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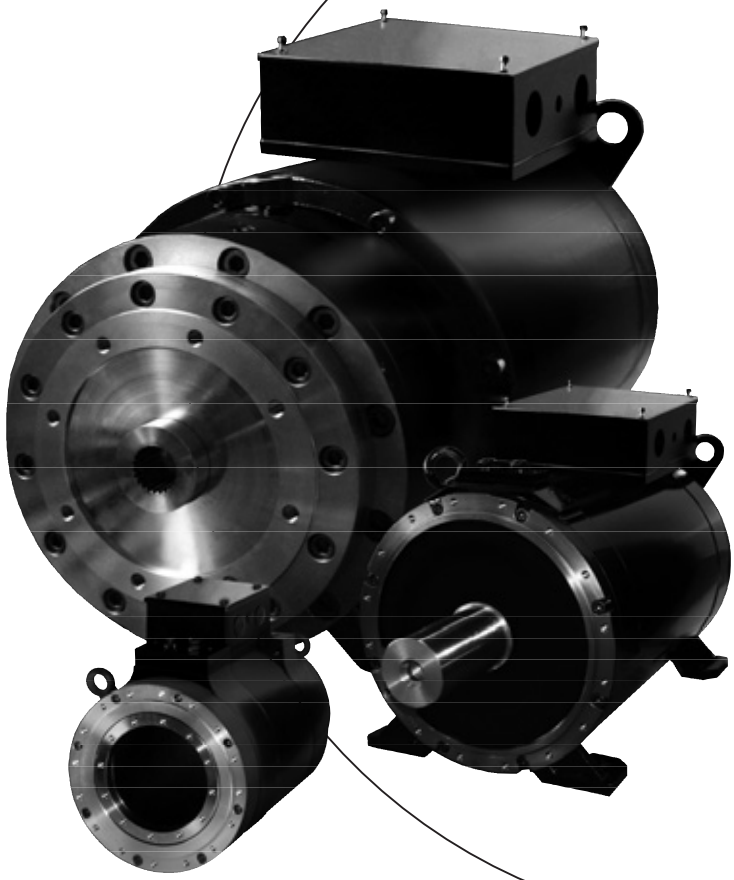

be in motion be in motion

DST2
Synchronous Torque-Motors

DST2 135 - 400

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Issue 01/2013

1. Synchronous Torque Motor DST2

Torque motors from the **DST2** series are permanent magnet multi-pole synchronous motors with an integral water cooling system. Due to the high torque densities in the low and mid speed ranges, this series of energy-efficient motors is suitable for direct drives in general engineering applications.
A combination of high overload capability and extremely good concentricity properties makes the drives ideal for complex, dynamic applications.
The integral stainless steel water cooling system dissipates lost heat efficiently and offers a high degree of protection. These motors do not require a fan module, which significantly reduces the noise generated by the motor. Furthermore, the durable, compact motors are largely maintenance-free, which favours economical operation.

1.1. General technical data

Type of construction	IM B14	Size 135 (solid shaft motors)
	IM B34	Size 135/200/260/315/400 (solid shaft motors)
		Foot on D and N-side, available as an option
	IM B14	Size 135/200/260/315 (hollow shaft motors)
	IM B34	Size 400 (hollow shaft motors)
	IM B34	Size 135/200/260/315/400 (thrust bearing motors)
Degree of protection	IP54	Complete motors
	IP00	Kit motors
Connection	Main connection	U V W (terminal box)
	Control terminal	12-pin or 17-pin connector; 9-pin connector for EnDat 2.2
	Temperature sensor	In main connection
Cooling type	IC 3W7	Water-cooled
Coolant inlet temperature	10 °C to 25 °C	To prevent the formation of condensate during operation, note the defined climate class
Temperature sensor	Linear temperature sensor	For evaluation in the controller; see chapter 3.4
Heating	$\Delta\vartheta \leq 125$ K	Insulation material class H as per EN 60034
	$\Delta\vartheta \leq 105$ K	Insulation material class F as per EN 60034 – for kit motors
Environmental conditions for running	Class 3K3/3Z12 as per DIN EN 60721-3-3, 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, 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, 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
Terminal box position	N side; top	For position options/main connection outlet, see chapter 4.7
Position of water connections	D side; top	The water connection position options are identical to the main connection position options, i.e. position of water connection = position of terminal box
Vibration class	A	as per DIN EN60034-14 (VDE 0530, part 14):2004-09
		maintained up to maximum rated speed
Vibration resistance up to	radial 3 g/axial 1 g	10-55 Hz as per EN 60068-2-6
Shaft end	Cylindrical	as per DIN 748 without key
		Centring with internal thread as per DIN 332 form D
		See chapter 4.6 for shaft options
Surface	Black matt	RAL 9005
Encoder	Resolver	Standard - see chapter 3.1
	Sincos encoder	Options - see chapter 3.1; Other encoders on request

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.

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. Performance definition

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 DST motors with higher coolant inlet temperatures:

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

1.4. Water cooling

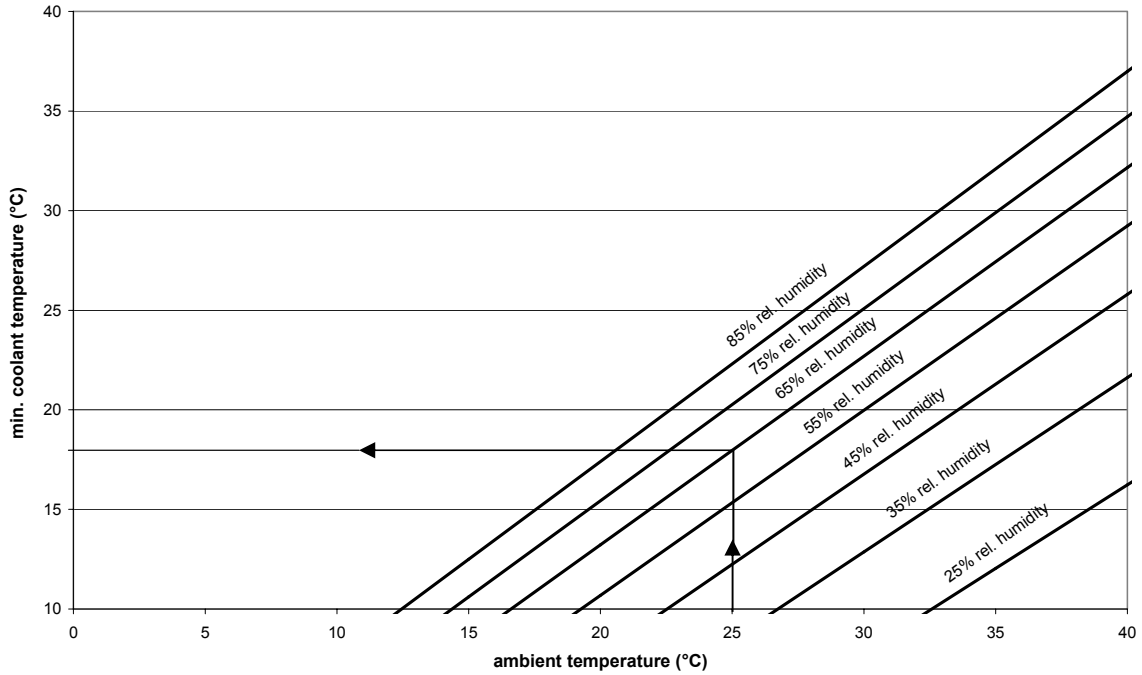
1.4.1. Coolant consistency

The coolant must satisfy the following specifications:

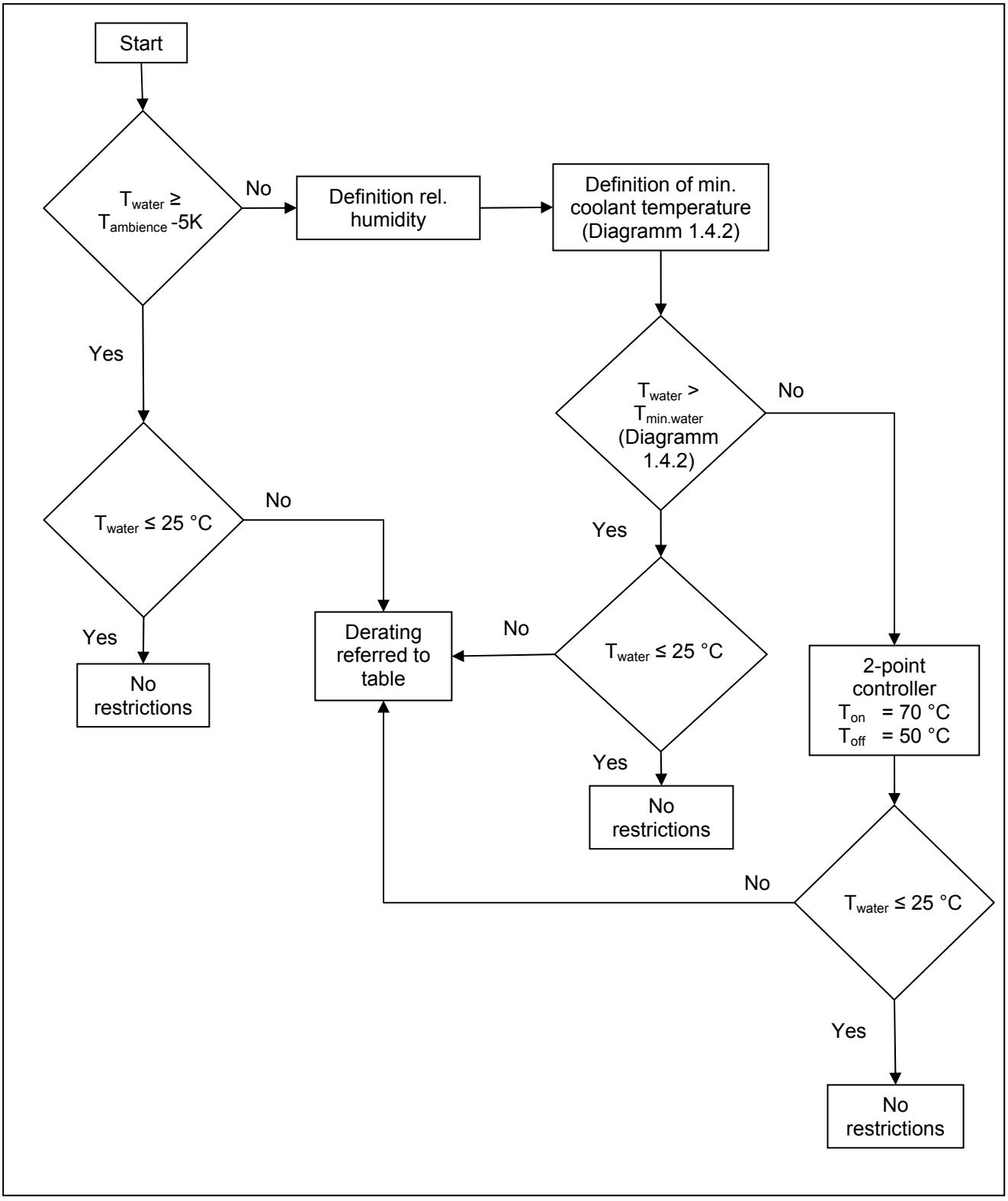
Conditions	**Unit**	**Value**
Maximum permitted system pressure	bar	6
Temperature of coolant - for motor	° C	10 to 25
pH value (at 20° C)	---	6.5 to 9
Overall hardness	mmol/l	1.43 to 2.5
Chloride - Cl^-	mg/l	< 200
Sulphate - SO_4^{2-}	mg/l	< 200
Oil	mg/l	< 1
Permitted particle size of solid foreign objects,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

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

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 (G internal thread)
DST2-135KO54W	4	0.2	10	6	2x 1/4"
DST2-135MO54W	5	0.4	10	6	2x 1/4"
DST2-135LO54W	6	0.7	10	6	2x 1/4"
DST2-135BO54W	7	0.9	10	6	2x 1/4"
DST2-135XO54W	6	0.8	10	6	2x 1/4"
DST2-135YO54W	7	1.0	10	6	2x 1/4"

Motor type	Volume flow [l/min]	Pressure decrease ± 15 % [bar]	Heating [K]	Max. coolant pressure [bar]	Connection (G internal thread)
DST2-200KO54W	7	0.5	13	6	2x 3/8"
DST2-200KM54W	7	0.7	13	6	2x 3/8"
DST2-200MO54W	8	0.9	13	6	2x 3/8"
DST2-200ML54W	9	1.2	13	6	2x 3/8"
DST2-200LO54W	10	1.6	13	6	2x 3/8"
DST2-200BO54W	10	1,8	13	6	2x 3/8"
DST2-200XO54W	10	2,3	13	6	2x 3/8"
DST2-200XY54W	11	2,8	13	6	2x 3/8"

Motor type	Volume flow [l/min]	Pressure decrease ± 15 % [bar]	Heating [K]	Max. coolant pressure [bar]	Connection (G internal thread)
DST2-260KO54W	10	0.4	15	6	2x 1/2"
DST2-260KM54W	11	0.6	15	6	2x 1/2"
DST2-260MO54W	12	0.8	15	6	2x 1/2"
DST2-260ML54W	13	1.0	15	6	2x 1/2"
DST2-260LO54W	15	1.4	15	6	2x 1/2"
DST2-260LB54W	14	1.3	15	6	2x 1/2"
DST2-260BO54W	18	2.2	15	6	2x 1/2"
DST2-260XO54W	17	2,3	15	6	2x 1/2"

Motor type	Volume flow [l/min]	Pressure decrease ± 15 % [bar]	Heating [K]	Max. coolant pressure [bar]	Connection (G internal thread)
DST2-315KO54W	11	0.1	18	6	2x 1/2"
DST2-315KM54W	12	0.2	18	6	2x 1/2"
DST2-315MO54W	13	0.4	18	6	2x 1/2"
DST2-315ML54W	13	0.5	18	6	2x 1/2"
DST2-315LO54W	15	0.8	18	6	2x 1/2"
DST2-315LB54W	15	0.9	18	6	2x 1/2"
DST2-315BO54W	15	1.1	18	6	2x 1/2"
DST2-315XO54W	18	2.1	18	6	2x 1/2"
DST2-315XY54W	20	2.9	18	6	2x 1/2"
DST2-315YO54W	16	2.0	18	6	2x 1/2"
DST2-315ZO54W	17	2.7	18	6	2x 1/2"
DST2-315ZA54W	18	3.4	18	6	2x 1/2"

Motor type	Volume flow [l/min]	Pressure decrease ± 15 % [bar]	Heating [K]	Max. coolant pressure [bar]	Connection (G internal thread)
DST2-400KO54W	23	On request	18	6	2x 1"
DST2-400KM54W	26	On request	18	6	2x 1"
DST2-400MO54W	26	On request	18	6	2x 1"
DST2-400LO54W	28	On request	18	6	2x 1"
DST2-400BO54W	31	On request	18	6	2x 1"
DST2-400XY54W	34	On request	18	6	2x 1"

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.

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

The following materials that make contact with the product are used in the motor:

Cooling system: stainless steel
Connections: brass
Seals: vulcanised fibre

1.5. Winding insulation

The motors are designed for operation on converters with intermediate circuit voltages up to 640 V.

Higher intermediate link voltages of ≤ 800 V are possible, if voltage spikes on the motor terminals are limited to <1200V by suitable filters in the motor supply line.

1.6. Explanation of motor data

n_N	Rated speed [rpm]
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]
U_N	Rated voltage [V]
$K_{E\,/\,COLD}$	Voltage constant (EMF) to [V per 1000 rpm]
cos φ	Power factor
η_N	Efficiency
f_N	Rated frequency [Hz]
$M_{o,max}$	Maximum static torque [Nm] with maximum current [A] and speed = 0, momentarily
$I_{o,max}$	Static current [A] at $M_{o,\,max}$; I_{0max} is the effective value
m	Motor mass [kg]
J_{mot}	Moment of inertia [kgm²]

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. A clocking frequency of > 6 kHz is recommended.
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 code

DST2-XXXXXXXX-XXX-X-X-XX-X-XXX-X-XXX	**Type**
DST2-**XXX**XXXXX-XXX-X-X-XX-X-XXX-X-XXX	**Overall size** 135 200 260 315 400
DST2-XXX**XX**XXX-XXX-X-X-XX-X-XXX-X-XXX	**Overall length** KO KM MO ML LO LB BO XO XY YO ZO ZA
DST2-XXXXX**XX**X-XXX-X-X-XX-X-XXX-X-XXX	**Degree of protection** 00 - Degree of protection IP00 54 - Degree of protection IP54
DST2-XXXXXXX**X**-XXX-X-X-XX-X-XXX-X-XXX	**Cooling type** W - Water cooling
DST2-XXXXXXXX-**XXX**-X-X-XX-X-XXX-X-XXX	**Nominal speed class** 010 - 100 rpm 015 - 150 rpm 017 - 175 rpm 020 - 200 rpm 025 - 250 rpm 030 - 300 rpm 035 - 350 rpm 040 - 400 rpm 045 - 450 rpm 050 - 500 rpm 055 - 550 rpm 060 - 600 rpm 075 - 750 rpm 100 - 1000 rpm 150 - 1500 rpm
DST2-XXXXXXXX-XXX-**X**-X-XX-X-XXX-X-XXX	**Uzk_ DC** 5 - 540 V

DST2-XXXXXXXX-XXX-X-**X**-XX-X-XXX-X-XXX	**Encoder type** O - No encoder A - Resolver D - SRS50 E - SRM50 F - ECN1313 G - EQN1325 H - ECN1325 I - EQN1337
DST2-XXXXXXXX-XXX-X-X-**X**X-X-XXX-X-XXX	**Shaft type** V - Solid shaft H - Hollow shaft D - Thrust bearing
DST2-XXXXXXXX-XXX-X-X-X**X**-X-XXX-X-XXX	**Shaft options** A - Smooth shaft B - With key D - Internal teeth as per DIN5480 E - External teeth as per DIN5480 F - External teeth as per DIN ISO14 G - Blind bore with key H - Blind bore with 2 keys
DST2-XXXXXXXX-XXX-X-X-XX-**X**-XXX-X-XXX	**Type of construction** 3 - IM B14 5 - IM B34 - Foot N side 6 - IM B34 - Foot D and N side U - IM 5205 - Kit
DST2-XXXXXXXX-XXX-X-X-XX-X-**X**XX-X-XXX	**Main connection type** K - Terminal box
DST2-XXXXXXXX-XXX-X-X-XX-X-X**X**X-X-XXX	**Position of main connection** T - Top B - Bottom L - Left with D side facing towards shaft end R - Right with D side facing towards shaft end
DST2-XXXXXXXX-XXX-X-X-XX-X-XX**X**-X-XXX	**Main connection outlet** R - Right with D-side facing towards shaft end L - Left with D-side facing towards shaft end T - Top B - Bottom
DST2-XXXXXXXX-XXX-X-X-XX-X-XXX-**X**-XXX	**Relubrication** O - No relubrication N - With relubrication
DST2-XXXXXXXX-XXX-X-X-XX-X-XXX-X-**XXX**	**Special design** 000 - No special design XXX - Special design (internal coding)

2. Technical data

2.1. Overview DST2-135..54 W

Mains voltage 3 AC 400 V for converter with unregulated supply

Rated speed[1]	Motor type	Rated output	Rated torque	Rated current	Voltage constant	Power factor	Efficiency	Rated frequency	Max. static current	Max. speed	Terminal box assignment see p. 56
n_N		P_N	M_N	I_N	$K_{E\,/\,COLD}$	cos φ	η_N	f_N	$I_{o,max}$	n_{max}	No.
rpm		kW	Nm	A	V/1000 rpm			Hz	A	rpm	
175	DST2-135KO54W-017-5	2.7	145	6.8	1398	0.93	0.69	29.2	18.9	390	10
	DST2-135MO54W-017-5	4.9	265	12.4	1442	0.92	0.67	29.2	27.4	380	10
	DST2-135LO54W-017-5	6.4	350	16.1	1468	0.91	0.69	29.2	35.9	370	10
	DST2-135BO54W-017-5	7.8	430	19.3	1511	0.91	0.70	29.2	43.6	360	10
	DST2-135XO54W-017-5	9.3	505	22.9	1509	0.90	0.71	29.2	52	360	10
	DST2-135YO54W-017-5	11	580	26.1	1515	0.90	0.72	29.2	61	360	10
350	DST2-135KO54W-035-5	5.3	145	11.2	849	0.93	0.80	58.3	31.1	640	10
	DST2-135MO54W-035-5	9.5	260	20.4	865	0.92	0.80	58.3	45.8	630	10
	DST2-135LO54W-035-5	12	340	26.6	873	0.91	0.81	58.3	60	630	10
	DST2-135BO54W-035-5	15	420	32.5	881	0.91	0.82	58.3	75	620	10
	DST2-135XO54W-035-5	18	490	38.2	889	0.90	0.83	58.3	89	620	10
	DST2-135YO54W-035-5	21	565	43	903	0.91	0.84	58.3	102	610	10
550	DST2-135KO54W-055-5	8.2	145	17.3	545	0.90	0.85	91.6	48.4	1000	10
	DST2-135MO54W-055-5	15	260	31.2	550	0.88	0.86	91.6	72	1000	10
	DST2-135LO54W-055-5	20	340	40.2	558	0.89	0.87	91.6	95	980	10
	DST2-135BO54W-055-5	24	420	48.5	566	0.89	0.88	91.6	116	970	10
	DST2-135XO54W-055-5	28	495	56	575	0.90	0.89	91.6	138	950	10
	DST2-135YO54W-055-5	33	565	64	572	0.90	0.89	91.6	160	960	10
750	DST2-135KO54W-075-5	11	140	22.7	415	0.90	0.88	125.0	63	1300[2]	10
	DST2-135MO54W-075-5	20	250	39.8	429	0.89	0.88	125.0	92	1250[2]	10
	DST2-135LO54W-075-5	26	330	53	425	0.87	0.89	125.0	124	1250[2]	10
	DST2-135BO54W-075-5	32	405	65	426	0.87	0.90	125.0	155	1250[2]	10
	DST2-135XO54W-075-5	37	475	76	428	0.87	0.90	125.0	185	1250[2]	12
	DST2-135YO54W-075-5	43	545	87	425	0.87	0.91	125.0	215	1250[2]	12
1000	DST2-135KO54W-100-5	15	140	28.9	324	0.90	0.89	166.6	81	1500[2]	10
	DST2-135MO54W-100-5	26	245	52	324	0.88	0.90	166.6	122	1500[2]	10
	DST2-135LO54W-100-5	34	325	69	320	0.86	0.91	166.6	165	1500[2]	10
	DST2-135BO54W-100-5	42	395	82	330	0.88	0.92	166.6	200	1500[2]	12
	DST2-135XO54W-100-5	49	465	98	323	0.87	0.92	166.6	245	1500[2]	12
	DST2-135YO54W-100-5[3]	57	540	105	340	0.93	0.93	166.6	270	1500	12
1500	DST2-135KO54W-150-5[3]	22	140	42.3	220	0.90	0.90	250.0	120	1500	10
	DST2-135MO54W-150-5[3]	37	235	69	235	0.94	0.91	250.0	170	1500	10
	DST2-135LO54W-150-5[3]	49	315	90	236	0.94	0.92	250.0	225	1500	12
	DST2-135BO54W-150-5[3]	60	380	107	243	0.95	0.93	250.0	270	1500	12

Motor type	Max. static torque $M_{0\,max}$ [Nm]	Moment of inertia Solid shaft J [kgm^2]	Moment of inertia Hollow shaft J [kgm^2]	Weight Solid shaft m [kg]	Weight Hollow shaft m [kg]	Weight Thrust bearing m [kg]
DST2-135KO..	325	0.09	0.13	97	82	126
DST2-135MO..	485	0.12	0.15	115	93	144
DST2-135LO..	645	0.15	0.17	132	105	161
DST2-135BO..	800	0.19	0.18	151	119	180
DST2-135XO..	950	0.22	0.20	168	130	197
DST2-135YO..	1110	0.25	0.22	186	141	214

[1] The max. permitted operating speed for thrust bearing motors is 300 rpm.
[2] The max. permitted operating speed for hollow shaft motors is 1000 rpm.
[3] The motor type is only available as a solid shaft model.

2.2. Overview DST2-200..54 W

Mains voltage 3 AC 400 V for converter with unregulated supply

Rated speed[1)]	Motor type	Rated output	Rated torque	Rated current	Voltage constant	Power factor	Efficiency	Rated frequency	Max. static current	Max. speed	Terminal box assignment see p. 56
n_N rpm		P_N kW	M_N Nm	I_N A	$K_{E\,/\,COLD}$ V/1000 rpm	cos φ	η_N	f_N Hz	$I_{o,max}$ A	n_{max} rpm	No.
150	DST2-200KO54W-015-5	5.5	350	13.5	1840	0.91	0.71	37.5	42.3	290	20
	DST2-200KM54W-015-5	8.4	535	20	1870	0.90	0.75	37.5	62	290	20
	DST2-200MO54W-015-5	11	720	26.5	1880	0.89	0.77	37.5	83	290	20
	DST2-200ML54W-015-5	14	905	32.6	1915	0.89	0.78	37.5	102	280	20
	DST2-200LO54W-015-5	17	1070	37.7	1991	0.90	0.78	37.5	117	270	22
	DST2-200BO54W-015-5	23	1470	52	1918	0.88	0.80	37.5	160	280	22
	DST2-200XO54W-015-5	29	1830	65	1937	0.88	0.80	37.5	200	280	22
	DST2-200XY54W-015-5	32	2030	72	1906	0.87	0.81	37.5	225	280	22
300	DST2-200KO54W-030-5	11	355	25.6	971	0.85	0.81	75.0	80	560	20
	DST2-200KM54W-030-5	17	540	38.6	965	0.83	0.84	75.0	121	570	20
	DST2-200MO54W-030-5	23	725	51	980	0.83	0.86	75.0	160	560	20
	DST2-200ML54W-030-5	29	910	63	994	0.84	0.87	75.0	195	550	20
	DST2-200LO54W-030-5	35	1100	76	978	0.83	0.87	75.0	240	560	22
	DST2-200BO54W-030-5	46	1480	102	977	0.83	0.88	75.0	320	560	22
	DST2-200XO54W-030-5	58	1840	123	1017	0.84	0.89	75.0	385	540	24
	DST2-200XY54W-030-5	64	2030	137	1006	0.84	0.89	75.0	425	540	24
450	DST2-200KO54W-045-5	16	345	35.8	689	0.86	0.84	112.5	113	800	20
	DST2-200KM54W-045-5	25	530	53	696	0.85	0.87	112.5	170	790	20
	DST2-200MO54W-045-5	34	715	71	693	0.84	0.89	112.5	225	790	20
	DST2-200ML54W-045-5	43	900	90	687	0.84	0.90	112.5	285	800	24
	DST2-200LO54W-045-5	51	1090	108	687	0.83	0.90	112.5	340	800	24
	DST2-200BO54W-045-5	69	1460	144	691	0.83	0.91	112.5	450	790	24
	DST2-200XO54W-045-5	86	1830	180	684	0.83	0.91	112.5	570	800	26
	DST2-200XY54W-045-5	95	2010	195	696	0.84	0.91	112.5	615	790	26
600	DST2-200KO54W-060-5	21	340	47.9	510	0.83	0.85	150.0	155	1000	20
	DST2-200KM54W-060-5	33	525	71	520	0.84	0.89	150.0	225	1000	20
	DST2-200MO54W-060-5	44	705	92	529	0.84	0.90	150.0	295	1000	24
	DST2-200ML54W-060-5	56	895	118	521	0.83	0.91	150.0	375	1000	24
	DST2-200LO54W-060-5	68	1080	142	518	0.83	0.92	150.0	450	1000	24
	DST2-200BO54W-060-5	91	1440	185	527	0.84	0.92	150.0	590	1000	26
	DST2-200XO54W-060-5	114	1810	230	531	0.84	0.93	150.0	735	1000	26
	DST2-200XY54W-060-5	126	2000	255	527	0.83	0.93	150.0	810	1000	26
750	DST2-200KO54W-075-5	26	335	58	418	0.84	0.86	187.5	185	1000	20
	DST2-200KM54W-075-5	41	515	88	412	0.82	0.89	187.5	285	1000	22
	DST2-200MO54W-075-5	54	695	113	427	0.84	0.91	187.5	365	1000	24
	DST2-200ML54W-075-5	69	875	141	432	0.85	0.92	187.5	450	1000	24
	DST2-200LO54W-075-5	83	1060	170	426	0.84	0.92	187.5	550	1000	26
	DST2-200BO54W-075-5	112	1430	230	425	0.83	0.93	187.5	735	1000	26
1000	DST2-200KO54W-100-5	32	310	68	347	0.89	0.85	250.0	225	1000	20
	DST2-200KM54W-100-5	50	480	100	351	0.89	0.89	250.0	335	1000	22
	DST2-200MO54W-100-5	69	655	136	345	0.88	0.91	250.0	450	1000	24
	DST2-200ML54W-100-5	88	840	175	342	0.87	0.92	250.0	570	1000	26
	DST2-200LO54W-100-5	105	1000	205	349	0.88	0.93	250.0	670	1000	26

Motor type	Max. static torque $M_{0\,max}$ [Nm]	Moment of inertia Solid shaft J [kgm^2]	Moment of inertia Hollow shaft J [kgm²]	Weight Solid shaft m [kg]	Weight Hollow shaft m [kg]	Weight Thrust bearing m [kg]
DST2-200KO..	790	0.28	0.35	195	169	280
DST2-200KM..	1200	0.38	0.45	220	195	310
DST2-200MO..	1600	0.49	0.55	257	221	341
DST2-200ML..	2010	0.59	0.65	280	248	371
DST2-200LO..	2420	0.70	0.75	316	274	401
DST2-200BO..	3230	0.91	0.95	377	325	460
DST2-200XO..	4050	1.12	1.15	430	376	520
DST2-200XY..	4450	1.22	1.25	468	403	551

[1)] The max. permitted operating speed for thrust bearing motors is 300 rpm.

2.3. Overview DST2-260..54 W

Mains voltage 3 AC 400 V for converter with unregulated supply

Rated speed[1]	Motor type	Rated output	Rated torque	Rated current	Voltage constant	Power factor	Efficiency	Rated frequency	Max. static current	Max. speed	Terminal box assignment see p. 56
n_N		P_N	M_N	I_N	$K_{E\,/\,COLD}$	cos φ	η_N	f_N	$I_{o,max}$	n_{max}	No.
rpm		kW	Nm	A	V/1000 rpm			Hz	A	rpm	
150	DST2-260KO54W-015-5	20	1280	45.5	1973	0.87	0.81	50	103	270	30
	DST2-260KM54W-015-5	27	1720	59	2024	0.87	0.83	50	155	270	30
	DST2-260MO54W-015-5	34	2160	74	2031	0.87	0.84	50	195	270	30
	DST2-260ML54W-015-5	41	2590	88	2047	0.87	0.85	50	200	260	30
	DST2-260LO54W-015-5	48	3030	102	2055	0.87	0.85	50	270	260	33
	DST2-260LB54W-015-5	56	3540	117	2037	0.87	0.87	50	280	270	39
	DST2-260BO54W-015-5	61	3910	131	2057	0.87	0.86	50	350	260	39
	DST2-260XO54W-015-5	75	4760	160	2085	0.87	0.86	50	420	260	39
300	DST2-260KO54W-030-5	39	1240	83	1050	0.85	0.87	100	195	520	30
	DST2-260KM54W-030-5	52	1660	109	1070	0.86	0.89	100	300	510	31
	DST2-260MO54W-030-5	65	2080	135	1078	0.86	0.90	100	370	510	31
	DST2-260ML54W-030-5	79	2510	160	1085	0.86	0.90	100	375	500	33
	DST2-260LO54W-030-5	92	2940	190	1084	0.86	0.91	100	515	500	34
	DST2-260LB54W-030-5	109	3460	215	1066	0.86	0.92	100	540	510	42
	DST2-260BO54W-030-5	119	3800	240	1082	0.86	0.91	100	665	500	42
	DST2-260XO54W-030-5	146	4650	295	1084	0.86	0.91	100	810	500	43
450	DST2-260KO54W-045-5	57	1200	120	712	0.85	0.88	150	285	600	31
	DST2-260KM54W-045-5	76	1620	155	724	0.85	0.90	150	440	600	33
	DST2-260MO54W-045-5	96	2030	195	731	0.86	0.91	150	545	600	34
	DST2-260ML54W-045-5	116	2460	235	721	0.85	0.92	150	565	600	34
	DST2-260LO54W-045-5	136	2890	275	720	0.85	0.92	150	775	600	36
	DST2-260LB54W-045-5	160	3390	315	719	0.86	0.93	150	795	600	43
	DST2-260BO54W-045-5	175	3710	350	731	0.86	0.92	150	980	600	45
	DST2-260XO54W-045-5	210	4490	415	751	0.87	0.93	150	1165	600	45
600	DST2-260KO54W-060-5	73	1160	155	543	0.85	0.88	200	375	600	31
	DST2-260KM54W-060-5	99	1570	205	550	0.86	0.90	200	580	600	34
	DST2-260MO54W-060-5	124	1980	250	558	0.87	0.91	200	715	600	36
	DST2-260ML54W-060-5	149	2380	295	565	0.87	0.92	200	720	600	36
	DST2-260LO54W-060-5	175	2780	345	569	0.88	0.92	200	980	600	37
	DST2-260LB54W-060-5	210	3340	410	546	0.87	0.94	200	1050	600	45
	DST2-260BO54W-060-5	225	3570	435	575	0.88	0.93	200	1245	600	45

Motor type	Max. static torque $M_{0\,max}$ [Nm]	Moment of inertia Solid shaft J [kgm^2]	Moment of inertia Hollow shaft J [kgm²]	Weight Solid shaft m [kg]	Weight Hollow shaft m [kg]	Weight Thrust bearing m [kg]
DST2-260KO..	2410	1.3	1.4	377	352	558
DST2-260KM..	3500	1.7	1.8	435	405	616
DST2-260MO..	4390	2.1	2.2	493	457	673
DST2-260ML..	4890	2.5	2.6	549	508	729
DST2-260LO..	6200	2.9	3.0	605	559	785
DST2-260LB..	6900	3.3	3.4	673	623	853
DST2-260BO..	8000	3.6	3.8	741	686	920
DST2-260XO..	9800	4.4	4.5	858	791	1035

[1] The max. permitted operating speed for thrust bearing motors is 300 rpm.

