BAUMÜLLER

DSC1

Technical documentation
Three-phase synchronous motors DSC1 45-100

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Technical data, motor components, declaration of conformity

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Stand 11/2023

1. Three-phase synchronous motors DSC1-045-100

With its DSC 45-100 series, Baumüller is making the torque motor servo ready. In developing this series, the focus was on improving ratings to achieve a higher torque density while also drastically reducing the volume of the unit. The typical servo speed range of up to 6000 min^{-1} is, however, still covered.
The motors feature a smooth housing surface, are extremely easy to mount and offer a high degree of protection.

1.1. General technical data

Version:	IM B5	Horizontal mounting acc. to EN 60034-7
	IM V1	Vertical mounting, shaft end at the bottom acc. to EN 60034-7
	IM V3	Vertical mounting, shaft end at the top acc. to EN 60034-7 (Note: In the case of IP64 shaft ends, protection against the ingress of water and dust must be ensured.)
Degree of protection:	IP64	Standard: without shaft seal ring, with opposing plugs fitted and fully enclosed terminal boxes
	IP65	Option: with shaft seal ring, with opposing plugs fitted and fully enclosed terminal boxes Example configuration: DSC1-071SO65O-10-54-AOA-BPP-K-AN-O-DA1
	IP65	Without consideration of shaft bushing with opposing plugs fitted and fully enclosed terminal boxes
	IP67	Without consideration of the shaft bushing for IC410 and IC 3W7, fitted with mating connectors, not for motors with terminal box
Connection	Main connection	See Chapter 3.6, 3.7 und 3.3.10
	Encoder connection	See Chapter 3.3
		The main, encoder and fan connector in speedtec version
		Gr. 1.5 exclusively in speedtec Version
	Brake	Connection in the main connection
	Temperature sensor	Standard in the main connection and optional in the encoder socket
Temperature sensor	PT1000	Linear temperature sensor for the analysis in the controller
Cooling type	IC 410	Size 045-100 surface-cooled without fan
	IC 416	Size 056-100 surface-cooled with fan
	IC 3W7	Size 045-100 water-cooled machine
Temperature rise	$\Delta\vartheta$ = 105 K	Insulation class F acc. to EN 60034
Environmental conditions for running	Class 3K3/3Z12 as per DIN EN 60721-3-3:1995, however: temperature range 0-40 °C	Represents 0 to 40 °C at 5 % to 85 % rel. humidity and an absolute humidity of 1 g/m³ to 25 g/m³ and an installation height up to approx. 1,400 m.
Environmental conditions for long-term storage	Class 1K2/1M1 DIN EN 60721-3-1:1995, however: temperature range -15-60 °C	Represents -15 to 60 °C at 5 % to 85 % rel. humidity and an absolute humidity of 1 g/m³ to 25 g/m³; at temperatures below 3 °C you should drain the cooling water

Environmental conditions for transport	Class 2K2/2M1 DIN EN 60721-3-2:1995, however: temperature range -15-60 °C	Represents -15 to 60 °C at 5 % to 85 % rel. humidity and an absolute humidity of 1 g/m³ to 25 g/m³; at temperatures below 3 °C you should drain the cooling water
Paint	Black matt	RAL 9005
Bearings	D side	Standard: Ball bearings. Optional: Roller bearings (for size 56-100)
	ND side	Ball bearings, locating bearings
Bearing service life	L_{10h} 20.000h	Approximate value, rolling-contact bearings with long-term grease lubrication
Balance quality	A	Acc. to DIN EN 60034-14 (VDE 0530 Part 14): 2004-09
	B	On request (for ball bearing only)
True running	N	Standard: Normal acc. to DIN SPEC 42955 issued 1981*
	R	Option: Reduced according to DIN SPEC 42955 issued 1981 (only at ball bearings)
Vibration-resistant up to	Radial 3g / axial 0,5g**	10 Hz to 100 Hz acc. to EN 60068-2-6
Flange	As per standard IEC standard	Centralization diameter: tolerance j6
Shaft end	Cylindrical	Smooth acc. to DIN 748 (also available with key DIN 6885) Centralization with female thread as per DIN 332 Form D
Holding brake	Option	Zero play permanent magnet brake
Speed actual value encoder	Resolver	Standard, see Chapter 3.3
	Encoder option	See Chapter 3.3
Approvals	CE; cULus; UKCA; CEL	Standard

*) DIN EN 50347:2003-09 non applicable, as valid for AC standard motors, only
**) If there are vibration loads, then measurings are required.
On the basis of these constructive reviews and evaluations with the company Baumüller will be carried out.

1.2. General safety instructions

The standard versions of the motors are unsuitable for operation in salty or aggressive atmospheres and are not suitable for erection outdoors. If, with an air-cooled motor, the air is contaminated with dust particles or similar substances in the surrounding air, which cannot be kept out efficiently by the filter elements in use, then a conversation with the manufacturer is necessary to find a solution to the problem.

Suitable steps to reduce bearing currents are to be taken before commissioning the motor, depending on the application and system. The motor manufacturer must be consulted in this regard.

CAUTION:
With allocation of the motor in a specific protection class, it is a standardized brief test procedure. This can vary considerably depending on the actual environmental conditions at the site of installation.
Depending on the environmental conditions, such as the chemical consistency of the dust materials or the cooling media being used at the site of installation, evaluation of the suitability of the motor based on the type of protection is only possible to a limited extent (e.g., electrically conducting dust materials or aggressive coolant vapors or coolant fluids). In these cases, the motor must additionally be protected by appropriate measures on the machine side.

1.3. Definition of ratings

1.3.1. Definitions of power ratings for air-cooled machines

The power ratings (torques) listed in the table applies to continuous operation (S1) at the rated speed and a maximum ambient temperature of 40°C, for machines installed below 1,000 m a.m.s.l.
If motors are to be operated at an ambient temperature of more than 40°C, or altitudes above 1,000 m a.m.s.l., the required list power rating P_L (list torque M_r) is calculated from the product of factors k_1 and k_2 (specified in the table below) and the required power rating P (torque M).

Ambient temperature	40°C	45°C	50°C	55°C	60°C
Correction factor k_1	1	1.06	1.13	1.22	1.34
Altitude a.m.s.l. up to	1.000 m	2.000 m	3.000 m	4.000 m	5.000 m
Correction factor k_2	1	1.07	1.16	1.27	1.55

Design changes may be necessary in the case of ambient temperatures above 40°C and installation of motors in an enclosure: For this reason, it is imperative that the manufacturer is contacted.

If, in the case of an increasing site altitude above 1.000 m, the ambient temperature decreases by approx. 10°C per 1.000 m increase, no power correction is necessary (note the minimum operating temperature).

1.3.2. Definitions of power ratings for water-cooled machines

The power ratings (torques) that appear in the list apply to permanent operation S1 at nominal speed, provided the cooling circuit requirements for water-cooled motors are met!

The reduction factors included in the table below must be considered when operating DSC motors with higher coolant inlet temperatures:

Coolant inlet temperature	25 °C	30 °C	35 °C	40 °C	45 °C
Percentage of list performance (torque)	100 %	97 %	95 %	92 %	89 %

1.4. Water cooling

1.4.1. Coolant consistency

The coolant must satisfy the following specifications:

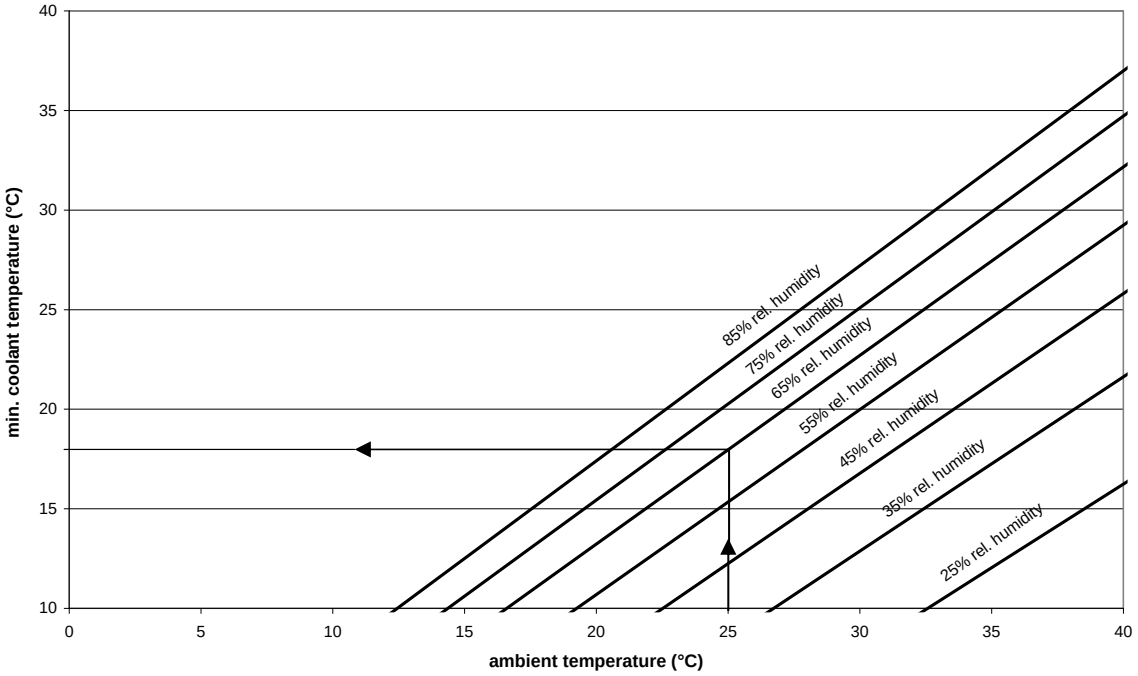
Conditions	Unit	Value
Maximum permitted system pressure	bar	6
Temperature of coolant - for motor	° C	10 to 25
pH value (at 20° C)	---	6.5 to 9
Overall hardness	mmol/l	1.43 to 2.5
Chloride - Cl^-	mg/l	< 200
Sulphate - SO_4^{2-}	mg/l	< 200
Oil	mg/l	< 1
Permitted particle size of solid foreign objects, particles (e.g. sand)	mm	< 0.1

Clean water that is free of dirt and suspended matter must be used as a coolant.

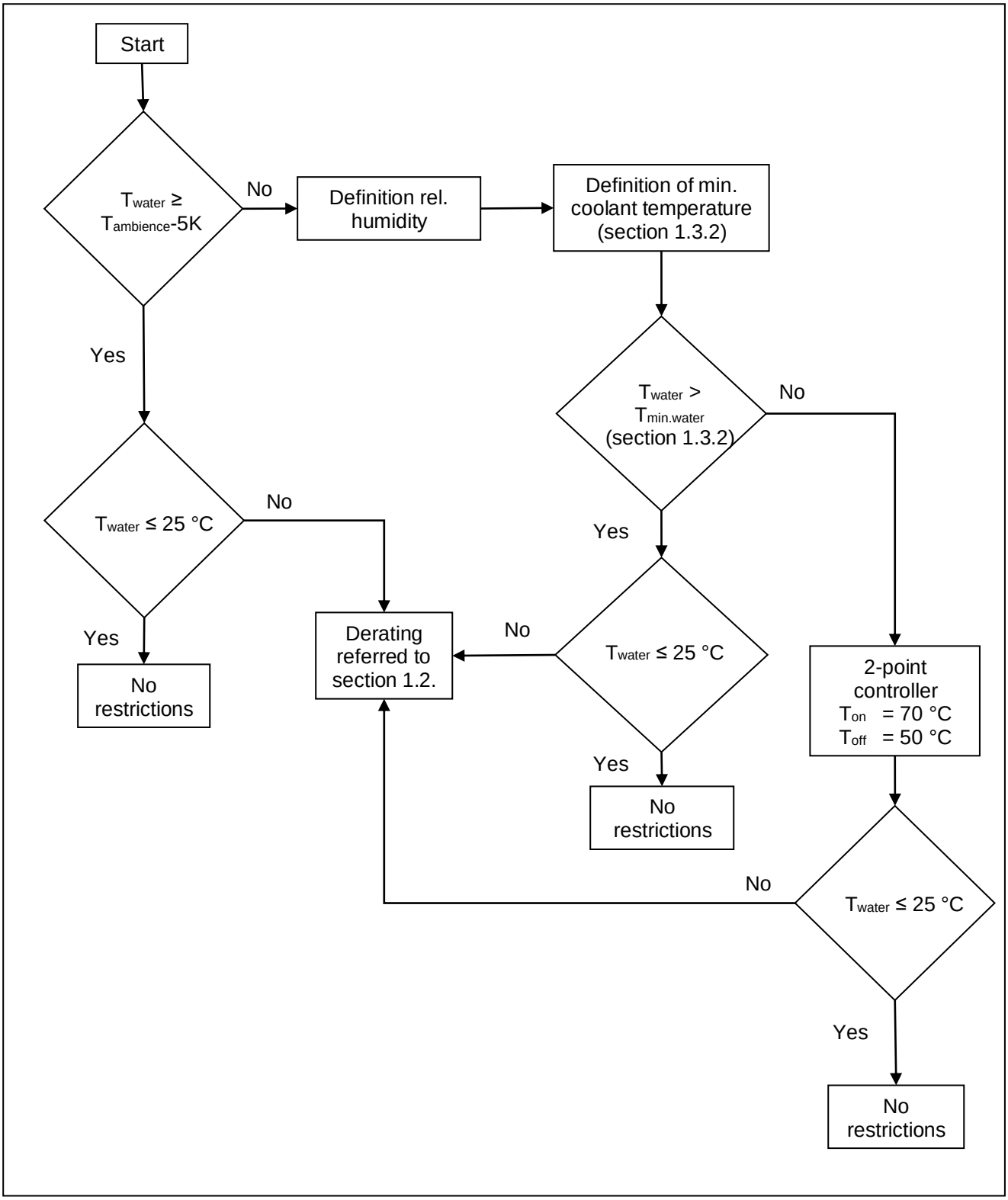
Note:
If the specific heat capacity is reduced by adding glycol for example, in dependance of the mixing ratio is a power reduction in the consequence, which is to be asked for at the manufacturer.

Compared to water cooling in the event of the use of hydraulic oil (HLP 46) a power rating reduction according to the overall length and speed of 20 to 25% arises for sizes 56-100 and 10% for size 132. The base is an inlet temperature of 35°C at both cooling mediums and an identical volume flow rate. The decrease of pressure is higher if using the hydraulic oil. Specific power ratings are available on request.

1.4.2. Min. coolant temperature against ambient temperature and humidity



The allowed coolant temperature depends on relative humidity and ambient temperature. For example, with an ambient temperature of 25 °C and a relative humidity of 65% the minimum coolant temperature is 18 °C. Because these are limiting values on practical side a coolant temperature greater than 18 °C should be used. If this minimum coolant temperature will be under run the two- point controller of Baumüller drive must be used to avoid condensation.



Note:
The supply of cooling fluid must be interrupted to prevent condensation when storing for an extended period. In addition, at ambient temperatures < 3°C and if the motor has not run for an extended period, drain the cooling fluid to prevent damage caused by frost. When using anti-freeze, you need to consult the manufacturer.

1.4.3. Specifications for required coolant volume flows

Motor type	Volume flow [l/min]	Pressure decrease ± 15 % [bar]	Heating [K]	Max. coolant pressure [bar]	Connection (2x) [mm]
DSC1-045KO64W	5	1.0	2	6	Quick coupling for the hose connection (Ø8 mm)
DSC1-045SO64W	5	1.1	2	6	Quick coupling for the hose connection (Ø8 mm)
DSC1-045MO64W	5	1.2	2	6	Quick coupling for the hose connection (Ø8 mm)

Motor type	Volume flow [l/min]	Pressure decrease ± 15 % [bar]	Heating [K]	Max. coolant pressure [bar]	Connection (2x) [mm]
DSC1-056KO64W	5	0.5	2	6	Quick coupling for the hose connection (Ø8 mm)
DSC1-056SO64W	5	0.5	2	6	Quick coupling for the hose connection (Ø8 mm)
DSC1-056MO64W	5	0.6	2	6	Quick coupling for the hose connection (Ø8 mm)

Motor type	Volume flow [l/min]	Pressure decrease ± 15 % [bar]	Heating [K]	Max. coolant pressure [bar]	Connection (G internal thread)
DSC1-071K64W	5	0.33	3	6	stainless steel tube Ø8x1
DSC1-071S64W	5	0.4	5	6	stainless steel tube Ø8x1
DSC1-071M64W	5	0.5	6	6	stainless steel tube Ø8x1

Motor type	Volume flow [l/min]	Pressure decrease ± 15 % [bar]	Heating [K]	Max. coolant pressure [bar]	Connection (G internal thread)
DSC1-100K64W	5	0.34	3	6	stainless steel tube Ø8x1
DSC1-100S64W	5	0.4	5	6	stainless steel tube Ø8x1
DSC1-100M64W	5	0.46	7	6	stainless steel tube Ø8x1

Controlling the feed valve individually is possible, depending on the motor temperature measured by the temperature sensor.

Note:
The given cooling volume flows relate to the highest rotary speed of the relevant motor lengths.
It is possible to make an individual cooling unit evaluation on the basis of the motors power loss ($P_V = P_N / \eta_N – P_N$). The cooling unit should be scaled so that its cooling performance matches the motor power loss and so that 100% of the waste heat is diffused by the unit.

Sufficient quantities of additives for corrosion and germ protection must be mixed in. The additive type and dosage are based on recommendations from the additive manufacturer and the prevailing ambient conditions. A lowering of the specific heating capacity leads to an output reduction in relation to the mixing ratio which should be enquired at the manufacturer.

1.4.4. Materials in the motor that make contact with the product

The following materials that contact the medium are used in the motor:

Size 45 and 56:
Cooling system: Aluminum KTL coated
Connections: In general, the motors are equipped with a quick coupling for a hose connection (Ø8 mm) in brass.
Seal: FPM

Size 71 and 100:
Cooling system: stainless steel
Water connections: According to standard, the motors are supplied with a stainless-steel tube Ø8x1 without additional connection technology.
The water connection with the John Guest - quick connector SM 040 808 S can be optionally provided (dia 8 by dia 8) or equipped by a compression fitting Ø8L x G1/4“. Please include this option including the order code when ordering.

1.5. Winding insulation and heating

Die Motoren sind für den Betrieb an Umrichtern mit Zwischenkreisspannungen bis 640 V ausgelegt.

Höhere Zwischenkreisspannungen bis 800 V sind möglich, wenn durch geeignete Filter in der Motorzuleitung Spannungsspitzen an den Motorklemmen auf Werte < 1200 V begrenzt werden.

1.6. Explanation of motor data

n_N	Rated speed [rpm]
M_0	Nominal torque [Nm] with speeds ≥ 1 [rpm] without time limit
I_0	nominal current [A] with speeds ≥ 1 [rpm] without time limit, I_0 is the r.m.s. value
$M_{0,max}$	Maximum static torque [Nm] with maximum current [A] and speed = 0, momentarily
$I_{0,max}$	Static current [A] at $M_{o,\ max}$; I_{0max} is the effective value
P_N	Rated output [kW] with M_N and n_N (see Performance definition)
M_N	Rated torque [Nm]
I_N	Rated effective current [A]
$k_{E\ /\ cold}$	Voltage constant (EMF) to [V per 1000 rpm]
f_N	Rated frequency [Hz]
J	Rotor inertia incl. resolver without holding brake [kgm²]
m	Motor mass [kg]

When the converter is operating, the specified rated outputs and torques at the rated speed are achieved with a clocking frequency of ≥ 4 kHz in the power divider. We recommend a cycle frequency of > 6 kHz.
All converters scheduled for use must have the option of field weakening as a mandatory requirement.

The ***sizemaXX*** drive configurator is available at *www.baumueller.de* for designing the motors and the overall drive system.

1.7. Type key

DSC1-XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-XXX	**Type**
DSC1-**XXX**XXXXX-XX-XX-XXX-XXX-X-XX-X-XXX	**Overall size** 045 056 071 100
DSC1-XXX**XX**XXX-XX-XX-XXX-XXX-X-XX-X-XXX	**Overall length** KO SO MO
DSC1-XXXXX**XX**X-XX-XX-XXX-XXX-X-XX-X-XXX	**Degree of protection** 64 - Degree of protection IP64 65 - Degree of protection IP65
DSC1-XXXXXXX**X**-XX-XX-XXX-XXX-X-XX-X-XXX	**Cooling type** U - Without fan O - With fan, 230 VAC supply voltage W – Water cooling
DSC1-XXXXXXXX-**XX**-XX-XXX-XXX-X-XX-X-XXX	**Nominal speed class** 10 - 1000 rmp 20 - 2000 rmp 30 - 3000 rmp 40 - 4000 rmp
DSC1-XXXXXXXX-XX-**XX**-XXX-XXX-X-XX-X-XXX	**Uzk_ DC** 54 - 540 V
DSC1-XXXXXXXX-XX-XX-**X**XX-XXX-X-XX-X-XXX	**Encoder type** O – No encoder A - Resolver D - SRS50 E - SRM50 F - ECN1313 G - EQN1325 H - ECN1325 I - EQN1337 M - Resolver (Safety) N - SRS50-S (Safety) Q - SRM50-S (Safety) X - EQI1331 Y - ECI1319 5 - ECN1325-S (Safety) 6 - EQN1337-S (Safety) g - EFS50 Hiperface DSL (21 bit) h - EFM50 Hiperface DSL (21 bit) p - ECI1319-S (Safety) q - EQI1331-S (Safety) r - EES37 Hiperface DSL (15 bit) s - EEM37 Hiperface DSL (15 bit)

	t - SEK37 u - SEL37 *On demand
DSC1-XXXXXXXX-XX-XX-X**X**X-XXX-X-XX-X-XXX	**Brake** O – Without brake B – With PE-brake
DSC1-XXXXXXXX-XX-XX-XX**X**-XXX-X-XX-X-XXX	**Shaft options** A - Smooth shaft B - With parallel key
DSC1-XXXXXXXX-XX-XX-XXX-**X**XX-X-XX-X-XXX	**Main connection type** M – Terminal box (with PT1000) Signal socket speedtec N – Terminal box (PT1000 on encoder socket) Signal socket speedtec B – Connector socket speedtec (PT1000 on main connection) D – Connector socket speedtec (PT1000 on the encoder socket)
DSC1-XXXXXXXX-XX-XX-XXX-X**X**X-X-XX-X-XXX	**Main outlet port** T - Top L - Left with a view toward D-side on shaft end R - Right with a view toward D-side on shaft end D - DE (D-side) N - NDE (N-side) P - Pivoted
DSC1-XXXXXXXX-XX-XX-XXX-XX**X**-X-XX-X-XXX	**Encoder connection outlet** O – Without encoder box T - Top L - Left with a view toward D-side on shaft end R - Right with a view toward D-side on shaft end D - DE (D-side) N - NDE (N-side) P – Pivoted
DSC1-XXXXXXXX-XX-XX-XXX-XXX-**X**-XX-X-XXX	**Bearing** K - Ball bearing D-side R - Roller bearing D-side
DSC1-XXXXXXXX-XX-XX-XXX-XXX-X-**X**X-X-XXX	**Vibration level** A - Vibration level A B - Vibration level B
DSC1-XXXXXXXX-XX-XX-XXX-XXX-X-X**X**-X-XXX	**True running** N - Normal R - Reduced

DSC1-XXXXXXXX-XX-XX-XXX-XXX-X-XX-**X**-XXX	**Gear box / pump mounting** O - Without transmission mount and without pump mounting A - BPE - Gear box B - BPEF - Gear box C - BPEA - Gear box D - BPN - Gear box E - BPNA - Gear box F - BPNF - Gear box G - BPV - Gear box H - BPVF - Gear box
DSC1-XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-**XXX**	**Expanded version** 000 - No special version AJ1 - Water connection with a John-Guest-connector AP1 - Water connection with cutting ring fitting DA1 - Standard shaft seal OS1 - Fan with 115 VAC supply voltage OS2 - Fan with 24 VDC supply voltage XXX - Special version (internal coding) Special coding is made alphanumeric*

Example configuration: DSC1-071SO64O-10-54-AOA-BPP-K-AN-O-000

*Motor with several expanded design attributes, such as shaft seal and fan with 24VDC supply voltage: DSC1-071SO65O-10-54-AOA-BPP-K-AN-O+DA1

2. Technical data

2.1. DSC1-045

DSC1-045..64 U.. (without fan)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0.max}$ Nm	$I_{0.max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/cold}$ $V/_{10001/min}$	f_N Hz	J $kgcm^2$	m kg
DSC1-045KO64U-20-54	2000	2.7	1.3	8.7	4.9	0.5	2.5	1.3	140	166.7	1.4	4
DSC1-045SO64U-20-54	2000	4.5	2.0	18	8.9	0.9	4.1	1.9	154	166.7	2.3	5.5
DSC1-045MO64U-20-54	2000	6.2	2.6	26	12.7	1.1	5.4	2.3	162	166.7	3.2	7
DSC1-045KO64U-30-54	3000	2.7	1.9	8.7	7	0.7	2.3	1.6	98.5	250.0	1.4	4
DSC1-045SO64U-30-54	3000	4.5	2.7	18	12.4	1.1	3.5	2.3	111	250.0	2.3	5.5
DSC1-045MO64U-30-54	3000	6.2	3.7	26	18.2	1.3	4.2	2.6	113	250.0	3.2	7
DSC1-045KO64U-40-54	4000	2.7	2.4	8.7	8.9	0.8	1.9	1.8	76.9	333.3	1.4	4
DSC1-045SO64U-40-54	4000	4.5	3.5	17	15.9	1.1	2.7	2.3	86.3	333.3	2.3	5.5
DSC1-045MO64U-40-54	4000	6.2	4.7	26	23.3	1.0	2.5	2.1	88.4	333.3	3.2	7

DSC1-045..64 W.. (water-cooled)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0,max}$ Nm	$I_{0,max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/kalt}$ $V/_{1000\ min^{-1}}$	f_N Hz	J $kgcm^2$	m kg
DSC1-045KO64W-20-54	1700	4	1.3	9.1	4.9	0.7	3.9	1.9	140	141.7	1.4	4
DSC1-045SO64W-20-54	1700	8.1	2.0	18.4	8.9	1.4	7.9	3.4	154	141.7	2.3	5.5
DSC1-045MO64W-20-54	1700	12.1	5	26	12.7	2.1	12	5	162	141.7	3.2	7
DSC1-045KO64W-30-54	3500	4	2.7	9.1	7	1.21	3.3	2.6	98.5	291.7	1.4	4
DSC1-045SO64W-30-54	2600	8.1	4.7	18.3	12.4	2.1	7.7	4.6	111	216.7	2.3	5.5
DSC1-045MO64W-30-54	2600	12.1	7.2	26	18.2	3.3	11.9	7.2	113	216.7	3.2	7
DSC1-045KO64W-40-54	3500	4	3.4	9.1	8.9	1.39	3.8	3.3	76.9	291.7	1.4	4
DSC1-045SO64W-40-54	3400	8.1	6	18.2	15.9	2.7	7.6	5.9	86.3	283.3	2.3	5.5
DSC1-045MO64W-40-54	3200	12.1	9.2	26	23.3	4	11.9	9.1	88.4	266.7	3.2	7

[1)] Coil overtemperature $\Delta T < 105K$; direct flange mounting (mounting plate 250 x 250 x 10 mm)

[2)] Rotor inertia moment with PE brake: +1.0 $kgcm^2$

[3)] Weight with PE brake: +1.0 kg

2.2. DSC1-056

DSC1-056..64 U.. (without fan)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0.max}$ Nm	$I_{0.max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/cold}$ $V/_{10001/min}$	f_N Hz	J $kgcm^2$	m kg
DSC1-056KO64U-10-54	1000	6.2	1.62	16	5	0.6	6.1	1.6	259	83.3	4.4	7
DSC1-056SO64U-10-54	1000	11	2.4	32	8.6	1.0	9.9	2.2	298	83.3	7.5	9.5
DSC1-056MO64U-10-54	1000	14	3	49	12.2	1.5	14	3.0	316	83.3	10.6	12
DSC1-056KO64U-20-54	2000	6.2	3.0	16	9	1.2	5.8	2.8	142	166.7	4.4	7
DSC1-056SO64U-20-54	2000	11	4.4	32	15.9	1.9	8.9	3.8	161	166.7	7.5	9.5
DSC1-056MO64U-20-54	2000	14	5.7	49	22.9	2.6	12	5.1	168	166.7	10.6	12
DSC1-056KO64U-30-54	3000	6.2	4.2	16	12.9	1.7	5.4	3.8	99.6	250.0	4.4	7
DSC1-056SO64U-30-54	3000	11	6.3	32	22.9	2.4	7.7	4.8	112	250.0	7.5	9.5
DSC1-056MO64U-30-54	3000	14	8.2	49	32.7	3.0	9.6	5.7	118	250.0	10.6	12
DSC1-056KO64U-40-54	4000	6.2	5.4	16	16.4	2	4.8	4.3	78.3	333.3	4.4	7
DSC1-056SO64U-40-54	4000	11	8.1	32	29.4	2.6	6.3	5.1	87.3	333.3	7.5	9.5

[1)] Coil overtemperature ∆ T < 105K; direct flange mounting (mounting plate 450 x 400 x 30 mm)

[2)] Rotor inertia moment with PE brake: +2.9 kgcm²

[3)] Weight with PE brake: +2.0 kg

DSC1-056..64 O.. (with fan)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0.max}$ Nm	$I_{0.max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/cold}$ $V/_{10001/min}$	f_N Hz	J $kgcm^2$	m kg
DSC1-056KO64O-10-54	900	7.2	1.91	16	5	0.7	7.2	1.9	259	75.0	4.4	10
DSC1-056SO64O-10-54	900	14	3.1	32	8.6	1.3	14	3.1	298	75.0	7.5	12.5
DSC1-056MO64O-10-54	900	21	4.4	49	12.2	1.9	20	4.4	316	75.0	10.6	15
DSC1-056KO64O-20-54	1900	7.2	3.5	16	9	1.4	7.1	3.4	142	158.3	4.4	10
DSC1-056SO64O-20-54	1900	14	5.8	32	15.9	2.6	13	5.6	161	158.3	7.5	12.5
DSC1-056MO64O-20-54	1800	21	8.3	49	22.9	3.8	20	8.1	168	150.0	10.6	15
DSC1-056KO64O-30-54	2800	7.2	4.9	16	12.9	2.0	6.9	4.8	99.6	233.3	4.4	10
DSC1-056SO64O-30-54	2800	14	8.3	32	22.9	3.7	13	7.8	112	233.3	7.5	12.5
DSC1-056MO64O-30-54	2600	21	11.9	49	32.7	5.3	19	11.3	118	216.7	10.6	15
DSC1-056KO64O-40-54	3700	7.2	6.3	16	16.4	2.6	6.7	6	78.3	308.3	4.4	10
DSC1-056SO64O-40-54	3700	14	10.7	32	29.4	4.7	12	9.5	87.3	308.3	7.5	12.5

[1)] Coil overtemperature ∆ T < 105K; direct flange mounting (mounting plate 450 x 400 x 30 mm)

[2)] Rotor inertia moment with PE brake: +2.9 kgcm²

[3)] Weight with PE brake: +2.0 kg

DSC1-056..64 W.. (water-cooled)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque [1]	Stand-still current [1]	max. static torque	Max. static current	Rated out-put [1]	Rated torque [1]	Rated current [1]	Voltage constant	Rated fre-quency	Rotor inertia (motor) [2]	Weigh t [3]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0,max}$ Nm	$I_{0,max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/kalt}$ $V/_{1000\ min}{}^{-1}$	f_N Hz	J $kgcm^2$	m kg
DSC1-056KO64W-10-54	900	8.5	2.3	16	5	0.8	8.4	2.3	259	75.0	4.4	7.1
DSC1-056SO64W-10-54	800	17.2	4	32	8.6	1.42	17	3.9	298	66.67	7.5	9.2
DSC1-056MO64W-10-54	800	26	5.6	49	12.2	2.1	25	5.5	316	66.67	10.6	11.2
DSC1-056KO64W-20-54	1900	8.5	4.2	16	9	1.66	8.3	4.1	142	158.33	4.4	7.1
DSC1-056SO64W-20-54	1800	17.2	7.4	32	15.9	3.2	16.7	7.2	161	150	7.5	9.2
DSC1-056MO64W-20-54	1700	26	10.5	49	22.9	4.4	25	10.2	168	141.67	10.6	11.2
DSC1-056KO64W-30-54	2800	8.5	6	16	12.9	2.4	8.2	5.9	99.6	233.33	4.4	7.1
DSC1-056SO64W-30-54	2700	17.2	10.6	32	22.9	4.7	16.6	10.3	112	225	7.5	9.2
DSC1-056MO64W-30-54	2600	26	15.1	49	32.7	6.5	24	14.2	118	216.67	10.6	11.2
DSC1-056KO64W-40-54	3700	8.5	7.6	16	16.4	3.1	8.0	7.3	78.3	308.33	4.4	7.1
DSC1-056SO64W-40-54	3500	17.2	13.6	32	29.4	5.9	16.2	13	87.3	291.67	7.5	9.2

[1] Coil overtemperature $\Delta T < 105K$; direct flange mounting (mounting plate 450 x 400 x 30 mm)

[2] Rotor inertia moment with PE brake: +2.9 $kgcm^2$

[3] Weight with PE brake: +2.0 kg

2.3. DSC1-071

DSC1-071..64 U.. (without fan)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0.max}$ Nm	$I_{0.max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/cold}$ $V/_{10001/min}$	f_N Hz	J $kgcm^2$	m kg
DSC1-071KO64U-10-54	1000	12	3.1	27	8.6	1.2	12	3.1	260	83.3	12.6	11.5
DSC1-071SO64U-10-54	1000	22	4.8	55	14.7	2.2	21	4.7	303	83.3	21.8	16.5
DSC1-071MO64U-10-54	1000	29	6	82	20.9	2.9	27	5.8	320	83.3	31.1	21.5
DSC1-071KO64U-20-54	2000	12	5.8	27	15.9	2.3	11	5.4	140	166.7	12.6	11.5
DSC1-071SO64U-20-54	2000	22	9.1	55	27.8	4.0	19	8.3	160	166.7	21.8	16.5
DSC1-071MO64U-20-54	2000	29	11.4	82	39.3	5.1	24	9.8	170	166.7	31.1	21.5
DSC1-071KO64U-30-54	3000	12	8.3	27	22.7	3.1	10	7.0	98.2	250.0	12.6	11.5
DSC1-071SO64U-30-54	3000	22	13.7	55	41.8	5.2	16	10.6	107	250.0	21.8	16.5
DSC1-071MO64U-30-54	3000	29	16.4	82	57	6.2	20	11.7	117	250.0	31.1	21.5
DSC1-071KO64U-40-54	4000	12	11.1	27	30.4	3.6	8.6	8.2	73.2	333.3	12.6	11.5
DSC1-071SO64U-40-54	4000	22	16.8	55	51	5.2	12	10.1	86.5	333.3	21.8	16.5

[1)] Coil overtemperature ∆ T < 105K; direct flange mounting (mounting plate 450 x 400 x 30 mm³)

[2)] Rotor inertia moment with PE brake: +7.9 kgcm²

[3)] Weight with PE brake: +3.0 kg

DSC1-071..64 O.. (with fan)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0.max}$ Nm	$I_{0.max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/cold}$ $V/_{10001/min}$	f_N Hz	J $kgcm^2$	m kg
DSC1-071KO64O-10-54	1000	16	4.2	27	8.6	1.6	15	4.1	260	83.3	12.6	15
DSC1-071SO64O-10-54	900	29	6.5	55	14.7	2.7	29	6.6	303	75.0	21.8	20
DSC1-071MO64O-10-54	900	40	8.5	82	20.9	3.6	39	8.2	320	75.0	31.1	25
DSC1-071KO64O-20-54	2000	16	7.7	27	15.9	3.1	15	7.4	140	166.7	12.6	15
DSC1-071SO64O-20-54	1800	29	12.4	55	27.8	5.3	28	12.1	160	150.0	21.8	20
DSC1-071MO64O-20-54	1800	40	16	82	39.3	7.0	37	14.9	170	150.0	31.1	25
DSC1-071KO64O-30-54	2900	16	11	27	22.7	4.4	14	10.2	98.2	241.7	12.6	15
DSC1-071SO64O-30-54	2800	29	18.6	55	41.8	7.5	26	16.6	107	233.3	21.8	20
DSC1-071MO64O-30-54	2700	40	23.1	82	57	10.0	35	20.7	117	225.0	31.1	25
DSC1-071KO64O-40-54	3900	16	14.8	27	30.4	5.6	14	13.1	73.2	325.0	12.6	15
DSC1-071SO64O-40-54	3600	29	22.8	55	51	8.7	23	18.3	86.5	300.0	21.8	20

[1)] Coil overtemperature ∆ T < 105K; direct flange mounting (mounting plate 450 x 400 x 30 mm)

[2)] Rotor inertia moment with PE brake: +7.9 kgcm²

[3)] Weight with PE brake: +3.0 kg

DSC1-071..64 W.. (water cooled)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0.max}$ Nm	$I_{0.max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/cold}$ $V/_{1000 1/min}$	f_N Hz	J $kgcm^2$	m kg
DSC1-071KO64W-10-54	900	20	5.4	27	8.6	1.8	20	5.4	260	75.0	12.6	11.7
DSC1-071SO64W-10-54	750	39	9.1	55	14.7	3.0	39	9.1	303	62.5	21.8	16.1
DSC1-071MO64W-10-54	800	58	12.8	82	20.9	4.8	57	12.7	320	66.7	31.1	20.4
DSC1-071KO64W-20-54	1800	20	10.0	27	15.9	3.6	19	9.9	140	150.0	12.6	11.7
DSC1-071SO64W-20-54	1600	39	17.3	55	27.8	6.4	38	17.0	160	133.3	21.8	16.1
DSC1-071MO64W-20-54	1600	58	24.1	82	39.3	9.5	57	23.6	170	133.3	31.1	20.4
DSC1-071KO64W-30-54	2700	20	14.2	27	22.7	5.4	19	13.9	98.2	225.0	12.6	11.7
DSC1-071SO64W-30-54	2400	39	25.9	55	41.8	9.5	38	25.2	107	200.0	21.8	16.1
DSC1-071MO64W-30-54	2400	58	34.8	82	57	14.0	56	33.6	117	200.0	31.1	20.4
DSC1-071KO64W-40-54	3600	20	19.1	27	30.4	7	19	18.1	73.2	300	12.6	11.7
DSC1-071SO64W-40-54	3100	39	31.9	55	51	12	37	30.5	86.5	258.3333	21.8	16.1

[1)] Coil overtemperature $\Delta T < 105K$; direct flange mounting (mounting plate 450 x 400 x 30 mm)

[2)] Rotor inertia moment with PE brake: +7.9 $kgcm^2$

[3)] Weight with PE brake: +3.0 kg

2.4. DSC1-100

DSC1-100..64 U.. (without fan)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0.max}$ Nm	$I_{0.max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/cold}$ $V/_{10001/min}$	f_N Hz	J $kgcm^2$	m kg
DSC1-100KO64U-10-54	1000	23	6.9	42	14.5	2.3	22	6.4	231	83.3	45.8	18.5
DSC1-100SO64U-10-54	1000	43	9.9	85	22.8	4.2	40	9.2	295	83.3	73.5	25.7
DSC1-100MO64U-10-54	1000	59	13	125	33.2	5.8	55	12.1	304	83.3	101.2	33.0
DSC1-100KO64U-20-54	2000	23	13.4	42	28.3	4.0	19	10.9	119	166.7	45.8	18.5
DSC1-100SO64U-20-54	2000	43	19.5	84	44.9	7.5	36	16.0	150	166.7	73.5	25.7
DSC1-100MO64U-20-54	2000	59	25	125	64	10.0	48	20.1	158	166.7	101.2	33.0
DSC1-100KO64U-30-54	3000	23	19	42	40.2	4.8	15	12.3	83.6	250.0	45.8	18.5
DSC1-100SO64U-30-54	3000	43	27.7	84	64	9.3	29	18.8	106	250.0	73.5	25.7

[1)] Coil overtemperature ∆ T < 105K; direct flange mounting (mounting plate 450 x 400 x 30 mm)

If you are using a DSC100..64U.. with absolute value signal encoders, you need to reduce the torques by 1.0 Nm (DSC 100 K), 2.0 Nm (DSC 100 S) or 3.0 Nm (DSC 100 M).

[2)] Rotor inertia moment with PE brake: +17.6 kgcm²

[3)] Weight with PE brake: +6.0 kg

DSC1-100..64 O.. (with fan)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0.max}$ Nm	$I_{0.max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/cold}$ $V/_{10001/min}$	f_N Hz	J $kgcm^2$	m kg
DSC1-100KO64O-10-54	1000	27	8.1	42	14.5	2.7	26	7.8	231	83.3	45.8	22.4
DSC1-100SO64O-10-54	900	53	12.3	85	22.8	4.7	49	11.4	295	75.0	73.5	29.6
DSC1-100MO64O-10-54	900	79	17.6	125	33.2	7.0	74	16.6	304	75.0	101.2	36.9
DSC1-100KO64O-20-54	2000	27	15.8	42	28.3	5.2	25	14.4	119	166.7	45.8	22.4
DSC1-100SO64O-20-54	1800	53	24.2	84	44.9	8.4	45	20.2	150	150.0	73.5	29.6
DSC1-100MO64O-20-54	1800	79	33.8	125	64	12.7	68	29.3	158	150.0	101.2	36.9
DSC1-100KO64O-30-54	3000	27	22.5	42	40.2	7.3	23	18.9	83.6	250.0	45.8	22.4
DSC1-100SO64O-30-54	2800	53	34.3	84	64	11.0	38	24.3	106	233.3	73.5	29.6

[1)] Coil overtemperature ∆ T < 105K; direct flange mounting (mounting plate 450 x 400 x 30 mm)

[2)] Rotor inertia moment with PE brake: +17.6 kgcm²

[3)] Weight with PE brake: +6.0 kg

DSC1-100..64 W.. (water cooled)

3 AC 400 V mains voltage for converters with unregulated supply

Motor type	Nom. speed	Stand-still torque[1)]	Stand-still current[1)]	max. static torque	Max. static current	Rated out-put[1)]	Rated torque[1)]	Rated current[1)]	Voltage constant	Rated fre-quency	Rotor inertia (motor)[2)]	Weight[3)]
	n_N min^{-1}	M_0 Nm	I_0 A	$M_{0.max}$ Nm	$I_{0.max}$ A	P_N kW	M_N Nm	I_N A	$k_{E/cold}$ $V/_{1000 1/min}$	f_N Hz	J $kgcm^2$	m kg
DSC1-100KO64W-10-54	1000	34	10.5	42	14.5	3.5	33	10.3	231	83.3	45.8	21.2
DSC1-100SO64W-10-54	850	69	17.0	85	22.8	6.1	68	16.6	295	70.8	73.5	29.2
DSC1-100MO64W-10-54	850	105	25.5	125	33.2	9.3	105	25.0	304	70.8	101.2	37.2
DSC1-100KO64W-20-54	2000	34	20.4	42	28.3	6.8	32	19.5	119	166.7	45.8	21.2
DSC1-100SO64W-20-54	1800	69	33.5	84	44.9	13.0	67	32.0	150	150.0	73.5	29.2
DSC1-100MO64W-20-54	1700	105	48.9	125	64	18.0	100	46.7	158	141.7	101.2	37.2
DSC1-100KO64W-30-54	3000	34	29	42	40.2	10.0	32	27.2	83.6	250.0	45.8	21.2
DSC1-100SO64W-30-54	2600	69	47.4	84	64	18.0	65	44.4	106	216.7	73.5	29.2

[1)] Coil overtemperature ∆ T < 105K; direct flange mounting (mounting plate 450 x 400 x 30 mm)

[2)] Rotor inertia moment with PE brake: +17.6 kgcm²

[3)] Weight with PE brake: +6.0 kg

2.5. Vibratory load

The vibration response of the total system at the operation site, due to output elements, mounting circumstances, alignment and installation as well as by influences of external vibrations, can lead to an increase of the vibration values at the motor.
Perhaps a complete balancing of the rotor with the output element is required.
In order to achieve a proper functioning and service life, the specified vibration values compliant to DIN ISO 10816 may not be increased at the specified measuring points of the motor (refer to figure 1).

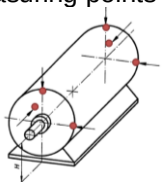


Figure 1: Measuring points for the vibration measuring

The specified radial and axial vibration values must be complied with, as well They are valid for substructures that are to be designated as flexible.A flexible substructure is, if the lowest proper frequency of the total system in measuring direction is at least 25% under the basic excitation frequency of the total system (machine and base). All of the other substructures are to be designated solid. At solid substructures the manufacturer must be contacted.

Maximum <u>radial</u> vibration load:

Peak vibration acceceleration 1 g	> 250 Hz
Peak vibration displacement ≤ 0,16 mm	< 6,3 Hz
Effect. vibration speed ≤ 4,5 mm/s	
	6,3 Hz – 250 Hz

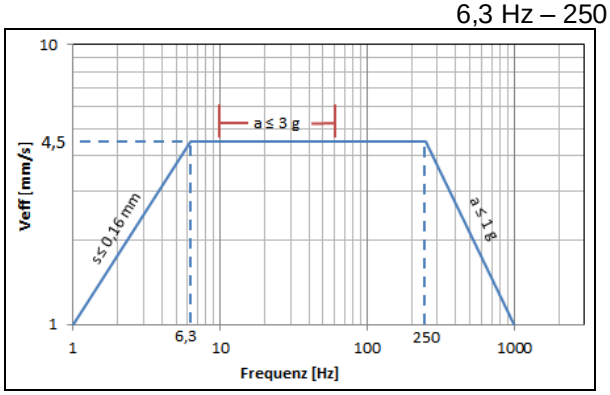


Figure: Permitted radial vibratory load

Maximum <u>axial</u> vibration load:

Peak vibration acceleration 0,225 g	> 55 Hz
Peak vibration displacement ≤ 0,16 mm	< 6,3 Hz
Effect. vibration speed ≤ 4,5 mm/s	
	6,3 Hz – 55 Hz

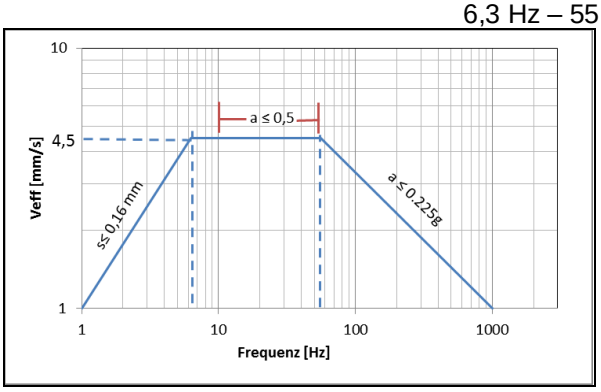


Figure: Permitted axial vibratory load

Additional resistance to vibration:
Vibration acceleration 3 g radial and 0,5g axial 10 Hz to 55 Hz
The motor additionally withstands the specified vibrations. However, the lifetime of the parts subject to wear (for example the storage) can be reduced.

Shock load:
If the vibration loads in the form of shocks are present then measurings at the installed machine are required. On the base of this, constructive reviews and evaluation with the company Baumüller are required.
In order to evaluate the vibration speed the measuring equipment must meet the requirements of the ISO 2954. The evaluation of the vibration acceleration is executed in the time range within the frequeny range between 10 Hz and 2 kHz. Provided that considerable vibratory excitations over 2kHz such as meshing frequencies are to be expected, the measuring range must be correspondingly adjusted. The permitted maximum values thereby do not change.

2.6. Radial force diagrams

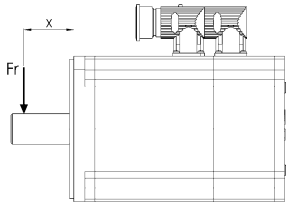
All bearings are designed for a service life of 20,000 h L_{10h}. The load values specified below may thereby not be exceeded. The permissible radial forces F_R are valid only for the horizontal installation of the motor without additional axial forces.
Furthermore, the specified average speeds must be adhered to reach the grease consumption period of 20,000 h under the following conditions:

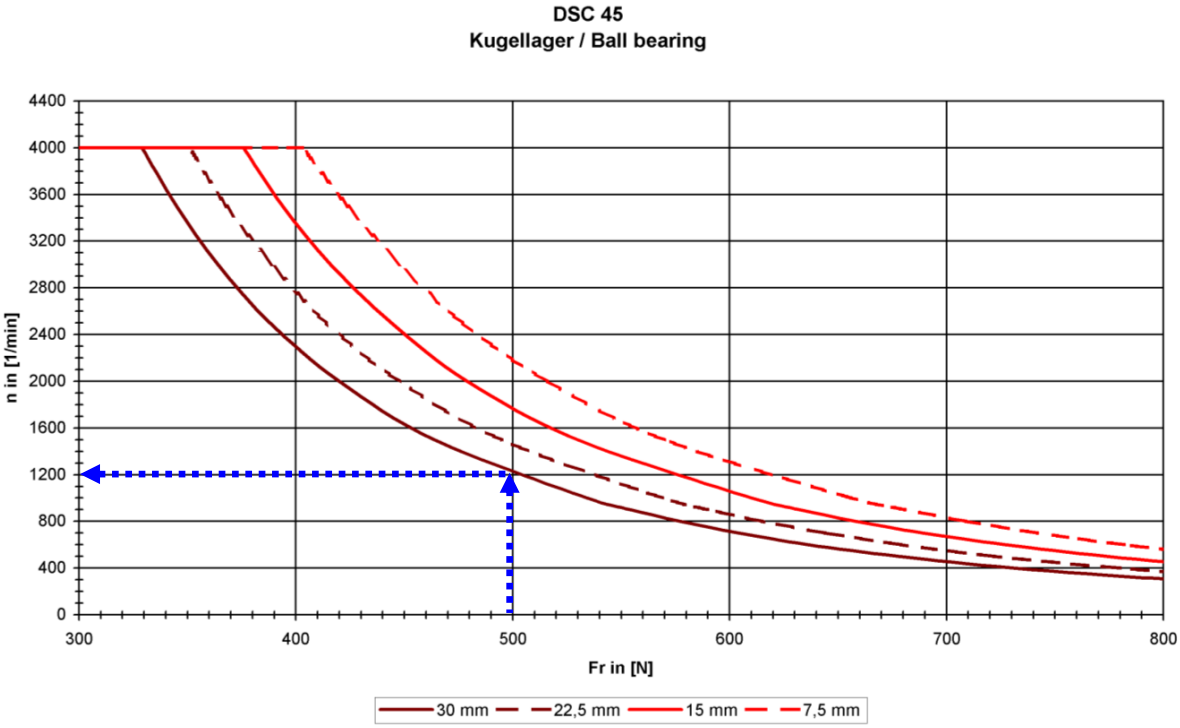
- low-vibration applications
- horizontal installation
- oscillatory bearing motion in which at least one pivot angle of 180° is performed
- Continuous bearing temperatures <120° C.

Axial loading on the motor shaft is generally not permitted.
No axial forces may develop when mounting clutches, pulleys, etc. on the motor shaft!

2.6.1. Sample diagram

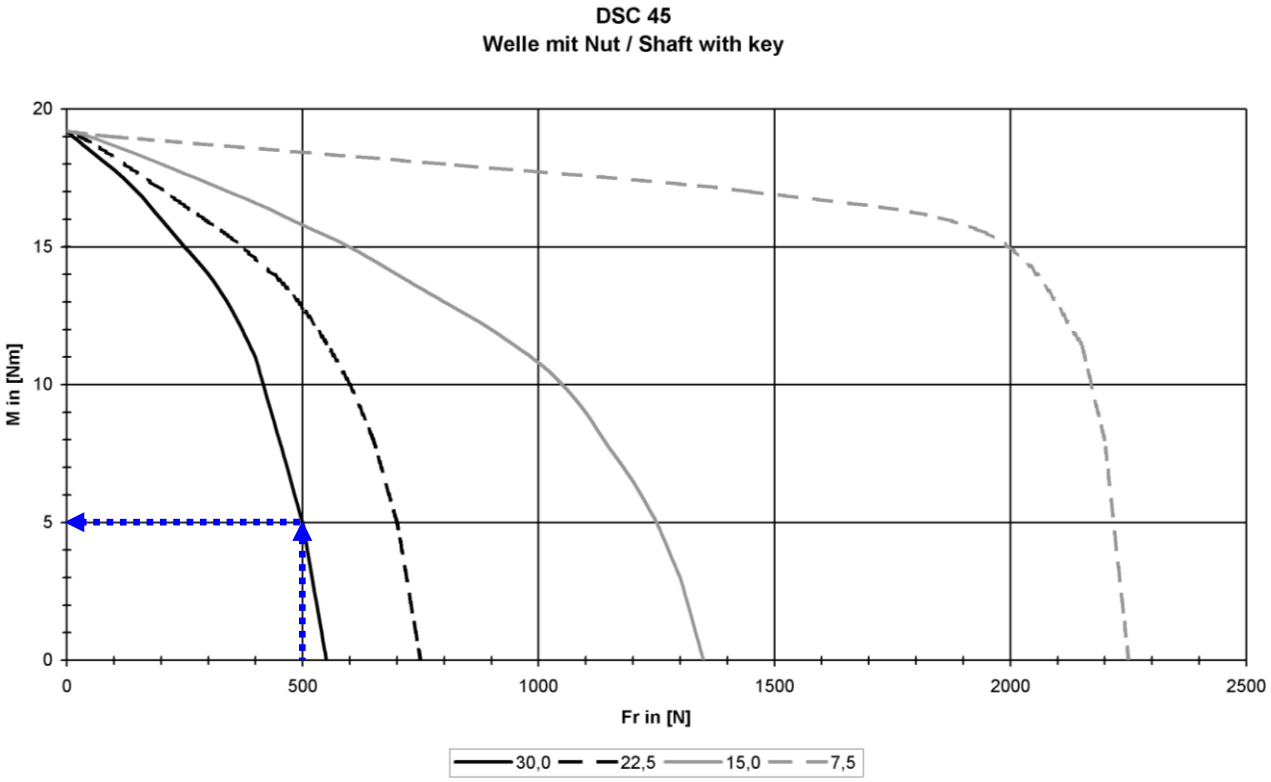
Sample diagrams:
Driving forces x = 30 mm from the shaft shoulder
Bearing service life 20,000 h, shaft with parallel key groove





Explanation of the sample chart:

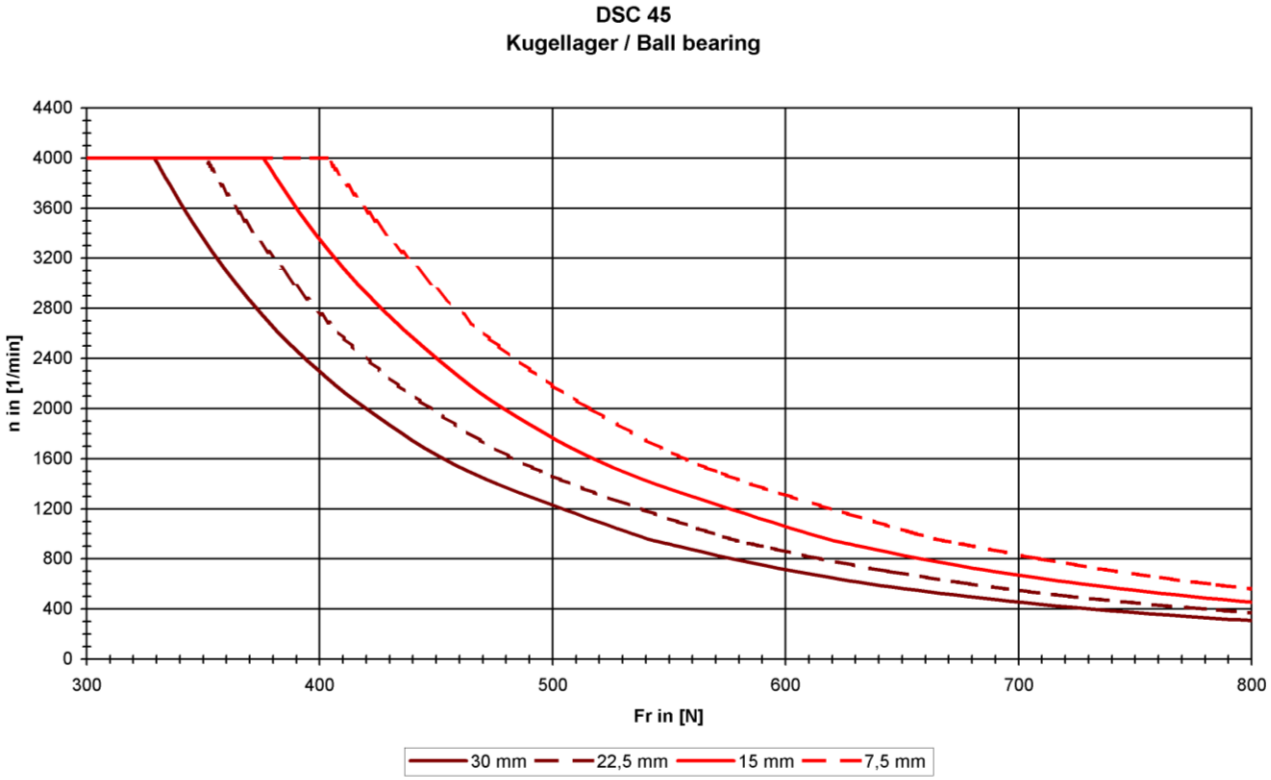
The potential maximum speed of the bearing can be calculated via radial force Fr of the application in characteristic "ball bearing".
At a radial force of 500 N with a driving force point of x = 30 mm from the shaft shoulder, a maximum speed of 1200 rpm results.



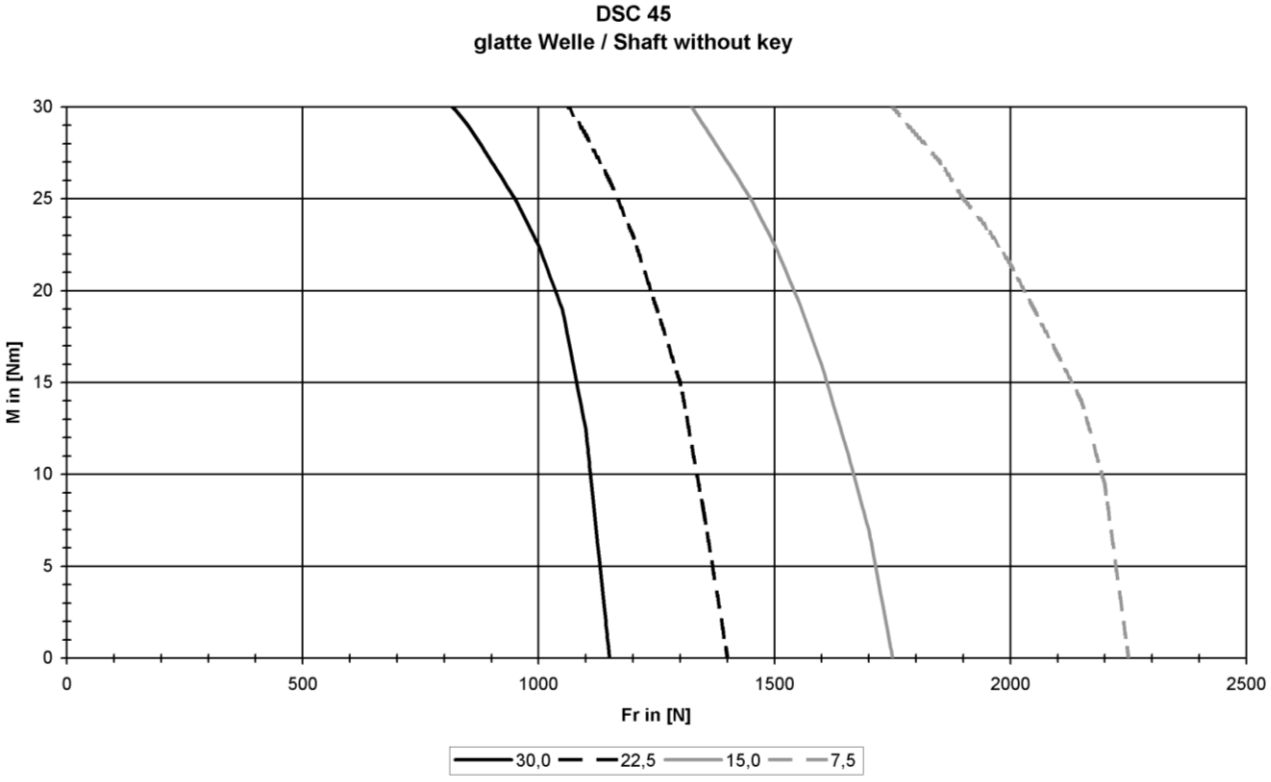
Explanation of the sample chart:

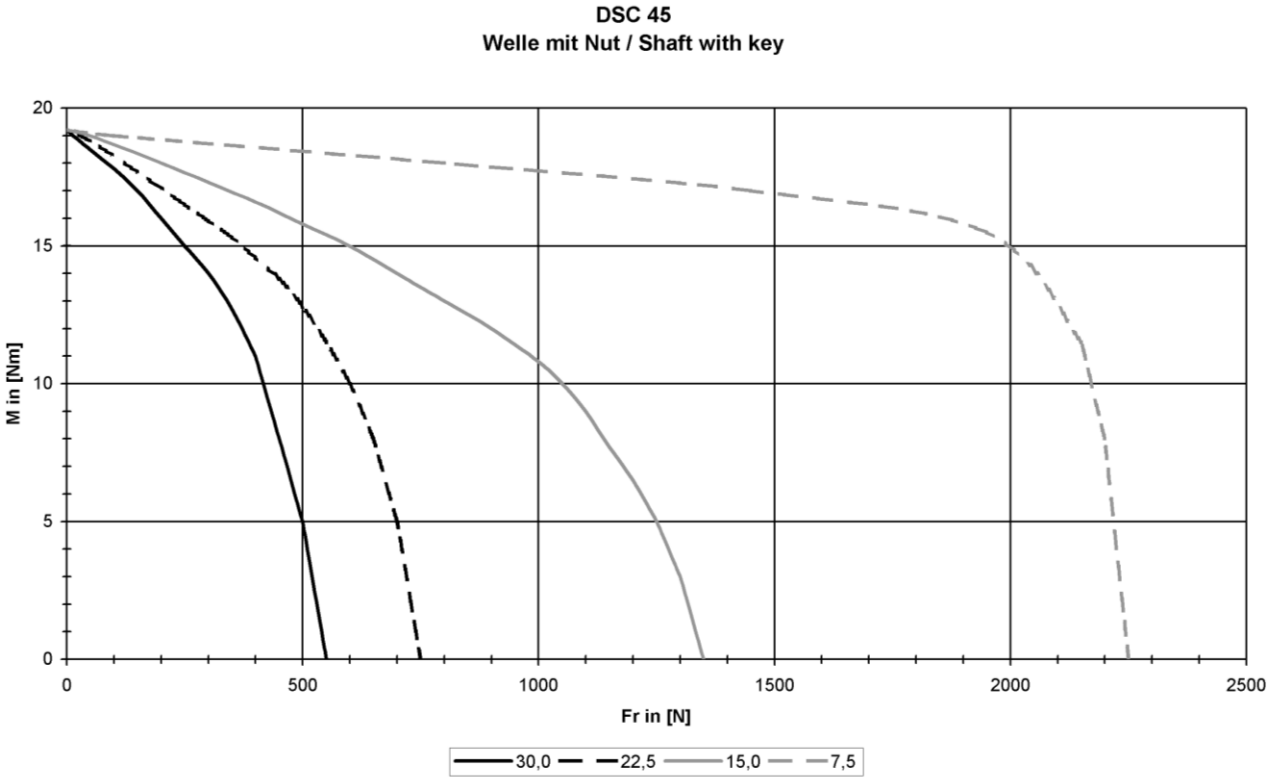
The maximum torque to be still transmitted results from the characteristic "shaft".
At a centrifugal force of 500 N with a driving force point of x = 30 mm from the shaft shoulder, a torque to be still transmitted of 5Nm results.

