

**be in motion be in motion**

**Three-phase  
synchronous motors**

**DSD 28-36**



## Table of contents

Three-Phase Synchronous Motors DSD 28 – 36.....48 – 540 V .....	2
General technical data .....	2
Explanations of the motor data .....	3
Type key .....	3
Technical data.....	4
Dimension drawings .....	6
Radial force diagrams.....	8
Brake assignment .....	9
Main connection cables / preassembled cable with connector .....	13
Motor characteristics.....	16

**Three-Phase Synchronous Motors DSD 28 – 36.....48 – 540 V**

**General technical data**

Version (EN 60034-7)	IM B5 IM V1 IM V3	Horizontal mounting Vertical mounting, shaft end to the bottom Vertical mounting, shaft end to the top
Type of protection (EN 60034-5)	IP 44 IP 65	Surface-cooled, without fan Surface-cooled, without fan
Shaft gland:	IP44	Standard (IP 65 as option <b>with shaft sealing ring</b> )
Connection:		
Main connection	UVW	8-pin connector
Control connection		12-pin connector
Brake		in the main connection
Thermal sensor		in control connection for resolver in main connection for SinCos encoder
Cooling method:	IC 410	completely enclosed machine surface-cooled no fan
Thermal sensor:		Linear thermal sensor for evaluation in the controller
Temperature rise:	$\Delta\theta = 105 \text{ K}$	Insulation class F acc. to EN 60034
Temperature range:	0....+40 °C	
Storage:	-30 °C...+85 °C	
Bearing life:	$\geq 20,000 \text{ h}$	guide value, calculated bearing life
Flange:	acc. to IEC standard	Dimension b1: Tolerance j6
Shaft end	cylindrical	smooth acc. to DIN 748; (also available with keyway acc. to DIN 6885) Dimension d: Tolerance h6
Holding brake:	Option	
Actual speed encoder:	2-pin resolver SinCos encoder (option)	other encoders upon request
Converter chopping frequency		$\geq 4 \text{ kHz}$ (data sheets apply to 8 kHz)
Vibration severity (EN 60034-14)		Level N
Vibration test (EN 60068-2-6)		radial 3 g (10 Hz to 100 Hz) axial 1 g (10 Hz to 100 Hz) (0.5 g with brake)

### Explanations of the motor data

$M_{0, I_0}$	Nominal torque (Nm) with nominal current (A) at speed $\leq 1 \text{ min}^{-1}$ without time limit, $I_0$ is the r.m.s. value
$M_{0, \max}, I_{0, \max}$	Maximum torque (Nm) with maximum current (A) at speed = 0, $I_{0, \max}$ is the r.m.s. value
$P_N$	Nominal power (W) with nominal speed $n_N$ in continuous operation (S1) $T_A = 40 \text{ }^\circ\text{C}$ installation up to 1000 m a.m.s.l.
$M_N, I_N$	Nominal torque (Nm) with nominal current (A) at nominal speed $n_N$ in continuous operation (S1); $T_A = 40 \text{ }^\circ\text{C}$
$n_N$	Nominal speed ( $\text{min}^{-1}$ )
$k_{TN}$	Torque constant: $M_N/I_N$
$f_N$	Nominal frequency (Hz)
J	Rotor inertia incl. resolver without holding brake ( $\text{kg cm}^2$ )
M	Weight in kg

The specified ratings and torques at nominal speed are achieved in converter operation with a chopping frequency of  $\geq 4 \text{ kHz}$  in the power unit. A chopping frequency of  $> 6 \text{ kHz}$  is recommended.

### Type key

<b>DSD</b>	<b>G</b>	<b>036</b>	<b>L</b>	<b>44</b>	<b>U</b>	<b>30</b>	<b>5</b>	
								DC link voltage: 5 540 V 3 310 V X Special
								Nominal speed: 30 3,000 $\text{min}^{-1}$ 60 6,000 $\text{min}^{-1}$ X Special
								Cooling: U Without fan
								Type of protection: 44 IP 44 65 IP 65
								Length: S M L
								Size: 022 028 036
								Holding brake: without with G
								Motor type: DSD Three-phase synchronous dynamic

**Technical data**

**Mains voltage 1 AC 230 V**

for pulse converters with uncontrolled supply, 8 kHz clocked and commutation acc. to the sinusoidal current principle

Nom. speed	Motor type	Stand-still torque <sup>1)</sup>	Stand-still current <sup>1)</sup>	Max. stand-still torque	Max. stand-still current	Nom. power <sup>1)</sup>	Nom. torque <sup>1)</sup>	Nom. current <sup>1)</sup>	Torque constant	Nom. frequency	Rotor inertia (motor)	Weight
$n_N$ min <sup>-1</sup>		$M_O$ Nm	$I_O$ A	$M_{O,max}$ Nm	$I_{O,max}$ A	$P_N$ kW	$M_N$ Nm	$I_N$ A	$k_{TN}$ Nm/A	$f_N$ Hz	$J$ Kgcm <sup>2</sup>	$m$ kg
4500	DSD028S65U45-3	0.7	1.55	2.0	6.1	0.28	0.60	1.40	0.43	300	0.13	1.3
	DSD028M65U45-3	1.2	2.6	3.9	11.9	0.47	1.0	2.3	0.43	300	0.2	1.8
6000	DSD028S65U60-3	0.7	1.9	2.0	7.5	0.35	0.55	1.65	0.34	400	0.13	1.3
	DSD028M65U60-3	1.2	3.0	3.9	13.7	0.57	0.9	2.4	0.38	400	0.2	1.8
4000	DSD036S65U40-3	1.20	2.4	2.80	7.9	0.44	1.05	2.2	0.48	267	0.18	2.1
	DSD036M65U40-3	2.0	3.6	5.7	15.1	0.67	1.60	2.9	0.55	267	0.3	2.9
4500	DSD036L65U45-3	2.8	5.0	8.4	22.0	0.85	1.8	3.45	0.53	300	0.42	3.7
6000	DSD036S65U60-3	1.20	3.55	2.80	12.0	0.57	0.90	2.70	0.33	400	0.18	2.1
	DSD036M65U60-3	2.0	5.0	5.7	21.0	0.82	1.30	3.35	0.39	400	0.3	2.9
	DSD036L65U60-3	2.8	6.15	8.4	27.2	0.9	1.45	3.45	0.42	400	0.42	3.7

1) Winding overheat DT < 105 K; direct flange connection (mounting plate 250 mm x 250 mm)

**Mains voltage 3 AC 400 V**

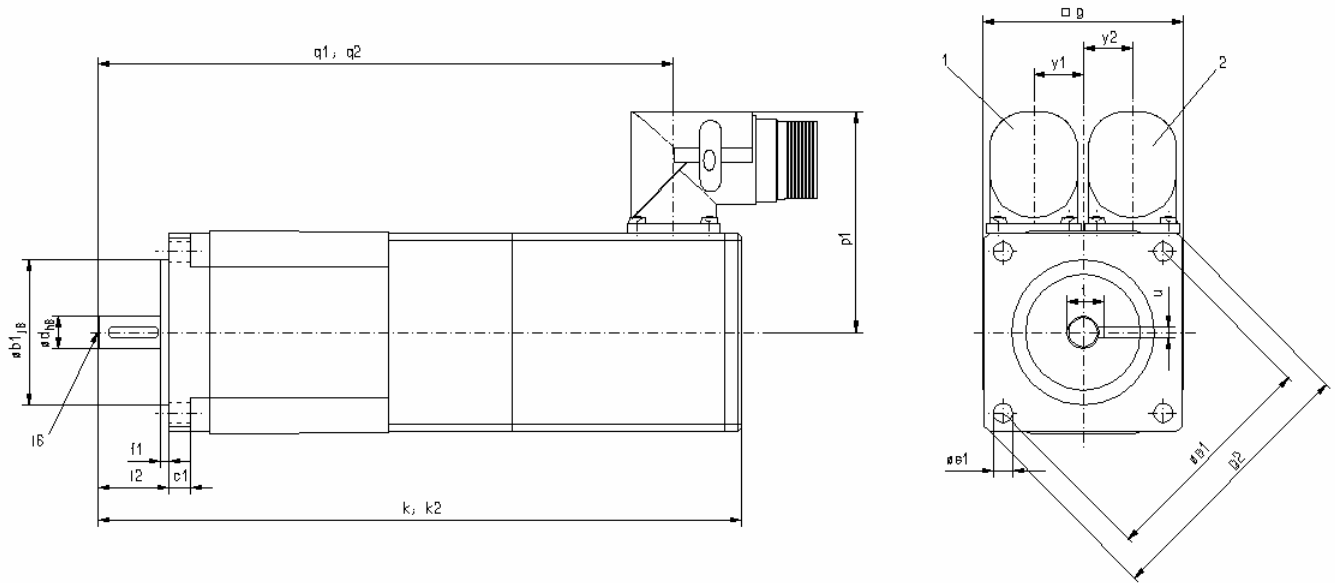
for pulse converters with uncontrolled supply, 8 kHz clocked and commutation acc. to the sinusoidal current principle

Nom. speed	Motor type	Stand-still torque <sup>1)</sup>	Stand-still current <sup>1)</sup>	Max. stand-still torque	Max. stand-still current	Nom. power <sup>1)</sup>	Nom. torque <sup>1)</sup>	Nom. current <sup>1)</sup>	Torque constant	Nom. frequency	Rotor inertia (motor)	Weight
$n_N$ min <sup>-1</sup>		$M_O$ Nm	$I_O$ A	$M_{O,max}$ Nm	$I_{O,max}$ A	$P_N$ kW	$M_N$ Nm	$I_N$ A	$k_{TN}$ Nm/A	$f_N$ Hz	$J$ Kgcm <sup>2</sup>	$M$ kg
6000	DSD028S65U60-5	0.7	1.0	2.0	4.0	0.35	0.55	0.85	0.65	400	0.13	1.3
6000	DSD028M65U60-5	1.2	1.7	3.9	7.8	0.57	0.9	1.35	0.67	400	0.2	1.8
4000	DSD036S65U40-5	1.20	1.45	2.80	4.7	0.44	1.05	1.35	0.78	267	0.18	2.1
4500	DSD036M65U45-5	2.0	2.55	5.7	10.7	0.71	1.5	1.95	0.77	300	0.3	2.9
	DSD036L65U45-5	2.8	3.45	8.4	15.3	0.85	1.8	2.30	0.78	300	0.42	3.7
6000	DSD036S65U60-5	1.20	2.05	2.80	7.0	0.57	0.90	1.50	0.60	400	0.18	2.1
	DSD036M65U60-5	2.0	2.95	5.7	12.0	0.82	1.30	2.00	0.65	400	0.3	2.9
	DSD036L65U60-5	2.8	3.85	8.4	17.0	0.9	1.45	2.15	0.67	400	0.42	3.7