2.4. Overview DST2-315..54 W

Mains voltage 3 AC 400 V for converter with unregulated supply

Rated speed[1)]	Motor type	Rated output	Rated torque	Rated current	Voltage constant	Power factor	Efficiency	Rated frequency	Max. static current	Max. speed	Terminal box assignment see p. 56
n_N rpm		P_N kW	M_N Nm	I_N A	$K_{E\,/\,COLD}$ V/1000 rpm	cos φ	η_N	f_N Hz	$I_{o,max}$ A	n_{max} rpm	No.
100	DST2-315KO54W-010-5	16	1520	35.5	3037	0.89	0.78	41.7	112	180	50
	DST2-315KM54W-010-5	22	2060	48.9	2910	0.88	0.80	41.7	150	180	50
	DST2-315MO54W-010-5	27	2620	61	2898	0.87	0.81	41.7	190	190	50
	DST2-315ML54W-010-5	33	3170	74	2886	0.86	0.82	41.7	230	190	50
	DST2-315LO54W-010-5	39	3710	86	2888	0.86	0.83	41.7	265	190	52
	DST2-315LB54W-010-5	44	4240	98	2906	0.86	0.83	41.7	300	180	52
	DST2-315BO54W-010-5	50	4790	111	2894	0.86	0.84	41.7	340	190	70
	DST2-315XO54W-010-5	61	5900	134	2911	0.86	0.84	41.7	415	180	70
	DST2-315XY54W-010-5	67	6400	147	2903	0.86	0.85	41.7	455	190	70
	DST2-315YO54W-010-5	73	7000	160	2898	0.86	0.85	41.7	495	190	72
	DST2-315ZO54W-010-5	85	8100	190	2832	0.84	0.85	41.7	580	190	72
	DST2-315ZA54W-010-5	90	8600	195	2899	0.86	0.85	41.7	605	190	72
200	DST2-315KO54W-020-5	31	1490	69	1500	0.85	0.84	83.3	220	360	50
	DST2-315KM54W-020-5	43	2030	93	1484	0.84	0.87	83.3	295	370	52
	DST2-315MO54W-020-5	54	2570	117	1475	0.83	0.88	83.3	370	370	56
	DST2-315ML54W-020-5	65	3110	141	1474	0.83	0.89	83.3	445	370	56
	DST2-315LO54W-020-5	76	3650	165	1481	0.83	0.89	83.3	520	370	56
	DST2-315LB54W-020-5	88	4180	185	1480	0.83	0.90	83.3	595	370	64
	DST2-315BO54W-020-5	99	4740	215	1460	0.82	0.90	83.3	675	370	72
	DST2-315XO54W-020-5	121	5800	255	1492	0.83	0.90	83.3	810	360	72
	DST2-315XY54W-020-5	132	6300	280	1491	0.83	0.90	83.3	885	360	74
	DST2-315YO54W-020-5	144	6900	305	1467	0.82	0.91	83.3	975	370	74
	DST2-315ZO54W-020-5	166	7900	355	1466	0.82	0.91	83.3	1125	370	78
	DST2-315ZA54W-020-5	176	8400	370	1503	0.83	0.91	83.3	1170	360	78
300	DST2-315KO54W-030-5	45	1420	99	1010	0.84	0.86	125.0	325	500	52
	DST2-315KM54W-030-5	61	1940	131	1013	0.84	0.88	125.0	435	500	56
	DST2-315MO54W-030-5	77	2460	165	1001	0.83	0.89	125.0	550	500	56
	DST2-315ML54W-030-5	94	2990	200	996	0.82	0.90	125.0	660	500	60
	DST2-315LO54W-030-5	110	3500	230	1003	0.83	0.91	125.0	765	500	64
	DST2-315LB54W-030-5	126	4020	270	994	0.82	0.91	125.0	885	500	66
	DST2-315BO54W-030-5	142	4510	295	1016	0.84	0.92	125.0	975	500	74
	DST2-315XO54W-030-5	175	5600	370	991	0.82	0.92	125.0	1220	500	78
	DST2-315XY54W-030-5	192	6100	405	990	0.82	0.92	125.0	1330	500	78
	DST2-315YO54W-030-5	210	6600	445	974	0.82	0.92	125.0	1465	500	78
	DST2-315ZO54W-030-5	240	7600	495	1010	0.83	0.92	125.0	1630	500	80
	DST2-315ZA54W-030-5	255	8100	525	1017	0.84	0.92	125.0	1730	500	80
400	DST2-315KO54W-040-5	55	1310	121	783	0.85	0.85	166.6	420	500	54
	DST2-315KM54W-040-5	76	1810	160	785	0.85	0.88	166.6	560	500	58
	DST2-315MO54W-040-5	97	2310	205	773	0.84	0.89	166.6	710	500	60
	DST2-315ML54W-040-5	116	2780	240	791	0.86	0.90	166.6	835	500	60
	DST2-315LO54W-040-5	137	3270	280	790	0.86	0.91	166.6	975	500	66
	DST2-315LB54W-040-5	158	3770	325	782	0.85	0.91	166.6	1125	500	68
	DST2-315BO54W-040-5	179	4270	365	777	0.85	0.92	166.6	1275	500	78
	DST2-315XO54W-040-5	220	5200	445	783	0.85	0.92	166.6	1545	500	78
	DST2-315XY54W-040-5	235	5700	470	808	0.87	0.92	166.6	1630	500	80
	DST2-315YO54W-040-5	260	6200	525	804	0.85	0.93	166.6	1840	500	82
500	DST2-315KO54W-050-5	63	1200	139	635	0.86	0.83	208.3	520	500	54
	DST2-315KM54W-050-5	87	1660	185	634	0.86	0.86	208.3	695	500	58
	DST2-315MO54W-050-5	112	2140	235	621	0.85	0.88	208.3	885	500	62
	DST2-315ML54W-050-5	136	2590	280	632	0.86	0.90	208.3	1045	500	62
	DST2-315LO54W-050-5	160	3050	325	631	0.86	0.90	208.3	1220	500	68
	DST2-315LB54W-050-5	184	3510	375	630	0.86	0.91	208.3	1395	500	68
	DST2-315BO54W-050-5	205	3960	415	640	0.87	0.92	208.3	1545	500	80
	DST2-315XO54W-050-5	255	4830	495	657	0.88	0.92	208.3	1840	500	82
	DST2-315XY54W-050-5	280	5400	565	626	0.85	0.92	208.3	2105	500	82

Motor type	Max. static torque $M_{0\ max}$ [Nm]	Moment of inertia Solid shaft J [kgm^2]	Moment of inertia Hollow shaft J [kgm^2]	Weight Solid shaft m [kg]	Weight Hollow shaft m [kg]	Weight Thrust bearing m [kg]
DST2-315KO..	3330	2.4	2.3	448	438	718
DST2-315KM..	4490	3.1	2.9	495	483	774
DST2-315MO..	5600	3.8	3.6	550	532	830
DST2-315ML..	6800	4.4	4.3	610	589	886
DST2-315LO..	8000	5.0	5.2	665	639	942
DST2-315LB..	9100	5.7	6.1	729	690	998
DST2-315BO..	10300	6.4	7.3	821	779	1088
DST2-315XO..	12600	7.7	8.6	930	882	1163
DST2-315XY..	13700	8.4	9.3	985	926	1238
DST2-315YO..	14900	9.0	9.9	1045	981	1311
DST2-315ZO..	17200	10.3	11.3	1150	1085	1395
DST2-315ZA..	18400	11.0	11.9	1213	1133	1479

[1] The max. permitted operating speed for thrust bearing motors is 300 rpm.

2.5. Overview DST2-400..54 W

Rated speed	Motor type	Rated output	Rated torque	Rated current	Voltage constant	Power factor	Efficiency	Rated frequency	Max. static current	Max. speed	Terminal box assignment see p. 56
n_N rpm		P_N kW	M_N Nm	I_N A	$K_{E\ /\ COLD}$ V/1000 rpm	cos φ	η_N	f_N Hz	$I_{o,max}$ A	n_{max} rpm	No.
100	DST2-400KO54W-010-5	94	9000	205	3109	0.83	0.88	50	385	170	90
	DST2-400KM54W-010-5	106	10100	230	3127	0.83	0.88	50	430	170	92
	DST2-400MO54W-010-5	117	11200	255	3133	0.83	0.87	50	475	170	94
	DST2-400LO54W-010-5	139	13300	300	3184	0.84	0.88	50	565	170	94
	DST2-400BO54W-010-5	161	15400	345	3139	0.83	0.89	50	665	170	96
	DST2-400XY54W-010-5	200	19100	435	3114	0.83	0.88	50	815	170	98
150	DST2-400KO54W-015-5	143	9100	310	2068	0.81	0.91	75	580	260	94
	DST2-400KM54W-015-5	161	10200	345	2080	0.81	0.91	75	645	260	96
	DST2-400MO54W-015-5	177	11200	380	2105	0.82	0.90	75	710	260	96
	DST2-400LO54W-015-5	210	13400	450	2116	0.82	0.91	75	850	260	98
	DST2-400BO54W-015-5	245	15500	520	2085	0.82	0.91	75	1005	260	100
	DST2-400XY54W-015-5	305	19300	655	2066	0.81	0.91	75	1230	260	102
200	DST2-400KO54W-020-5	190	9100	405	1575	0.80	0.92	100	760	300	96
	DST2-400KM54W-020-5	210	10100	450	1587	0.81	0.92	100	850	300	96
	DST2-400MO54W-020-5	240	11400	510	1558	0.80	0.92	100	960	300	100
	DST2-400LO54W-020-5	285	13700	620	1541	0.80	0.92	100	1165	300	100
	DST2-400BO54W-020-5	320	15300	670	1606	0.82	0.92	100	1305	300	102
250	DST2-400KO54W-025-5	240	9100	510	1246	0.80	0.93	125	960	300	100
	DST2-400KM54W-025-5	265	10100	560	1279	0.81	0.93	125	1055	300	100
	DST2-400MO54W-025-5	295	11200	620	1284	0.81	0.92	125	1165	300	100
300	DST2-400KO54W-030-5	285	9100	620	1027	0.79	0.93	150	1165	300	100

Motor type	Max. static torque $M_{0\ max}$ [Nm]	Moment of inertia Solid shaft J [kgm^2]	Moment of inertia Hollow shaft J [kgm^2]	Weight Solid shaft m [kg]	Weight Hollow shaft m [kg]	Weight Thrust bearing m [kg]
DST2-400KO..	15400	20.1	20.6	2135	1760	2230
DST2-400KM..	17400	22.6	23.2	2295	1900	2490
DST2-400MO..	19300	25.1	25.8	2455	2045	2650
DST2-400LO..	23200	30.1	30.9	2775	2325	2970
DST2-400BO..	27100	35.1	36.1	3095	2605	3290
DST2-400XY..	32900	42.6	43.9	3575	3030	3770

2.6. Bearings and shaft load

All machines are fitted with antifriction bearings. On the solid shaft model, the floating bearing is fitted on the drive side and the fixed bearing on the non-drive side. On the hollow shaft model, the floating bearing is fitted on the non-drive side and the fixed bearing on the drive side. On the thrust bearing motors an additional thrust bearing in front of the motor is realized.

Ball bearing assignment for solid shafts

Size	D-side	N-side
135	6217 2ZRC3	6217 2ZRC3
200	6220 2ZRC3	6220 2ZRC3
260	6226 2ZRC3	6220 2ZRC3
315	6226 2ZRC3	6226 2ZRC3
400	6232 M/C3	6324 M/C3

Ball bearing assignment for hollow shafts

Size	D-side	N-side
135	61838	61836
200	61838	61836
260	61944	61838
315	61864	61856
400	61864	61856

Thrust bearing

Size	D-side
135	29415
200	29420
260	29424
315	29424 (on request) 29432
400	29432[1)] (overall length KO-MO) 29440 (overall length LO-XY)

[1)] For the axial spherical roll-up bearing 29432 please use the characteristic curve of the DST2-315 in the axial force diagram.

Relubrication
Relubrication for hollow shaft motors is available on request.

Permitted radial forces F_R at the shaft end
The ball bearings are designed for an estimated life of approx. 20,000 operating hours[2)], whereby the specified load values must not be exceeded. The permitted radial forces F_R specified are only valid for motors installed in a horizontal position and if no additional axial forces are applied.

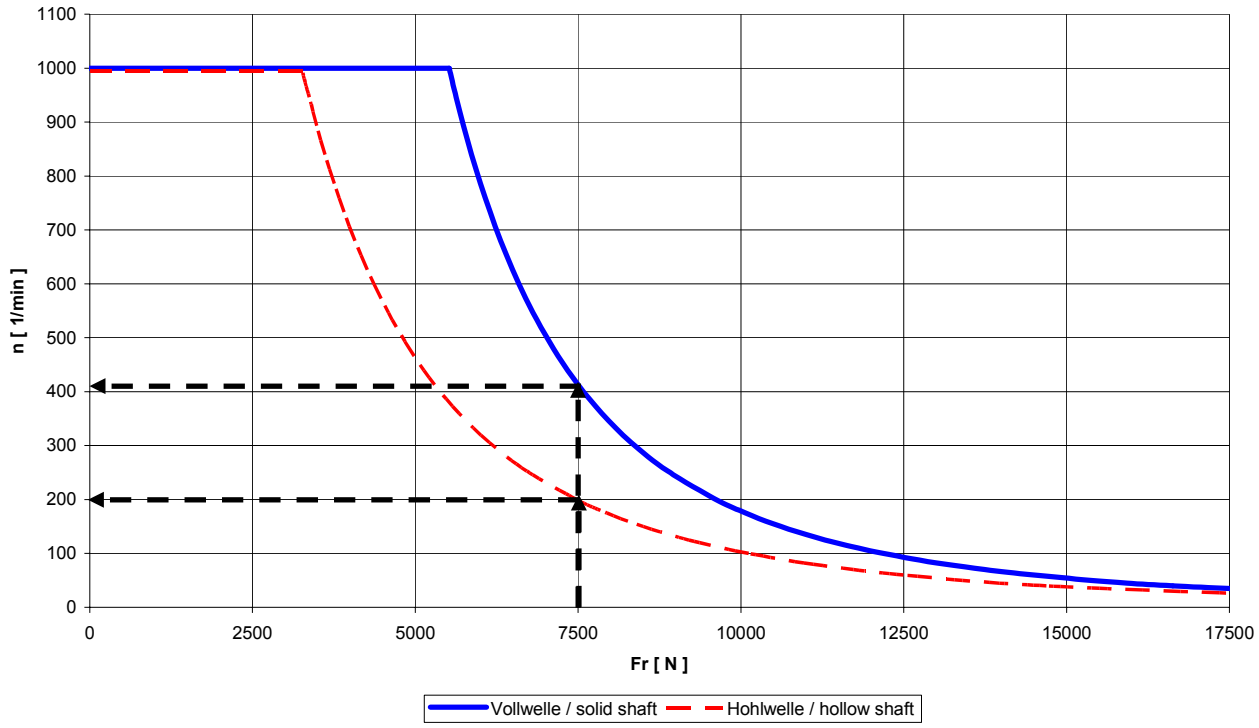
[2)] average operating temperature < 90 °C.

Axial load on the motor shaft
When pulling couplings, belt pulleys or similar components onto the motor shaft, no axial forces must be applied! The internal thread on the end of the shaft should be used as a mounting aid. In a similar vein, no axial forces should act on the motor shaft during operation.

The use of a thrust bearing will be necessary if axial forces occur. The axial forces must only act as compression forces (from motor D-side to motor N-side).

2.6.1. Radial force diagrams

Example diagram



Explanation for the example diagram

Solid shaft:

The maximum available speed of the bearing can be established in the "solid shaft" characteristic curve with reference to the radial force Fr in the application.

Radial force 7500 N => maximum speed 410 rpm

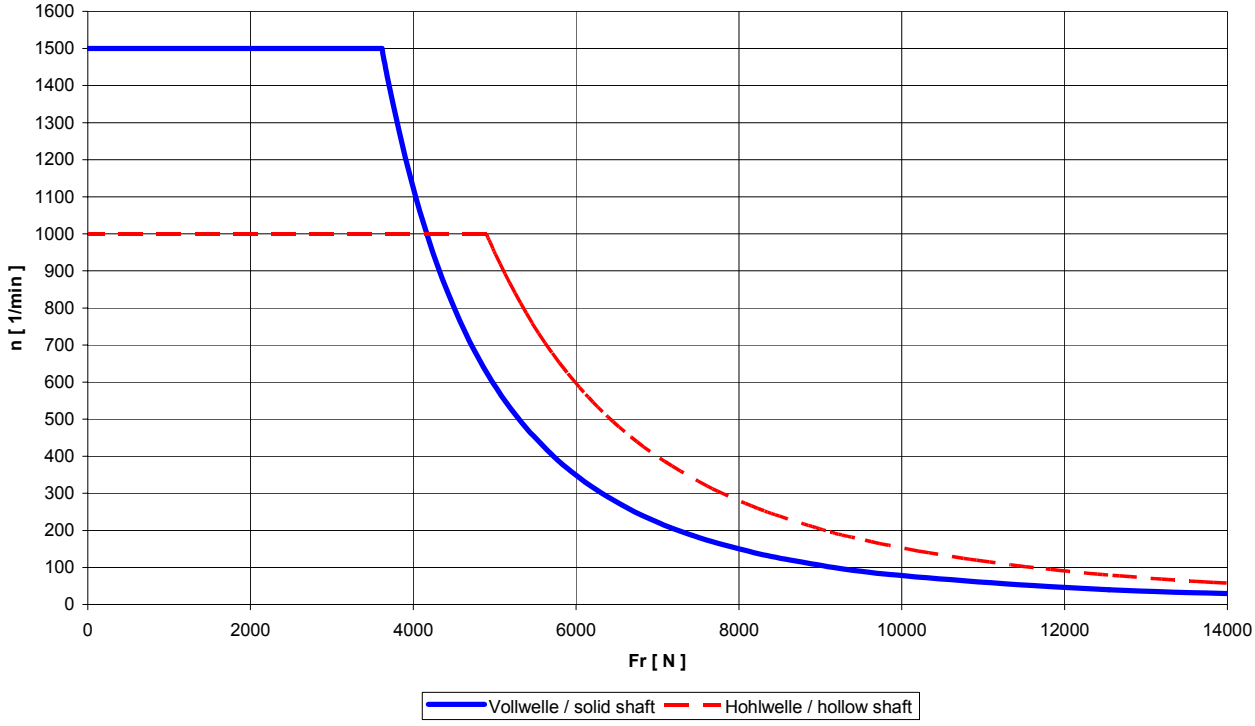
Force applied at the end of shaft end (if force applied at centre of shaft end, Fr x 1.1)

Hollow shaft:

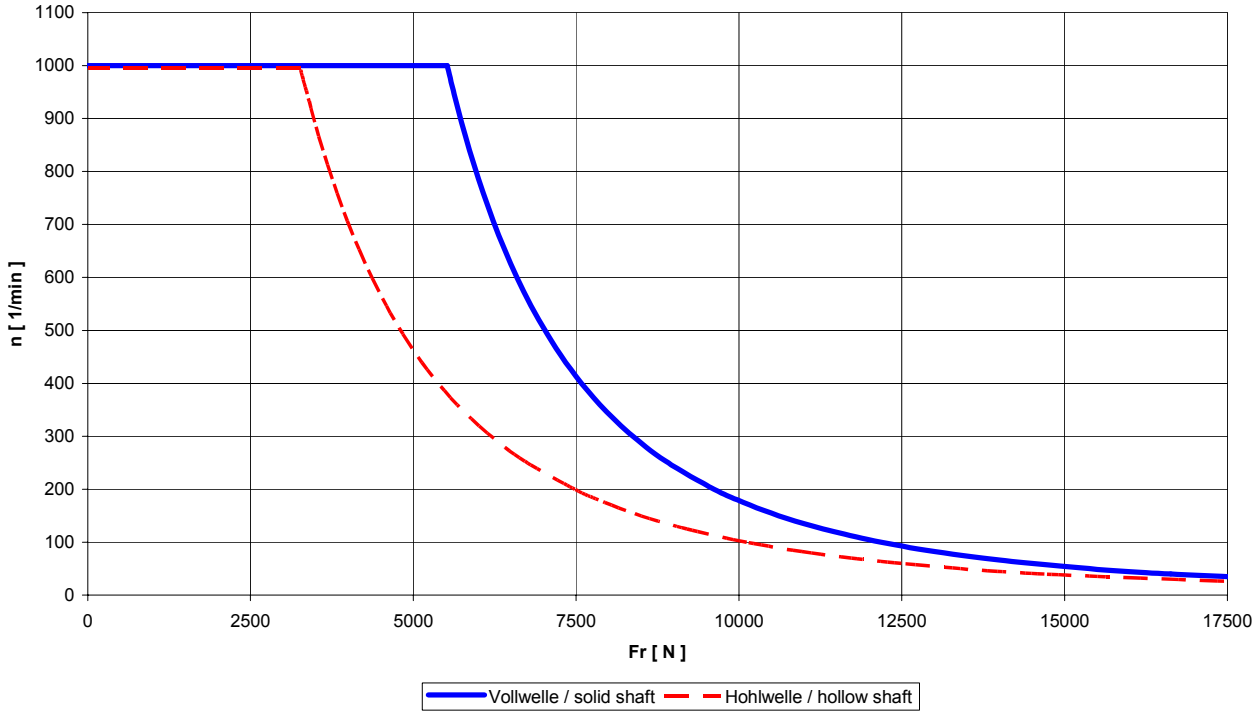
The maximum available speed of the bearing can be established in the "hollow shaft" characteristic curve with reference to the radial force Fr in the application.

Radial force 7500 N => maximum speed 200 rpm

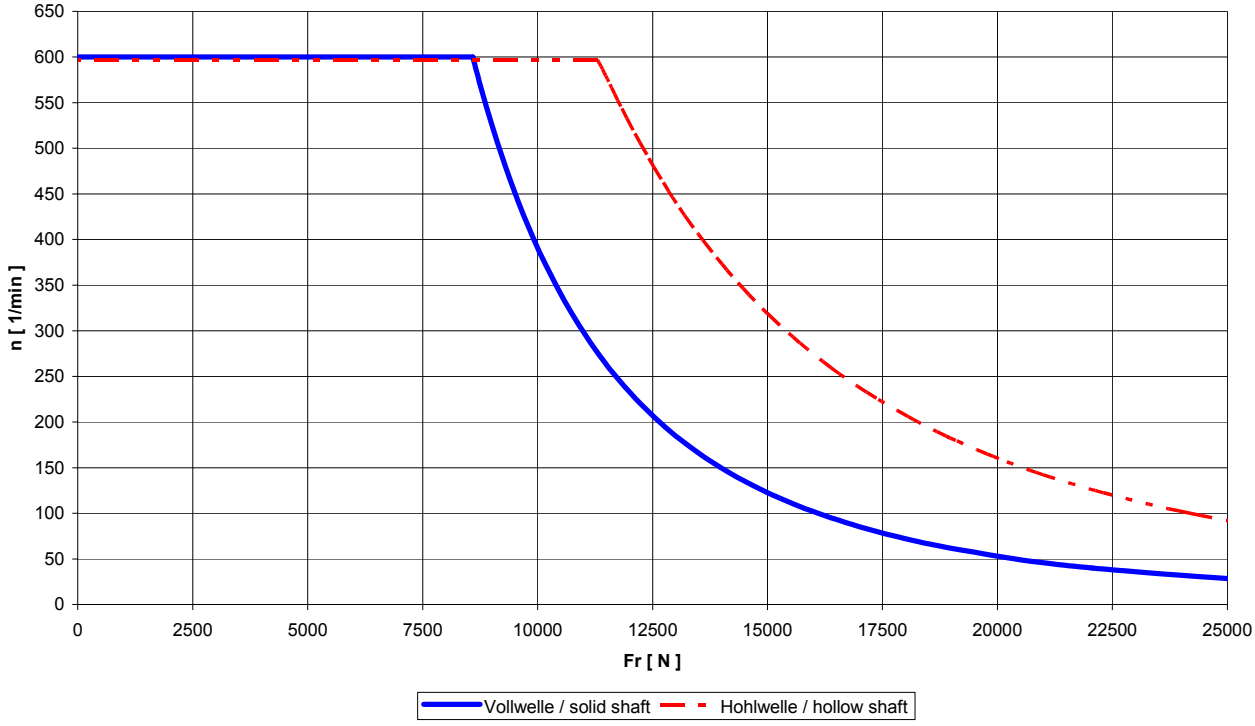
DST2-135



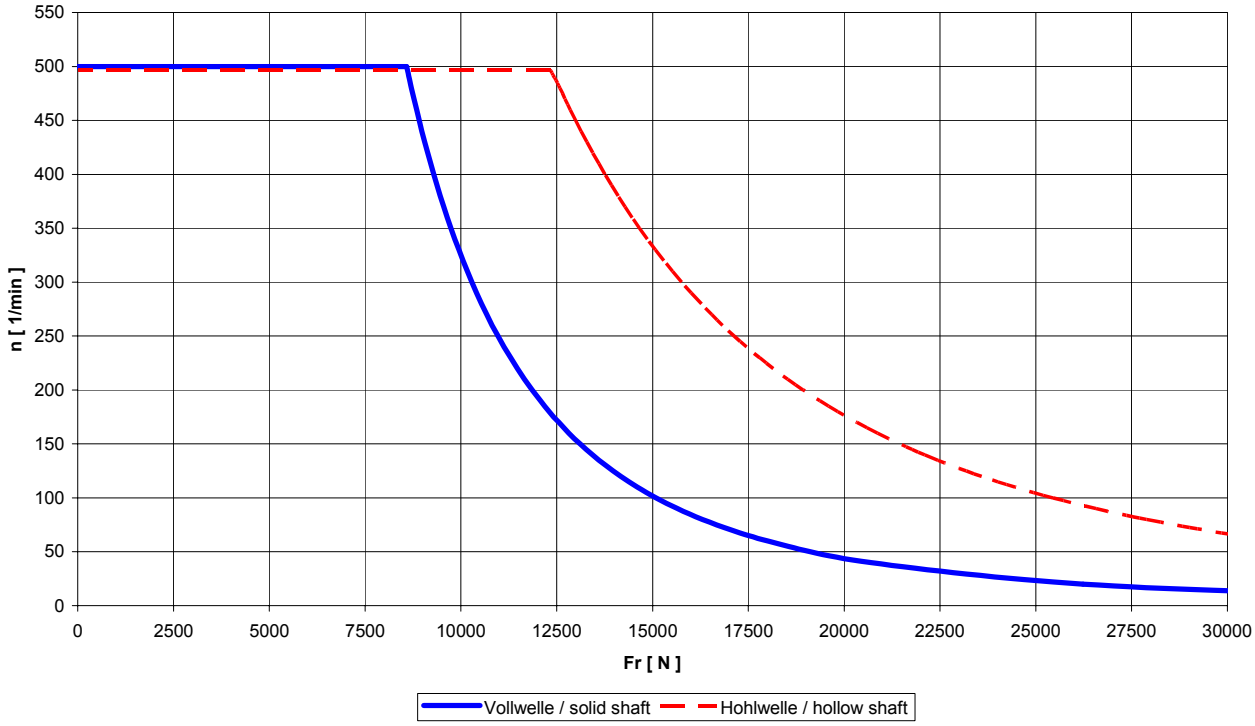
DST2-200

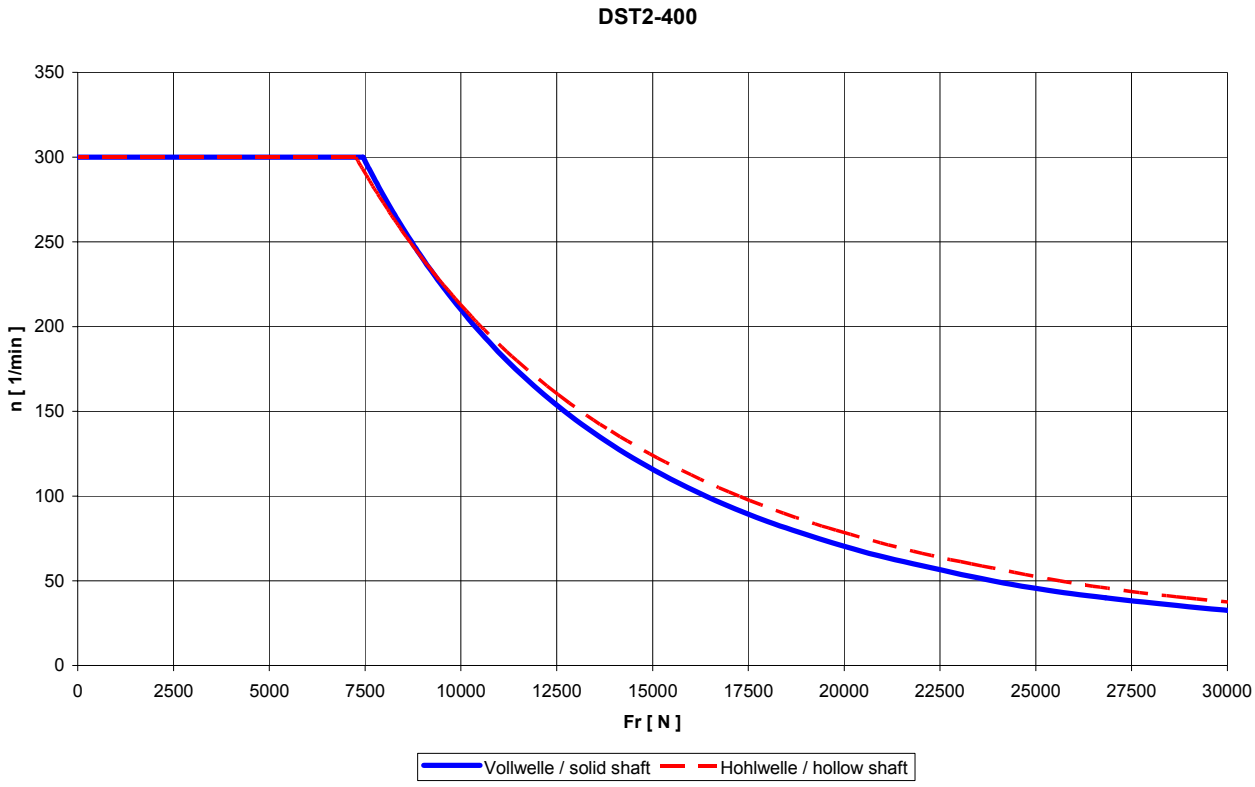


DST2-260

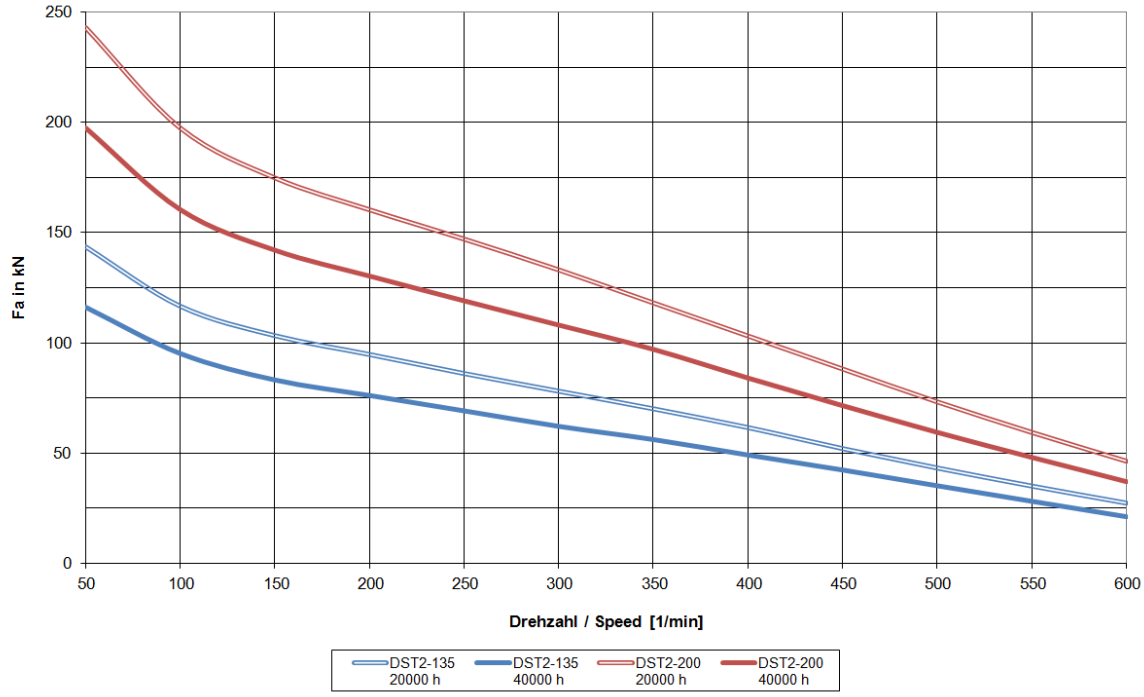


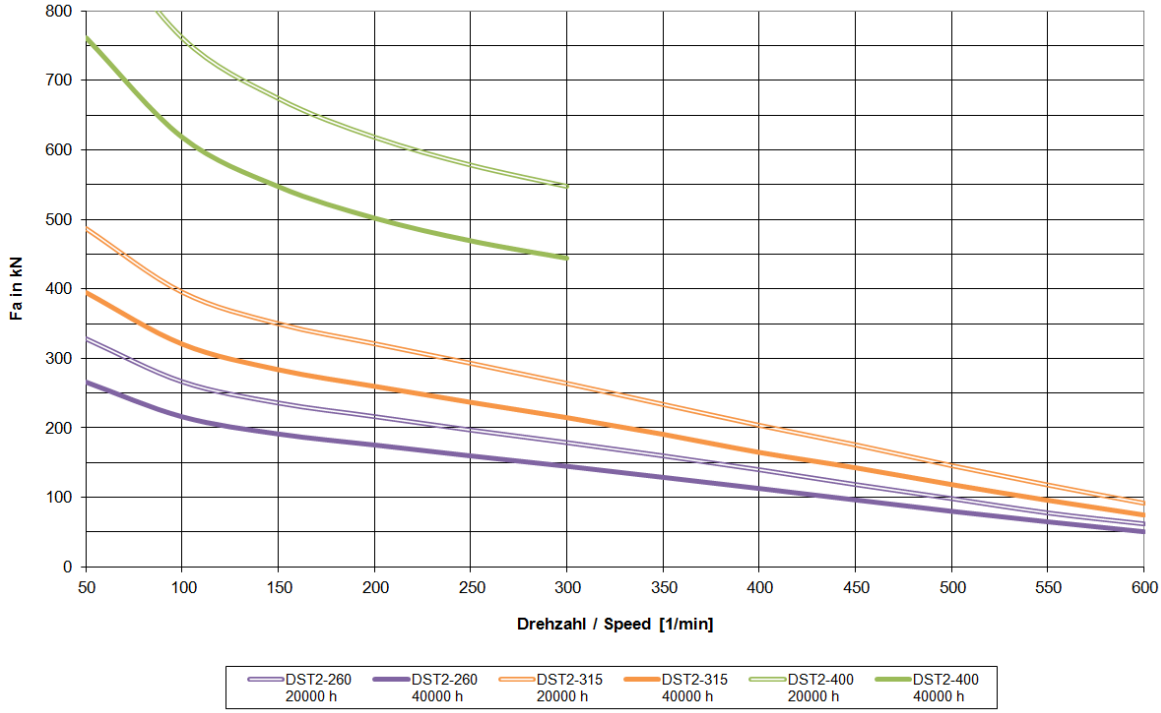
DST2-315




DST2-400
n [1/min]
350
300
250
200
150
100
50
0
0
2500
5000
7500
10000
12500
15000
17500
20000
22500
25000
27500
30000
Fr [N]
Vollwelle / solid shaft
Hohlwelle / hollow shaft

2.6.2. Axial force diagrams – Thrust bearing motors





Note:
The specifications are based on the calculated life span Lh10 of the axial spherical roller bearings and not the overall motor! For speeds > 300 1/min the temperature of the pressurised bearing oil should be kept under 80°C using a suitable cooling unit!
For the axial spherical roll-up bearing 29432 (DST2-400KO-MO) please use the characteristic curve of the DST2-315 in the axial force diagram.

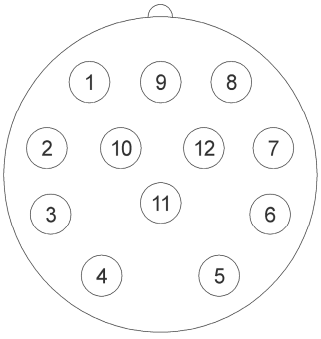
3. Motor components (options)

3.1. Encoders

3.1.1. Resolver (LTN)

	RE-21
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)	≤ 1000 m/s²
Vibration according to DIN EN 60068-2-6 (55-2000Hz)	≤ 500 m/s²

Resolver connection



Pin	Signal
1	cos -
2	-
3	-
4	-
5	sin -
6	sin +
7	-
8	cos +
9	-
10	ref +
11	-
12	ref -

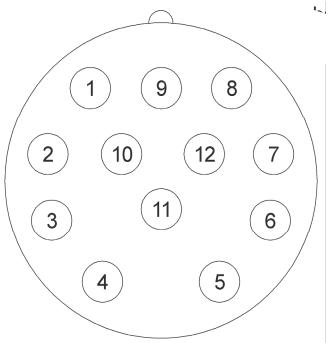
View of contact side of the integral socket

NOTE:
Use only where the requirements on the rotational performance of the motor are modest.
The technical data is specification from the encoder manufacturer.