2.6.2. Diagram DSC1-045

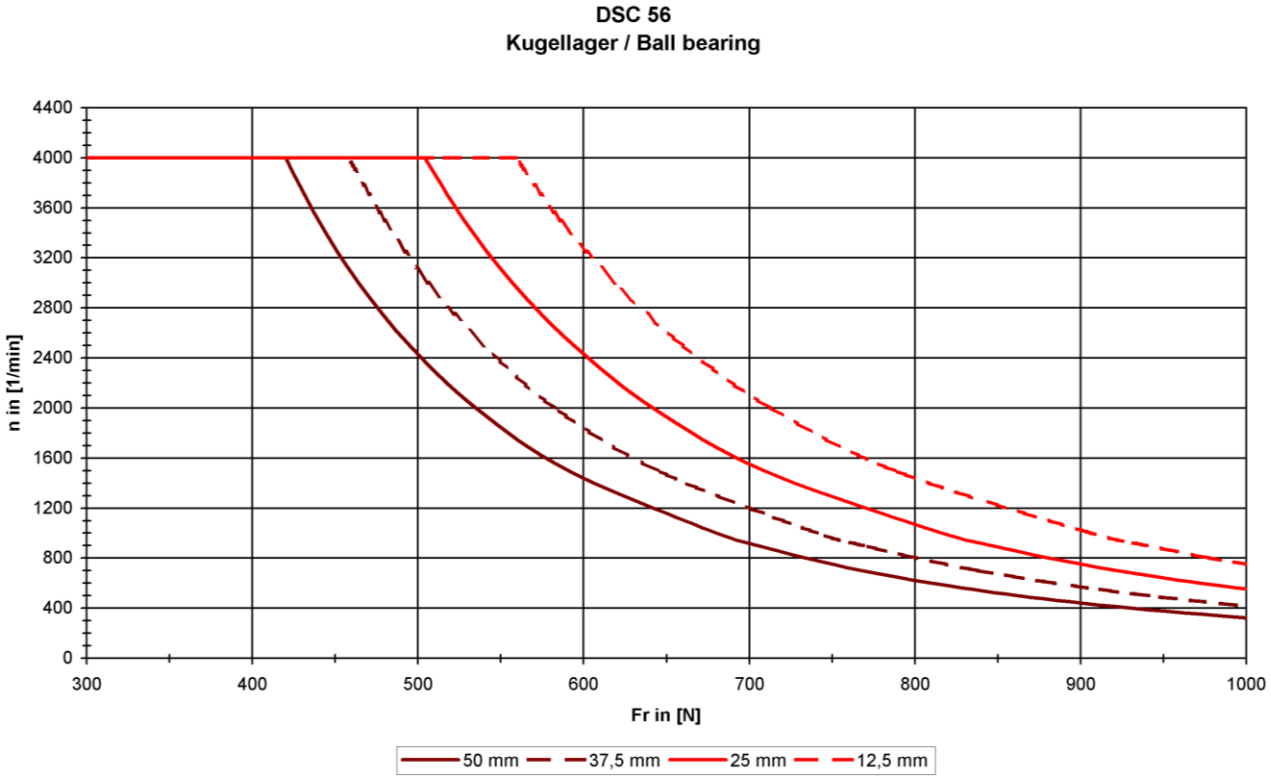


Note: 20,000h grease consumption duration at $n_{effective} \leq$ 4,000 rpm

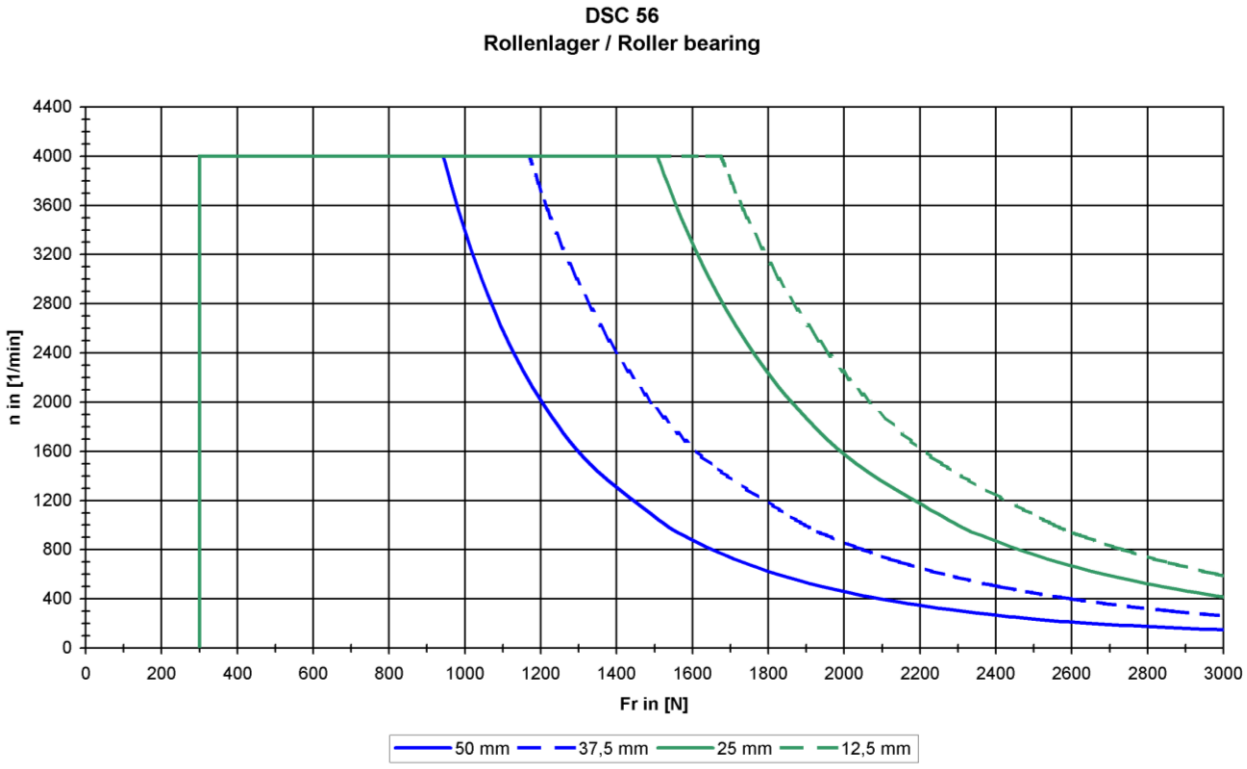



DSC 45
Welle mit Nut / Shaft with key
M in [Nm]
Fr in [N]
0
5
10
15
20
0
500
1000
1500
2000
2500
30,0
22,5
15,0
7,5

2.6.3. Diagram DSC1-056

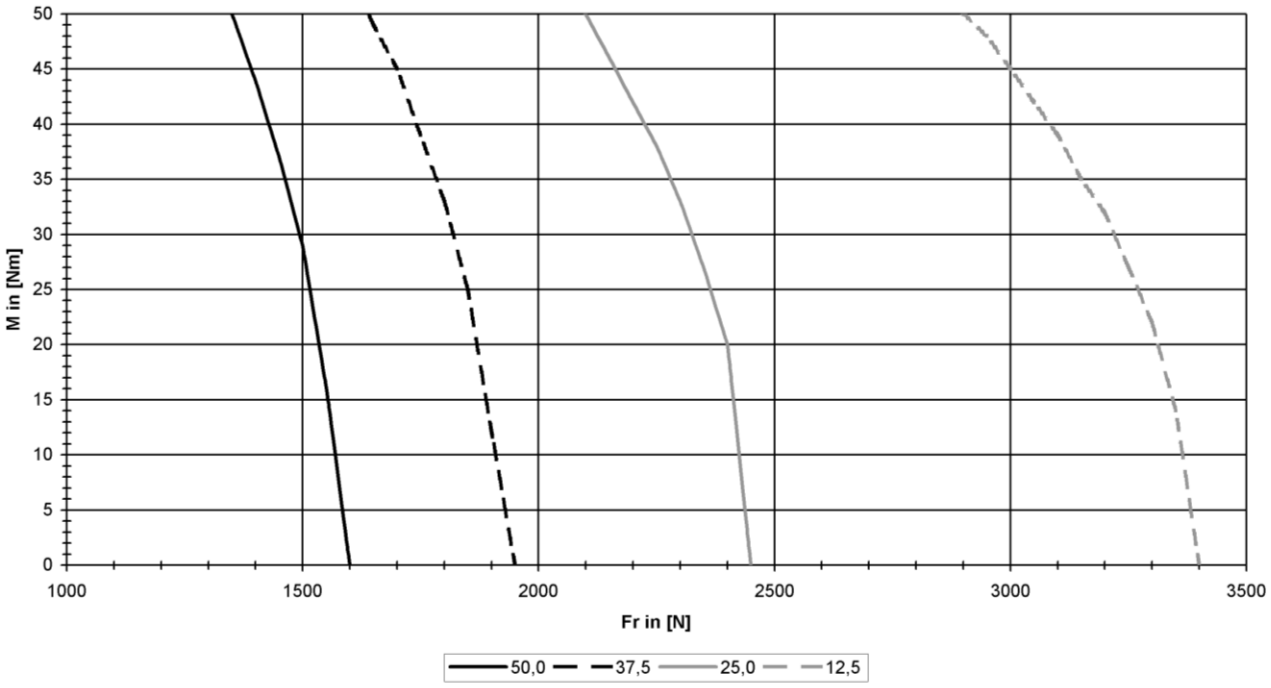


Note: 20,000h grease consumption duration at $n_{effective} \leq$ 4,000 rpm

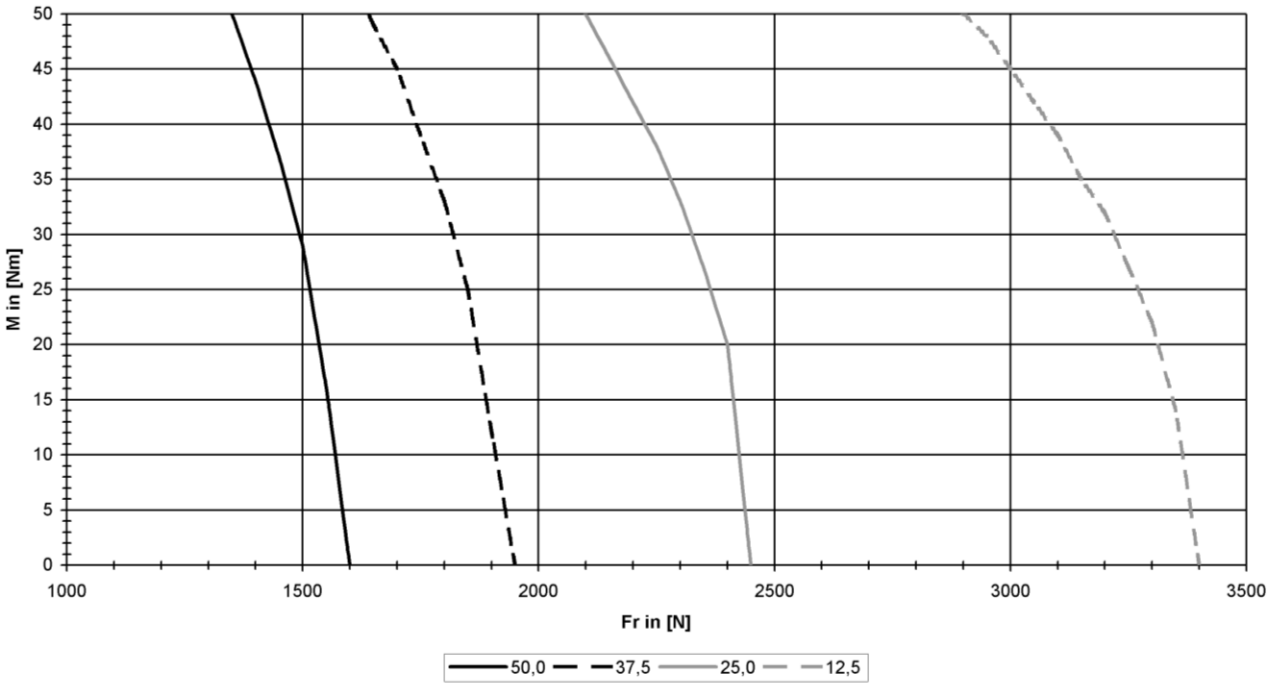


Note: 20,000 grease consumption duration at $n_{effective} \leq$1,500 rpm

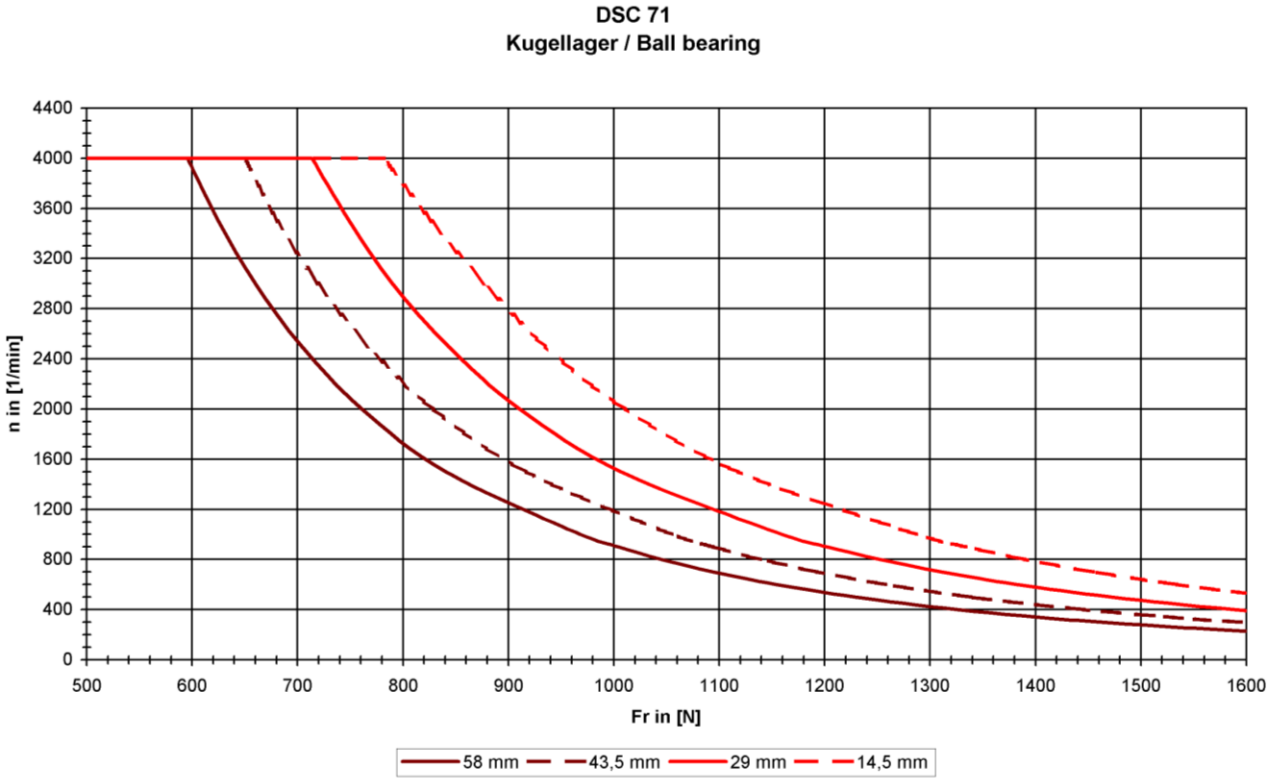
DSC 56
glatte Welle / Shaft without key



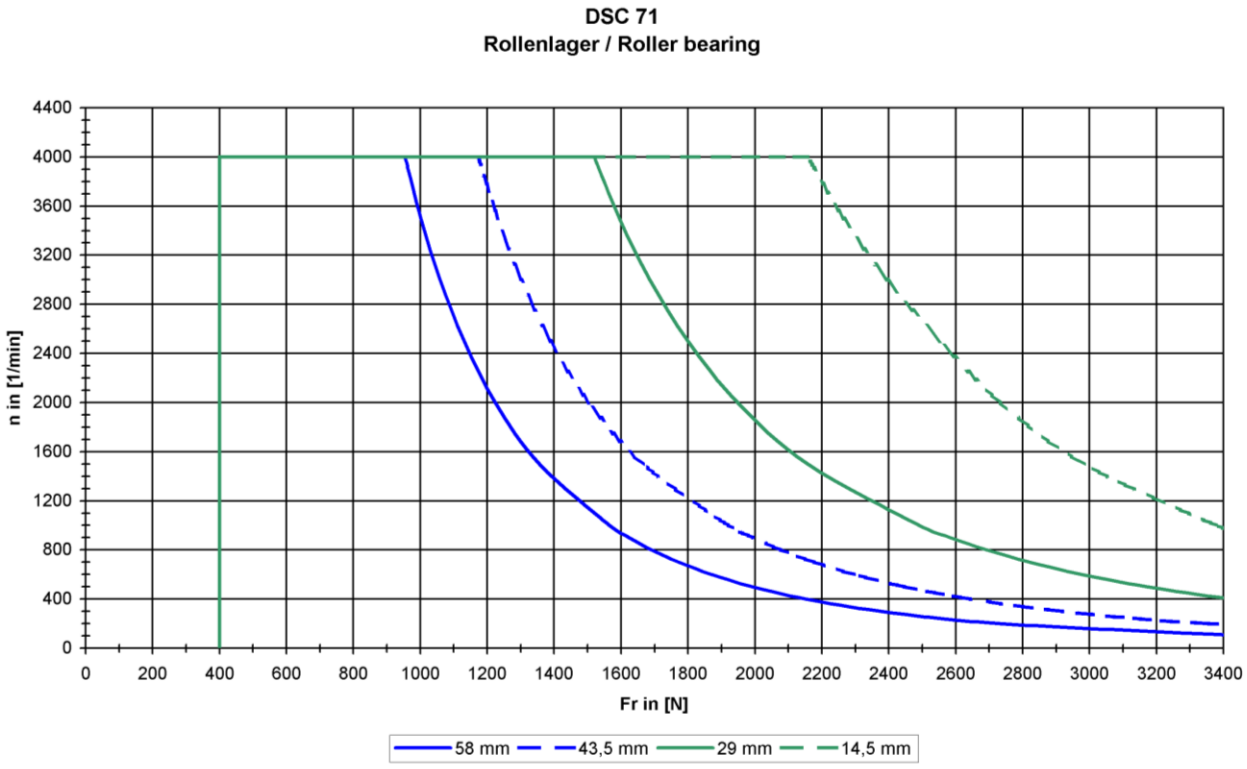
DSC 56
Welle mit Nut / Shaft with key



2.6.4. Diagram DSC1-071

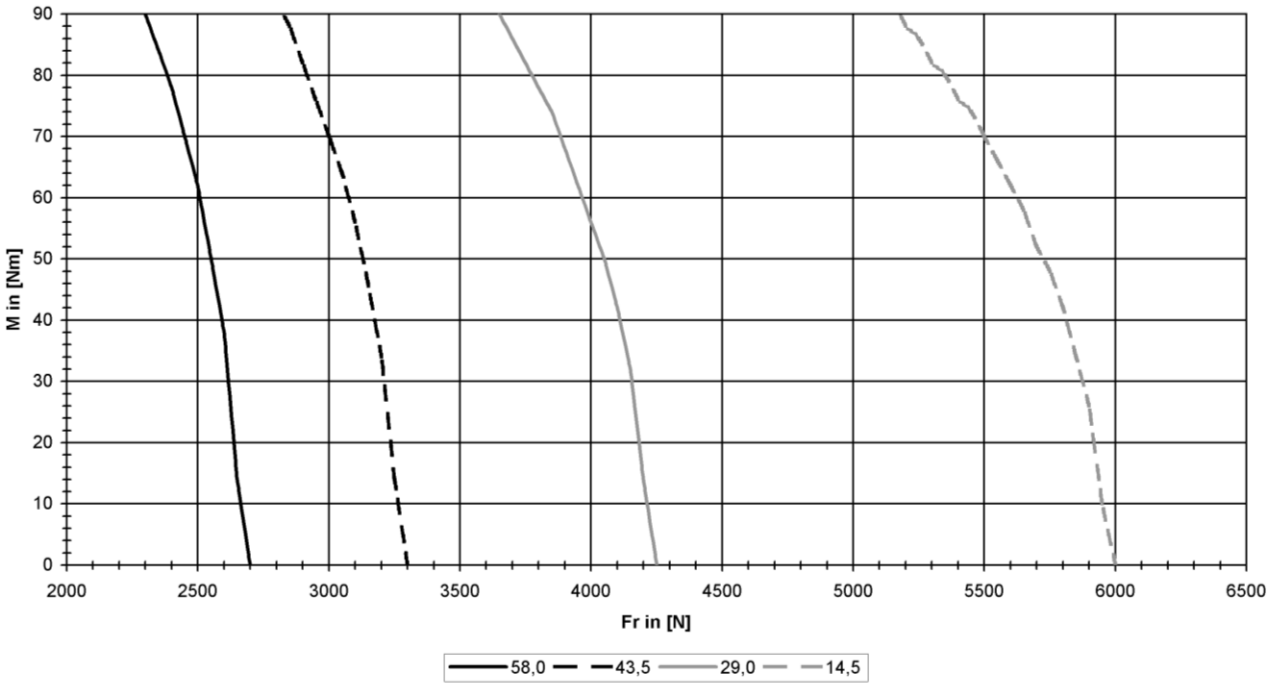


Note: 20,000h grease consumption duration at $n_{effective} \leq$ 4,000 rpm

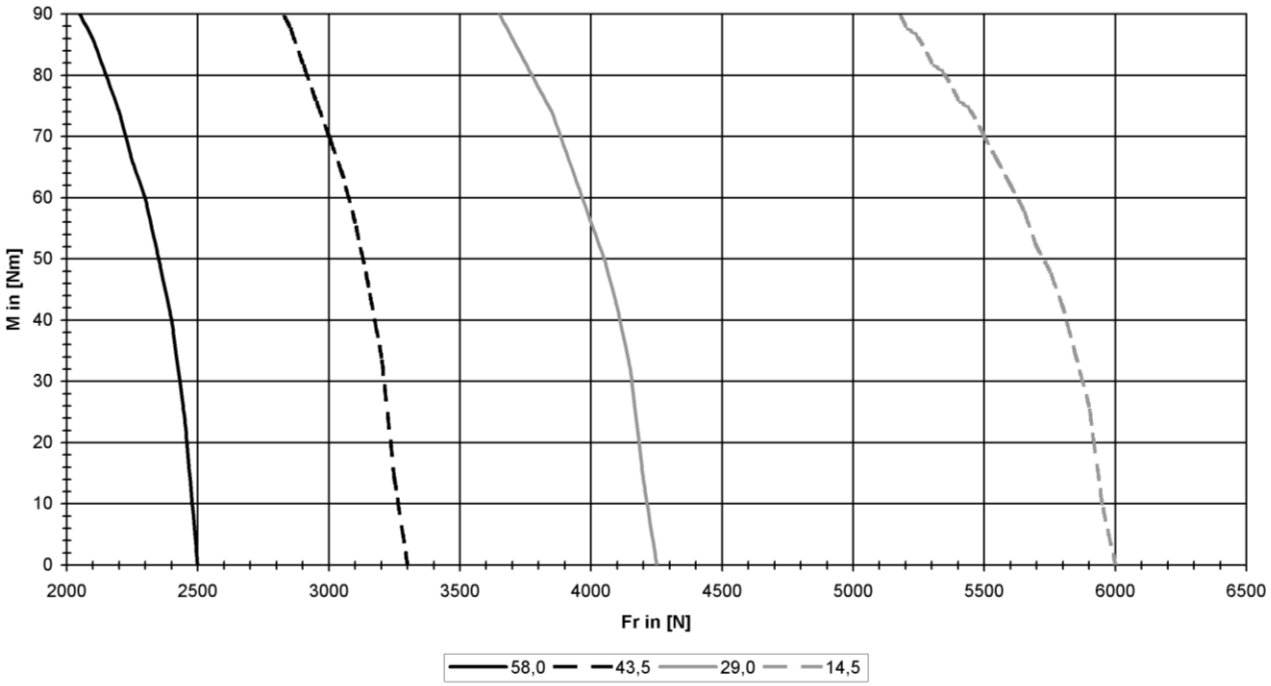


Note: 20,000 grease consumption duration at $n_{effective} \leq$1,150 rpm

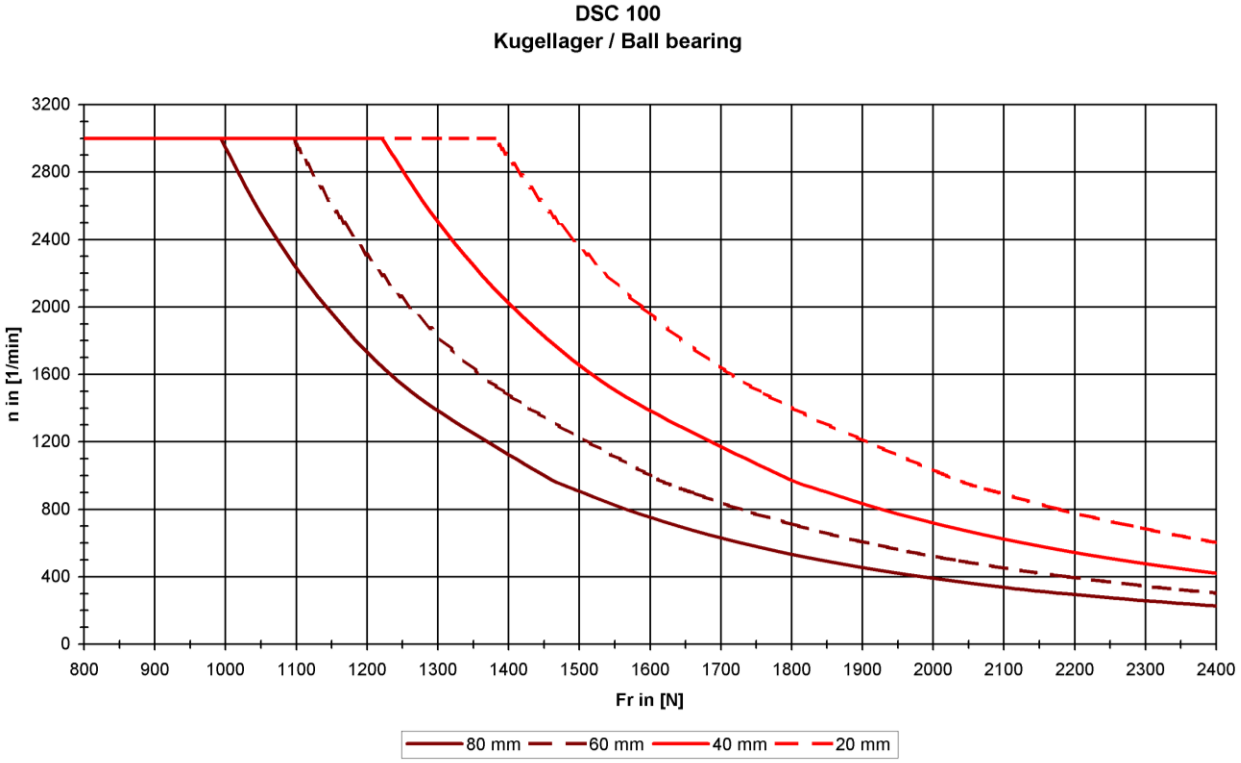
DSC 71
glatte Welle / Shaft without key



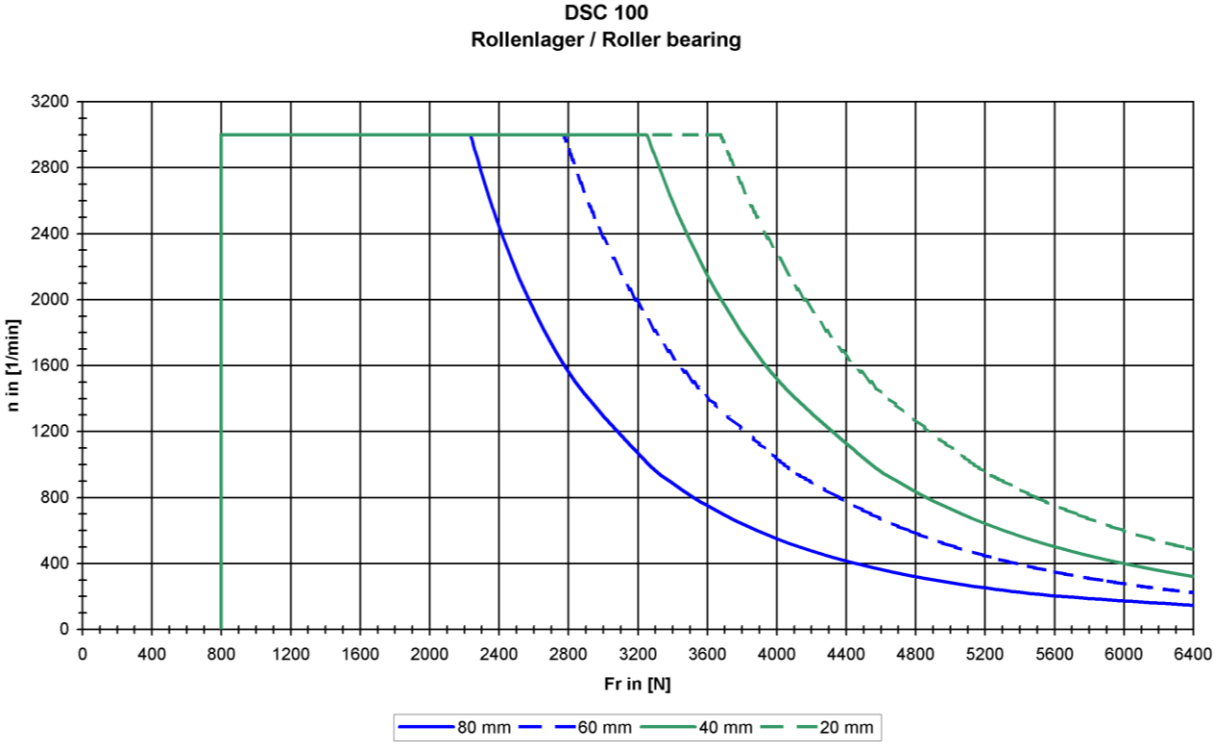
DSC 71
Welle mit Nut / Shaft with key



2.6.5. Diagram DSC1-100

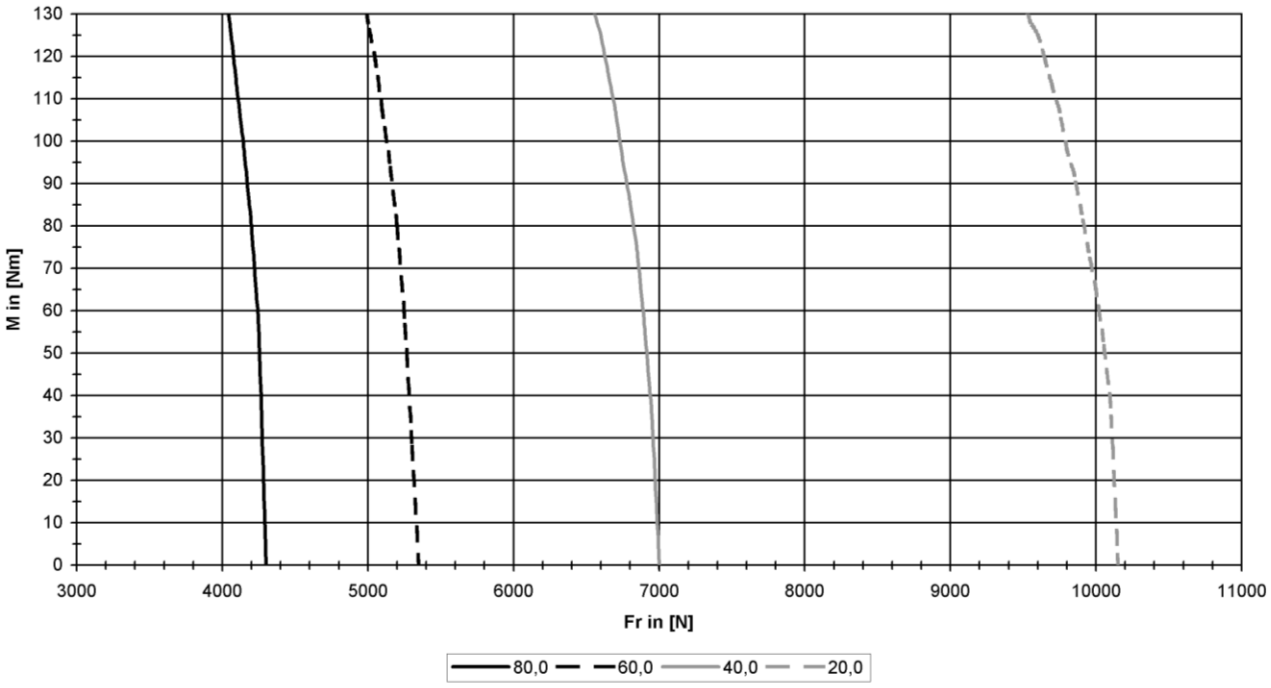


Note: 20,000h grease consumption duration at $n_{effective}$ ≤ 3,000 rpm

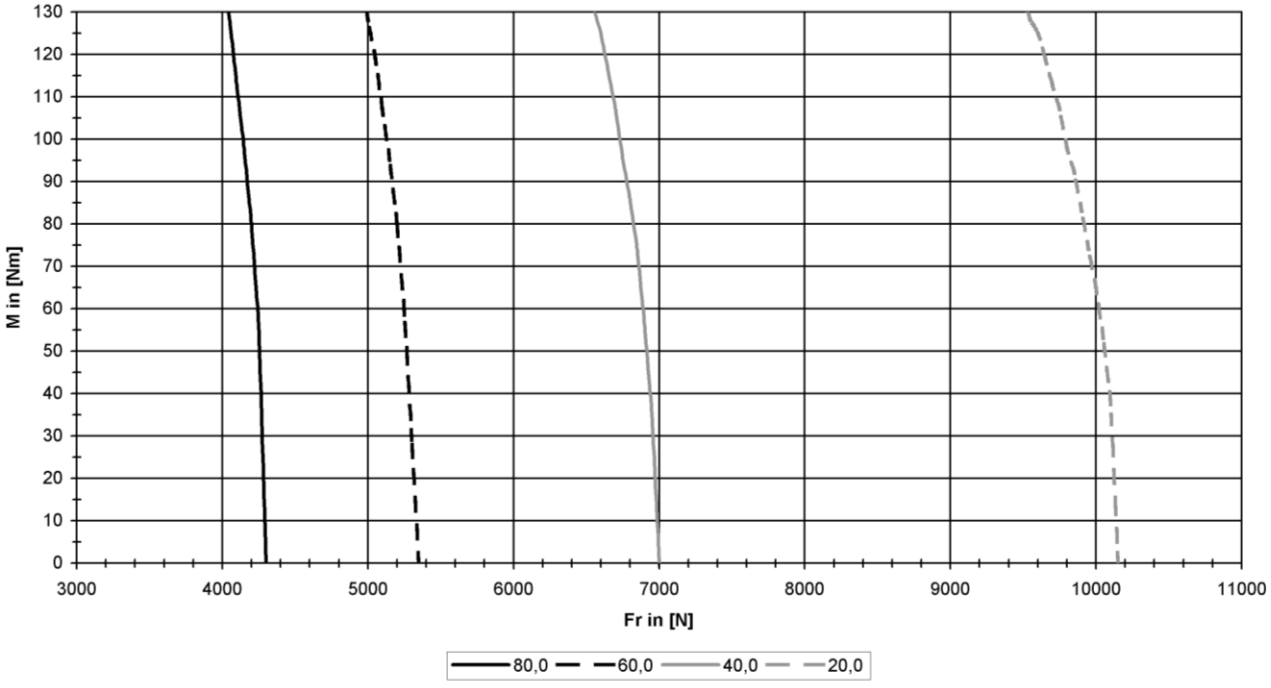


Note: 20,000 grease consumption duration at $n_{effective}$ ≤850 rpm

DSC 100
glatte Welle / Shaft without key



DSC 100
Welle mit Nut / Shaft with key



3. Motor components (options)

3.1. Holding brake

The motors can be optionally equipped with a holding brake. The holding brake is a backlash-free permanent magnetic brake. The brakes work according to the closed current principle, i.e. the brake is applied when switched off (or at a failure of the operating voltage). The brakes are designed for an operating voltage of 24 VDC. The specifications by the brake manufacturer apply at room temperature.

The motors are available with the following holding brakes:

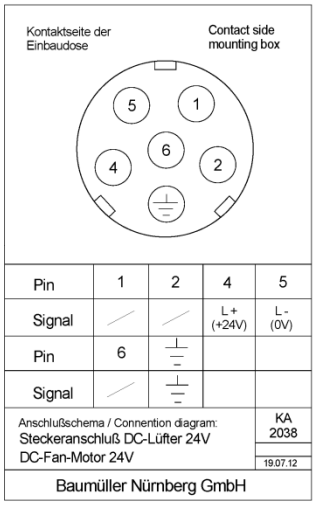
Motor type	DSC1-045	DSC1-056	DSC1-071	DSC1-100
Minimal static holding torque [Nm] at 120 °C.	10	20	45	105
Nominal dynamic holding torque [Nm] at 120 °C.	8	18	25	45
Maximum switching energy [J] per braking from n = 3,000 rpm	270	320	1400	2800
Connection values [V] (+6 % / -10 %)	24	24	24	24
Power consumption [W]	18	20	28	50
Moment of inertia [$kgcm^2$]	0.6	2.9	7.9	17.6
Switching time On [ms] Ventilation; with basic air gap	40	65	100	200
Switching time Off [ms] Braking; with basic air gap	20	30	40	50

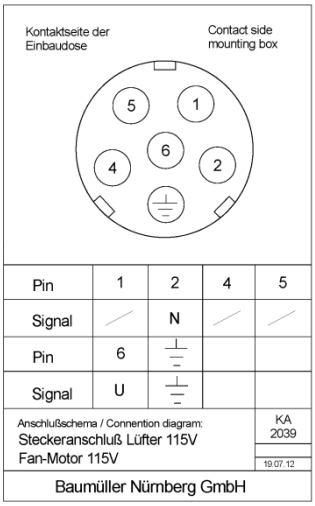
All brakes are not fail safe brakes in the sense that a torque reduction cannot occur due to uninfluenceable malfunction factors. Depending on the application, the relevant accident prevention regulations, as well as basic health and safety requirements of Annex I of the Machinery Directive and the harmonized European standards must be observed.
For emergency stops or power failures, approximately 2,000 brake processes can be performed.
(Condition: maximum external inertia = motor inertia and n_{max} type-related;
Max. braking / hour <20; evenly distributed).

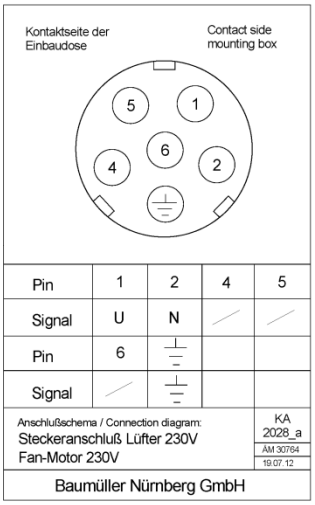
3.2. Fan

	DSC1-056..100			
Rated voltage [V]	24 V DC	115 V AC	230 V AC	
Rated frequency [Hz]	-	60	50	60
Rated current [A]	0.52	0.47	0.22	0.20
Rated speed [rpm]	2758	2394	2385	2099
Power rating [W]	12.4	35	32	30
Connection	6 - pole plug			
Protection type	IP65			

Fan connection 24 V DC / 115 V AC / 230 V AC







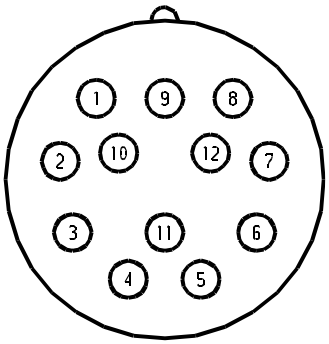
View on the contact side of the receptacle

3.3. Encoder

3.3.1. Resolver

Pole pair number	1
Transmission ratio	0.5 ± 0.05
Frequency	5 kHz
Nominal input voltage	7 V_{rms}
Effective input power at no-load speed	112 mW
Current consumption at no-load speed	70 mA
Max. output voltage at no-load speed	3.5 V ± 10%
Voltage constant	61 mV/°
Rotor resistance	48 Ω ± 10%
Stator resistance	31 Ω ± 15%
Rotor impedance at no-load speed	70 + j 74Ω ± 15%
Rotor impedance with short circuit	62 + j 66Ω ± 15%
Stator impedance at no-load speed with minimum coupling	108 + j 206Ω ± 15%
Stator impedance with short circuit and maximum coupling	97 + j 183Ω ± 15%
Phase shift	8° ± 3°
Zero voltage	30 mV
Angle error in relation to $(\Delta\varphi_{max}+\Delta\varphi_{min})/2$	± 6’
Shock according to DIN EN 60068-2-27 (11ms)	≤ 101 g
Vibration according to DIN EN 60068-2-6 (55 – 2000Hz)	≤ 50 g

Resolver connection



View on the contact side of the receptacle

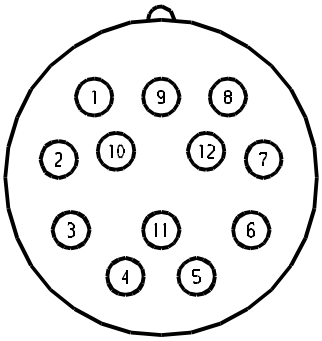
Pin	Signal	Option for allocation PT1000 (R1/R2) on encoder socket
1	cos –	cos –
2	-	-
3	-	-
4	-	-
5	sin –	sin –
6	sin +	sin +
7	-	R2
8	cos +	cos +
9	-	R1
10	ref +	ref +
11	-	-
12	ref –	ref –

NOTE:
Use only at low demands on the true running characteristics of the motor.
The specifications are information by the encoder manufacturer.

3.3.2. Resolver for safety-related applications

Pole pair number	1
Transmission ratio	0.5 ± 0.05
Frequency	5 kHz
Safety integrity level	SIL 3 (IEC 61508) in combination with b maXX 5000
Performance level	PL e (EN ISO 13849) in combination with b maXX 5000
Maximum angular acceleration	100.000 rad/s²
Effective input power at no-load speed	112 mW
Nominal input voltage	7 V_{rms}
Current consumption at no-load speed	70 mA
Max. output voltage at no-load speed	3.5 V ± 10%
Voltage constant	61 mV/°
Rotor resistance	48 Ω ± 10%
Stator resistance	31 Ω ± 15%
Rotor impedance at no-load speed	70 + j 74Ω ± 15%
Rotor impedance with short circuit	62 + j 66Ω ± 15%
Stator impedance at no-load speed with minimum coupling	108 + j 206Ω ± 15%
Stator impedance with short circuit and maximum coupling	97 + j 183Ω ± 15%
Phase shift	8° ± 3°
Zero voltage	30 mV
Angle error related to $(\Delta\varphi_{max}+\Delta\varphi_{min})/2$	± 6’
Shock according to DIN EN 60068-2-27 (11 ms)	≤ 101 g
Vibration according to DIN EN 60068-2-6 (55 – 2000Hz)	≤ 50 g

Resolver connection



View of the contact side of the receptacle

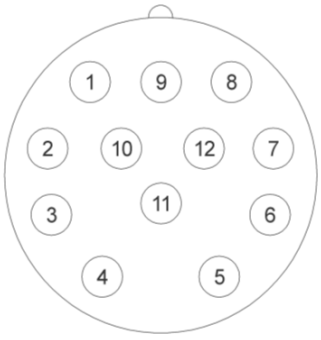
Pin	Signal	Option for allocation PT1000 (R1/R2) at encoder socket
1	cos -	cos -
2	-	-
3	-	-
4	-	-
5	sin -	sin -
6	sin +	sin +
7	-	R2
8	cos +	cos +
9	-	R1
10	ref +	ref +
11	-	-
12	ref -	ref -

NOTE:
Use only at low demands on the true running characteristics of the motor.
The technical data is the specifications of the encoder manufacturer.
The configuration options for the safety encoders with different engine versions can be found in the product configurator.

3.3.3. SINCOS SEK/SEL 37 (SICK)

Motor size	DSC1-045-100	
	SEK37	SEL37
Number of sine, cosine periods per revolution	16	
Measuring step for the interpolation of the sine, cosine periods such as 12 bit	20“	
Number of absolute resolved revolutions	1	4.096
Code type for the absolute value	Binary	
Error limits for evaluating the sine, cosine periods, integral non-linearity	+/- 288“	
Non-linearity within a sine, cosine, differential non-linearity at nominal position +/- 0.1 mm	+/- 144“	
Operating speed until the absolute position can be formed	6.000 rpm	
Max. operating speed	12.000 rpm	
Output signal	serial RS 485 asynchronous, half duplex	
Operating voltage range	7-12 V	
max. no-load operating current	50 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	100 g	
Vibration according to EN 60068-2-6 (10-2000 Hz)	50 g	

SEK/SEL37 connection



Pin	Signal	Option for allocation PT1000 (R1/R2) at encoder socket
1	cos -	cos -
2	+ 485	+ 485
3	-	R1
4	-	R2
5	sin +	sin +
6	sin -	sin -
7	- 485	- 485
8	cos +	cos +
9	-	-
10	GND	GND
11	-	-
12	+ U	+ U

View on the contact side of the receptacle

NOTE:

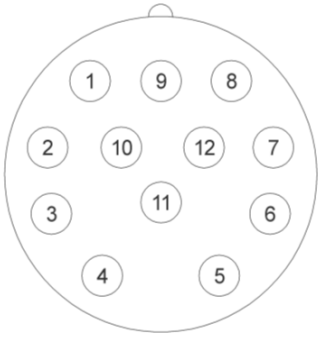
SEK/SEL37 – with mechanical adaption	The notch position is 0° (identical to SEK/SEL52 encoders)

This encoder is a component susceptible to ESD.
The technical data is specification from the encoder manufacturer.

3.3.4. SINCOS SRS/SRM50 (Sick)

	SRS50	SRM50
Number of sine and cosine periods per revolution	1.024	
Number of steps per revolution	32.768	
Number of absolute completed revolutions	1	4096
Code type for the absolute value	binary	
Output frequency of the sine and cosine signals	0-200 kHz	
Fault limits in evaluation of the sine, cosine signals; integral non-linearity in the relaxed state	+/- 45“	
Nonlinearity within a sine or cosine period; differential nonlinearity	+/- 7“	
Maximum speed at which the absolute position can be defined	6000 rpm	
Maximum operating speed	12000 rpm	
Output signals; 2 x 90° offset sinusoidal signals	1 V_{ss}	
Output signal	serial RS 485 asynchronous, half duplex	
Operating voltage range	7-12 V	
Operating current without load	80 mA	
Shock as per DIN EN 60068-2-27 (10ms)	100 g	
Vibration as per DIN EN 60068-2-6 (10-2000 Hz)	20 g	

SRS/SRM 50 connection



Pin	Signal	Option for allocation PT1000 (R1/R2) at encoder socket
1	cos -	cos -
2	+ 485	+ 485
3	-	R1
4	-	R2
5	sin +	sin +
6	sin -	sin -
7	- 485	- 485
8	cos +	cos +
9	-	-
10	GND	GND
11	-	-
12	+ U	+ U

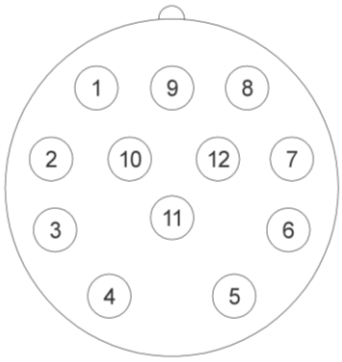
View on the contact side of the receptacle

NOTE:
This encoder is a component susceptible to ESD.
The technical data is specification from the encoder manufacturer.

3.3.5. SINCOS SRS/SRM50-S (SICK)

	SRS50-S	SRM50-S
Safety integrity level	SIL2 (IEC 61508), SILCL2 (IEC 62061)	
Category	3 (EN ISO 13849)	
Performance Level	PL d (EN ISO 13849)	
Maximum angular acceleration	200.000 rad/s^2	
Number of sine, cosine periods per revolution	1.024	
Number of steps per revolution	32.768	
Number of absolute revolutions	1	4.096
Code type for the absolute value	Binary	
Output frequency of the sine, cosine signals	0-200 kHz	
Fault limits in evaluation of the sine, cosine signals. Integral non-linearity in the relaxed state	+/- 45“	
Non-linearity within a sine or cosine period. Differential non-linearity	+/- 7“	
Working speed up to which the absolute position can be formed	6.000 rpm	
Maximum operating speed	12.000 rpm	
Output signals; 2x90° offset sinusoidal signals	1 V_{ss}	
Output signal	serial RS 485 asynchronous, half duplex	
Operating voltage range	7-12 V	
Operating current without load	80 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	100 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	20 g	

SRS/SRM50-S connection

	Pin	Signal	Option for allocation PT1000 (R1/R2) at encoder socket
	1	cos -	cos -
	2	+ 485	+ 485
	3	-	R1
	4	-	R2
	5	sin +	sin +
	6	sin -	sin -
	7	- 485	- 485
	8	cos +	cos +
	9	-	-
	10	GND	GND
	11	-	-
	12	+ U	+ U

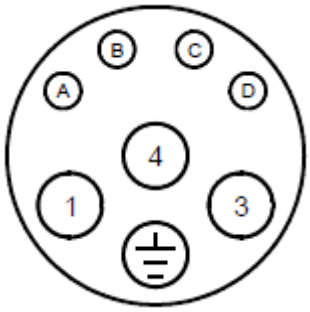
View of the contact side of the receptacle

NOTE:
This encoder is a component susceptible to ESD. The technical data is the specifications of the encoder manufacturer. The configuration options for the safety encoders with different engine versions can be found in the product configurator. The combination SRS/SRM50-S with add-on gearbox is available by request.
ECN1313 / EQN1325 (the company Heidenhain). These encoders are not available for uncooled motors with nmeans ≥ 3,000 rpm.

3.3.6. EES37/EEM37 Hipsterface DSL® (SICK)

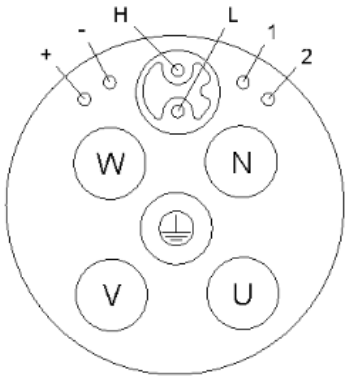
	EES37	EEM37
Number of absolute completed revolutions	1 (15 bit)	4096 (15 bit)
Code type for the absolute value	binary	
Interface signals	Digital, RS-485	
Position values/revolution	32.768	
Maximum angular acceleration	500.000 rad/s²	
Maximum operating speed	12.000 rpm	
Power supply	7…12 V	
Current consumption without load	≤ 150 mA	
Shock as per DIN EN 60068-2-27 (6 ms)	100 g	
Vibration as per DIN EN 60068-2-6 (10-2000 Hz)	50 g	
Working temperature	-40°C…+115°C	

Connection EES37/EEM37 DSL Hiperface



Pin	Signal
1	U
3	V
4	W
⏚	GN / GE
A	B+
B	B-
C	DSL+
D	DSL-

View on the contact side of the socket size 1



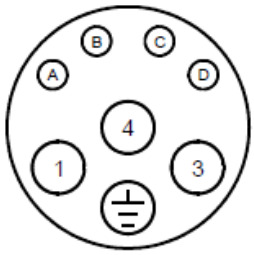
Pin	Signal
U	U
V	V
W	W
N	/
⏚	GN/GE
+	blau
-	weiß
1	Innenschirm
2	/
H	+U / DSL+
L	GND / DSL-

View on the contact side of the socket size 1.5
The configuration options of the Hiperface DSL encoder with various motor versions are to be taken from the product configurator. The encoder can be used up to a cable length of 60 m.

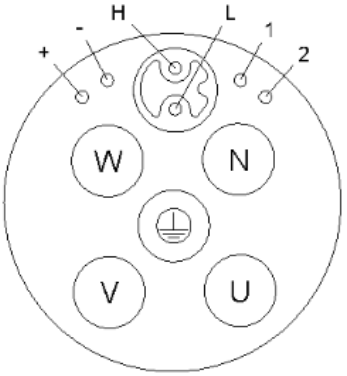
3.3.7. EFS50/EFM50 Hiperface DSL® (SICK)

	EFS50	EFM50
Number of absolute completed revolutions	1 (21 bit)	4096 (21 bit)
Code type for the absolute value	binary	
Interface signals	Digital, RS-485	
Position values/revolution	2.097.152	
Maximal angular acceleration	200.000 rad/s²	
Maximum operating speed	12.000 rpm	9.000 rpm
Power supply	7…12 V	
Current consumption without load	≤ 150 mA	
Shock per DIN EN 60068-2-27(6 ms)	100 g	
Vibration as per DIN EN 60068-2-6 (55-2000 Hz)	20 g	
Working temperature	-20°C…+120°C	

EFS50/EFM50 DSL Hiperface connection

	Pin	Signal
	1	U
	3	V
	4	W
	⏚	GN / GE
	A	B+
	B	B-
	C	DSL+
	D	DSL-

View of the contact side of the receptacle size 1

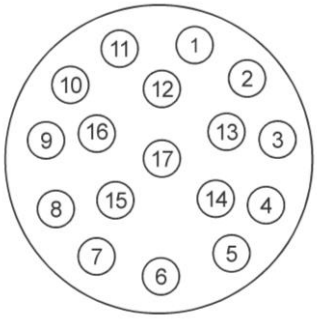
	Pin	Signal
	U	U
	V	V
	W	W
	N	/
	⏚	GN/GE
	+	B+
	-	B-
	1	/
	2	/
	H	DSL+
	L	DSL-

View of the contact side of the receptacle size 1.5.

3.3.8. ECN1313/EQN1325 (Heidenhain)

	ECN 1313	EQN 1325
Number of sine and cosine periods per revolution	2048	
System accuracy in arc seconds	± 20“	
Number of absolute completed revolutions	1	4096 (12 bit)
Code type for the absolute value	EnDat 2.1	
Sampling limit frequency or limit frequency	0-200 kHz	
Position values/revolution	8192 (13 bit)	
Maximum speed at which the absolute position can be defined	12000 rpm	
Maximum operating speed	12000 rpm	
Power supply	3.6-14 V	
Current consumption without load	≤ 160 mA	≤ 200 mA
Shock 6ms as per DIN EN 60068-2-27 (6 ms)	≤ 203 g	
Vibration 55-2000Hz as per DIN EN 60068-2-6 (55-2000 Hz)	≤ 30 g	

ECN1313/EQN1325 connection



Pin	Signal	Option for allocation PT1000 (R1/R2) at encoder socket
1	U_p	U_p
2	-	-
3	-	-
4	0V	0V
5	-	R1
6	-	R2
7	U_p	U_p
8	Clock	Clock
9	Clock inv.	Clock inv.
10	0V	0V
11	-	-
12	B +	B +
13	B –	B –
14	Data	Data
15	A +	A +
16	A –	A –
17	Data inv.	Data inv.

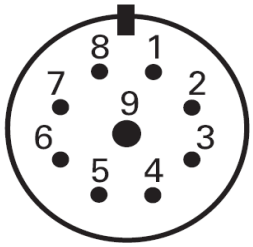
View on the contact side of the receptacle

NOTE:
This encoder is a component susceptible to ESD.
The technical data is specification from the encoder manufacturer.

3.3.9. ECI1319/EQI1331 (Heidenhain)

Motor size	DSC1-056-100	
	ECI 1319	EQI 1331
Number of sine and cosine periods per revolution	-	
System accuracy in arc seconds	± 65“	
Number of absolute completed revolutions	1	4096 (12 bit)
Code type for the absolute value	EnDat 2.2	
Sampling limit frequency or limit frequency	524 288 (19 bit)	
Position values/revolution	15000 rpm	
Maximum speed at which the absolute position can be defined	15000 rpm	12000 rpm
Maximum operating speed	3.6…14 V	
Power supply	95 mA	115 mA
Current consumption without load	≤ 203 g	
Shock 6ms as per DIN EN 60068-2-27 (6 ms)	≤ 40 g	

ECN1319/EQN1331 connection



Pin	Signal
1	Clock
2	Clock inv.
3	U_p
4	0V
5	Data
6	Data inv.
7	Sensor U_p
8	Sensor 0V
9	-

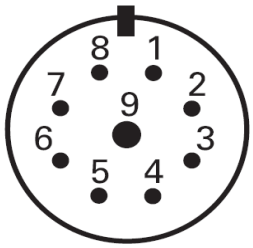
View on the contact side of the receptacle

NOTE:
This encoder is a component susceptible to ESD.
The technical data is specification from the encoder manufacturer.

3.3.10. ECI1319/EQI1331-S (Heidenhain)

Motor size	DSC1-056-100	
	ECI 1319-S	EQI 1331-S
Number of sine and cosine periods per revolution	-	
System accuracy in arc seconds	± 65“	
Number of absolute completed revolutions	1	4096 (12 bit)
Code type for the absolute value	EnDat 2.2	
Sampling limit frequency or limit frequency	524 288 (19 bit)	
Position values/revolution	15000 rpm	
Maximum speed at which the absolute position can be defined	15000 rpm	12000 rpm
Maximum operating speed	3.6…14 V	
Power supply	95 mA	115 mA
Current consumption without load	≤ 203 g	
Shock 6ms as per DIN EN 60068-2-27 (6 ms)	≤ 40 g	

ECN1319/EQN1331-S connection



Pin	Signal
1	Clock
2	Clock inv.
3	U_p
4	0V
5	Data
6	Data inv.
7	Sensor U_p
8	Sensor 0V
9	-

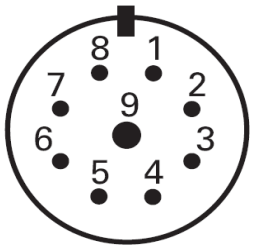
View on the contact side of the receptacle

NOTE:
This encoder is a component susceptible to ESD.
The technical data is specification from the encoder manufacturer.

3.3.11. ECN1325/EQN1337 (Heidenhain)

	ECN 1325	EQN 1337
Number of lines	2048	
System accuracy	± 20“	
Number of absolute completed revolutions	1	4096 (12 bit)
Code type for the absolute value	EnDat 2.2	
Position values/revolution	33554432 (25 bit)	
Maximum speed at which the absolute position can be defined	12000 rpm	
Maximum operating speed	12000 rpm	
Power supply	3.6…14 V	
Current consumption without load	≤ 160 mA	≤ 200 mA
Shock 6ms as per DIN EN 60068-2-27(6 ms)	≤ 203 g	
Vibration 55-2000Hz as per DIN EN 60068-2-6 (55-2000 Hz)	≤ 30 g	

ECN1325/EQN1337 connection



Pin	Signal
1	Clock
2	Clock inv.
3	U_p
4	0V
5	Data
6	Data inv.
7	Sensor U_p
8	Sensor 0V
9	-

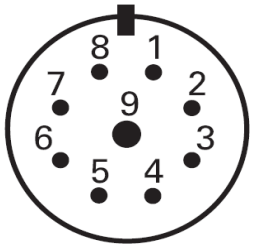
View on the contact side of the receptacle

NOTE:
This encoder is a component susceptible to ESD.
The technical data is specification from the encoder manufacturer.

3.3.12. ECN1325/EQN1337-S (Heidenhain)

	ECN1325-S	EQN1337-S
Safety integrity level	SIL 2 according to EN 61508	
Category	3 (EN ISO 13849)	
Performance Level	PL d (EN ISO 13849)	
Maximum angular acceleration	50.000 rad/s^2	
System accuracy	± 20“	
Number of absolute completed revolutions	1	4.096 (12bit)
Code type for the absolute value	EnDat 2.2	
Position values / revolution	33.554.432 (25 bit)	
Maximum speed at which the absolute position can be defined	12.000 rpm	
Maximum operating speed	12.000 rpm	
Power supply	3.6…14 V	
Current consumption without load	≤ 160mA	≤ 200mA
Shock according to DIN EN 60068-2-27 (6 ms)	≤ 203 g	
Vibration according to DIN EN 60068-2-6 (55-2000 Hz)	≤ 30 g	

ECN1325/EQN1337-S connection



Pin	Signal
1	Clock
2	Clock inv.
3	U_p
4	0V
5	Data
6	Data inv.
7	Sensor U_p
8	Sensor 0V
9	-

View of the contact side of the receptacle

NOTE:
This encoder is a component susceptible to ESD.
The technical data is the specifications of the encoder manufacturer.

The configuration options for the safety encoders with different engine versions can be found in the product configurator.
The combination ECN1325/EQN1337-S with add-on gearbox is available by request. These encoders are not available for uncooled motors with nmeans ≥ 3,000 rpm.

3.4. Encoder cables for b maXX 4000

General Information

A prefabricated encoder cable is used for all encoder systems. The connection at the motor end consists of a 12-pole circular signal connector on resolvers and Hyperface® – encoders, a 17-pole circular signal connector on ECN1313/EQN1325 and a 9-pole circular signal connector on ECN1325/EQN1337. The connection at the controller side consists of a 15-pole D-Sub connector. Alternatively, the signal connector on the motor side is available for Speed-Tec versions with trailing cables.

The dragable cable is suitable for mobile applications such as drag chains, for example. Unlike non-dragable cables made from PVC, the cable sheath is made from durable PU (suitable for environments where acids and bases are present).

3.4.1. Technical data

Technical description - non-dragable for resolver/ SinCos Hiperface®-interface / SinCos - and TTL - incremental encoder

- LiYCY, 5x (2x0.14mm²) + 2 x 0.5mm² copper strand, twisted pairs
- PVC sheath, grey; inscription with Baumüller logo, black
- 1st side: 12-pole circular signal plug connector with 12 socket contacts
- 2nd side: 15-pole D-Sub plug connector with pin contacts and locking screws 4-40UNC
- Outer diameter 9.0 mm (+/- 0.3mm)
- Bending radius: $r \geq 60$ mm (fixed routing), $r \geq 135$ mm (flexible use)
- Nominal voltage: $250V_{AC}$

Technical description - dragable for resolver/ SinCos Hiperface®-interface / SinCos - and TTL - incremental encoder

- Li12YC11Y, 5x (2x0.14mm²) + 2 x 0.5mm² copper strand, twisted pairs
- PU sheath, black; inscription with Baumüller logo, white
- 1st side: 12-pole circular signal plug connector with 12 socket contacts
- 2nd side: 15-pole D-Sub plug connector with pin contacts and locking screws 4-40UNC
- Outer diameter 9.0 mm (+/- 0.3mm)
- Bending radius: $r \geq 70$ mm (fixed routing), $r \geq 100$ mm (flexible use)
- Nominal voltage: $300V_{AC}$

Technical description - non-dragable for EnDat® 2.1-interface

- LiYCY, 5x (2x0.14mm²) + 2 x 0.5mm² copper strand, twisted pairs
- PVC sheath, grey; inscription with Baumüller logo, black
- 1st side: 17-pole circular signal plug connector with 17 socket contacts
- 2nd side: 15-pole D-Sub plug connector with pin contacts and locking screws 4-40UNC
- Outer diameter 9.0 mm (+/- 0.3mm)
- Bending radius: $r \geq 60$ mm (fixed routing), $r \geq 135$ mm (flexible use)
- Nominal voltage: $250V_{AC}$

Technical description - dragable for EnDat® 2.1-interface

- Li12YC11Y, 5x (2x0.14mm²) + 2 x 0.5mm² copper strand, twisted pairs
- PU sheath, black; inscription with Baumüller logo, white
- 1st side: 17-pole circular signal plug connector with 17 socket contacts
- 2nd side: 15-pole D-Sub plug connector with pin contacts and locking screws 4-40UNC
- Outer diameter 9.0 mm (+/- 0.3mm)
- Bending radius: r ≥ 70 mm (fixed routing), r ≥ 100 mm (flexible use)
- Nominal voltage: $300V_{AC}$

Technical description - dragable for EnDat® 2.2-interface

- PUR sheath, 1x(4x0.14mm²) + (4x0.34mm²)
- 1 twisted foursome 0.14mm², 4 wires 0.34mm², copper, tin-plated
- Total shield CuSn, inscription Heidenhain
- 1st side: 9-pole circular signal plug connector with 8 socket contacts
- 2nd side: 15-pole D-Sub plug connector with pin contacts and locking screws 4-40UNC
- Outer diameter 6.0 mm
- Bending radius: r ≥ 20 mm (fixed routing), r ≥ 75 mm (flexible use)
- Dielectric strength wire/wire and wire/shield: 0.5kV at 50Hz, 1 minute

3.4.2. Application references

- **Operating temperature of encoder cable resolver/ SinCos Hiperface®-interface / SinCos - and TTL - incremental encoder / EnDat® 2.1**

	Dragable	Not dragable
Limit temperature	on the surface	on the surface
Static use/minimal movement	- 40 °C to + 80 °C	- 30 °C to + 80 °C
Permanent movement	- 30 °C to + 80 °C	- 5 °C to + 70 °C

- **Operating temperature of encoder cable EnDat® 2.2**

	Dragable
Limit temperature	on the surface
Static use/minimal movement	- 40 °C to + 80 °C
Permanent movement	- 10 °C to + 80 °C

- **Routing of cable on motor**

The cables must not touch the surface of the motor.