1) Winding overheat DT < 105 K; direct flange connection (mounting plate 250 mm x 250 mm)

Dimension drawings

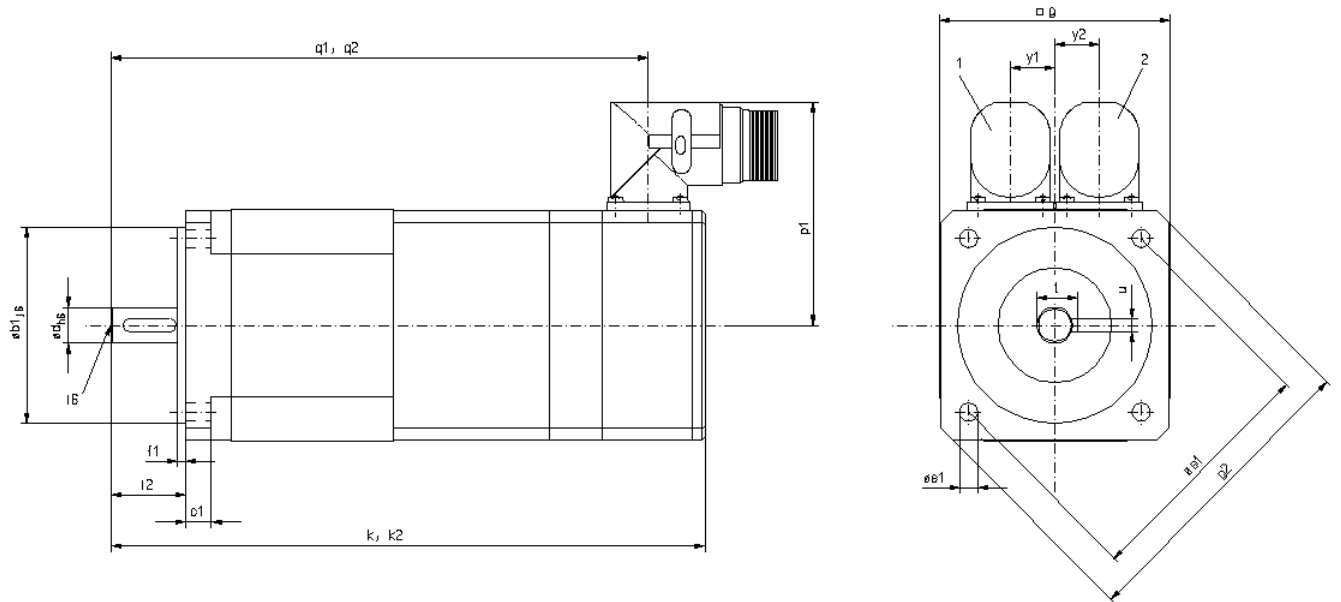
DSD 28



Type	Flange							Shaft			Motor											Brake			
	a1	b1	c1	e1	f1	i2	s1	d	t	u	g2	g	g1	k	m1	p1	q	q1	y	y1	y2	s2	s3	k2	q2
28S	-	40	6	63	2.5	20	5.4	9	10.2	3	75	56	-	120	-	61	-	102	-	13.7	13.7	-	-	160	141
28M														150				132						190	171



DSD 36



Type	Flange							Shaft		Motor											Brake					
	a1	b1	c1	e1	f1	i2	s1	d	t	u	g2	g	g1	k	m1	p1	q	q1	y	y1	y2	s	s2	s3	k2	q2
36S	-	60	8	75	2.5	23	5.5	11	12.5	4	94	71	-	141	-	69	-	123.5	-	13.7	13.7	-	-	-	183	165.5
36M														171				153.5							220	202.5
36L														201				183.5							250	232.5

## Radial force diagrams

Permissible radial force  $F_R$  at the shaft end

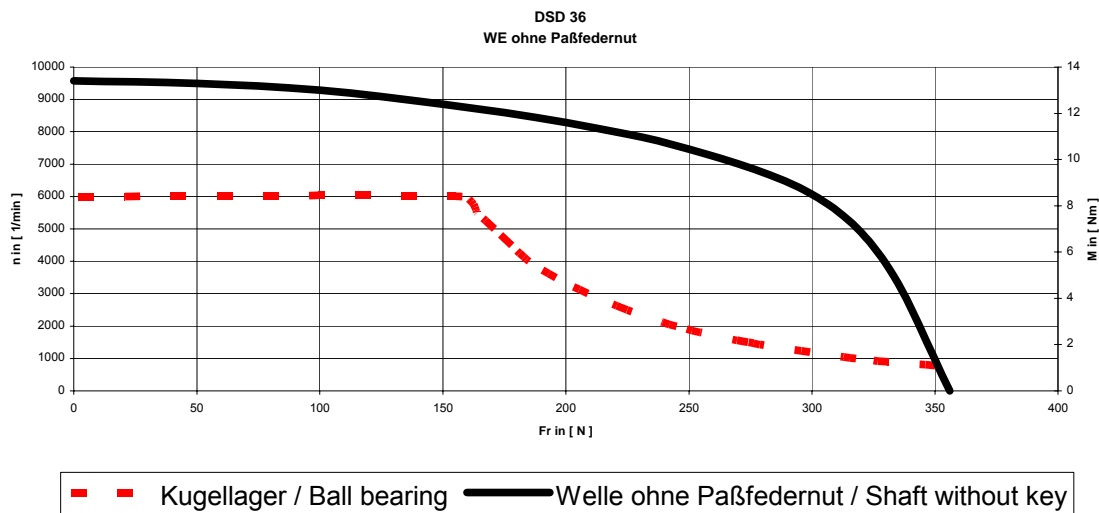
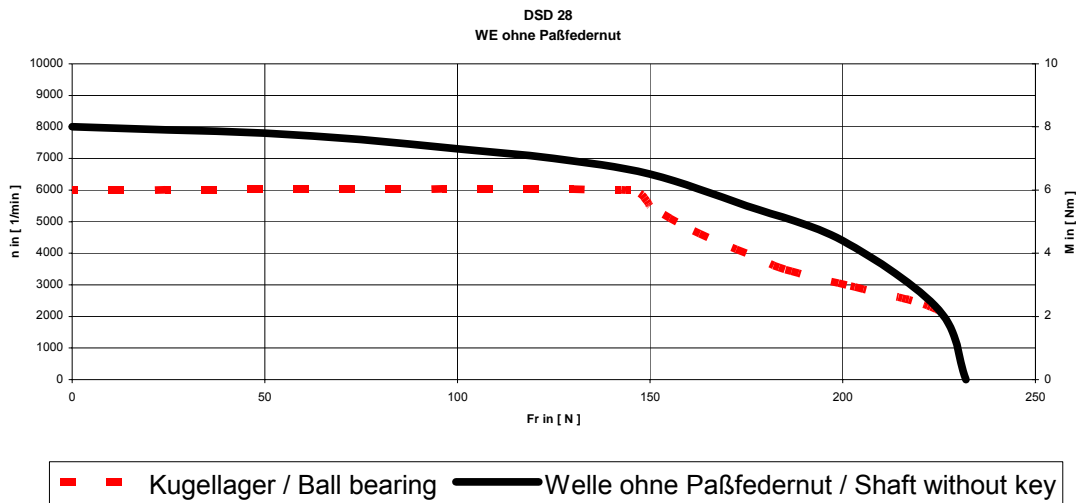
All bearings are dimensioned for a service life of approx. 20,000 operating hours; the loads specified in the following must not be exceeded. The specified permissible radial forces  $F_R$  are valid only for horizontal mounting of the motor without additional axial forces.

Axial load of the motor shaft

When mounting clutches, pulleys, etc. onto the motor shaft, axial forces must not occur!  
Therefore use the internal thread of the shaft end as assembly aid.

Force acting on the end of the shaft end (for force acting on the middle of the shaft end  $F_r \times 1.1$ )  
Bearing life 20,000 h; shaft end without keyway

### Diagrams



Explanation of the diagram

The radial force  $F_r$  of the application is used to determine the possible maximum speed of the bearing in the “Ball bearing” characteristic.

Radial force 300 N => maximum speed 1150 min<sup>-1</sup>

The maximum transmittable torque results from the “Shaft” characteristic.

Radial force 300 N => maximum transmittable torque 8.5 Nm.

## Brake assignment

The motors are optionally equipped with a holding brake. The brake uses the normally-on principle, i.e. the brake engages if the operating voltage is switched off or fails. The brakes are supplied for a switching voltage of 24 VDC ± 10%.