3.1.2. SRS/SRM50 (SICK/Stegmann)

	SRS 50	SRM 50
Number of sine and cosine periods per revolution	1024	
Number of steps per revolution	32768	
Number of absolute completed revolutions	1	4096
Code type for the absolute value	Binary	
Output frequency of the sine and cosine signals (kHz)	0-200 kHz	
Tolerances when evaluating the 1024 signals; integral nonlinearity	+/- 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 (10 ms)	100 g	
Vibration as per DIN EN 60068-2-6 (10-2000 Hz)	20 g	

SRS/ SRM50 connection



Pin	Signal
1	cos -
2	+ 485
3	-
4	-
5	sin +
6	sin -
7	- 485
8	cos +
9	-
10	GND
11	-
12	+ U

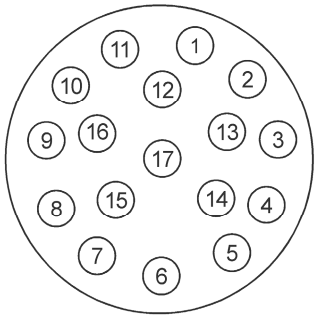
View of contact side of the integral socket

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

3.1.3. ECN1313/EQN1325 (Heidenhain)

	ECN 1313	EQN 1325
Number of sine and cosine periods per revolution	2048	
System accuracy	± 20”	
Number of absolute completed revolutions	1	4096 (12 bits)
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 according to DIN EN 60068-2-27 (6 ms)	≤ 2000 m/s²	
Vibration according to DIN EN 60068-2-6 (55-2000 Hz)	≤ 300 m/s²	

ECN1313/EQN1325 connection



Pin	Signal
1	U_p
2	-
3	-
4	0V
5	-
6	-
7	U_p
8	Clock
9	Clock inv.
10	0V
11	-
12	B +
13	B -
14	Data
15	A +
16	A -
17	Data inv.

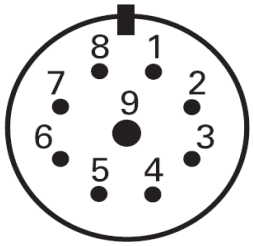
View of contact side of the integral socket

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

3.1.4. ECN1325/EQN1337 (Heidenhain)

	ECN 1325	EQN 1337
Number of lines	2048	
System accuracy	± 20”	
Number of absolute completed revolutions	1	4096 (12 bits)
Code type for the absolute value	EnDat 2.2	
Position values/revolution	33554432 (25 bits)	
Maximum speed at which the absolute position can be defined	12000 rpm	
Maximum operating speed	12000 rpm	
Power supply	3.6-14	
Current consumption without load	≤ 160	≤ 200
Shock 6ms as per DIN EN 60068-2-27 (6ms)	≤ 2000 m/s²	
Vibration 55-2000Hz as per DIN EN 60068-2-6 (55-2000 Hz)	≤ 300 m/s²	

ECN1325/EQN1337 connection



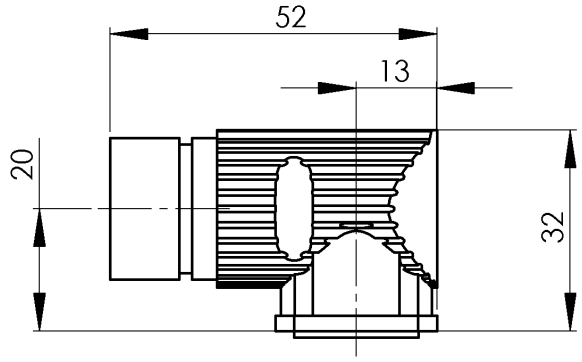
Pin	Signal
1	Clock
2	Clock inv.
3	Up
4	0V
5	Data
6	Data inv.
7	Sensor U_P
8	Sensor 0V
9	-

View of contact side of the integral socket

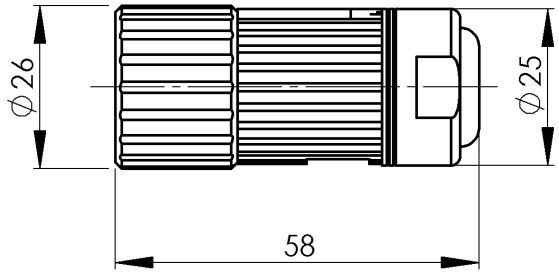
NOTE:
This encoder is a component susceptible to ESD.
The technical data is specification from the encoder manufacturer.

3.1.5. Dimensioned drawing of encoder sockets and plugs

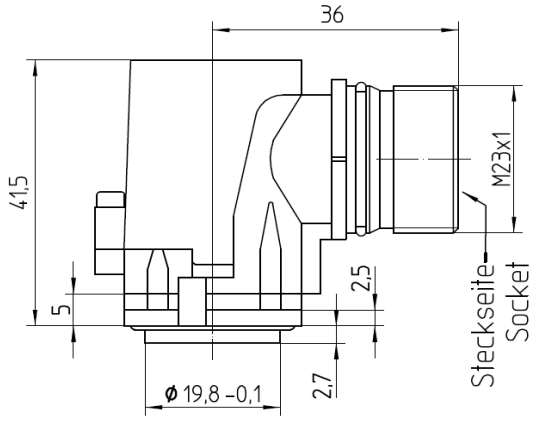
Flanged socket



Plug



Socket for ECN1325/EQN1337 encoders
(plug not available separately)



3.2. 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-pin circular signal connector on resolvers and Hyperface® - encoders, a 17-pin circular signal connector on ECN1313/EQN1325 and a 9-pin circular signal connector on ECN1325/EQN1337. The connection at the controller side consists of a 15-pin Sub-D connector.

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).

3.2.1. 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-pin circular signal plug connector with 12 socket contacts
- 2nd side: 15-pin Sub-D 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-pin circular signal plug connector with 12 socket contacts
- 2nd side: 15-pin Sub-D 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-pin circular signal plug connector with 17 socket contacts
- 2nd side: 15-pin Sub-D 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-pin circular signal plug connector with 17 socket contacts
- 2nd side: 15-pin Sub-D 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 0.14mm^2, 4 wires 0.34mm^2, copper, tin-plated
- Total shield CuSn, inscription Heidenhain
- 1st side: 9-pin circular signal plug connector with 8 socket contacts
- 2nd side: 15-pin Sub-D 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

3.2.2. 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.

3.2.3. 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 (2x014mm^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 (2x014mm^2) + 2 x 0.5 mm^2 with plug connector

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

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

Not dragable, prefabricated
Cable 5 x (2x014mm^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 (2x014mm^2) + 2 x 0.5 mm^2 with plug connector

Length in m	Item Number
2	393889
3	369864
5	394014
7	389807
8	393890
9	389808
10	393891
15	393892
17	371494
20	393893
25	393894
30	380358
35	391216
40	382005
50	378022

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
2	434056
3	434057
5	434058
10	434059
15	434060
20	434061
25	434062
50	434063

3.3. 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-pin circular signal connector on resolvers and Hyperface® encoder, a 17-pin circular signal connector on ECN1313/EQN1325. The connection at the controller side consists of a 26-pin Sub-D connector.

3.3.1. 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-pin circular signal plug connector with 12 socket contacts
- 2nd side: 26-pin Sub-D 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-pin circular signal plug connector with 12 socket contacts
- 2nd side: 26-pin Sub-D 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-pin circular signal plug connector with 17 socket contacts
- 2nd side: 26-pin Sub-D 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)

3.3.2. 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.

3.3.3. Order information for encoder cables

encoder cable - prefabricated with plug

for resolver

Length in m	Item Number
1	429914
2	429915
3	429916
5	429917
7	429918
10	429919
15	429920
20	429921
25	429922
30	429923
35	429924
40	429925
50	429926
75	429927

for sincos Hiperface® - interface

Length in m	Item Number
1	429958
2	429959
3	429960
5	429961
7	429962
10	429963
15	429964
20	429965
25	429966
30	429967
35	429968
40	429969
50	429970
75	429971

for sincos - and TTL - incremental encoder

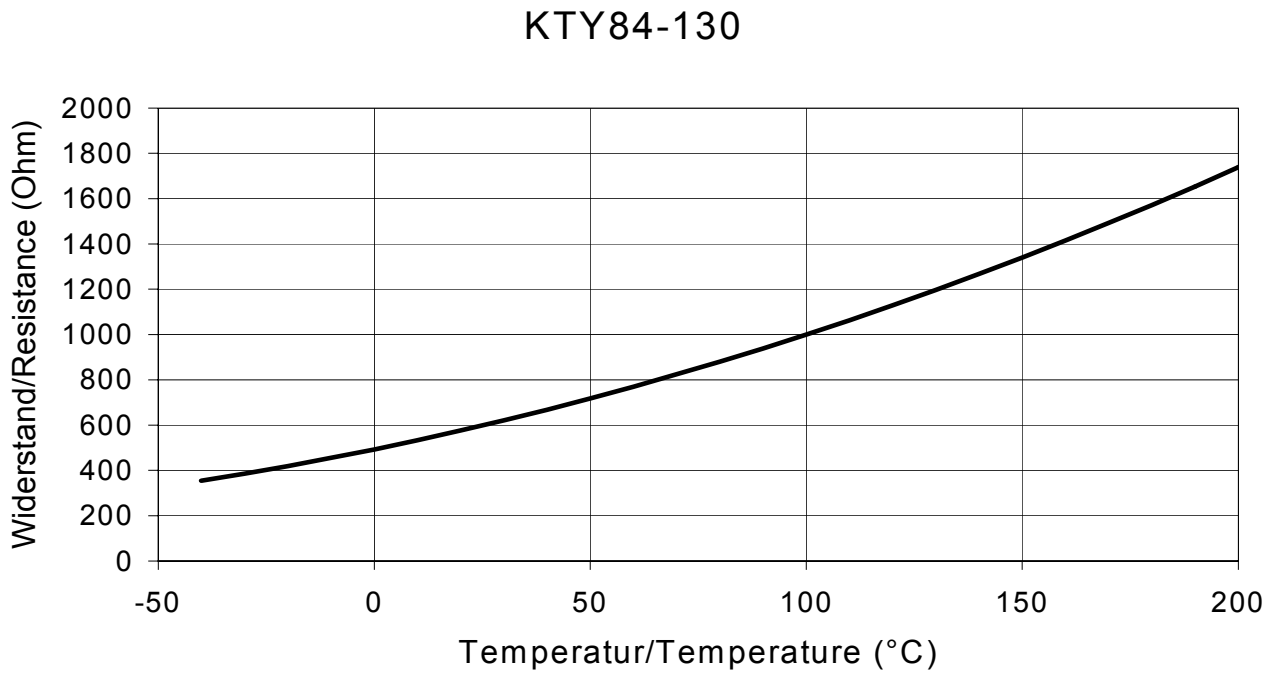
Length in m	Item Number
1	430015
2	430016
3	430017
5	430018
7	430019
10	430020
15	430021
20	430022
25	430023
30	430024
35	430025
40	430026
50	430027
75	430028

for sincos EnDat® 2.1 - interface

Length in m	Item Number
1	429986
2	429987
3	429988
5	429989
7	429990
10	429991
15	429992
20	429993
25	429994
30	429995
35	429996
40	429997
50	429998
75	429999

3.4. Temperature sensor

A temperature sensor for performing evaluations in the motor controller is fitted to the stator winding on all motors as standard. Additional PTCs or heat monitors can be installed on request and are connected to the terminal box.



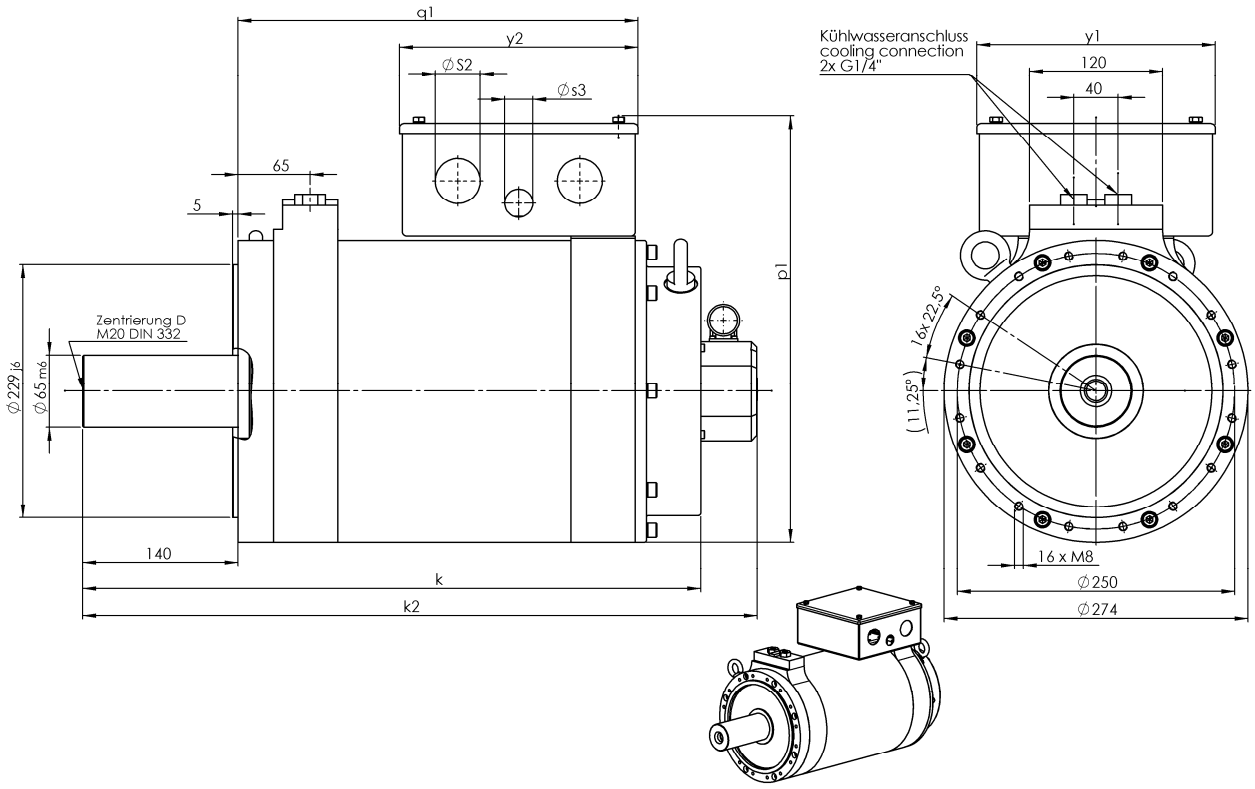
The KTY 84-130 temperature sensor monitors the motor temperature continuously.
Supplying a measuring current of 2mA to the sensor produces the resistance curve shown above.

4. Dimensioned drawings

4.1. DST2-135

4.1.1. DST2-135 – Solid shaft model

Type of construction IM B14

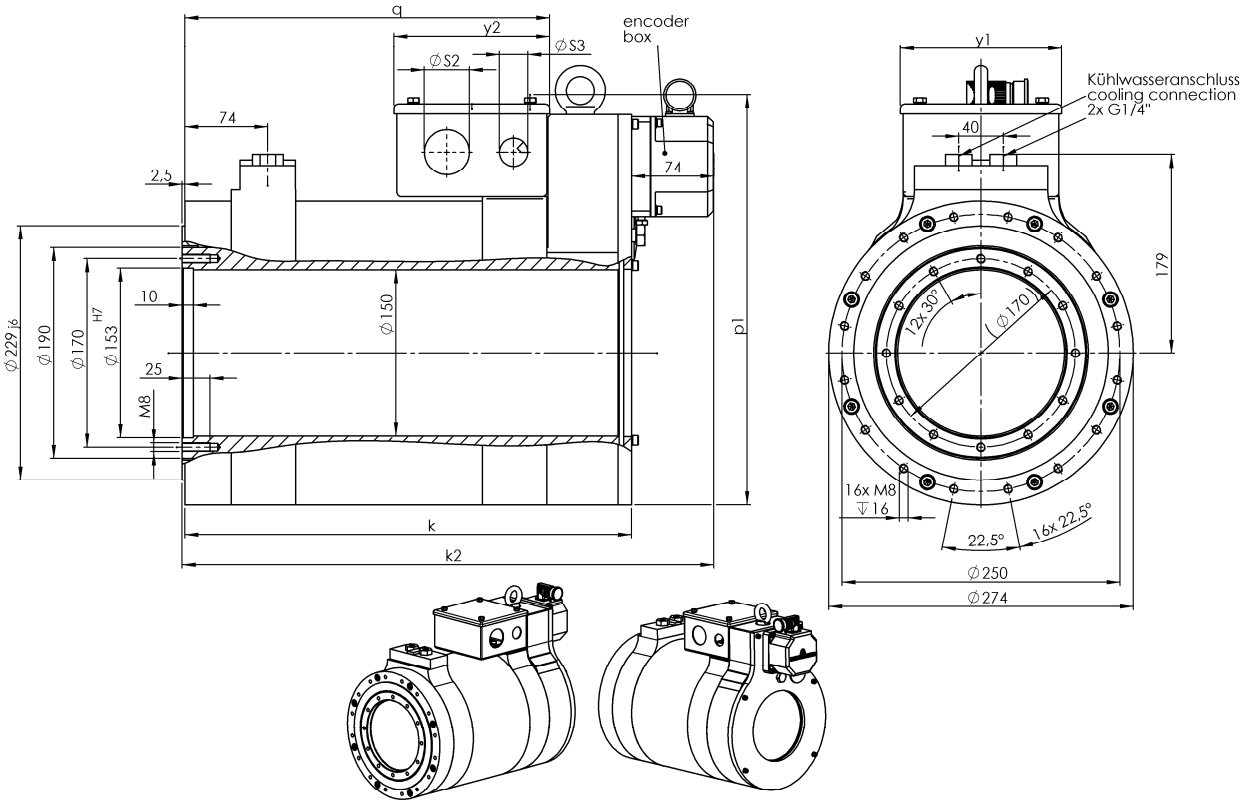


	k	k2	q1
DST2-135KO	432	482	235
DST2-135MO	474	524	277
DST2-135LO	516	566	319
DST2-135BO	558	608	361
DST2-135XO	600	650	403
DST2-135YO	642	692	445

The terminal box dimensions are explained on page 56.

4.1.2. DST2-135 – Hollow shaft model

Type of construction IM B14

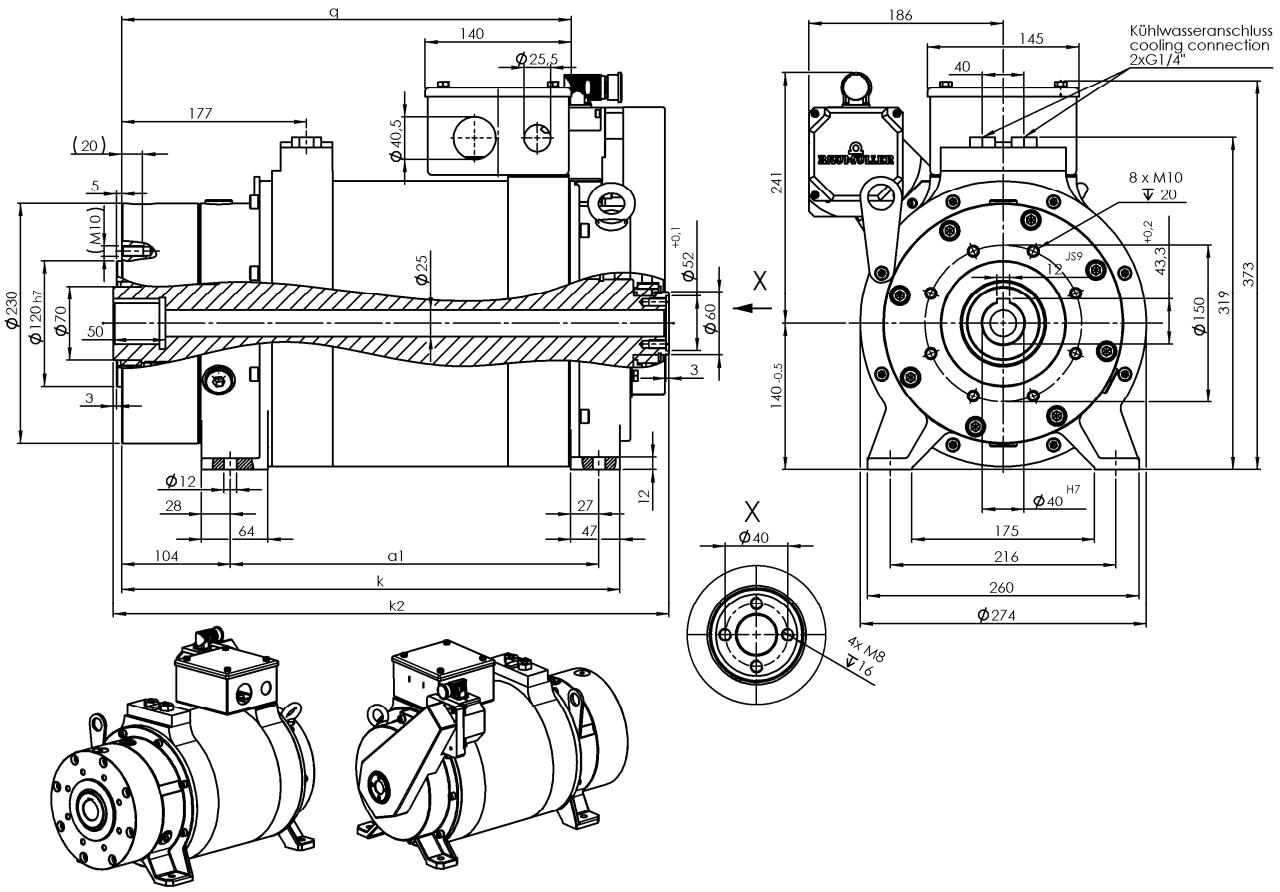


	k	k2	q
DST2-135KO	318	394	244
DST2-135MO	360	436	286
DST2-135LO	402	478	328
DST2-135BO	444	520	370
DST2-135XO	486	562	412
DST2-135YO	528	604	454

The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:5.

4.1.3. DST2-135 – Thrust bearing model

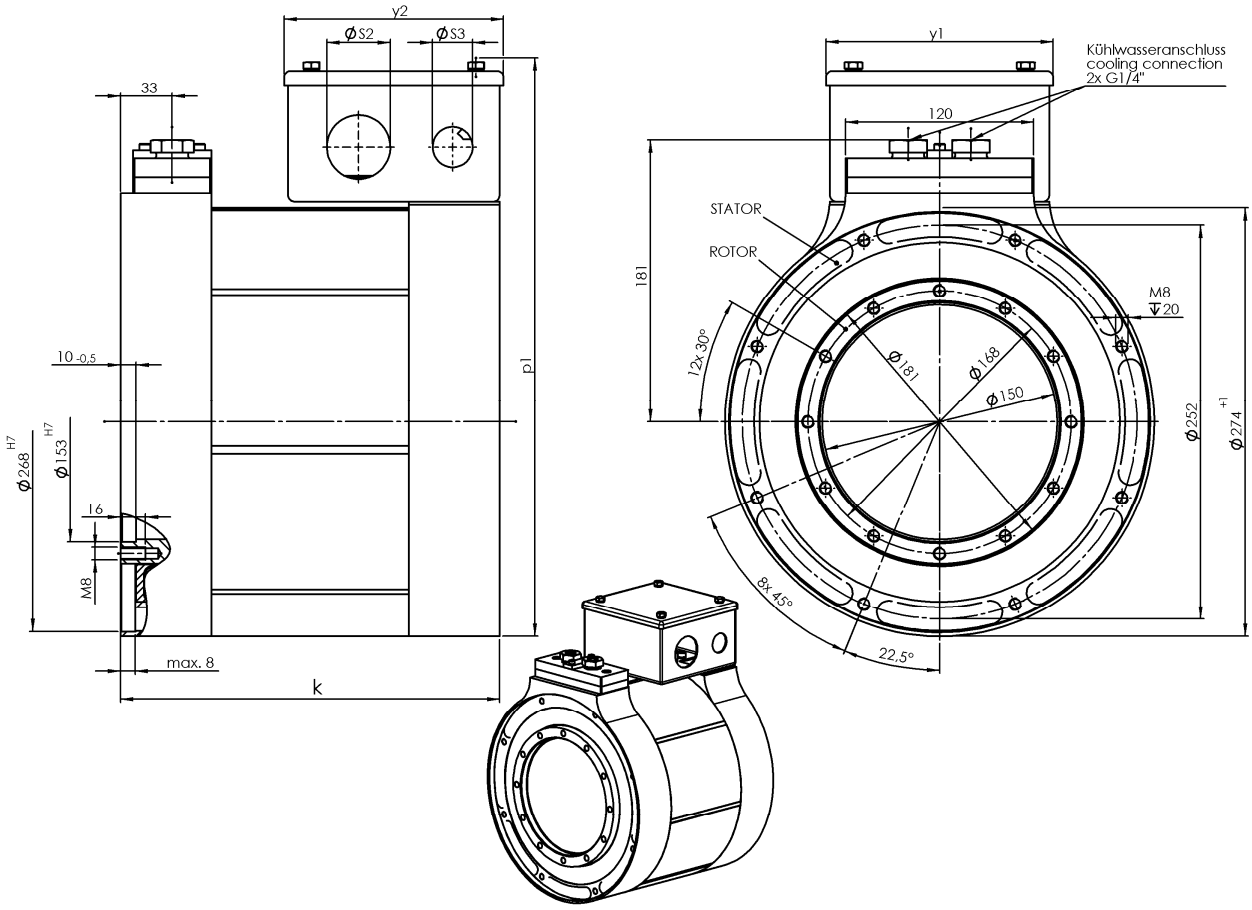
Type of construction IM B34



	k	k2	q	a1
DST2-135KO	393	448	347	269
DST2-135MO	435	490	389	311
DST2-135LO	477	532	431	353
DST2-135BO	519	574	473	395
DST2-135XO	561	616	515	437
DST2-135YO	603	658	557	479

The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:2.

4.1.4. DST2-135 – Kit



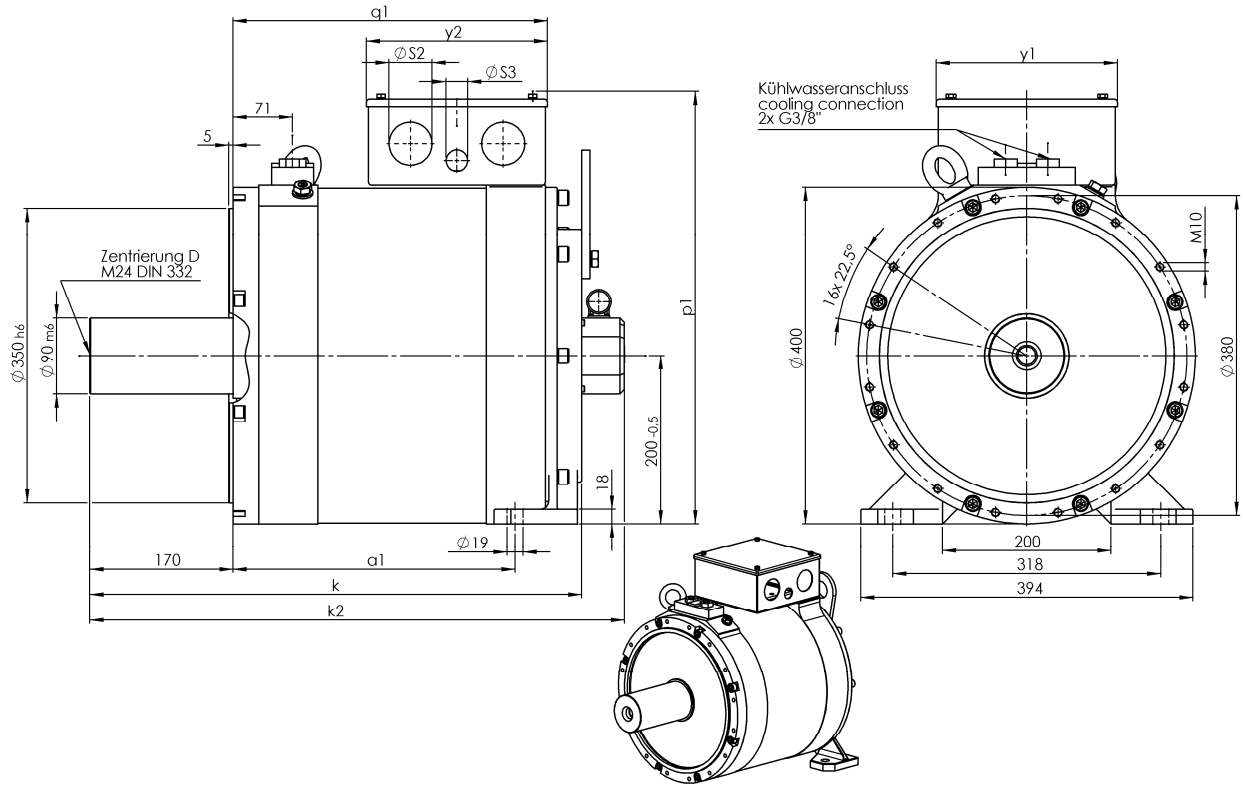
	k
DST2-135KO	200
DST2-135MO	242
DST2-135LO	284

The terminal box dimensions are explained on page 56. The degree of protection for the kit motors is IP00. Kit motors are constructed without bearings or encoders and are lifted using straps.

4.2. DST2-200

4.2.1. DST2-200 – Solid shaft model

Type of construction IM B34

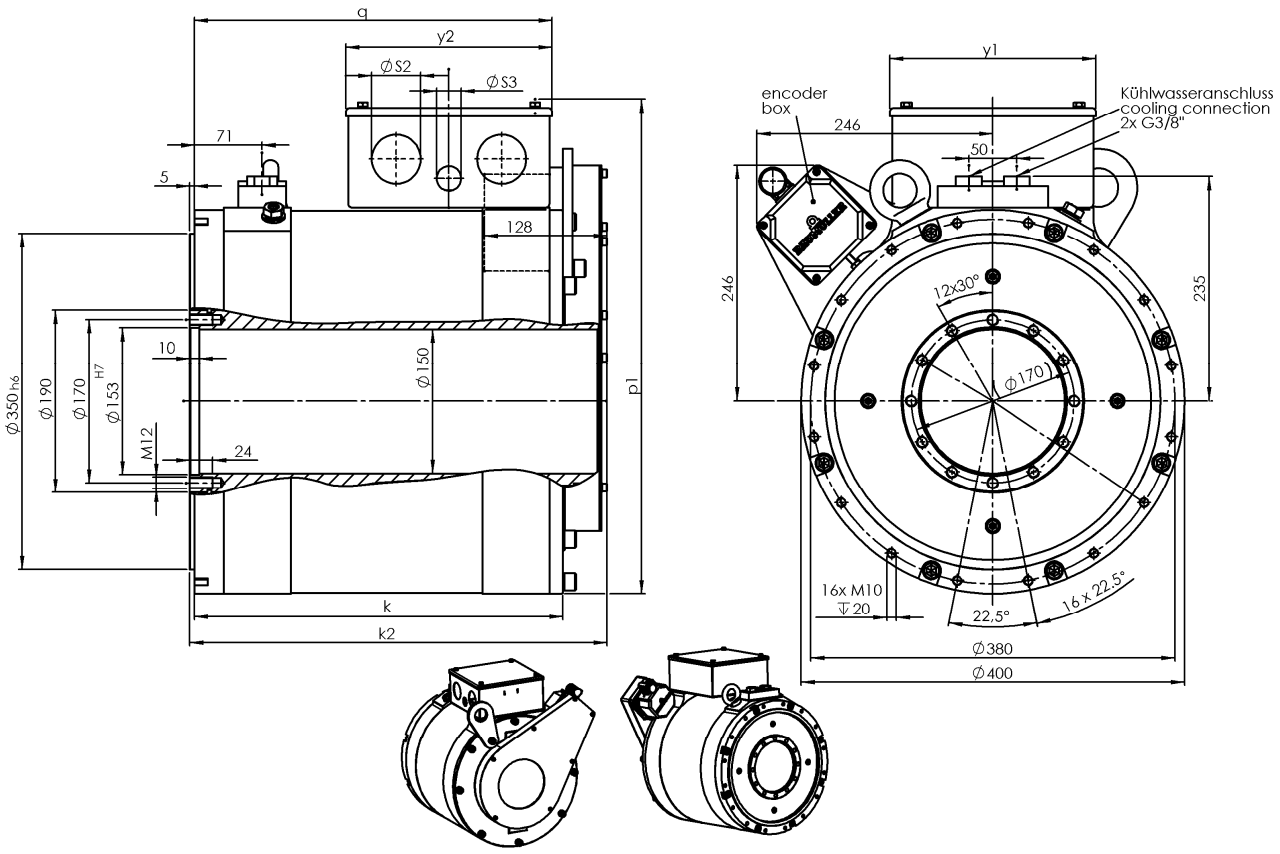


	k	k2	q1	a1
DST2-200KO	459	515	253	214.5
DST2-200KM	499	555	293	254.5
DST2-200MO	539	595	333	294.5
DST2-200ML	579	635	373	334.5
DST2-200LO	619	675	413	374.5
DST2-200BO	699	755	493	454.5
DST2-200XO	779	835	573	534.5
DST2-200XY	819	875	613	574.5

The terminal box dimensions are explained on page 56.

4.2.2. DST2-200 – Hollow shaft model

Type of construction IM B14

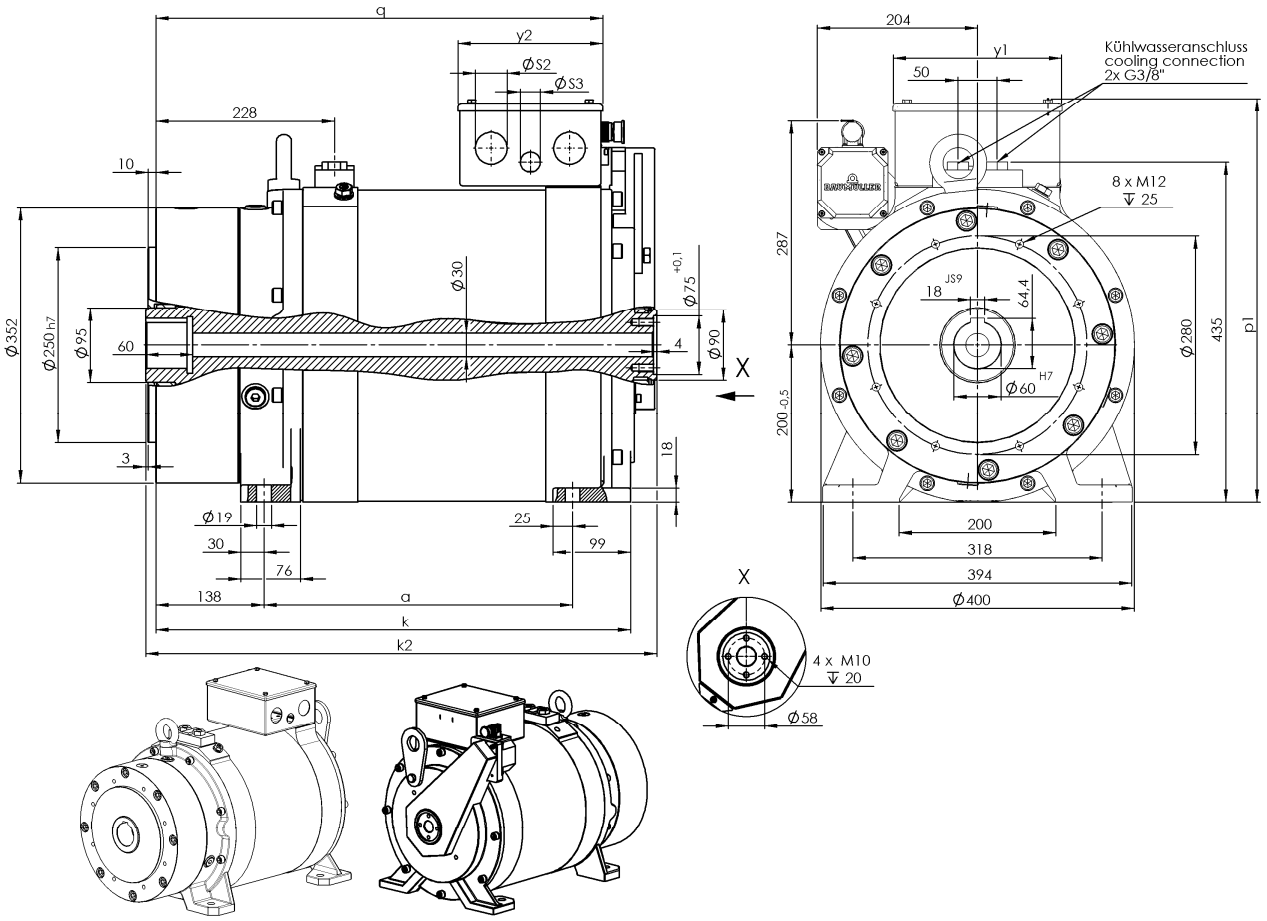


	k	k2	q
DST2-200KO	265	316	253
DST2-200KM	305	356	293
DST2-200MO	345	396	333
DST2-200ML	385	436	373
DST2-200LO	425	476	413
DST2-200BO	505	556	493
DST2-200XO	585	636	573
DST2-200XY	625	676	613

The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:5.