3.4.3. Order information for encoder cables

Encoder cables for resolver/ SinCos Hiperface®-interface / SinCos - and TTL - incremental encoder - prefabricated cables with connector

Not dragable, prefabricated
Cable 5 x (2x0.14mm^2) + 2 x 0.5 mm^2 with plug connector

Length in m	Item 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

Dragable, prefabricated
Cable 5 x (2x0.14mm^2) + 2 x 0.5 mm^2 with plug connector

Length in m	Item Number	Item Number (Speed Tec)
3	246658	448944
4	243379	448945
5	239540	448948
6	242954	448946
8	239541	448949
10	239542	448956
15	239543	448962
20	239544	448967
25	239545	448970
30	239546	448971
35	239547	448973
40	240520	448976
45	240521	448978
50	240522	448980
55	244033	448981
60	245484	448982

Encoder cables for EnDat® 2.1- prefabricated cables with plug connector

Not dragable, prefabricated
Cable 5 x (2x0.14mm^2) + 2 x 0.5 mm^2 with plug connector

Length in m	Item Number
2	383152
3	383923
5	393885
7	389445
8	380138
9	389446
10	393886
15	388505
20	388418
25	393887
30	393888
35	387958
40	382006
50	388419
70	384473
90	387391

Dragable, prefabricated
Cable 5 x (2x0.14mm^2) + 2 x 0.5 mm^2 with plug connector

Length in m	Item Number	Item Number (Speed Tec)
2	393889	448816
3	369864	448817
5	394014	448818
7	389807	448819
8	393890	448820
9	389808	448821
10	393891	448822
15	393892	448823
17	371494	448824
20	393893	448825
25	393894	448826
30	380358	448827
35	391216	448828
40	382005	448830
50	378022	448832

Encoder cables for EnDat® 2.2 - prefabricated cables with plug connector

Dragable, prefabricated
cable 1x4x0.14 + 4x0.34 PUR Ø 6mm with plug connector

Length in m	Item Number	Item Number (Speed Tec)
2	434056	459031
3	434057	459032
5	434058	459033
10	434059	459035
15	434060	459036
20	434061	459037
25	434062	459038
50	434063	459042

3.5. Encoder cables for b maXX 5000

A prefabricated encoder cable is used for all encoder systems. The connection at the motor end consists of a 12-pole circular signal connector on resolvers and Hyperface® encoder, a 17-pole circular signal connector on ECN1313/EQN1325. The connection at the controller side consists of a 26-pole D-Sub connector. Alternatively, the signal connector on the motor side is available in a Speed-Tec version.

3.5.1. Technical data

Technical description - dragable for resolver
- Li9YC, 1 x (2 x 0,25) + Li9Y, 2 x (2x0,25) + Li9YC11Y, 1 x (2 x 0,34), copper strand, twisted pairs
- PUR sheat, green; inscription with Baumüller Nürnberg and encoder cable Resolver
- 1st side: 12-pole circular signal plug connector with 12 socket contacts
- 2nd side: 26-pole D-Sub plug connector with pin contacts and locking screws 4-40UNC
- Outer diameter 7.3 mm (+/- 0.3mm)
- Bending radius: $r \geq 4 \times D$ (fixed routing), $r \geq 10 \times D$ (flexible use)

Technical description - dragable for SinCos Hiperface®-interface und SinCos - and TTL - incremental encoder
- Li9YC, 3 x (2 x 0,25) , + Li9Y, 3 x (2 x 0,25) + Li9YC11Y, 1 x (2x0,34), copper strand, twisted pairs
- PUR sheat, green; inscription with Baumüller Nürnberg and encoder cable Hyperface or Incremental
- 1st side: 12-pole circular signal plug connector with 12 socket contacts
- 2nd side: 26-pole D-Sub plug connector with pin contacts and locking screws 4-40UNC
- Outer diameter 9.6 mm (+/- 0.3mm)
- Bending radius: $r \geq 4 \times D$ (fixed routing), $r \geq 10 \times D$ (flexible use)

Technical description – dragable for EnDat® 2.1-interface
- Li9YC, 3 x (2 x 0,25) , + Li9Y, 3 x (2 x 0,25) + Li9YC11Y, 1 x (2x0,34), copper strand, twisted pairs
- PUR sheat, green; inscription with Baumüller Nürnberg and encoder cable Endat 2.1
- 1st side: 17-pole circular signal plug connector with 17 socket contacts
- 2nd side: 26-pole D-Sub plug connector with pin contacts and locking screws 4-40UNC
- Outer diameter 9.6 mm (+/- 0.3mm)
- Bending radius: $r \geq 4 \times D$ (fixed routing), $r \geq 10 \times D$ (flexible use)

Technical description – Draggable hybrid cable for Hiperface DSL®

- Hybrid cable
- Shielding braid Copper wires, tinned
- PUR sheath, orange, flame-retardant, self-extinguishing
- 1st side: metal round plug speedtec M23 hybrid socket 8-pole for wire with 4G1.5 and 4G2.5
  metal round plug speedtec M40 hybrid socket 5+4-pole + 2 -pole insulating body for wire with 4G2.5, 4G4 and 4G6
- 2nd side: Metal 45°-D-Sub plug, 26-pole with electronics
- Ready-for-use cable for bmaXX 5300
- Cable for bmaXX 5500 being prepared

3.5.2. Application references

- **Operating temperature of encoder cable resolver/ SinCos Hiperface®-interface / SinCos - and TTL - incremental encoder / EnDat® 2.1**

Limit temperature	on the surface
Static use/minimal movement	- 40 °C to + 80 °C
Permanent movement	- 20 °C to + 60 °C

- **Routing of cable on motor**

The cables must not touch the surface of the motor.

3.5.3. Order information for encoder cables

Encoder cable - prefabricated with plug

For resolver			**For SinCos Hiperface® - interface**		
Length in m	Item Number	Item Number (Speed Tec)	Length in m	Item Number	Art. Nr. (Speed Tec)
1	429914	448746	1	429958	448761
2	429915	448747	2	429959	448762
3	429916	448748	3	429960	448763
5	429917	448749	5	429961	448764
7	429918	448750	7	429962	448765
10	429919	448751	10	429963	448766
15	429920	448752	15	429964	448767
20	429921	448753	20	429965	448768
25	429922	448754	25	429966	448769
30	429923	448755	30	429967	448770
35	429924	448756	35	429968	448772
40	429925	448757	40	429969	448773
50	429926	448758	50	429970	448774
75	429927	448759	75	429971	448775

For SinCos - and TTL - incremental encoder

Length in m	Item Number	Item Number (Speed Tec)
1	430015	448777
2	430016	448778
3	430017	448779
5	430018	448780
7	430019	448781
10	430020	448782
15	430021	448783
20	430022	448784
25	430023	448785
30	430024	448786
35	430025	448787
40	430026	448788
50	430027	448789
75	430028	448790

For SinCos EnDat® 2.1 - interface

Length in m	Item Number	Item Number (Speed Tec)
1	429986	448796
2	429987	448797
3	429988	448798
5	429989	448799
7	429990	448800
10	429991	448801
15	429992	448802
20	429993	448803
25	429994	448804
30	429995	448805
35	429996	448806
40	429997	448807
50	429998	448808
75	429999	448809

For Hiperface DSL® hybrid cables size 1 for bmaXX 5300[1)]

	Rated current 15A 4G1.5+(2x0.75)+ (2x22AWG)	Rated current 20A 4G2.5+(2x1.0)+ (2x22AWG)
Length [m]	Item No.	Item No.
3	464201	464217
5	464202	464218
7	464203	464219
10	464204	464220
15	464205	464221
20	464206	464222
25	464207	464223
30	464208	464224
35	464209	464225
40	464210	464226
50	464211	464227
60	464212	464228

For Hiperface DSL® hybrid cables size 1.5 for bmaXX 5300[1)]

	Rated current 21A 4G2.5+(2x1.0)+(2x22AWG)	Rated current 28A 4G4.0+(2x1.0)+(2x22AWG)	Rated current 36A 4G6.0+(2x1.0)+(2x22AWG)
Length [m]	Item No.	Item No.	Item No.
3	464235	464278	464294
5	464236	464279	464295
7	464237	464280	464296
10	464238	464281	464297
15	464239	464282	464298
20	464240	464283	464299
25	464241	464284	464300
30	464242	464285	464301
35	464243	464286	464302
40	464244	464287	464303
50	464245	464288	464304
60	464246	464289	464305

[1)] Cables are being prepared for bmaXX 5500

3.6. Motor cables

The motor cables are highly flexible trailing cables with overall shielding. They comply with VDE, UL and CSA regulations. The control cables are integrated as star quads. The brake control and the temperature sensor are connected via the main connector. The cables are particularly suited for the optimum use of cable racks thanks to their small cross-section, low weight, and non-impeding surface. As a result, they can be used efficiently in trailing chains. The overall shielding with an optical coverage of more than 85% makes the cable non-critical from an EMC perspective.

3.6.1. Technical data

- Sheath resistance to media such as coolants and machine and gearbox oils
- Abrasion resistance thanks to a special surface in cable racks and trailing chains
- Highly flexible trailing cable, minimum bending radius for flexible use: 12 x D
- Non-blocking sheath surface with satin finish
- Shield made of tinned copper braid with optical coverage of ≥ 85%
- Core insulation made from TPE or polyester, sheath material: Halogen-free PUR
- Cable is CFC and silicone-free
- Behavior in the event of fire: Fire-inhibiting, halogen-free
- Cable color RAL 1028, melon yellow
- Label features Baumüller logo and VDE, UL and CSA marks

Rated voltage
- Uo/U 600/1.000 V (power cores)
- U 24 V DC (control cores)

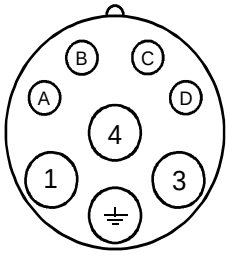
Core labeling
- Power cores U, VV, WWW
- Colored control cable pairs as star quads in red, white, black, yellow

Assignment of pairs: (note the polarity)
- Red – black (brake)
- white – yellow (temperature)

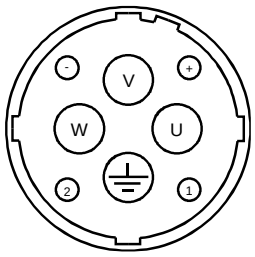
3.6.2. Main connection via connector

Note:
The connector size is determined by the standstill current I_0 of the motor used.
Motors with a standstill current of ≤ 20A feature a size 1 main connector.
For standstill currents of 20 A< I_0 ≤ 36 A, a size 1.5 main connector is used.
A terminal box must be used at a I_0 > 36A.

Poles of the female main connectors:

		Pin	Signal	Color/labeling
Size 1 I_0 ≤ 20 A		1	Phase U	U
		⏚	PE	Green/yellow
		3	Phase V	V V
		4	Phase W	W W W
		A	B+	Red
		B	B-	Black
		C	K-	White
		D	K+	Yellow

View of contact side of female connector

		Pin	Signal	Color/labeling
Size 1.5 $I_0 \leq 36$ A		U V W ⏚ + - 1 2	Phase U Phase V Phase W PE B+ B- K- K+	U V V W W W green / yellow Red Black White Yellow

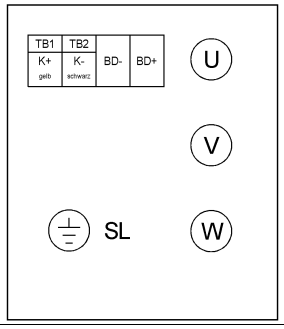
View of contact side of female connector

Cable cross-section [2)]	**Rated current [A][1) 2)]**	**Connector 540 V Size [2)]**	**Cable diameter [2)] [mm]**
4×1.5 mm² + 4×0.75 mm²	15	1	11.7 – 12.3
4×2.5 mm² + 4×0.75 mm²	20	1	12.7 – 14.6
4×4 mm² + 4×0.75 mm²	28	1.5	14.2 – 15.4
4×6 mm² + 4×0.75 mm²	36	1.5	16.6 – 17.9
4x10 mm² + 4x0.75 mm²	50	1.5	20.5 – 21.5
4x16 mm² + 4x0.75 mm²	66	-	23.0-25.8
4x25 mm² + 2x(2x1.5 mm²)	84	-	26.3-29.7
4x35 mm² + 2x(2x1.5 mm²)	104	-	30.8-32.5

1) Current carrying capacity acc, to Table 5, laying type C or E VDE 0113/EN 60204 Part 1 issue 1997) Ambient temperature 40 °C

2) Deviating regulations apply for cULus approved motors

3.6.3. Main connection via terminal boxes



Connection diagram

U V W	Power connection
1R1 / 1R2	Temperature sensor
BD+ / BD-	Brake
SL	Earth wire

3.6.4. Application notes

Operating temperature
The cables can be operated within a temperature range of between -20 °C and +80 °C,

Cable laying at the motor
The cables must not touch the motor surface,

Smallest permissible bending radii
12x outer cable diameter,

3.6.5. Ordering data for main connection cables

Rated current: 15 A
Cable 4 x 1,5 mm² + 4 x 0,75 mm²
With connector size 1

Length in m	Item Number	Item Number Speed Tec
5	324781	445872
7	324782	445887
10	324783	445889
15	324784	447675
20	324785	447676
25	324786	447677
30	324787	447678
35	324788	447679
40	324789	447680
50	324790	447681
75	324791	447682
100	324792	447683

Rated current: 28 A
Cable 4 x 4 mm² + 4x 0,75 mm²
With connector size 1,5

Length in m	Item Number	Item Number Speed Tec
5	326589	448063
7	326591	448064
10	326592	448065
15	326593	448066
20	326594	448067
25	326596	448069
30	326597	448070
35	326598	448071
40	326599	448072

Rated current: 20 A
Cable 4 x 2,5 mm² + 4x 0,75 mm²
With connector size 1

Length in m	Item Number	Item Number Speed Tec
5	414840	447684
7	380967	447687
10	413410	447688
15	414841	447692
20	414842	447698
25	414843	447852
30	414846	447853
35	414848	447854
40	414849	447855
50	414850	447856
75	414851	447857
100	414852	447858

Rated current 36 A
Cable 4 x 6 mm² + 4x 0,75 mm²
With connector size 1,5

Length in m	Item Number	Item Number Speed Tec
5	326600	448080
7	326601	448118
10	326602	448119
15	326603	448120
20	326604	448121
25	326605	448122
30	326606	448123
35	326607	448124
40	326608	448125

Rated current: 21 A
Cable 4 x 2,5 mm² + 4x 0,75 mm²
With connector size 1,5

Length in m	Article number	Item Number Speed Tec
5	326577	447686
7	326578	447689
10	326579	447690
15	326580	447691
20	326581	447693
25	326582	447694
30	326583	447695
35	326584	447696
40	326585	447697
50	326586	447699
75	326587	448060
100	326588	448061

Rated current: 50 A
Cable 4 x 10 mm² + 4x 0,75 mm²
With connector size 1,55

Length in m	Article number	Item Number Speed Tec
5	326609	448129
7	326610	448131
10	326611	448132
15	326612	448133
20	326613	448134
25	326614	448135
30	326615	448136
35	326616	448137
40	326617	448138

Mating Plug

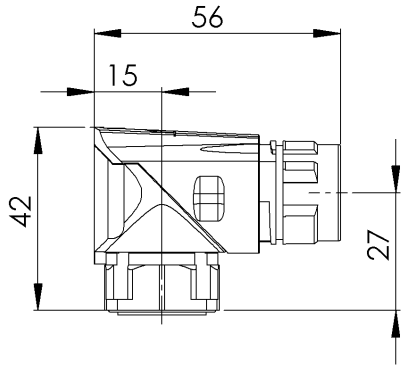
Type		Art. Nr.	Art. Nr. Speed Tec
Gr. 1	4x1,5mm² o. x2,5mm²	261740	445486
Gr. 1	4x2,5mm² bis 4x4mm²		500064
Gr. 1,5	4x2,5mm² bis 4x6mm²	326574	445487
Gr. 1,5	4x10mm²	326569	445488

Deviating regulations apply for cULus approved motors

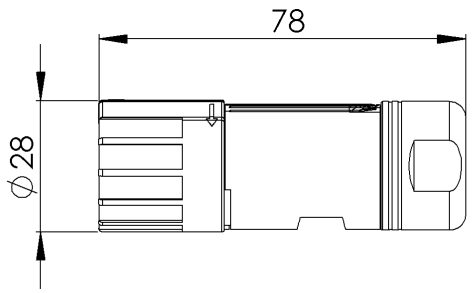
3.7. Dimensional drawings for equipment socket and plug

3.7.1. Main connection:

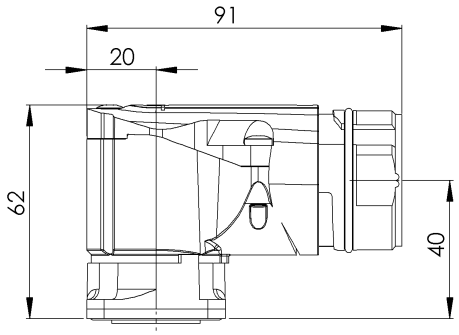
Speed-Tec - rotary angle socket
(Size 1 for Current I_0 up to 20 A)
or hybrid socket DSL Hiperface



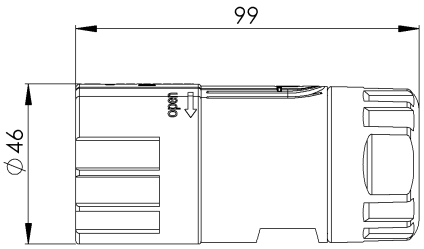
Speed-Tec - mating connector
(Size 1 for Current I_0 up to 20 A)



Speed-Tec - rotary angle socket
(Size 1.5 for Current I_0 up to 36 A)
or hybrid socket DSL Hiperface

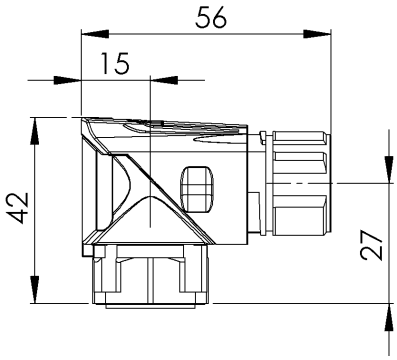


Speed-Tec - mating connector
(Size 1.5 for Current I_0 up to 36 A)

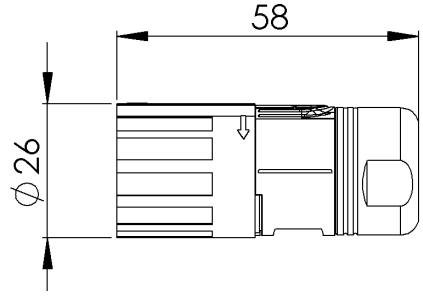


3.7.2. Encoder connection

Speed-Tec - rotary angle socket

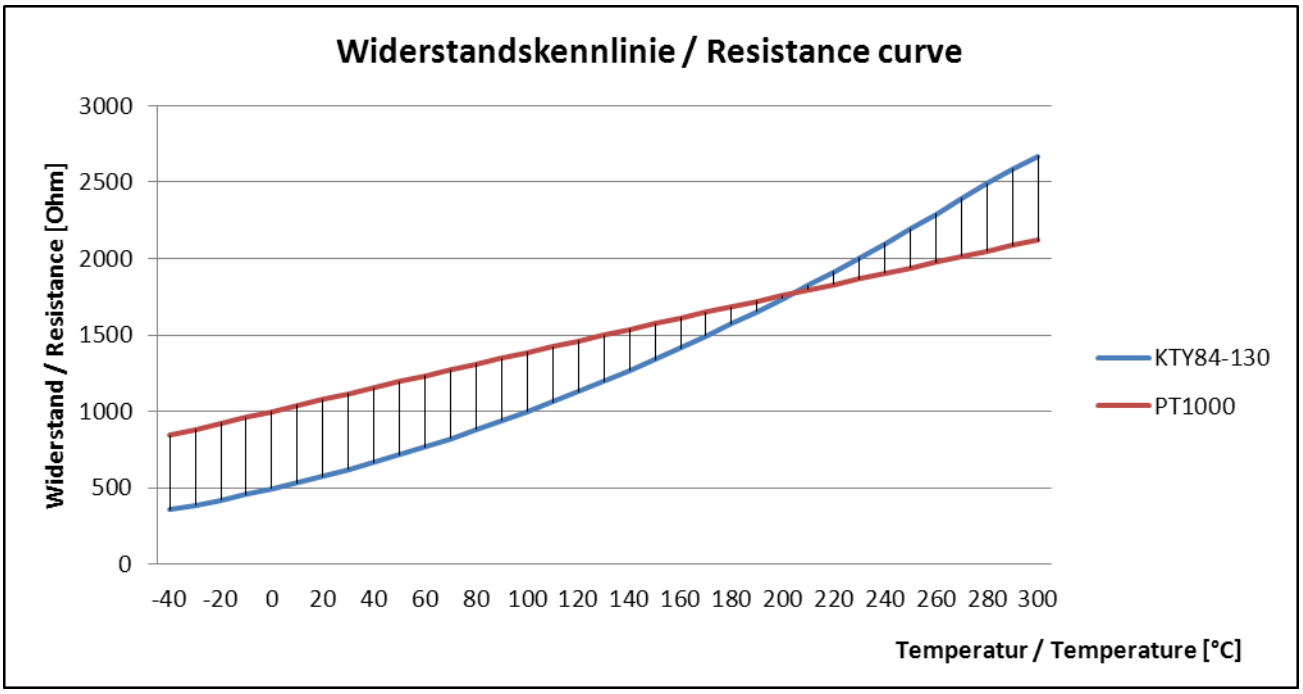


Speed-Tec - mating connector



3.8. Temperature sensor

The temperature sensor is connected via the main connection, Optionally, connection via the encoder box is possible. The respective execution must be marked in the order code.

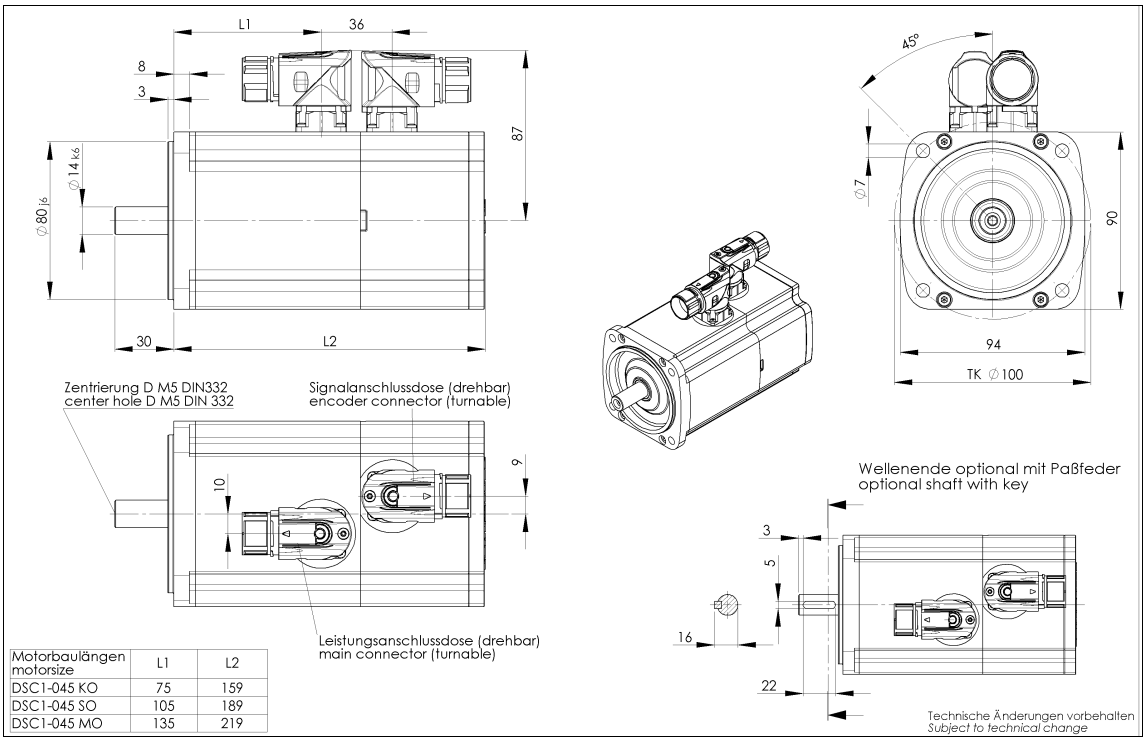


The motor temperature is continuously monitored using temperature sensor type PT1000,
The resistance shown above results, when the sensor is supplied with a measuring current

4. Dimension drawings

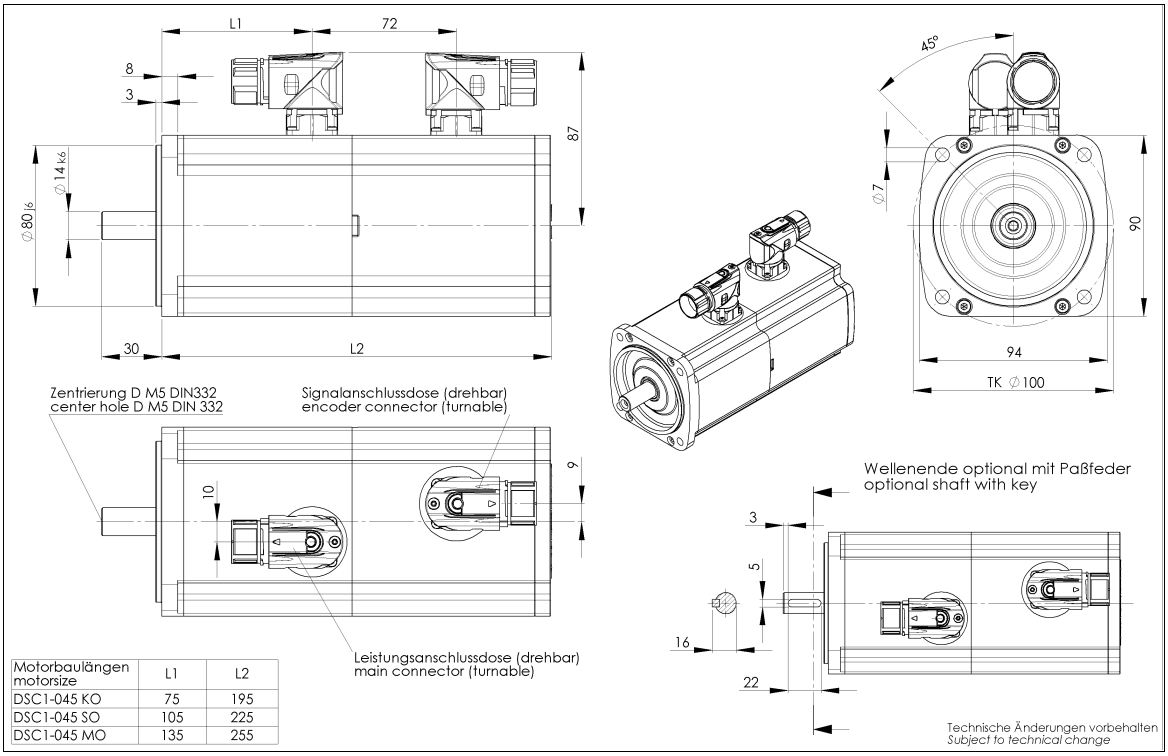
4.1. Dimension drawings DSC1-045

Dimension drawing DSC1-045….U-..-..-.O.-.PP-.-..-O-000
Version IM B5



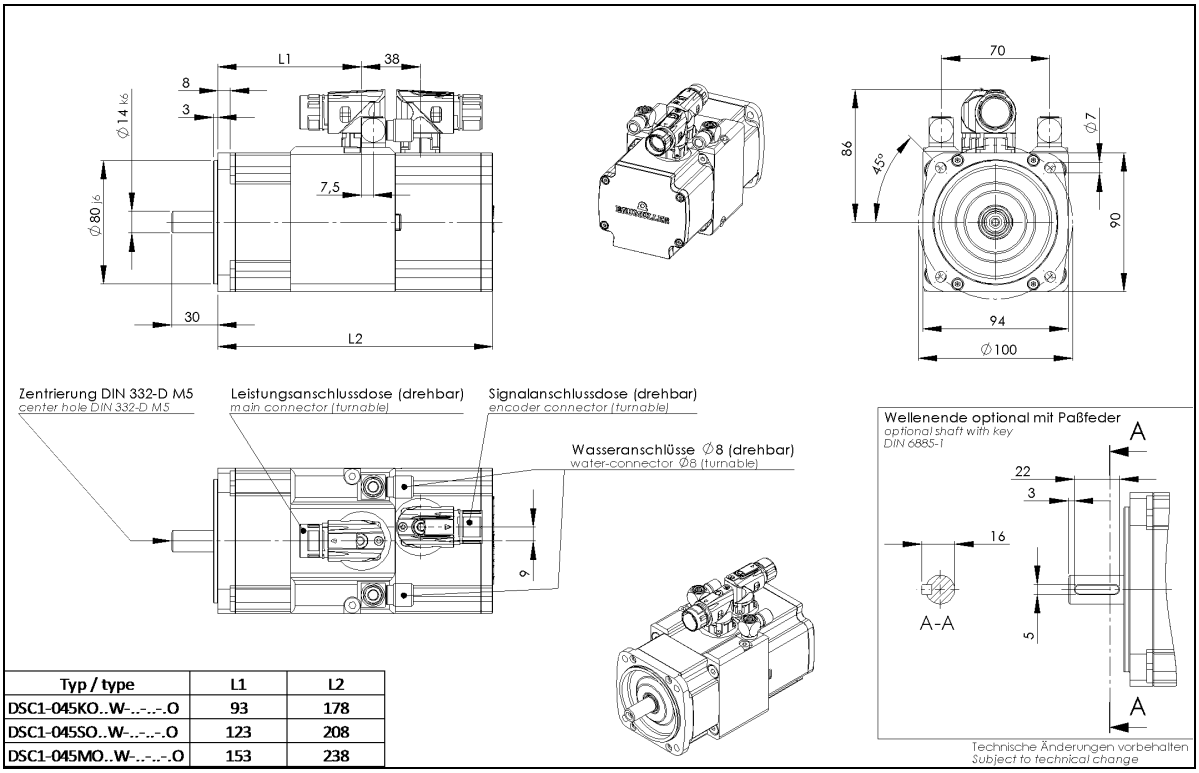
Motorbaulängen motorsize	L1	L2
DSC1-045 KO	75	159
DSC1-045 SO	105	189
DSC1-045 MO	135	219

Dimension drawing DSC1-045….U-..-..-.B.-.PP-.-..-O-000
Version IM B5



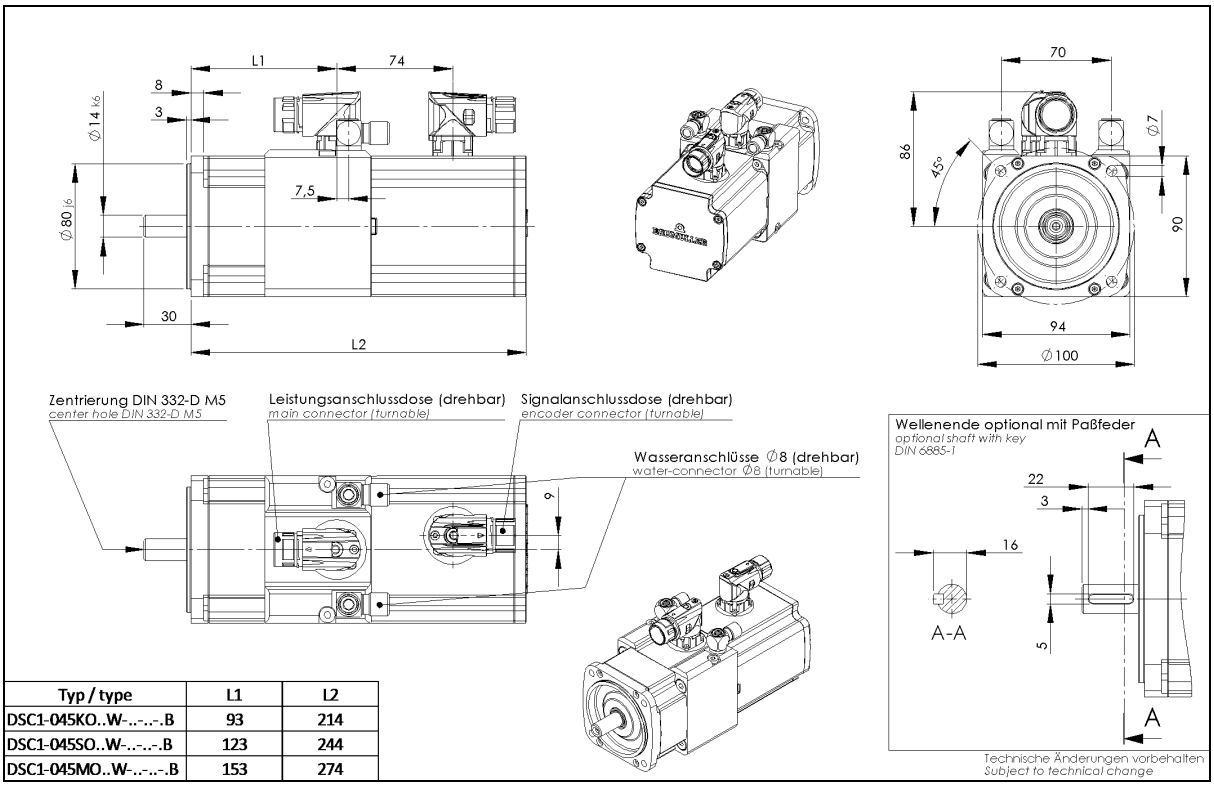
Motorbaulängen motorsize	L1	L2
DSC1-045 KO	75	195
DSC1-045 SO	105	225
DSC1-045 MO	135	255

Dimension drawing DSC1-045….W-..-..-.O.-.PP-.-..-O-000
Version IM B5



Typ / type	L1	L2
DSC1-045KO..W-..-..-.O	93	178
DSC1-045SO..W-..-..-.O	123	208
DSC1-045MO..W-..-..-.O	153	238

Dimension drawing DSC1-045….W-..-..-.B.-.PP-.-..-O-000
Version IM B5

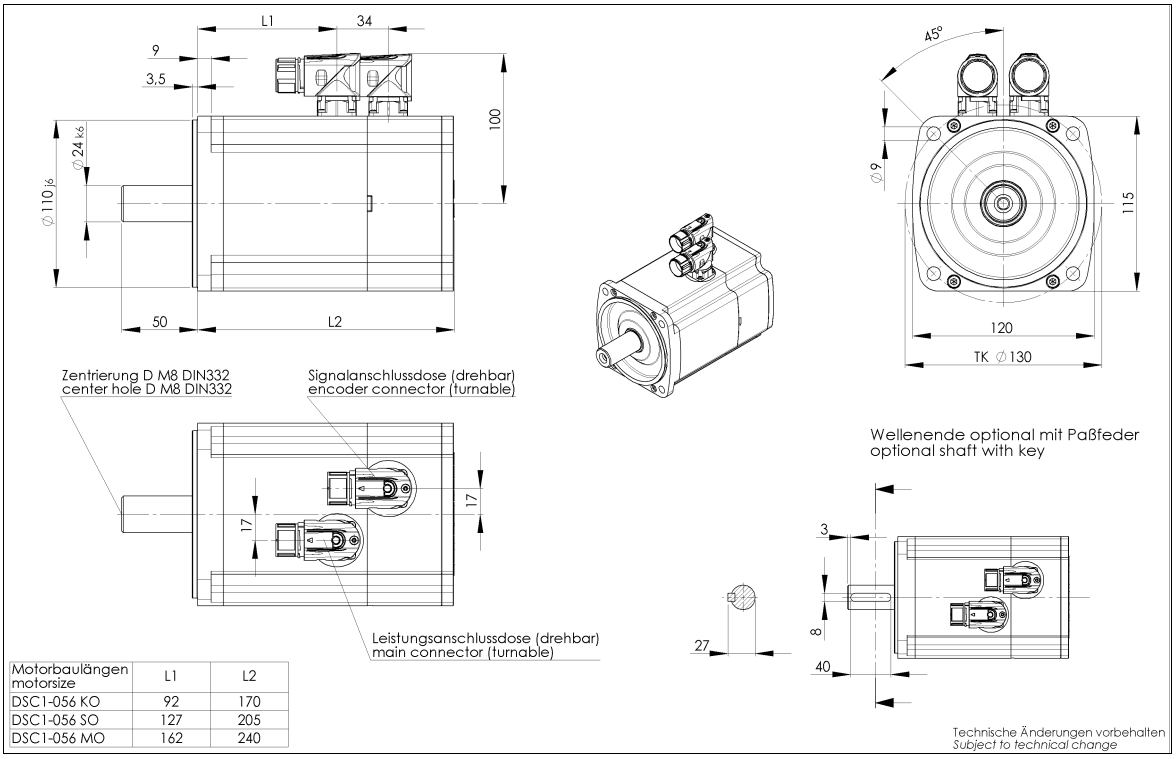


Typ / type	L1	L2
DSC1-045KO..W-..-..-.B	93	214
DSC1-045SO..W-..-..-.B	123	244
DSC1-045MO..W-..-..-.B	153	274

4.2. Dimension drawings DSC1-056

Dimension drawing DSC1-056….U-..-..-.O.-.PP-.-..-O-000

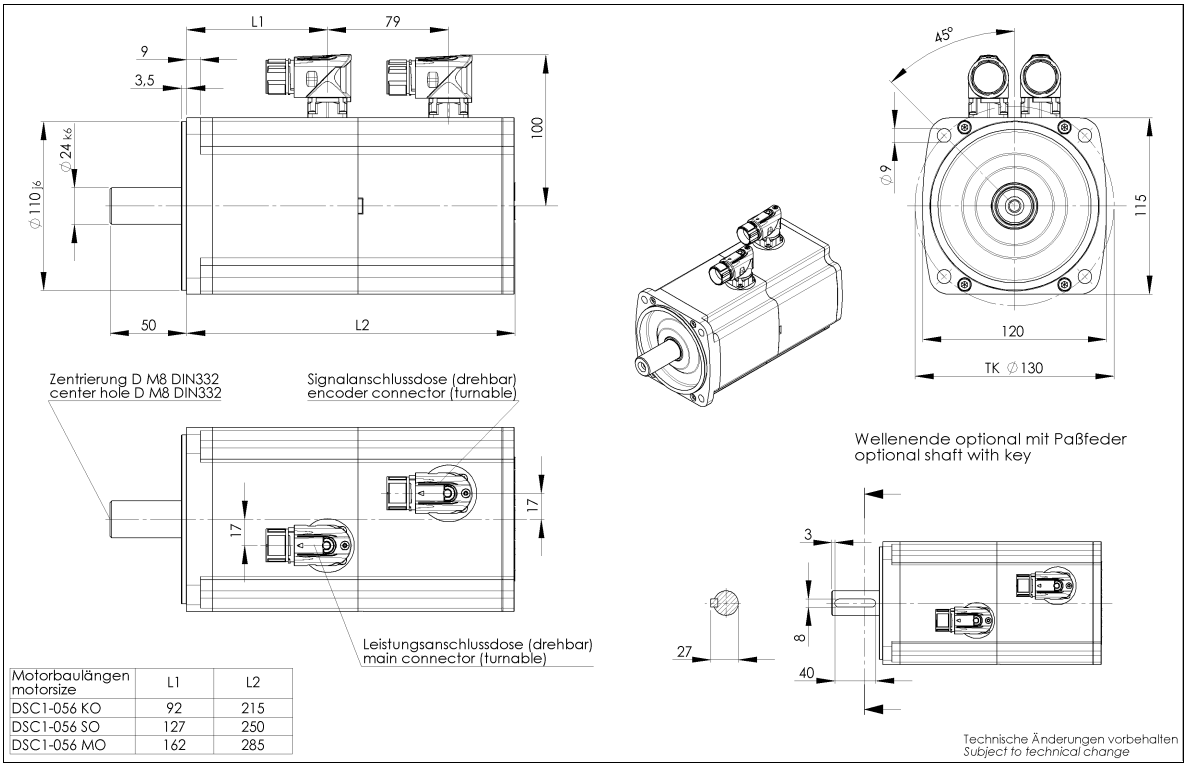
Version IM B5



Motorbaulängen motorsize	L1	L2
DSC1-056 KO	92	170
DSC1-056 SO	127	205
DSC1-056 MO	162	240

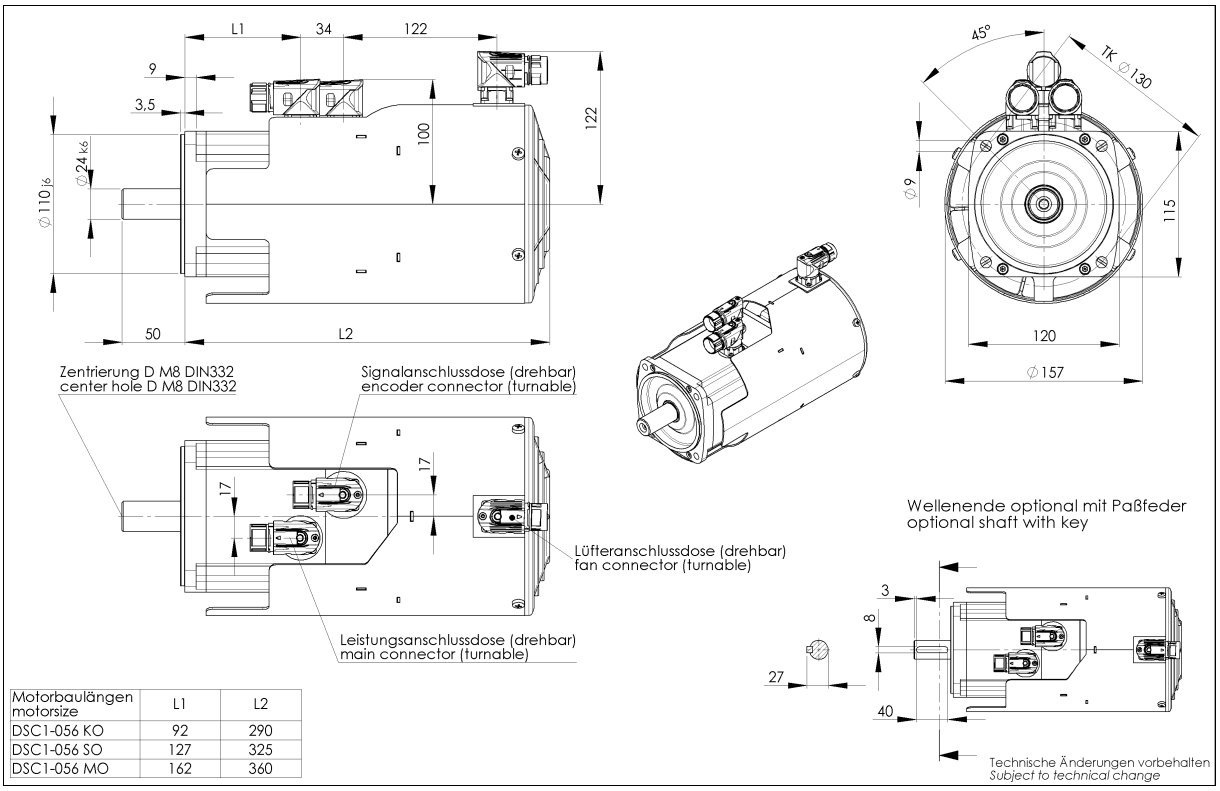
Dimension drawing DSC1-056….U-..-..-.B.-.PP-.-..-O-000

Version IM B5



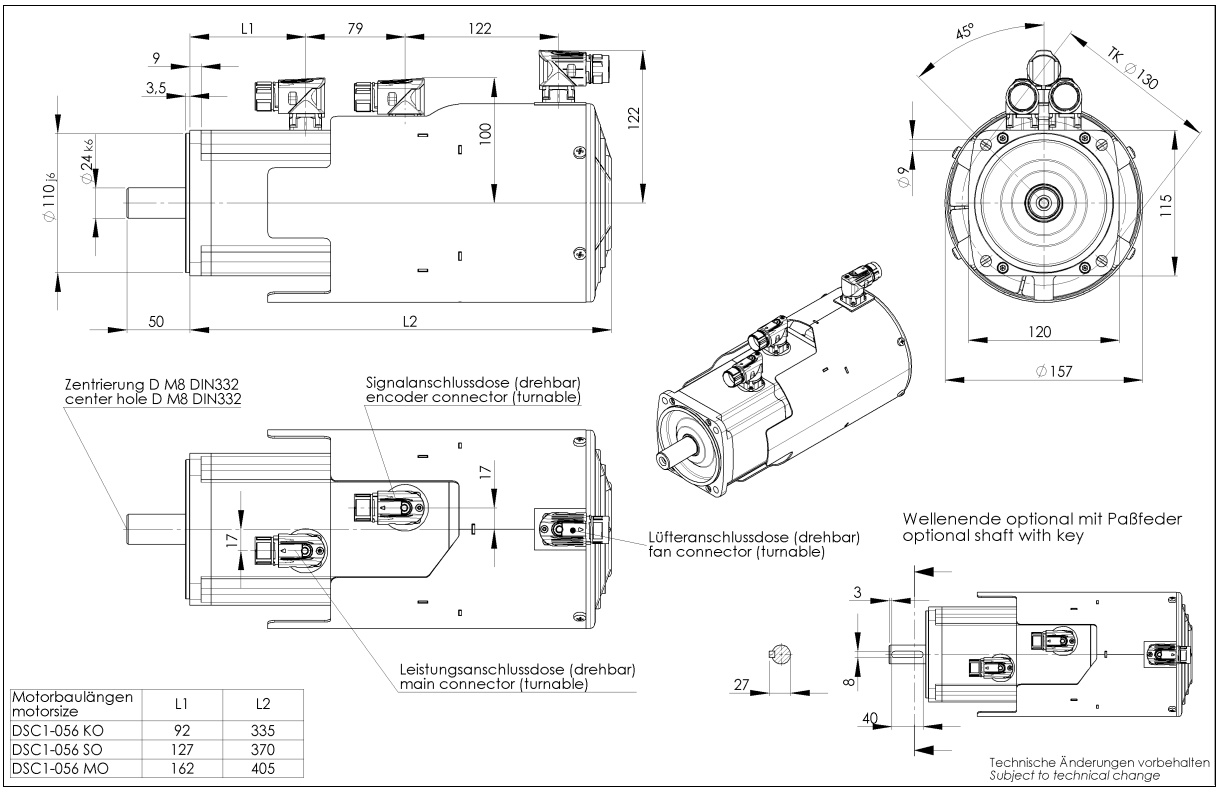
Motorbaulängen motorsize	L1	L2
DSC1-056 KO	92	215
DSC1-056 SO	127	250
DSC1-056 MO	162	285

Dimension drawing DSC1-056….O-..-..-.O.-.PP-.-..-O-000
Version IM B5



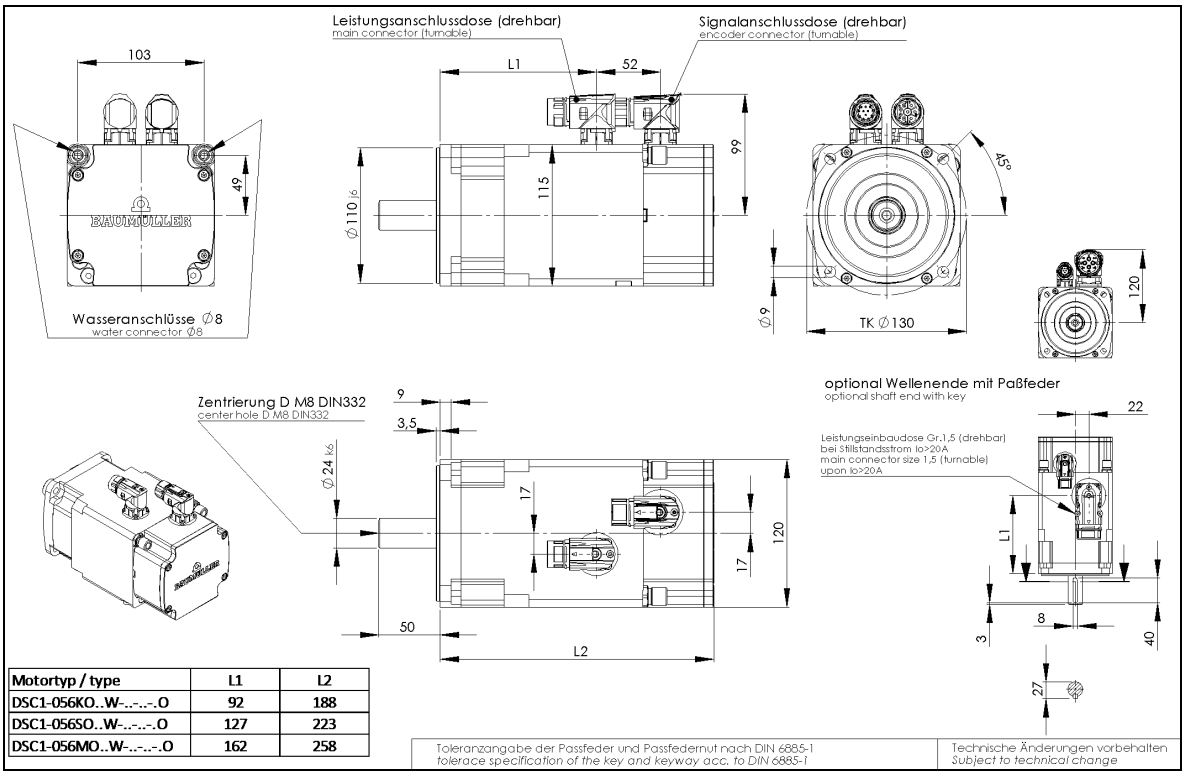
Motorbaulängen motorsize	L1	L2
DSC1-056 KO	92	290
DSC1-056 SO	127	325
DSC1-056 MO	162	360

Dimension drawing DSC1-056….O-..-..-.B.-.PP-.-..-O-000
Version IM B5



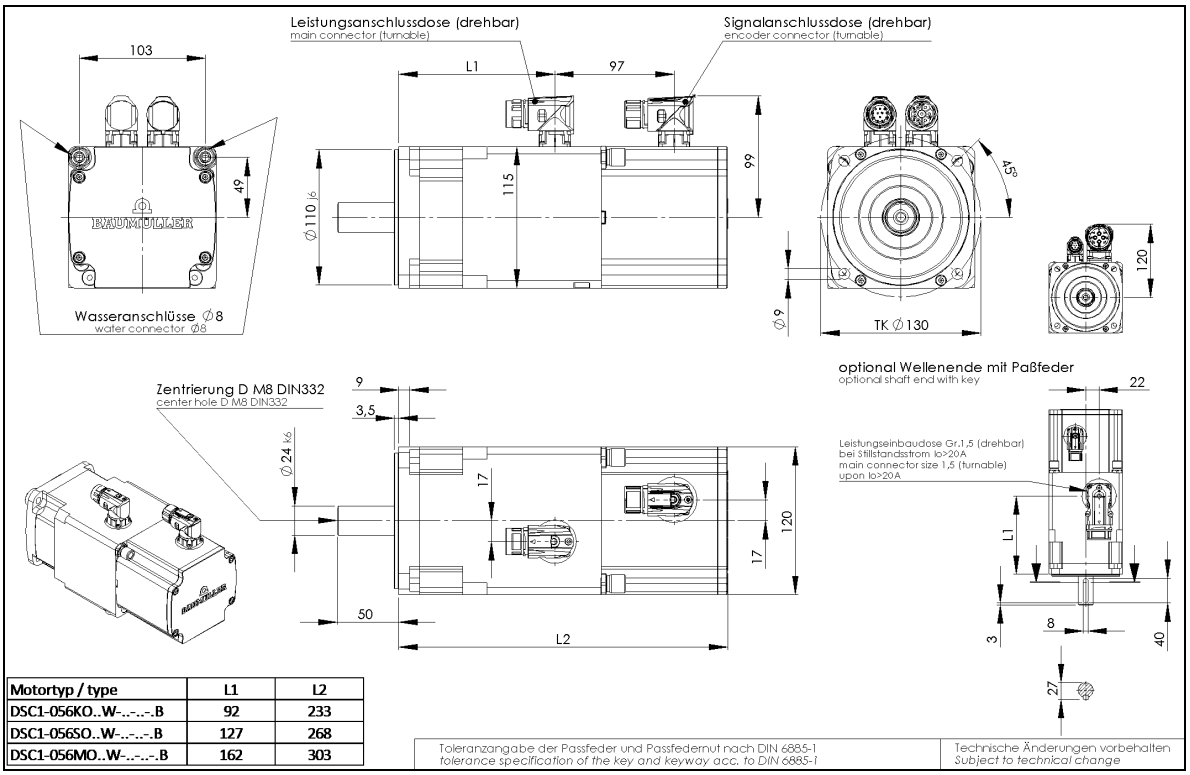
Motorbaulängen motorsize	L1	L2
DSC1-056 KO	92	335
DSC1-056 SO	127	370
DSC1-056 MO	162	405

Dimension drawing DSC1-056….W-..-..-.O.-.PP-.-..-O-000
Version IM B5



Motortyp / type	L1	L2
DSC1-056KO..W-..-..-.O	92	188
DSC1-056SO..W-..-..-.O	127	223
DSC1-056MO..W-..-..-.O	162	258

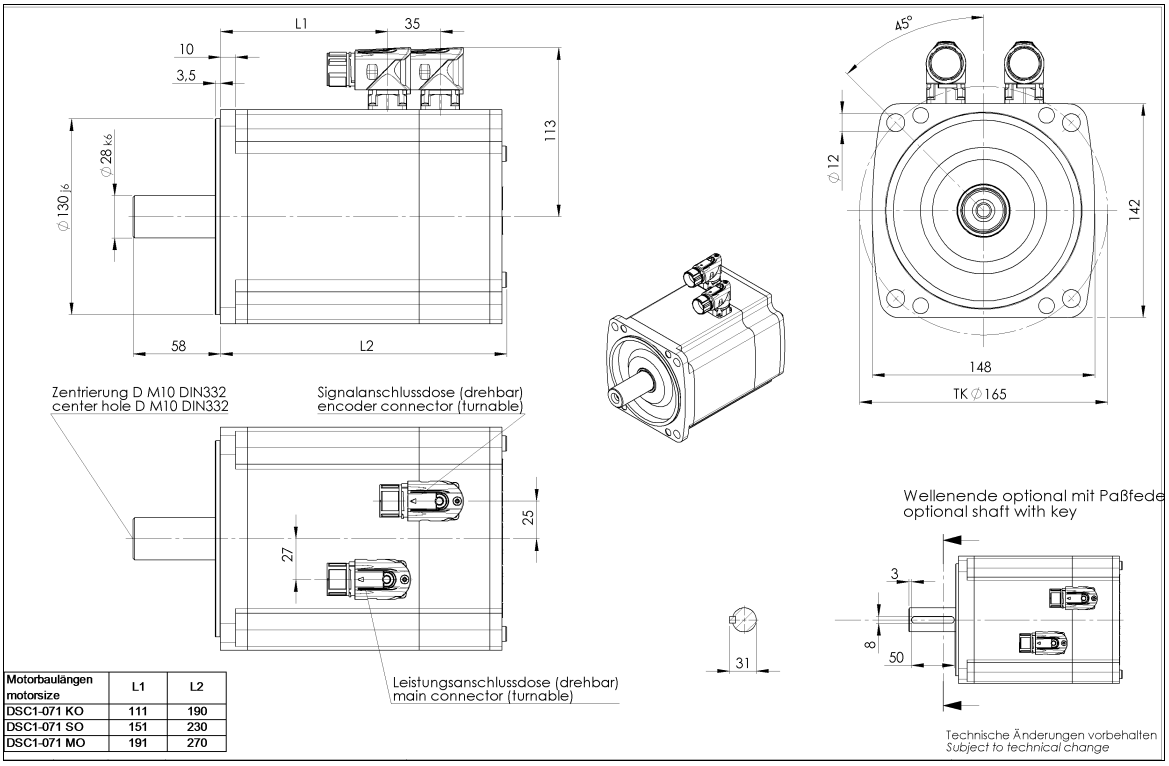
Dimension drawing DSC1-056….W-..-..-.B.-.PP-.-..-O-000
Version IM B5



Motortyp / type	L1	L2
DSC1-056KO..W-..-..-.B	92	233
DSC1-056SO..W-..-..-.B	127	268
DSC1-056MO..W-..-..-.B	162	303

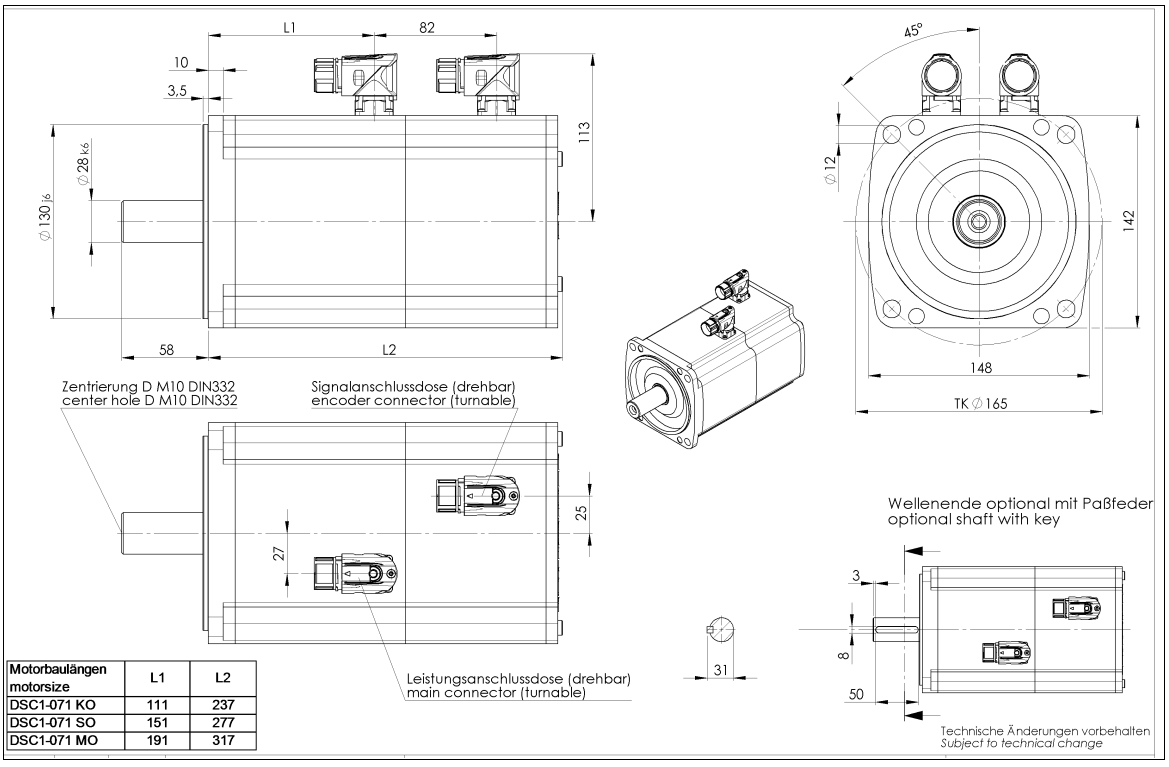
4.3. Dimension drawings DSC1-071

Dimension drawing DSC1-071….U-..-..-.O.-.PP-.-..-O-000
Version IM B5



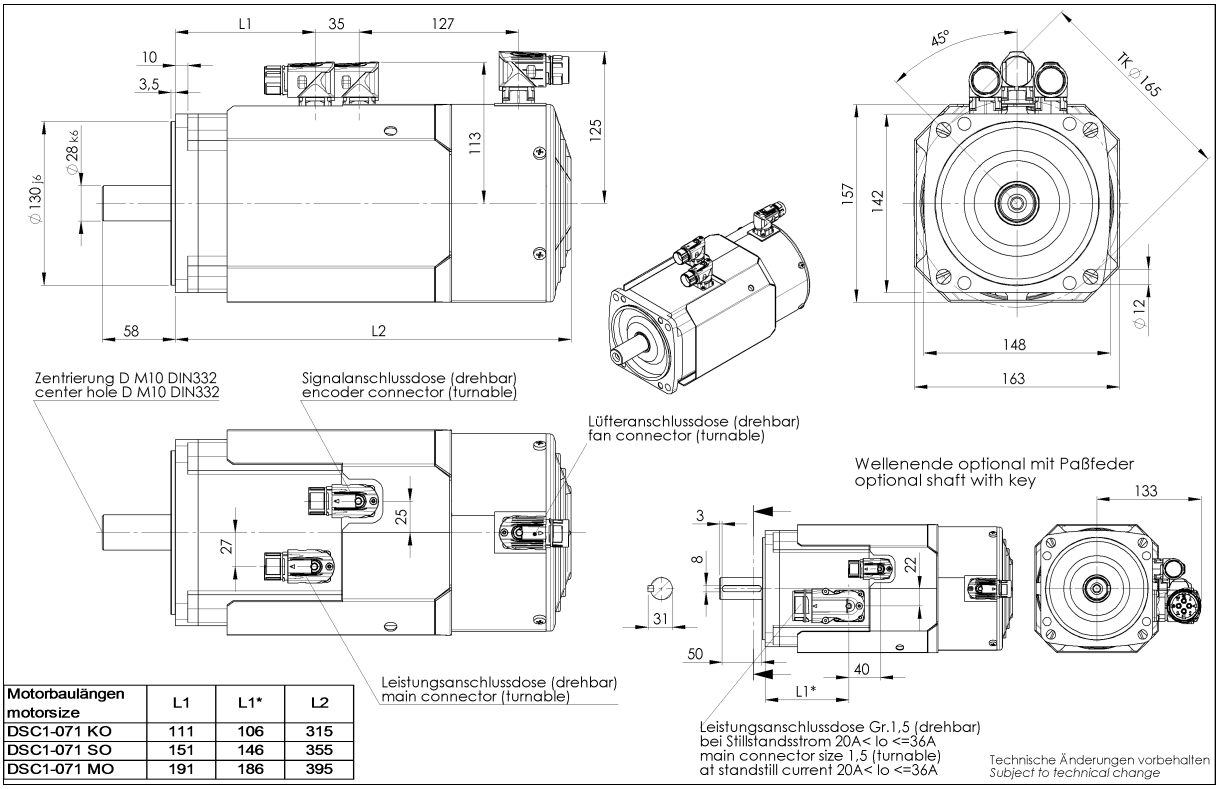
Motorbaulängen motorsize	L1	L2
DSC1-071 KO	111	190
DSC1-071 SO	151	230
DSC1-071 MO	191	270

Dimension drawing DSC1-071….U-..-..-.B.-.PP-.-..-O-000
Version IM B5



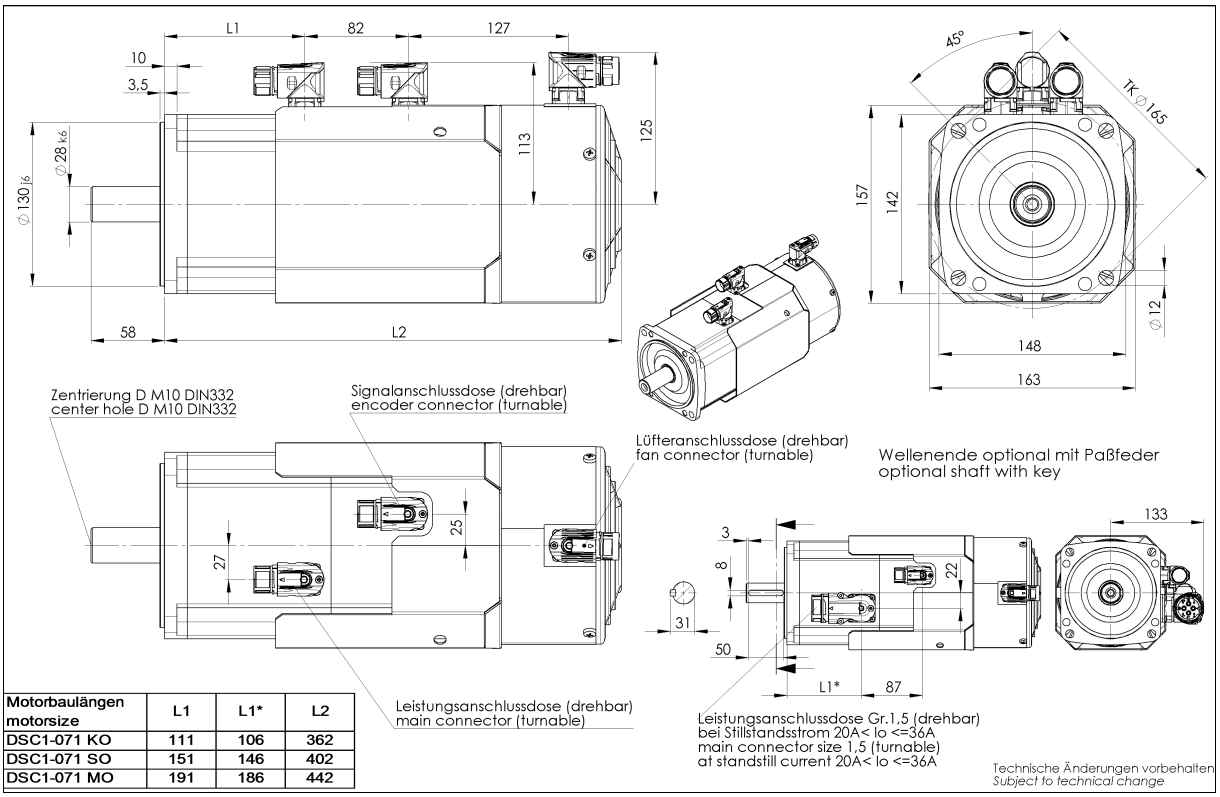
Motorbaulängen motorsize	L1	L2
DSC1-071 KO	111	237
DSC1-071 SO	151	277
DSC1-071 MO	191	317