The motors are available with the following holding brakes:

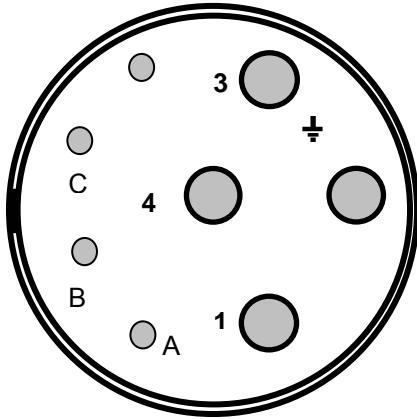
Motor type	DSD 28 S	DSD 28 M	DSD 36 S	DSD 36 M	DSD 36 L
Minimum holding torque at 100 °C (Nm)	2.5	2.5	2.5	4.5	4.5
Max. perm. friction work per braking operation (J)	250	250	250	580	580
Connected loads (+7% -7% smoothed)	24 V = 8 W	24 V = 8 W	24 V = 8 W	24 V = 9 W	24 V = 9 W
Inertia (kgcm <sup>2</sup> )	0.068	0.068	0.068	0.18	0.18
Maximum speed (min)	10000	10000	10000	10000	10000
Switch-on to brake released (ms)	11	11	11	18,5	18,5
Off (ms)	37	37	37	50	50
Weight (kg)	0,17	0,17	0,17	0,35	0,35

**None of the brakes are fail-safe brakes so that the torque may be reduced by interference factors beyond control. In accordance with the case of application, observe the relevant accident prevention guidelines as well as the basic safety and health requirements of Appendix I of the Machinery Directive and the harmonized European Standards.**

**In the event of emergency stop or voltage failure, approx. 2,500 braking operations can be carried out without causing the holding brake to overheat (Condition: maximum external inertia = motor inertia and  $n_{max}$  type-related).**

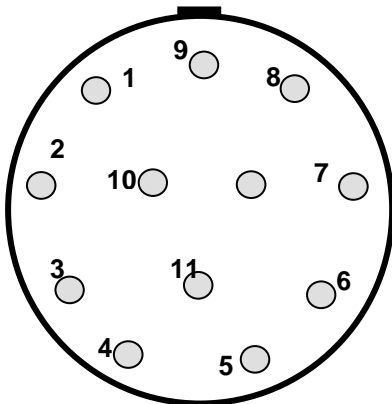
## Motor connection

### Power



Pin	Signal	Color/ Labelling
1	Phase U	U
	PE	Green/yellow
3	Phase V	VV
4	Phase W	WWW
A	B+	red
B	B-	black
C	KTY +	white
D	KTY -	yellow

### Encoder



Pin	Resolver Signals	SinCos encoder SRS50/SRM50 SKS36/SKM36 Signals
1	Cos -	Ref cos
2		+ 485
3		-
4		-
5	Sin -	Sin
6	Sin +	Ref sin
7	TM -	- 485
8	Cos +	Cos
9	TM +	-
10	Ref +	Gnd
11		-
12	Ref -	+ U

**Resolver data**

Pole pair number	1
Ratio	0,5
Frequency	5 kHz
Nominal input resistance	4 V
Active input power for no-load operation	112 mW
Current consumption for no-load operation	40 mA
Max. output voltage for no-load operation	2 V <sub>eff</sub>
Voltage constant	-
Rotor resistance	40 Ω ±10%
Stator resistance	102 Ω ±10%
Rotor impedance for no-load operation	70 + j74 Ω ± 15%
Rotor impedance for short-circuit	62 + j66 Ω ± 15%
Stator impedance for no-load operation with max. coupling	108 + j206 Ω ± 15%
Stator impedance for short-circuit with max. coupling	97 + j183 Ω ± 15%
Phase shift	8°
Zero voltage	15 mV
Phase error referenced to zero position	10'

**Data for SINCOS SRS/SRM 50, SKS/SKM 36 (Sick/Stegmann)**

	<b>SRS 50</b>	<b>SRM 50</b>	<b>SKS 36</b>	<b>SKM 36</b>
Number of sine, cosine periods per revolution	1024	1024	128	128
Number of increments per revolution	32768	32768	4096	4096
Number of absolute resolved revolutions	1	4096	1	4096
Code type for the absolute value	Binary	Binary	Binary	Binary
Output frequency of sine, cosine signals (kHz)	0...200	0...200	0...65	0...65
Error limits when evaluating 1024 / 128 signals, integral non-linearity (arc seconds)	+/-45	+/-45	+/-1,3	+/-1,3
Non-linearity within a sine, cosine period; differential non-linearity (arc seconds)	+/- 7	+/- 7	+/-0,6	+/-0,6
Working speed up to which the absolute position can be formed (1/min)	6000	6000	6000	6000
Maximum operating speed (1/min)	12000	12000	12000	12000
Output signals; 2x90° offset sinusoidal signals (V <sub>pp</sub> )	1	1	1	1
<b>Output signal</b>	serial RS 485, asynchronous, half duplex	serial RS 485, asynchronous, half duplex	serial RS 485, asynchronous, half duplex	serial RS 485, asynchronous, half duplex
Operating voltage range (V)	7....12	7....12	7....12	7....12
Operating current without load (mA)	80	80	60	60

**Motor cables****General**

The motor cables are highly flexible trailing cables with overall shielding. They comply with the regulations VDE, UL and CSA.

The control cables are integrated as star quads. When the sincos encoder is used the brake triggering and the connection of the thermal sensor are brought out via the main connector.

The cables are particularly suitable for the optimum use of cable racks thanks to their low cross-section, low weight and non-impeding surface. They can thus be efficiently used in trailing chains.

The overall shielding with an optical coverage of more than 85% makes it an EMC uncritical cable.

The connector size is designed in accordance with the motor's standstill current  $I_0$ .

**Technical data****Technical description**

- Sheath resistance against media such as coolants, machine and gearbox oils
- Abrasion resistance because of a special surface in cable racks and trailing chains
- High-flexible, trailing cable
- Sheath surface not blocking, satin-finish
- Shield made of tinned copper braid with optical coverage of  $\geq 85\%$
- Core insulation made of TPE or polyester, sheath material PUR halogene-free
- Cable FCF-free and silicone-free
- Behaviour in case of fire: fire-inhibiting, halogene-free
- Cable color in RAL 1028, melon yellow
- Labelling with Baumüller sign, VDE, UL and CSA sign
- Minimum bending radius for flexible use  $12 \times D$

**Nominal voltage**

U<sub>0</sub>/U 600 / 1000 V (power cores)

U 24 V DC (control cores)

**Core lettering**

Power cores U, VV, WWW

Colored control cable pairs as star-quads in red, white, black, yellow

Assignment of pairs red – black (brake),

white – yellow (temperature)

**Cable data**

Cable cross-section	Nominal current [A] <sup>1)</sup>	Cable diameter [mm]
4×1.5 mm <sup>2</sup> 4×0.75 mm <sup>2</sup>	15	11.7 – 12.3

- 1) Current carrying capacity acc. to table 5 laying type C or E  
(VDE 0113 / EN 60 204 Part 1 issue 1997)  
Ambient temperature 40 °C

**Cable – connector assignment**

Cable cross-sections	Nominal current [A]	Male connector 540 V Size
4×1.5 mm <sup>2</sup> 4×0.75 mm <sup>2</sup>	15	1
4×2.5 mm <sup>2</sup> 4×0.75 mm <sup>2</sup>	21	1.5
4×4 mm <sup>2</sup> 4×0.75 mm <sup>2</sup>	28	1.5
4×6 mm <sup>2</sup> 4×0.75 mm <sup>2</sup>	36	1.5
4×10 mm <sup>2</sup> 4×0.75 mm <sup>2</sup>	50	1.5

The connectors must be designed with respect to the  $I_0$  motor current. For the laying of the cables, the current carrying capacity acc. to table 5 laying type C or E (VDE 0113 / EN 60 204 Part 1 issue 1997) and an ambient temperature of 40 °C must be considered.

Cables of 2.5 mm<sup>2</sup> can be laid up to 100 m without additional filters, when larger cross-sections used, up to 40 m are permissible. The terminal voltage at the motor must be < 1 kV. When longer cables are used, filters must be installed between converter and motor.

**Application notes**

**Operating temperature**

The cables can be operated within a temperature range from –20 °C to +80 °C.

**Cable laying at the motor**

The cables must not touch the motor surface.

**Smallest permissible bending radii**

12 times outer cable diameter.

Smaller bending radii are possible with reduced service life.

**Main connection cables / preassembled cable with connector**

**Nominal current: 15 A**

Cable 4 x 1.5 mm<sup>2</sup> + 4 x 0.75 mm<sup>2</sup>  
with connector size 1

Length in m	Article number
5	324781
7	324782
10	324783
15	324784
20	324785
25	324786
30	324787
35	324788
40	324789
50	324790
75	324791
100	324792

## Encoder cables

### General

A fully preassembled encoder cable is used for all encoder systems. Motor connection is via a 12-pin round signal connector and converter connection via a 15-pin sub-D plug. The encoder cables are available as 'trailing' and 'non-trailing' cables.

The trailing cable is suitable for use in trailing chains, for example. As opposed to the 'non-trailing' cable, the cable sheath consists of tougher PUR for use in environments with acids and bases (coolants) instead of PVC. Up to a length of 10 m, the cables are available in 1 m sections (1 m, 2 m, 10 m). From a cable length of 10 m, the sections come in 5 m intervals (10 m, 15 m, ...).

In the case of servo motors, the resolver encoder system links the temperature sensor with the converter via the encoder cable.

### Technical data

#### 1. Technical description – non-trailing

- LiYCY, 5x (2x0.14 mm<sup>2</sup>) + 2 x 0.5 mm<sup>2</sup> copper lead, twisted pair
- PVC sheath, grey
- 1<sup>st</sup> end: 12-pin signal circular connector with 12 female contacts
- 2<sup>nd</sup> end: 15-pin D-Sub connector with male contacts and locking screws 4-4OUNC
- Baumüller labelling, black
- Outer diameter 9.0 mm (+/-3 mm)
- Bending radius:  $r \geq 60$  mm (fixed installation),  $r \geq 135$  mm (flexible use)
- Nominal voltage: 250 V<sub>AC</sub>

#### 2. Technical description – trailing

- Li12YC11Y, 5x (2x0.14 mm<sup>2</sup>) + 2 x 0.5 mm<sup>2</sup> copper lead, twisted pair
- PU sheath, black
- 1<sup>st</sup> end: 12-pin signal circular connector with 12 female contacts
- 2<sup>nd</sup> end: 15-pin D-Sub connector with male contacts and locking screws 4-4OUNC
- Baumüller labelling, white
- Outer diameter 9.0 mm (+/-3 mm)
- Bending radius:  $r \geq 70$  mm (fixed installation),  $r \geq 100$  mm (flexible use)
- Nominal voltage: 300 V<sub>AC</sub>



## Application notes

- Operating temperature

	trailing	non-trailing
Limit temperature	at the surface	at the surface
no / few movements	- 40 °C to + 80 °C	- 30 °C to + 80 °C
continuous movements	- 30 °C to +80 °C	-5 °C to + 70 °C

- Cable laying at the motor

The cables must not touch the motor surface.