4.2.3. DST2-200 – Thrust bearing model

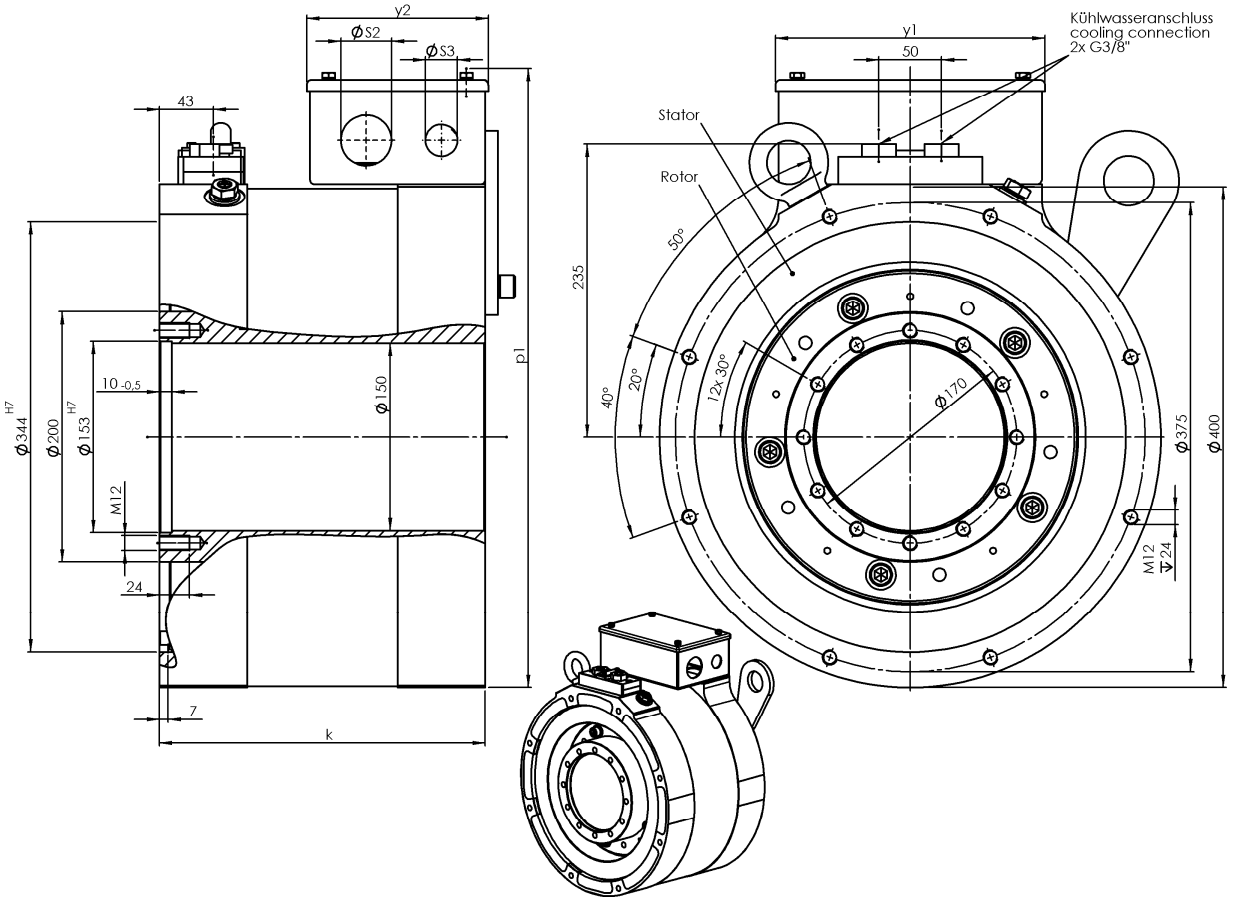
Type of construction IM B34



	k	k2	q	a
DST2-200KO	446	493	411	234
DST2-200KM	486	533	451	274
DST2-200MO	526	573	491	314
DST2-200ML	566	613	531	354
DST2-200LO	606	653	571	394
DST2-200BO	686	733	651	474
DST2-200XO	766	813	731	554
DST2-200XY	806	853	771	594

The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:3.

4.2.4. DST2-200 – Kit



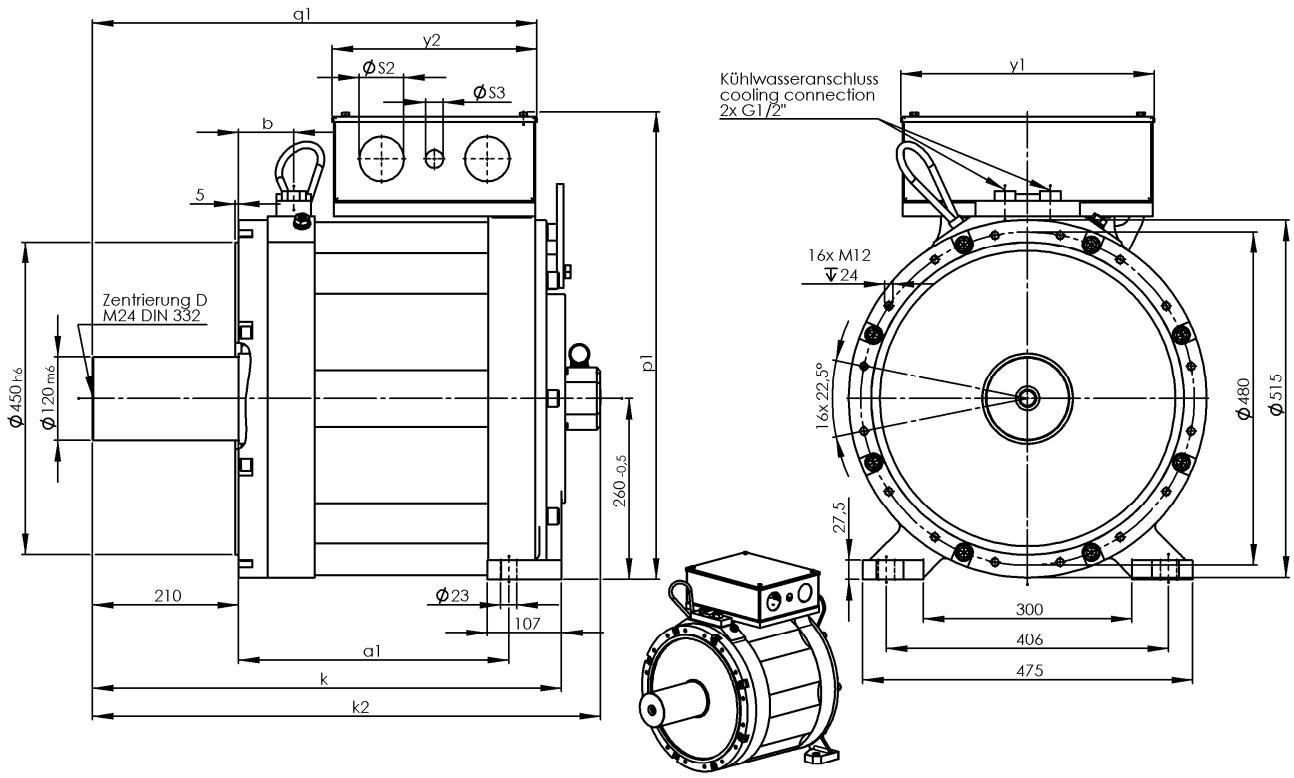
	k
DST2-200KO	220
DST2-200KM	260
DST2-200MO	300
DST2-200ML	340
DST2-200LO	380

The terminal box dimensions are explained on page 56. The degree of protection for the kit motors is IP00. Kit motors are constructed without bearings or encoders and are lifted using straps.

4.3. DST2-260

4.3.1. DST2-260 – Solid shaft model

Type of construction IM B34

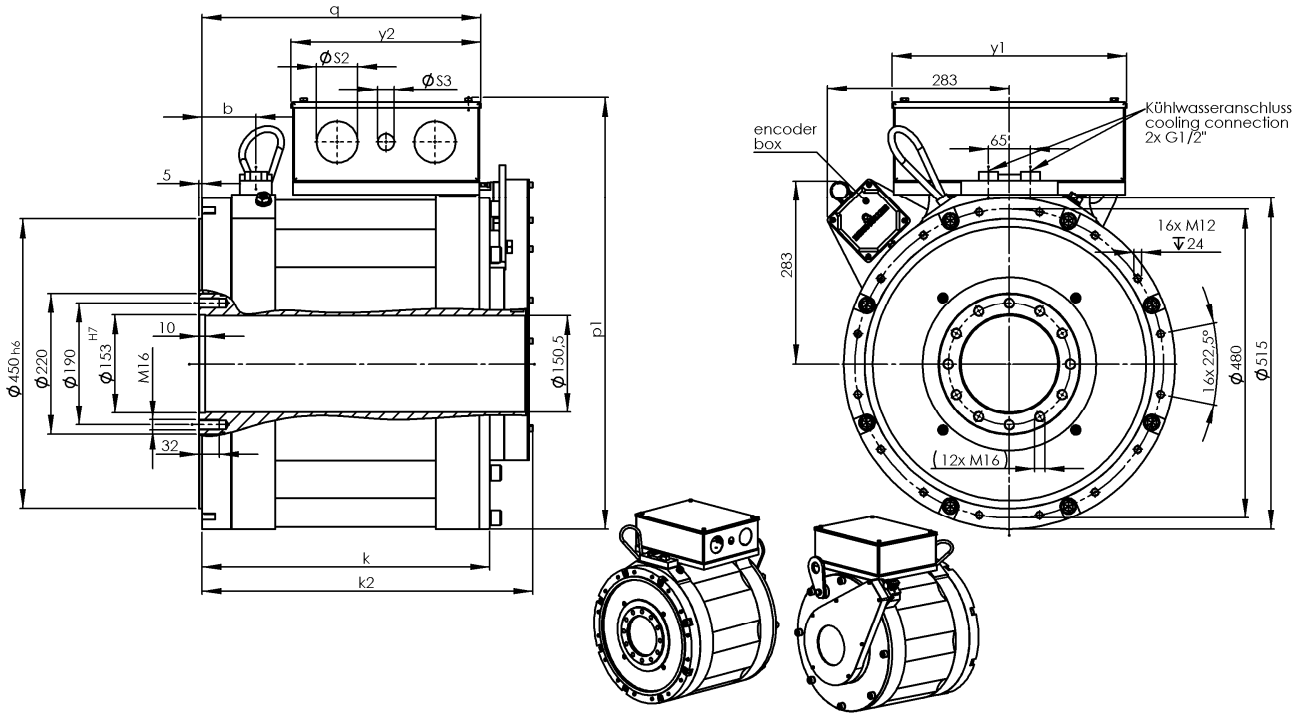


	k	k2	q1	a1	b
DST2-260KO	575	631	540	289	80
DST2-260KM	625	681	590	339	80
DST2-260MO	675	731	640	389	80
DST2-260ML	725	781	690	439	80
DST2-260LO	775	831	740	489	80
DST2-260LB	870	926	835	584	102
DST2-260BO	920	976	885	634	102
DST2-200XO	1020	1076	985	734	102

The terminal box dimensions are explained on page 56.

4.3.2. DST2-260 – Hollow shaft model

Type of construction IM B14

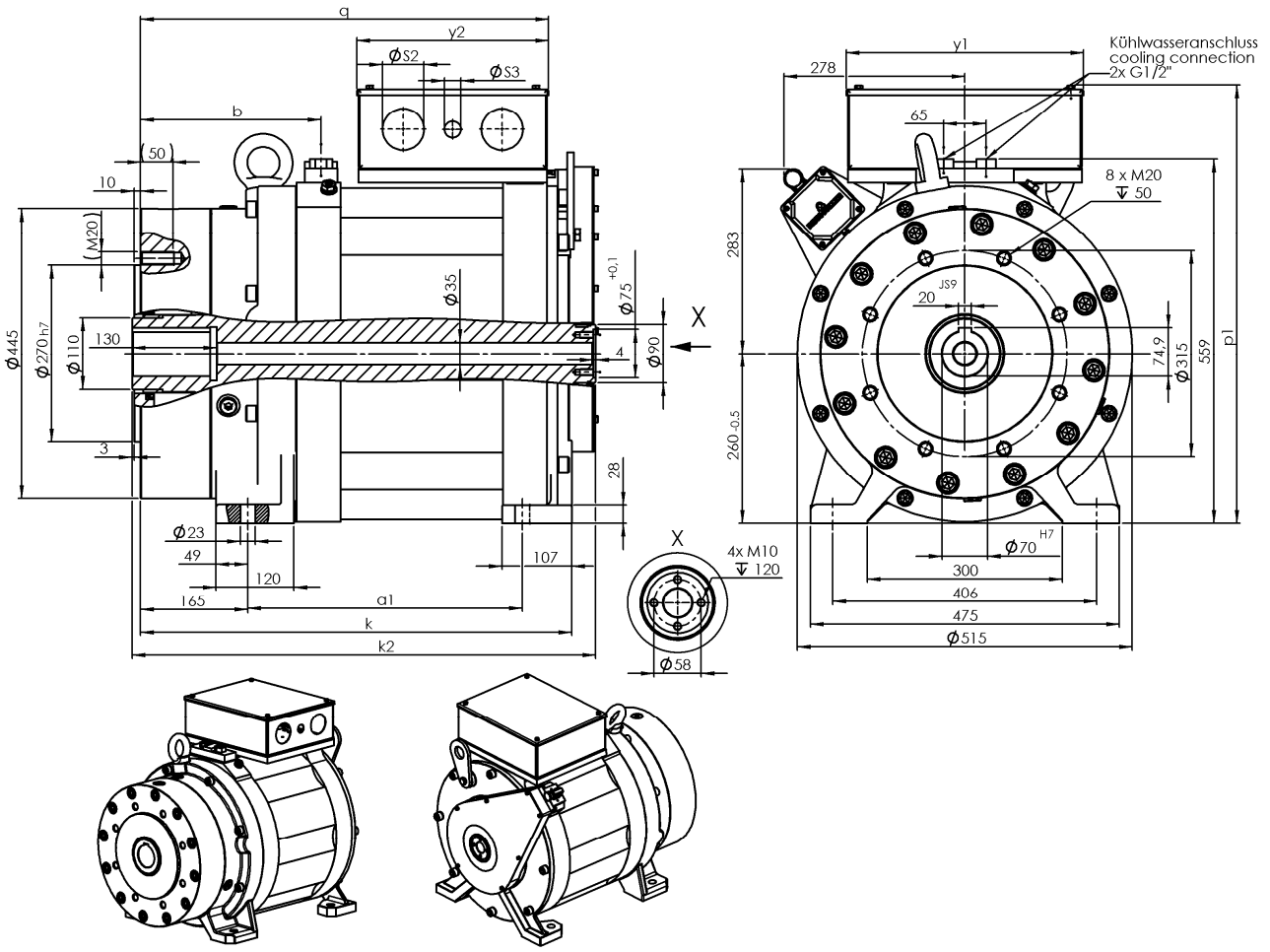


	k	k2	q	b
DST2-260KO	347	415	334	84
DST2-260KM	397	465	384	84
DST2-260MO	447	515	434	84
DST2-260ML	497	565	484	84
DST2-260LO	547	615	534	84
DST2-260LB	642	665	629	106
DST2-260BO	692	715	679	106
DST2-260XO	792	860	779	106

The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:5.

4.3.3. DST2-260 – Thrust bearing model

Type of construction IM B34



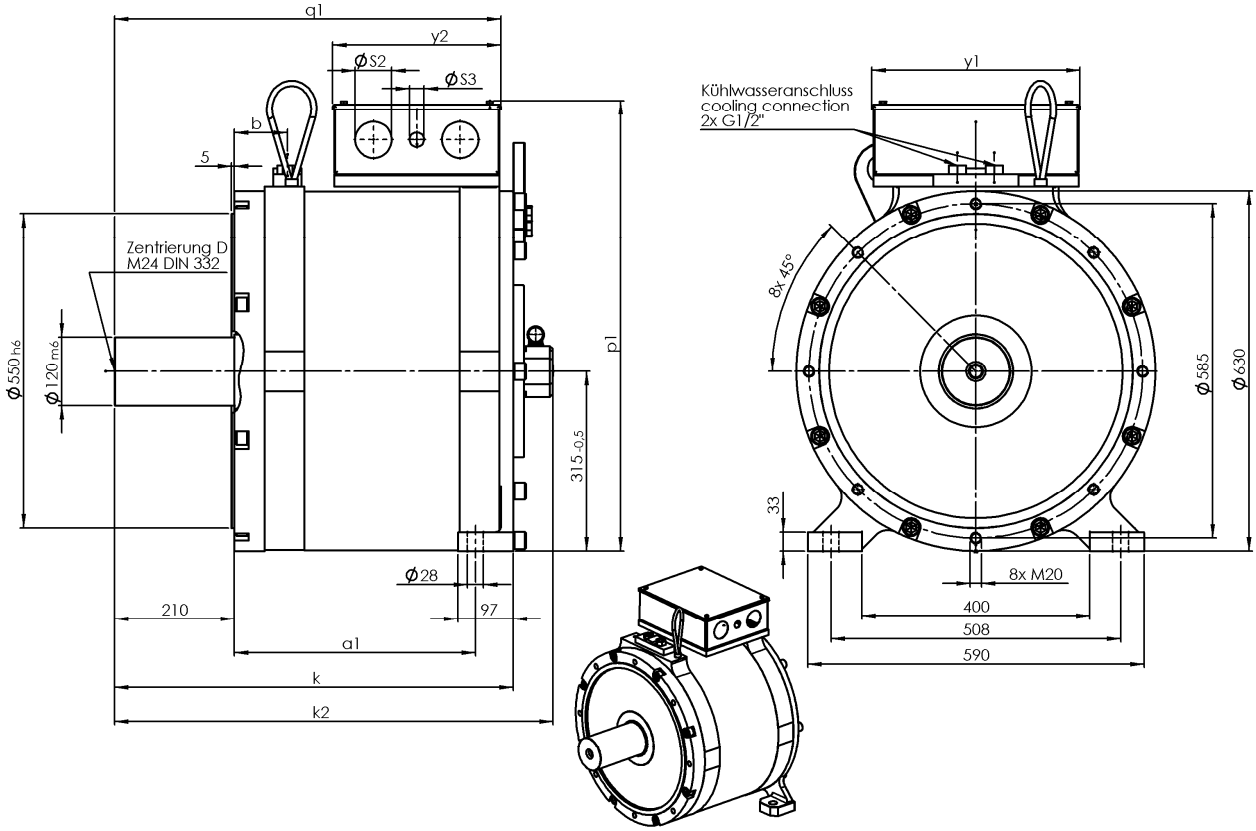
	k	k2	q	a1	b
DST2-260KO	563	613	528	322	278
DST2-260KM	613	663	578	372	278
DST2-260MO	663	713	628	422	278
DST2-260ML	713	763	678	472	278
DST2-260LO	763	813	728	522	278
DST2-260LB	858	908	823	617	300
DST2-260BO	908	958	873	667	300
DST2-260XO	1008	1058	973	767	300

The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:5.

4.4. DST2-315

4.4.1. DST2-315 – Solid shaft model

Type of construction IM B34

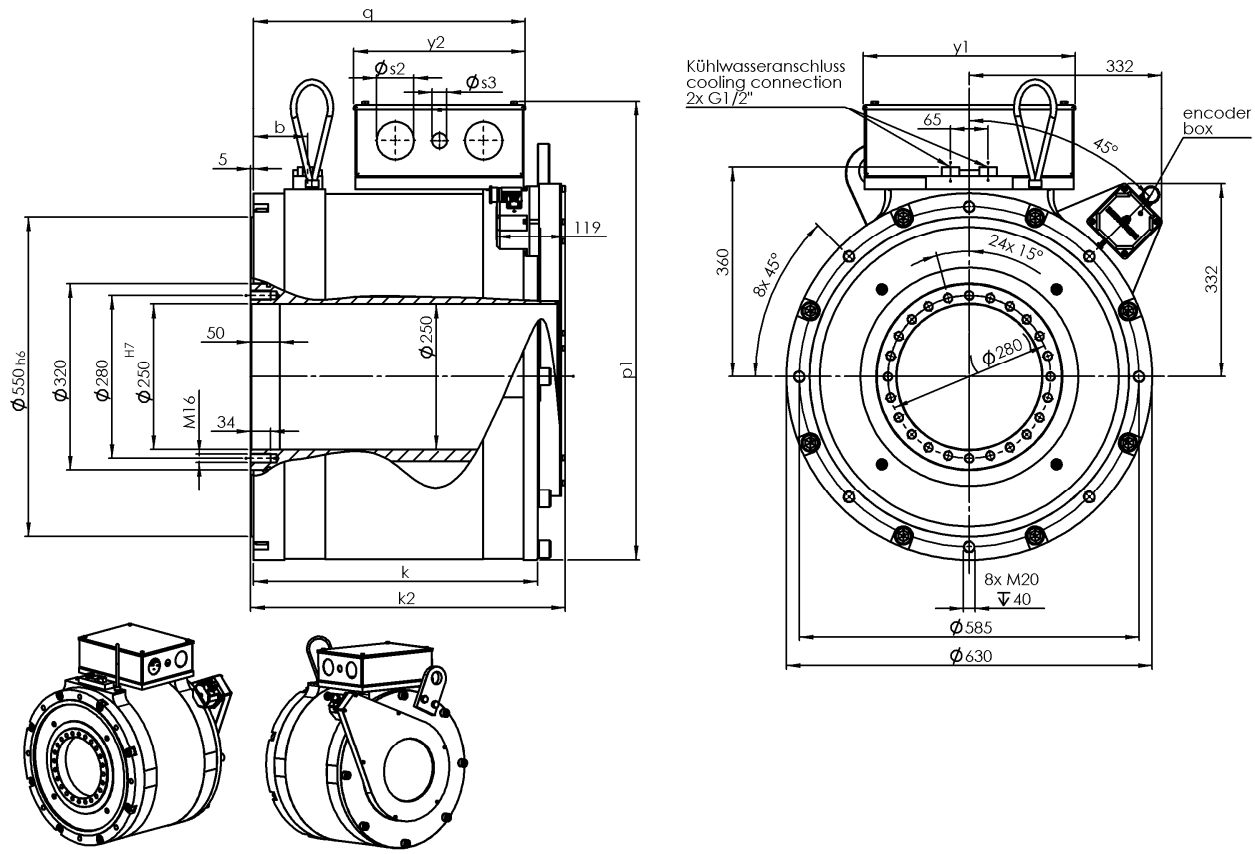


	k	k2	q1	a1
DST2-315KO	529	599	508	253
DST2-315KM	563	633	542	287
DST2-315MO	597	667	576	321
DST2-315ML	631	701	610	355
DST2-315LO	665	735	644	389
DST2-315LB	699	769	678	423
DST2-315BO	783	853	762	507
DST2-315XO	851	921	830	575
DST2-315XY	885	955	864	609
DST2-315YO	919	989	898	643
DST2-315ZO	987	1057	966	711
DST2-315ZA	1021	1091	1000	745

The terminal box dimensions are explained on page 56.

4.4.2. DST2-315 – Hollow shaft model

Type of construction IM B14

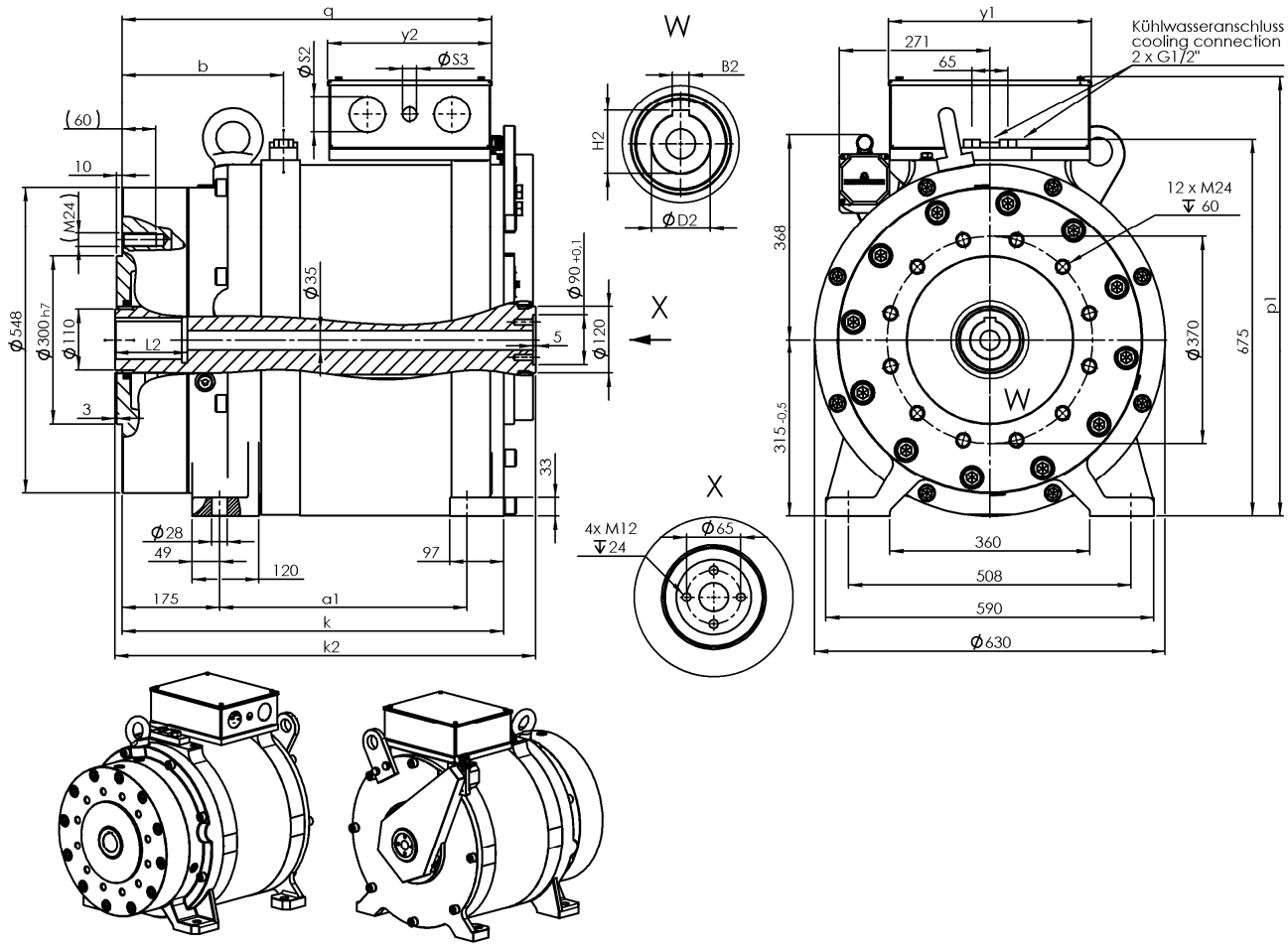


	k	k2	q	b
DST2-315KO	319	372	295	93
DST2-315KM	353	406	329	93
DST2-315MO	387	440	363	93
DST2-315ML	421	474	397	93
DST2-315LO	455	508	431	93
DST2-315LB	489	542	465	93
DST2-315BO	573	626	549	118
DST2-315XO	641	694	617	118
DST2-315XY	675	728	651	118
DST2-315YO	709	762	685	118
DST2-315ZO	777	830	753	118
DST2-315ZA	811	864	787	118

The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:5.

4.4.3. DST2-315 – Thrust bearing model

Type of construction IM B34



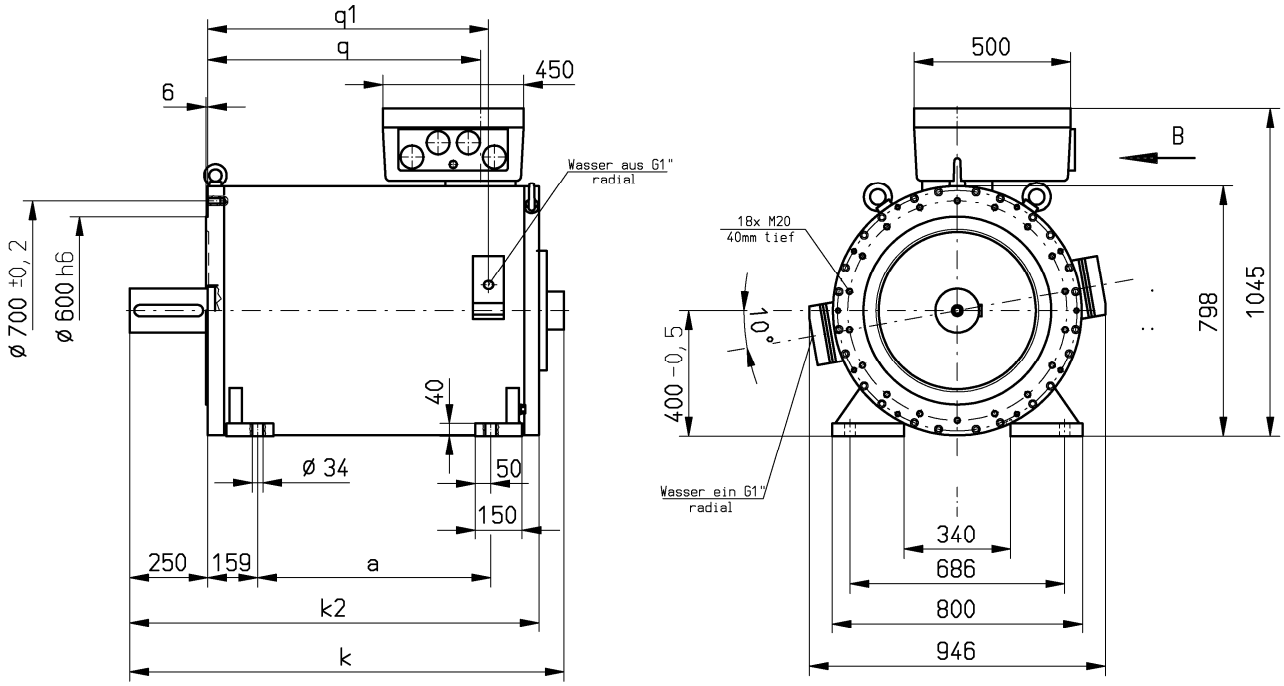
	k	k2	q	a1	b	ØD2	L2	H2	B2
DST2-315KO	516	587	495	275	290	70 H7	130	74.9	20 JS9
DST2-315KM	550	621	529	309	290	70 H7	130	74.9	20 JS9
DST2-315MO	584	655	563	343	290	70 H7	130	74.9	20 JS9
DST2-315ML	618	689	597	377	290	70 H7	130	74.9	20 JS9
DST2-315LO	652	723	631	411	290	70 H7	130	74.9	20 JS9
DST2-315LB	686	757	665	445	290	70 H7	130	74.9	20 JS9
DST2-315BO	770	841	749	529	315	85 H7	170	90.4	25 JS9
DST2-315XO	838	909	817	597	315	85 H7	170	90.4	25 JS9
DST2-315XY	872	943	851	631	315	85 H7	170	90.4	25 JS9
DST2-315YO	906	977	885	665	315	85 H7	170	90.4	25 JS9
DST2-315ZO	974	1045	953	733	315	85 H7	170	90.4	25 JS9
DST2-315ZA	1008	1079	987	767	315	85 H7	170	90.4	25 JS9

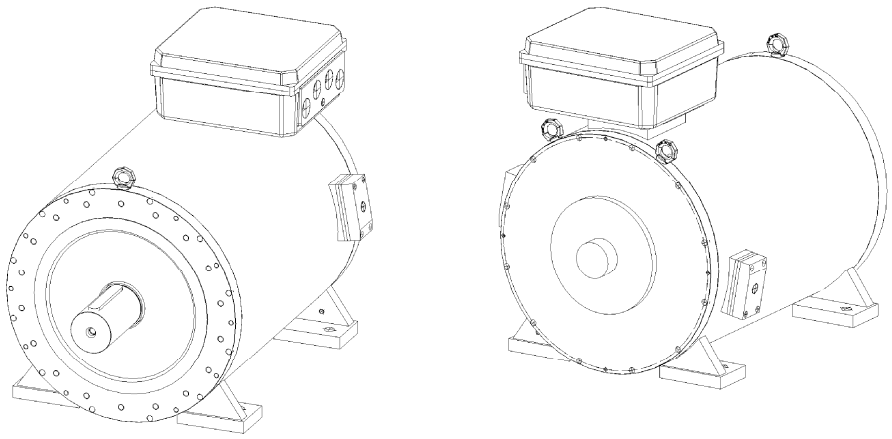
The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:5.