Dimension drawing DSC1-071….O-..-..-.O.-.PP-.-..-O-000
Version IM B5



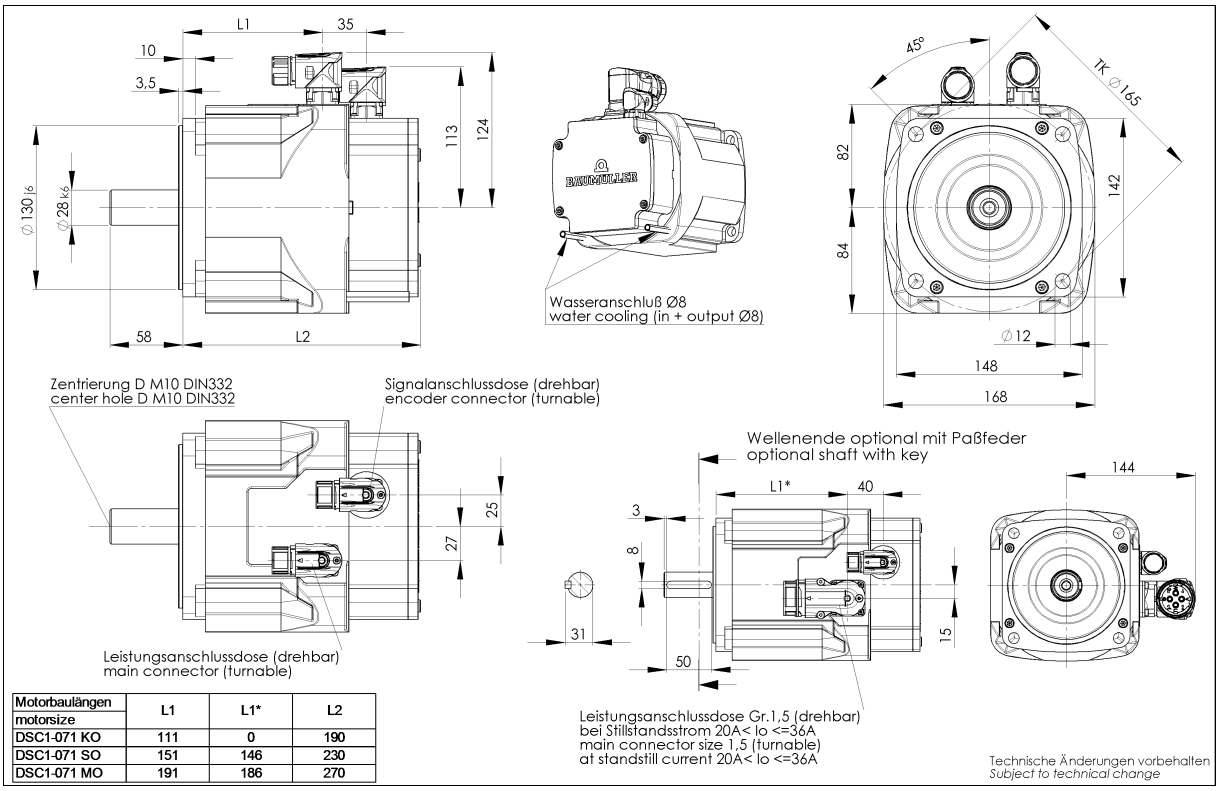
Motorbaulängen motorsize	L1	L1*	L2
DSC1-071 KO	111	106	315
DSC1-071 SO	151	146	355
DSC1-071 MO	191	186	395

Dimension drawing DSC1-071….O-..-..-.B.-.PP-.-..-O-000
Version IM B5



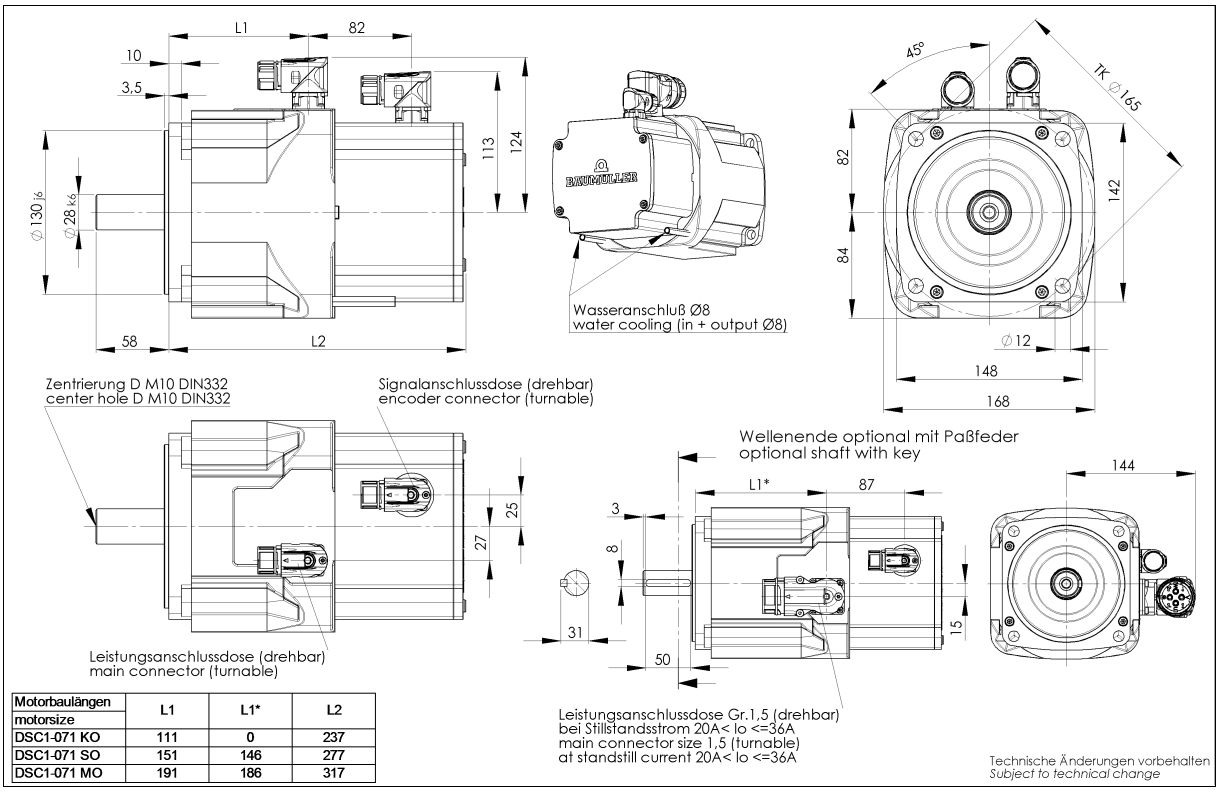
Motorbaulängen motorsize	L1	L1*	L2
DSC1-071 KO	111	106	362
DSC1-071 SO	151	146	402
DSC1-071 MO	191	186	442

Dimension drawing DSC1-071….W-..-..-.O.-.PP-.-..-O-000
Version IM B5



Motorbaulängen / motorsize	L1	L1*	L2
DSC1-071 KO	111	0	190
DSC1-071 SO	151	146	230
DSC1-071 MO	191	186	270

Dimension drawing DSC1-071….W-..-..-.B.-.PP-.-..-O-000
Version IM B5

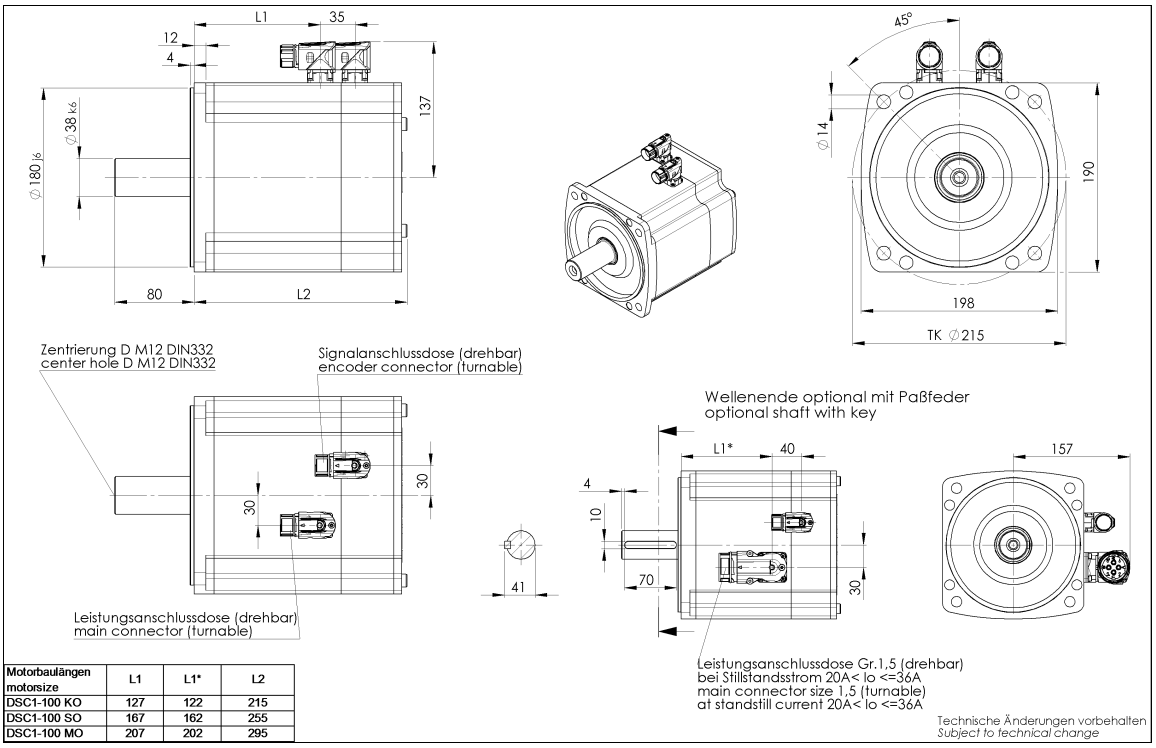


Motorbaulängen / motorsize	L1	L1*	L2
DSC1-071 KO	111	0	237
DSC1-071 SO	151	146	277
DSC1-071 MO	191	186	317

4.4. Dimension drawings DSC1-100

Dimension drawing DSC1-100….U-..-..-.O.-.PP-.-..-O-000

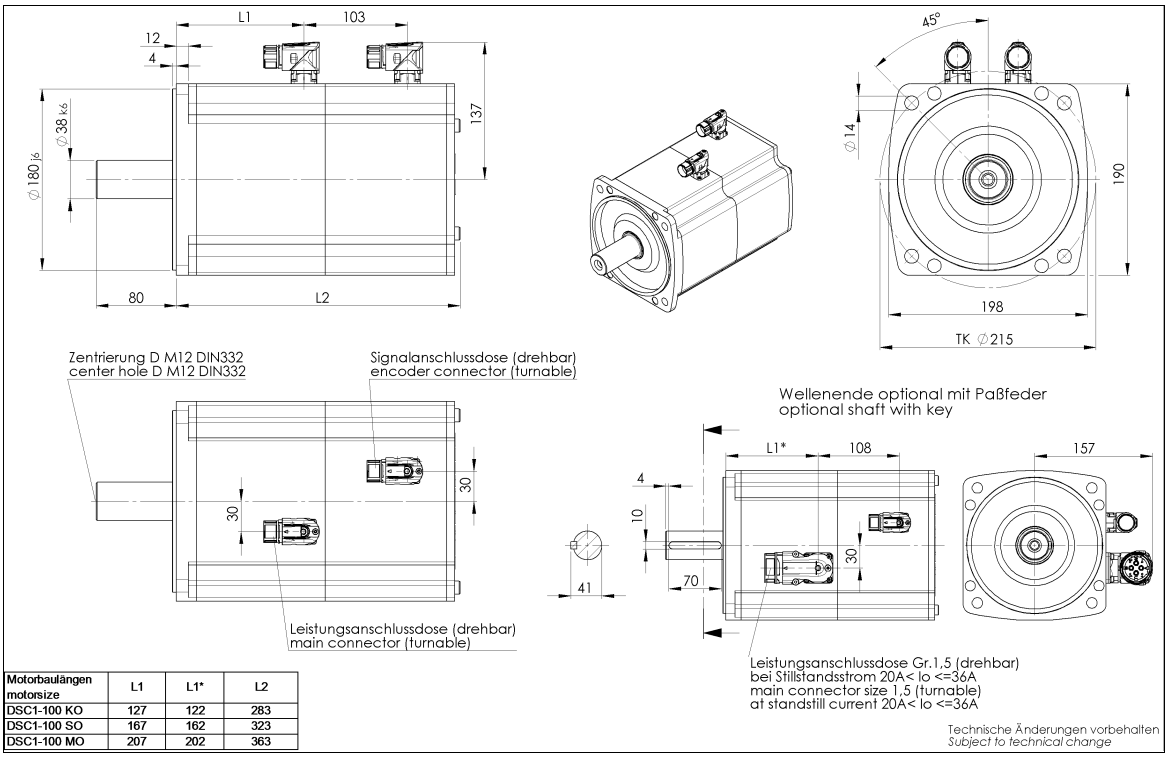
Version IM B5



Motorbaulängen motorsize	L1	L1*	L2
DSC1-100 KO	127	122	215
DSC1-100 SO	167	162	255
DSC1-100 MO	207	202	295

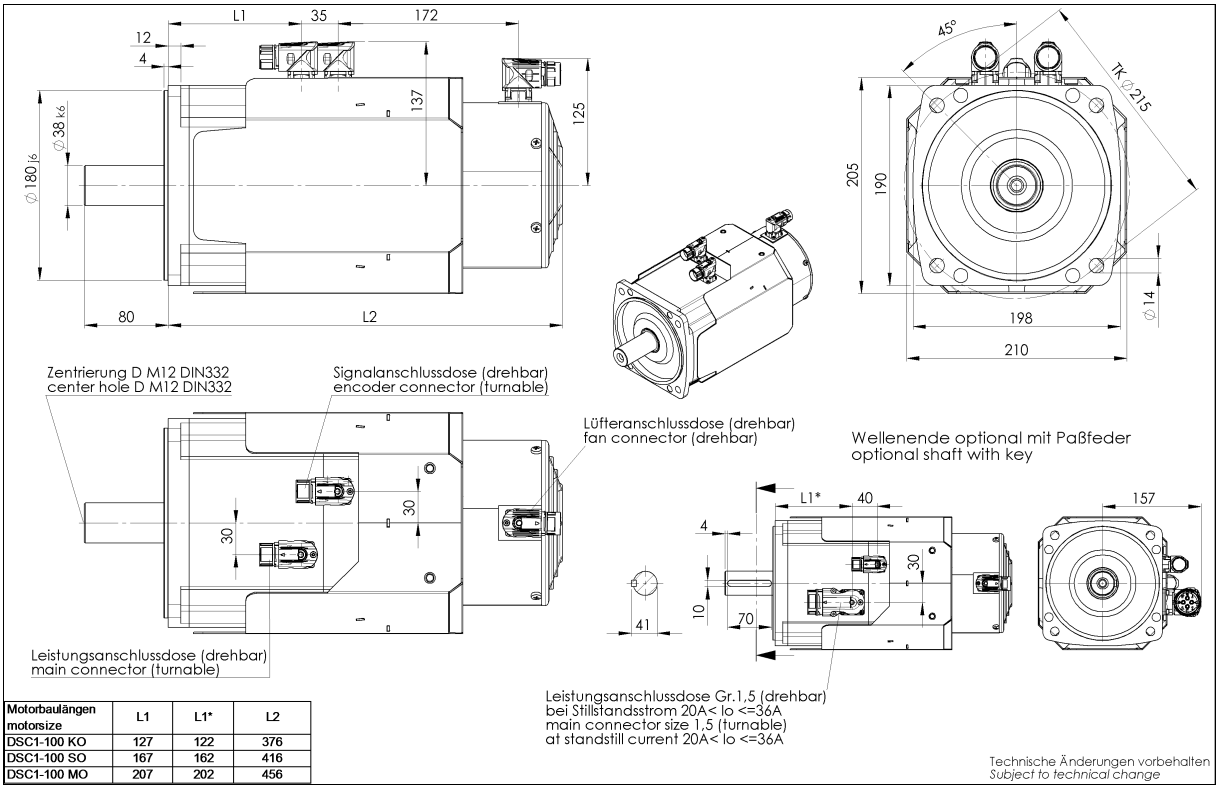
Dimension drawing DSC1-100….U-..-..-.B.-.PP-.-..-O-000

Version IM B5



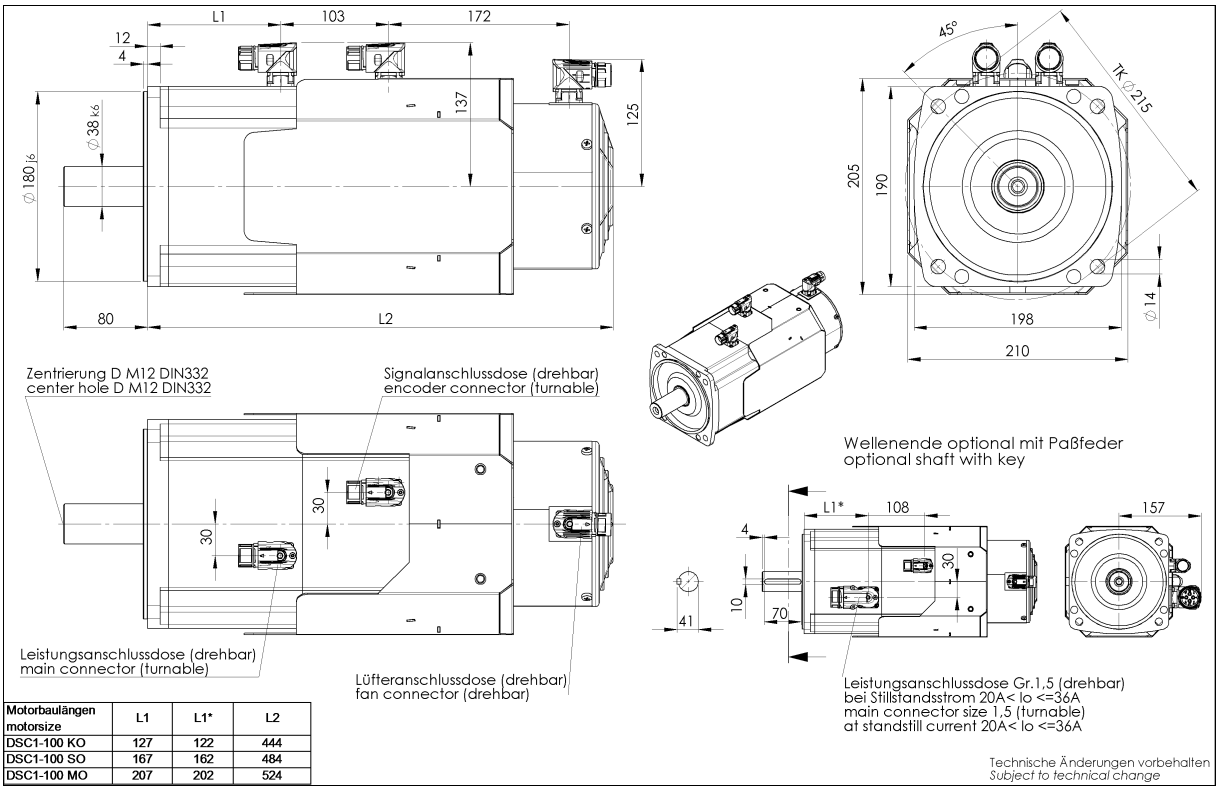
Motorbaulängen motorsize	L1	L1*	L2
DSC1-100 KO	127	122	283
DSC1-100 SO	167	162	323
DSC1-100 MO	207	202	363

Dimension drawing DSC1-100….O-..-..-.O.-.PP-.-..-O-000
Version IM B5



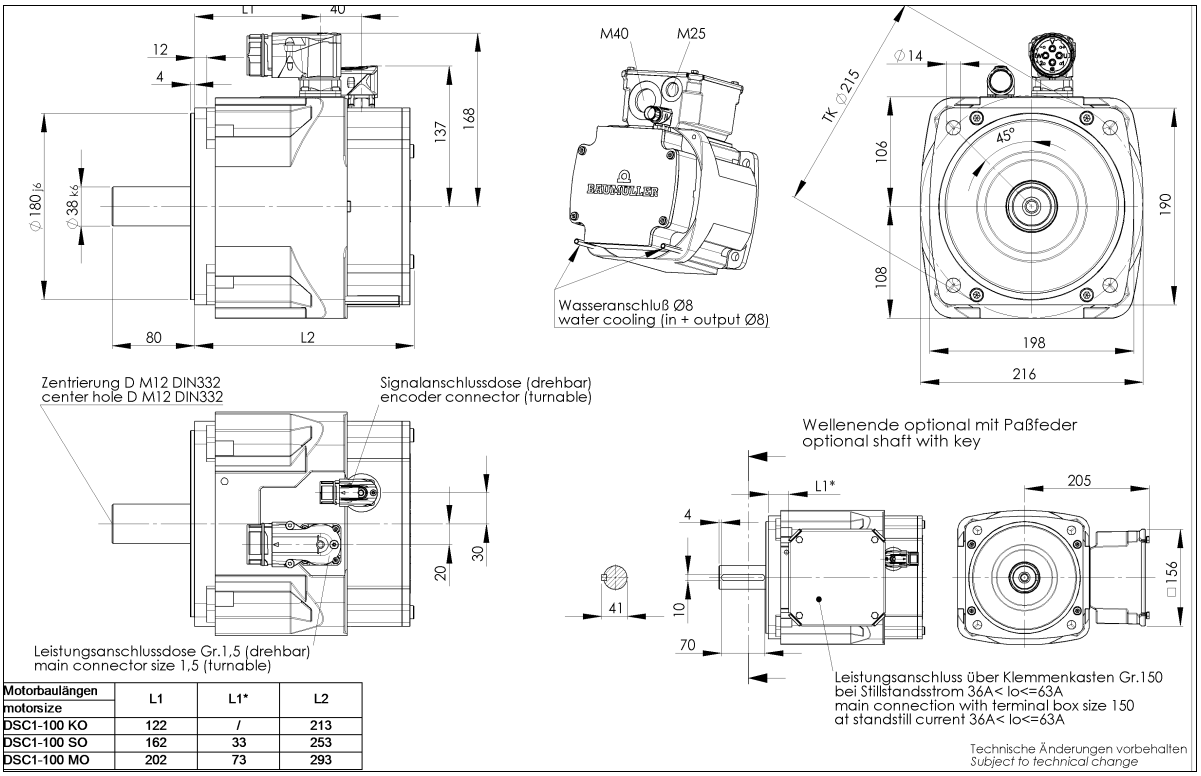
Motorbaulängen motorsize	L1	L1*	L2
DSC1-100 KO	127	122	376
DSC1-100 SO	167	162	416
DSC1-100 MO	207	202	456

Dimension drawing DSC1-100….O-..-..-.B.-.PP-.-..-O-000
Version IM B5



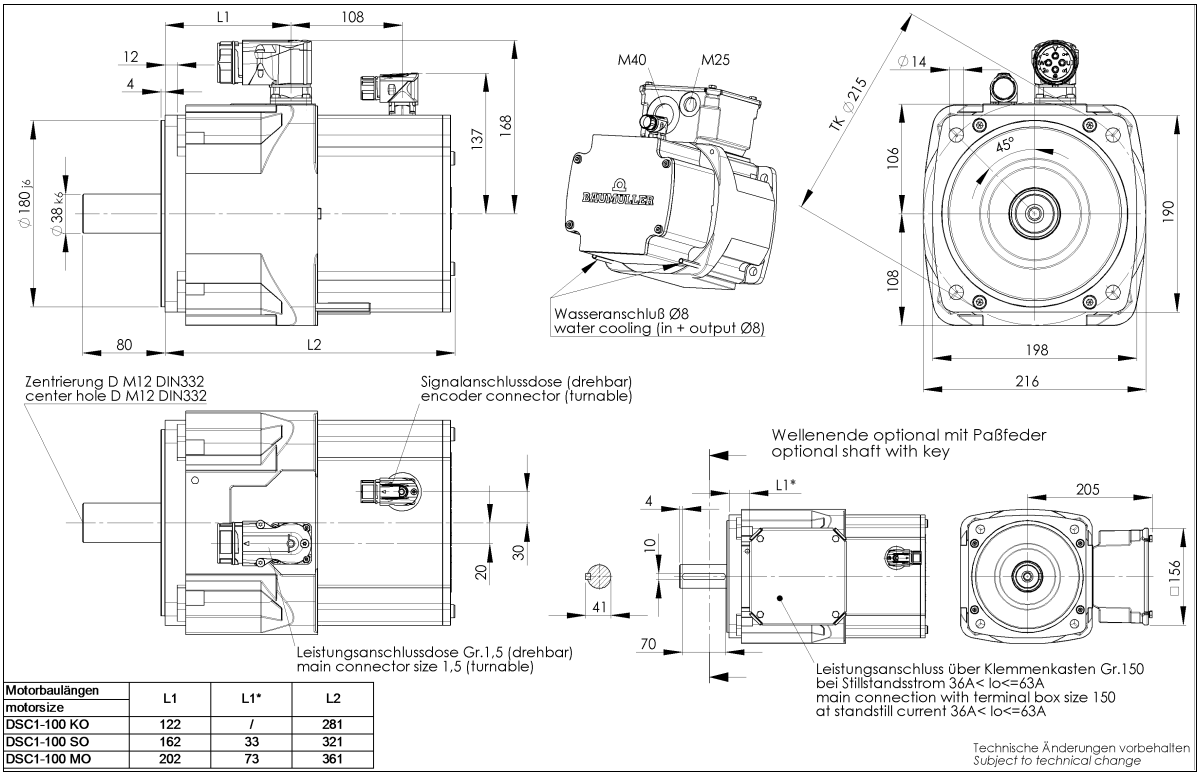
Motorbaulängen motorsize	L1	L1*	L2
DSC1-100 KO	127	122	444
DSC1-100 SO	167	162	484
DSC1-100 MO	207	202	524

Dimension drawing DSC1-100….W-..-..-.O.-..P-.-..-O-000
Version IM B5



Motorbaulängen / motorsize	L1	L1*	L2
DSC1-100 KO	122	/	213
DSC1-100 SO	162	33	253
DSC1-100 MO	202	73	293

Dimension drawing DSC1-100….W-..-..-.B.-..P-.-..-O-000
Version IM B5



Motorbaulängen / motorsize	L1	L1*	L2
DSC1-100 KO	122	/	281
DSC1-100 SO	162	33	321
DSC1-100 MO	202	73	361

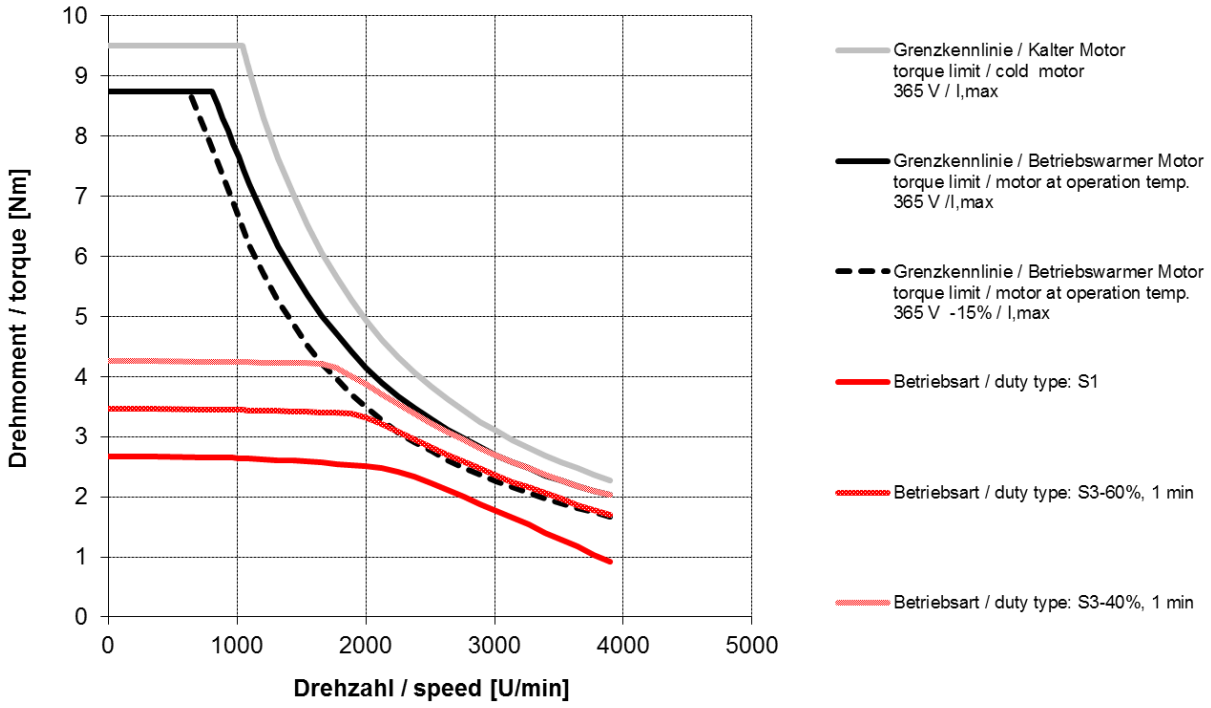
5. Motor characteristic curves

Cold motor	Environmental temperature (0°C to 40°C)
Motor at operating temperature	Continuous operation (S1) with nominal data of the motor or cyclical operation with corresponding effective output --> Environmental temperature + Delta temperature rise (105K)

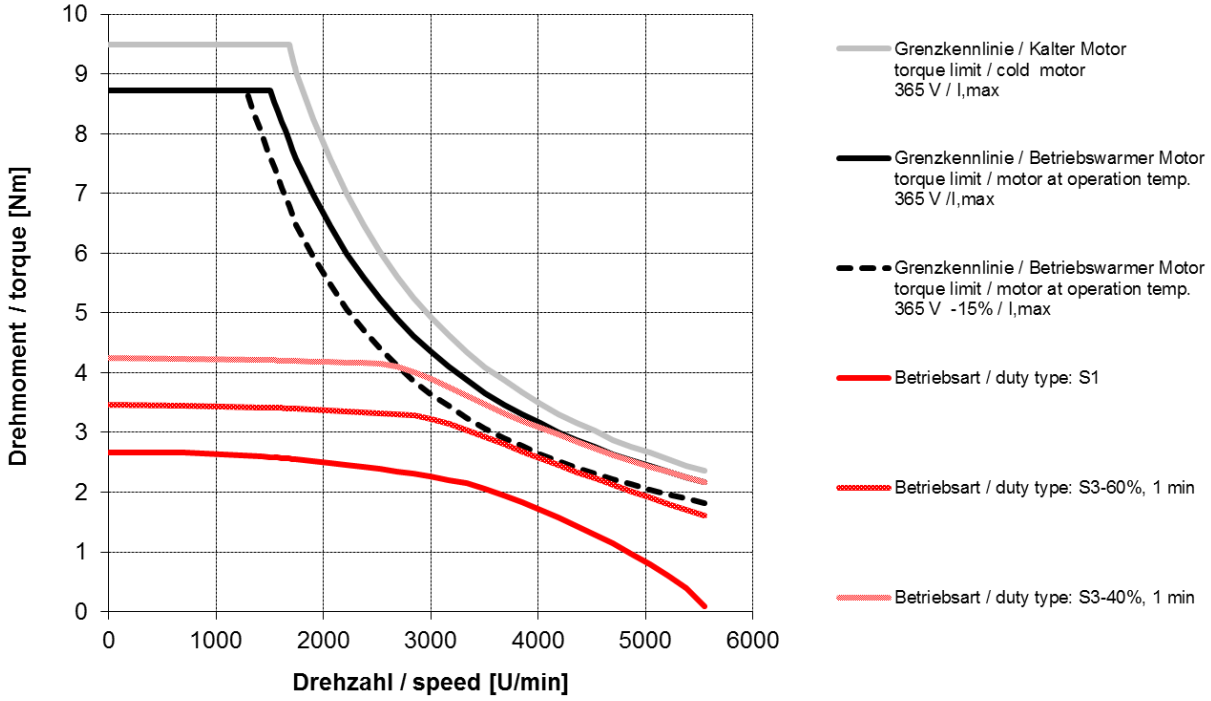
5.1. Characteristic curves DSC1-045

5.1.1. DSC1-045..64U-.. (without fan)

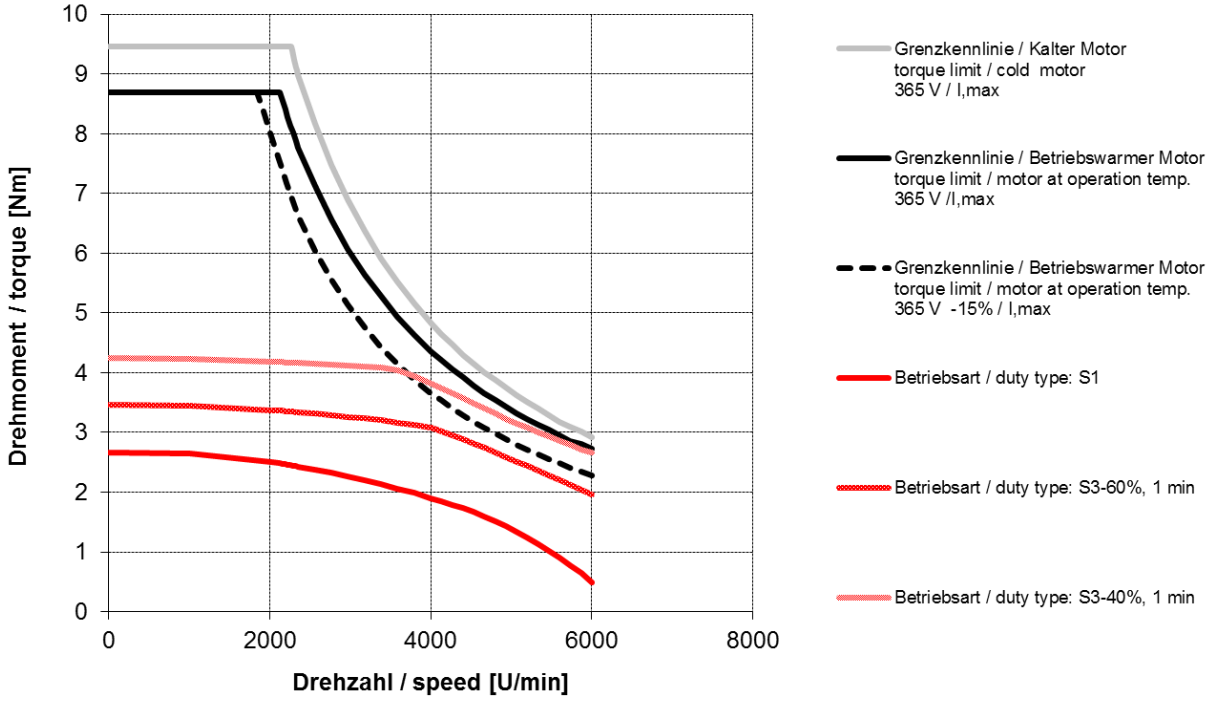
DSC1-045KO64U-20-54



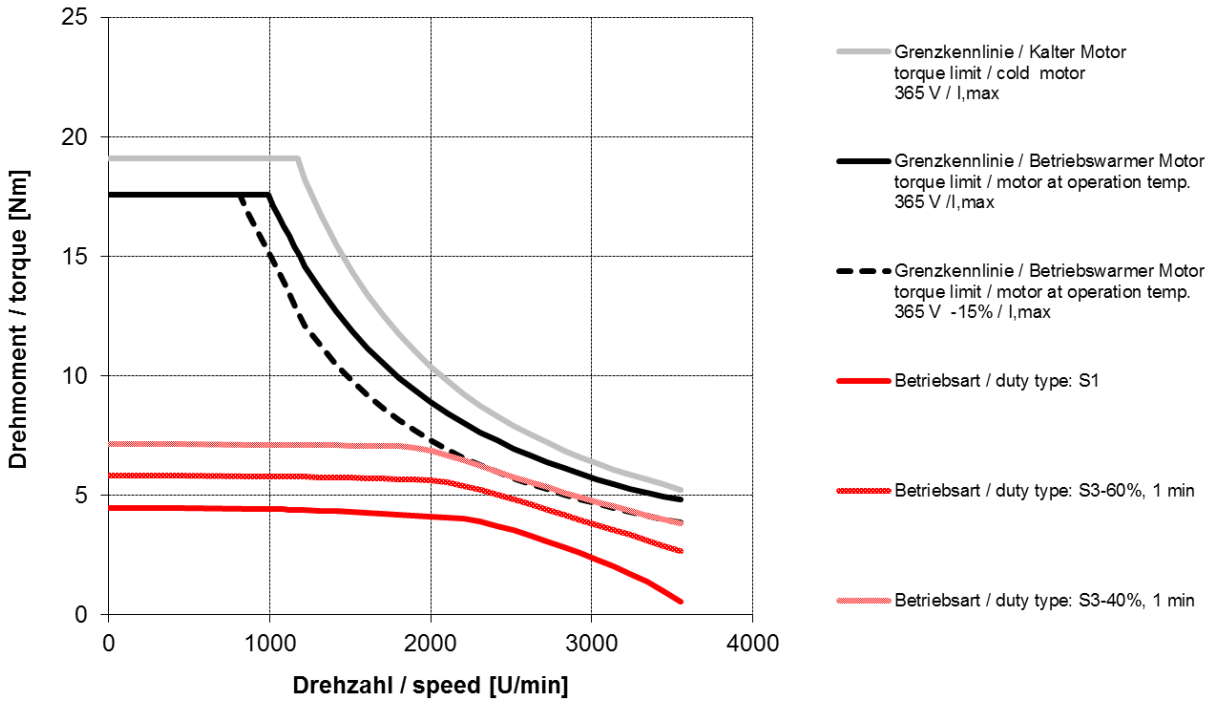
DSC1-045KO64U-30-54



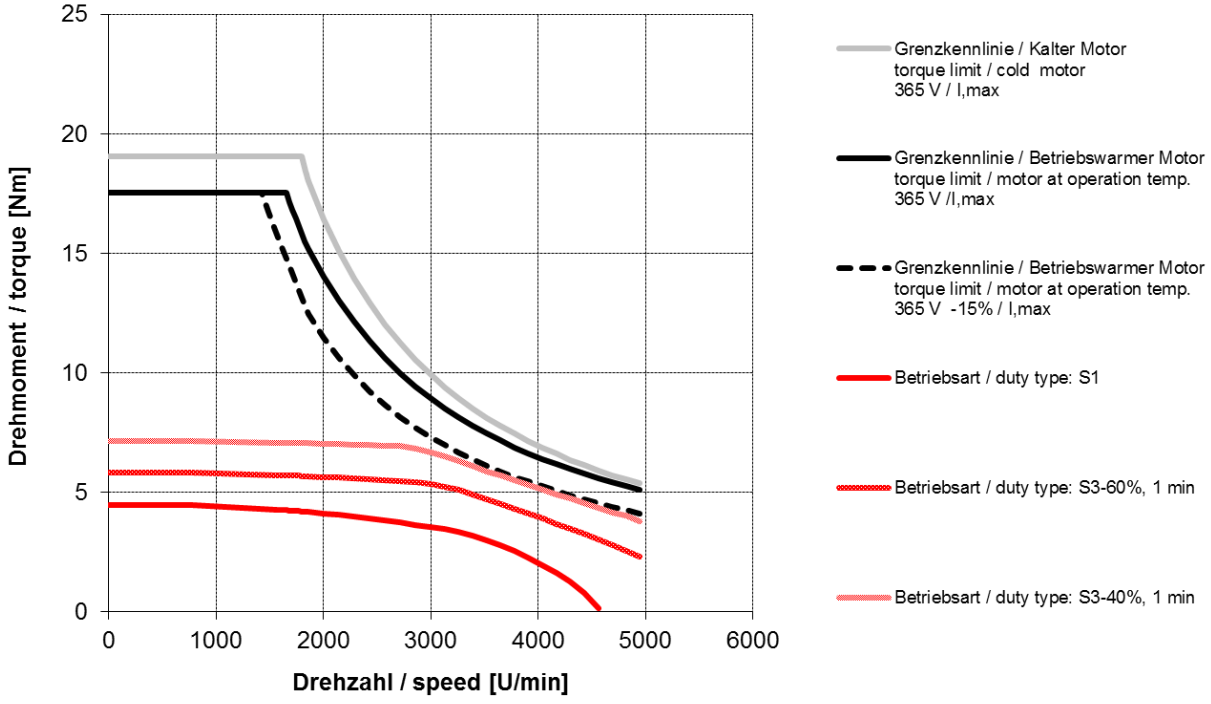
DSC1-045KO64U-40-54



DSC1-045SO64U-20-54



DSC1-045SO64U-30-54



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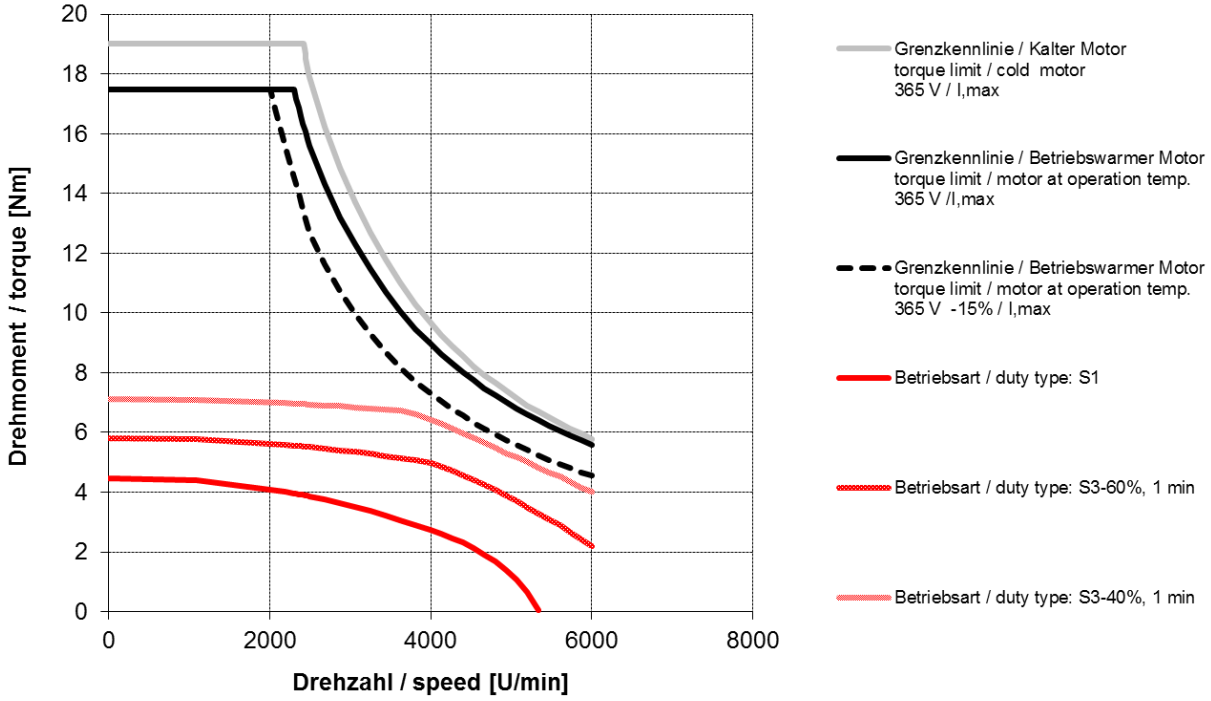

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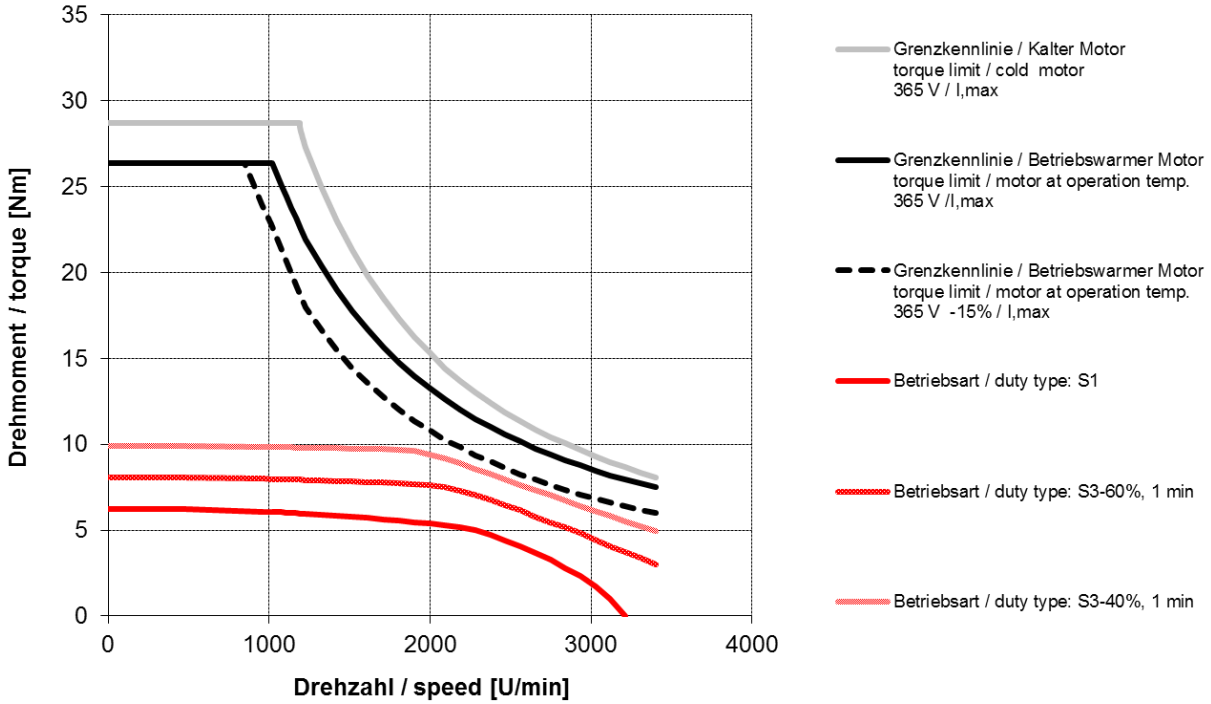

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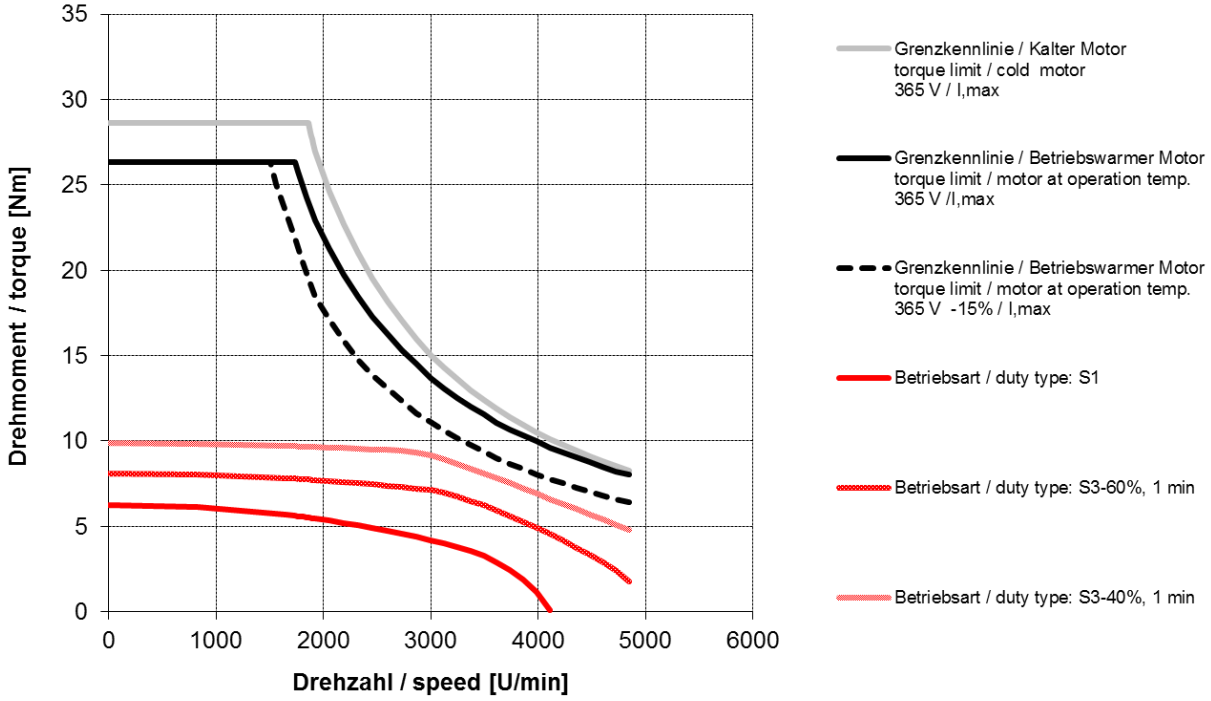

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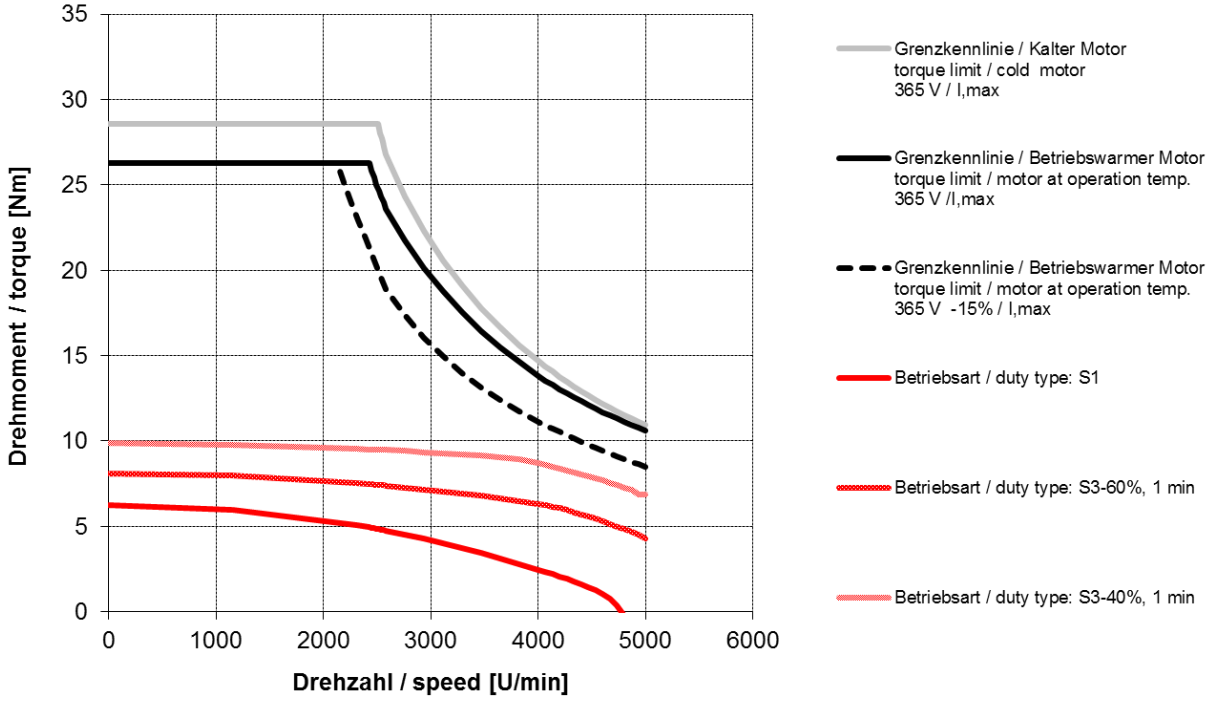

5.1.2. DSC1-045..64W-.. (wassergekühlt)

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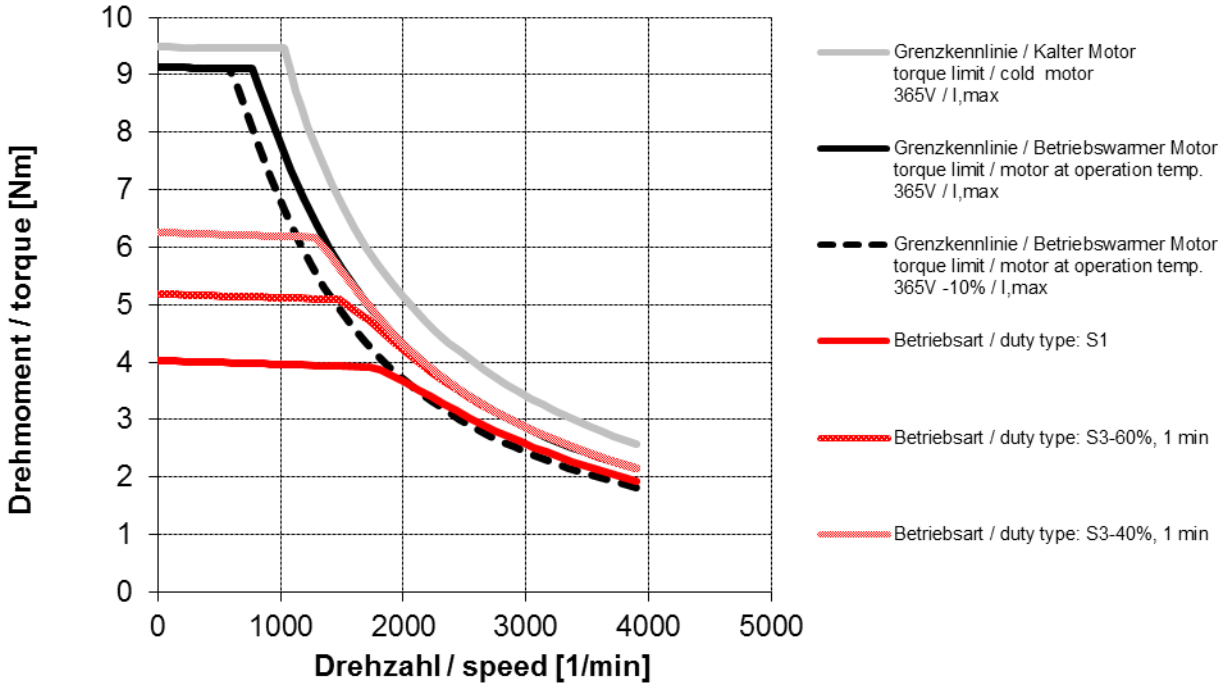

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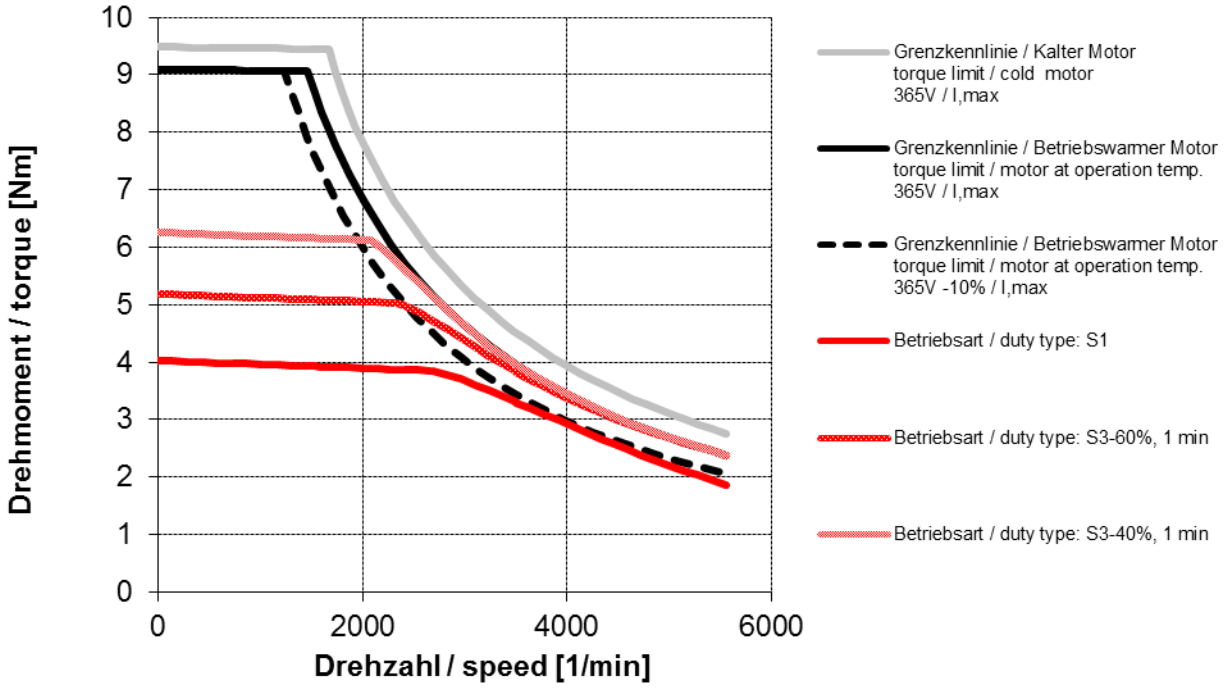

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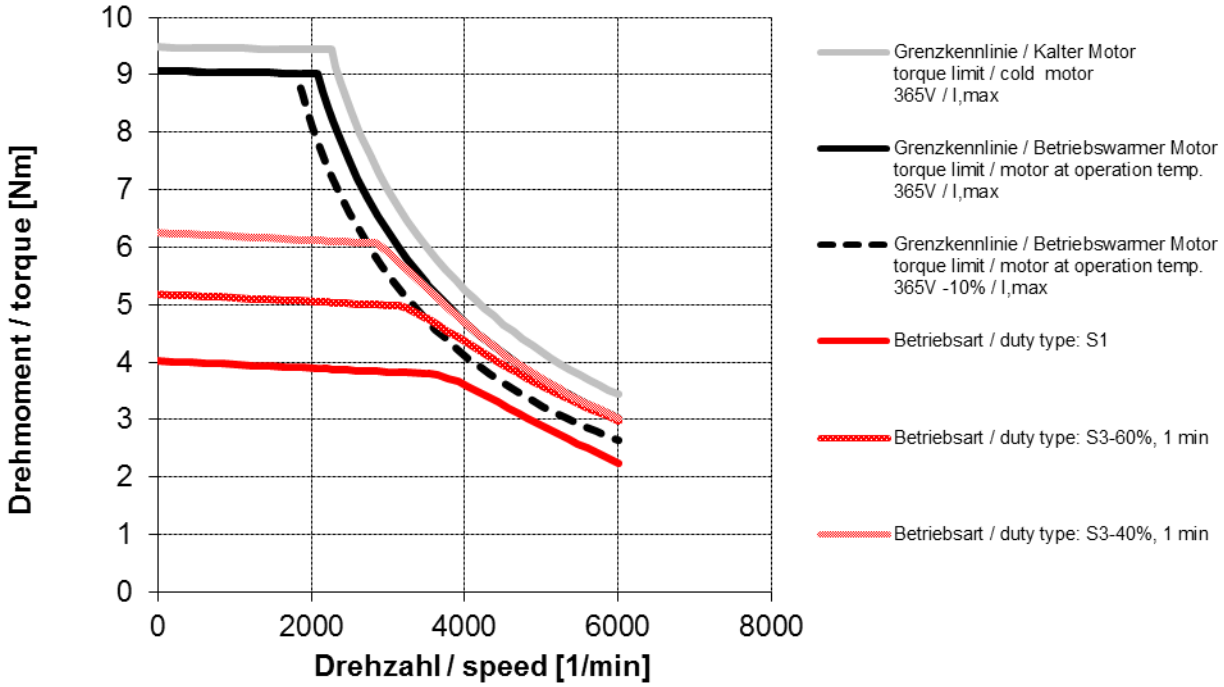

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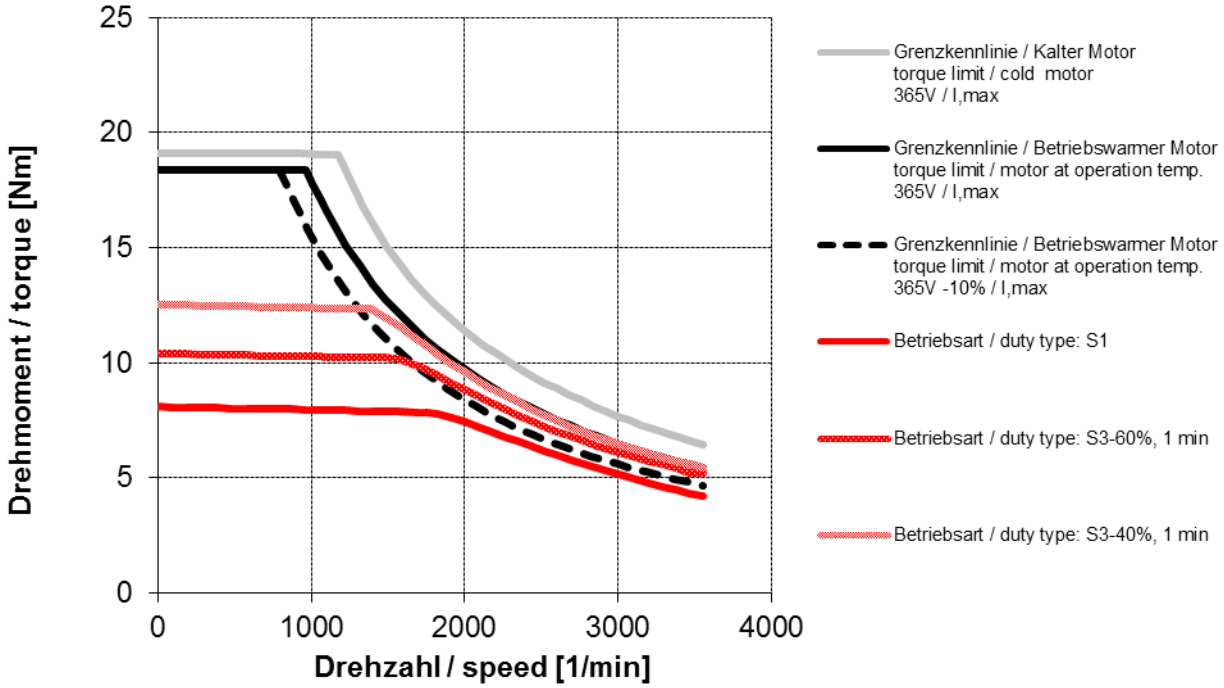

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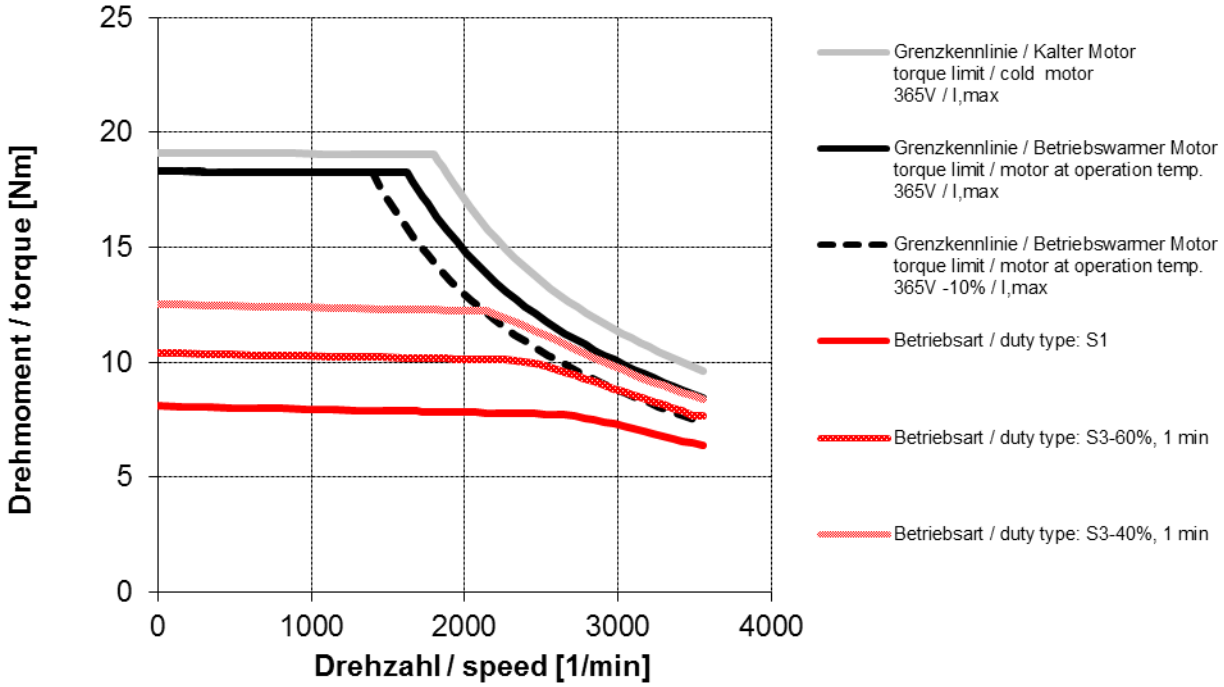