## Ordering data

Encoder cables / preassembled cables with connector

### Encoder cable

#### non-trailing, preassembled

Cable 5 x (2x0.14 mm<sup>2</sup>) + 2 x 0.5 mm<sup>2</sup> with connector

Length in m	Article number
1	243601
2	211338
3	219333
4	231166
5	209879
6	220197
7	216455
8	220429
10	210052
15	215716
20	218568
25	218569
30	217094
35	216444
40	217095
45	217567
50	217568
55	217569
60	217570
70	232088

#### trailing, preassembled

Cable 5 x (2x0.14 mm<sup>2</sup>) + 2 x 0.5 mm<sup>2</sup> with connector

Length in m	Article number
3	246658
4	243379
5	239540
6	242954
8	239541
10	239542
15	239543
20	239544
25	239545
30	239546
35	239547
40	240520
45	240521
50	240522
55	244033
60	245484

Encoder connector	Article number
Encoder connector	201833

Commissioning and maintenance instructions

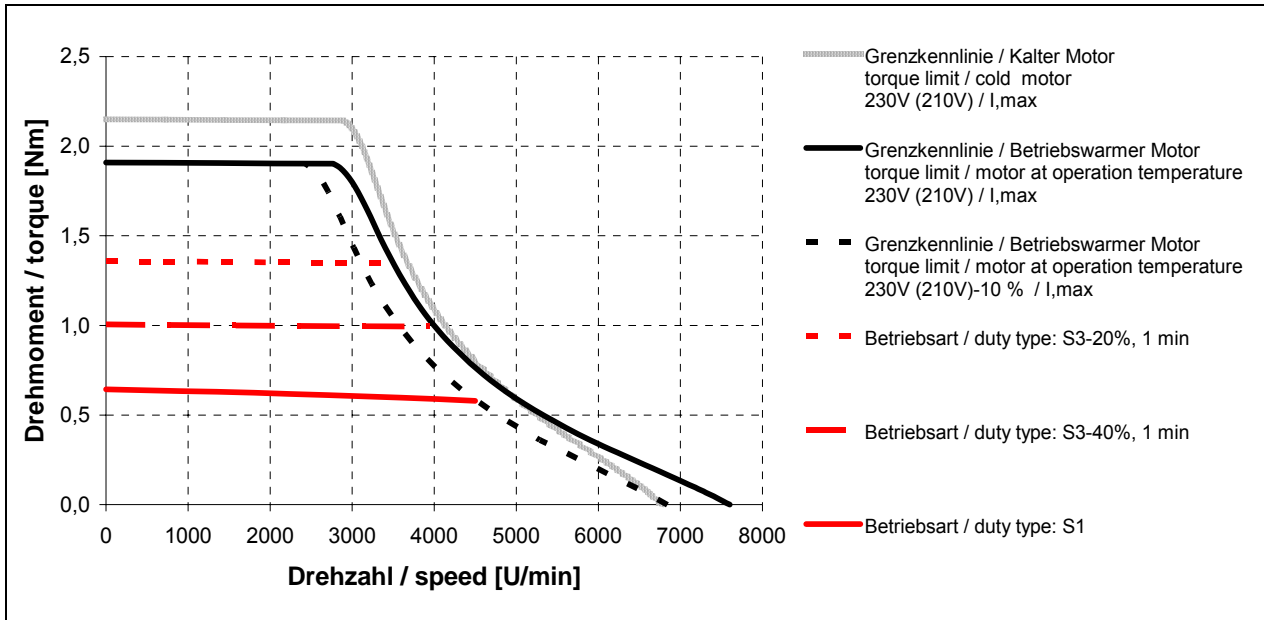
Please contact us for our commissioning and maintenance instructions for motor commissioning.

Motor characteristics

DSD 28 S

Nominal speed  $n_N$  4500 min<sup>-1</sup>

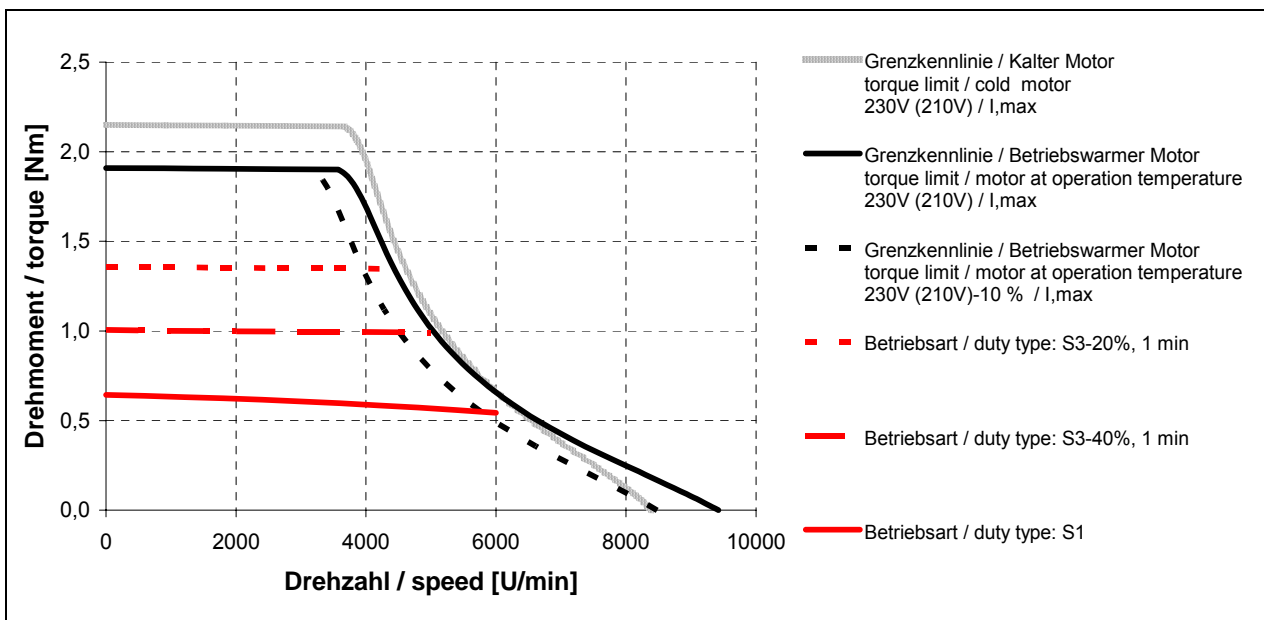
DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC



DSD 28 S

Nominal speed  $n_N$  6000 min<sup>-1</sup>

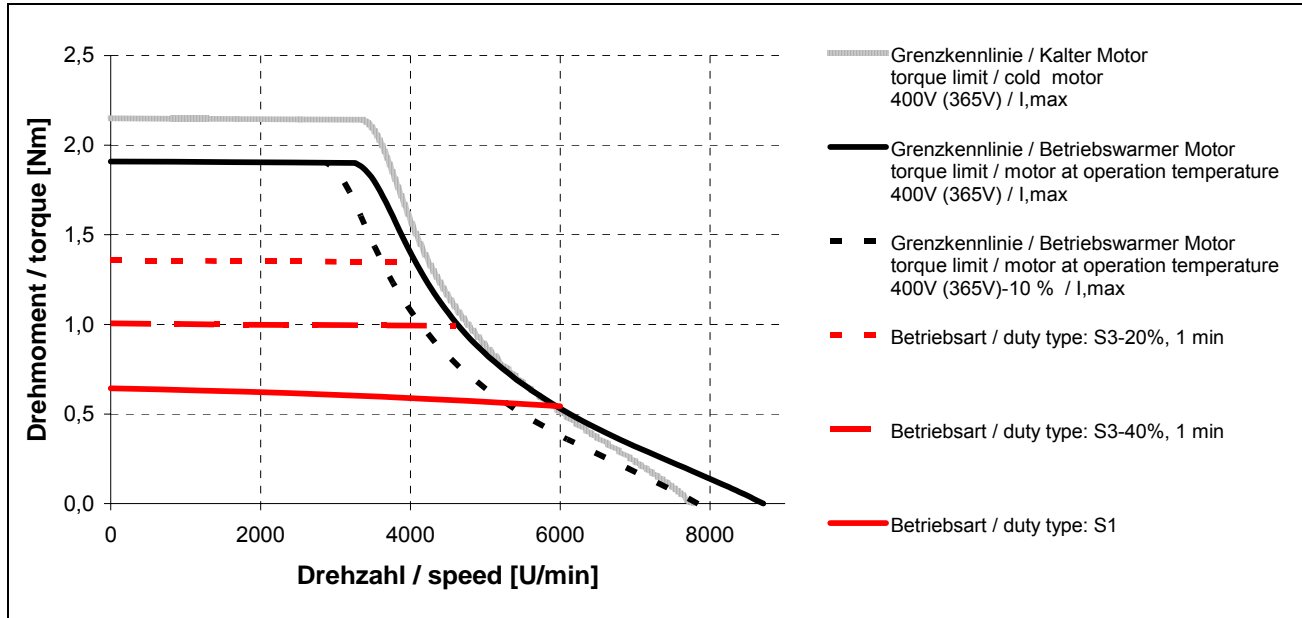
DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC



**DSD 28 S**

Nominal speed  $n_N$  6000 min<sup>-1</sup>

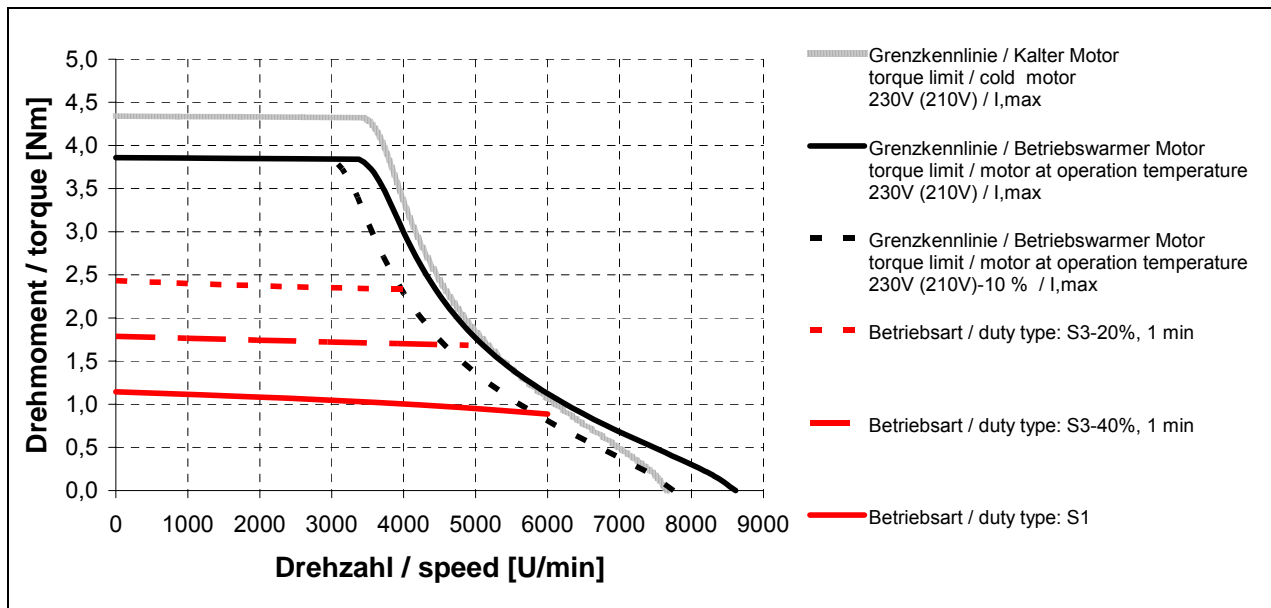
DC link voltage  $V_{DCL} = 540$  V – 3 X 400 V AC



**DSD 28 M**

Nominal speed  $n_N$  4500 min<sup>-1</sup>

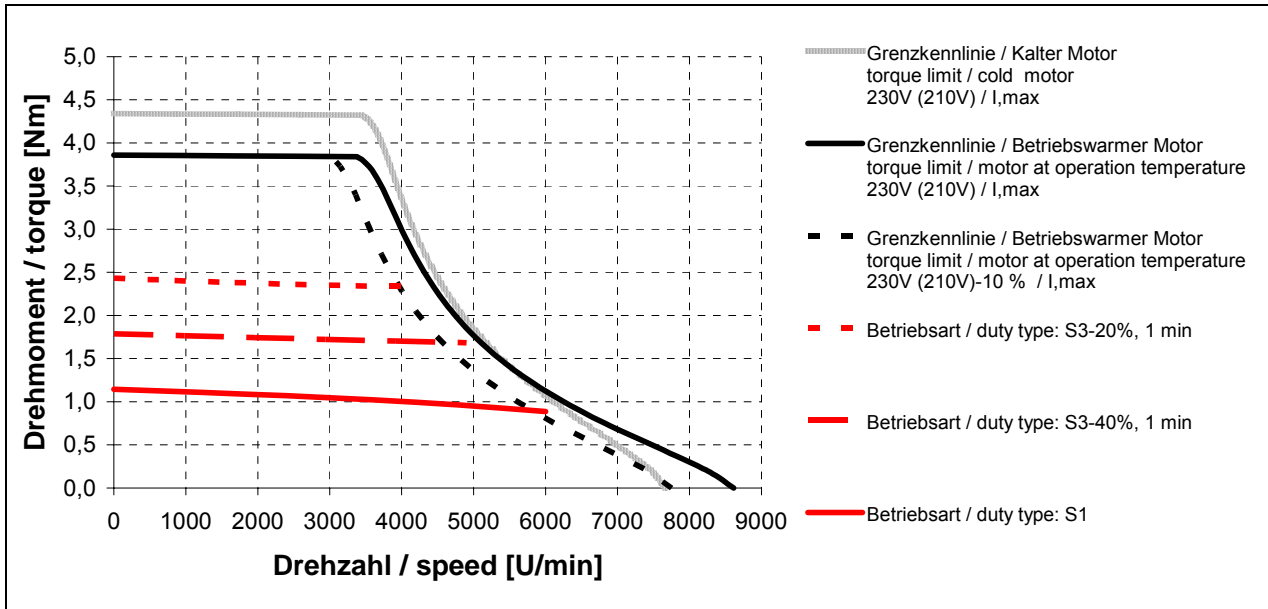
DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC



**DSD 28 M**

Nominal speed  $n_N$  6000 min<sup>-1</sup>

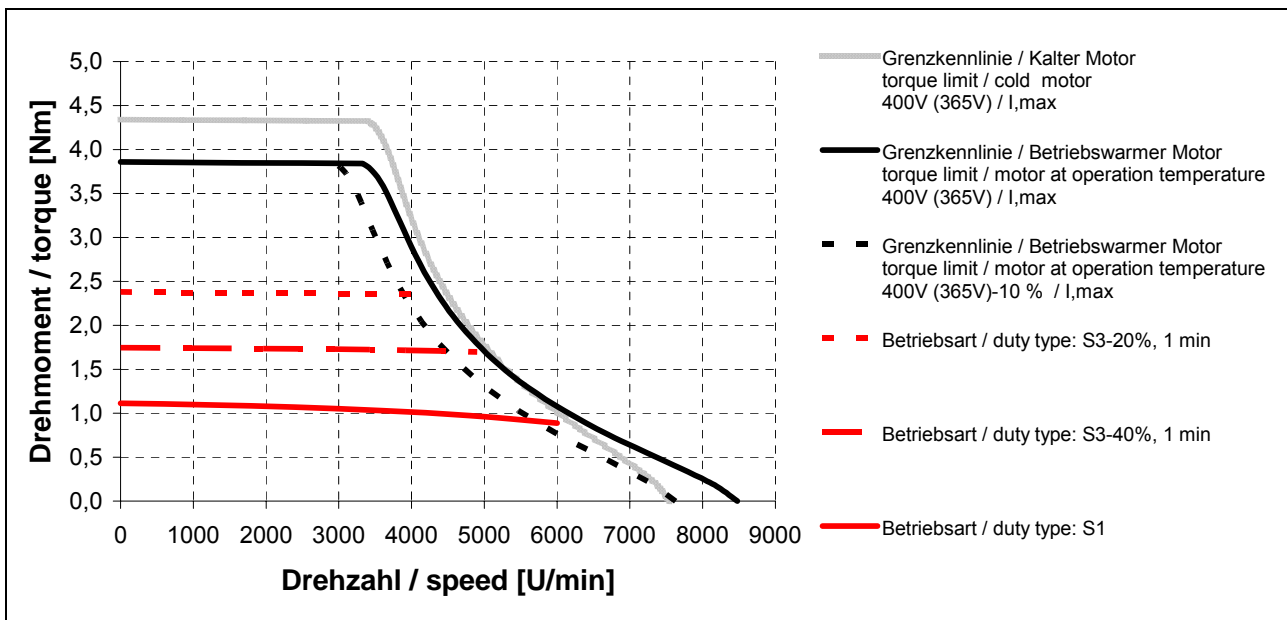
DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC



**DSD 28 M**

Nominal speed  $n_N$  6000 min<sup>-1</sup>

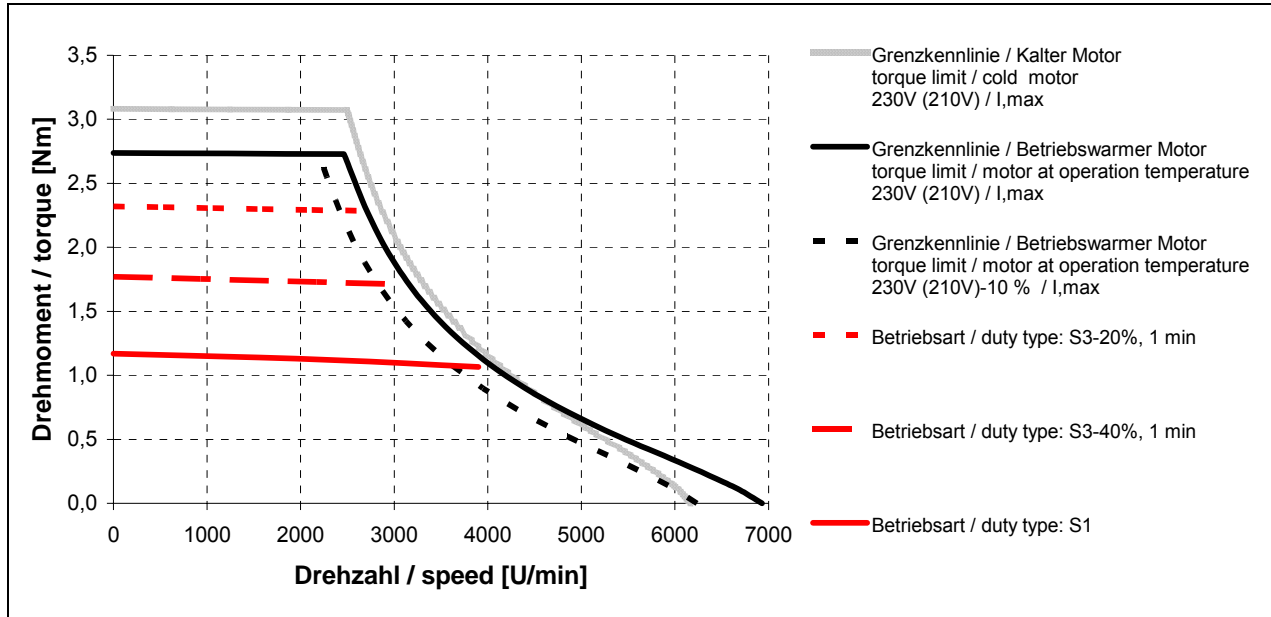
DC link voltage  $V_{DCL} = 540$  V - 3 X 400 V AC