4.5. DST2-400

4.5.1. DST2-400 – Solid shaft model

Type of construction IM B34



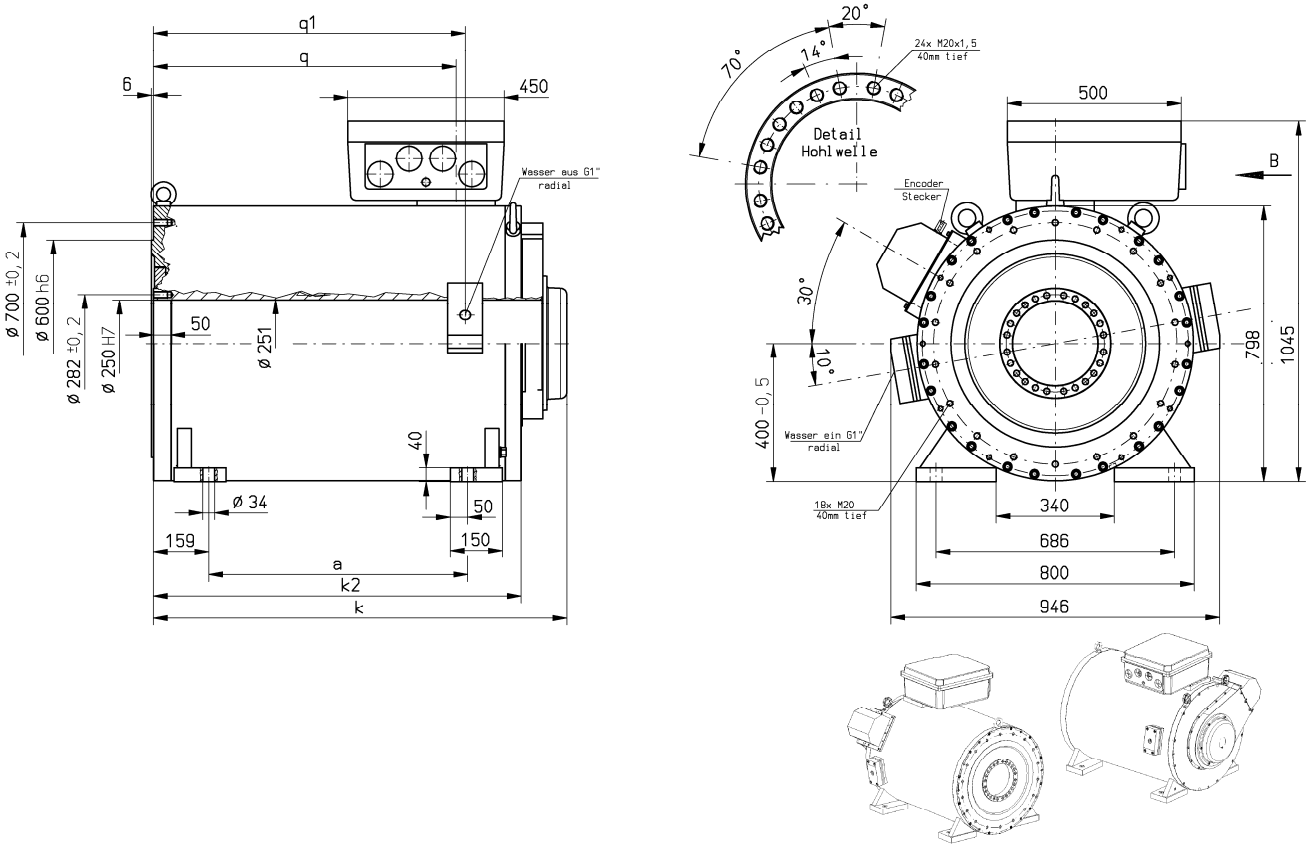


	k	k2	q	q1	a
DST2-400KO	1088	1008	571	597	445
DST2-400KM	1138	1058	621	647	495
DST2-400MO	1188	1108	671	697	545
DST2-400LO	1288	1208	771	797	645
DST2-400BO	1388	1308	871	897	745
DST2-400XY	1538	1458	1021	1047	895

The terminal box dimensions are explained on page 56.

4.5.2. DST2-400 – Hollow shaft model

Type of construction IM B34

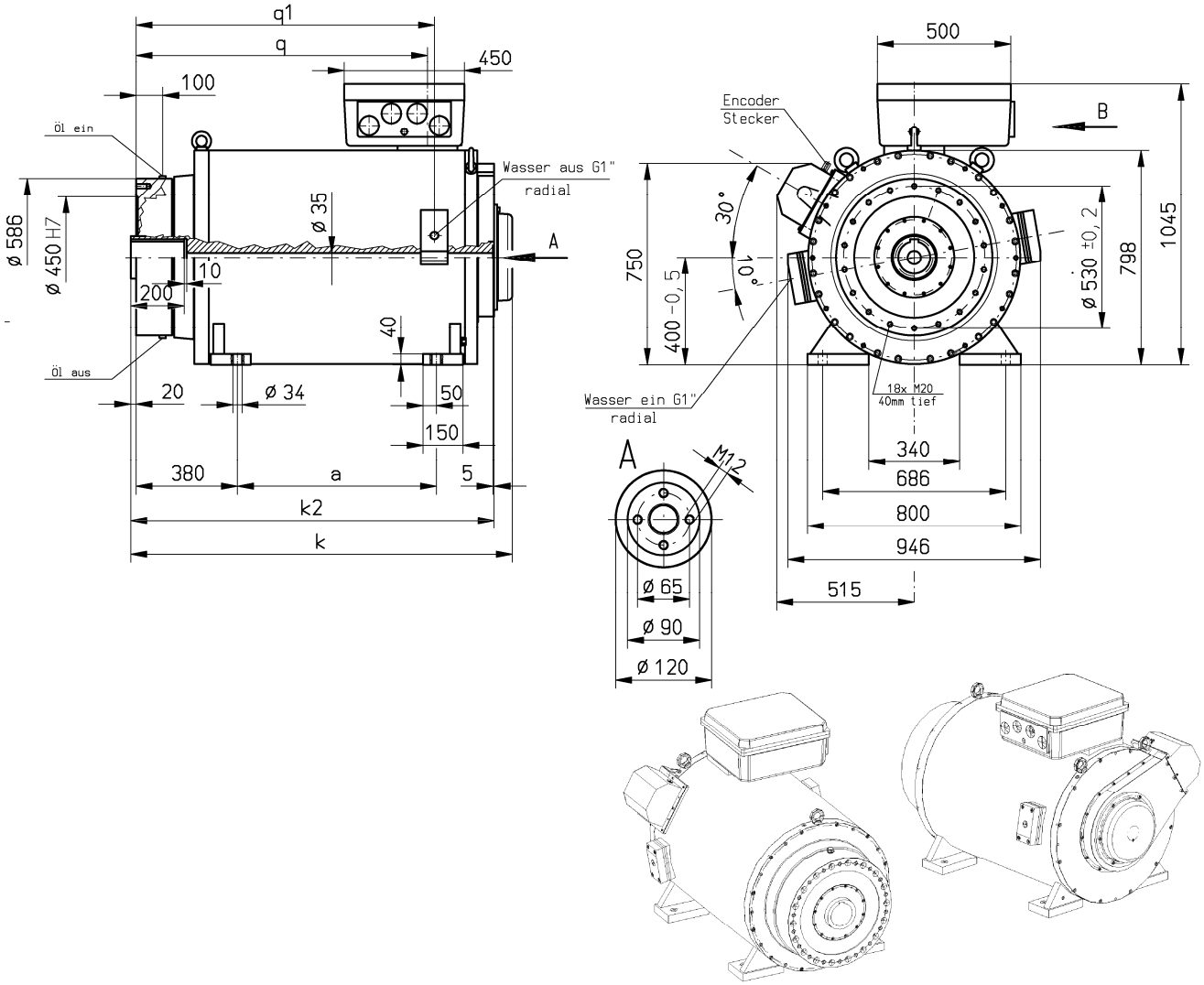


	k	k2	q	q1	a
DST2-400KO	890	758	571	597	445
DST2-400KM	940	808	621	647	495
DST2-400MO	990	858	671	697	545
DST2-400LO	1090	958	771	797	645
DST2-400BO	1190	1058	871	897	745
DST2-400XY	1340	1208	1021	1047	895

The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:5.

4.5.3. DST2-400 – Thrust bearing model

Type of construction IM B34

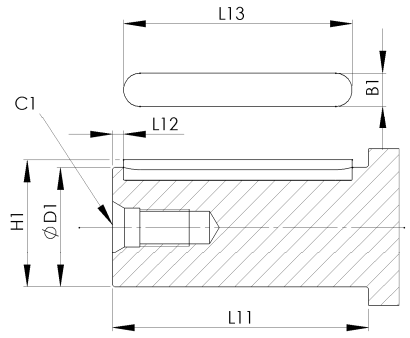


	k	k2	q	q1	a
DST2-400KO	1130	1062	792	818	445
DST2-400KM	1180	1112	842	868	495
DST2-400MO	1230	1162	892	918	545
DST2-400LO	1330	1262	992	1018	645
DST2-400BO	1430	1362	1092	1118	745
DST2-400XY	1580	1512	1242	1268	895

The terminal box dimensions are explained on page 56. The belt ratio of the encoder connection is 1:5.

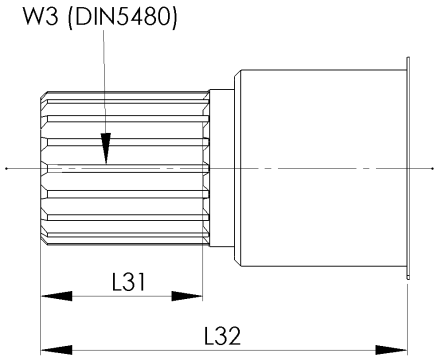
4.6. Shaft options

4.6.1. Shaft with key

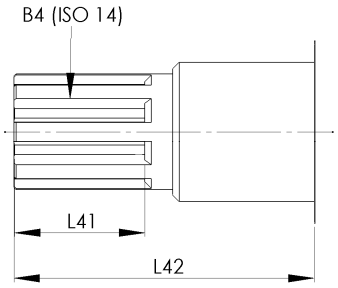


Solid shaft model	as per DIN 748-E						
	ØD1	L11	L12	L13	B1	H1	C1
DST2-135	65 m6	140	6	125	18	69	DIN 332 D M20
DST2-200	90 m6	170	10	140	25	95	DIN 332 D M24
DST2-260	120 m6	210	10	180	32	127	DIN 332 D M24
DST2-315	120 m6	210	10	180	32	127	DIN 332 D M24
DST2-400	140 m6	250	10	220	36	148	DIN 332 D M24

4.6.2. Shaft with external teeth

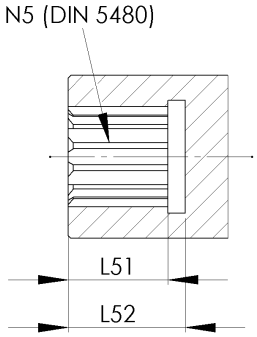


Solid shaft model	as per DIN 5480		
	W3	L31	L32
DST2-135	W48x2x22x8e	48	97
DST2-200	W70x3x22x8e	72	117
DST2-260	W80x3x25x8e	80	132
DST2-315	W110x3x35x8e	144	210
DST2-400	W130x3x42x8e	150	200



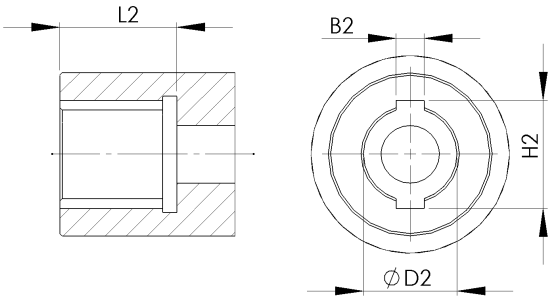
Solid shaft model	as per DIN ISO14		
	B4	L41	L42
DST2-135	B8x42x48	48	102
DST2-200	B8x62x72	72	117
DST2-260	B10x72x82	80	146
DST2-315	B10x102x112	144	210
DST2-400	B10x112x125	150	200

4.6.3. Shaft with internal teeth – Solid shaft motors



Solid shaft model	as per DIN 5480		
	N5	L51	L52
DST2-135KO - YO	N40x3x12x9H	40	47
DST2-200KO - BO	N55x3x17x9H	45	53
DST2-200XO - XY	N65x3x20x9H	50	60
DST2-260KO - BO	N75x3x24x9H	57	67
DST2-260XO	N85x3x27x9H	75	89
DST2-315KO - LB	N85x3x27x9H	75	89
DST2-315BO - ZA	N100x3x32x9H	92	110
DST2-400KO - MO	N100x3x32x9H	100	110
DST2-400LO - XY	N130x3x42x9H	120	130

4.6.4. Shaft with blind bore and 2 keys – Thrust bearing motors



Thrust bearing model	ØD2	L2	H2	B2
DST2-135	40H7	50	46.6	12
DST2-200	60H7	60	68.8	18
DST2-260	70H7	130	79.8	20
DST2-315KO - LB	70H7	130	79.8	20
DST2-315BO - ZA	85H7	170	95.8	25
DST2-400KO - MO	95H7	200	105.8	25
DST2-400LO - XY	120H7	200	134.8	32

Note – Thrust bearing motors with one or two keys:

The maximum transferable torque is 1.25 x static motor torque [M_o]!

4.6.5. Shaft with internal teeth – Thrust bearing motors

Thrust bearing model	as per DIN 5480		
	N5[2)]	L51[2)]	L52[2)]
DST2-135KO - YO	N40x3x12x9H	40	47
DST2-200KO - BO	N55x3x17x9H	45	53
DST2-200XO - XY	N65x3x20x9H	50	60
DST2-260KO - BO	N75x3x24x9H	57	67
DST2-260XO	N85x3x27x9H	75	89
DST2-315KO - ZA[1)]	N85x3x27x9H	75	89
DST2-400KO - MO	N100x3x32x9H	100	110
DST2-400LO - XY	N130x3x42x9H	120	130

[1)] The maximum transferable torque is 1.25 x static motor torque [M_o]!
[2)] See chapter 4.6.3 for dimensioned drawing

Note on motors with integral thrust bearing:

Defined internal teeth can be used as an optional addition to the key connection.
Smaller tooth sizes of the appropriate size can be selected from the defined toothing types depending on the max. torque to be transmitted. The manufacturer must be consulted on this matter.

4.7. Main connection – Terminal box

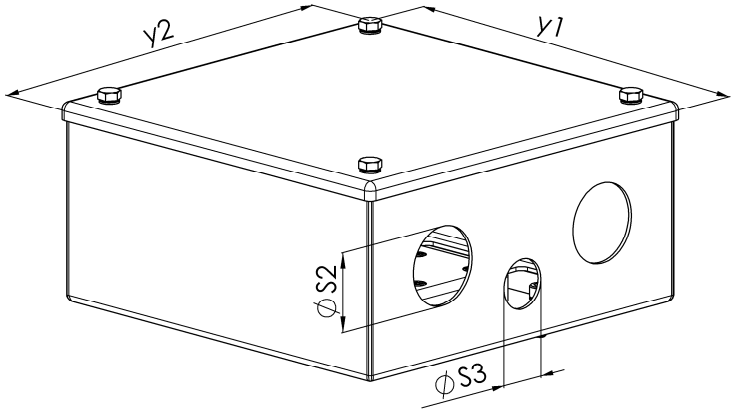
4.7.1. Terminal designation

Connection diagram

U V W Power terminal
K + K - Temperature sensor

4.7.2. Terminal box model

Information on the assignment of currents, bore sizes for screw joints and the size of the connector bolts is outlined in the following section. EMC screw joints may have to be used.



No.	Cable entry point			Terminal	Bore	
	y1 [mm]	y2 [mm]	p1 [mm] See dimension sheets in chap. 4		s2	s3
10	145	140	370	3x pluggable	1x Ø40.5	1x Ø25.5
12	215	215	387	3x M6	2x Ø40.5	1x Ø25.5
20	215	145	495	3x pluggable	1x Ø40.5	1x Ø25.5
22	215	185	515	3x M6	2x Ø40.5	1x Ø25.5
24	215	215	515	3x M8	2x Ø51	1x Ø25.5
26	255	255	525	3x M10	2x Ø64	1x Ø25.5
30	255	215	633	3x M6	2x Ø40.5	1x Ø25.5
31	255	215	633	3x M8	2x Ø51	1x Ø25.5
33	255	255	643	3x M8	2x Ø51	1x Ø25.5

No.	Cable entry point			Terminal	Bore	
	y1 [mm]	y2 [mm]	p1 [mm] See dimension sheets in chap. 4		s2	s3
34	255	255	643	3x M10	2x Ø64	1x Ø25.5
36	365	295	673	3x M12	2x Ø64	1x Ø25.5
37	365	295	673	3x M16	2x Ø76	1x Ø25.5
39	255	255	643	3x M8	2x Ø51	1x Ø25.5
42	365	365	673	3x M10	2x Ø64	1x Ø25.5
43	365	365	673	3x M12	2x Ø64	1x Ø25.5
45	365	365	673	3x M16	2x Ø76	1x Ø25.5
50	295	165	748	3x M6	1x Ø40.5	1x Ø25.5
52	295	165	748	3x M6	1x Ø51	1x Ø25.5
54	295	165	748	3x M8	1x Ø64	1x Ø25.5
56	295	195	758	3x M8	2x Ø51	1x Ø25.5
58	295	195	758	3x M10	2x Ø51	1x Ø25.5
60	365	230	768	3x M10	2x Ø64	1x Ø25.5
62	365	230	768	3x M12	2x Ø64	1x Ø25.5
64	365	295	788	3x M10	2x Ø64	1x Ø25.5
66	365	295	788	3x M12	2x Ø64	1x Ø25.5
68	365	295	788	3x M16	2x Ø76	1x Ø25.5
70	295	230	758	3x M8	2x Ø51	1x Ø25.5
72	365	365	768	3x M10	2x Ø64	1x Ø25.5
74	365	365	788	3x M12	2x Ø64	1x Ø25.5
78	365	365	788	3x M16	2x Ø76	1x Ø25.5
80	365	365	823	3x M16	2x Ø76	1x Ø25.5
82	365	365	823	3x M16	3x Ø76	1x Ø25.5
90	500	450	1045	3x M12	2x Ø51	1x Ø25.5
92	500	450	1045	3x M12	2x Ø64	1x Ø25.5
94	500	450	1045	3x M16	2x Ø64	1x Ø25.5
96	500	450	1045	3x M20	3x Ø64	1x Ø25.5
98	500	450	1045	3x M20 Cu	3x Ø64	1x Ø25.5
100	500	450	1045	3x M20 Cu	4x Ø64	1x Ø25.5
102	500	450	1045	6x M20	4x Ø76	1x Ø25.5

4.7.3. Position of the terminal boxes and main connection outlet direction

The terminal box is located on the N-side. For motor sizes 135-315 the terminal box appears in any of the following positions:

- Terminal box at top
- Terminal box at bottom
- Terminal box on left (with D-side facing towards shaft end)
- Terminal box on right (with D-side facing towards shaft end)

Note: The position of the terminal box is identical to the position of the D-side water connections.

The following main connection outlet directions can be configured depending on the position of the terminal box for motor sizes 135 - 315.

Position Terminal box	**Main connection outlet direction**			
	top	bottom	left[1)]	right[1)]
top	-	-	☒	☒[2)]
bottom	-		☒	☒
left [1)]	☒[2)]	☒	-	-
right [1)]	☒	☒[2)]	-	-

[1)] with D-side facing towards shaft end

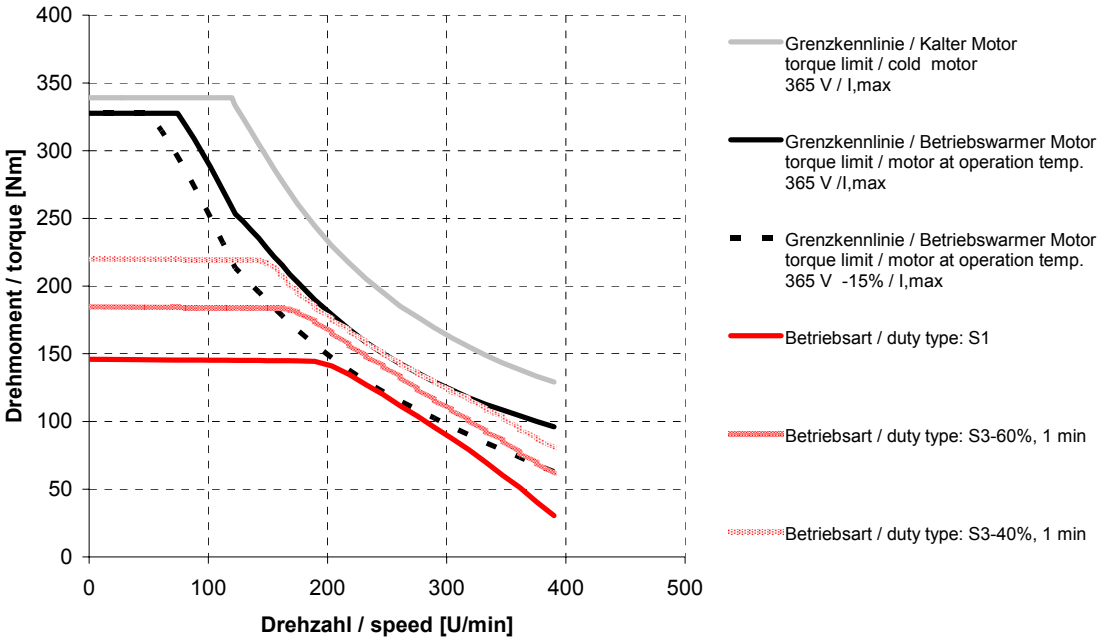
[2)] preferred variant

For motor size 400 the terminal box is located on top at N-side. The main connection outlet is right with D-side facing towards shaft end for standard version.

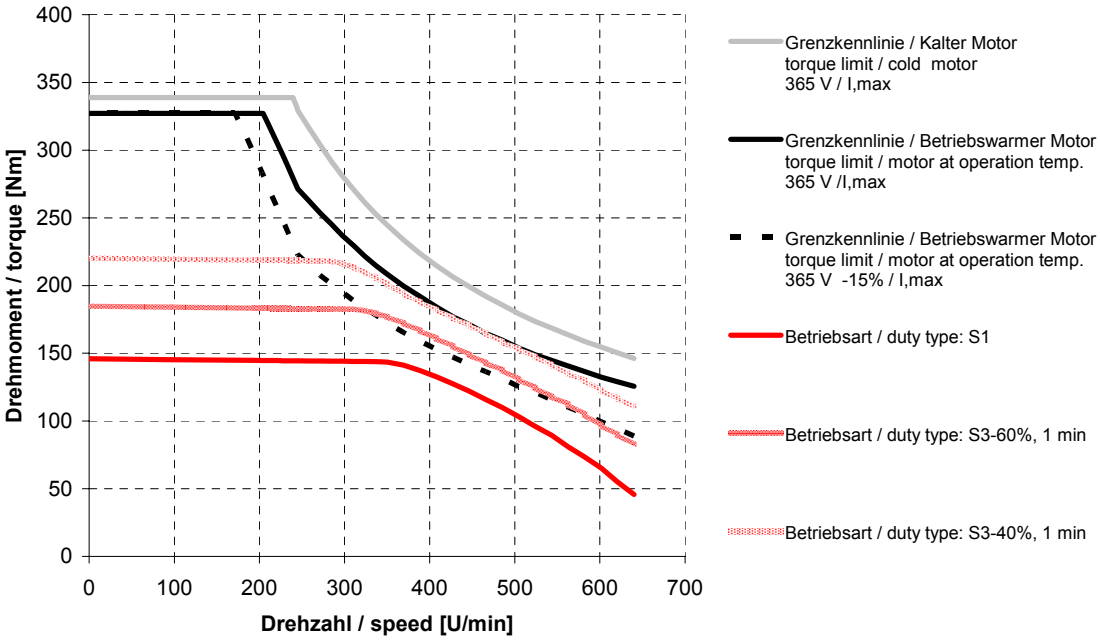
5. Motor characteristic curves

5.1. Characteristic curves DST2-135..54 W

DST2-135KO54W-017-5



DST2-135KO54W-035-5



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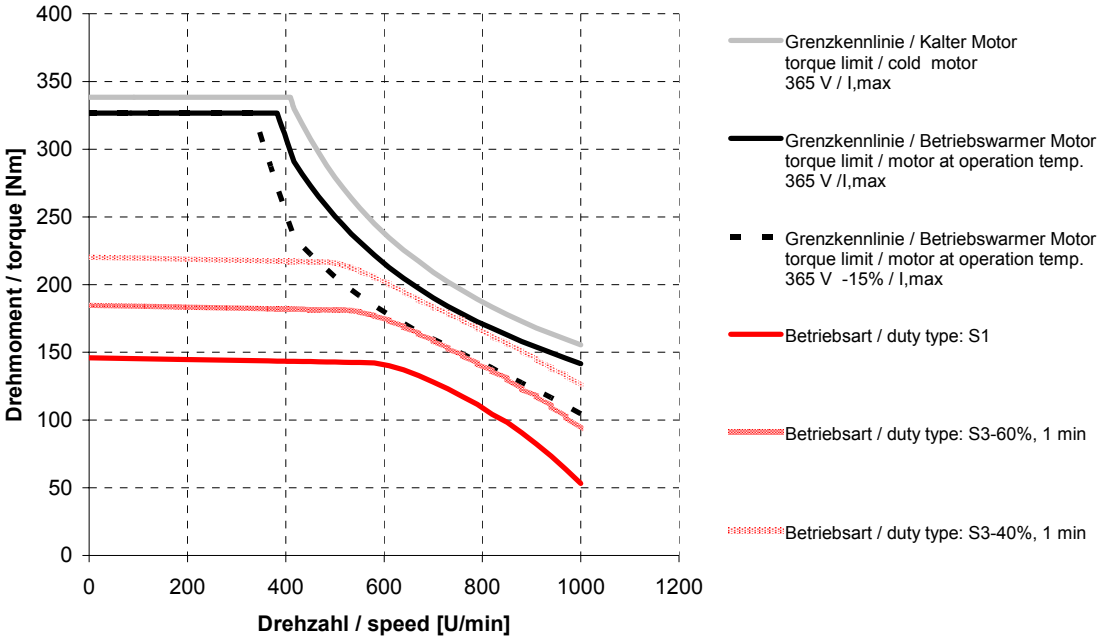

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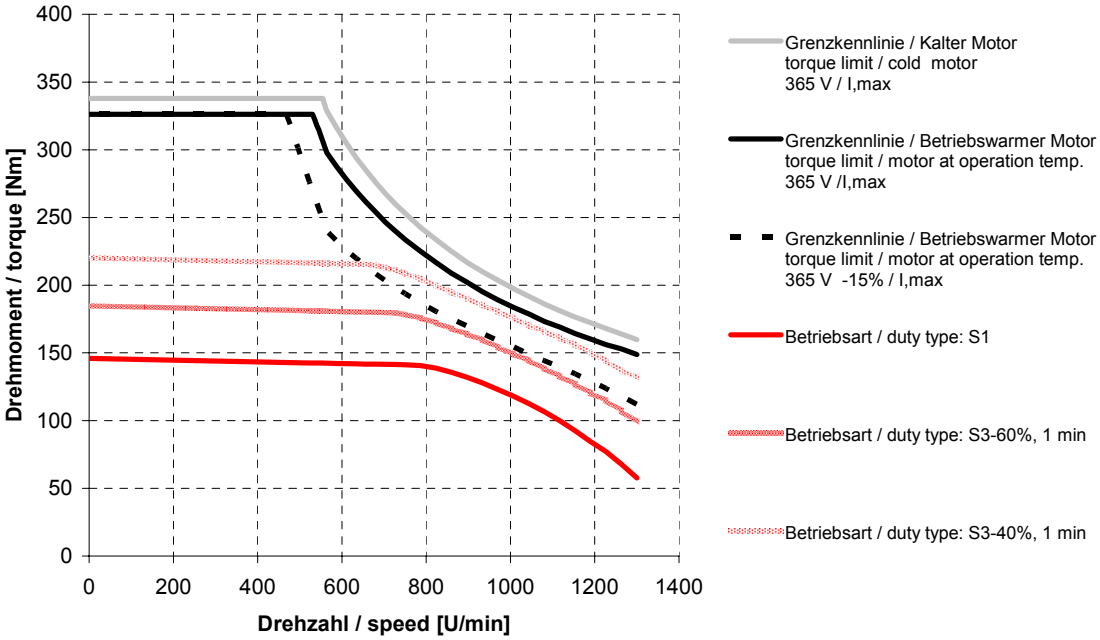

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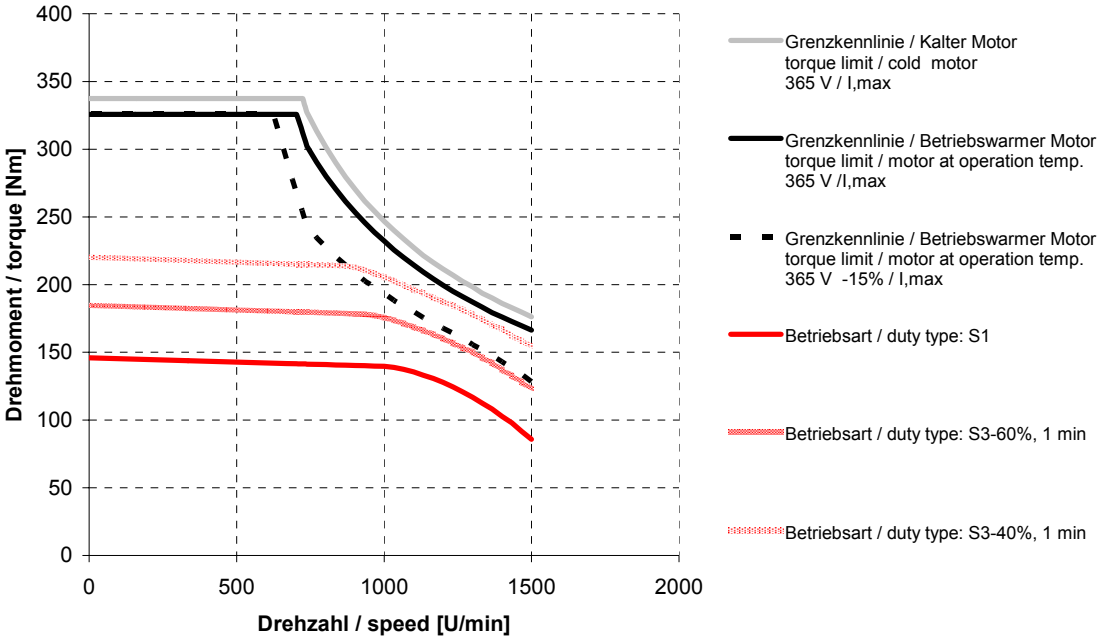

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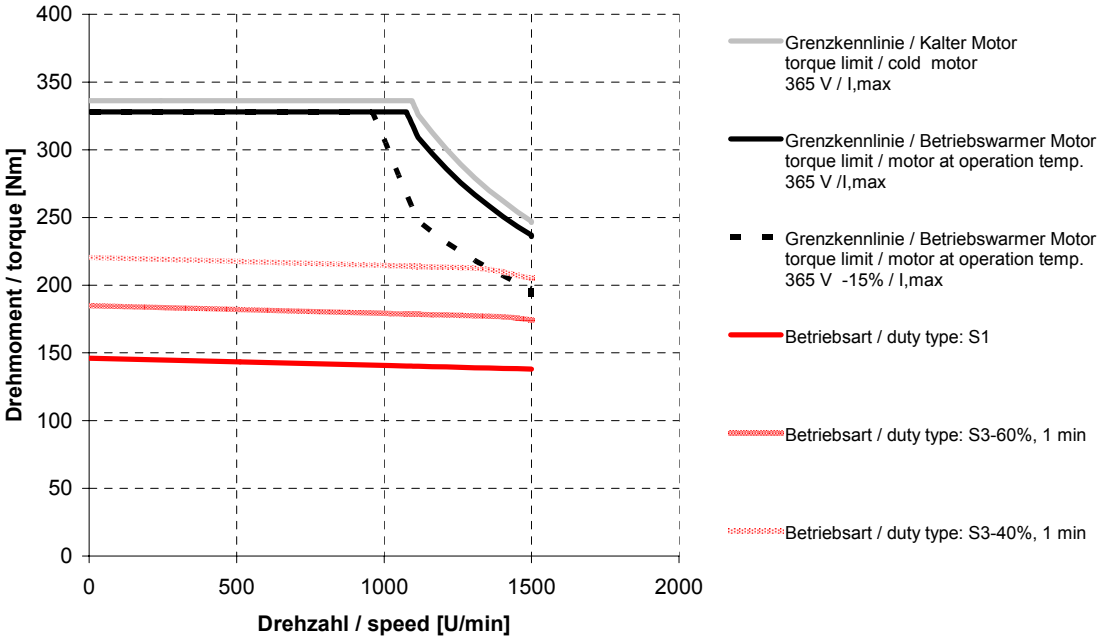

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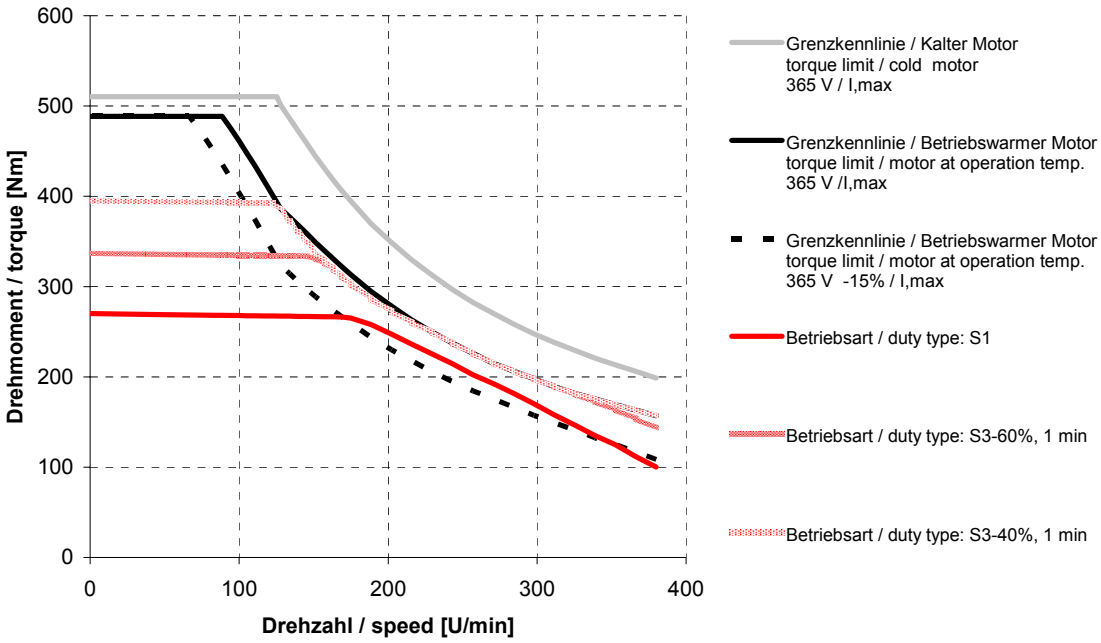

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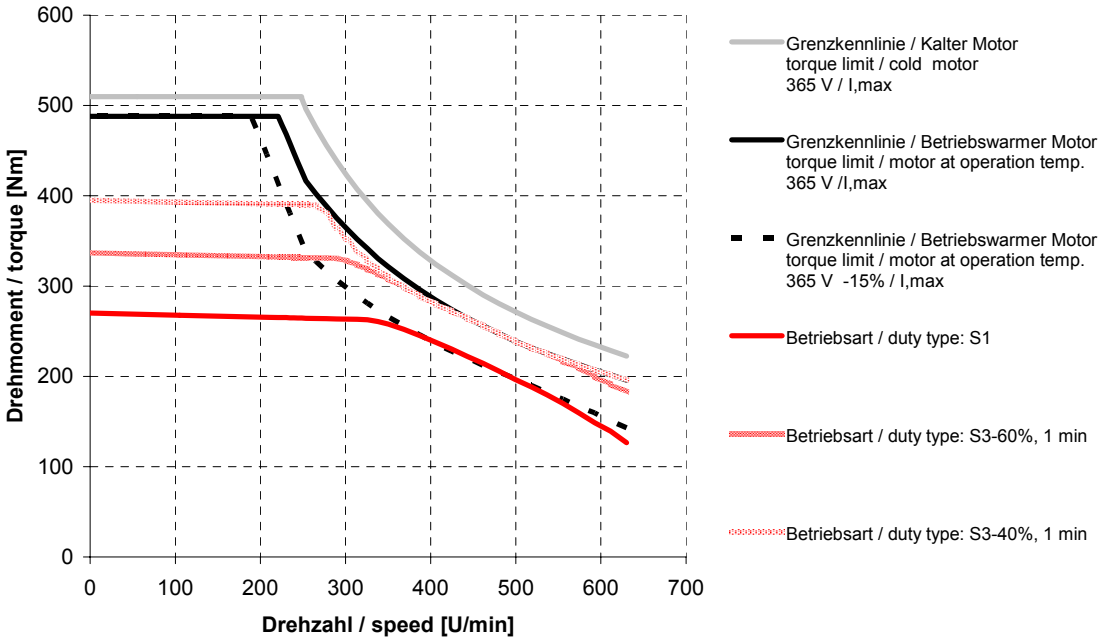