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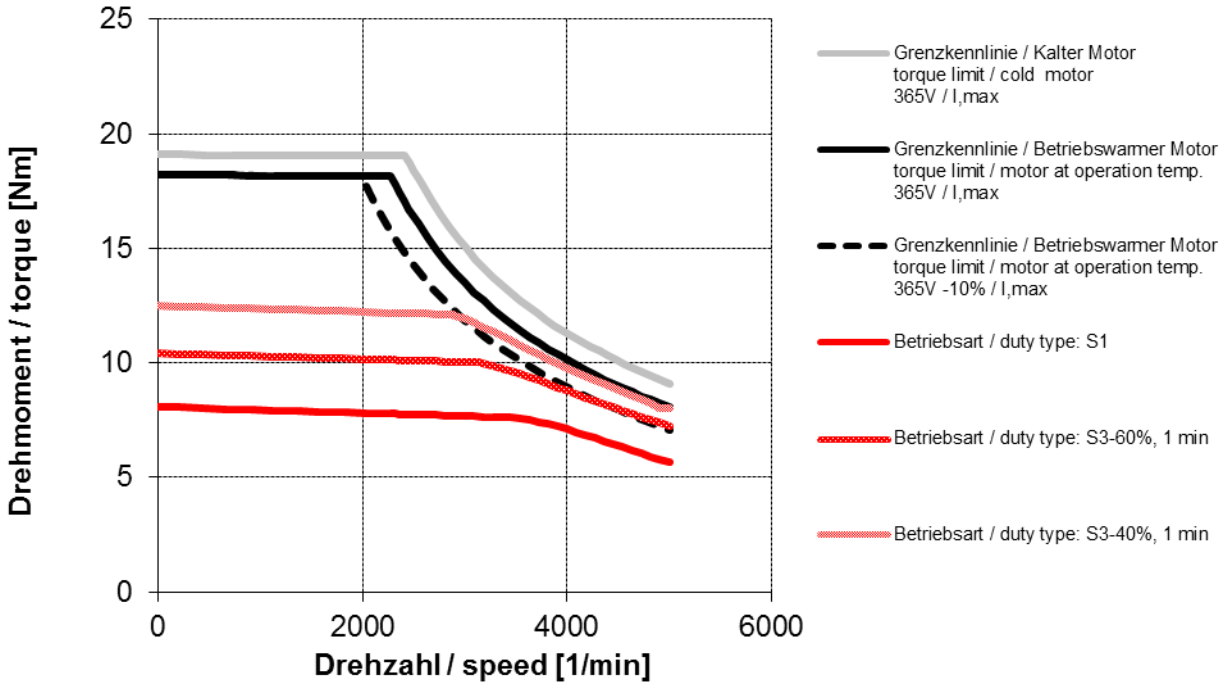

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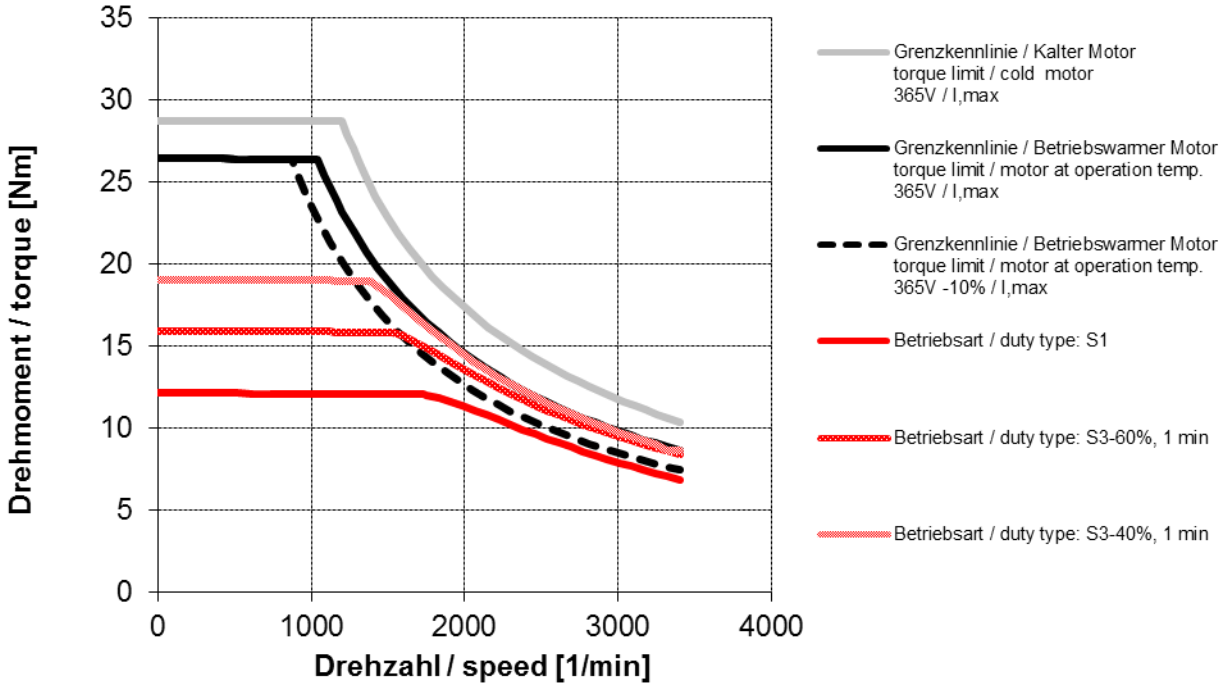

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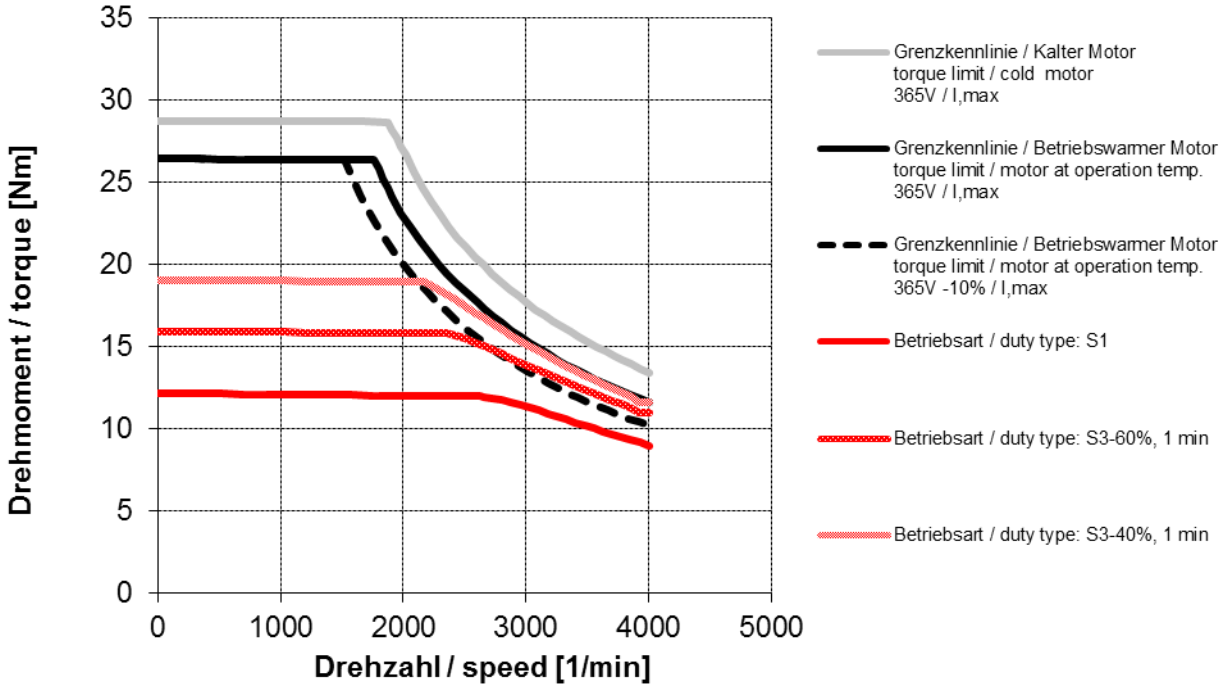

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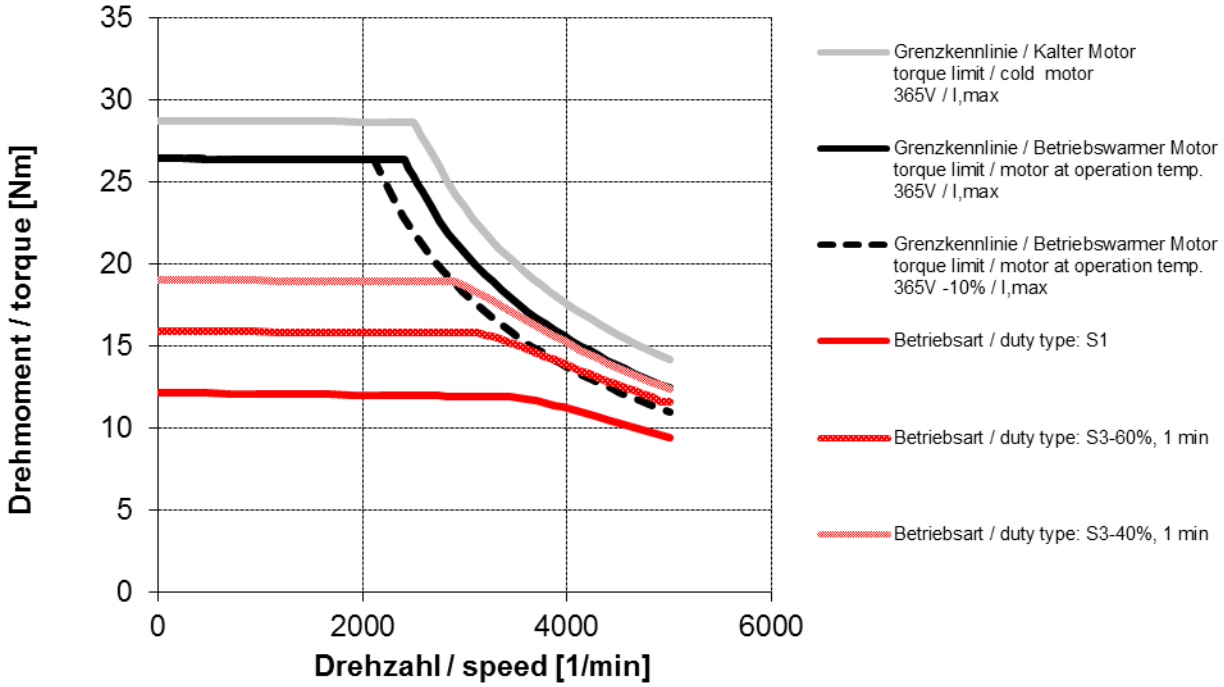
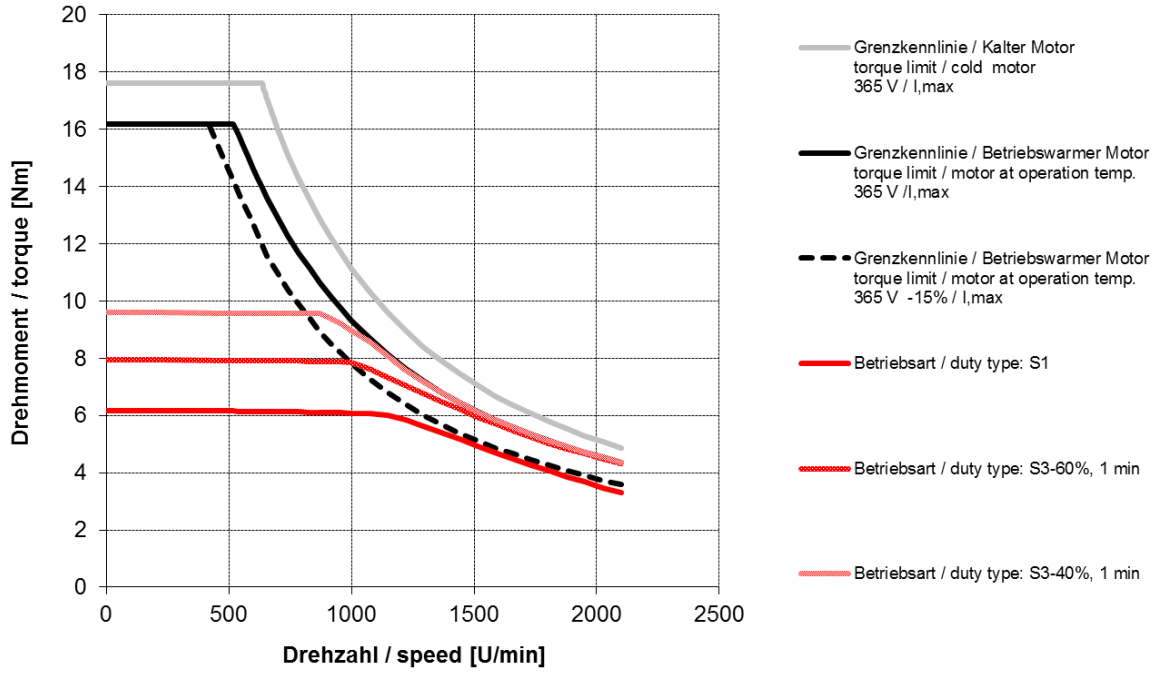


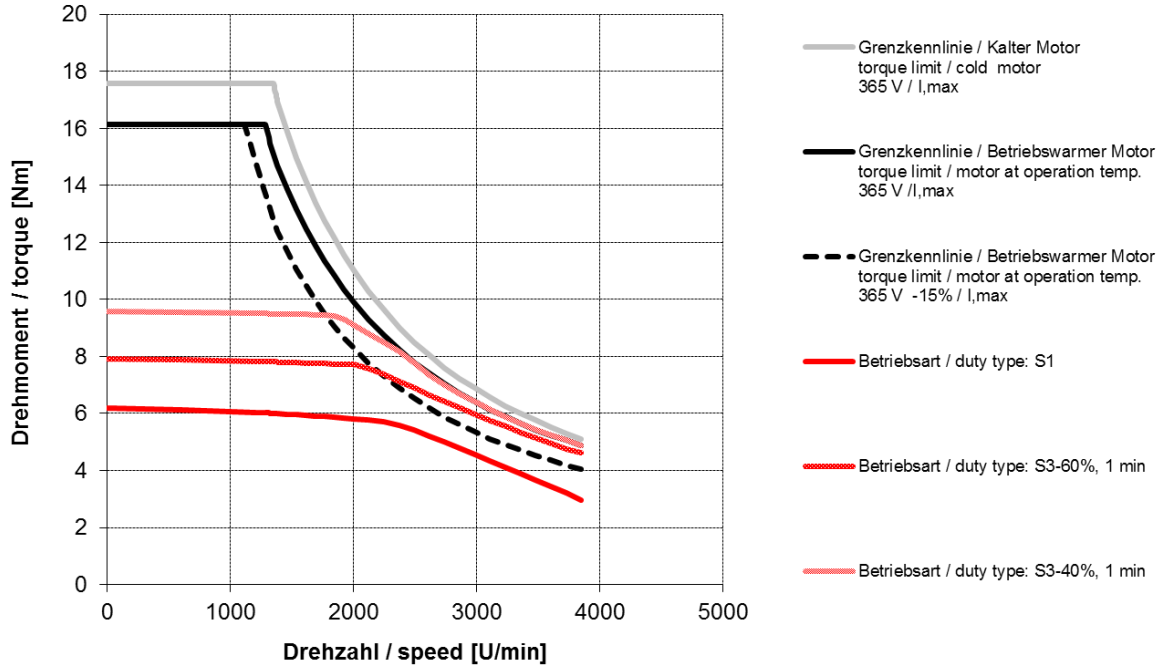
5.2. Characteristic curves DSC1-056

5.2.1. DSC1-056..64U..

DSC1-056KO64U-10-54



DSC1-056KO64U-20-54



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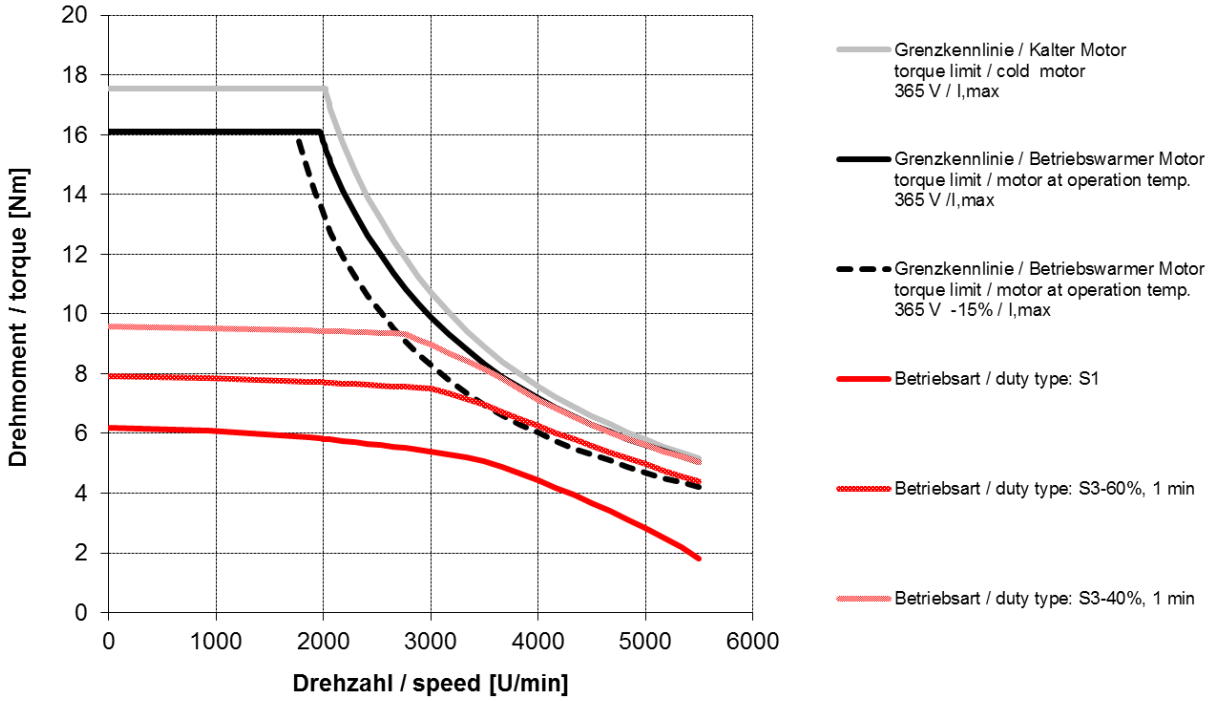

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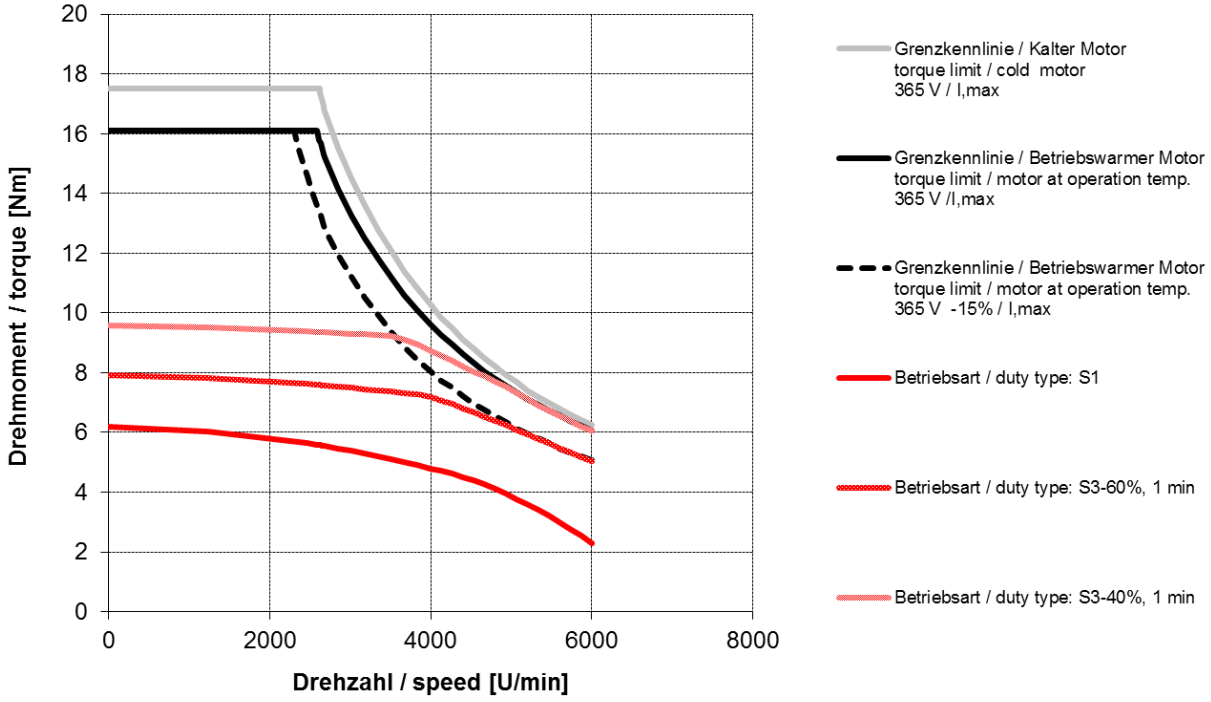

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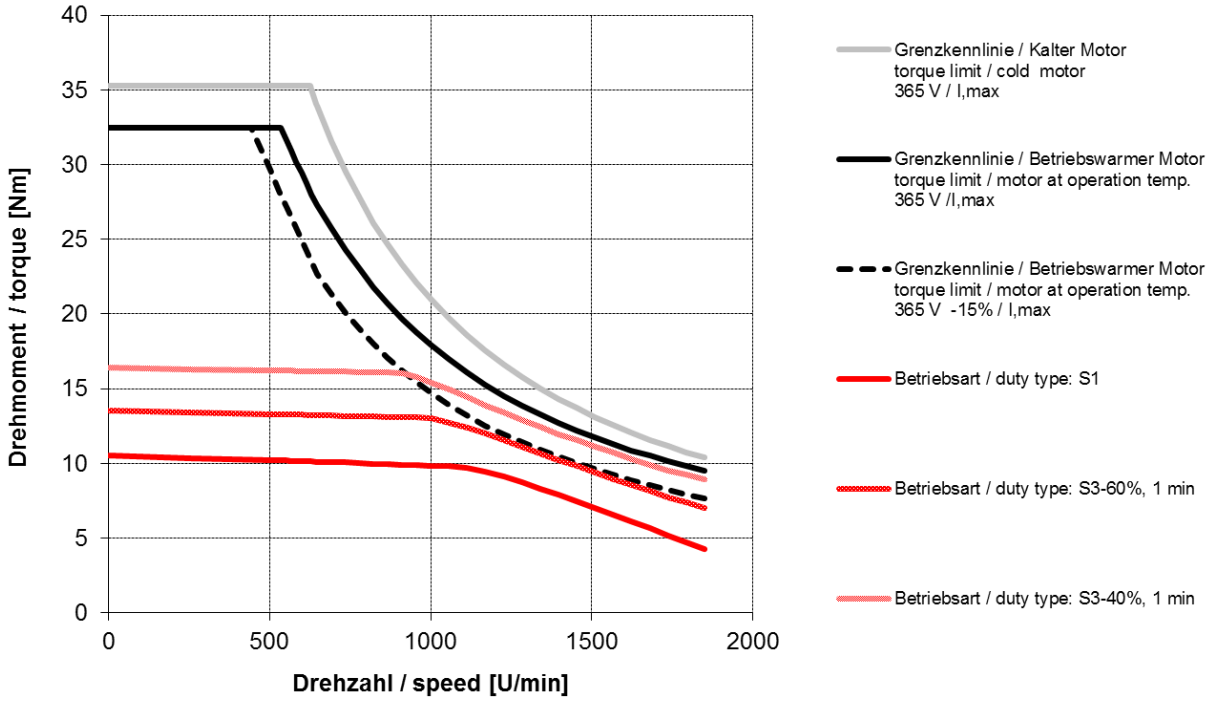

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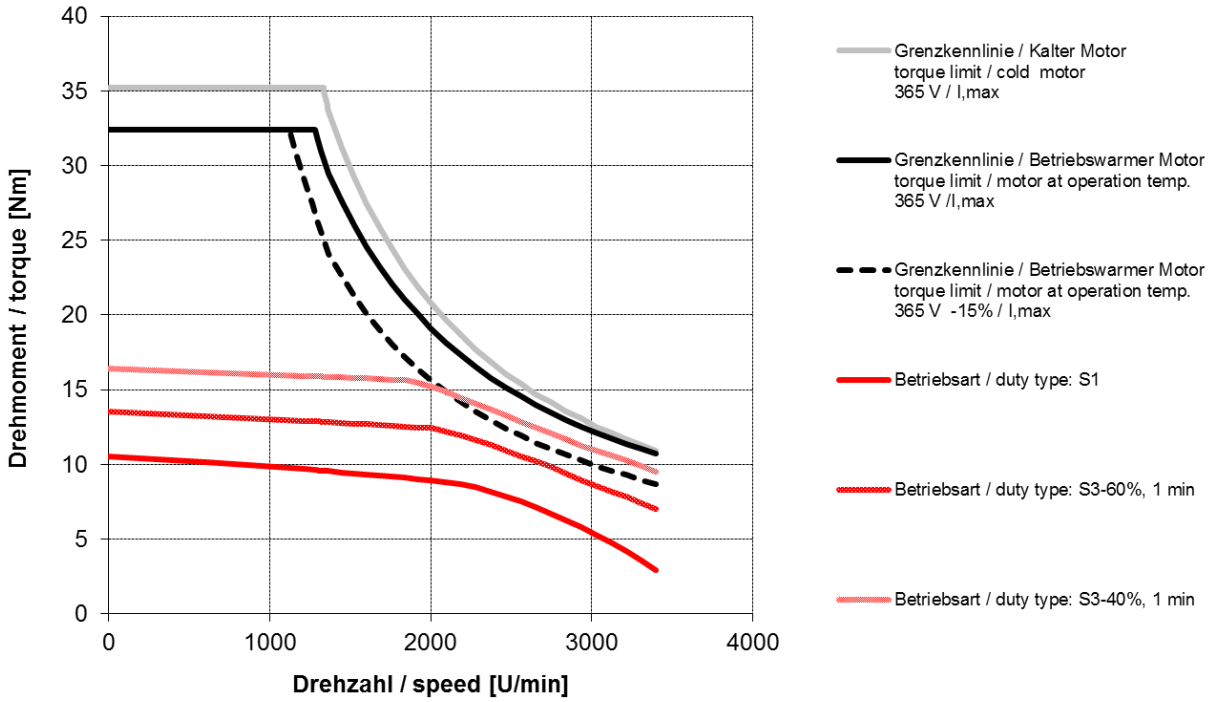

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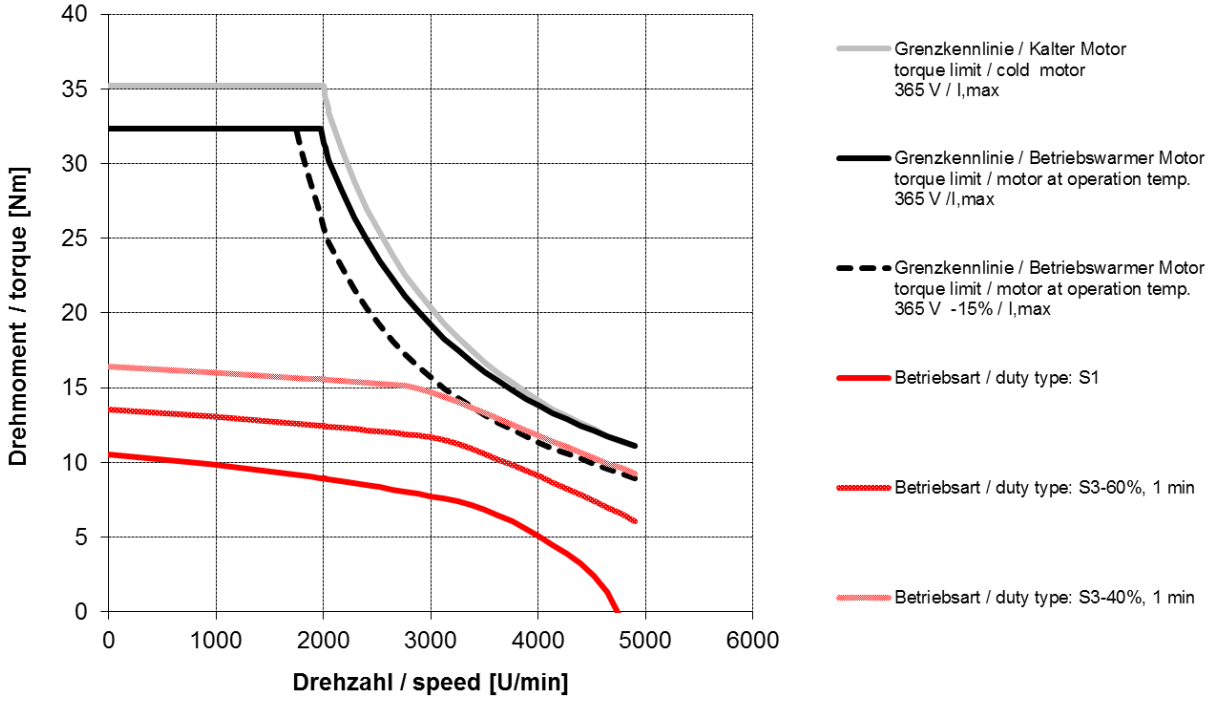

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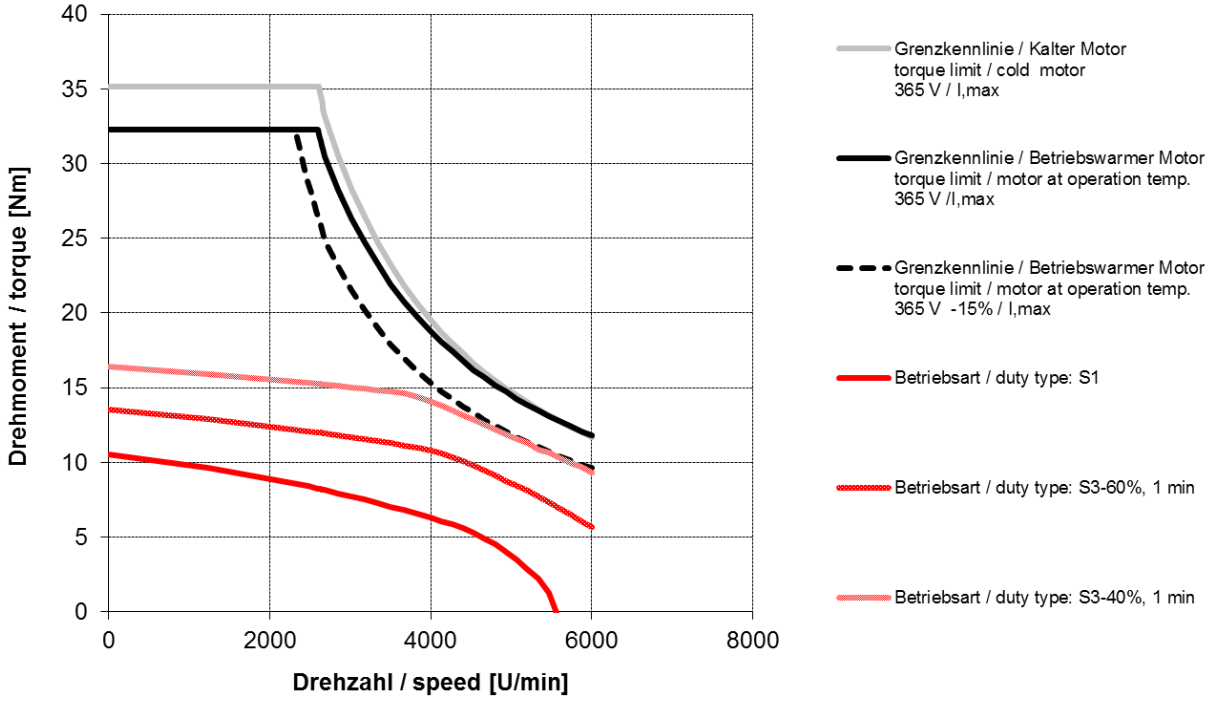

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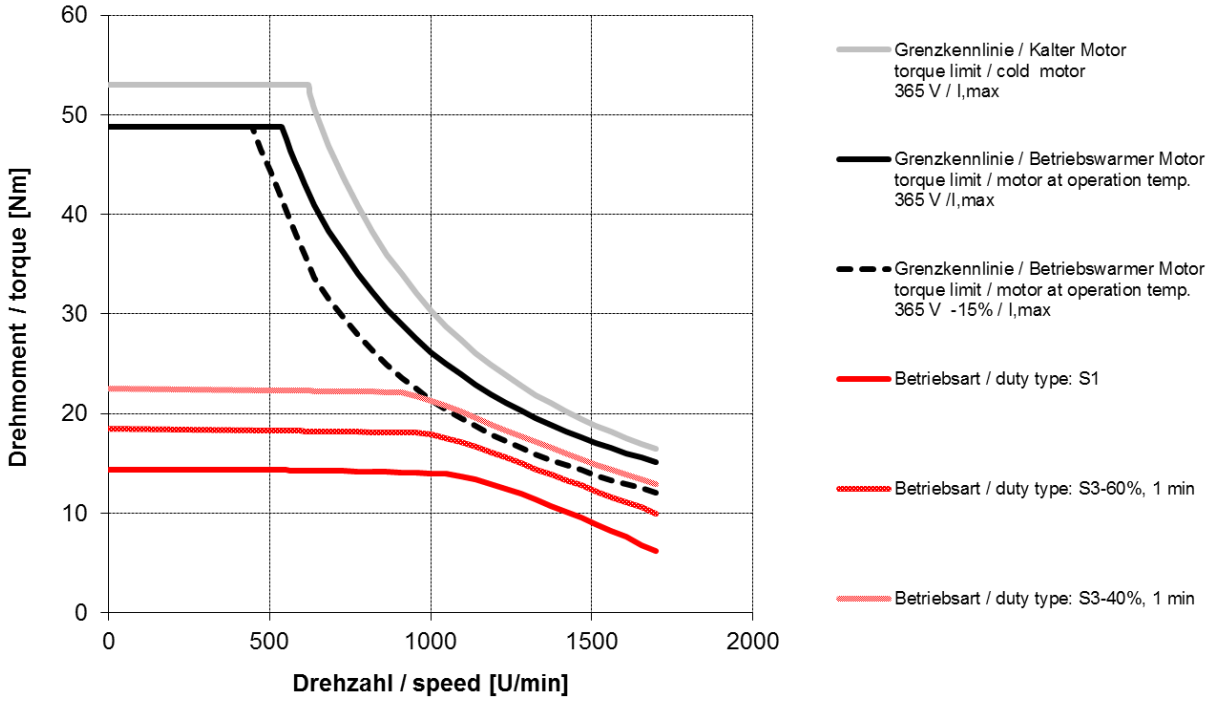

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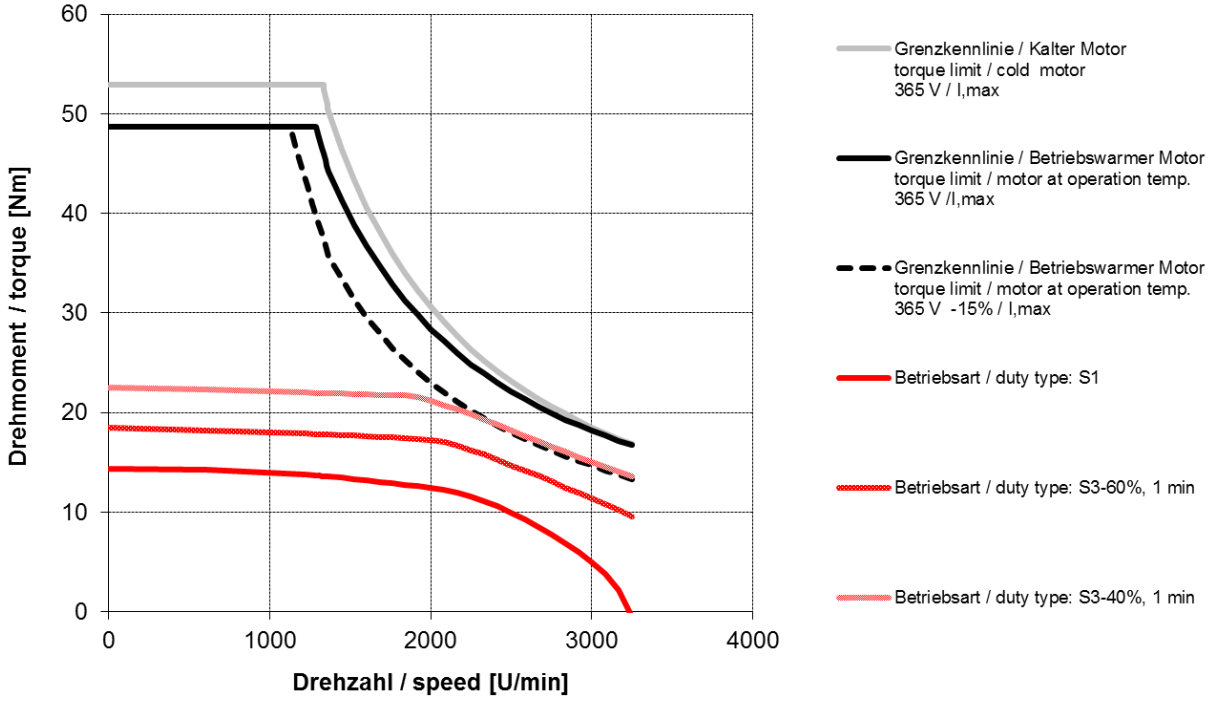

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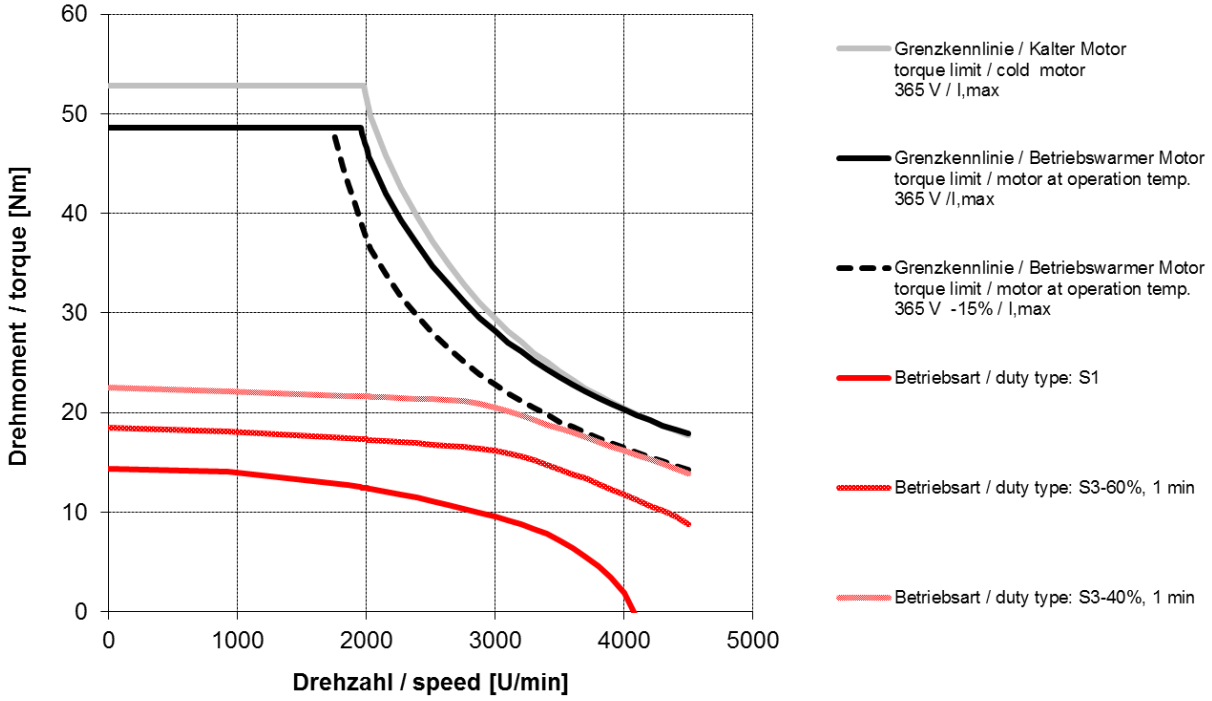
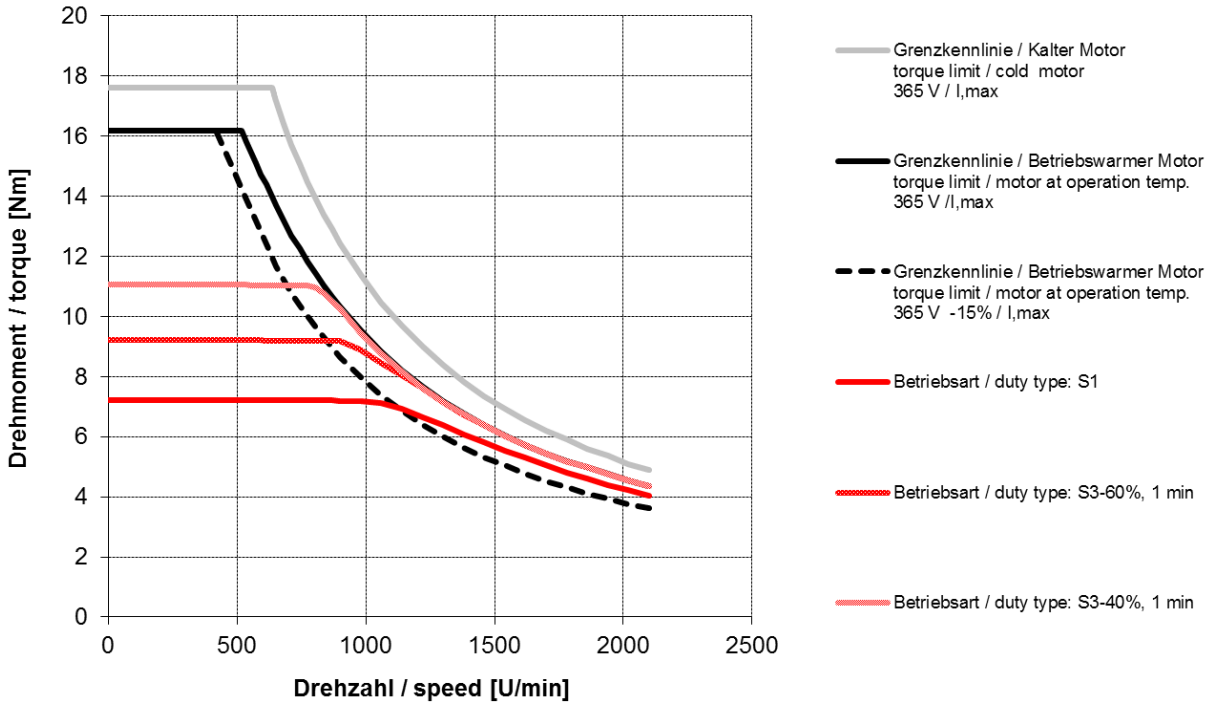
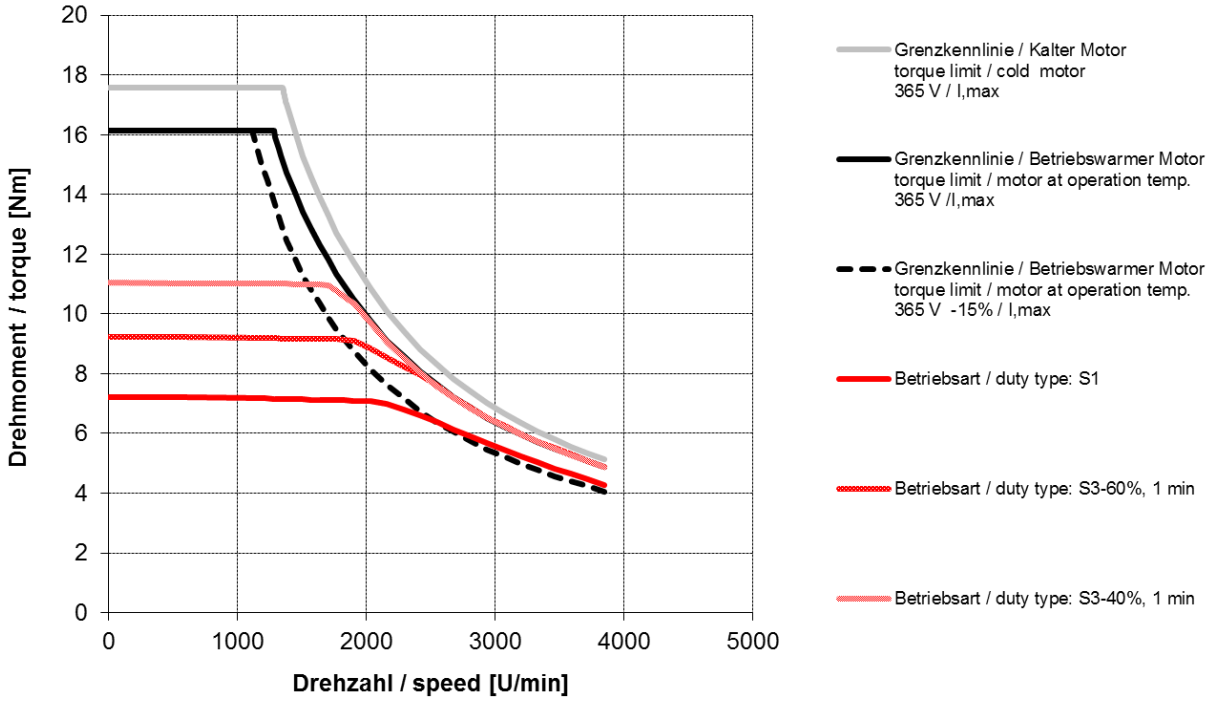


5.2.2. DSC1-056..64O..

DSC1-056KO64O-10-54



DSC1-056KO64O-20-54



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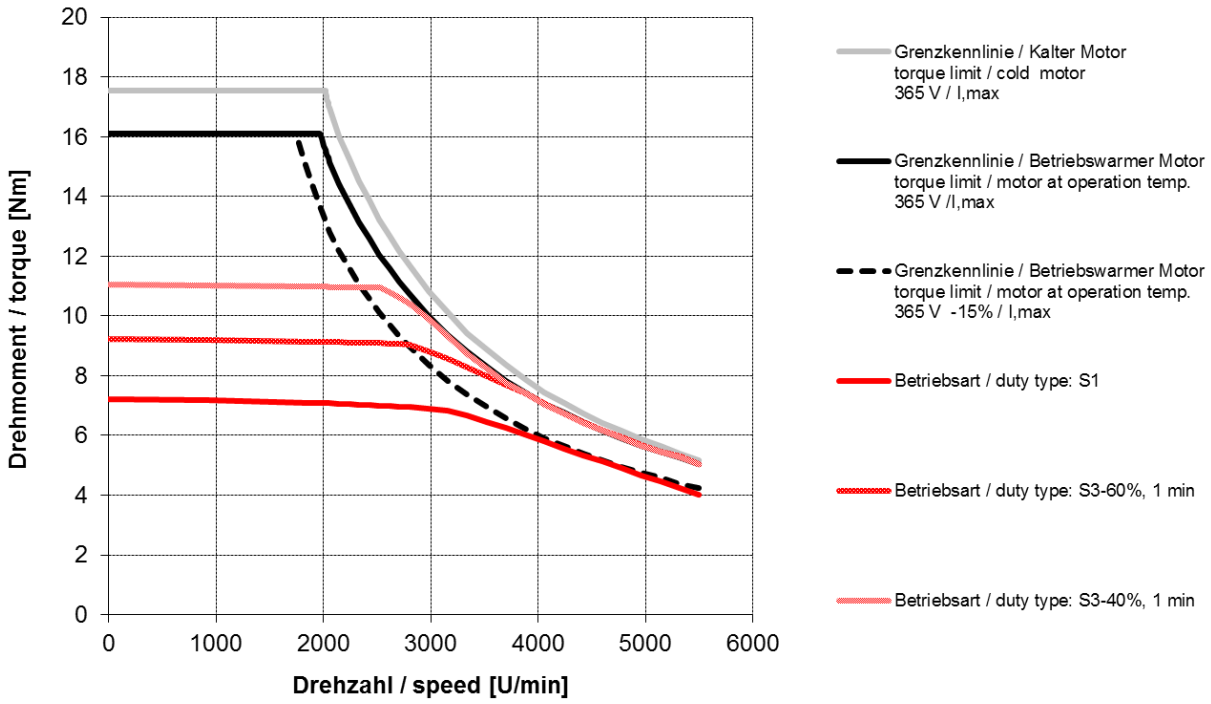

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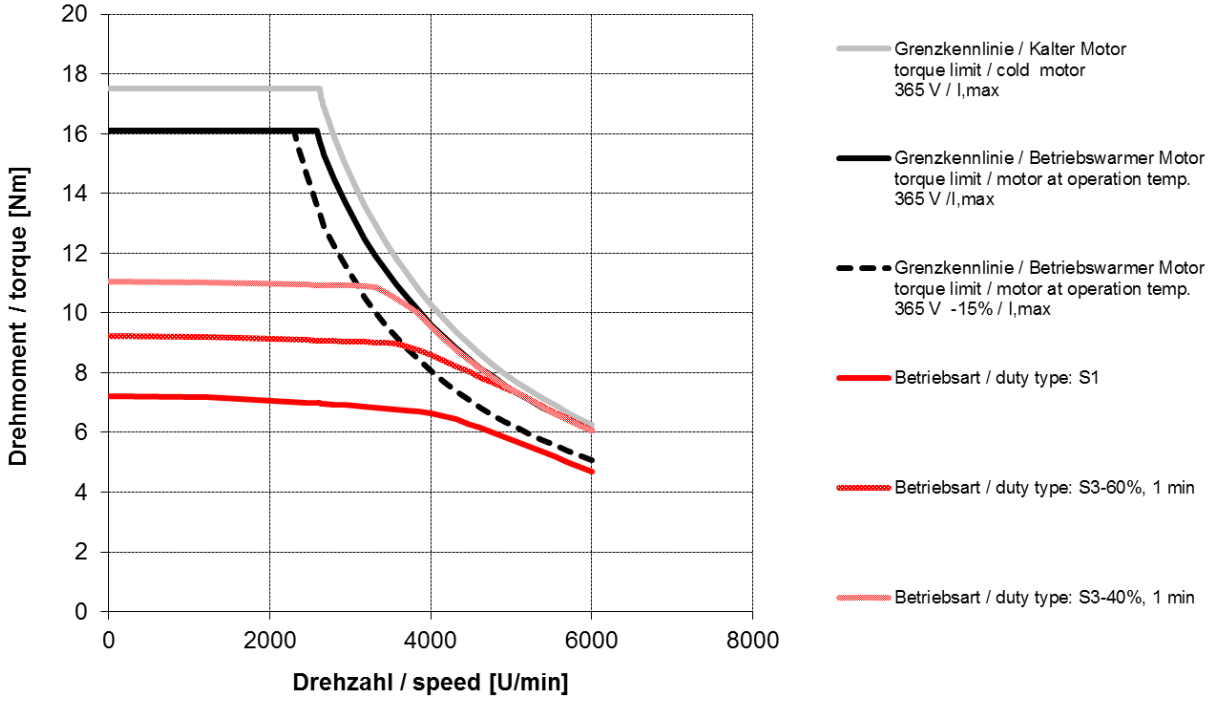

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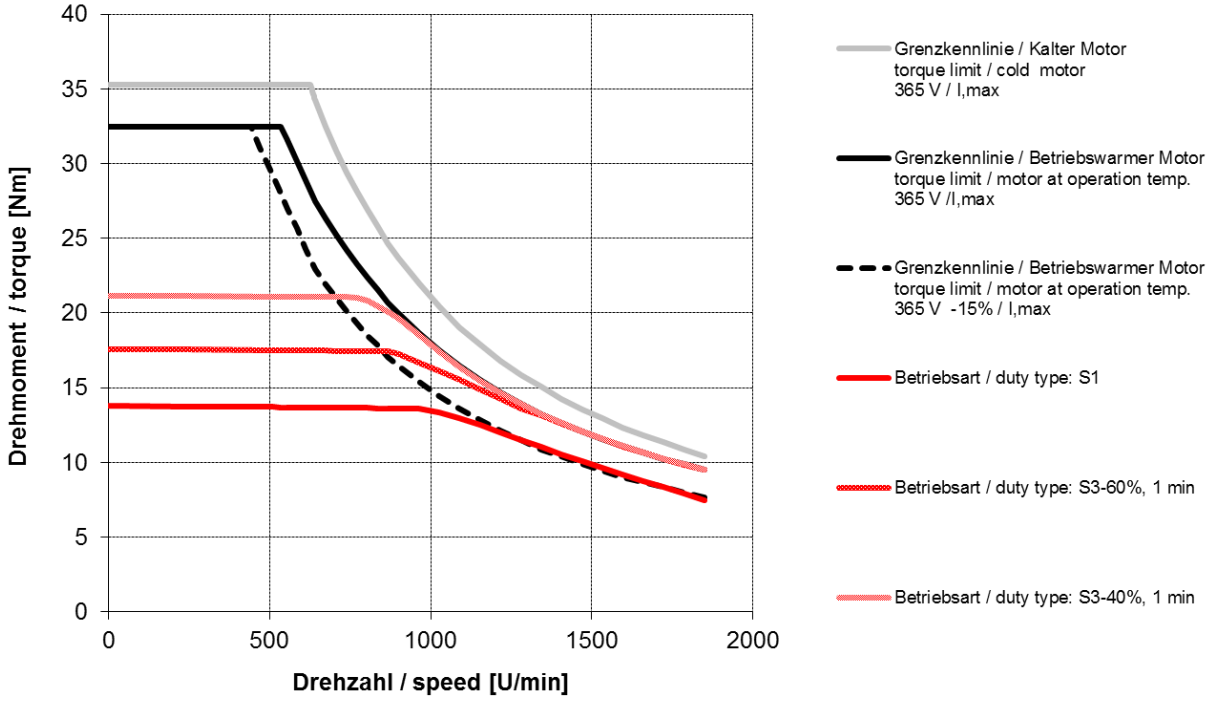

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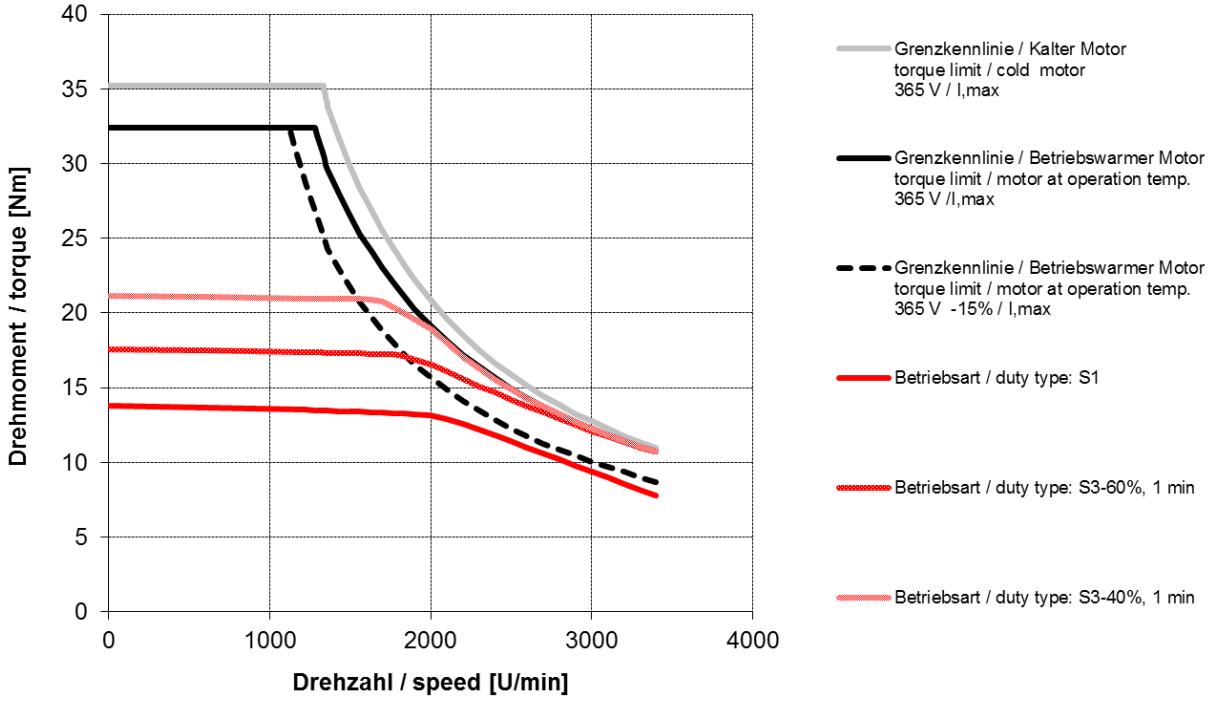
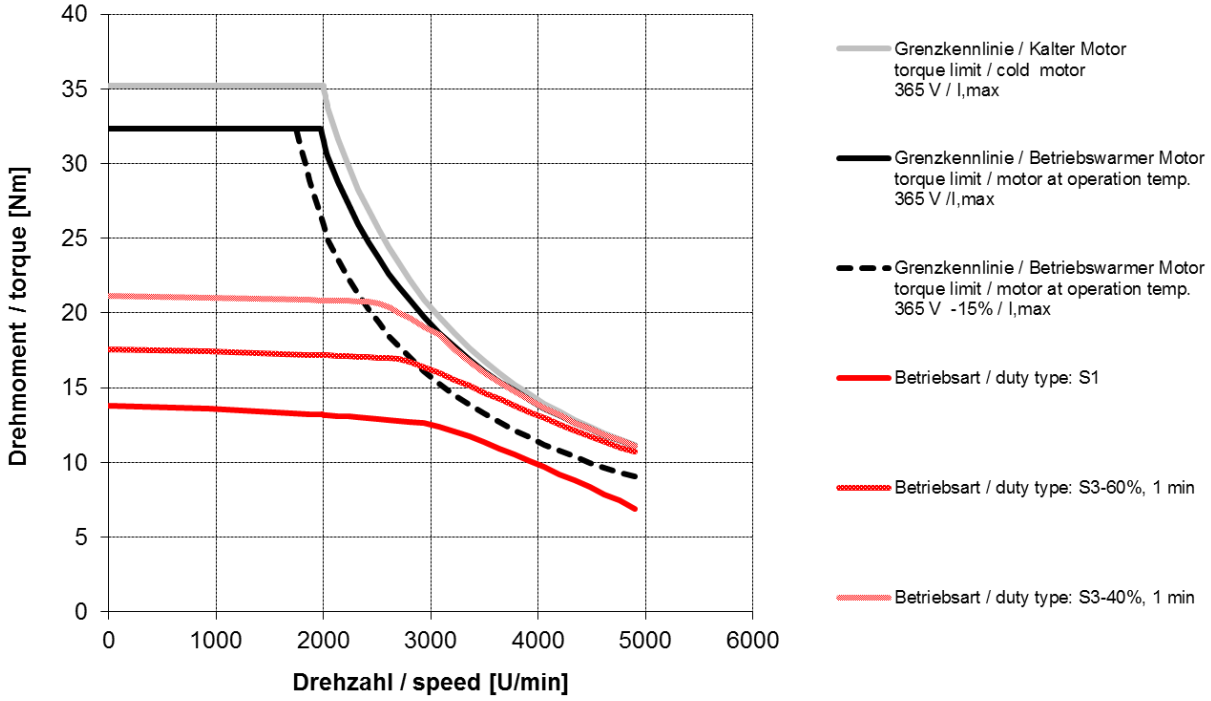


DSC1-056SO64O-30-54



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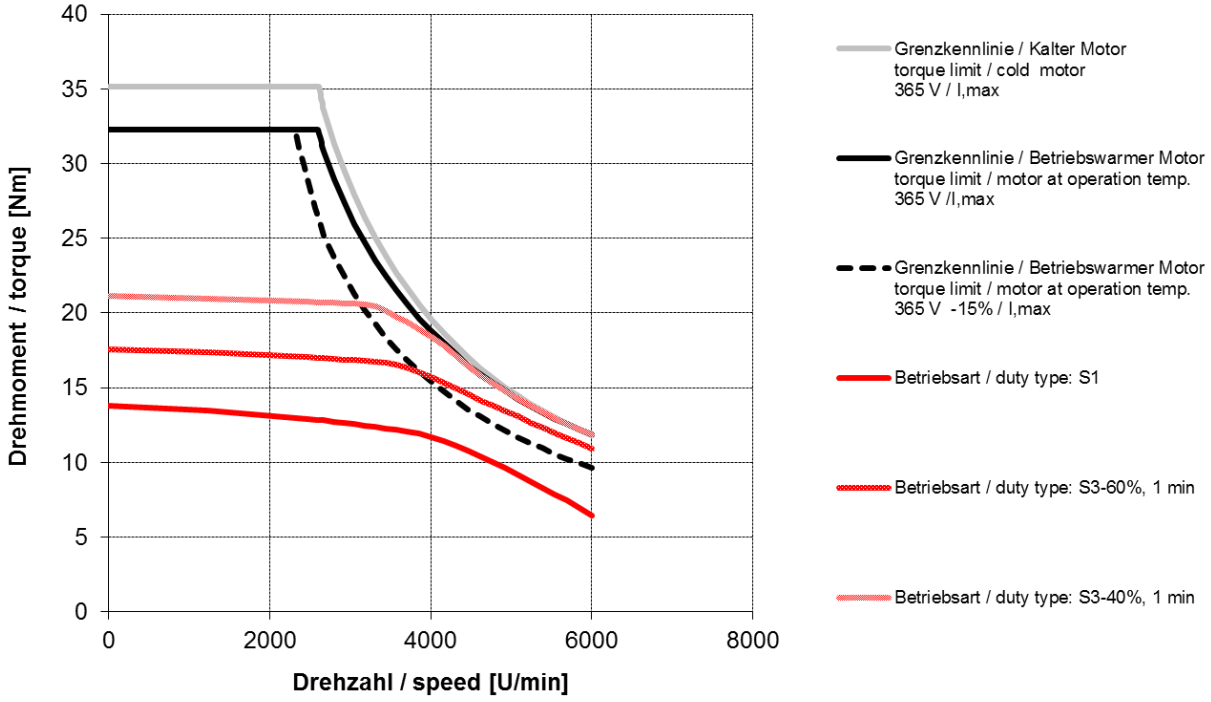
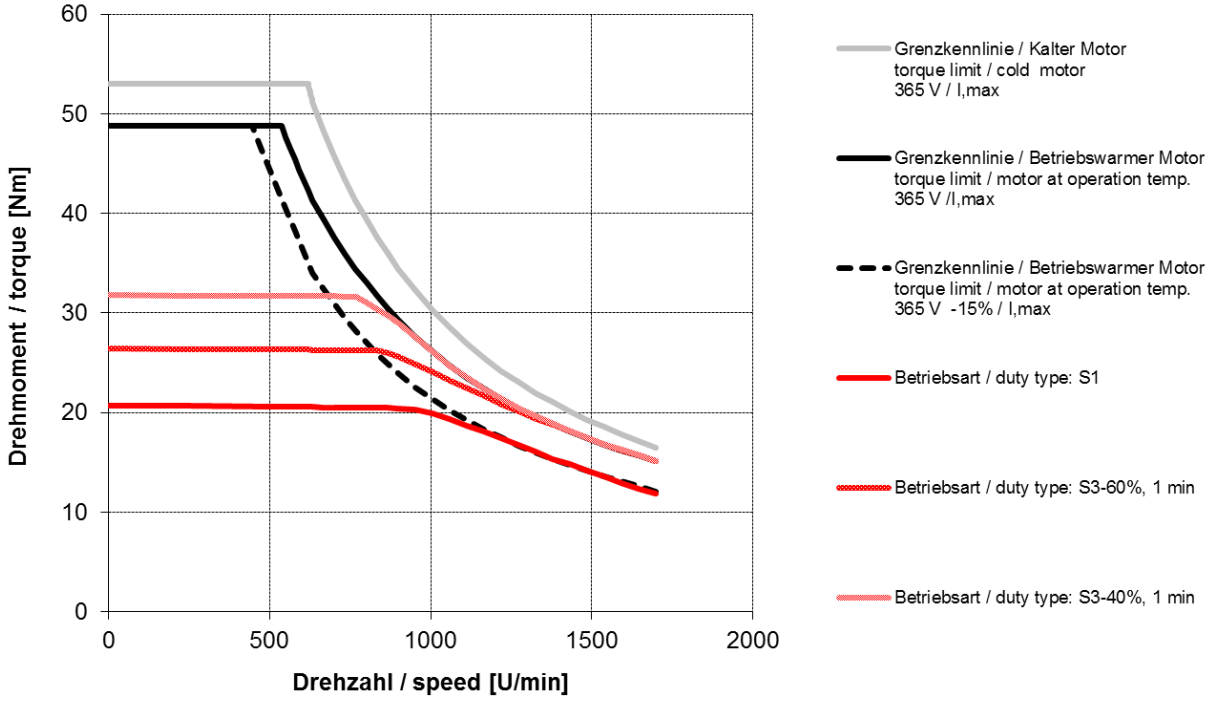
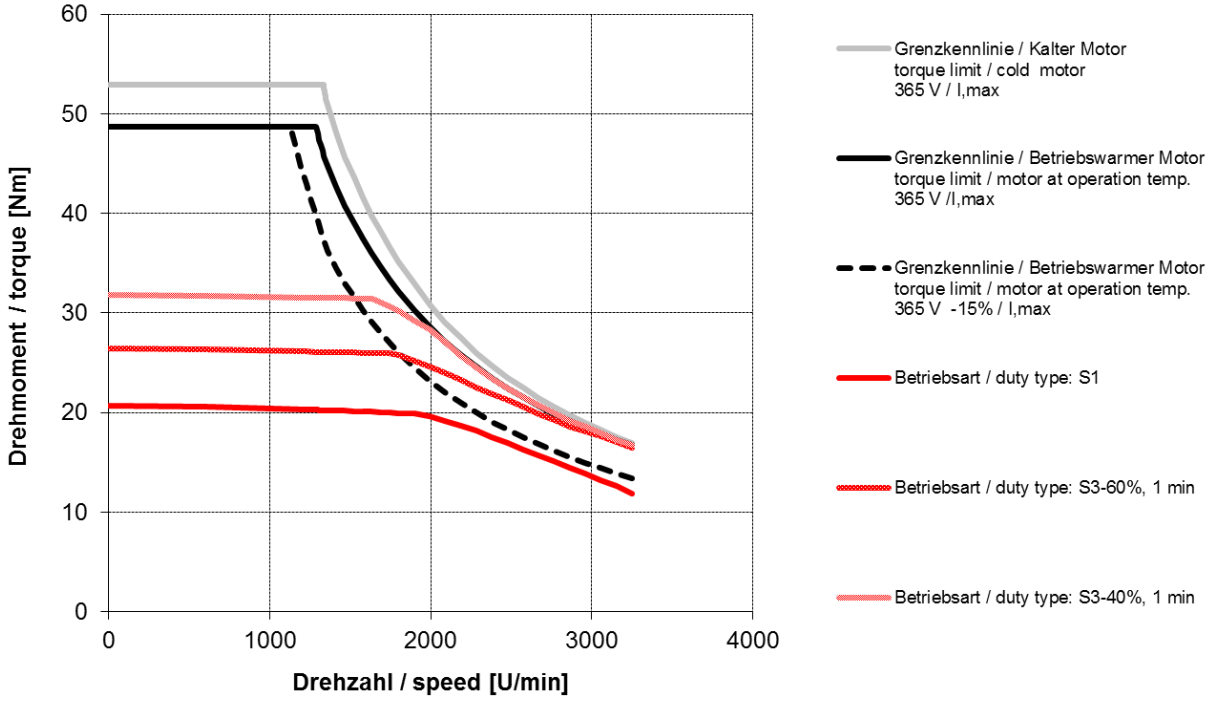