**DSD 36 S**

Nominal speed  $n_N$  4000 min<sup>-1</sup>

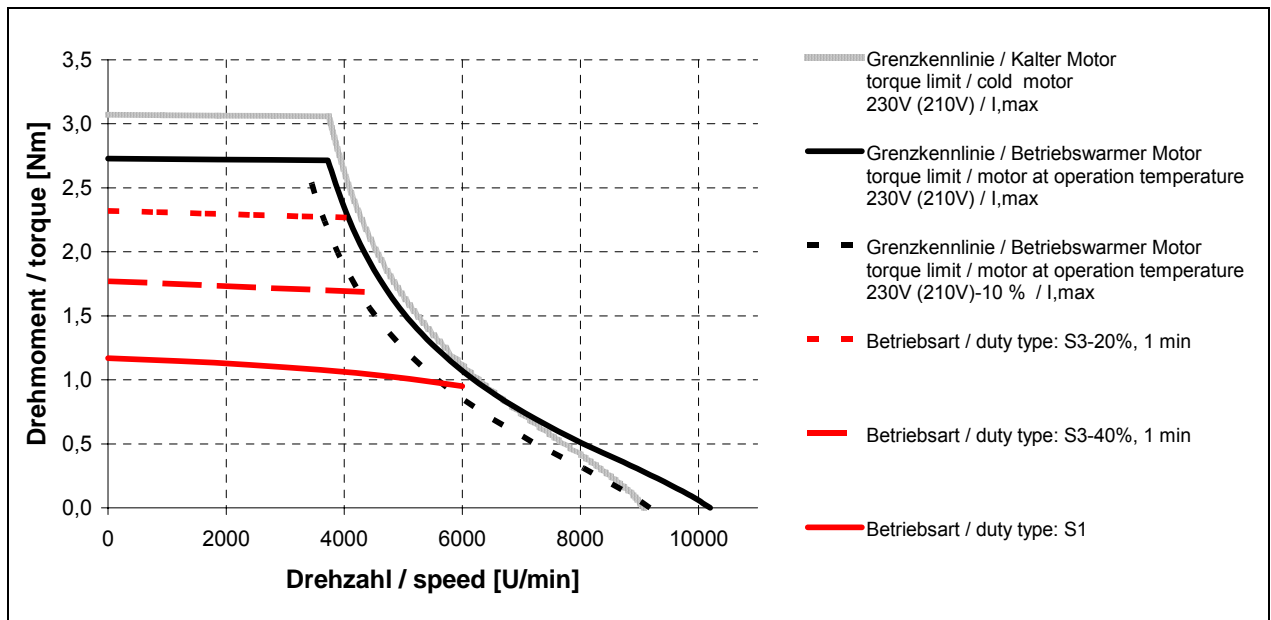
DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC



**DSD 36 S**

Nominal speed  $n_N$  6000 min<sup>-1</sup>

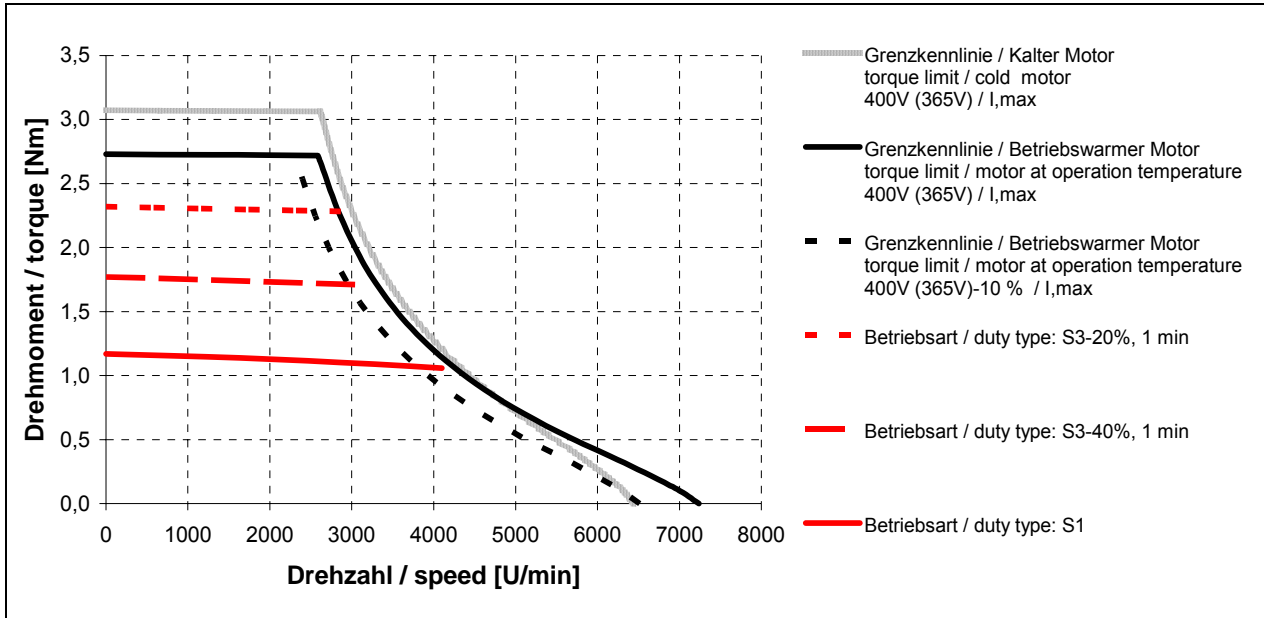
DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC



**DSD 36 S**

Nominal speed  $n_N$  4000 min<sup>-1</sup>

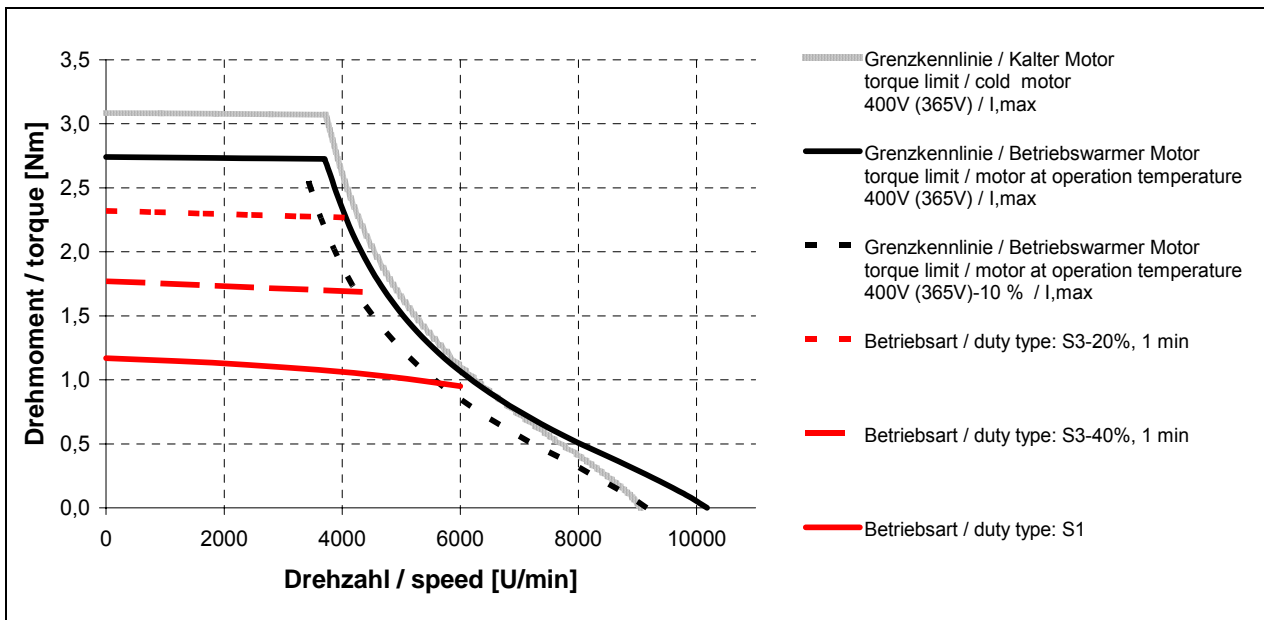
DC link voltage  $V_{DCL} = 540$  V - 3 X 400 V AC



**DSD 36 S**

Nominal speed  $n_N$  6000 min<sup>-1</sup>

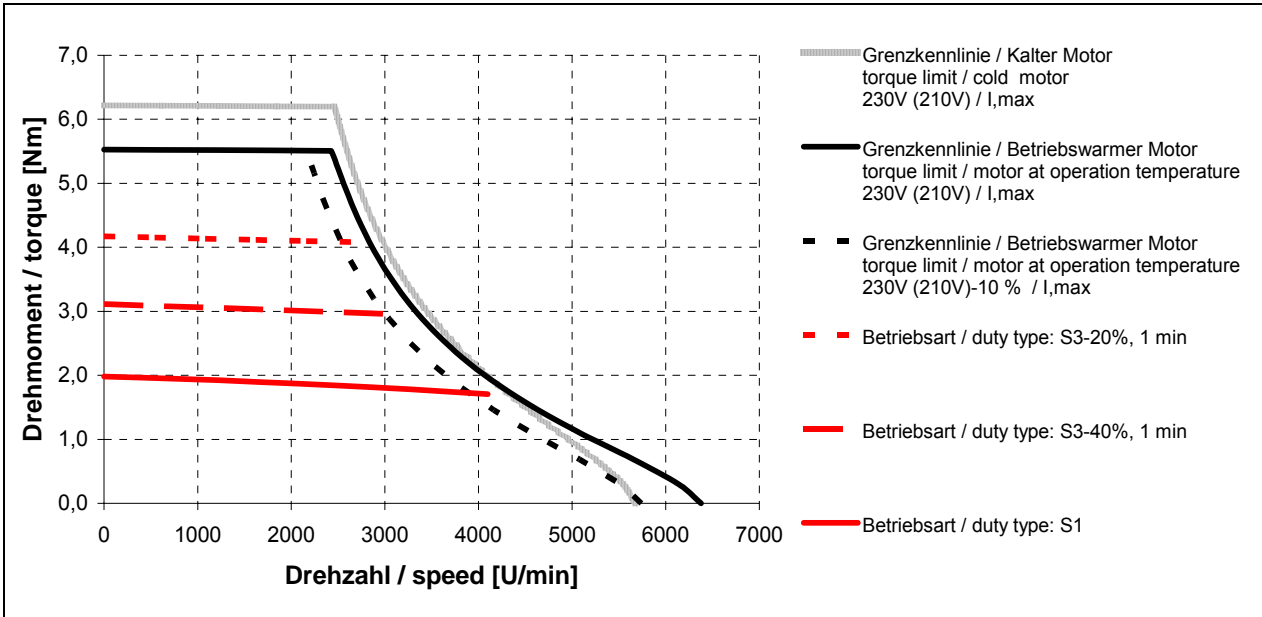
DC link voltage  $V_{DCL} = 540$  V - 3 X 400 V AC