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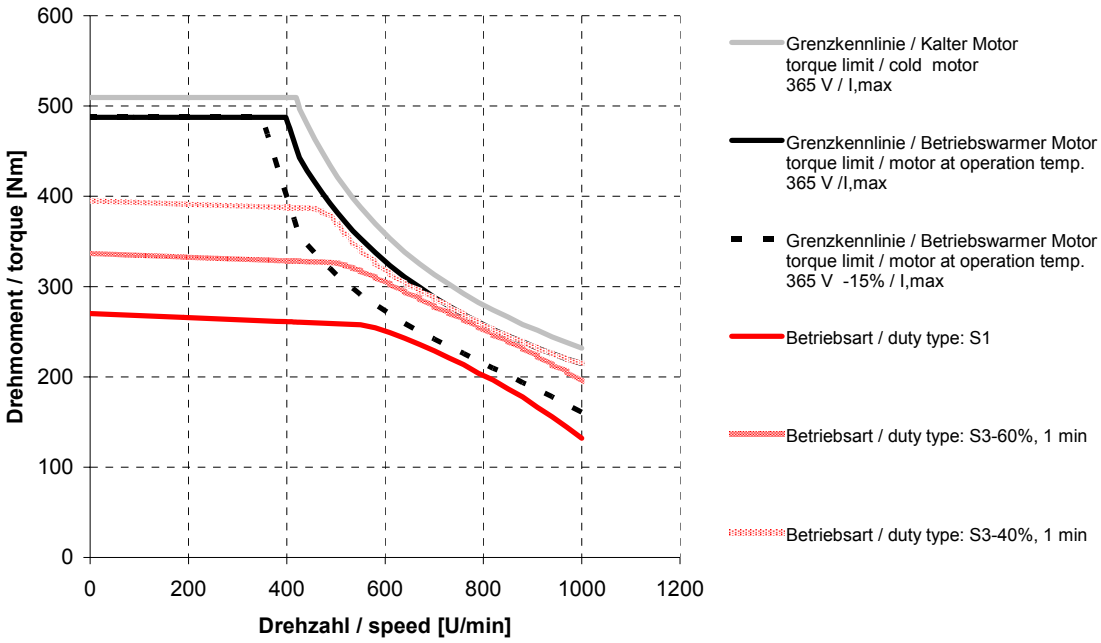

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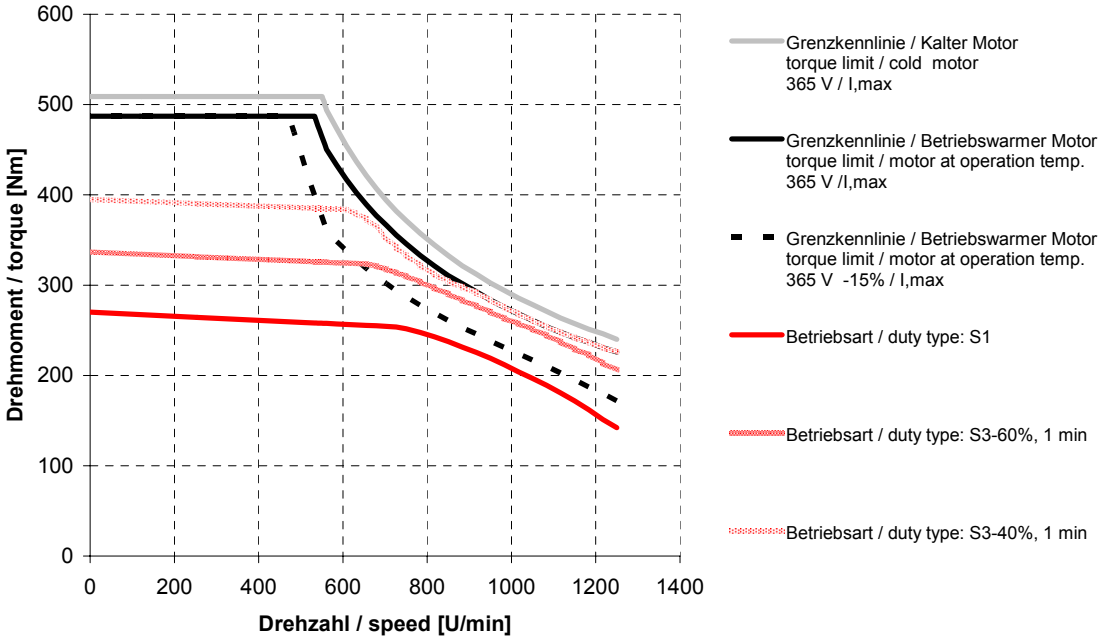

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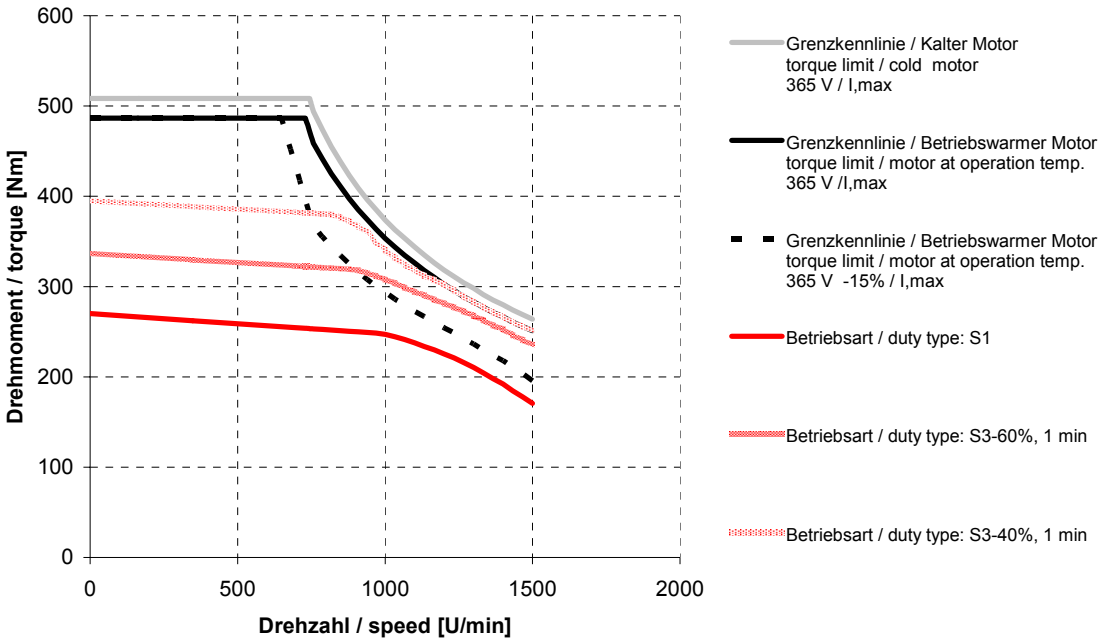

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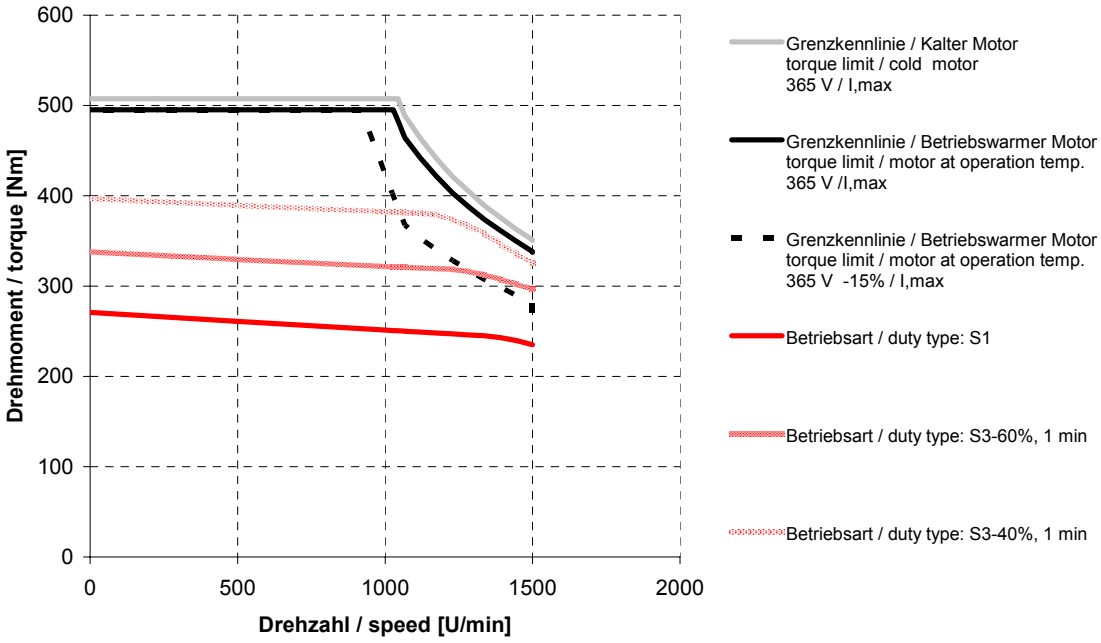

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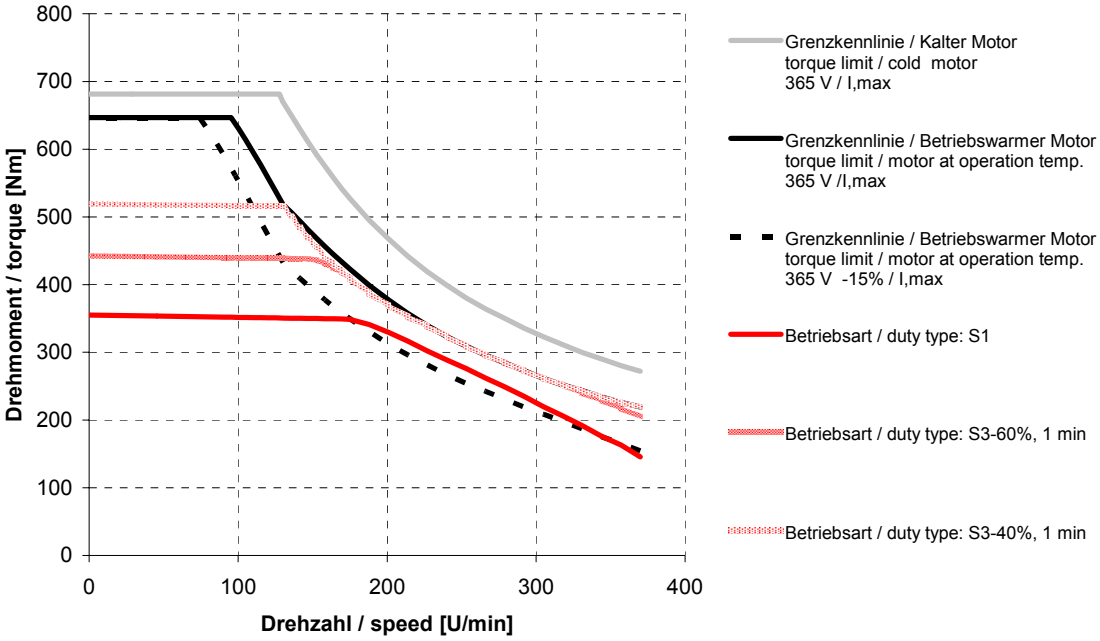

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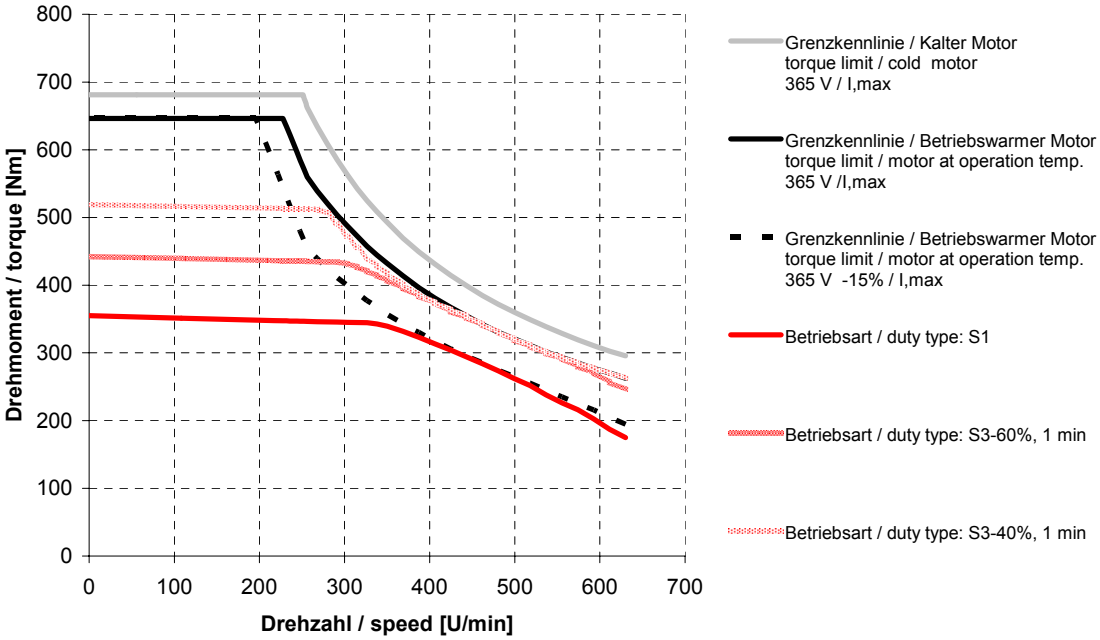

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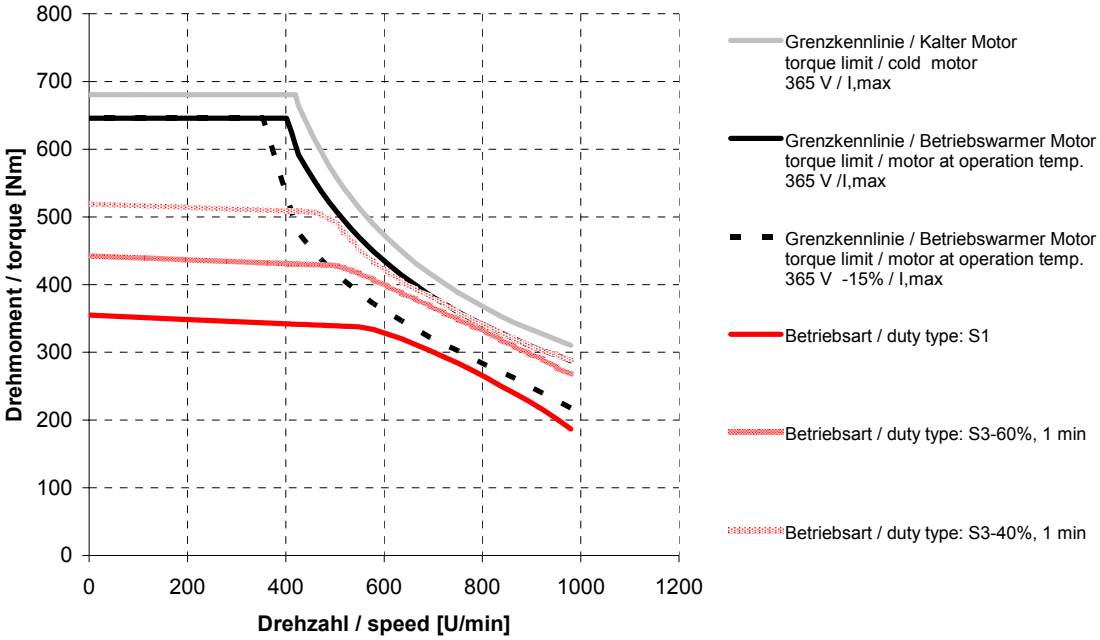

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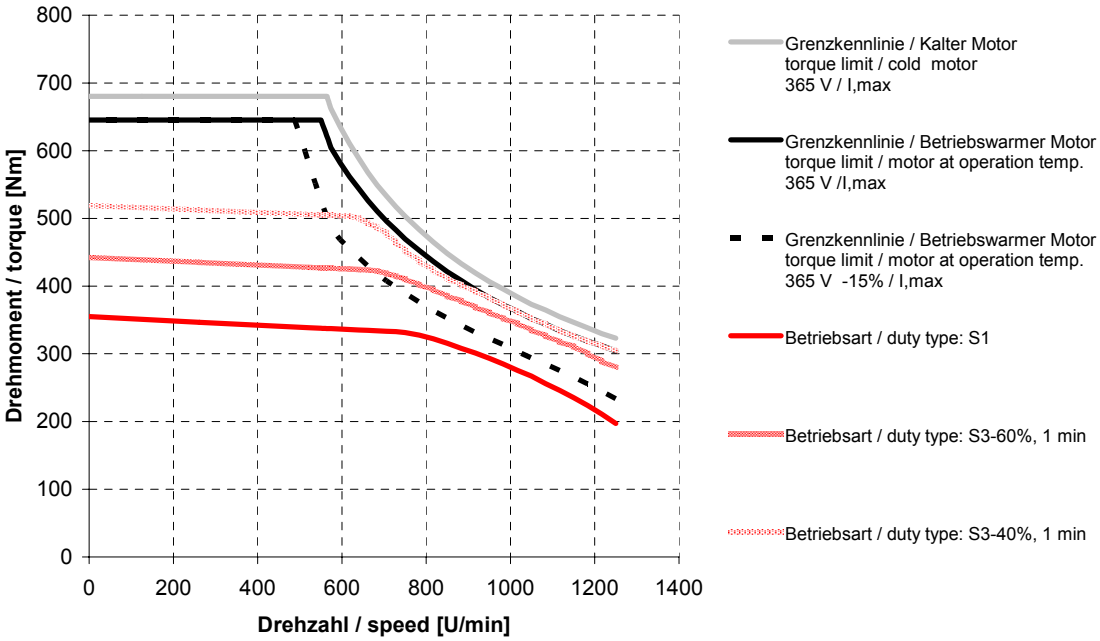

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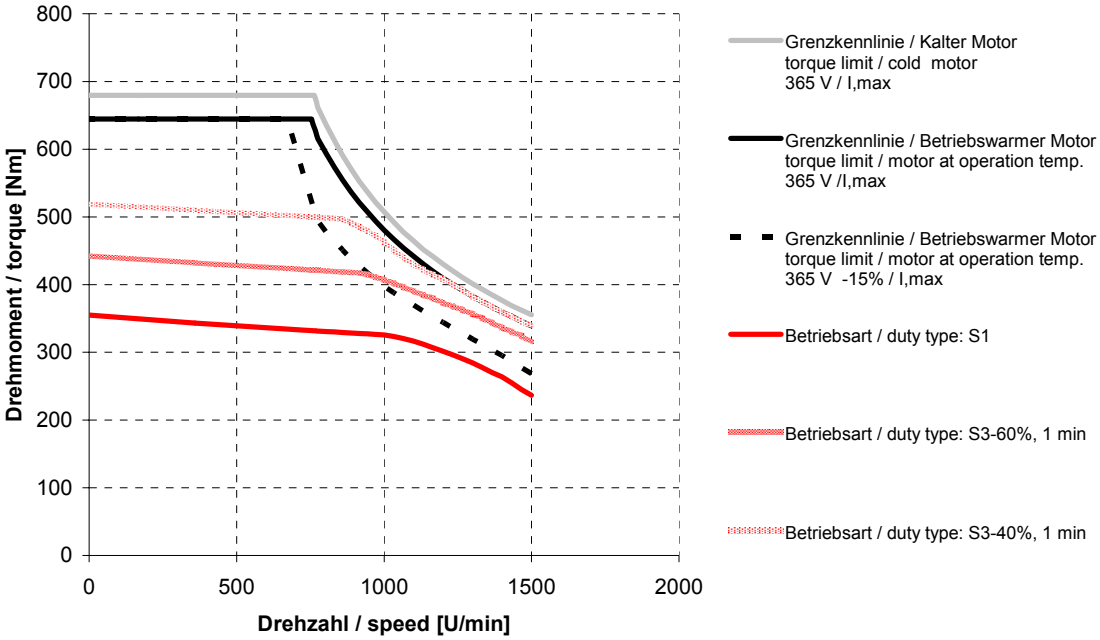

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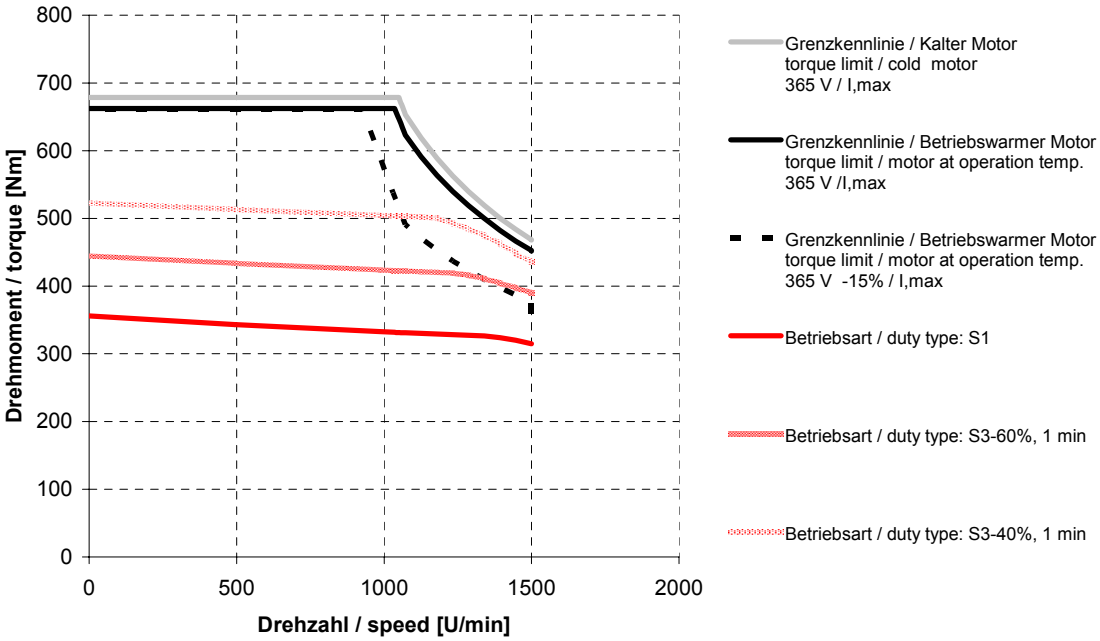

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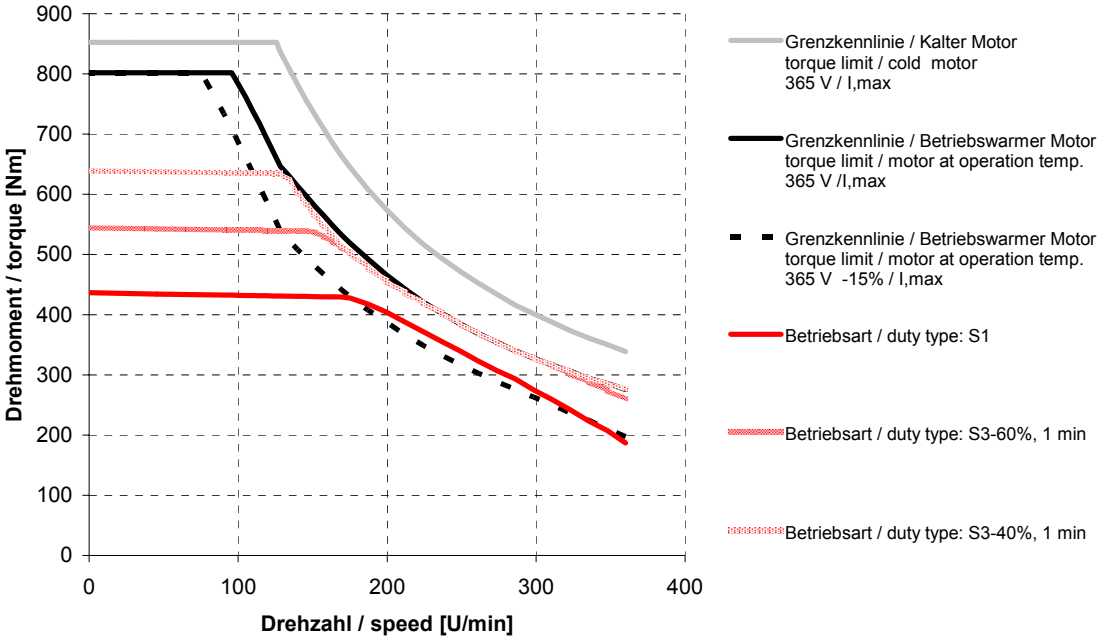

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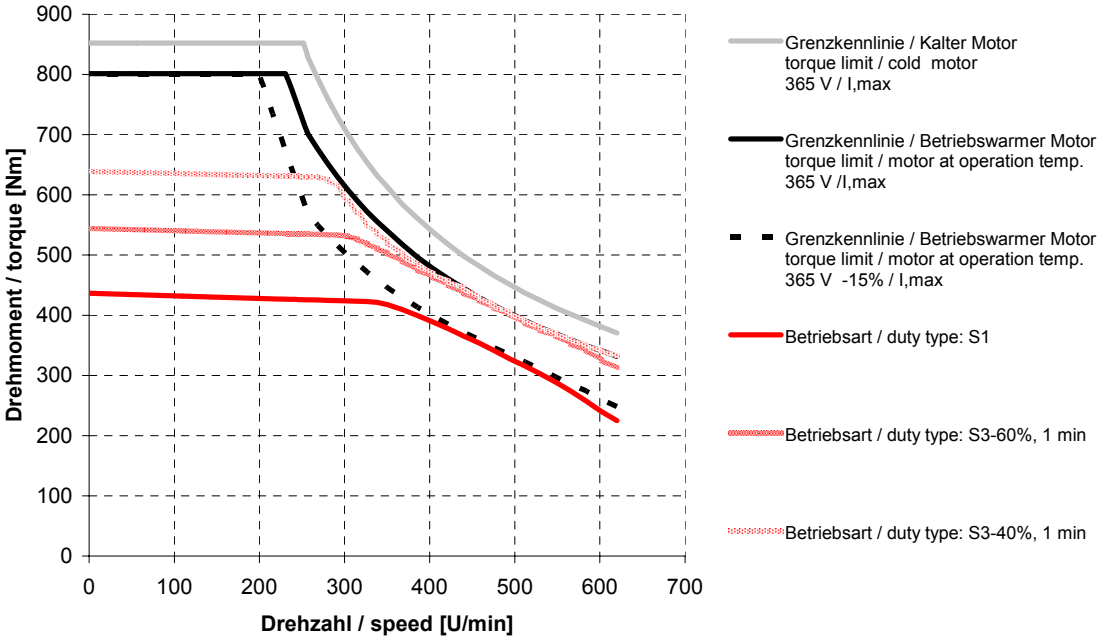

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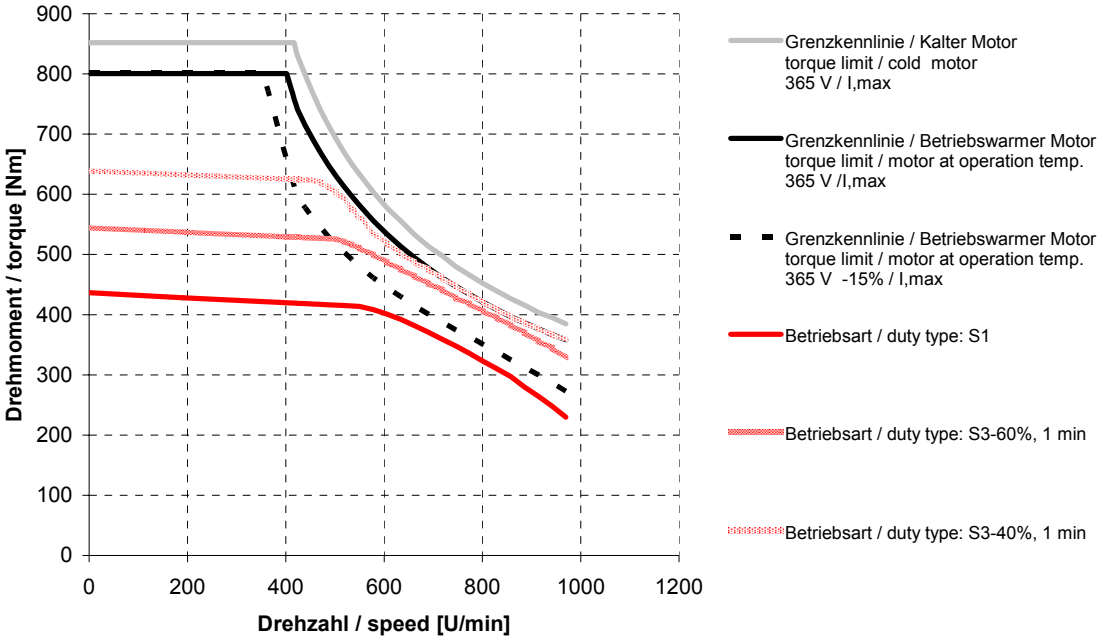

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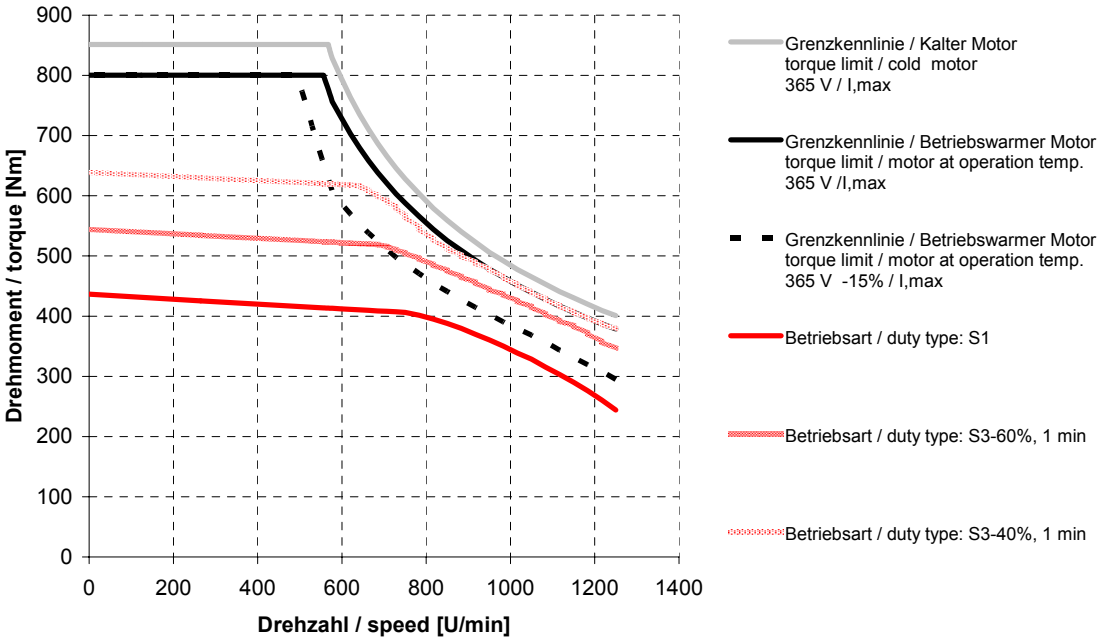

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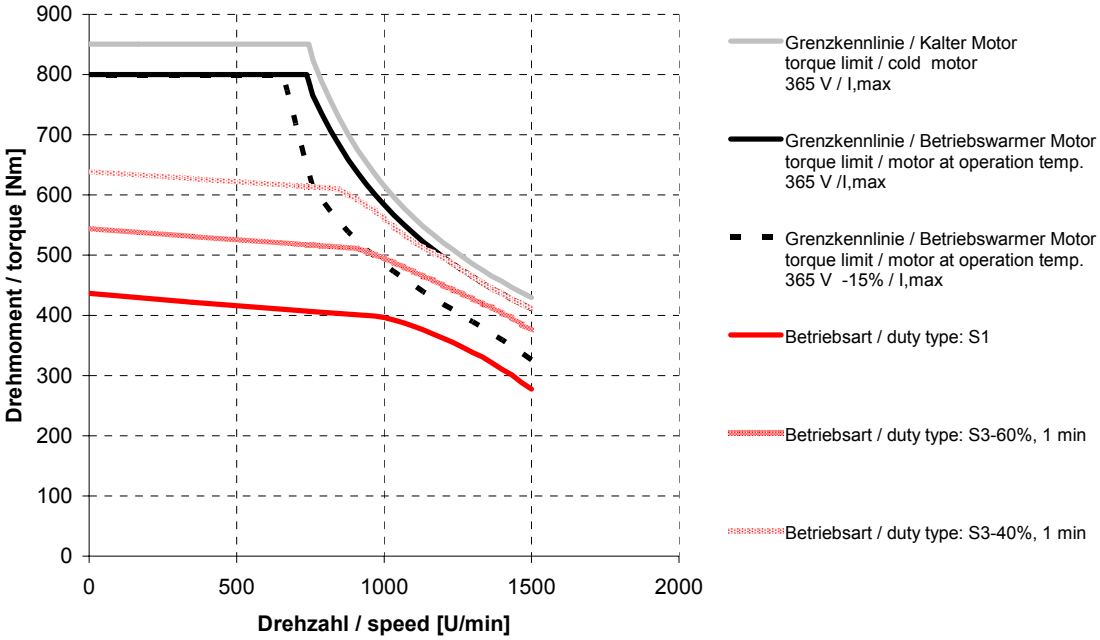

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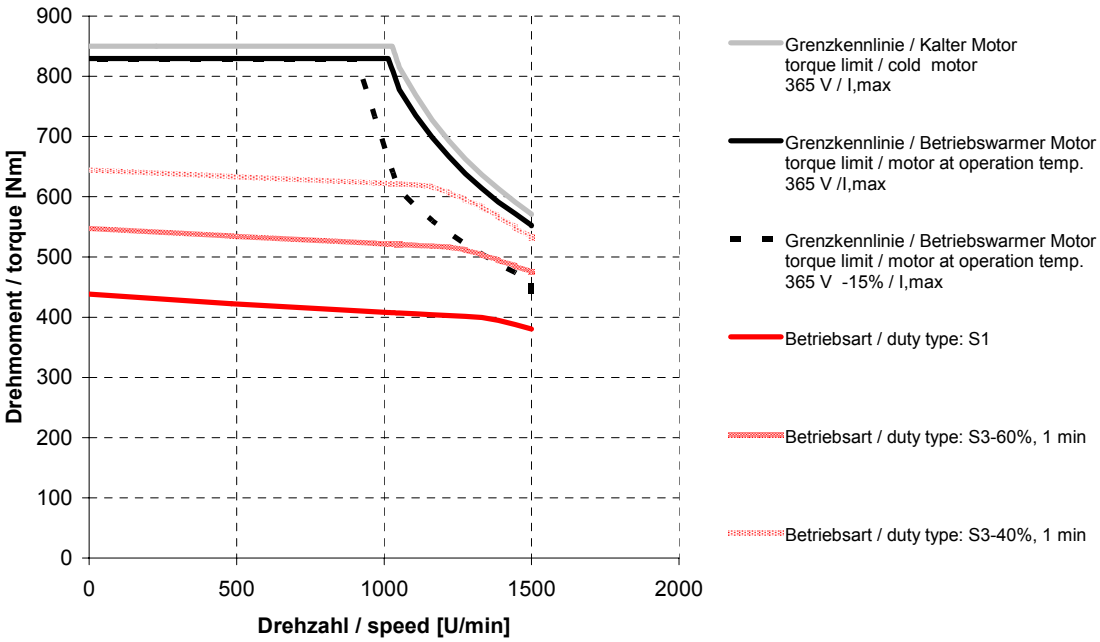