DSC1-056MO64O-10-54



DSC1-056MO64O-20-54



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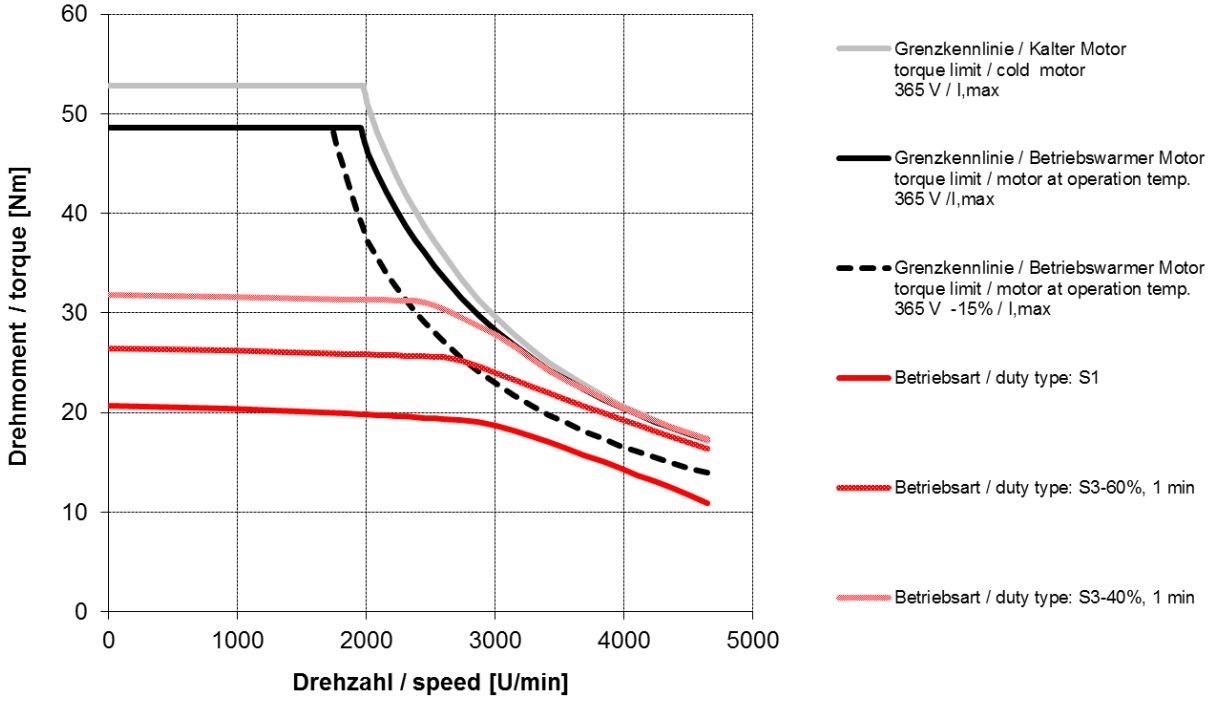
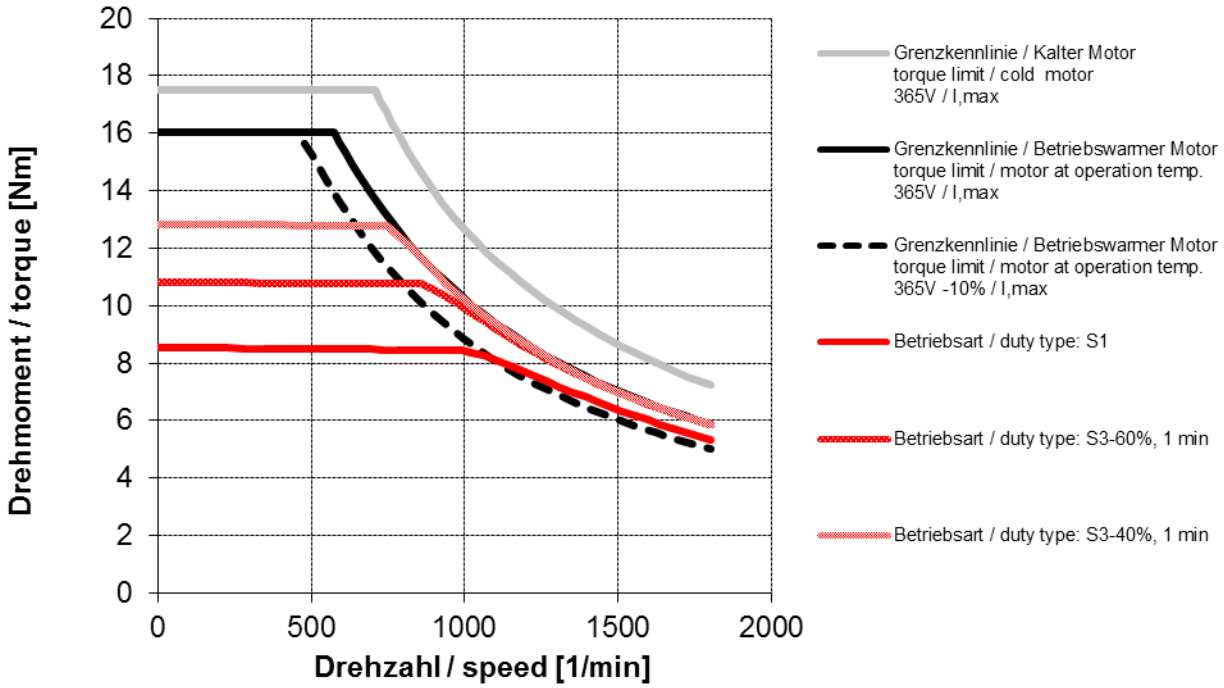
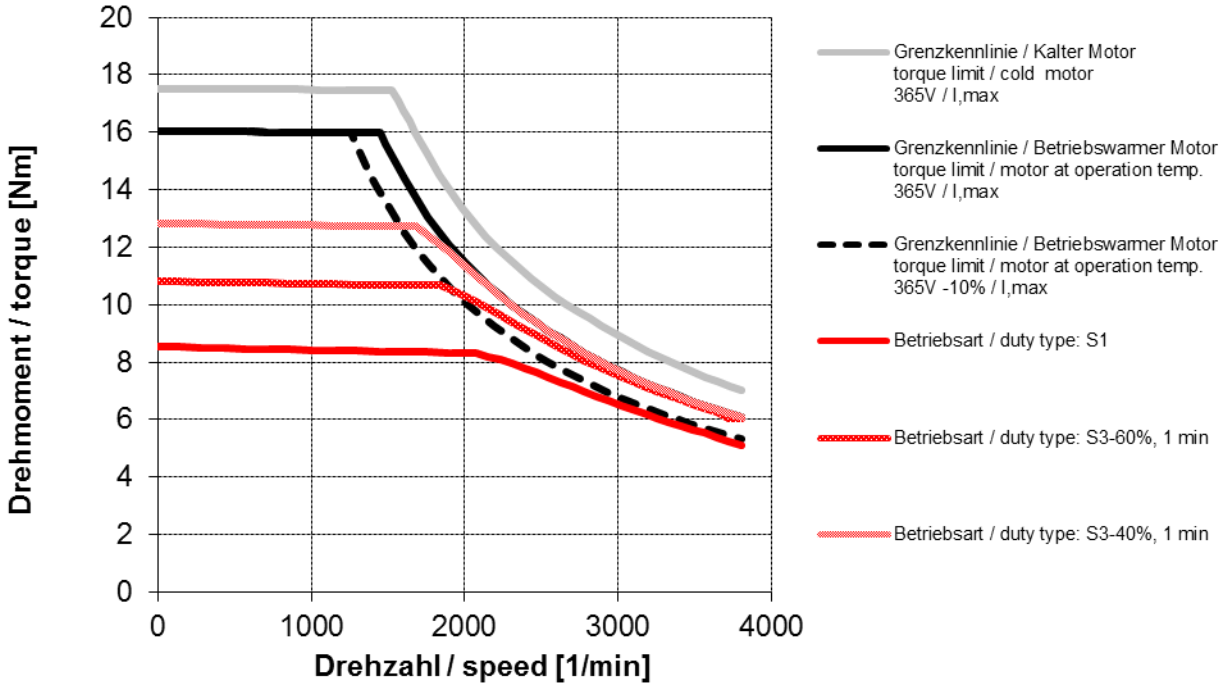


5.2.3. DSC1-056..64W-.. (watercooled)

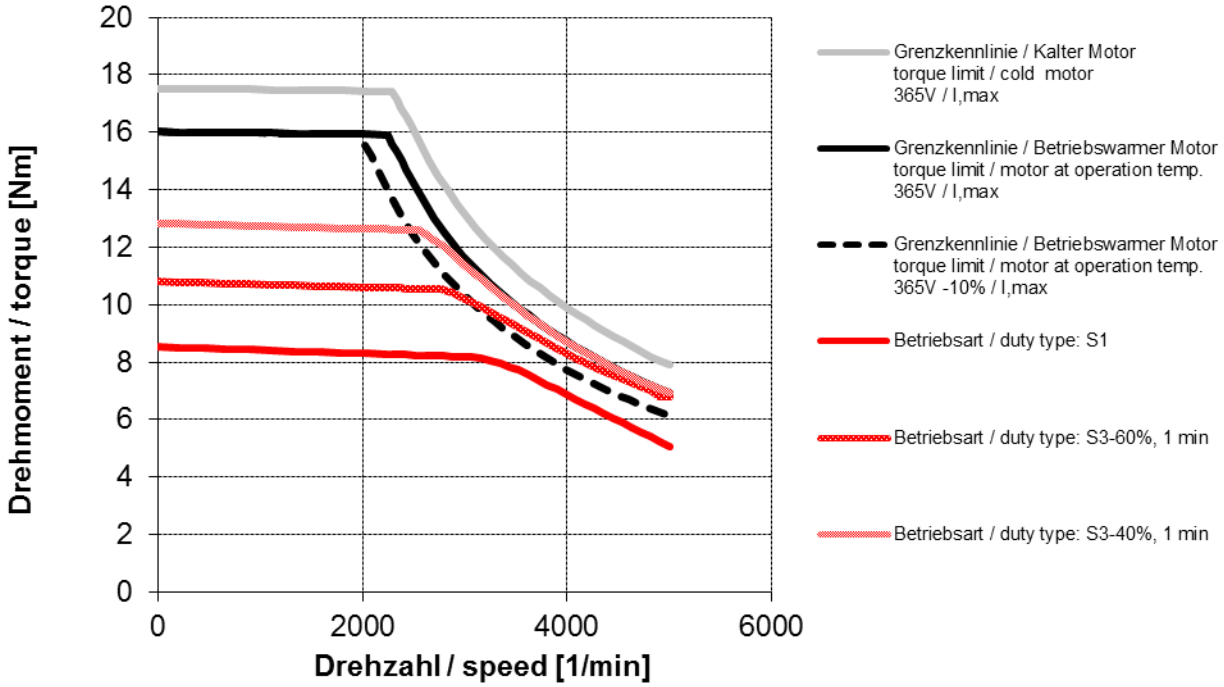
DSC1-056KO64W-10-54



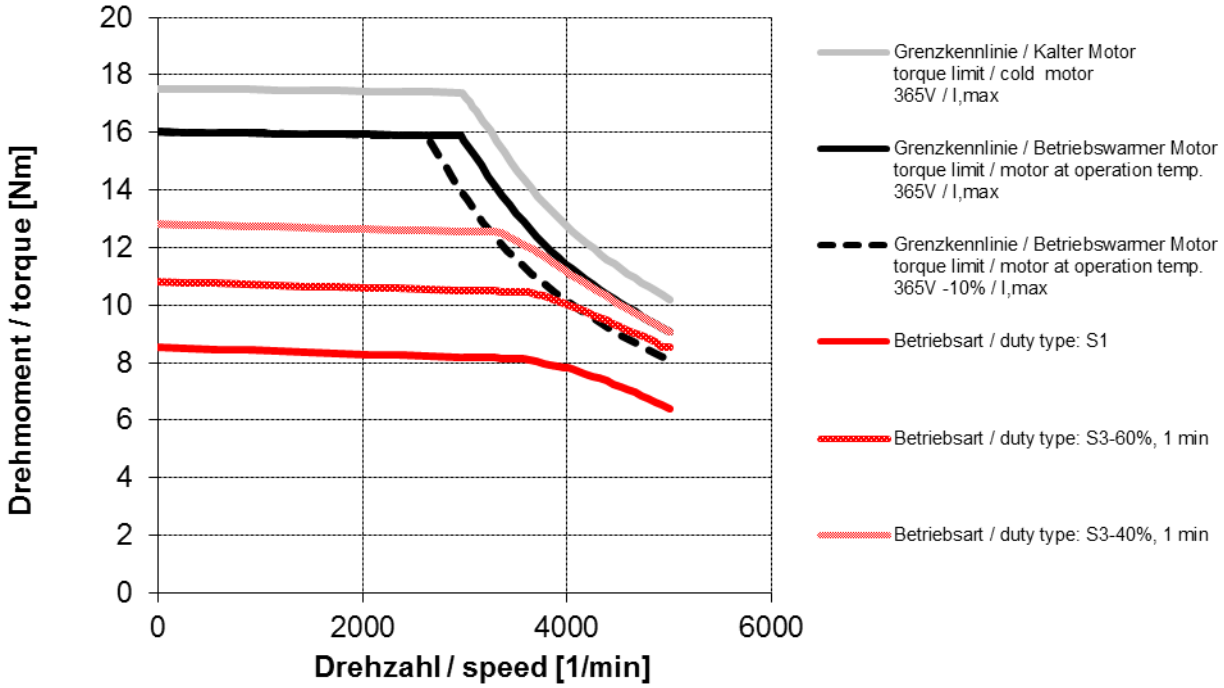
DSC1-056KO64W-20-54



DSC1-056KO64W-30-54



DSC1-056KO64W-40-54



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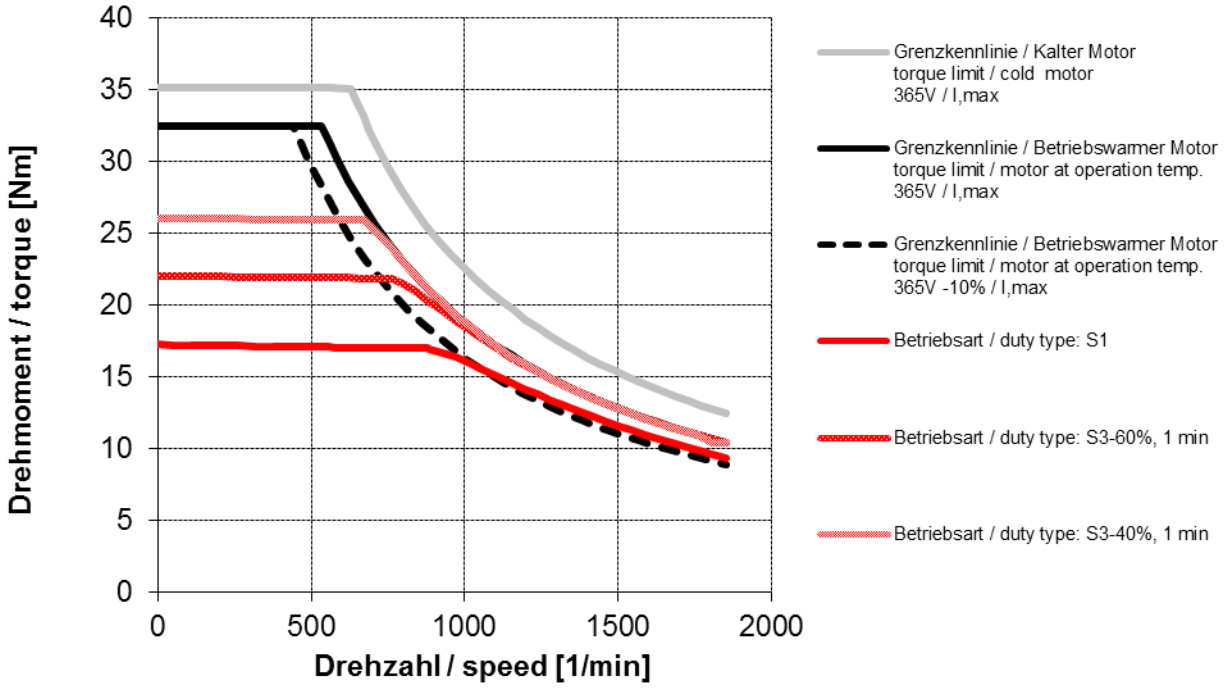

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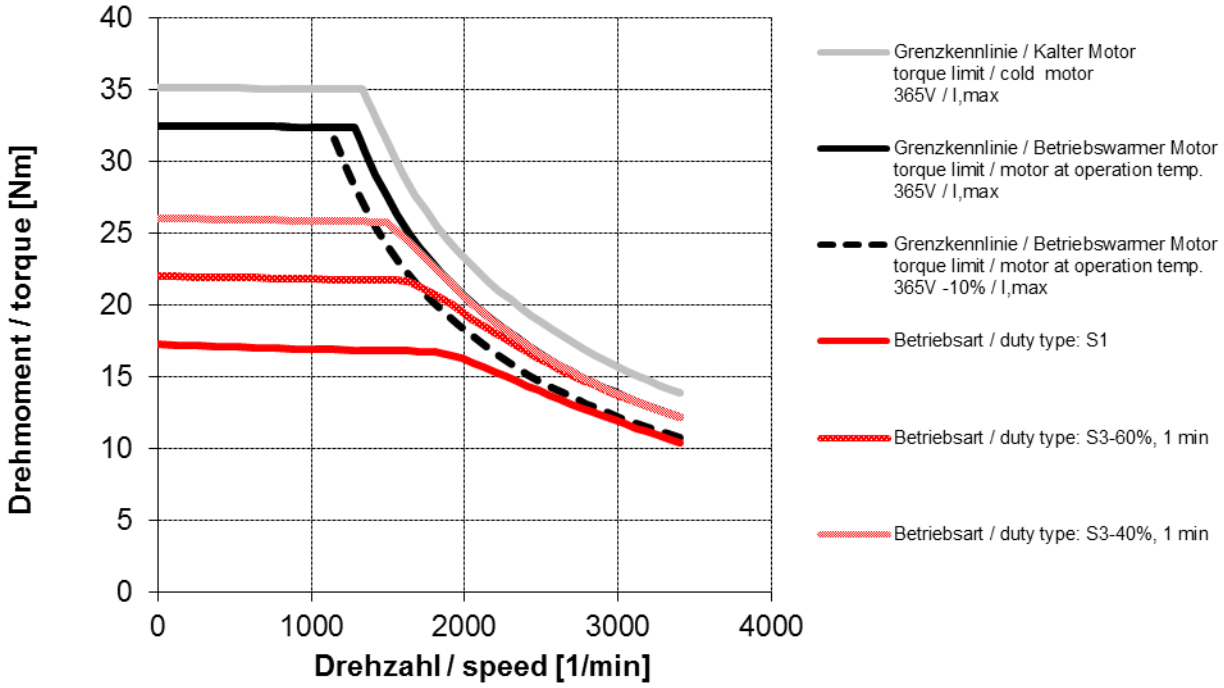
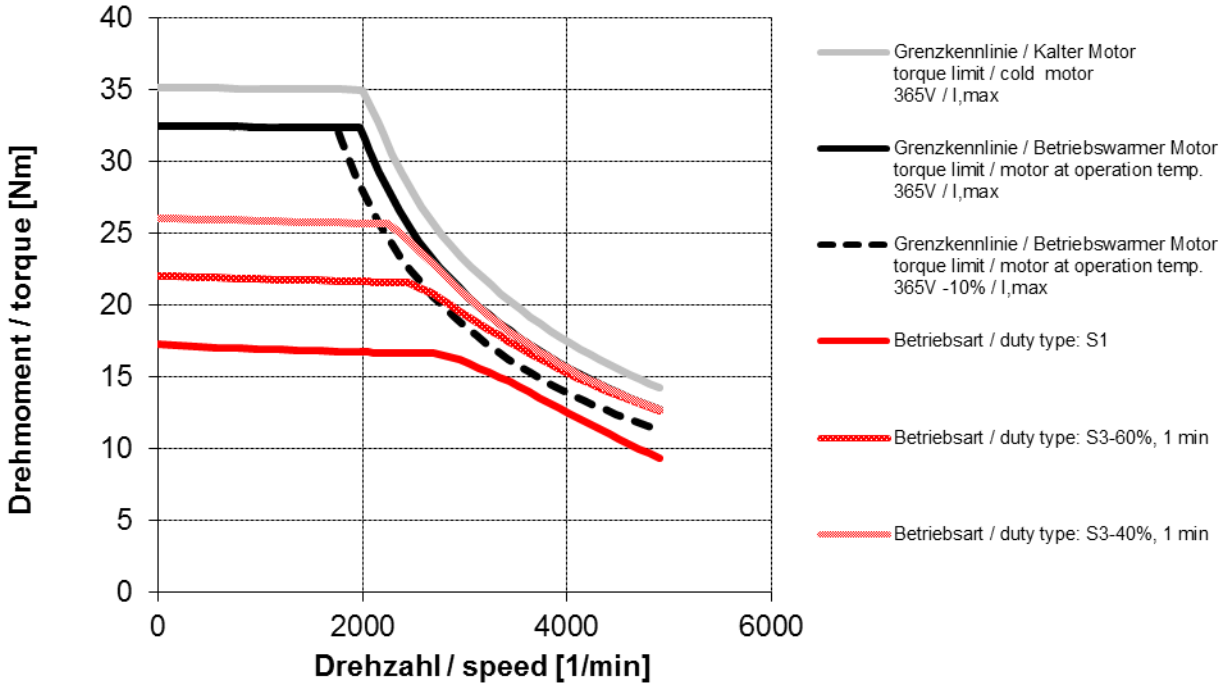


DSC1-056SO64W-30-54



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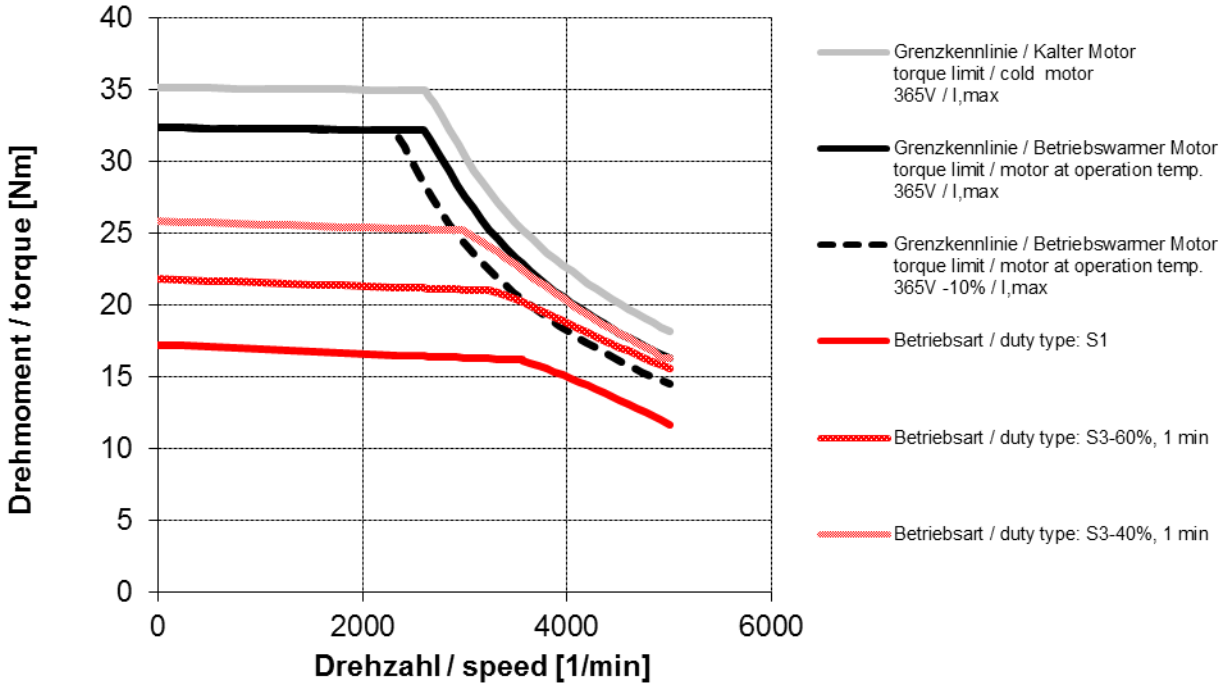

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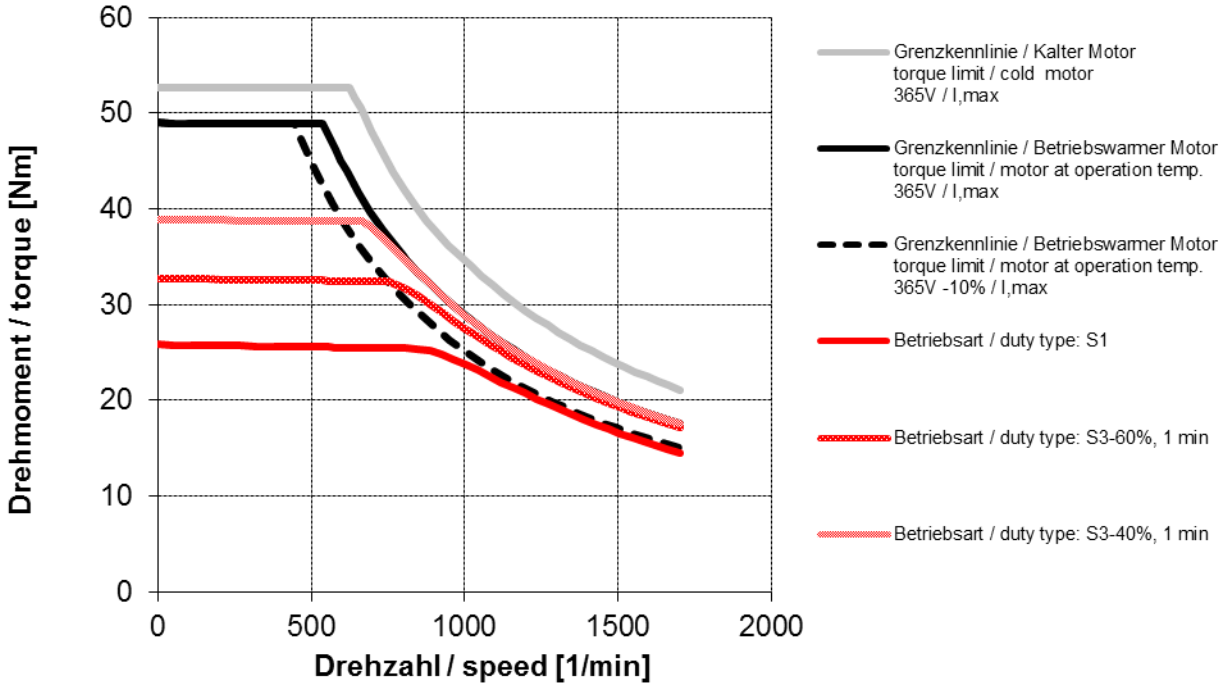

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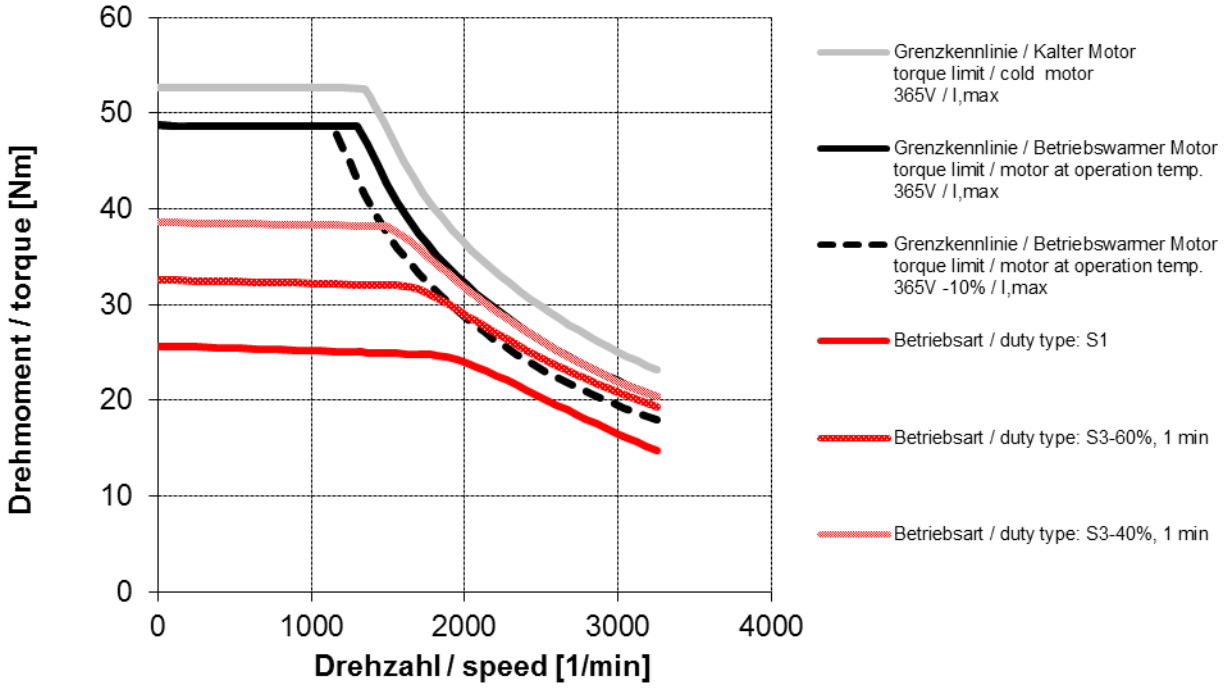

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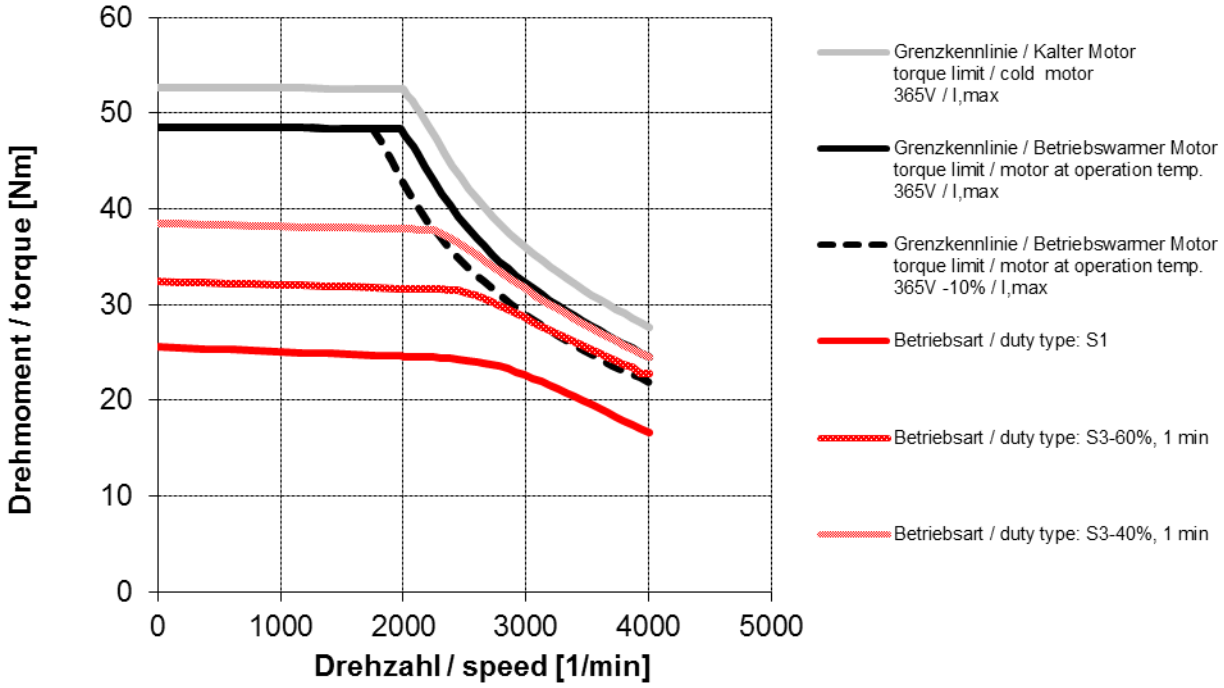
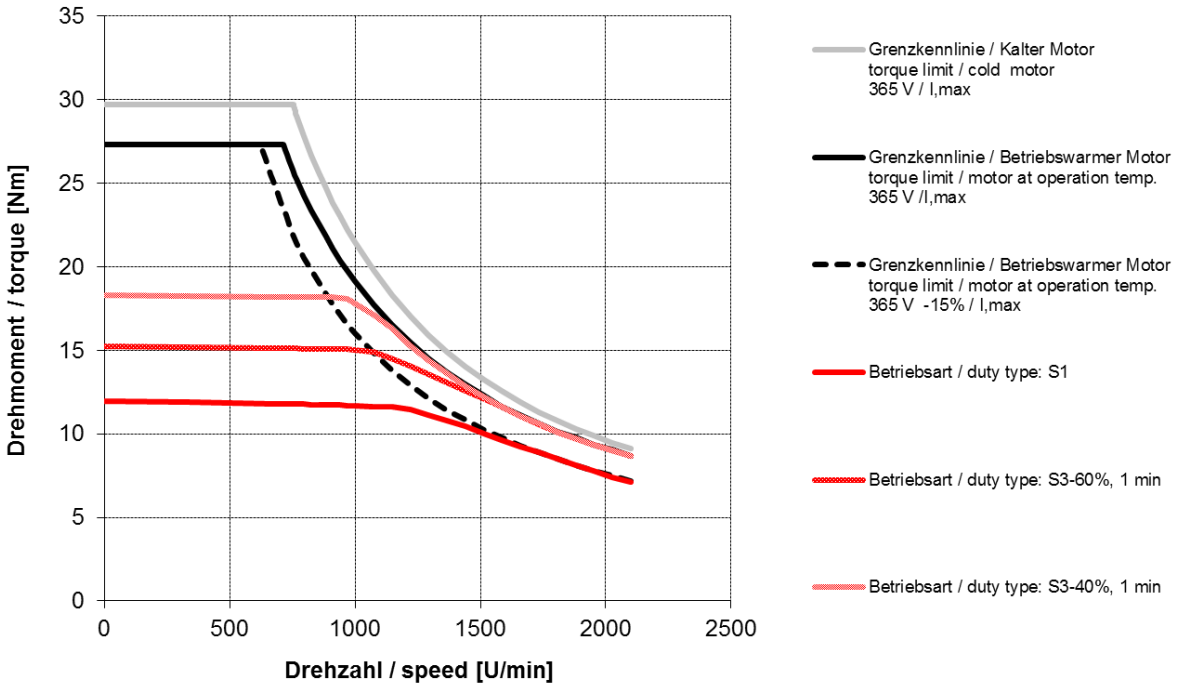


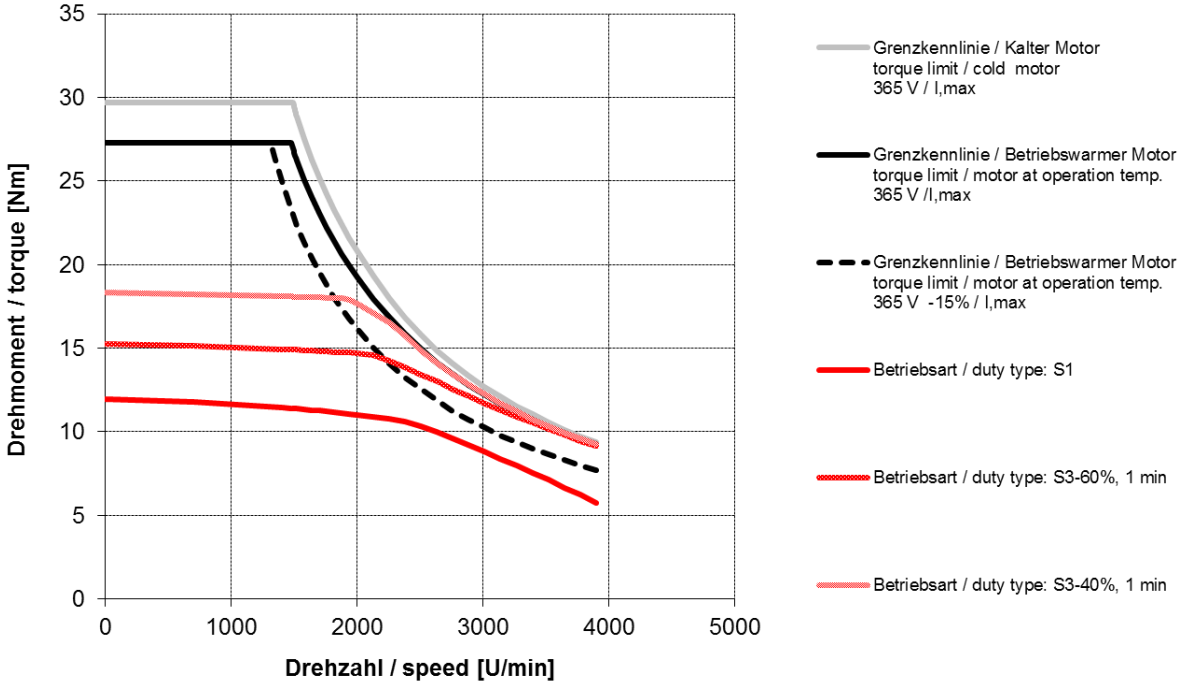
5.3. Characteristic curves DSC1-071

5.3.1. DSC1-071..64U..

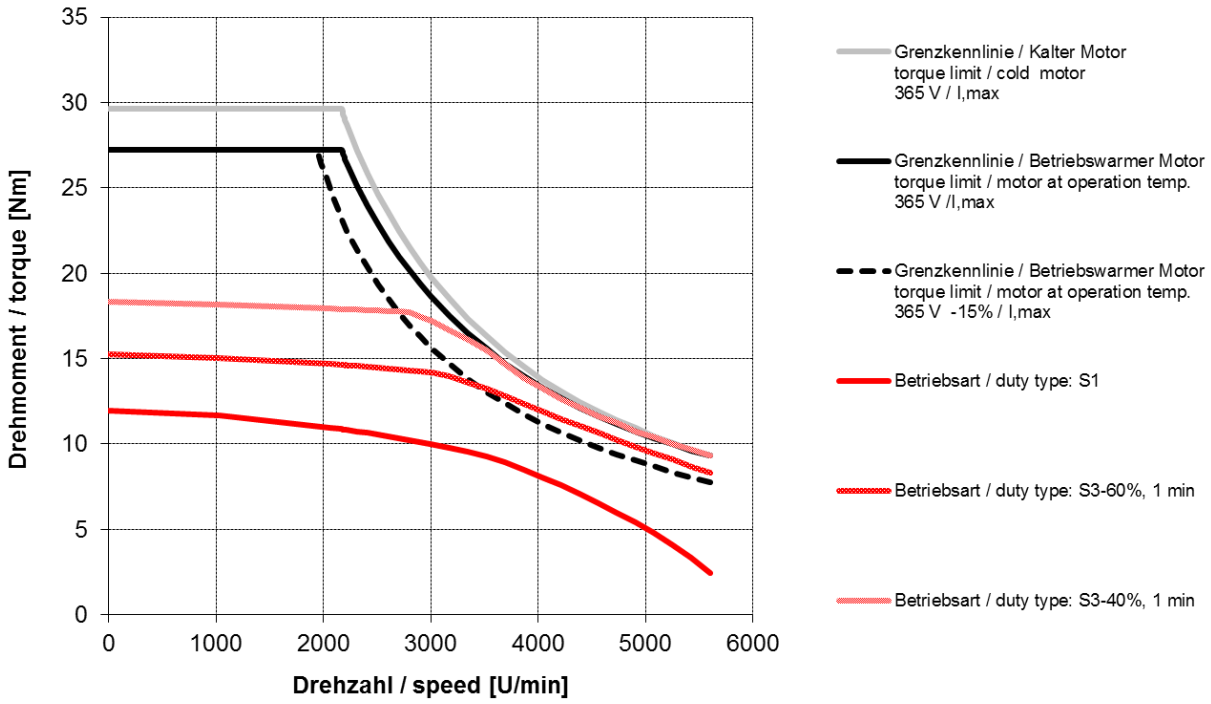
DSC1-071KO64U-10-54



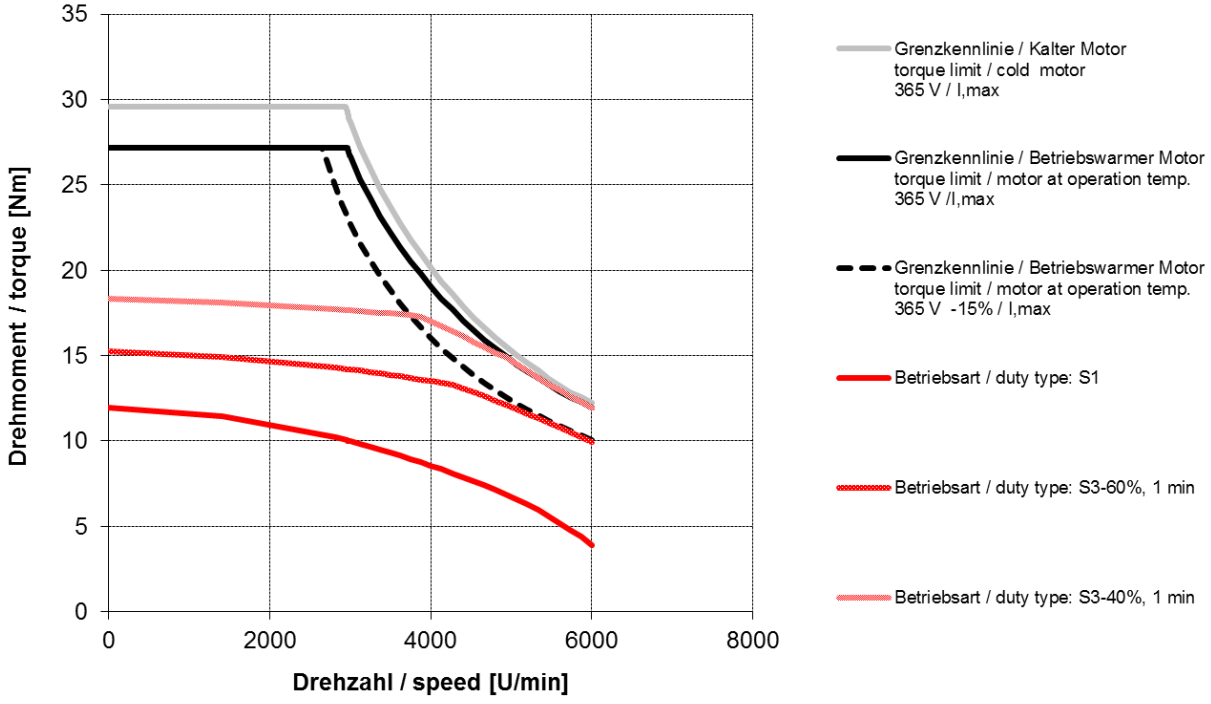
DSC1-071KO64U-20-54



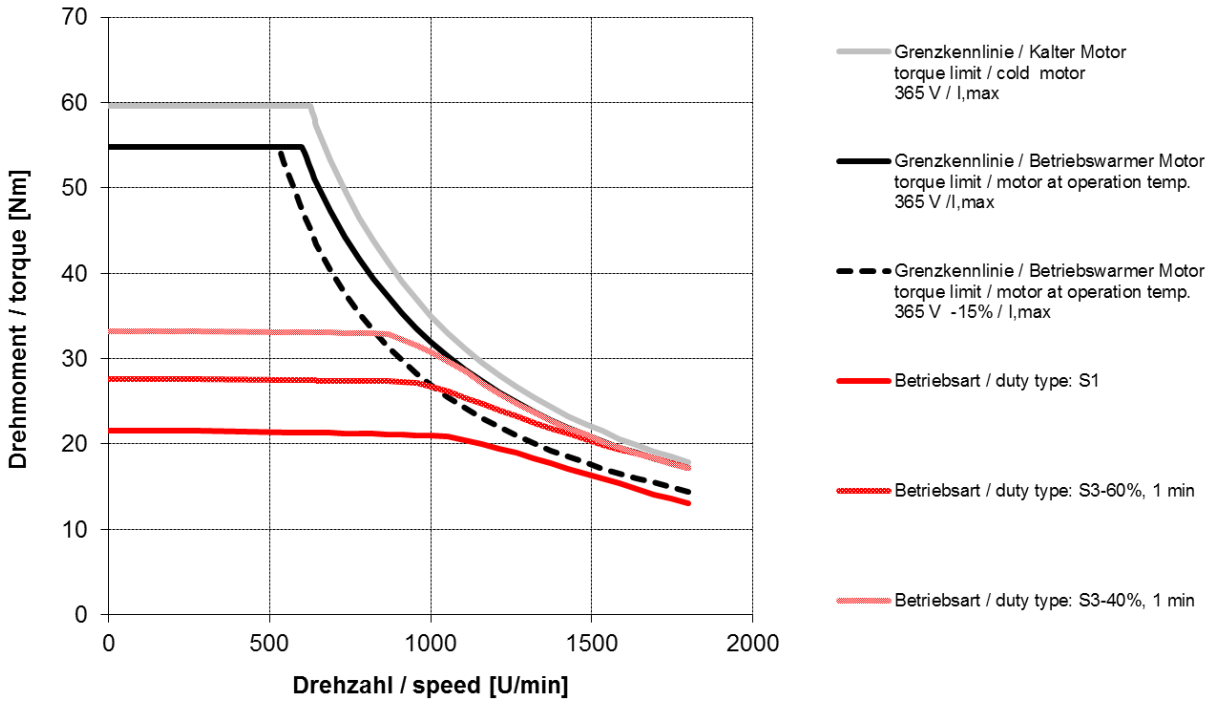
DSC1-071KO64U-30-54



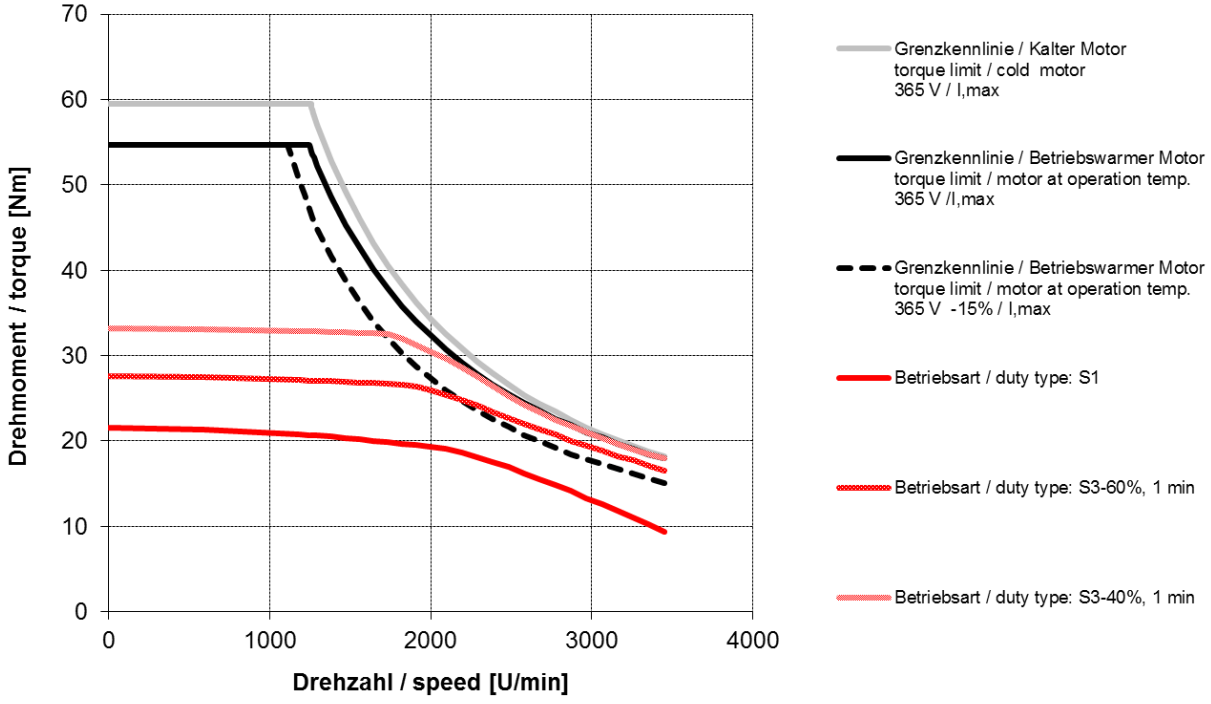
DSC1-071KO64U-40-54



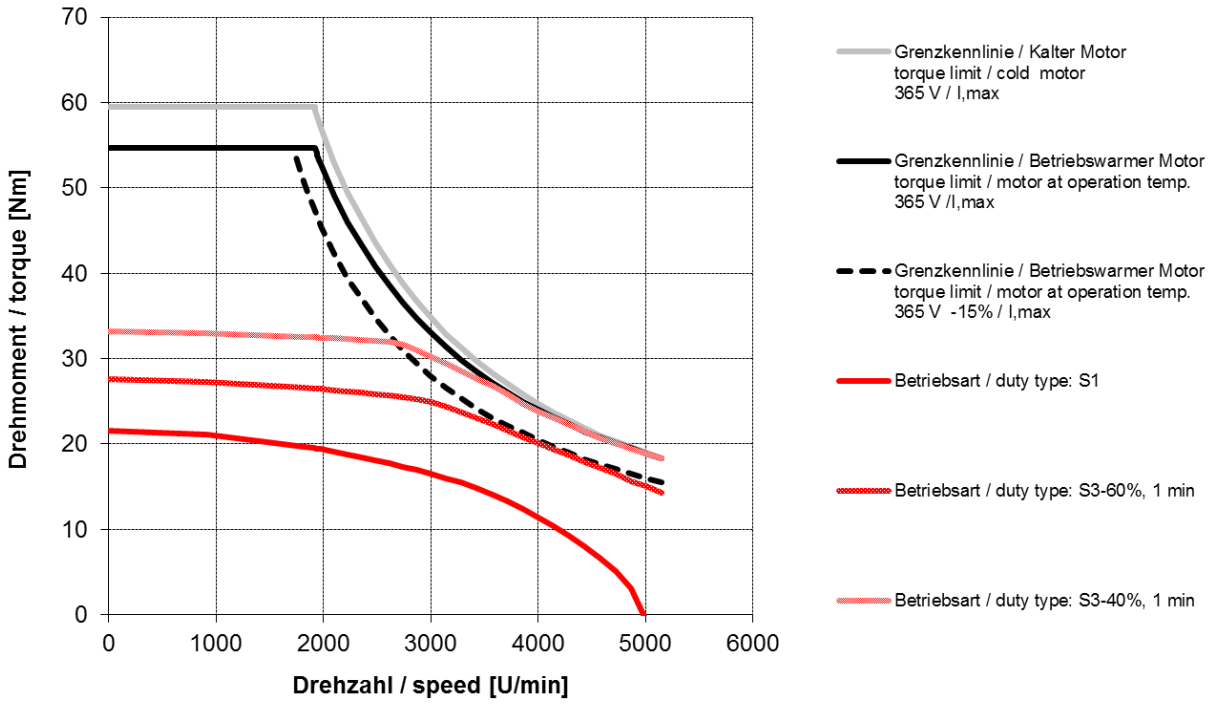
DSC1-071SO64U-10-54



DSC1-071SO64U-20-54



DSC1-071SO64U-30-54



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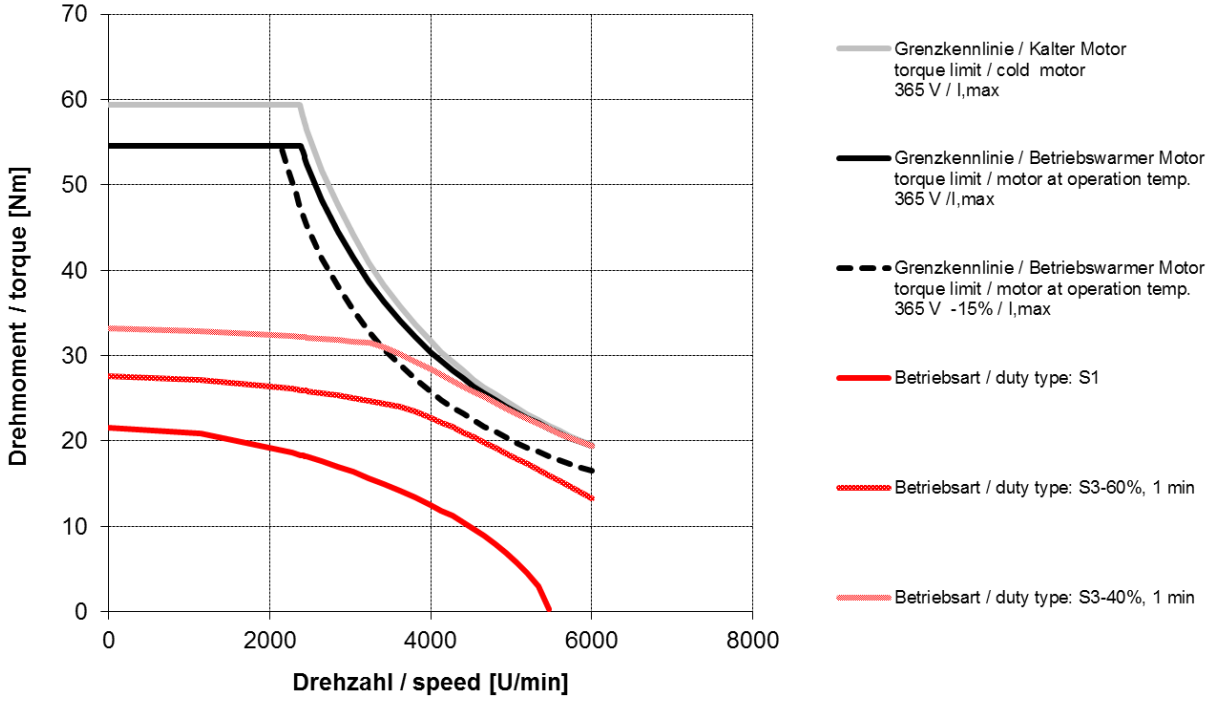
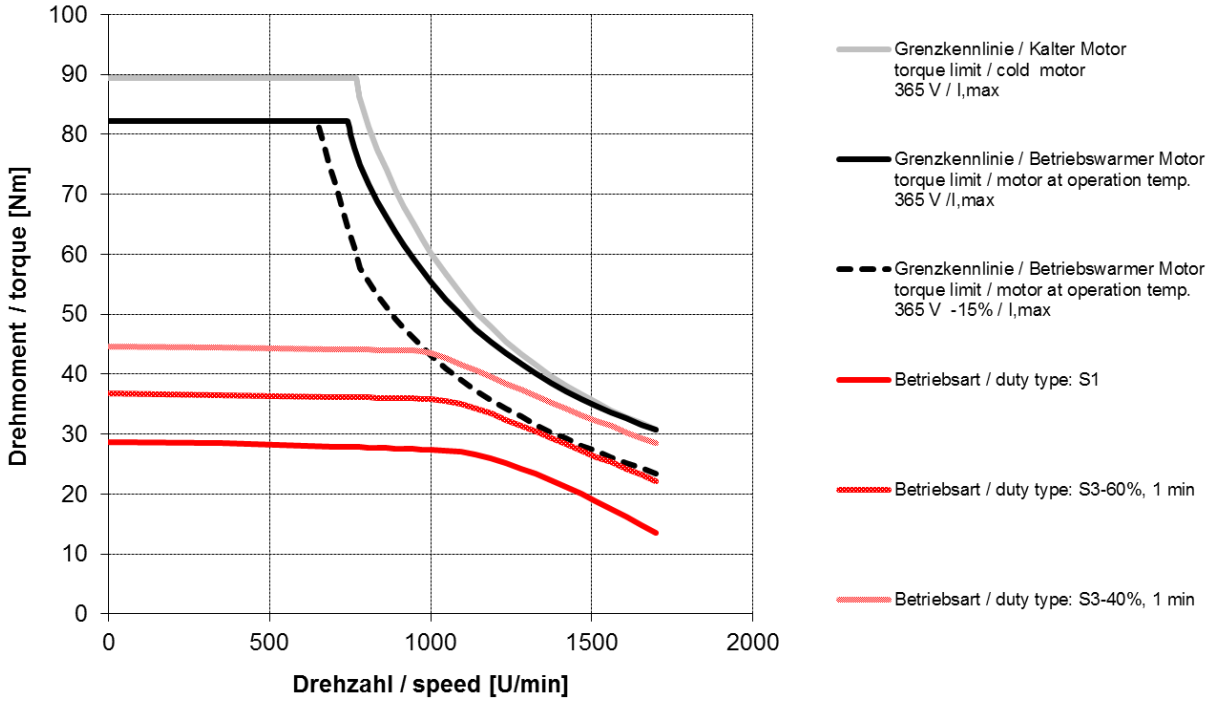
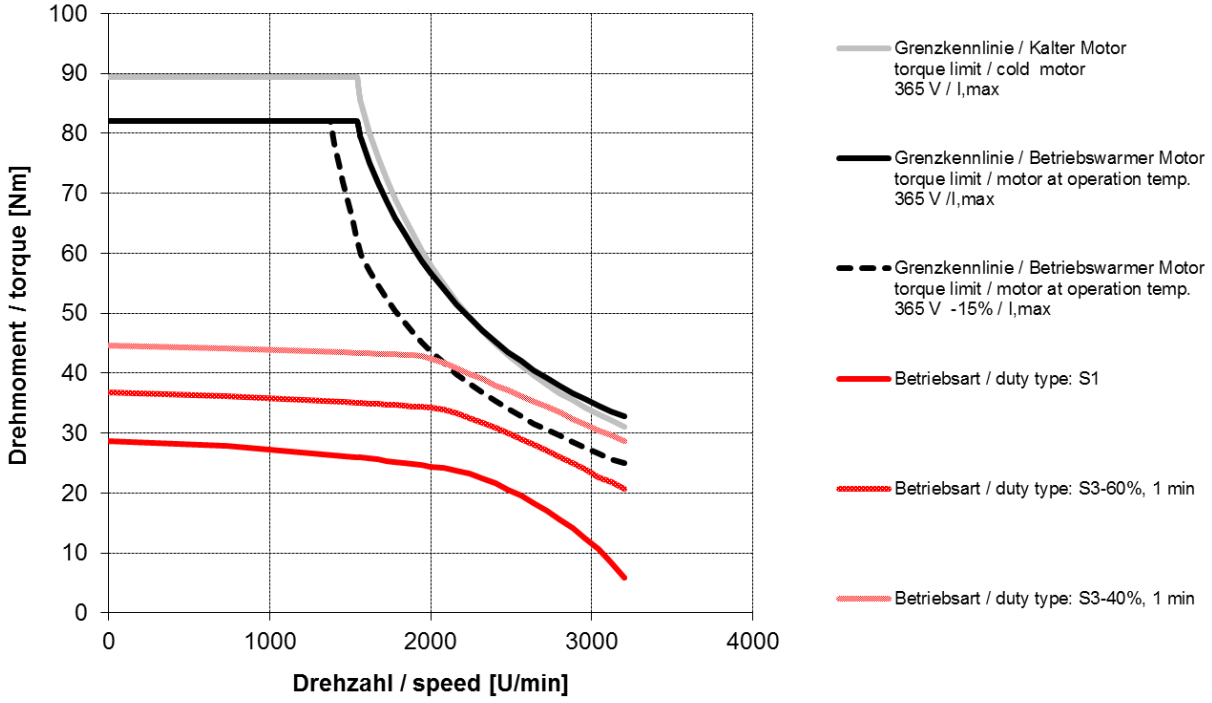