**DSD 36 M**

Nominal speed  $n_N$  4000 min<sup>-1</sup>

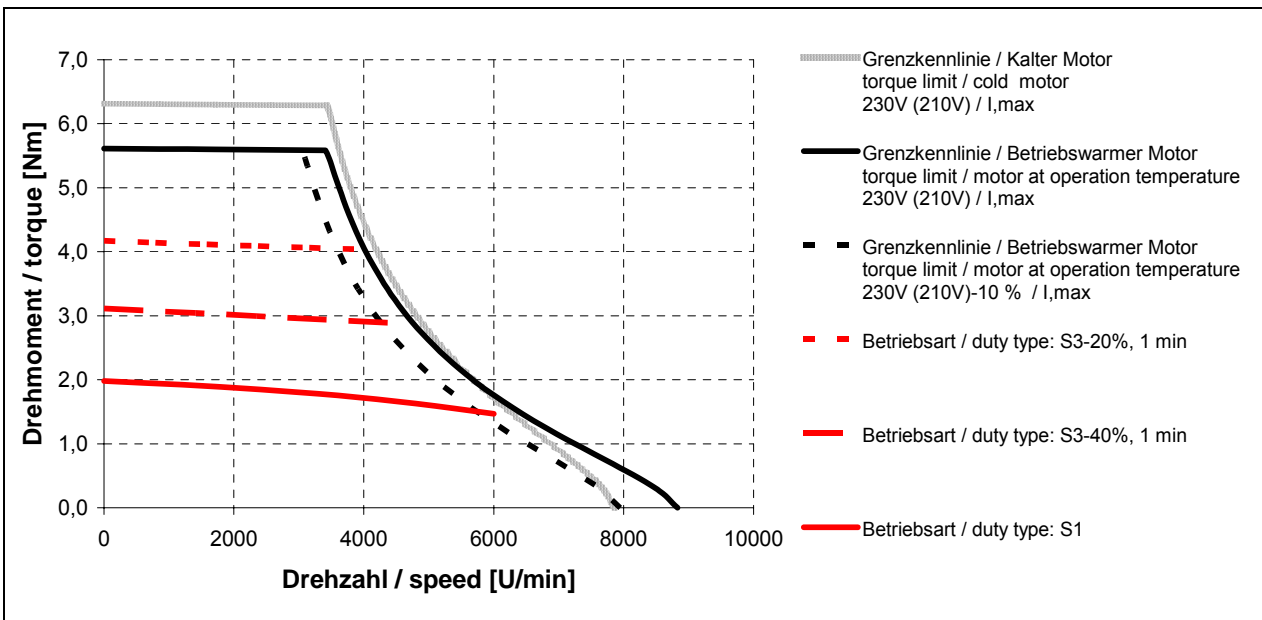
DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC



**DSD 36 M**

Nominal speed  $n_N$  6000 min<sup>-1</sup>

DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC

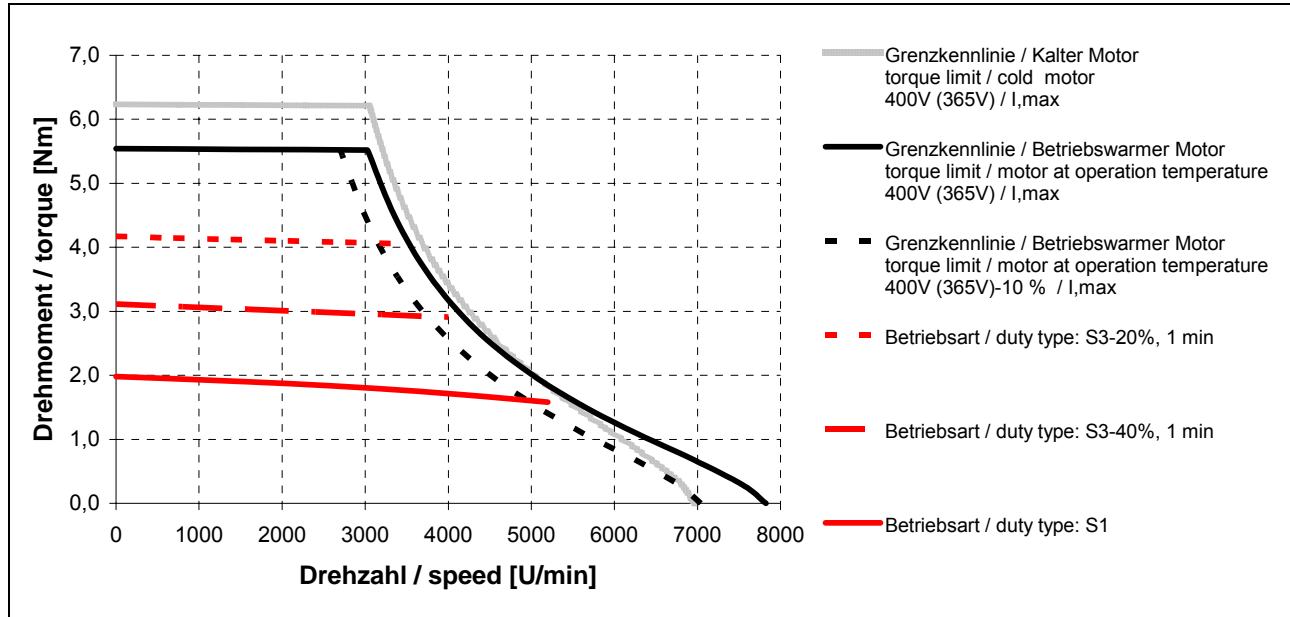


## Three-Phase Synchronous Motors DSD 28-36 / 48-540 V

### DSD 36 M

Nominal speed  $n_N$  4500 min<sup>-1</sup>

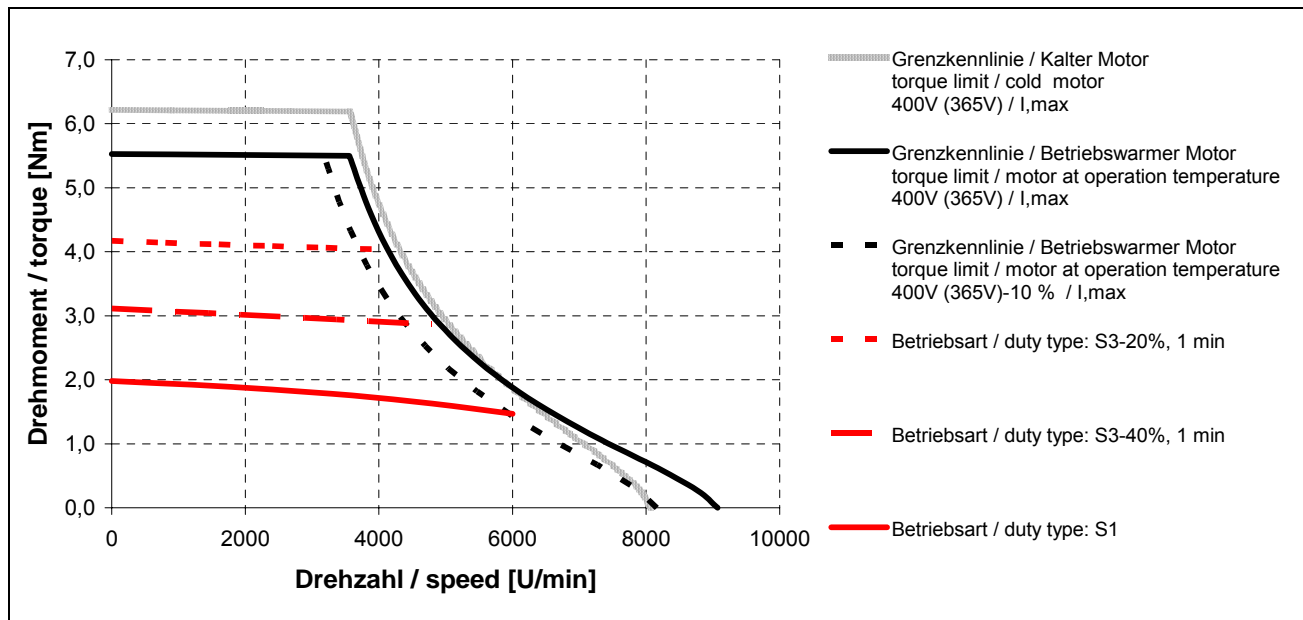
DC link voltage  $V_{DCL} = 540$  V - 3 X 400 V AC