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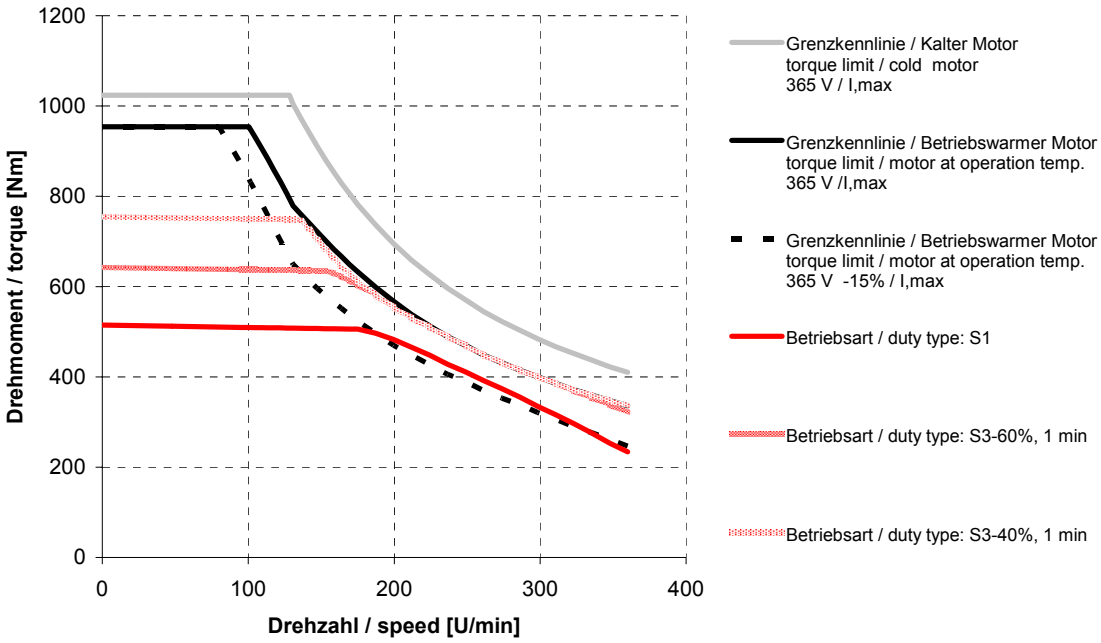

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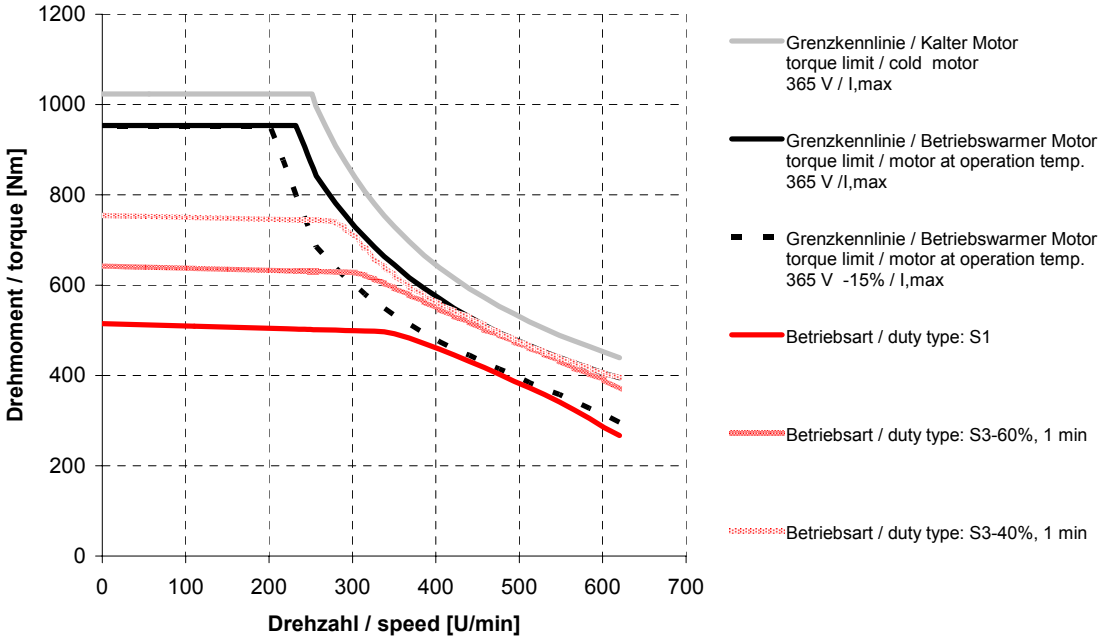

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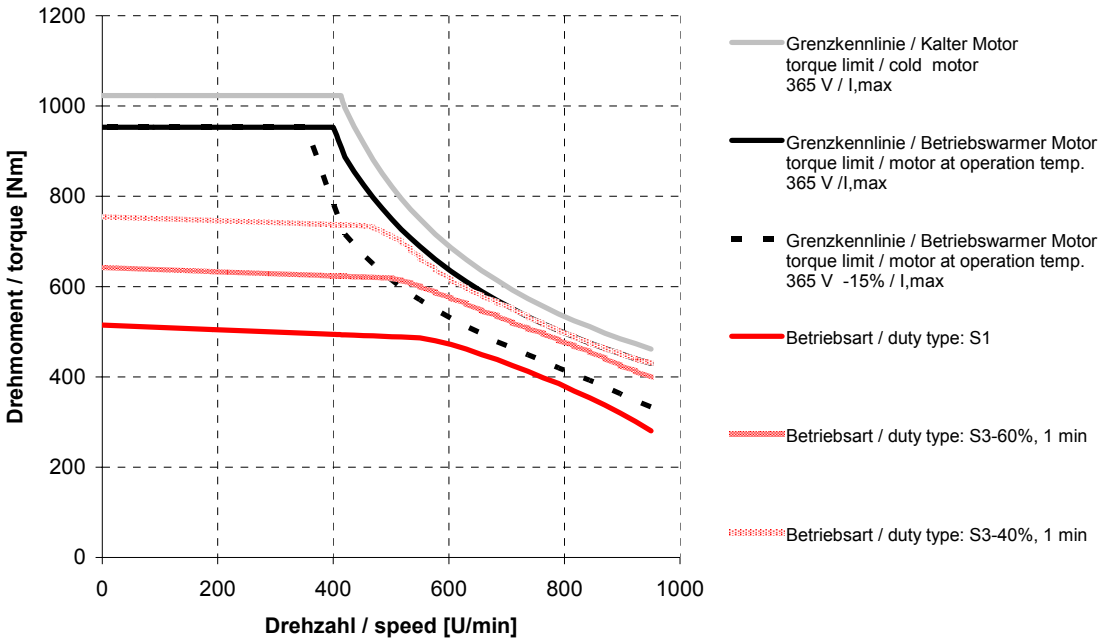

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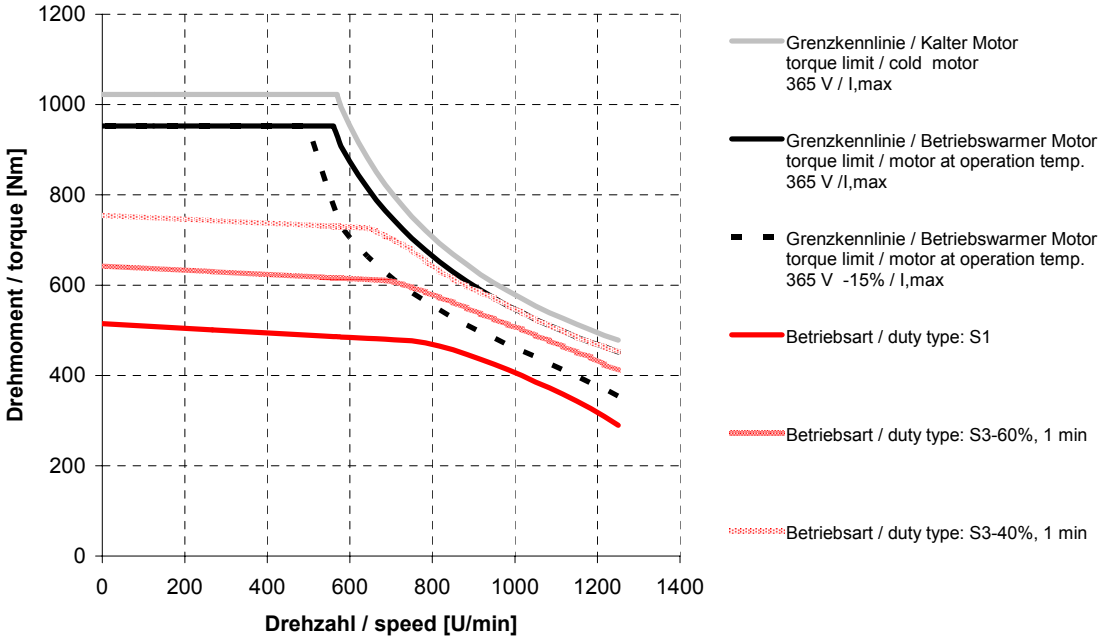

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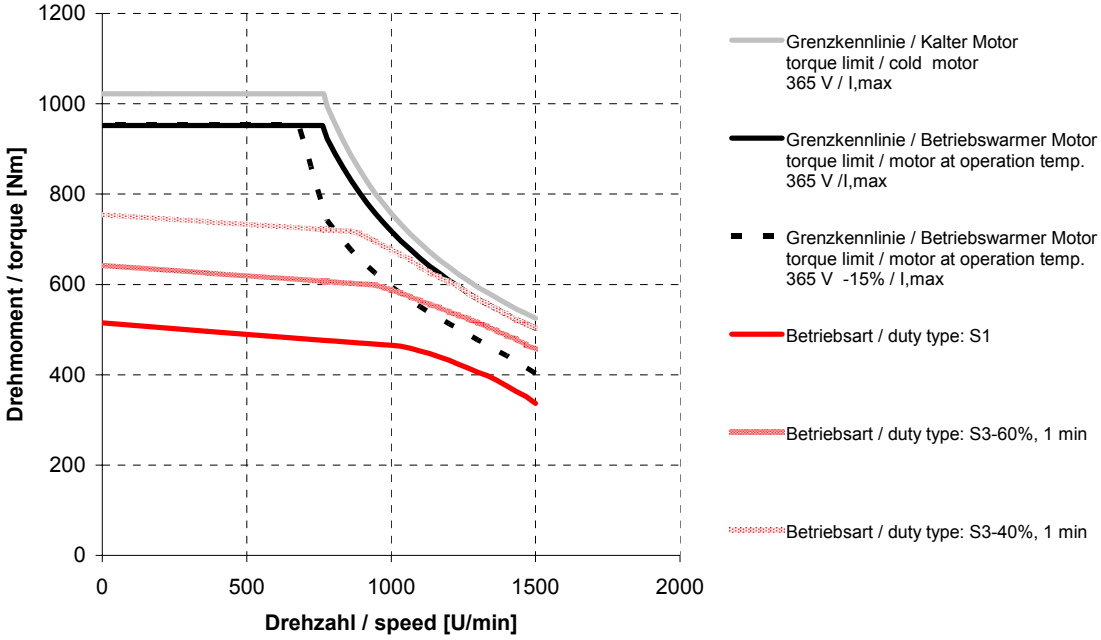

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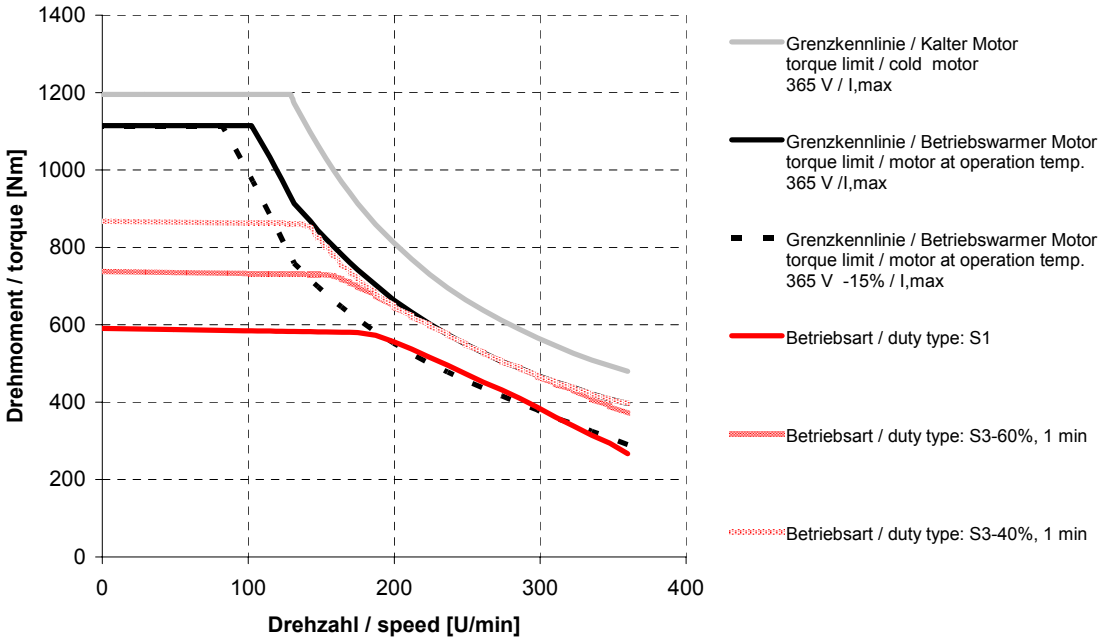

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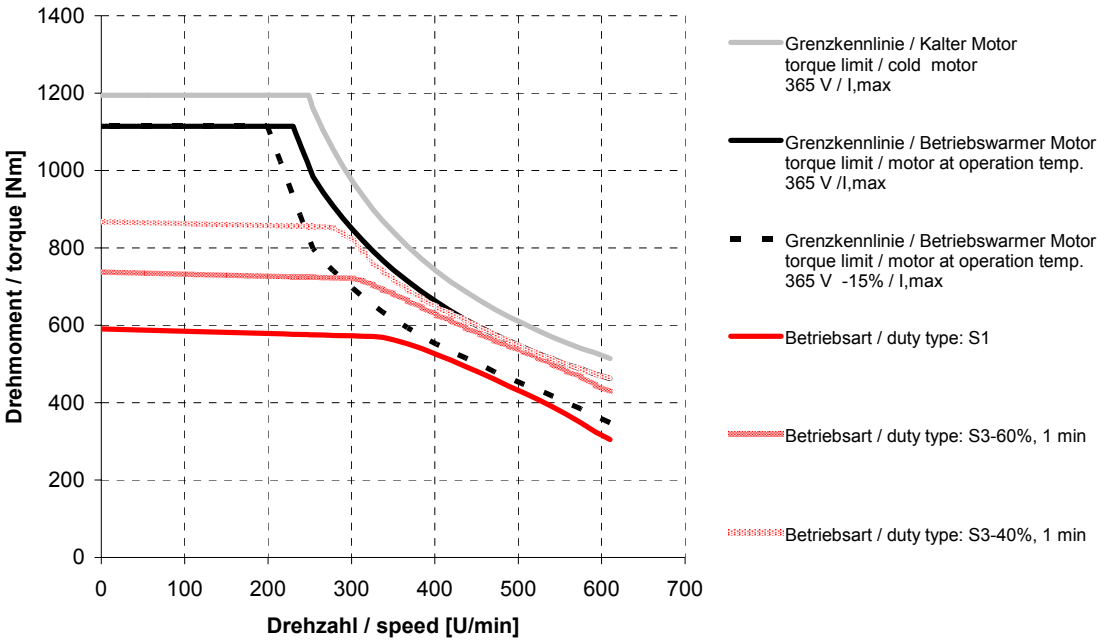

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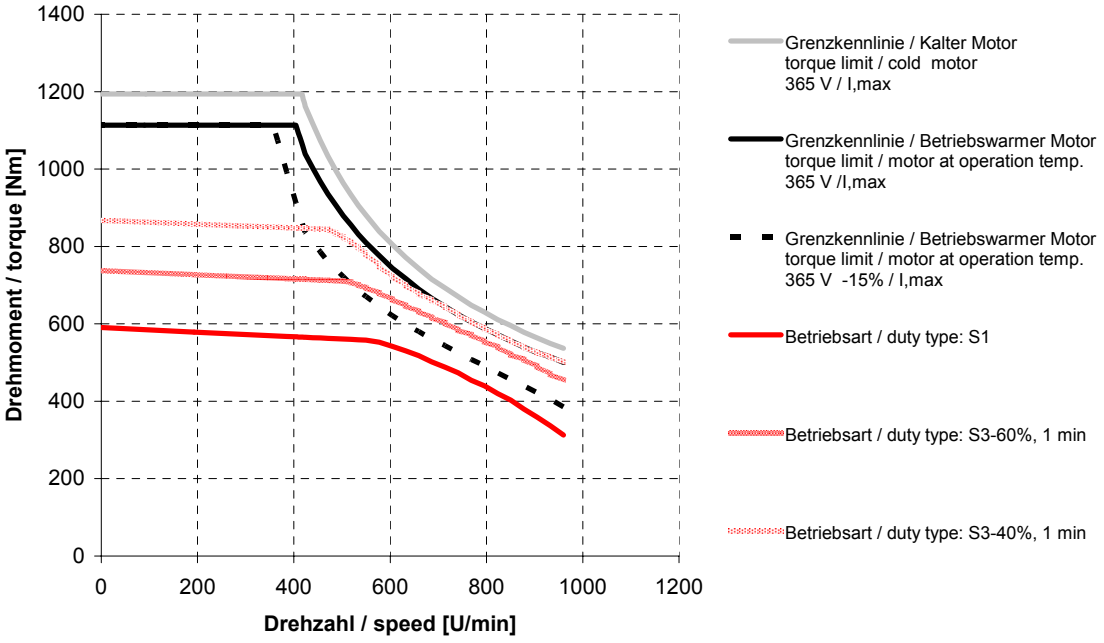

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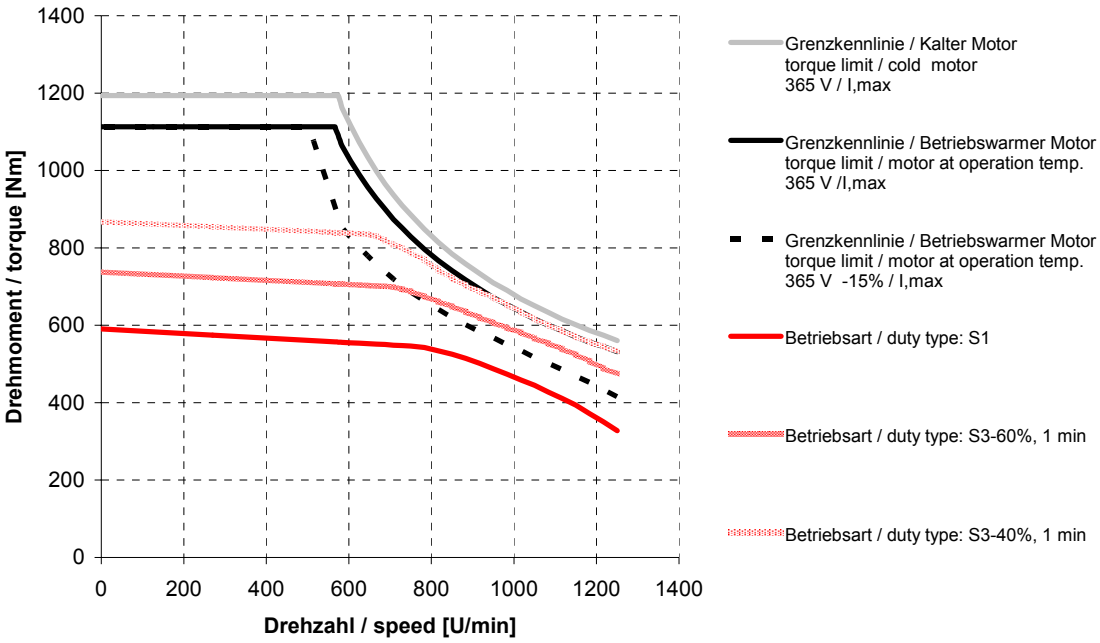

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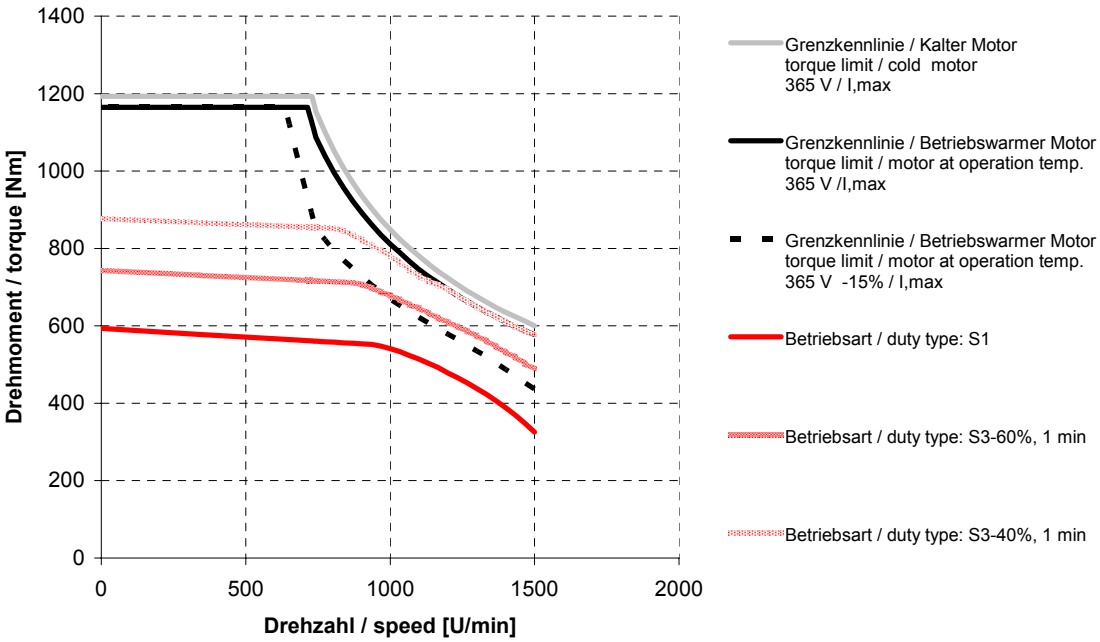
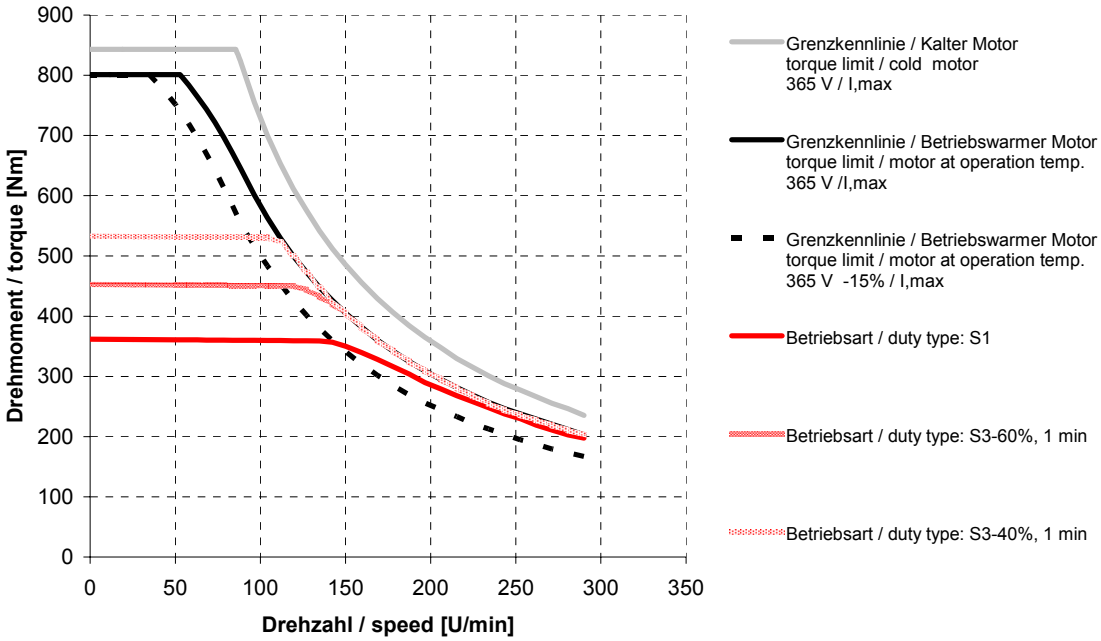


5.2. Characteristic curves DST2-200..54 W

DST2-200KO54W-015-5



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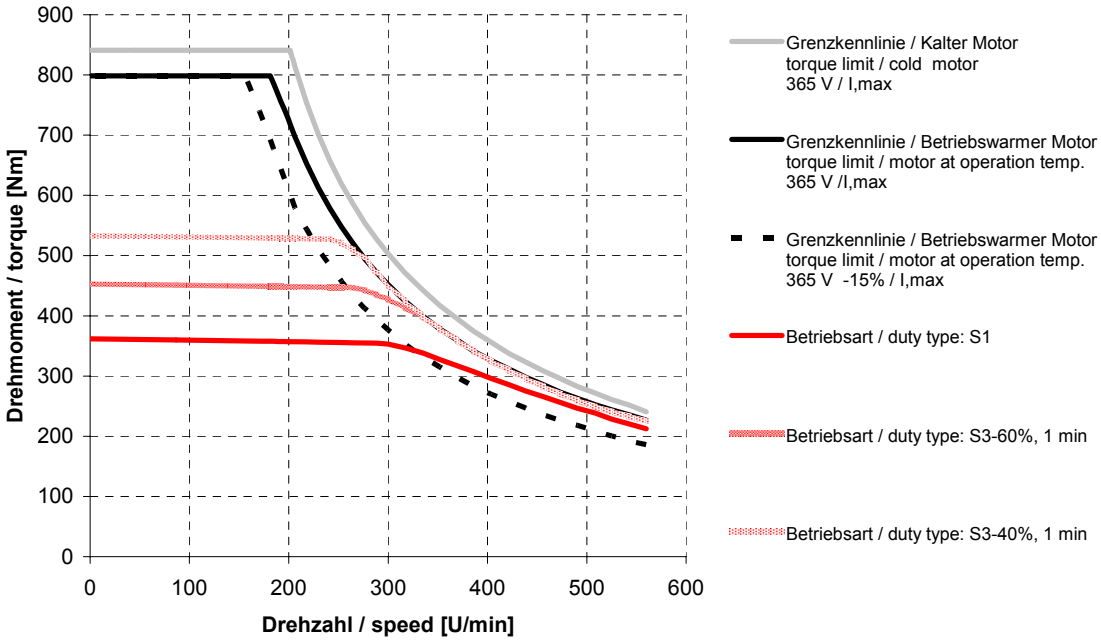

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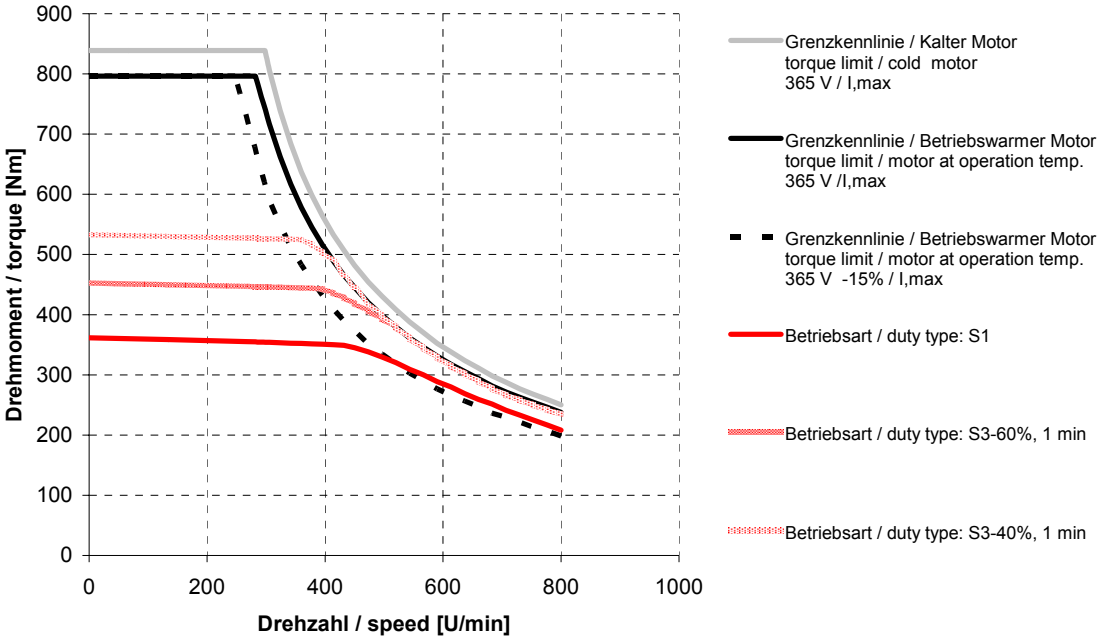

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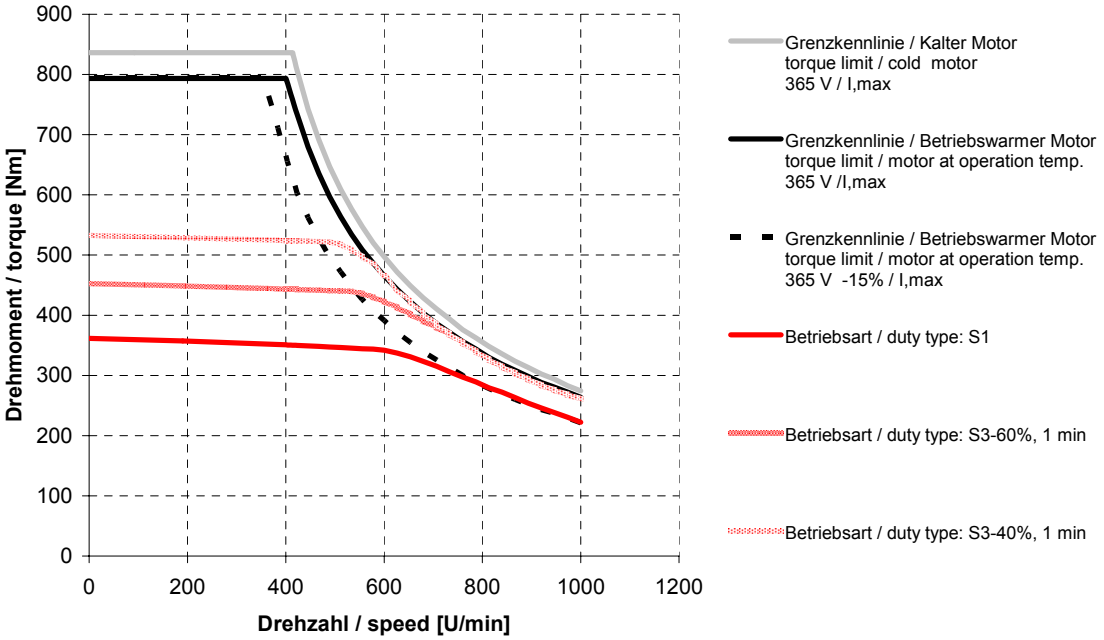

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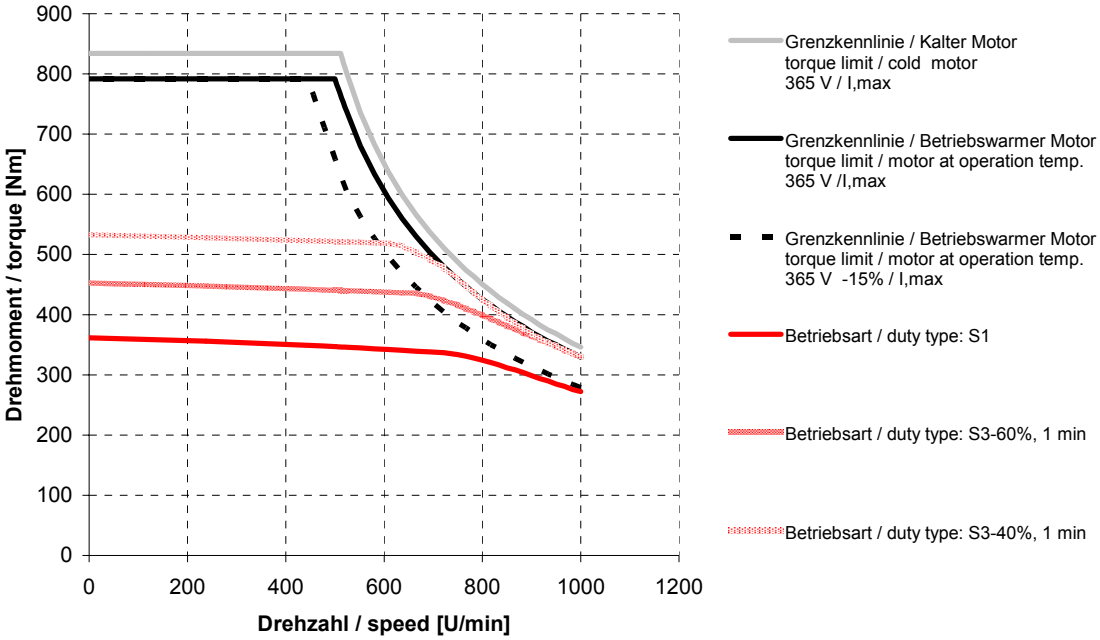

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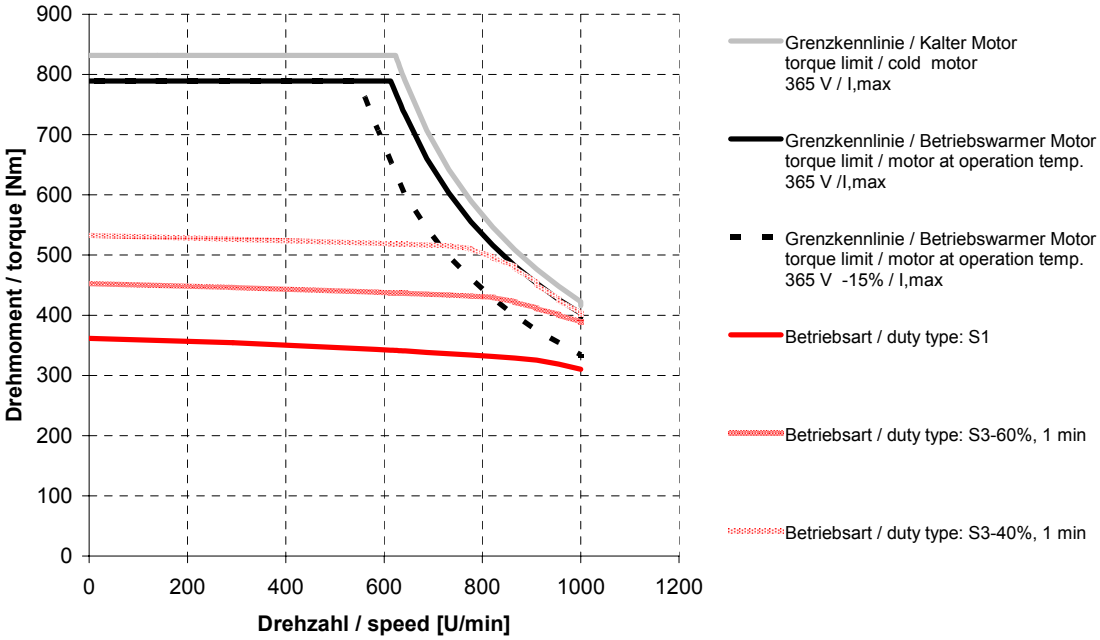

