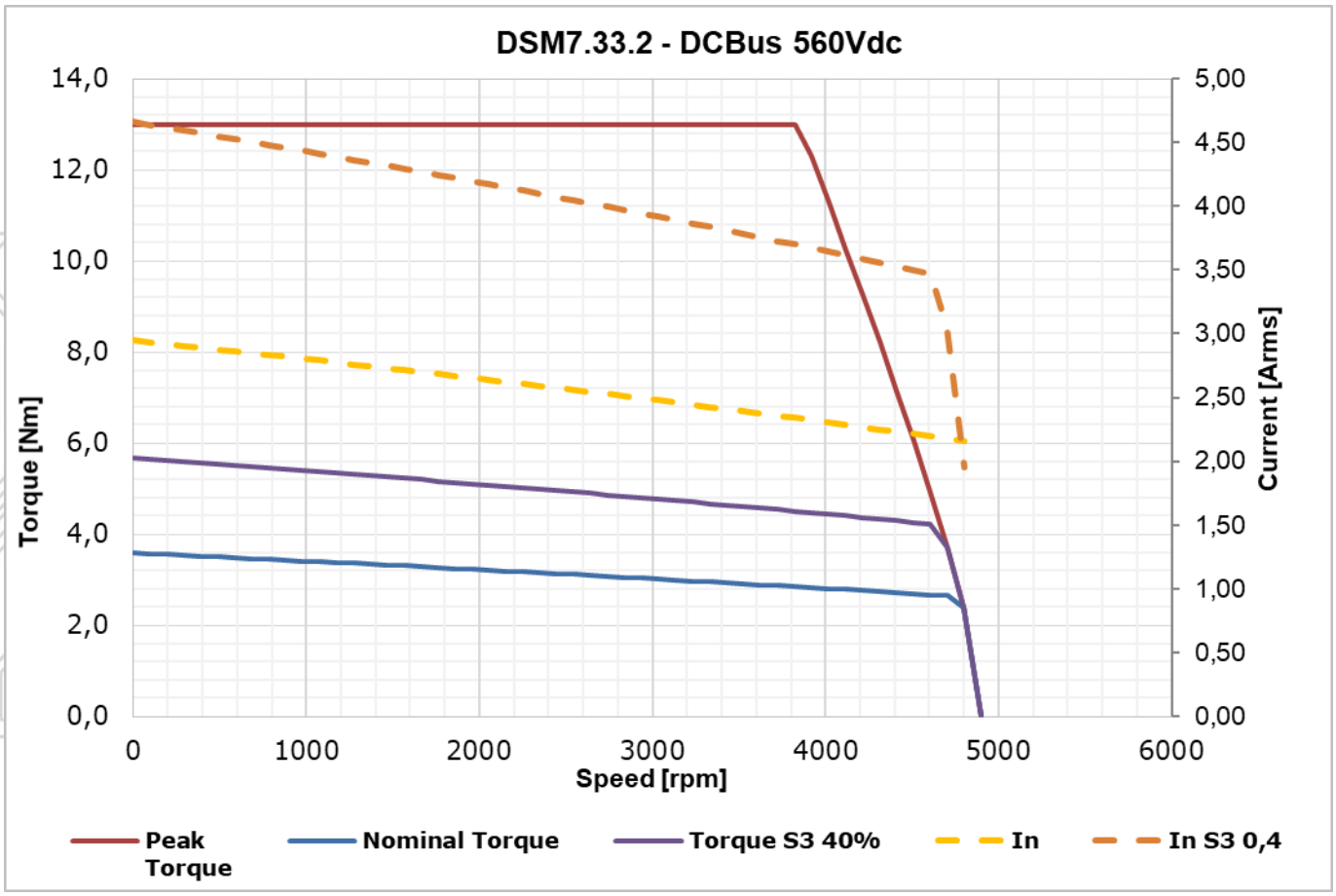
Motor Torque vs. Speed Curve	DSM7.33.2



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SANGALLI SERVOMOTORI S.r.l.
VIA FEDERICO ROSSI, 5
20900 - MONZA (MB) – ITALY
Subject to the direction and coordination of ESAUTOMOTION SPA

TEL. 1 : 00-39-039-2020322
TEL. 2 : 00-39-039-2020747
FAX : 00-39-039-2020656

INFO@SANGALLISERVOMOTORI.IT
WWW.SANGALLISERVOMOTORI.IT

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