### DSD 36 M

Nominal speed  $n_N$  6000 min<sup>-1</sup>

DC link voltage  $V_{DCL} = 540$  V - 3 X 400 V AC

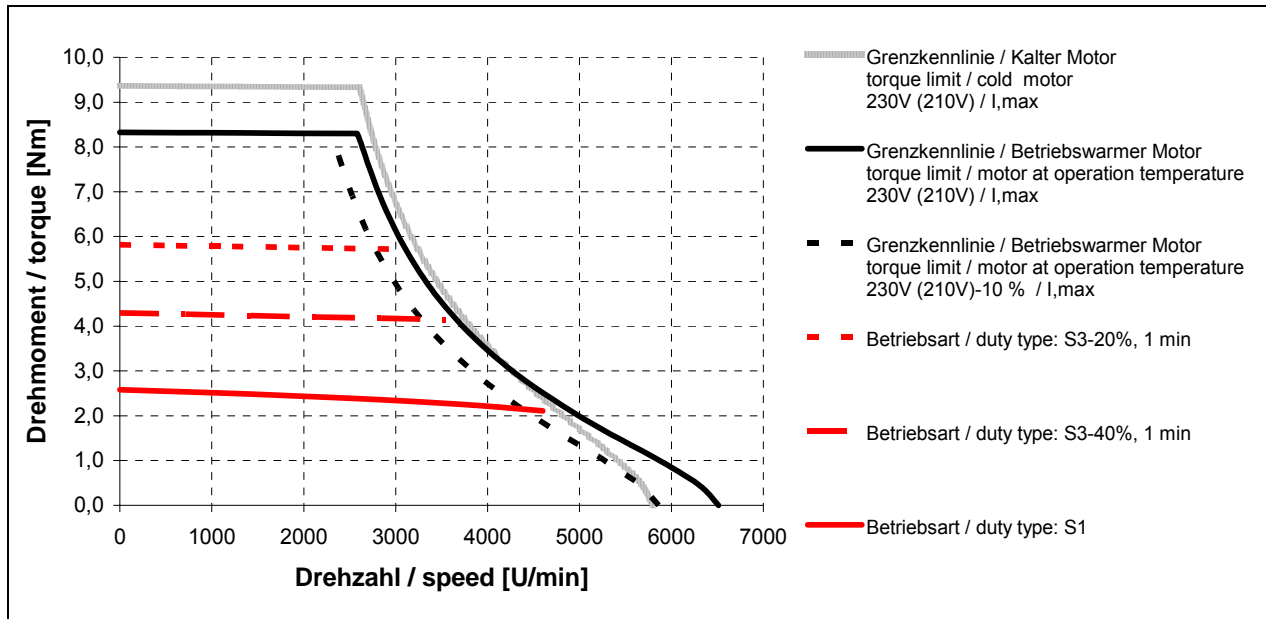




**DSD 36 L**

Nominal speed  $n_N$  4500 min<sup>-1</sup>

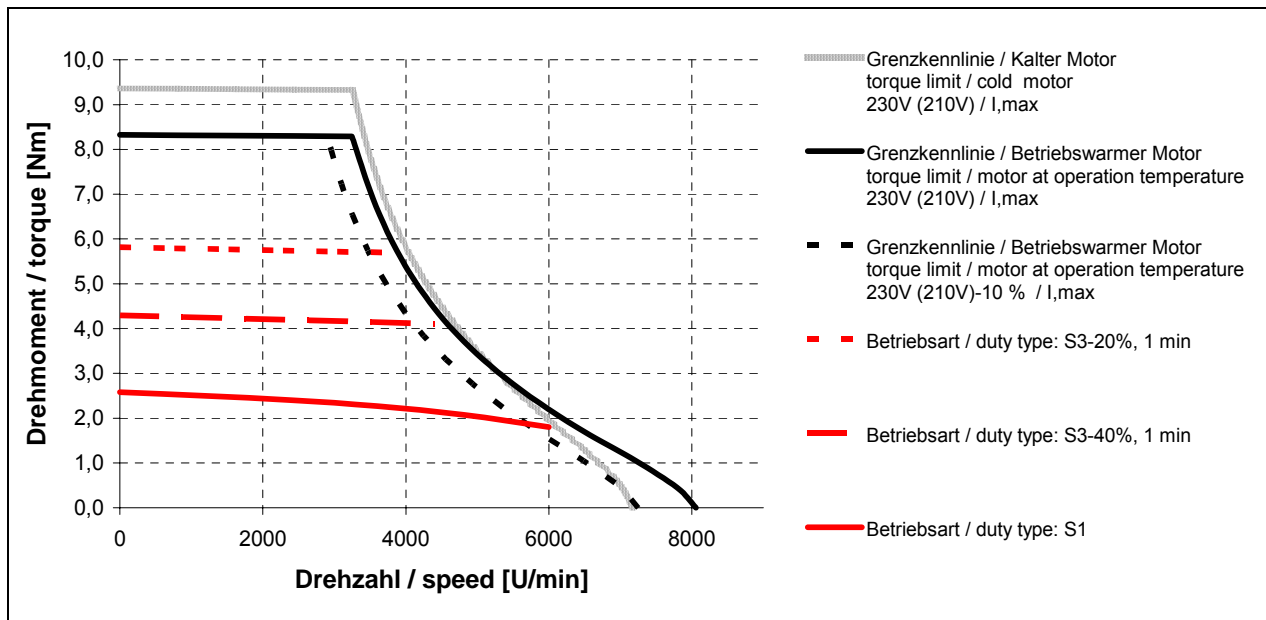
DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC



**DSD 36 L**

Nominal speed  $n_N$  6000 min<sup>-1</sup>

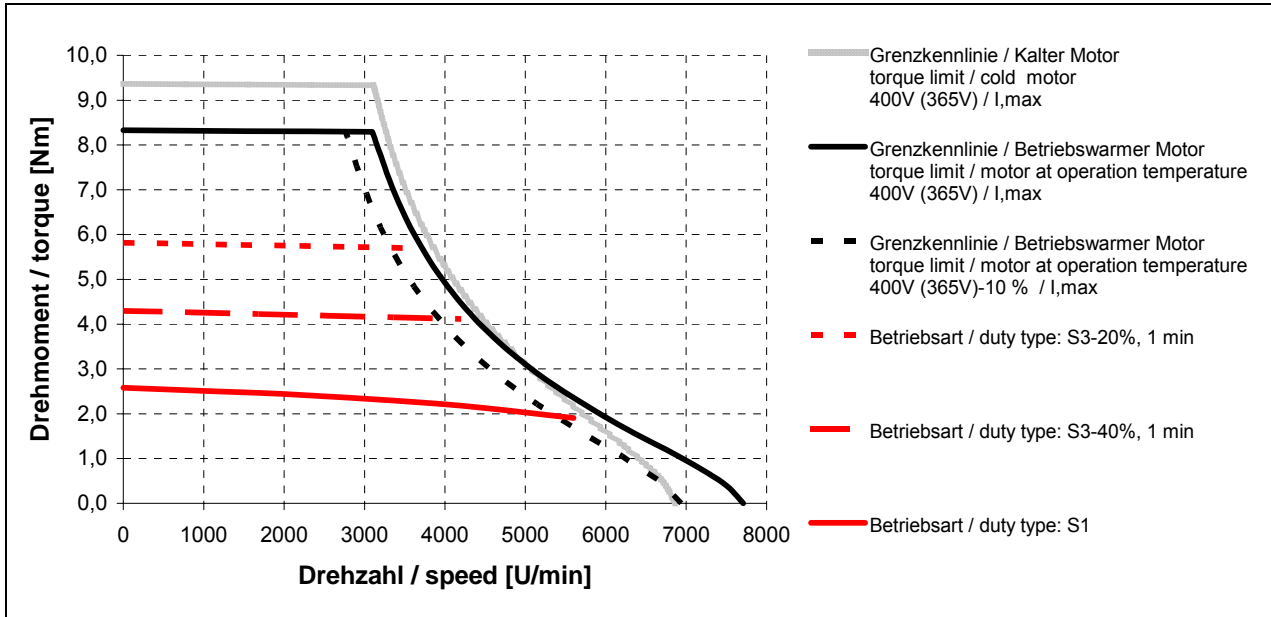
DC link voltage  $V_{DCL} = 310$  V - 1 X 230 V AC



**DSD 36 L**

Nominal speed  $n_N$  4500 min<sup>-1</sup>

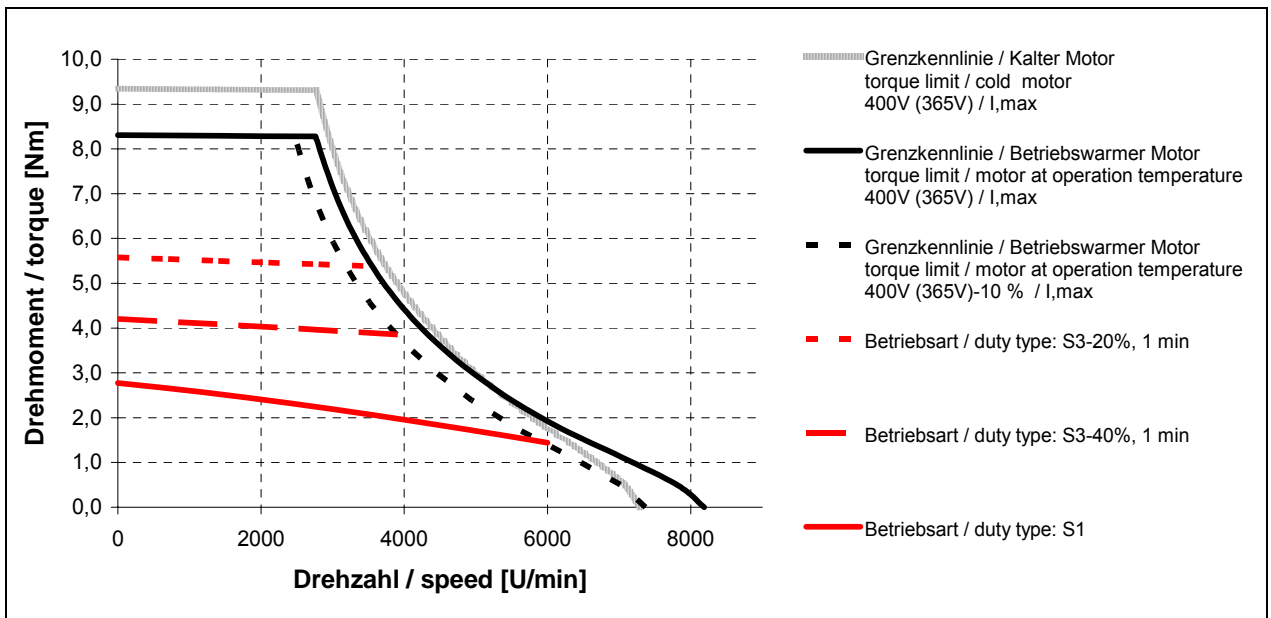
DC link voltage  $V_{DCL} = 540$  V - 3 X 400 V AC



**DSD 36 L**

Nominal speed  $n_N$  6000 min<sup>-1</sup>

DC link voltage  $V_{DCL} = 540$  V - 3 X 400 V AC



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