DSC1-071MO64U-10-54



DSC1-071MO64U-20-54



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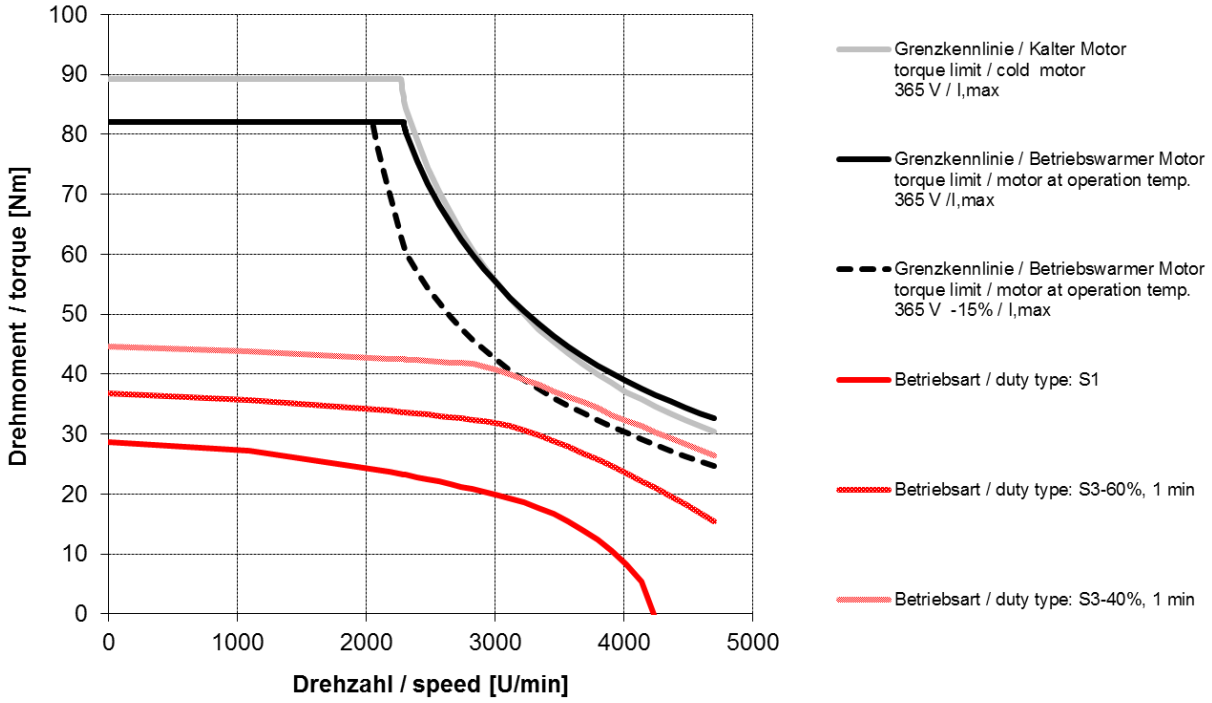
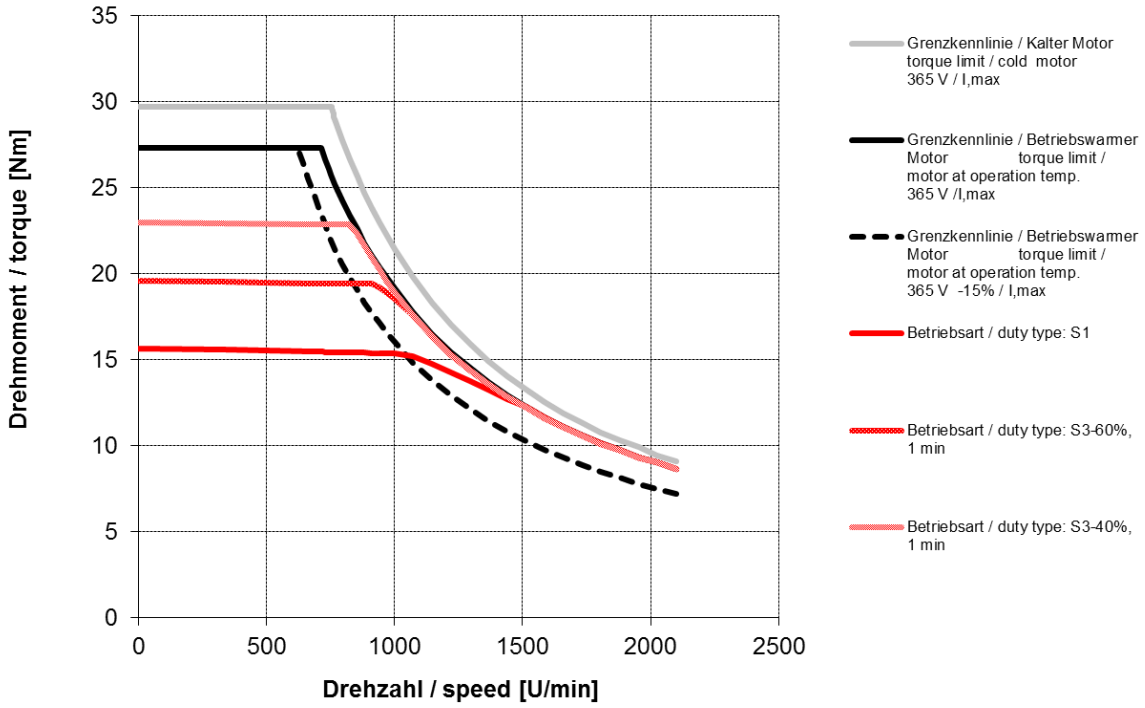


5.3.2. DSC1-071..64O..

DSC1-071KO64O-10-54



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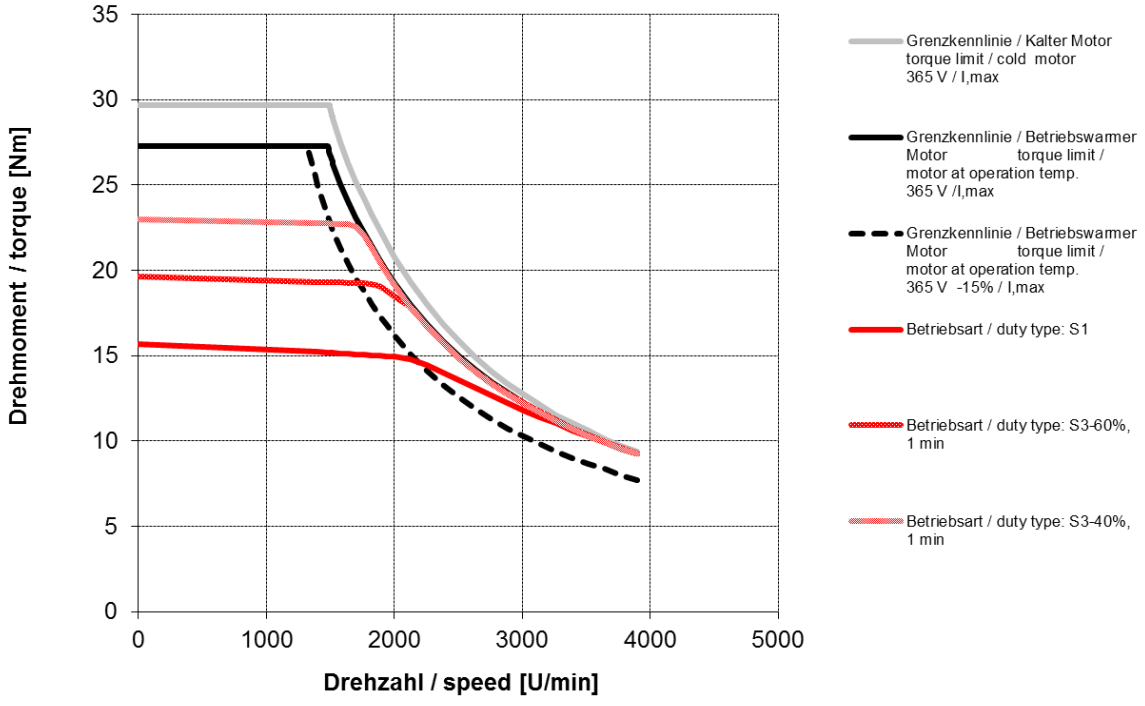

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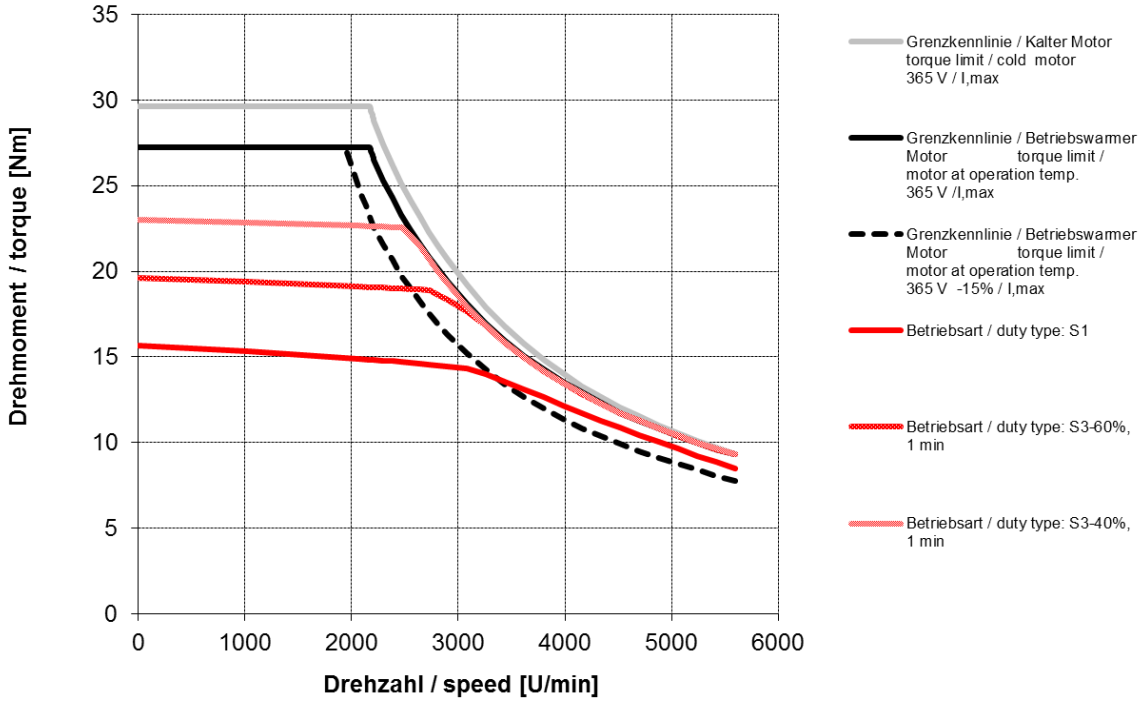

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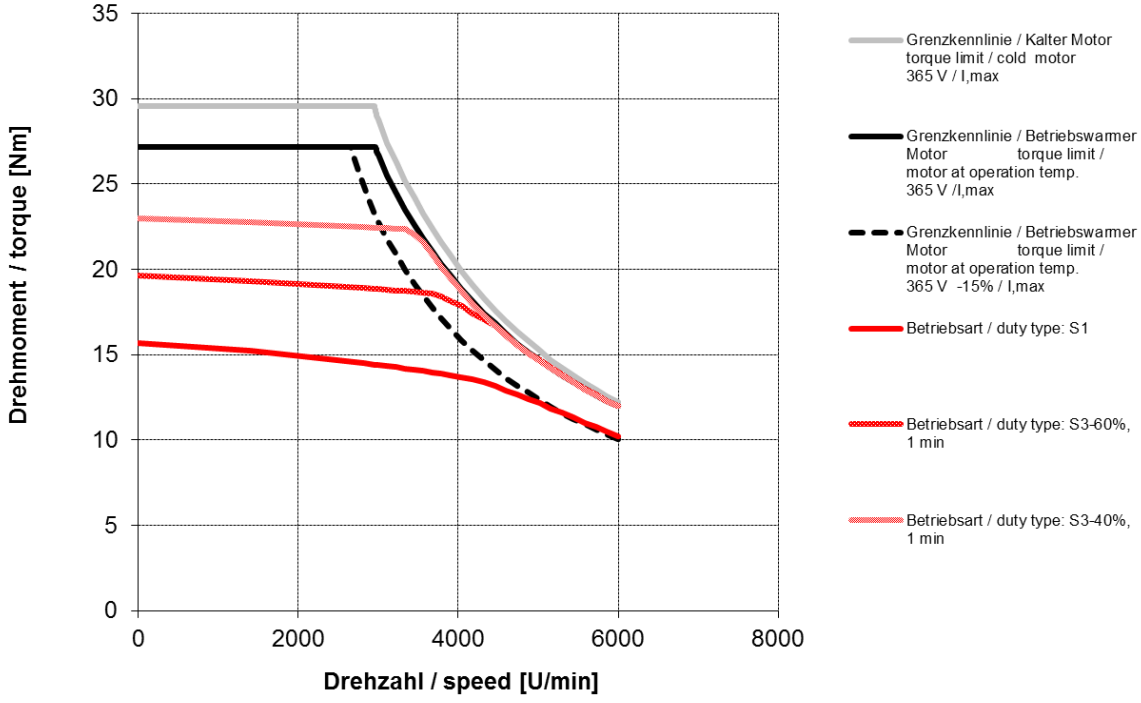

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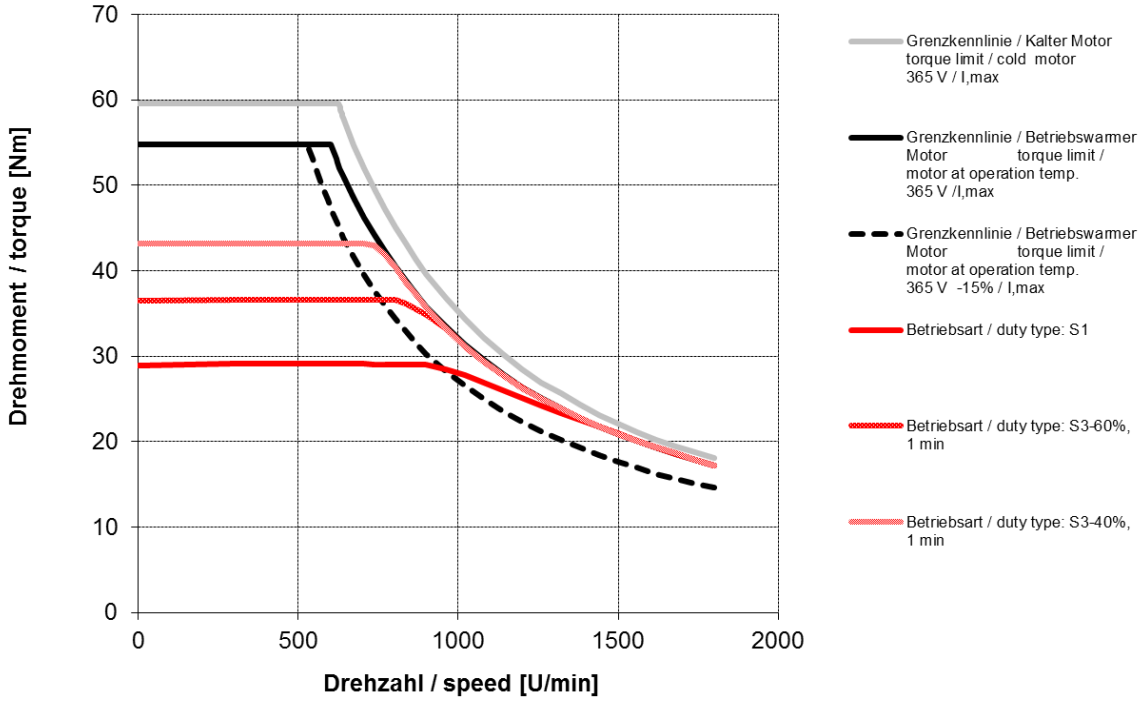

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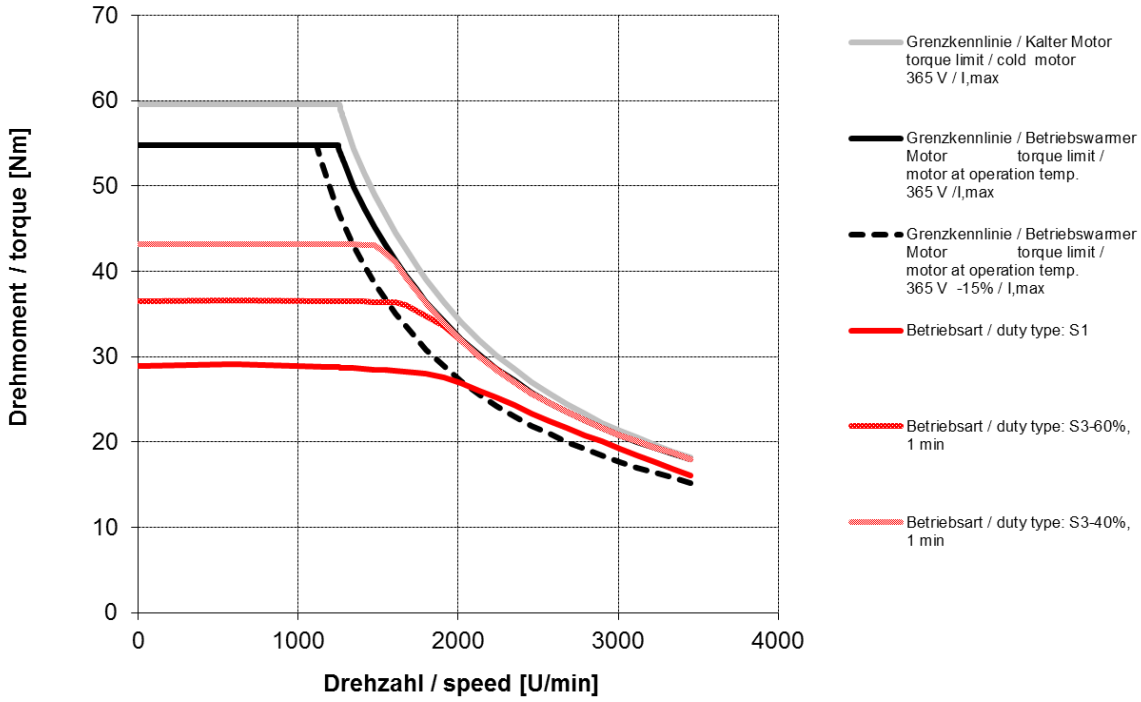

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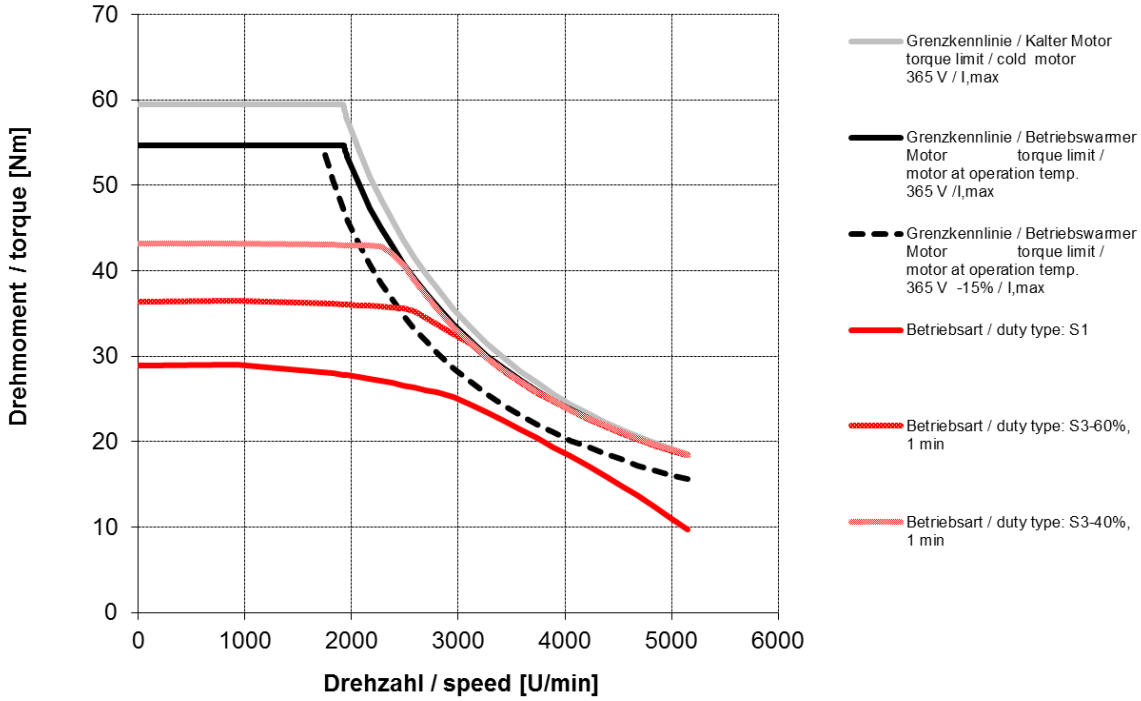

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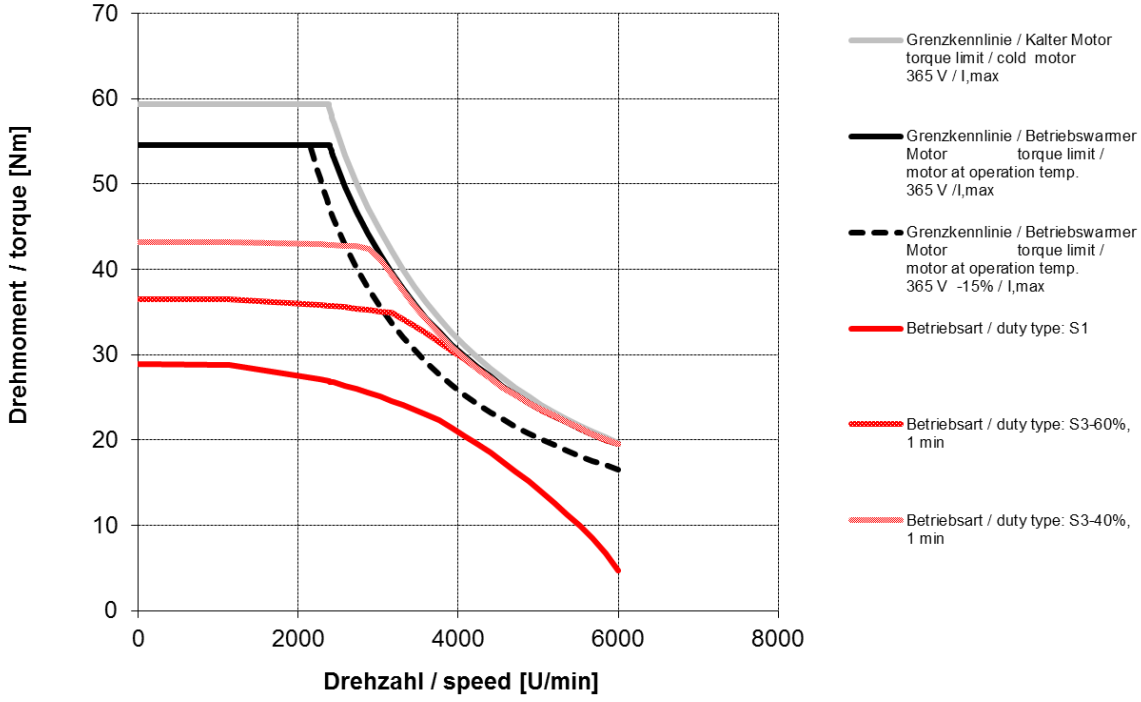

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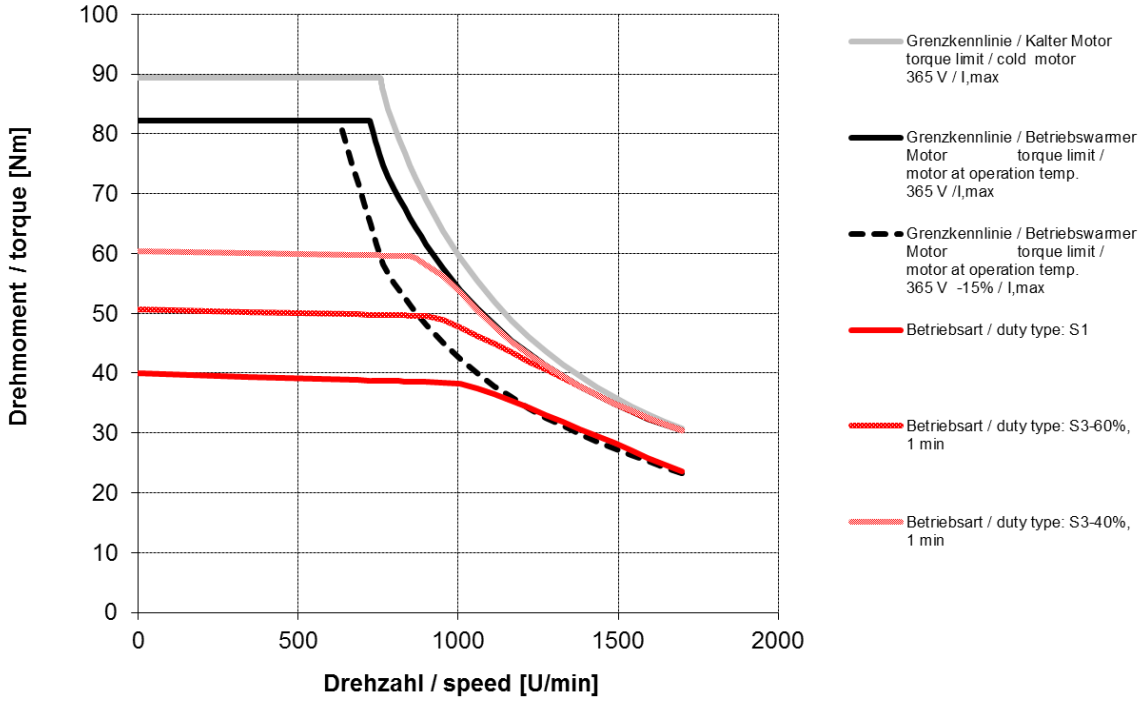

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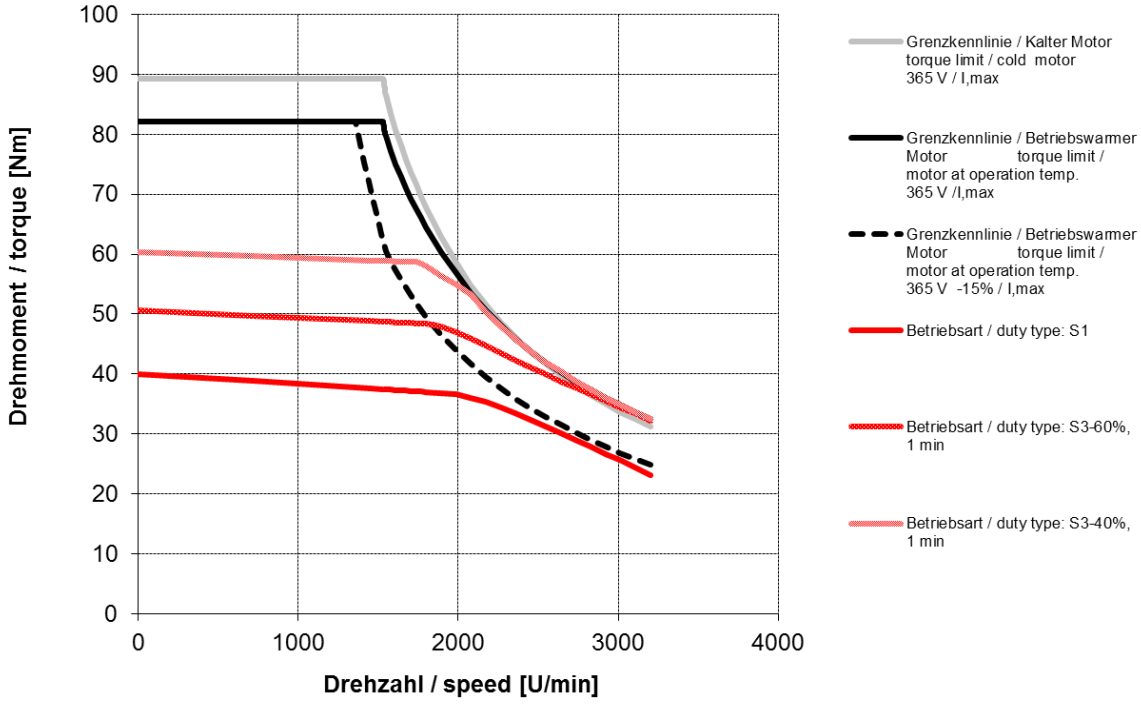
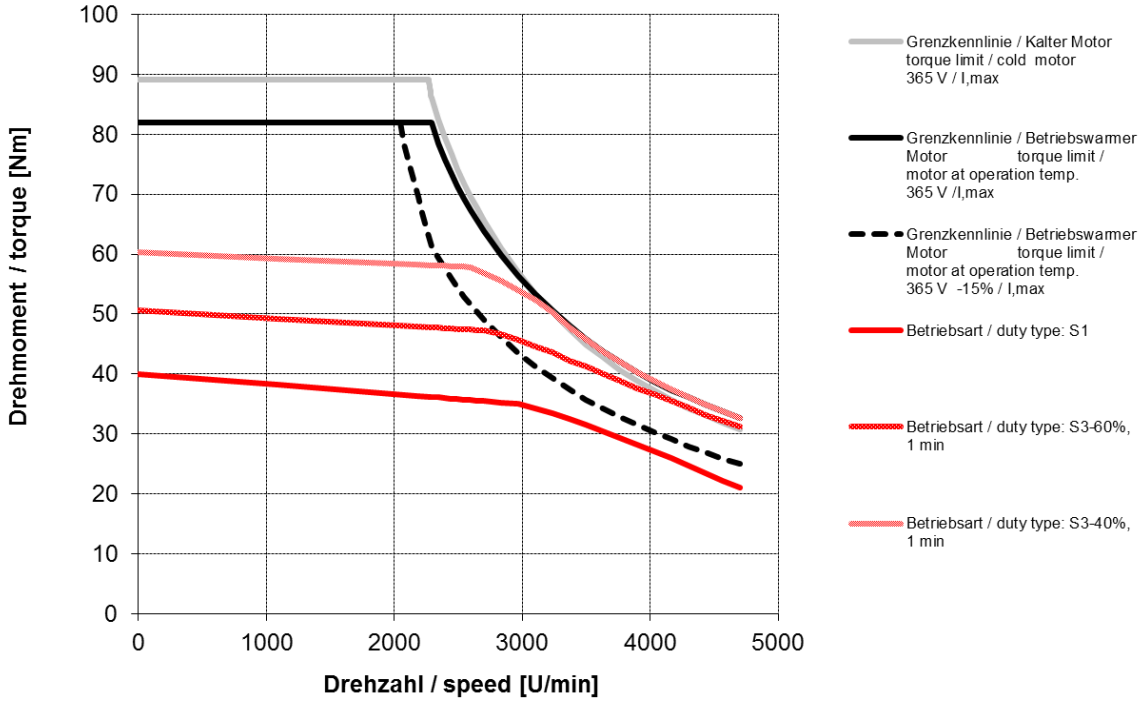
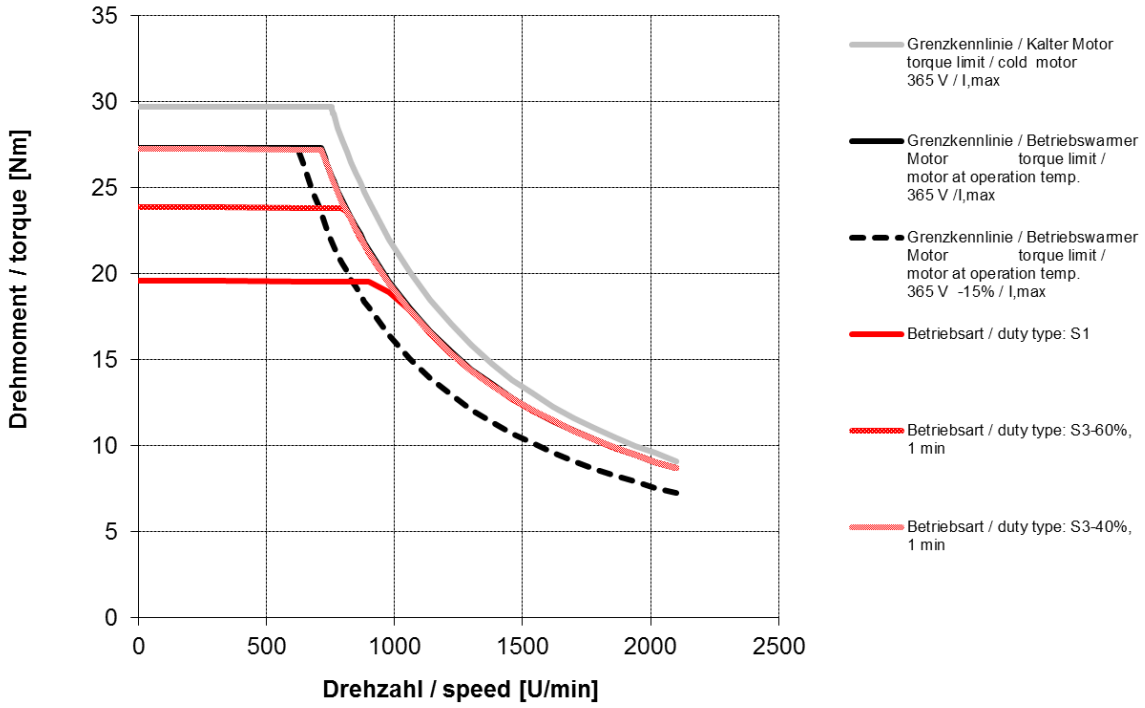


DSC1-071MO64O-30-54



5.3.3. DSC1-071..64W..

DSC1-071KO64W-10-54



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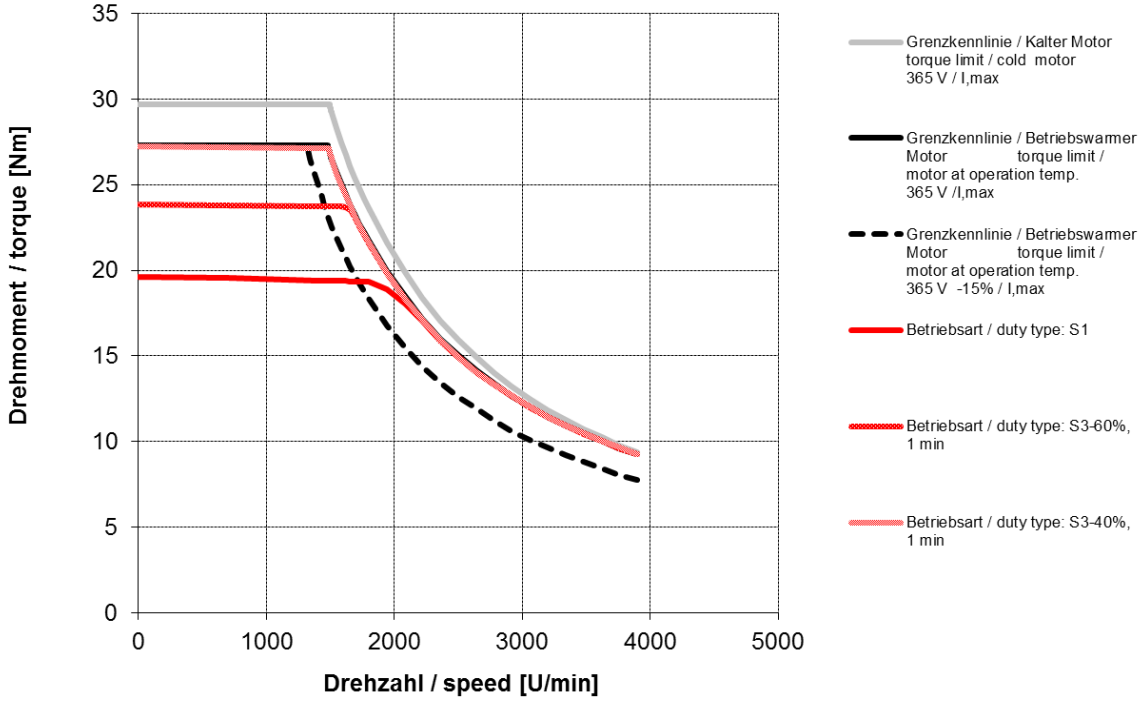

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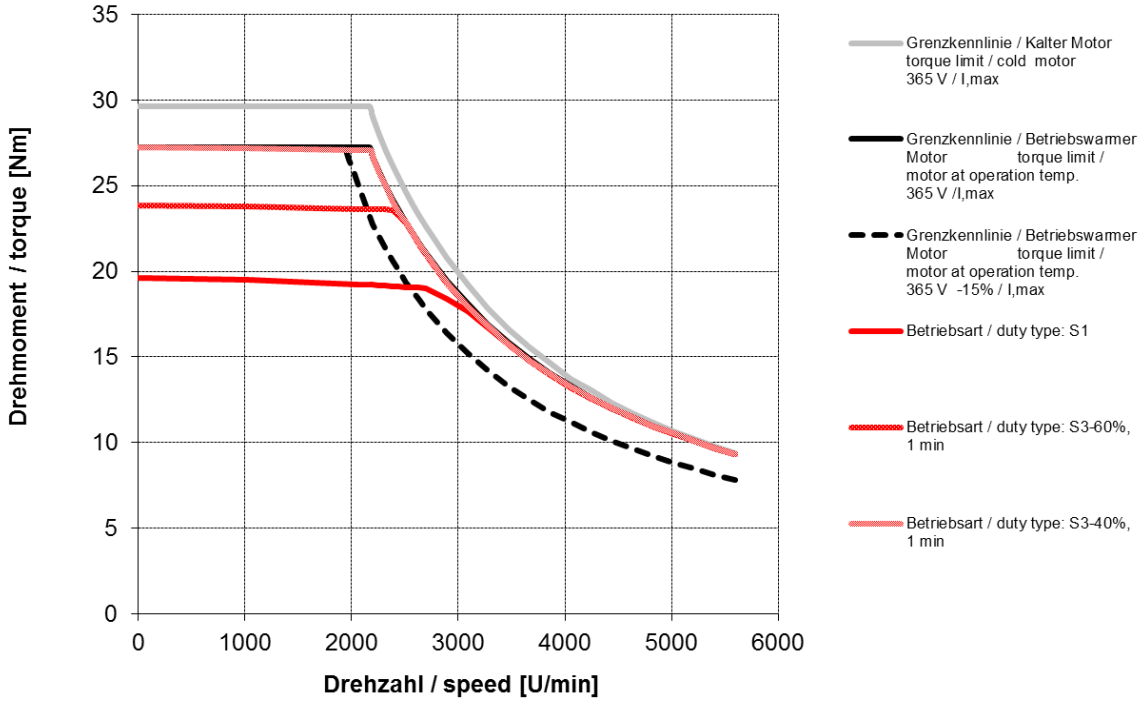

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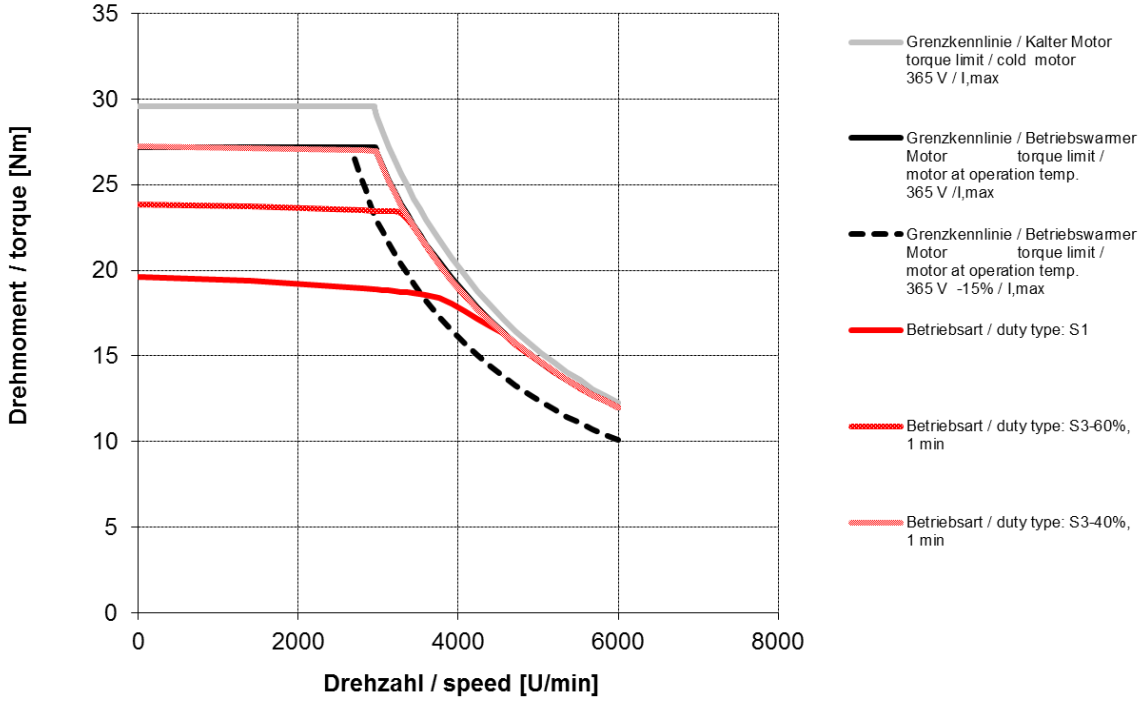

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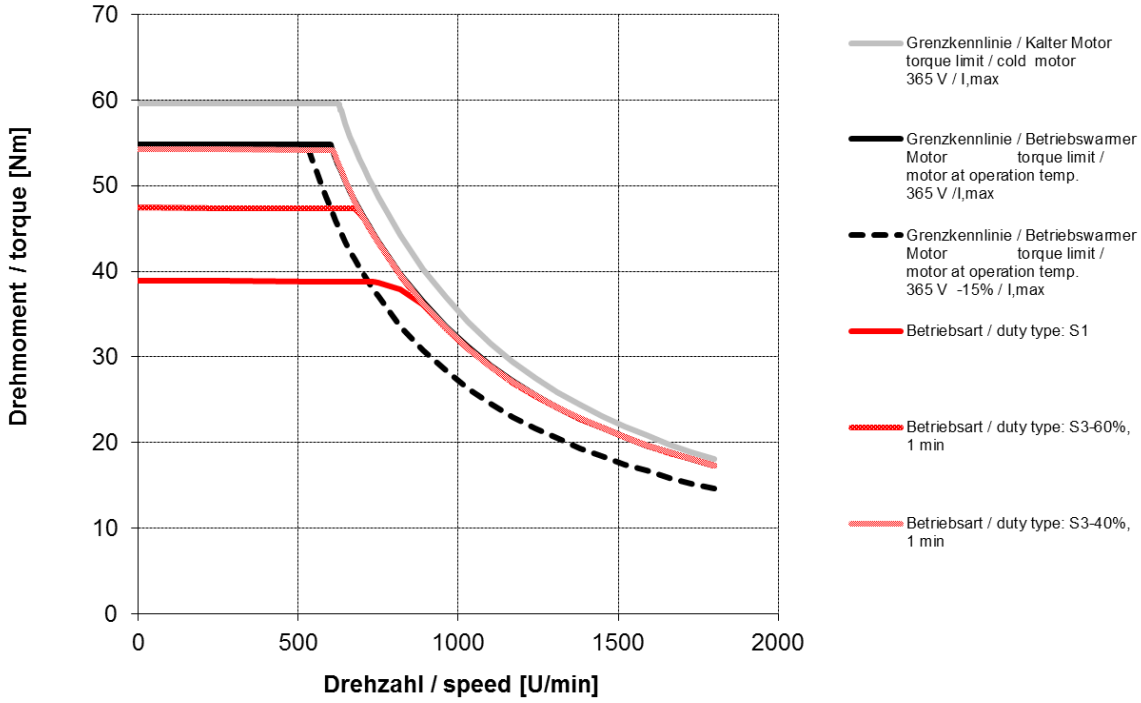

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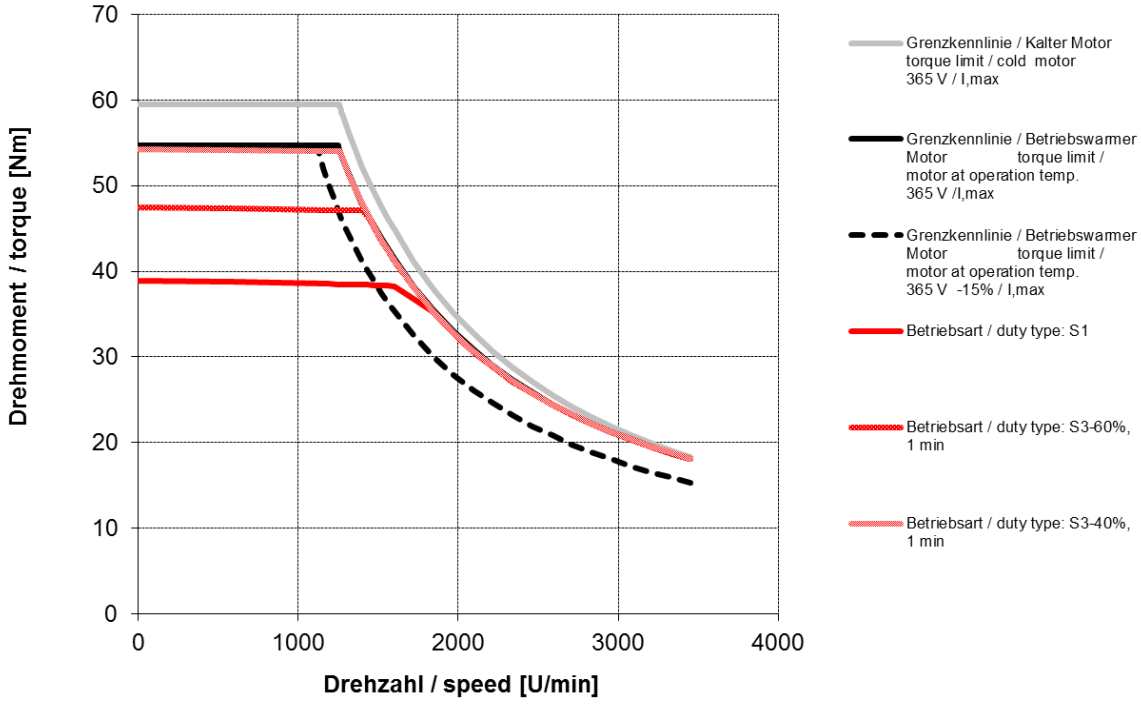

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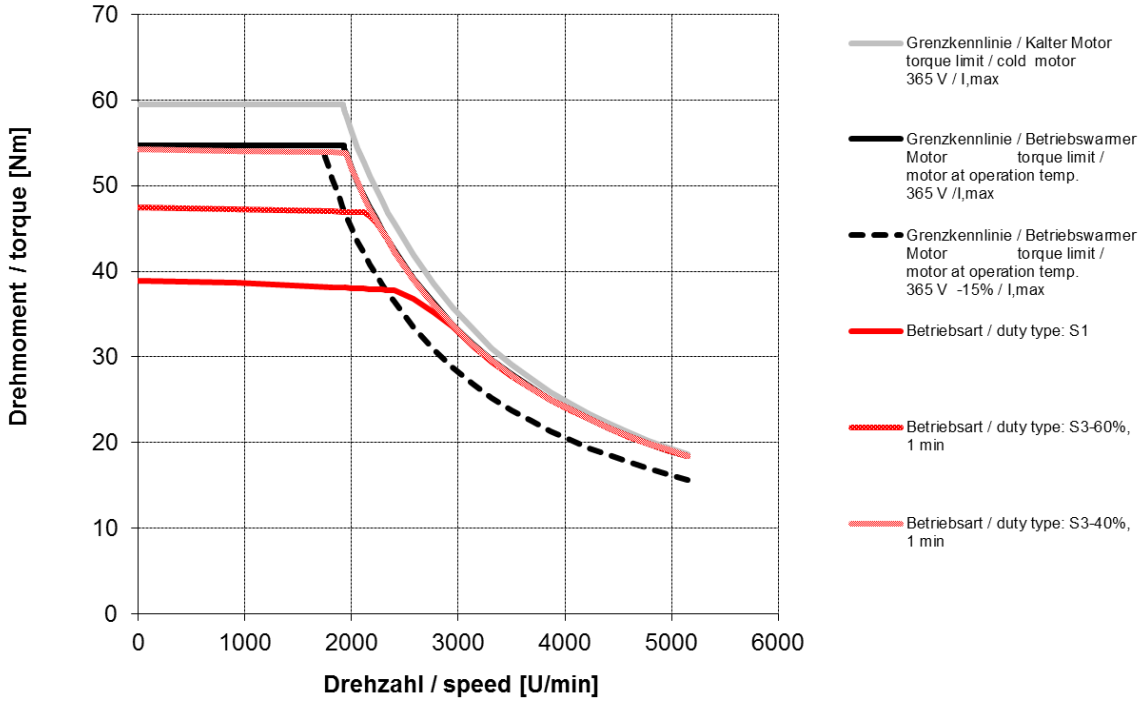

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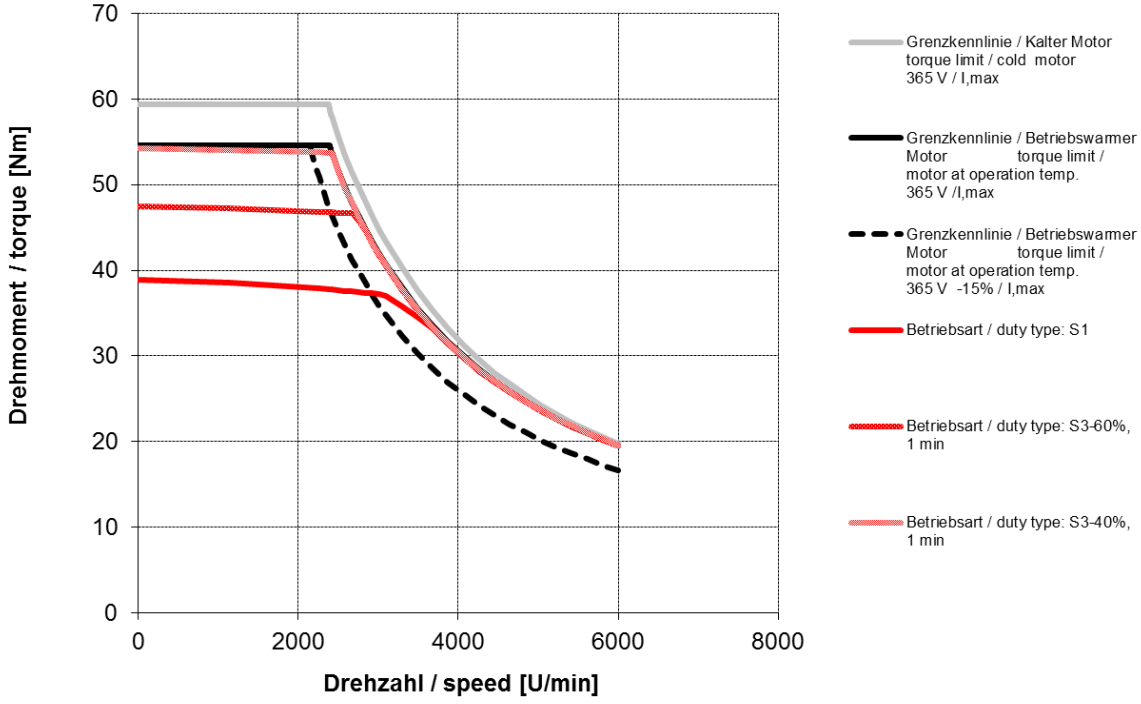

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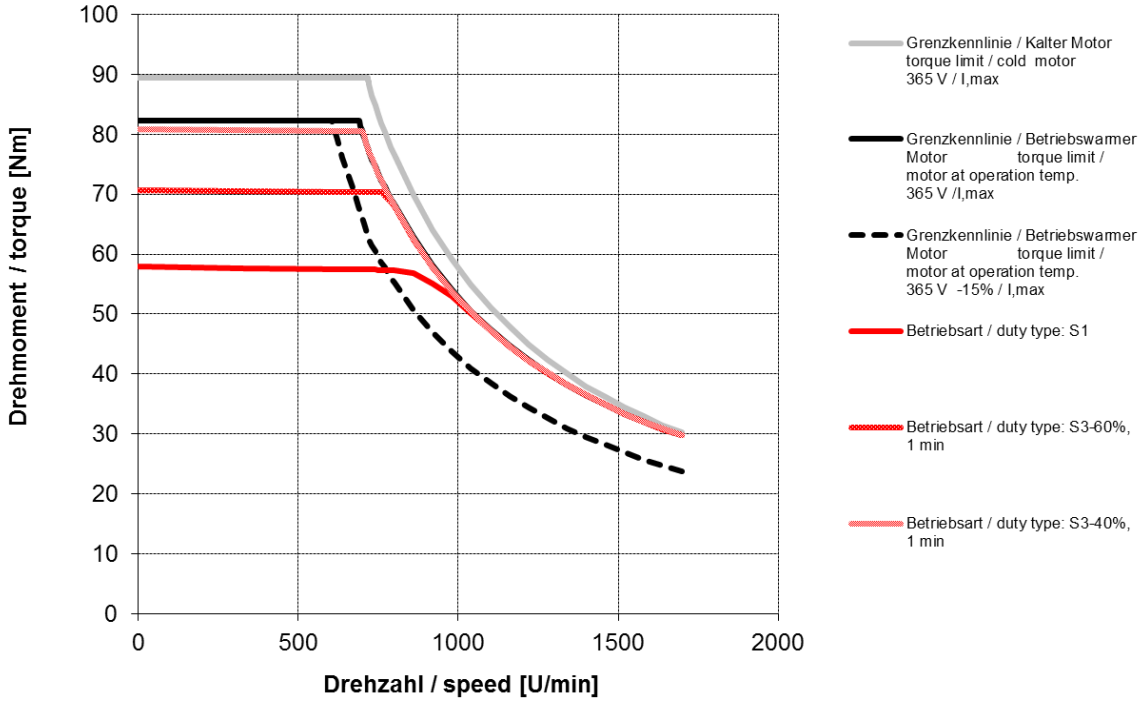

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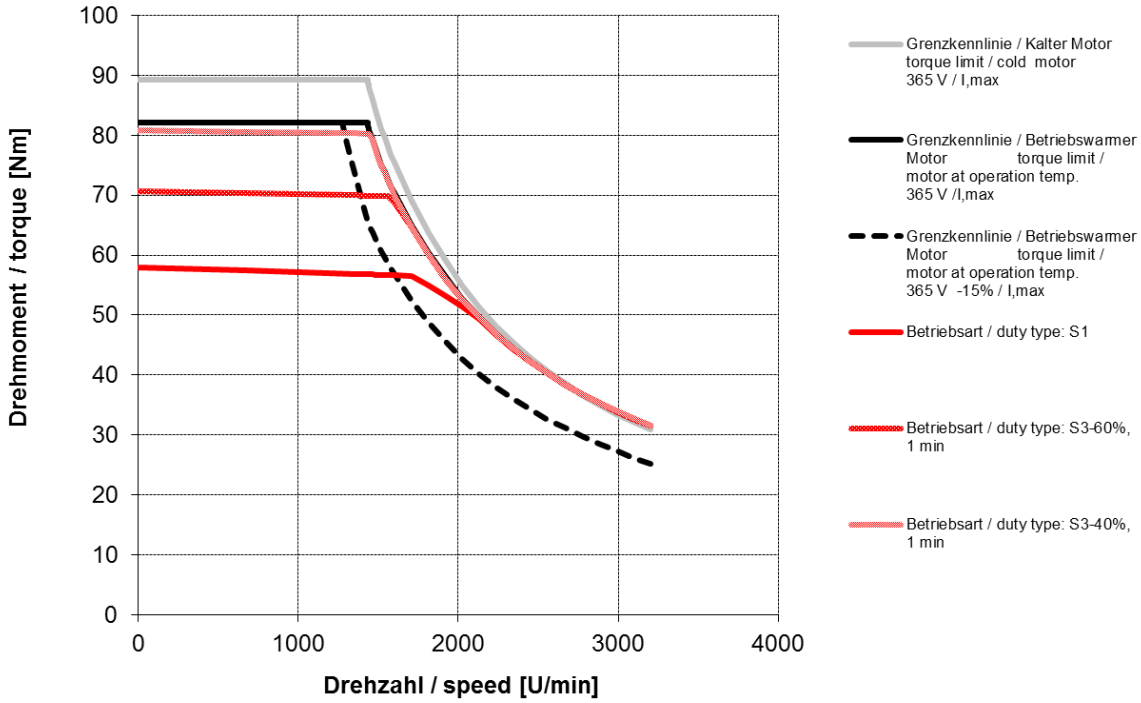

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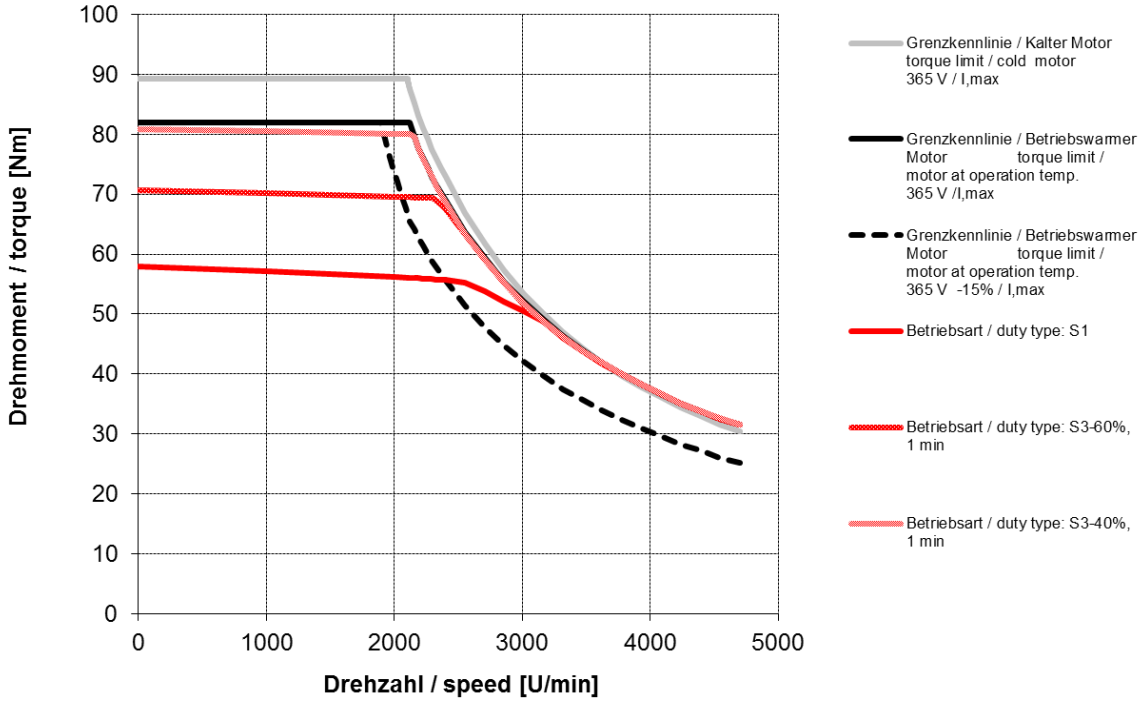
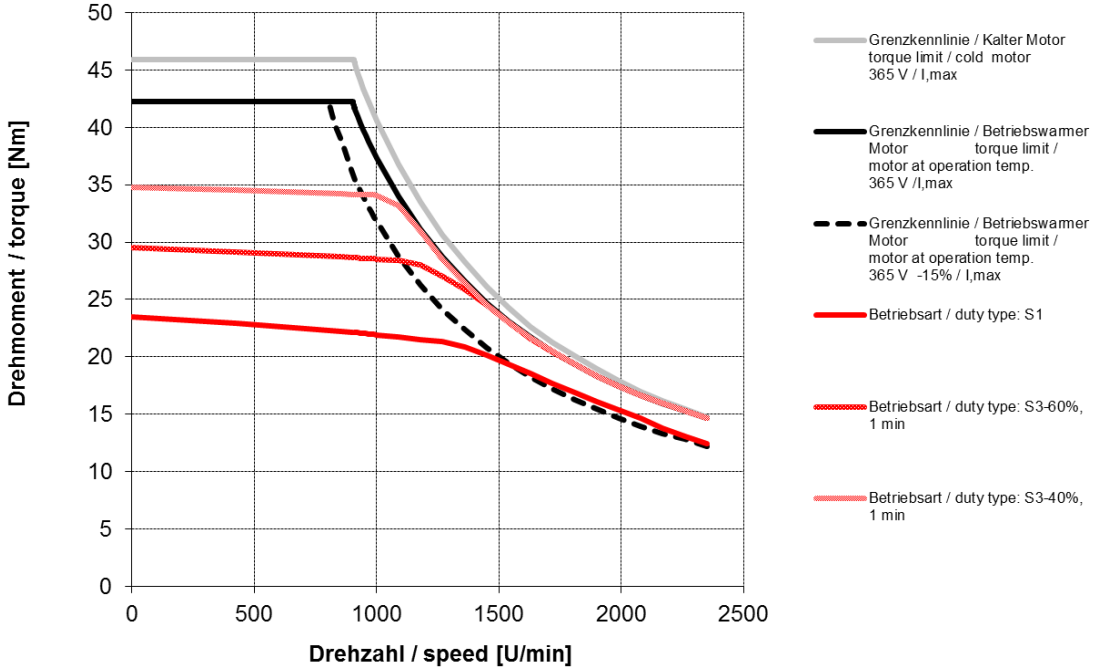


5.4. Characteristic curves DSC1-100

5.4.1. DSC1-100..64U..

DSC1-100KO64U-10-54



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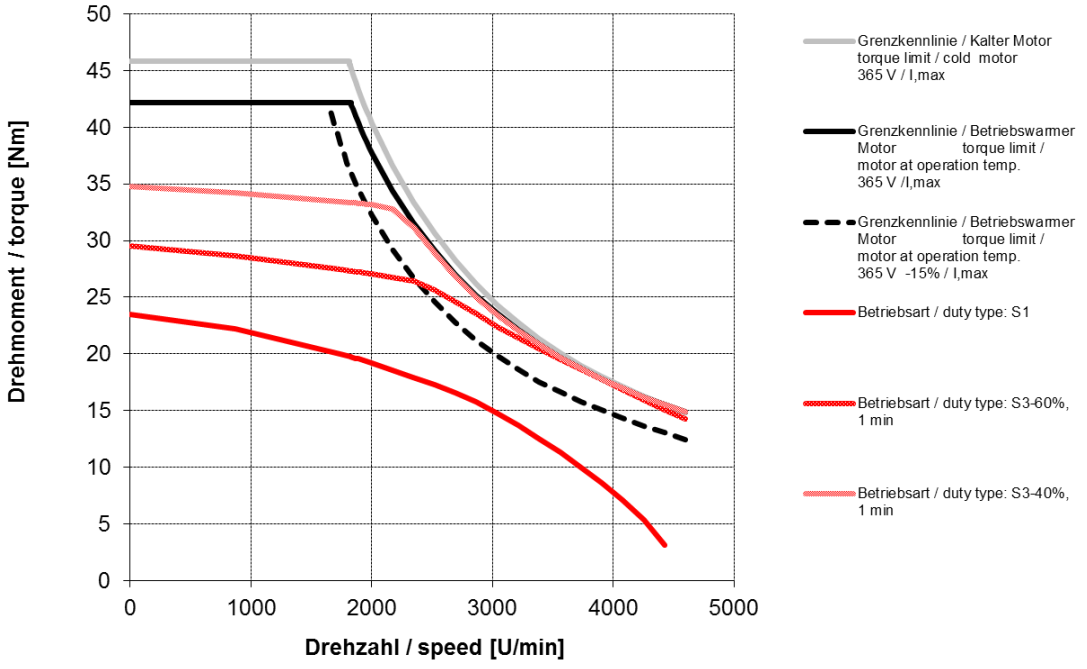

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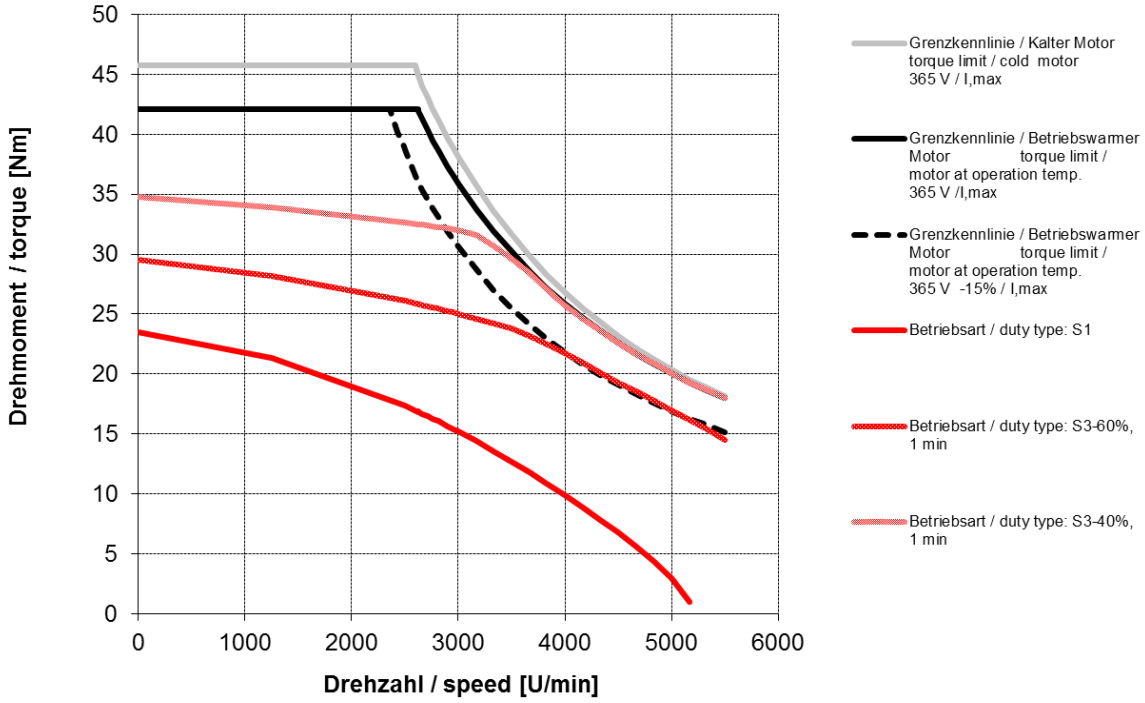

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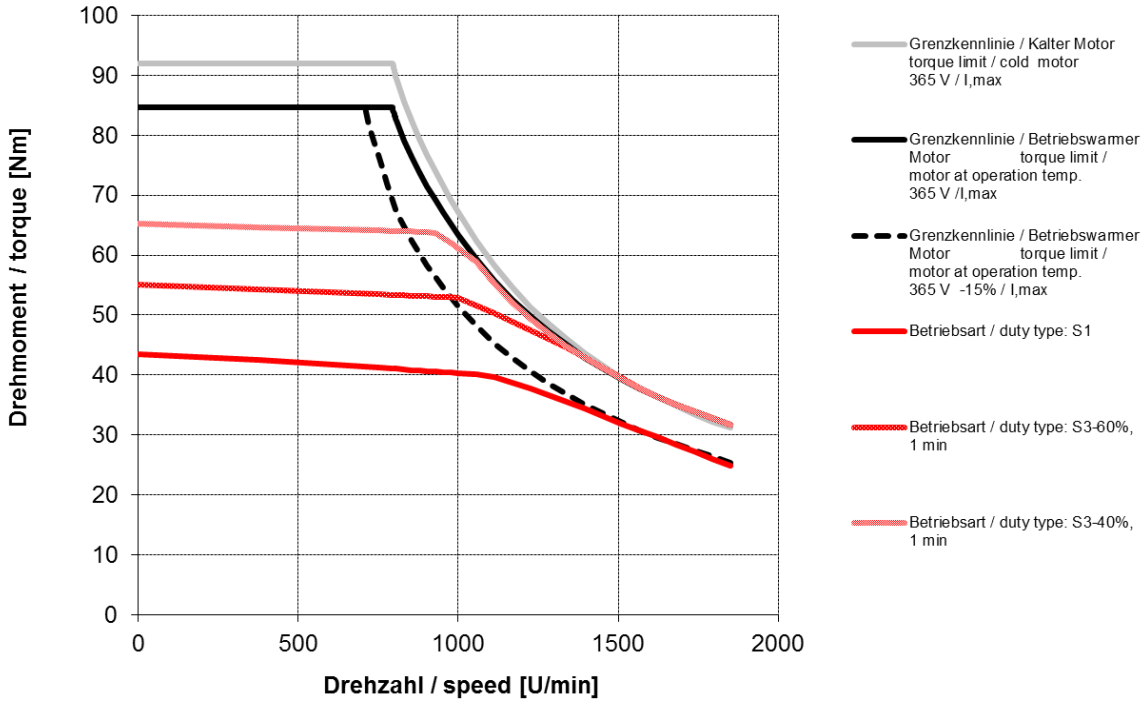

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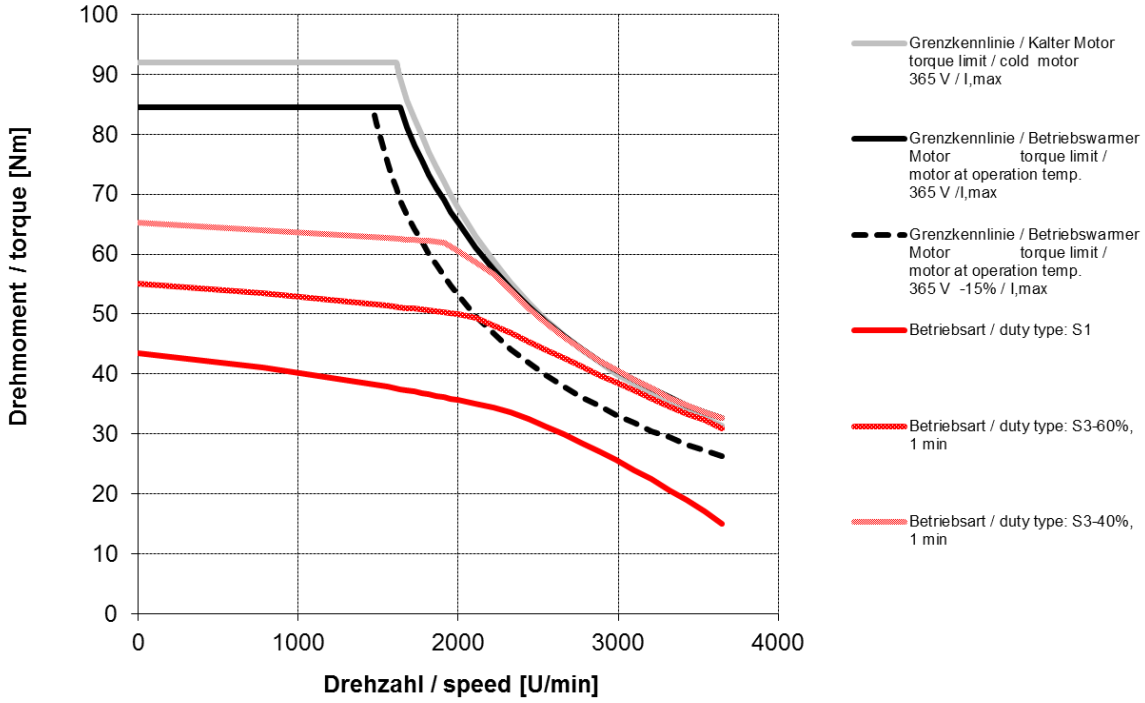

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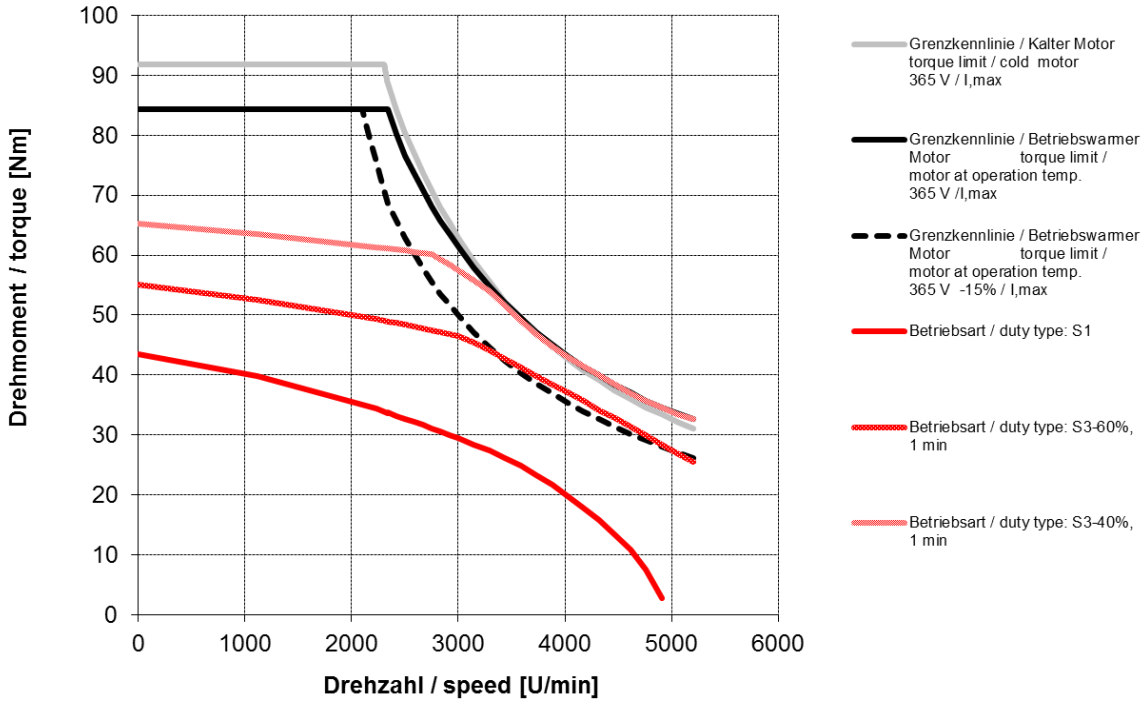

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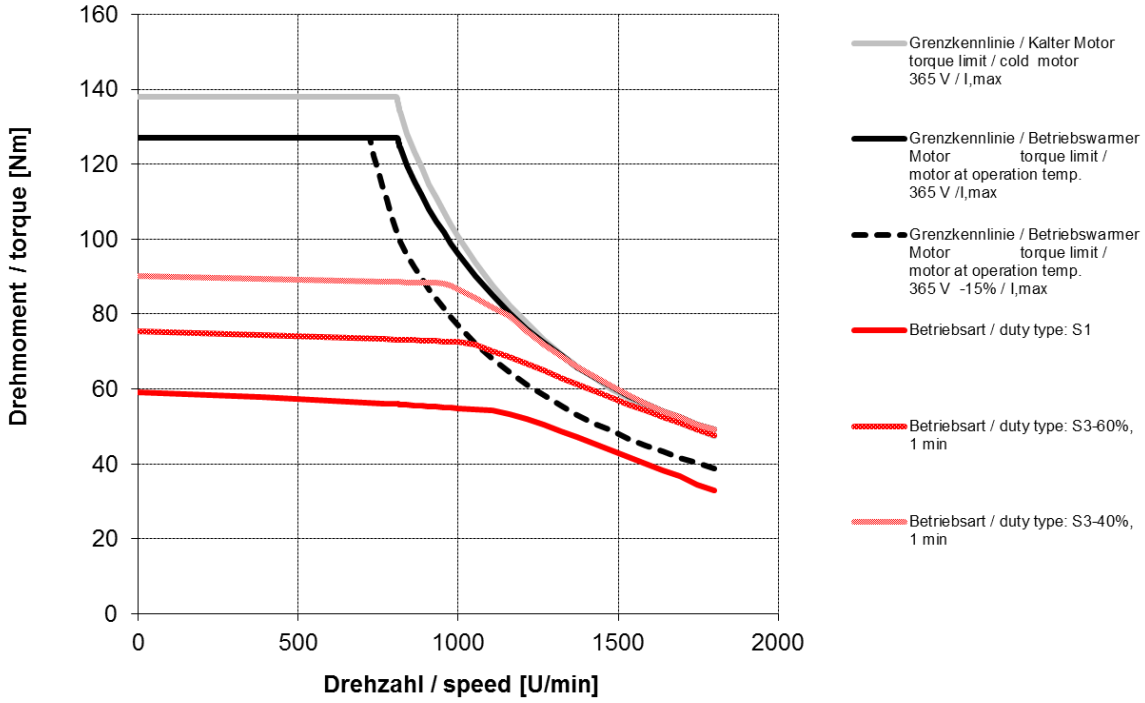

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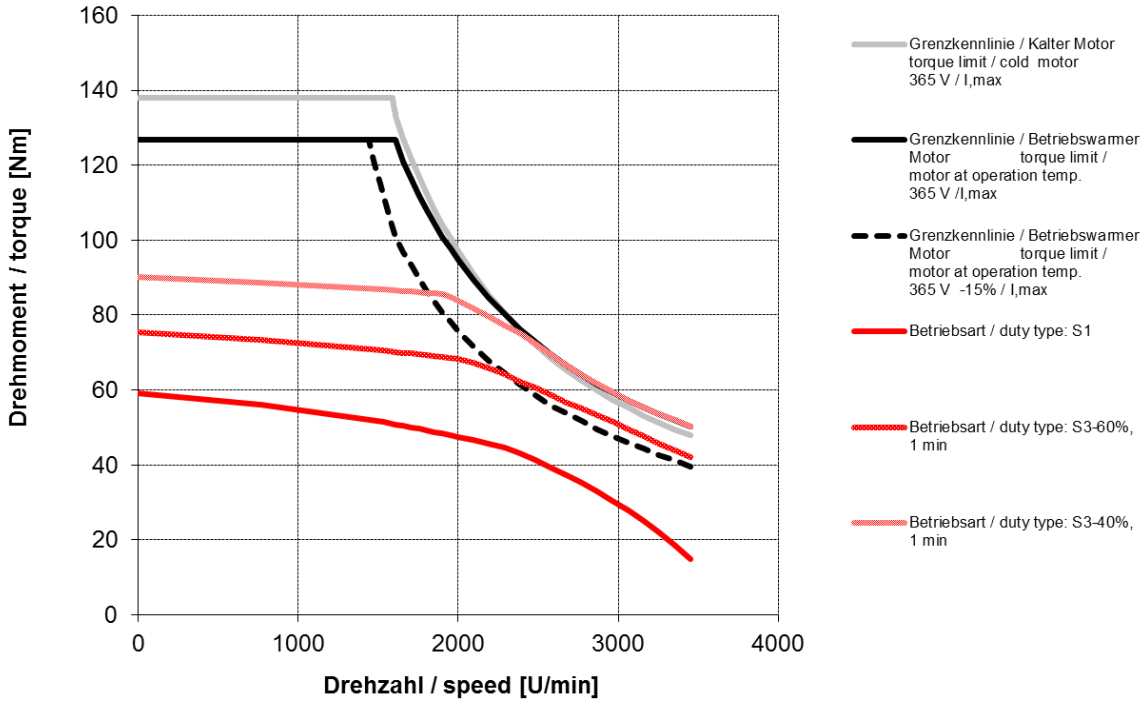
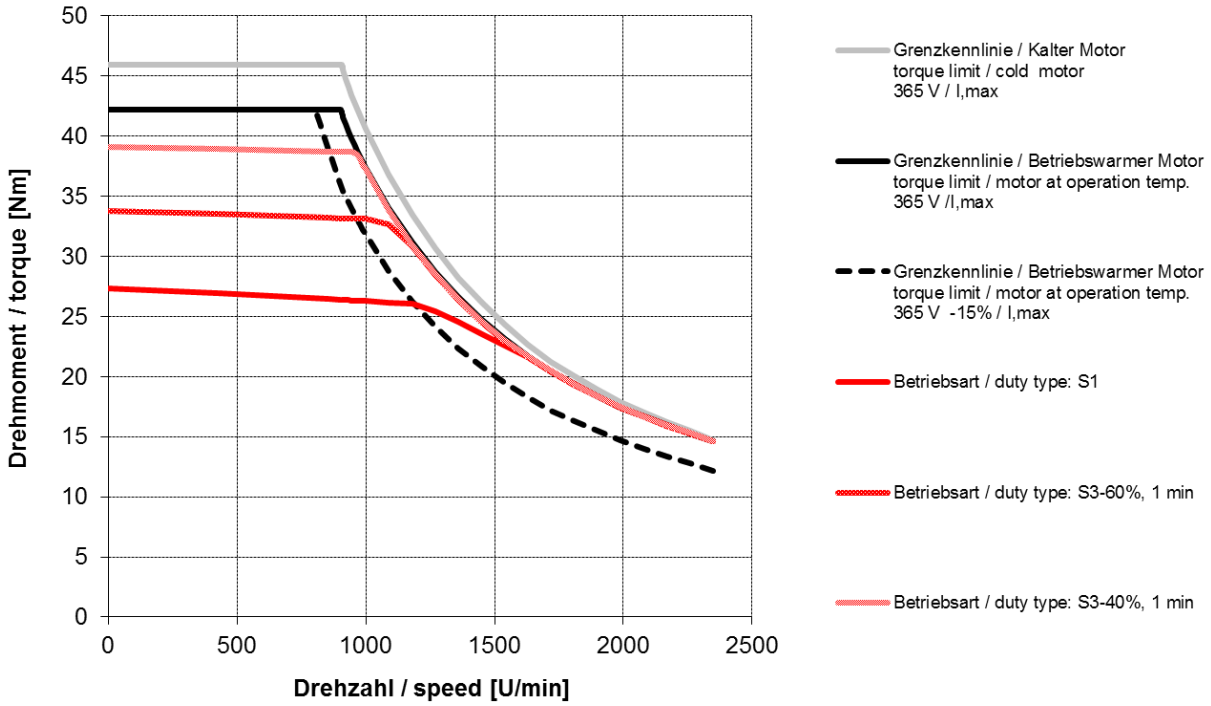


5.4.2. DSC1-100..64O..

DSC1-100KO64O-10-54



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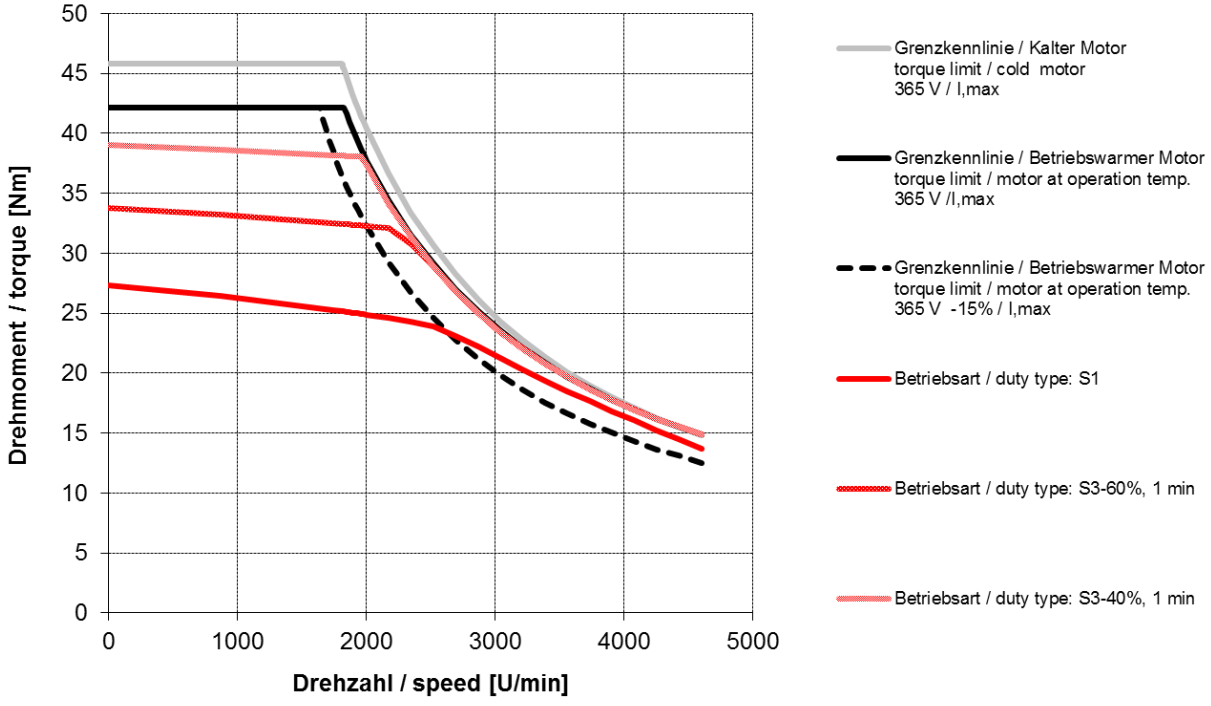

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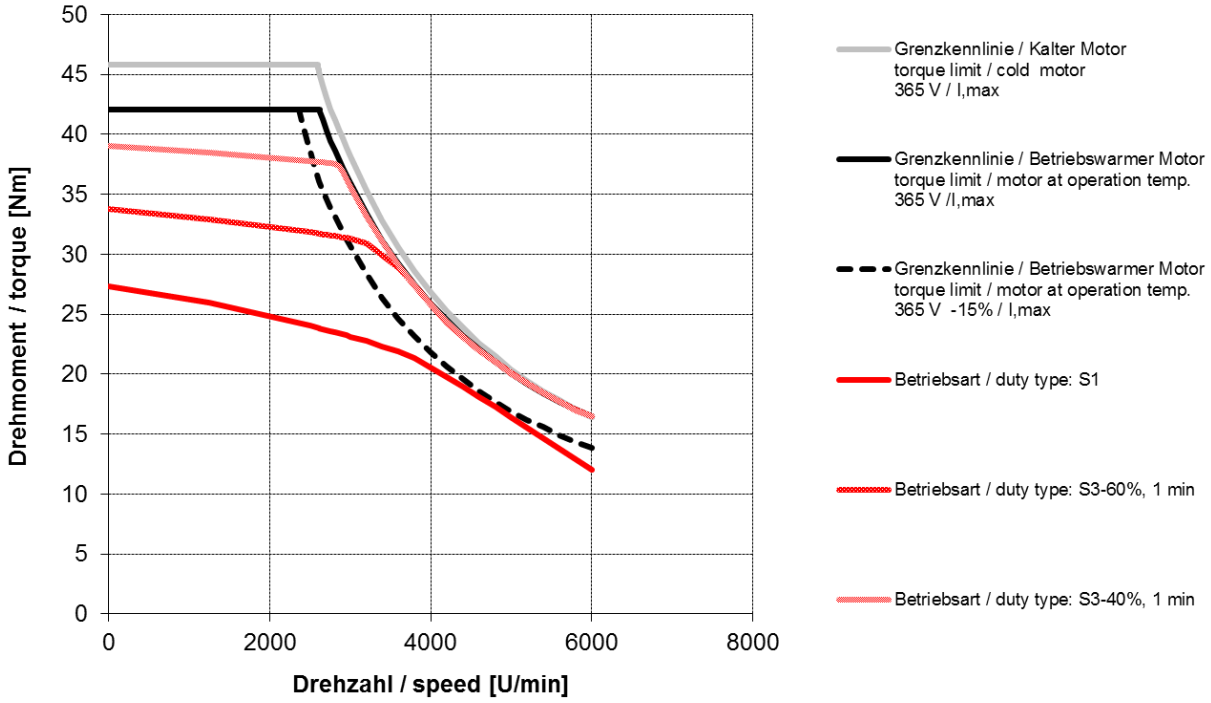

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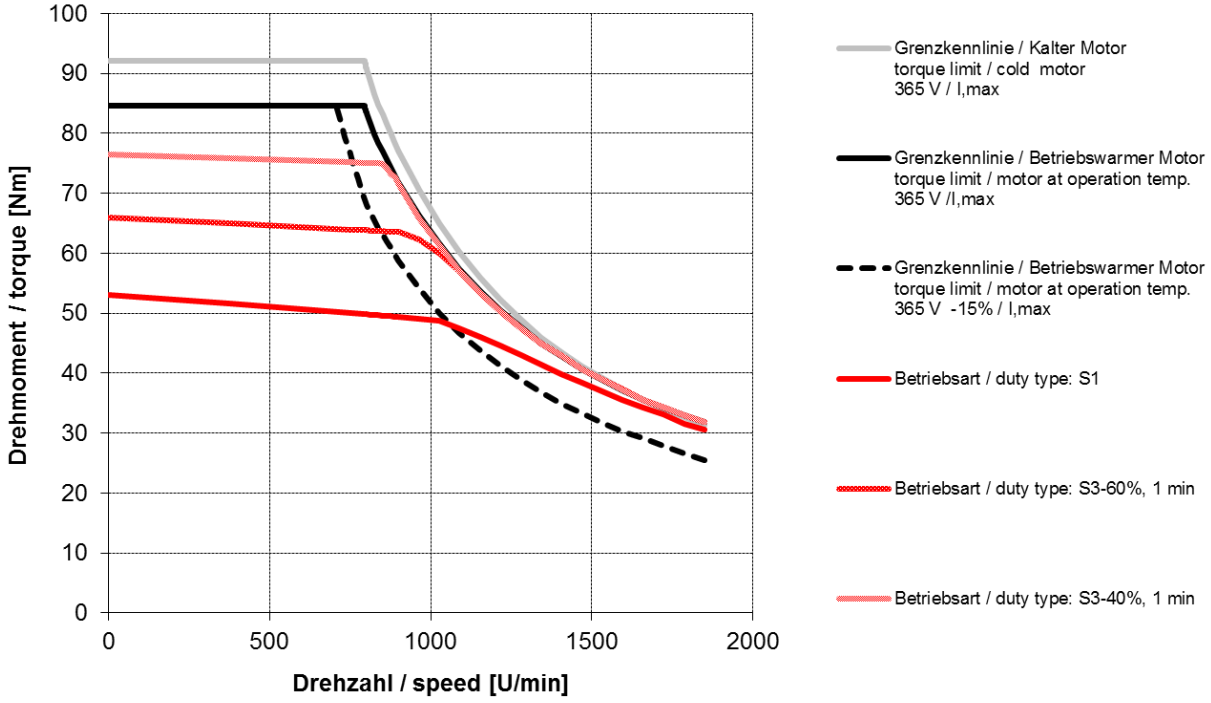

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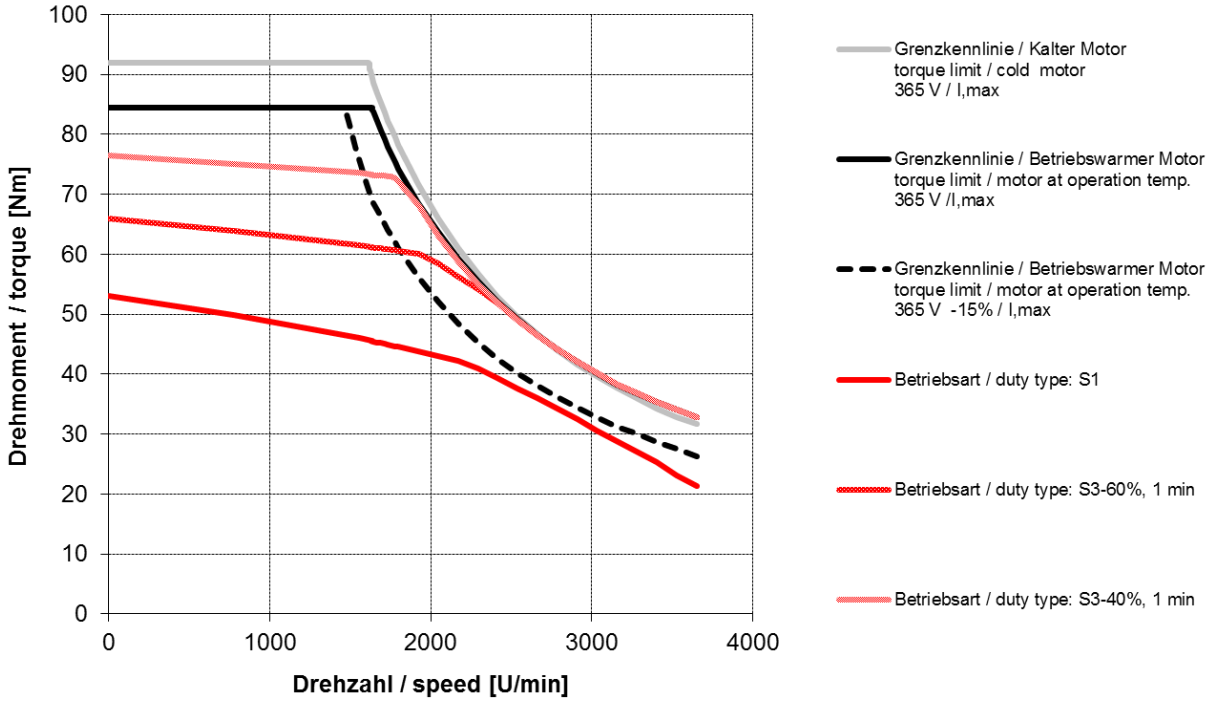
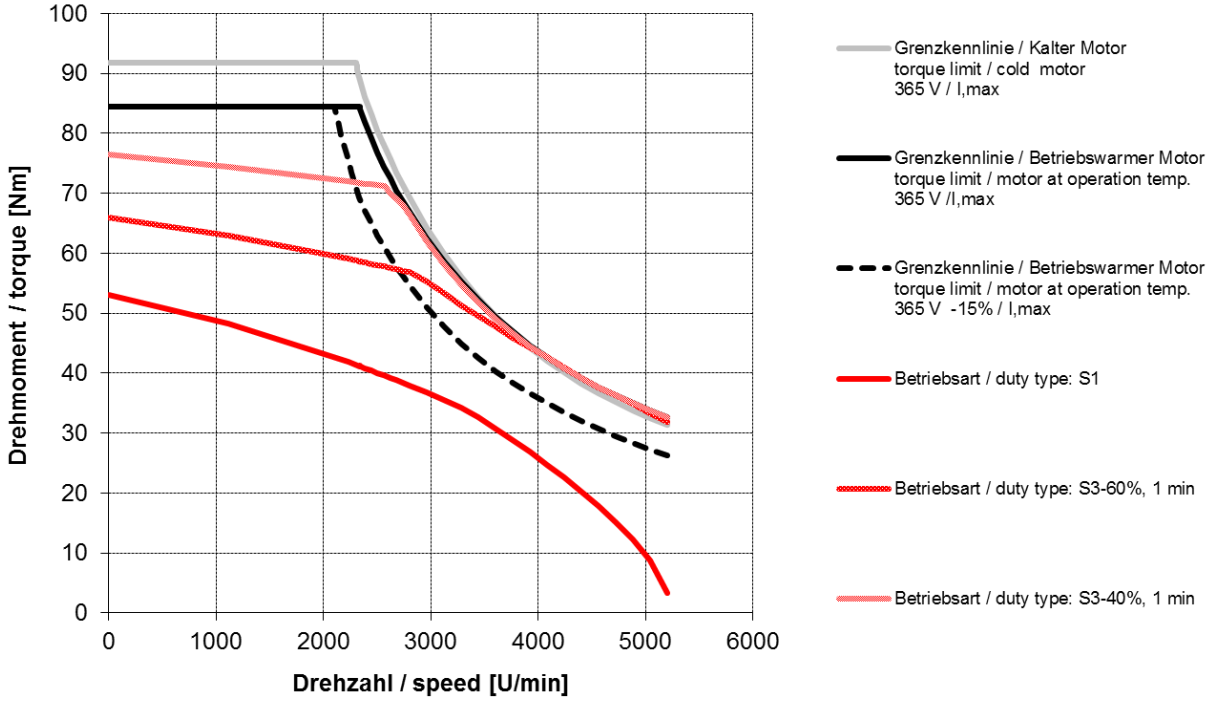


DSC1-100SO64O-30-54



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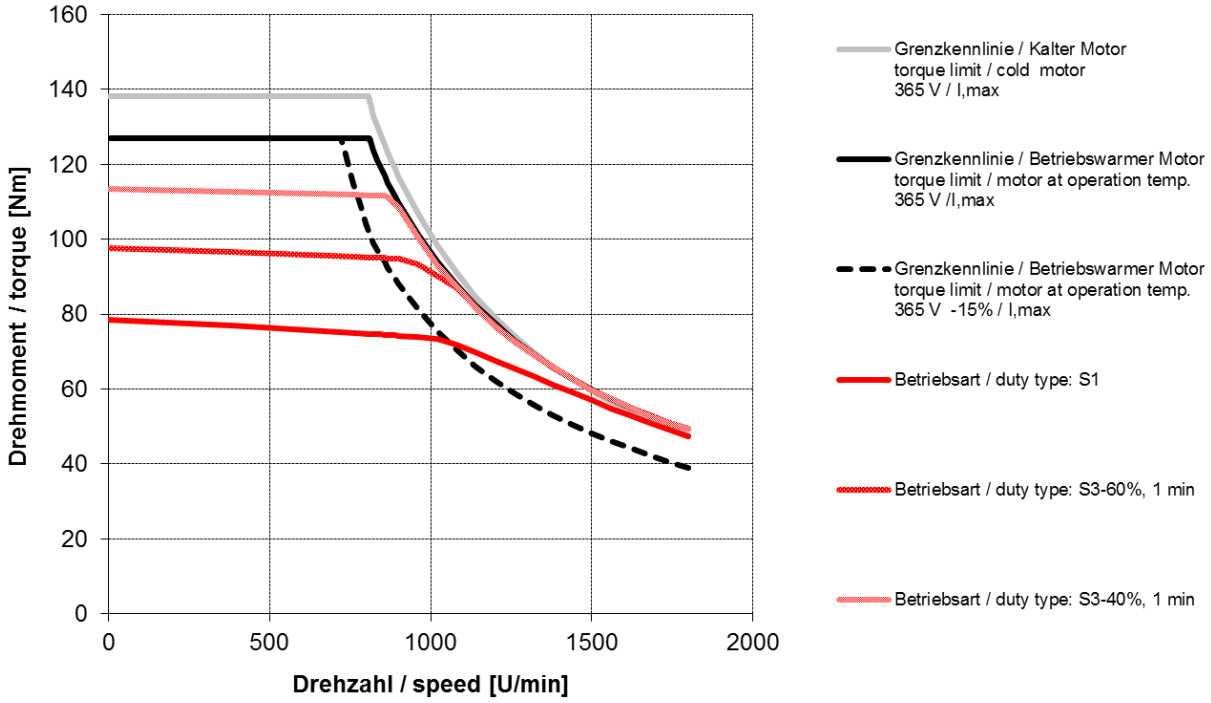

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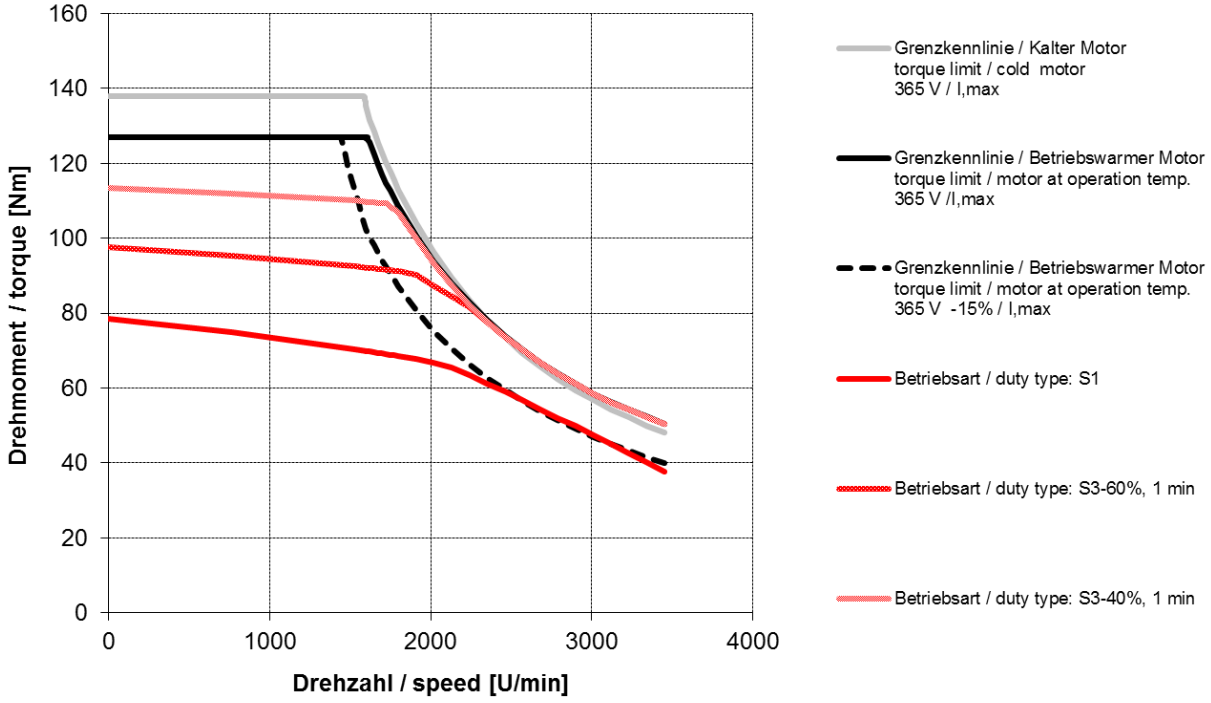

5.4.3. DSC1-100..64W..

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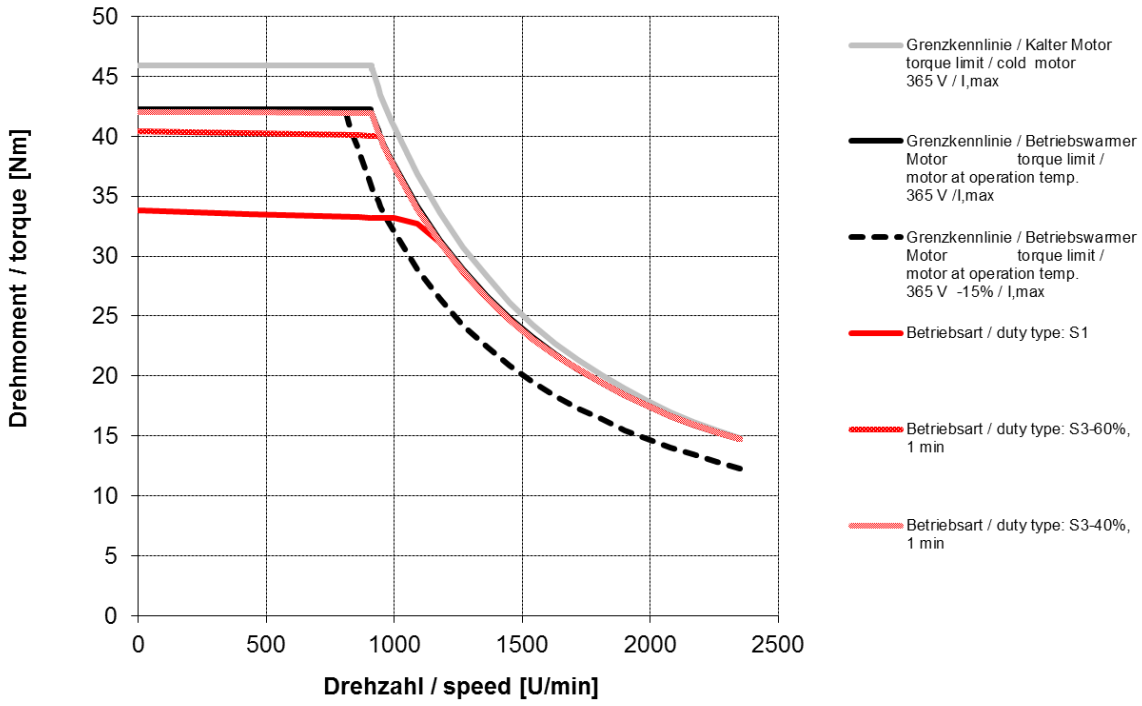

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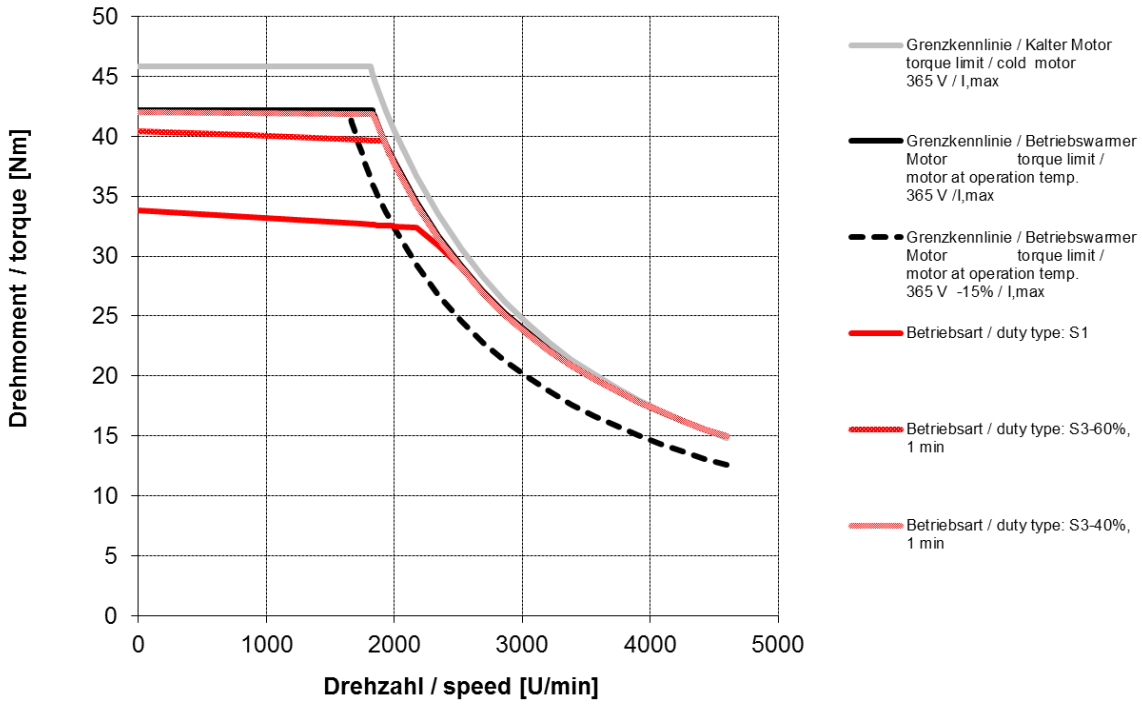

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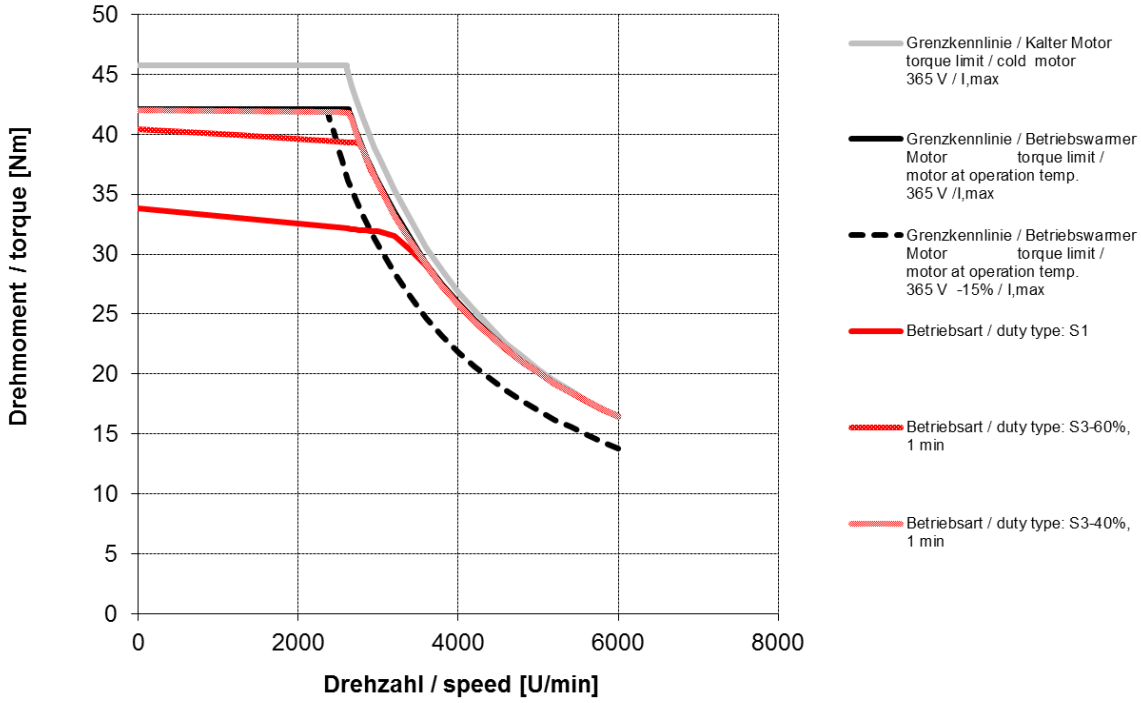

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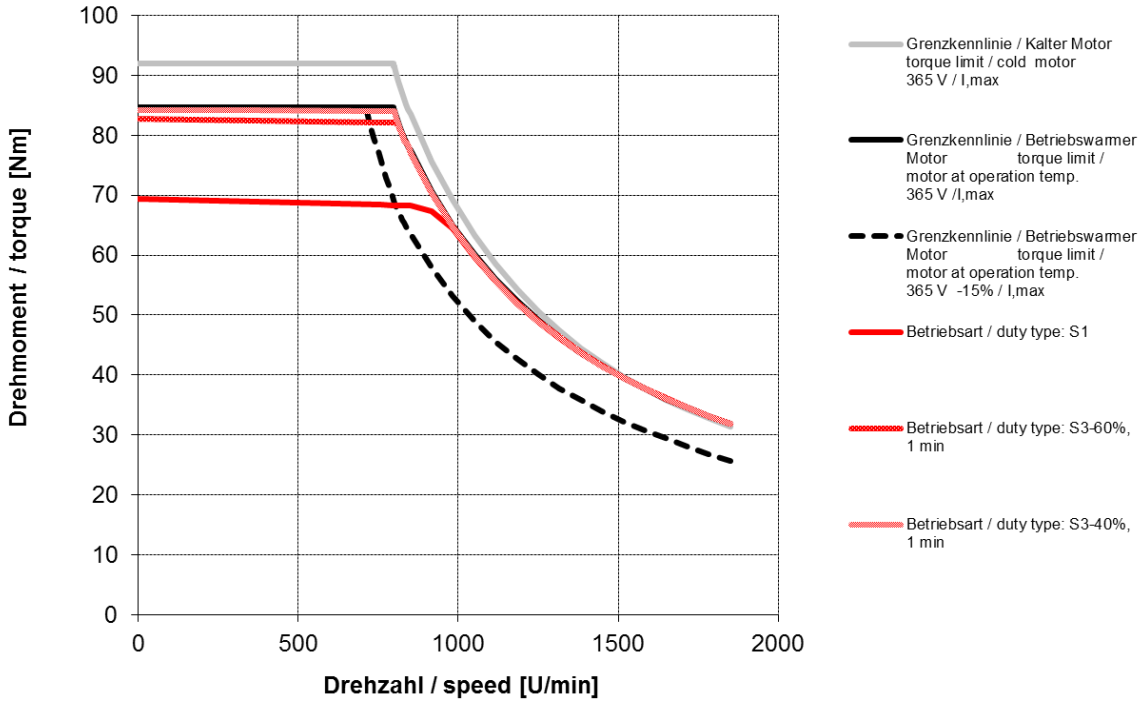

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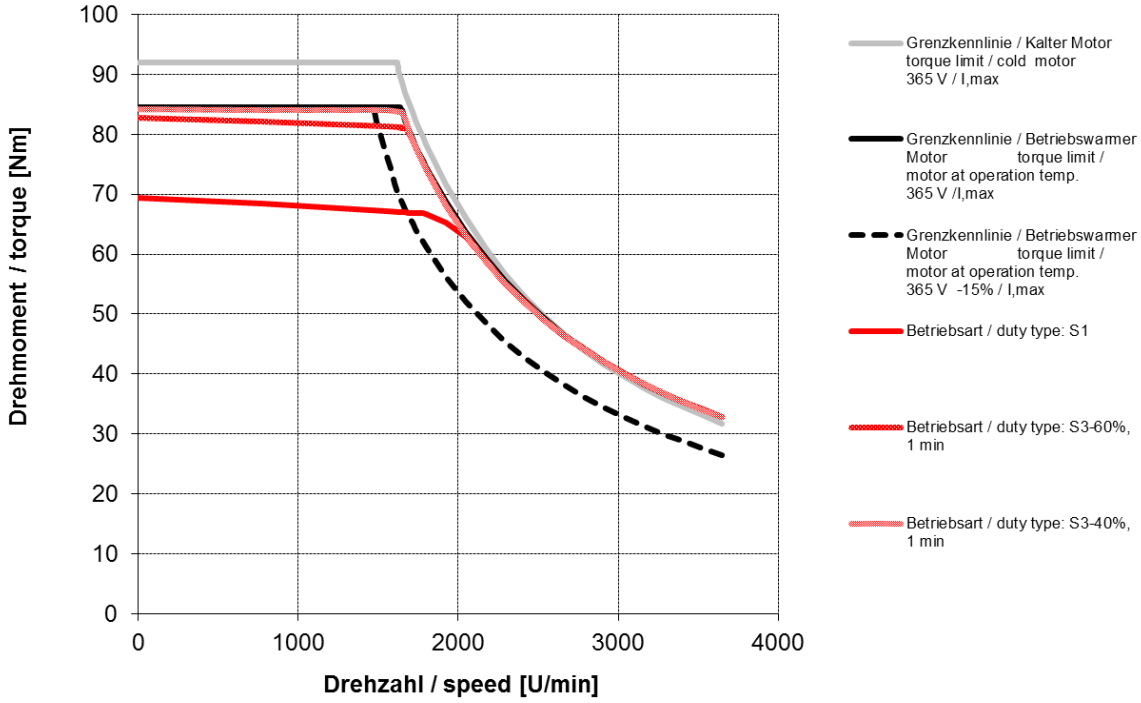

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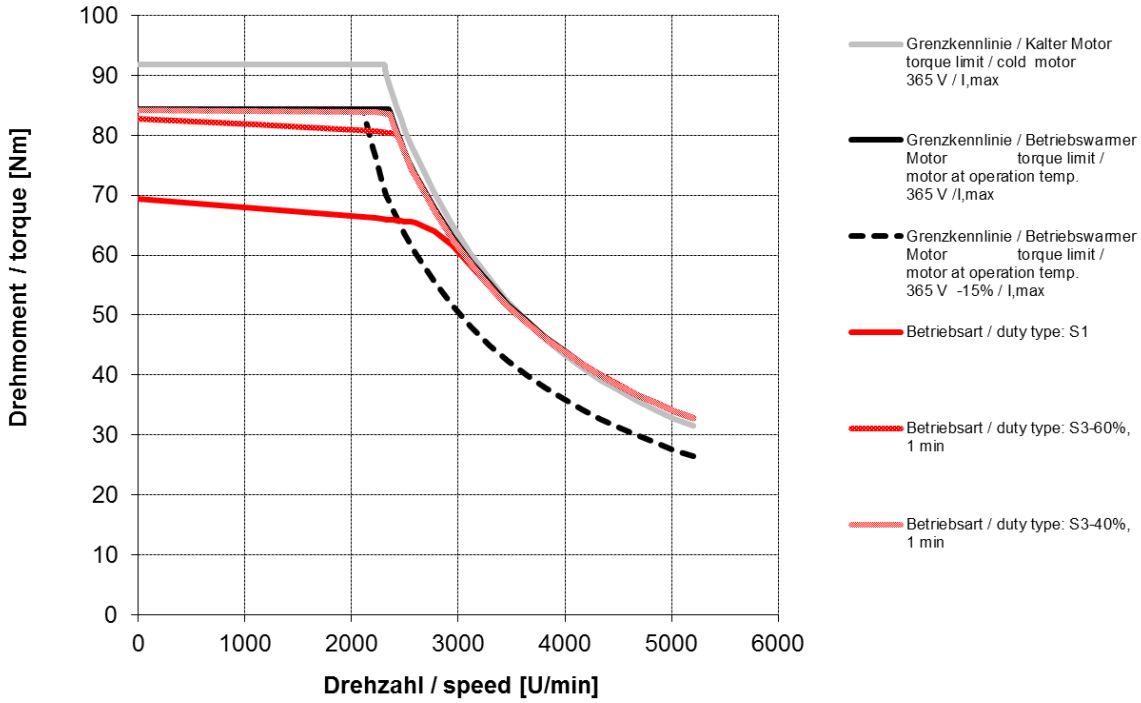

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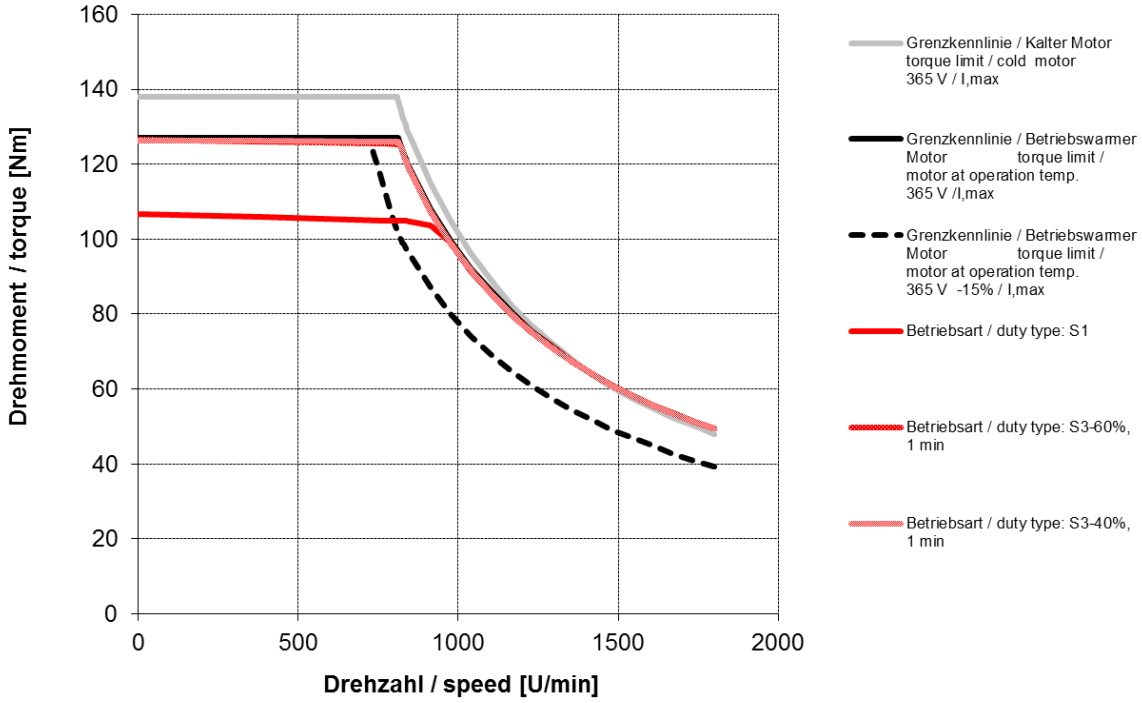

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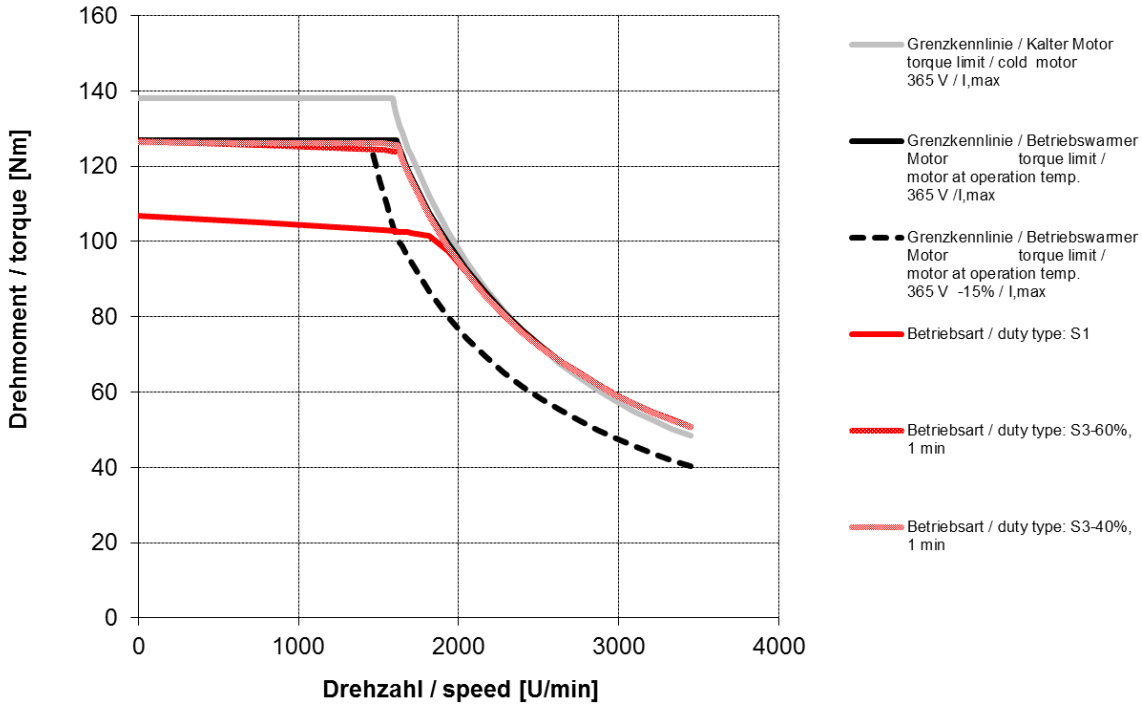

6. Commissioning and maintenance instructions

For information on commissioning the motors, please request a copy of our commissioning and maintenance instructions, quotion number 00682,

7. Declaration of Conformity

7.1. EU – Declaration of Conformity

CE

BAUMÜLLER

EU-Konformitätserklärung
gemäß

- **Richtlinie 2014/35/EU (Niederspannungsrichtlinie)**

  Richtlinie 2014/30/EU (EMV-Richtlinie)

Hersteller

Baumüller Nürnberg GmbH
Ostendstr. 80 - 90
90482 Nürnberg
Deutschland
Tel. +49 9 11 54 32 - 0
Fax: +49 9 11 54 32 - 1 30
E-Mail: mail@baumueller.de
Internet: www.baumueller.de

Hiermit erklären wir, dass die nachfolgend genannten Produkte aufgrund ihrer Konzeption, Konstruktion und Bauart in der von uns in Verkehr gebrachten Ausführung den Anforderungen der oben genannten Richtlinien einschließlich der zum Zeitpunkt der Erklärung geltenden Änderungen entsprechen.

Hinweise:

1. Bei Umbau oder Änderungen am Produkt verliert diese Erklärung mit sofortiger Wirkung ihre Gültigkeit.

2. Diese Erklärung bescheinigt die Übereinstimmung mit der genannten Richtlinie, stellt aber keine Zusicherung von darüber hinaus gehenden Produkteigenschaften dar.

3. Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.

Angewandte harmonisierte Normen:

- EN 60034-1:2010 + Cor.:2010
  Drehende elektrische Maschinen – Teil 1:
  Bemessung und Betriebsverhalten
- EN 60034-5:2001 + A1:2007
  Drehende elektrische Maschinen – Teil 5:
  Schutzarten aufgrund der Gesamtkonstruktion von drehenden elektrischen Maschinen (IP-Code) – Einteilung
- EN 60034-6:1993
  Drehende elektrische Maschinen – Teil 6:
  Einteilung der Kühlverfahren (IC-Code)

(Wird fortgesetzt auf der nächsten Seite ...)

EU-Declaration of Conformity
according

- **Directive 2014/35/EU (Low-voltage-directive)**

  Directive 2014/30/EU (EMC-directive)

Manufacturer

Baumüller Nürnberg GmbH
Ostendstr. 80 - 90
90482 Nürnberg
Germany
Tel. +49 9 11 54 32 - 0
Fax: +49 9 11 54 32 - 1 30
E-Mail: mail@baumueller.de
Internet: www.baumueller.de

We declare, that the products referred to in the following conform in their concept, construction and design as lauched by us to the above mentioned directives and their respective changes which were valid at the point of declaration.

Notes:

1. By modifying or alternating the device(s) this declaration immediately becomes invalid.

2. This declaration confirms the compliance with the directive listed, but it is no covenant of any further product properties.

3. This declaration of conformity is issued under the sole responsibility of the manufacturer.

Applied harmonised standards:

- EN 60034-1:2010 + Cor.:2010
  Rotating electrical machines – Part 1:
  Rating and performance
- EN 60034-5:2001 + A1:2007
  Rotating electrical machines – Part 5:
  Degree of protection provided by the integral design of rotating electrical machines (IP-Code) – Classification
- EN 60034-6:1993
  Rotating electrical machines – Part 6:
  Methods of cooling (IC-Code)

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(... Fortsetzung von der vorherigen Seite)

- EN 60034-9:2005 + A1:2007
  Drehende elektrische Maschinen – Teil 9:
  Geräuschgrenzwerte
- EN IEC 60034-14:2018
  Drehende elektrische Maschinen – Teil 14:
  Mechanische Schwingungen von bestimmten Maschinen mit einer Achshöhe von 56 mm und höher – Messung, Bewertung und Grenzwerte der Schwingstärke
- EN 61800-5-1:2007 + A1:2017
  Elektrische Leistungsantriebssysteme mit einstellbarer Drehzahl – Teil 5-1:
  Anforderungen an die Sicherheit – Elektrische, thermische und energetische Anforderungen
- EN 60204-1:2018
  Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1:
  Allgemeine Anforderungen

(... continued from the previous page)

- EN 60034-9:2005 + A1:2007
  Rotating electrical machines – Part 9:
  Noise limits
- EN IEC 60034-14:2018
  Rotating electrical machines – Part 14:
  Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity
- EN 61800-5-1:2007 + A1:2017
  Adjustable speed electrical power drive systems – Part 5-1:
  Safety requirements – Electrical, thermal and energy
- EN 60204-1:2018
  Safety of machinery - Electrical equipment of machines - Part 1:
  General requirements

Markenname: Baumüller
Produktbezeichnung: Drehstrommotor

Brand Name: Baumüller
Product Name: AC motor

Produkt / Product (x): optionaler Buchstabe / optional character {x, y}: alternative Buchstaben oder Zahlen / alternative characters	**Jahr der erstmaligen CE-Kennzeichnung / Year of first CE marking**
DSC1-045XXXXX-XX-XX-XXX-XXX-X-XX-X-XXX	**2013**
DSC1-056XXXXX-XX-XX-XXX-XXX-X-XX-X-XXX	**2013**
DSC1-071XXXXX-XX-XX-XXX-XXX-X-XX-X-XXX	**2013**
DSC1-100XXXXX-XX-XX-XXX-XXX-X-XX-X-XXX	**2013**
DSC1-135XXXXX-XX-XX-XXX-XXX-X-XX-X-XXX	**2019**

Nürnberg, 10.10.2019

i.V. Michael Veeh

Entwicklungsleiter Motoren
Manager R&D Motors

Dipl.-Ing.(FH)Stefan Buchner

Geschäftsbereichsleitung Produktion
Business Unit Manager Production

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7.2. UKCA Declaration of Conformity

UK CA

BAUMÜLLER

UKCA-Declaration of Conformity according

- **Electrical Equipment Regulation 2016 (Statutory Instrument 2016/1101)**
- **Electromagnetic Compability Regulation 2016 (Statutory Instrument 2016/1091)**

Manufacturer

Baumüller Nürnberg GmbH
Ostendstr. 80 - 90
90482 Nürnberg
Germany
Phone +49 9 11 54 32 - 0
Fax: +49 9 11 54 32 - 1 30
E-Mail: mail@baumueller.de
Internet: www.baumueller.de

Branch office UK

Baumüller (UK) Ltd.
Units 2&3, Aurora Stockport, Baecon Way
SK3 0EF Romiley
United Kingdom
Phone: +44 161 432 78 24
Fax: +44 161 432 8493
E-Mail: mail@baumueller.co.uk
Internet: www.baumueller-services.com/uk

We declare, that the products referred to in the following conform in their concept, construction and design as lauched by us to the above mentioned directives and their respective changes which were valid at the point of declaration.

Notes:

1. *By modifying or alternating the device(s) this declaration immediately becomes invalid.*
2. *This declaration confirms the compliance with the directive listed, but it is no covenant of any further product properties.*
3. *This declaration of conformity is issued under the sole responsibility of the manufacturer.*
4. *responsibility of the manufacturer This motor series isn't in scope of guideline 2005/32/EG*

Applied harmonised standards:

- **BS EN 60034-1:2010**
  Rotating electrical machines – Part 1:
  Rating and performance
- **BS EN 60034-5:2020**
  Rotating electrical machines – Part 5:
  Degrees of protection provided by the integral design of rotating electrical machines (IP code). Classification
- **BS EN 60034-6:1994**
  Rotating electrical machines – Part 6:
  Methods of cooling (IC-Code)
- **BS EN 60034-9:2005**
  Rotating electrical machines – Part 9:
  Noise limits
- **BS EN IEC 60034-14:2018**
  Rotating electrical machines – Part 14:
  Mechanical vibration of certain machines with shaft heights 56 mm and higher. Measurement, evaluation and limits of vibration severity. The following applies to roller bearing motors : Based on EN 60034-14 or requirements according to customer agreement.

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- **BS EN 61800-5-1:2007 + A11:2021**
  Adjustable speed electrical power drive systems – Part 5-1:
  Safety requirements – Electrical, thermal and energy

- **BS EN 60204-1:2018**
  Safety of machinery - Electrical equipment of machines - Part 1:
  General requirements

Brand Name: Baumüller
Product Name: AC motor

Produkt / Product (x): optionaler Buchstabe / optional character (x, y): alternative Buchstaben oder Zahlen / alternative characters	**Jahr der erstmaligen CE-Kennzeichnung / Year of first CE marking**
DS 3 Phase AC Servomotoren **DS (x)(x)-xxx-x-x-x** **GN(A,F)xxxx(S,M,L)N** **DSC1-XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-XXX** **DSH1-XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-XXX** **DSP1-XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-XXX** **HYG1-XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-XXX** **DS2--XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-XXX** **DSD2-XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-XXX** **DST2-XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-XXX** **DA1- XXXXXXXX-XX-XX-XXX-XXX-X-XX-X-XXX**	**2022**

Nürnberg, 05.04.2022

Dr.-Ing. Michael Wengler
Director

ppa. Matthias Barth
Manager R&D

HOUSE OF AUTOMATION

Baumüller Nürnberg GmbH

Ostendstraße 80 – 90 · 90482 Nürnberg · Germany
Phone: +49 (0) 911 5432 - 0 · Fax: +49 (0) 911 5432 - 130
www.baumueller.com