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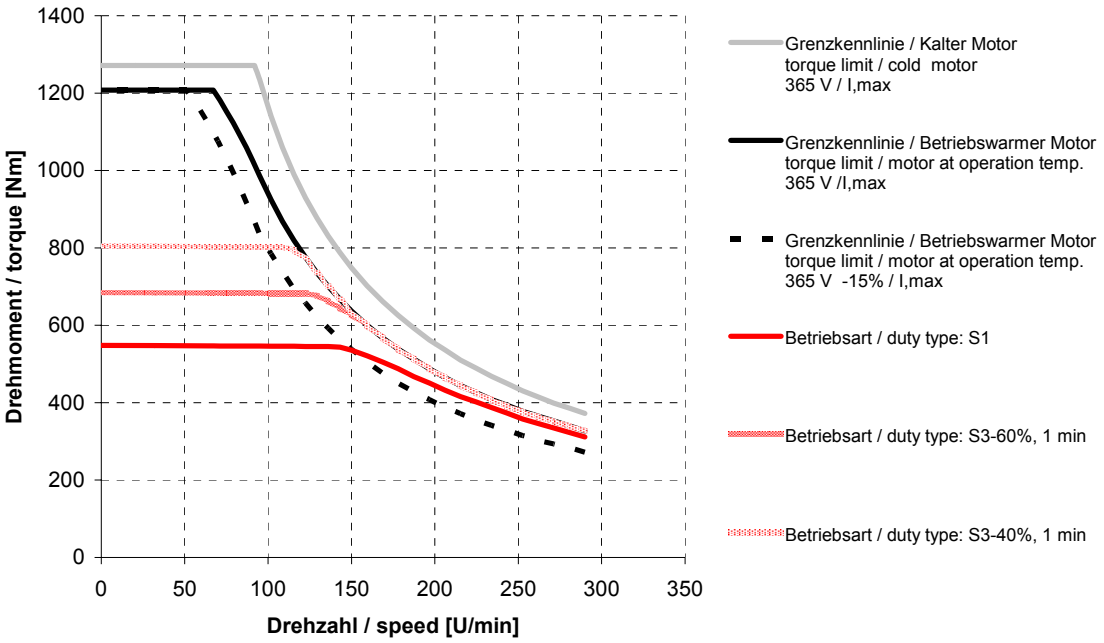

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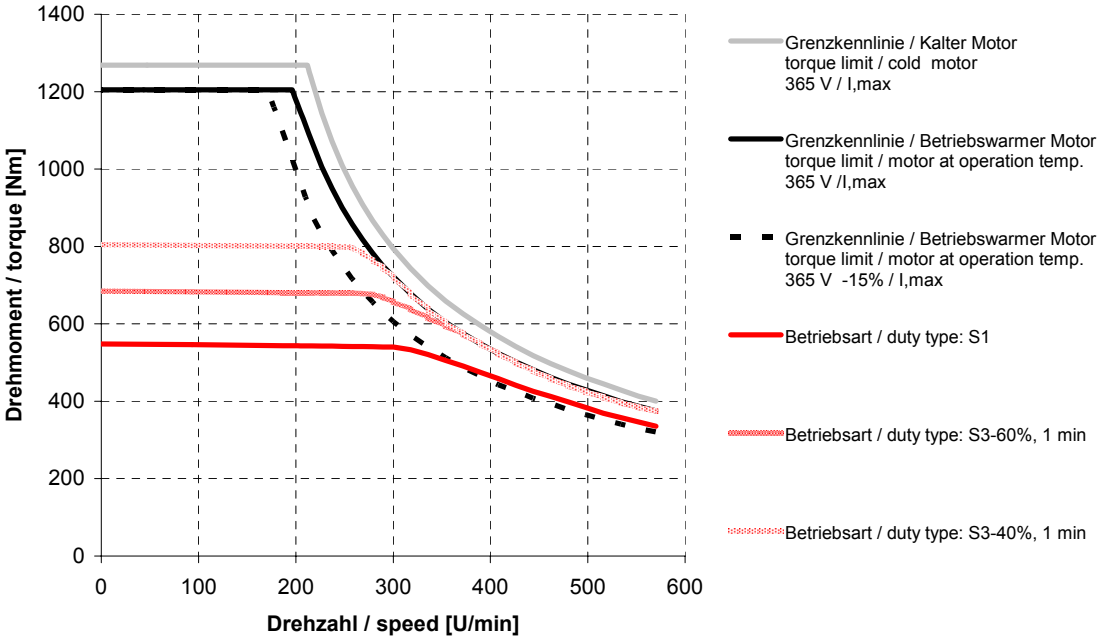

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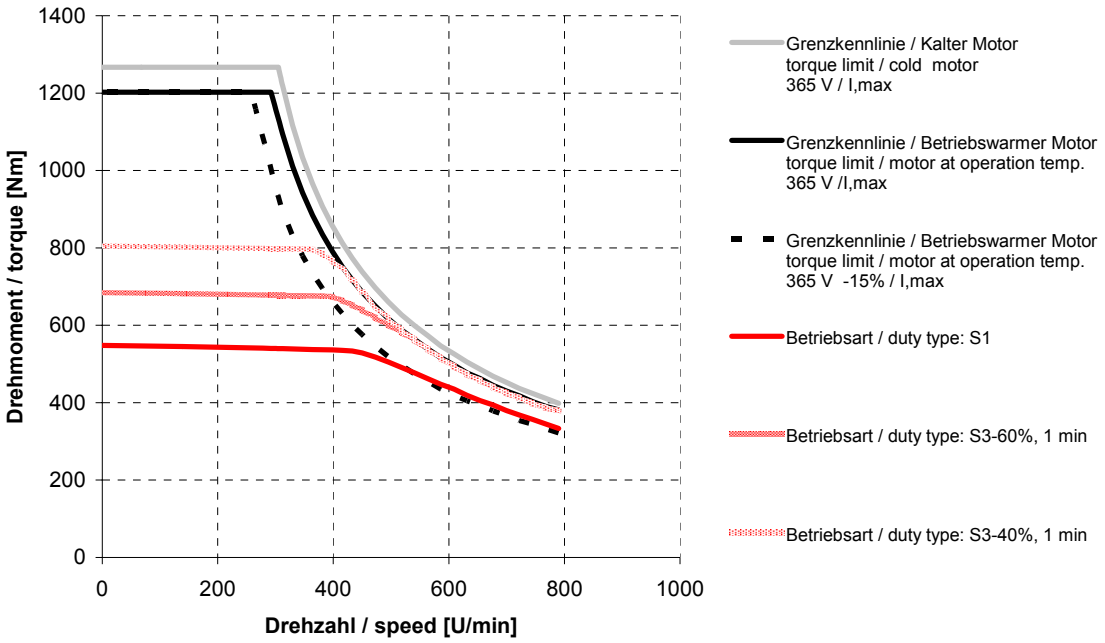

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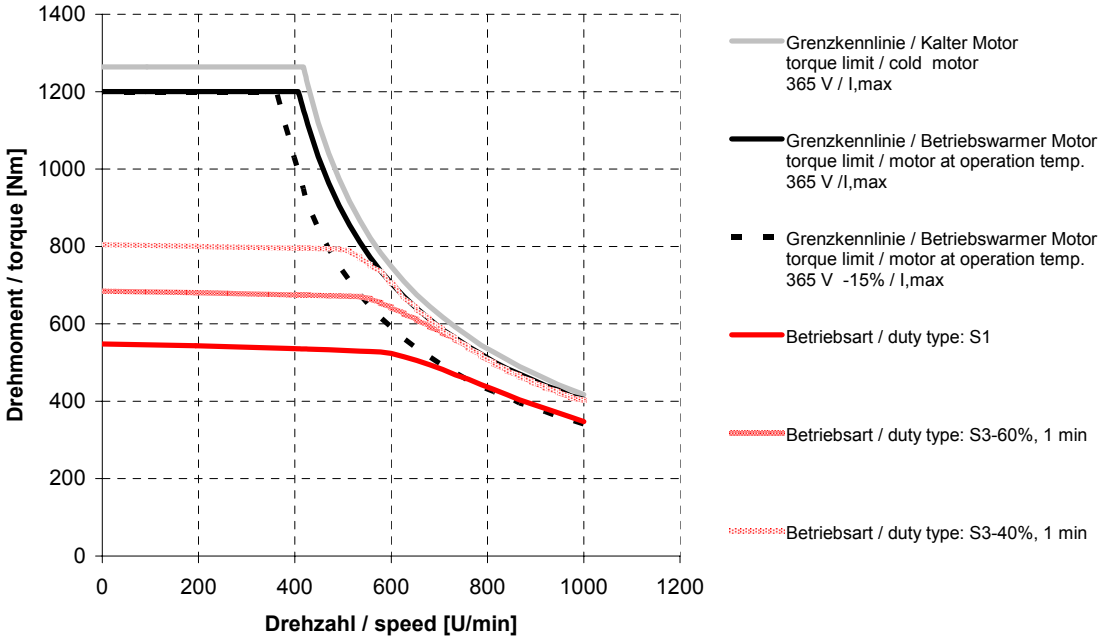

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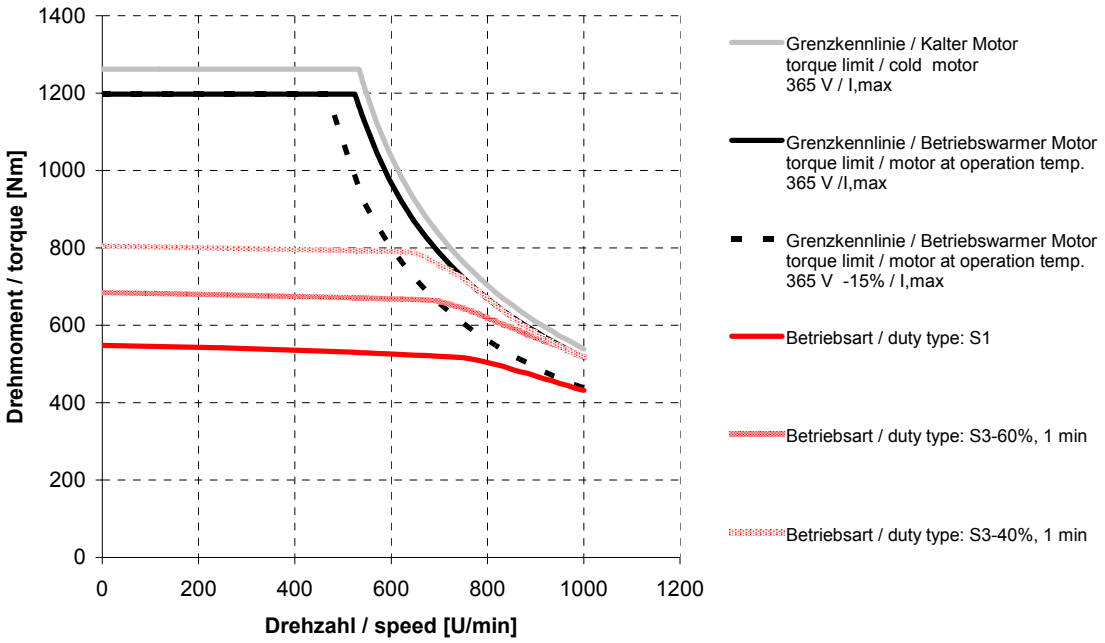

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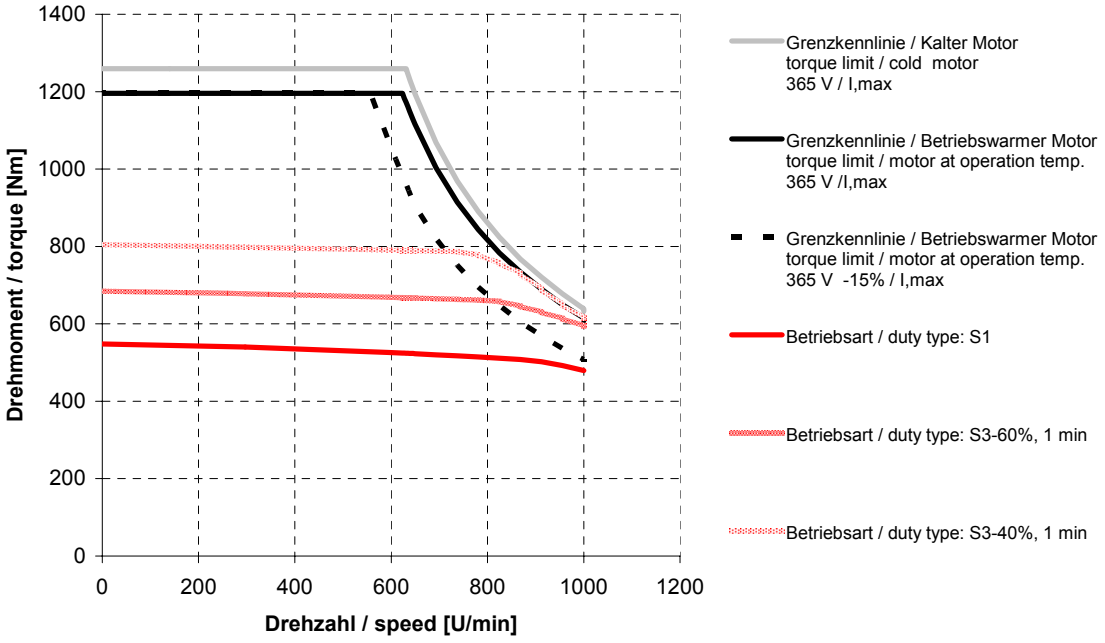

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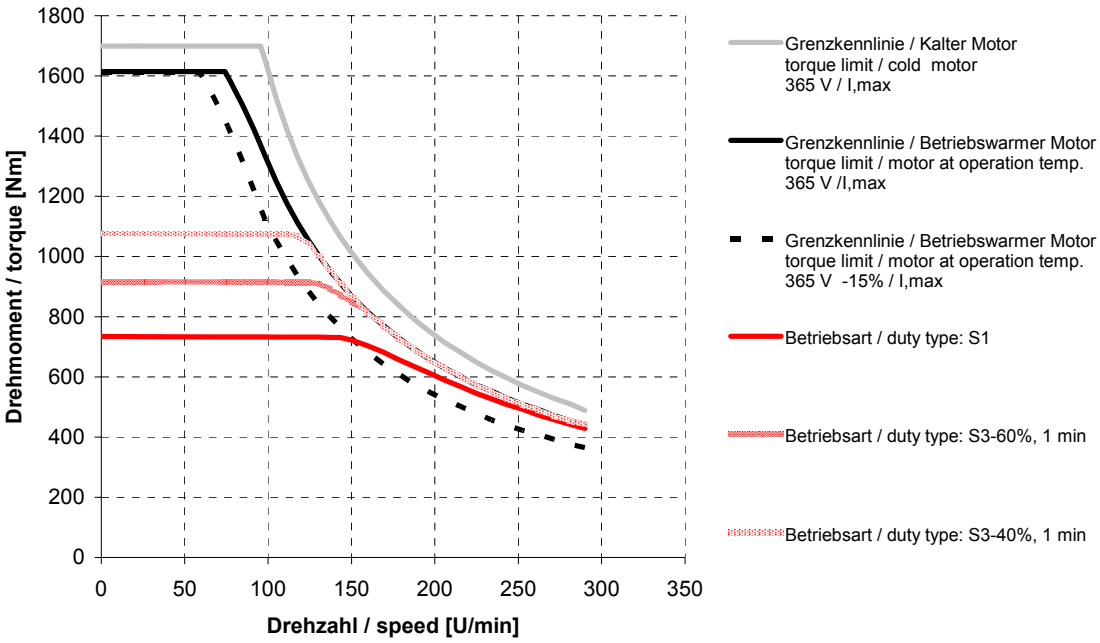

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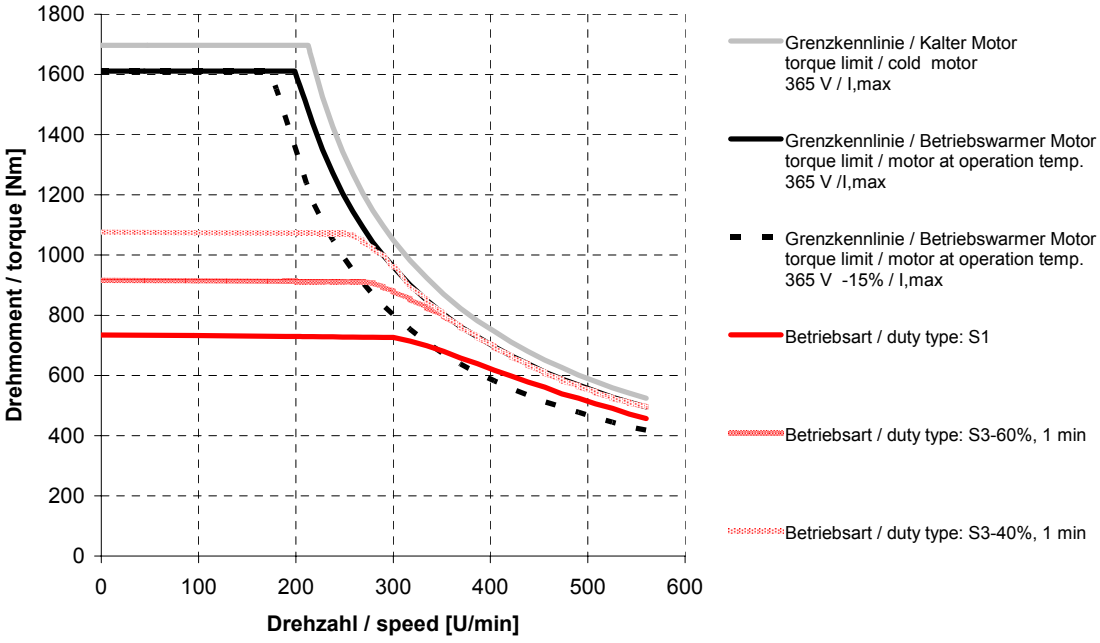

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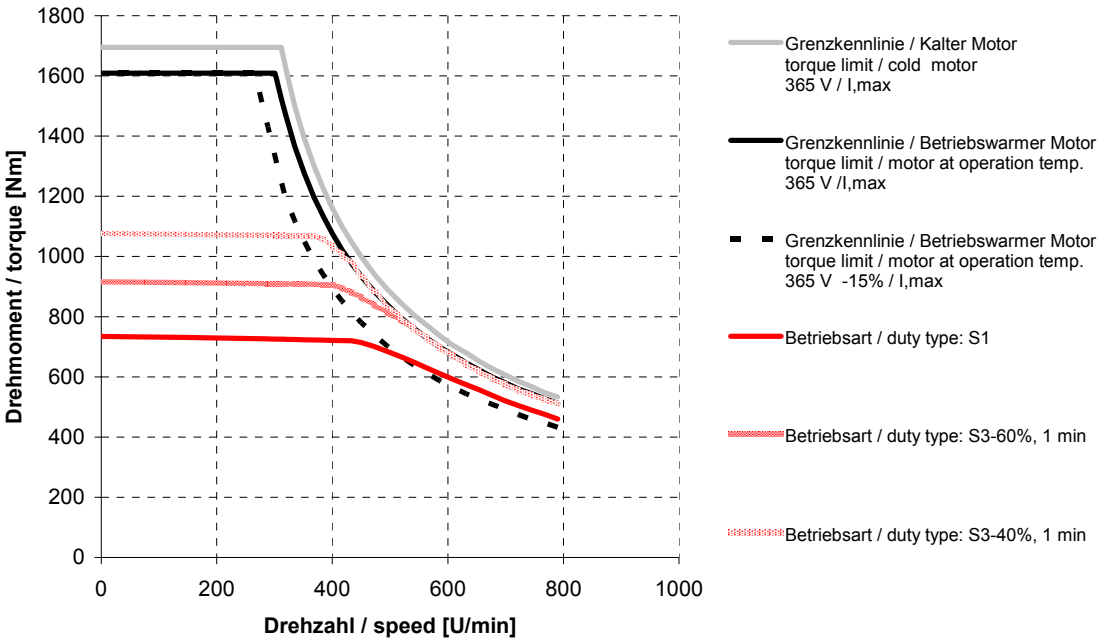

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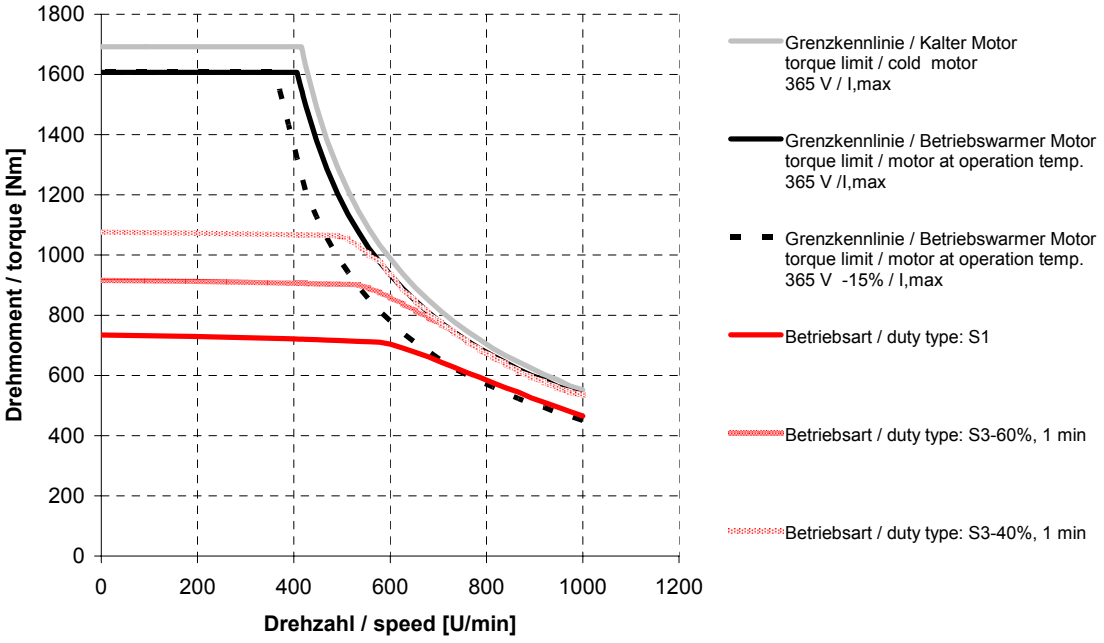

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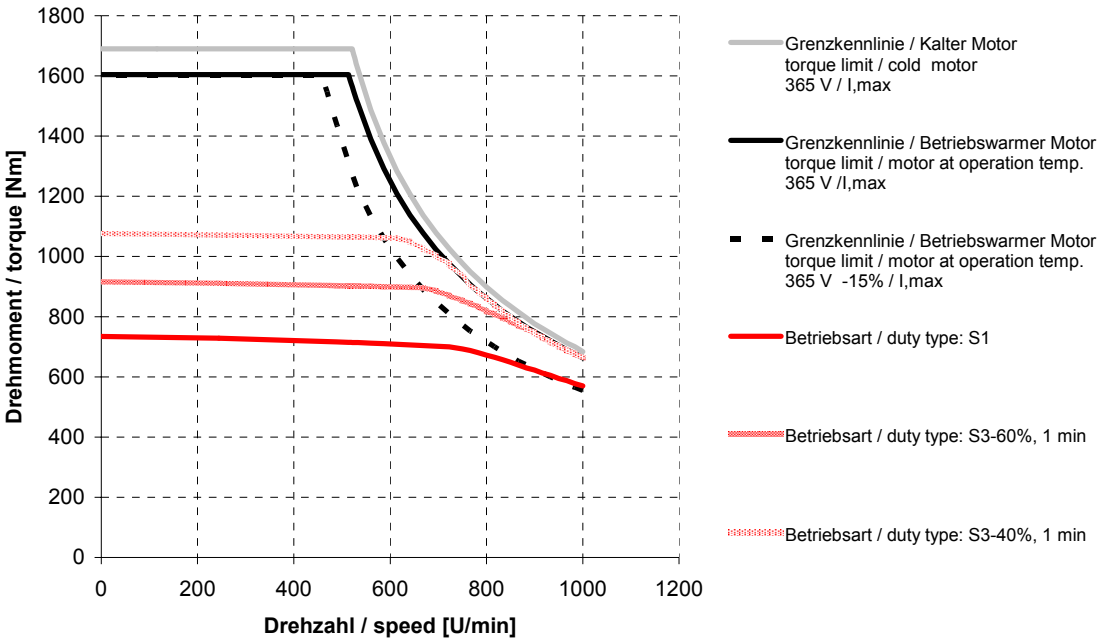

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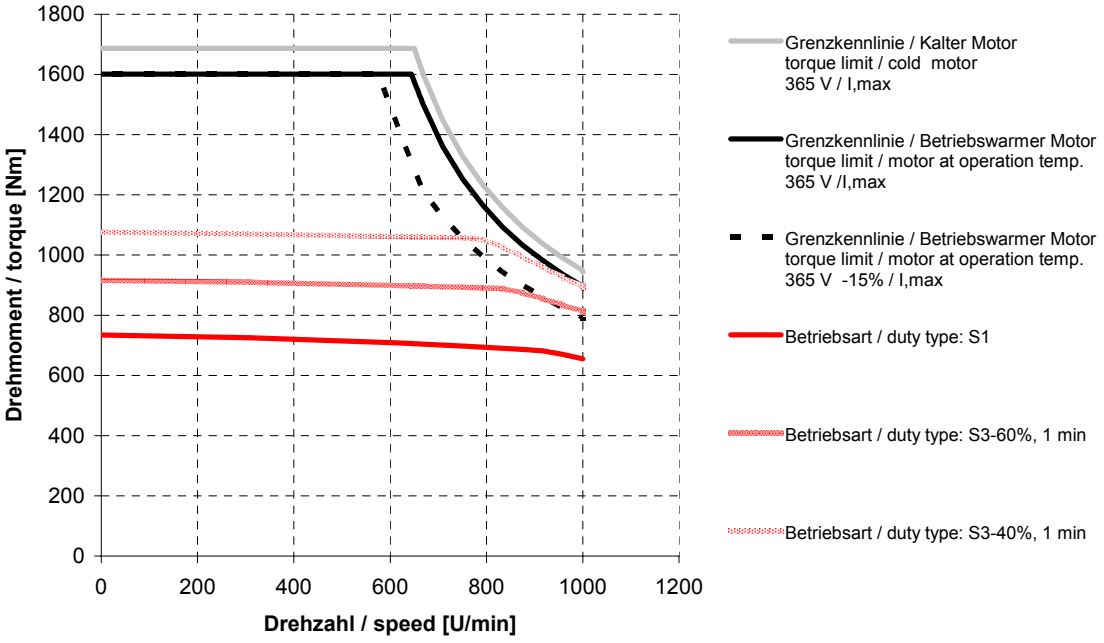
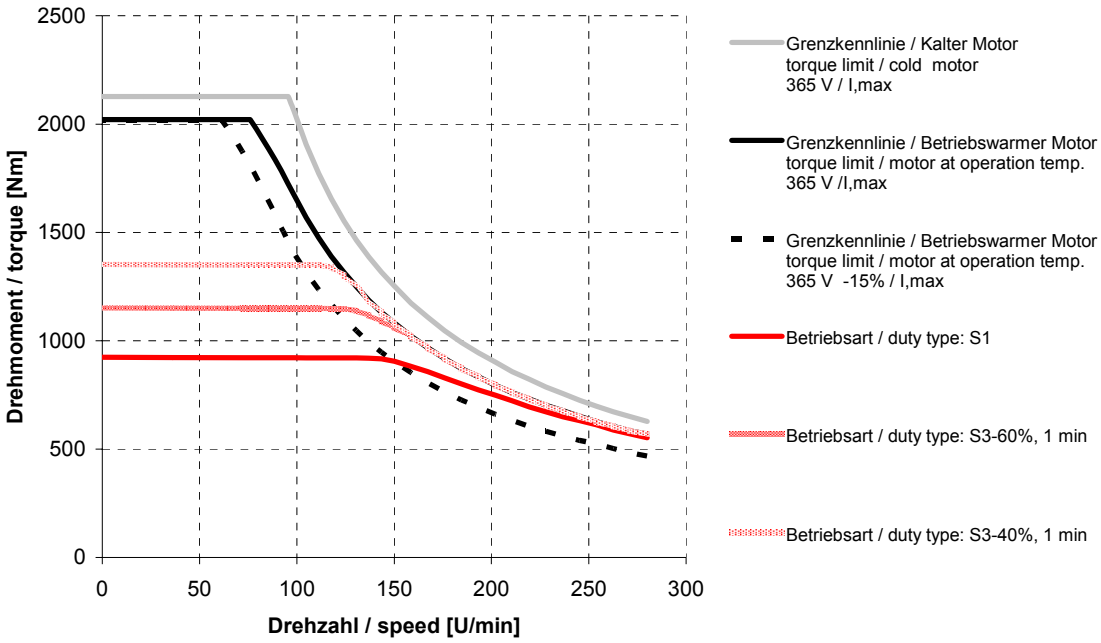


DST2-200ML54W-015-5



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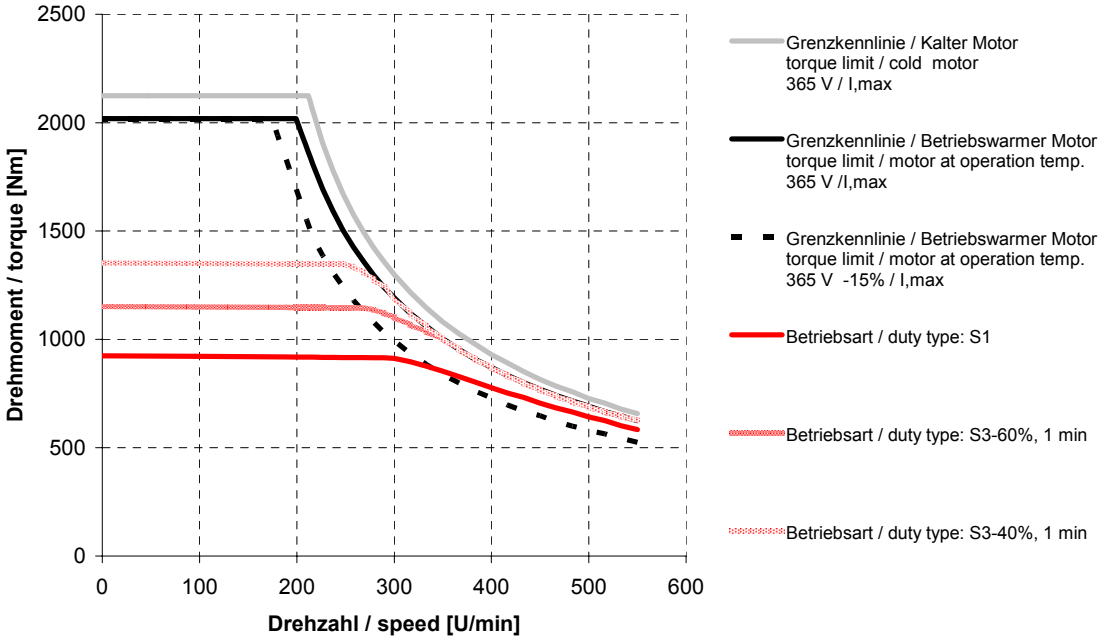

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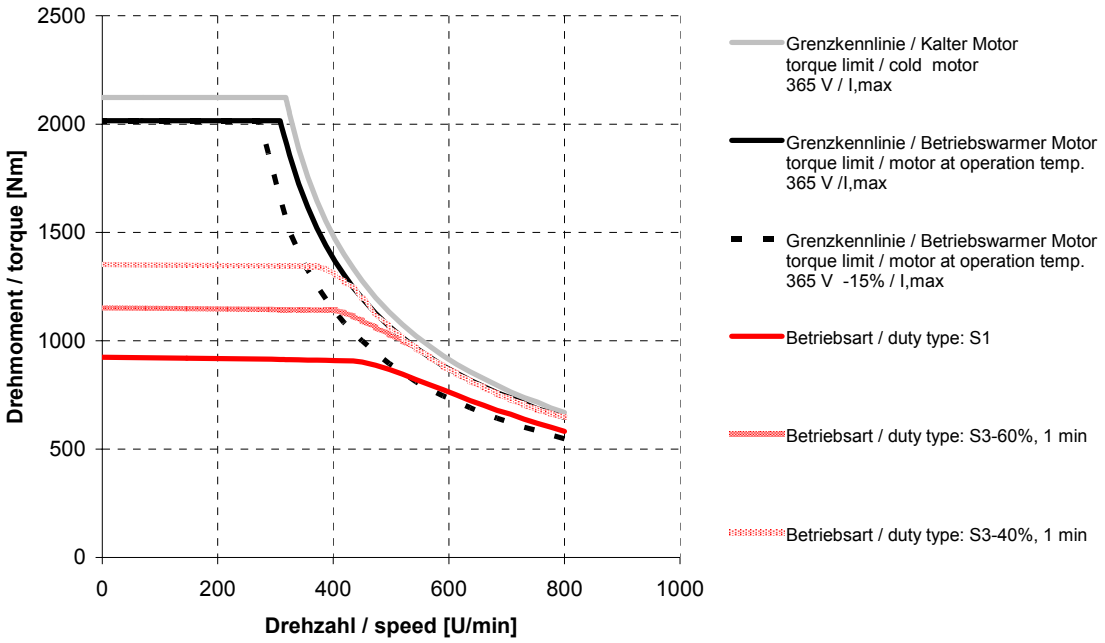

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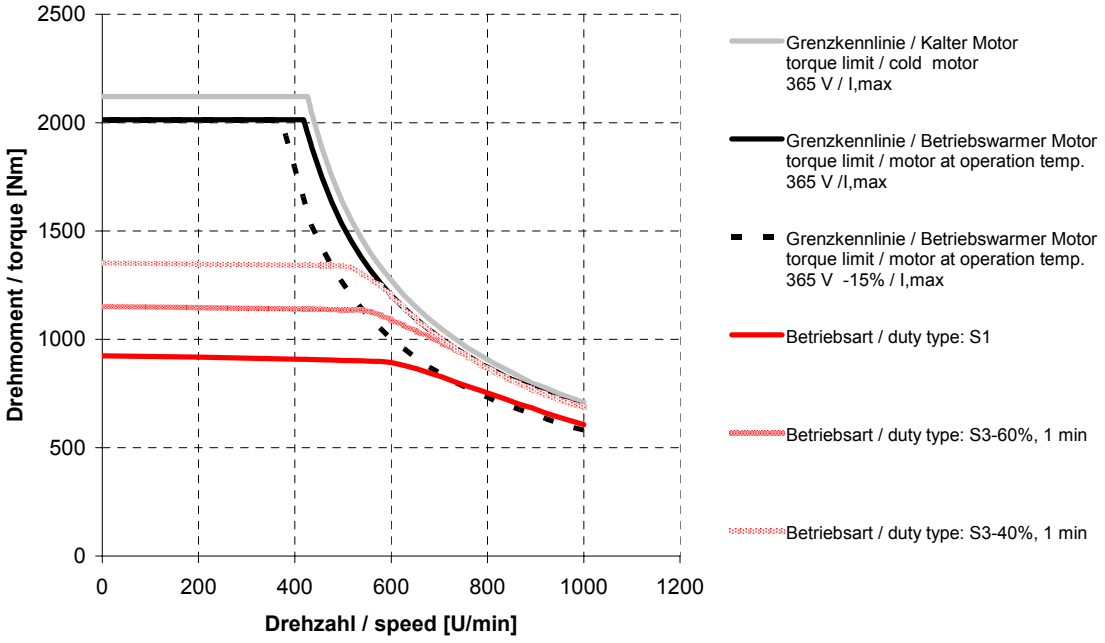

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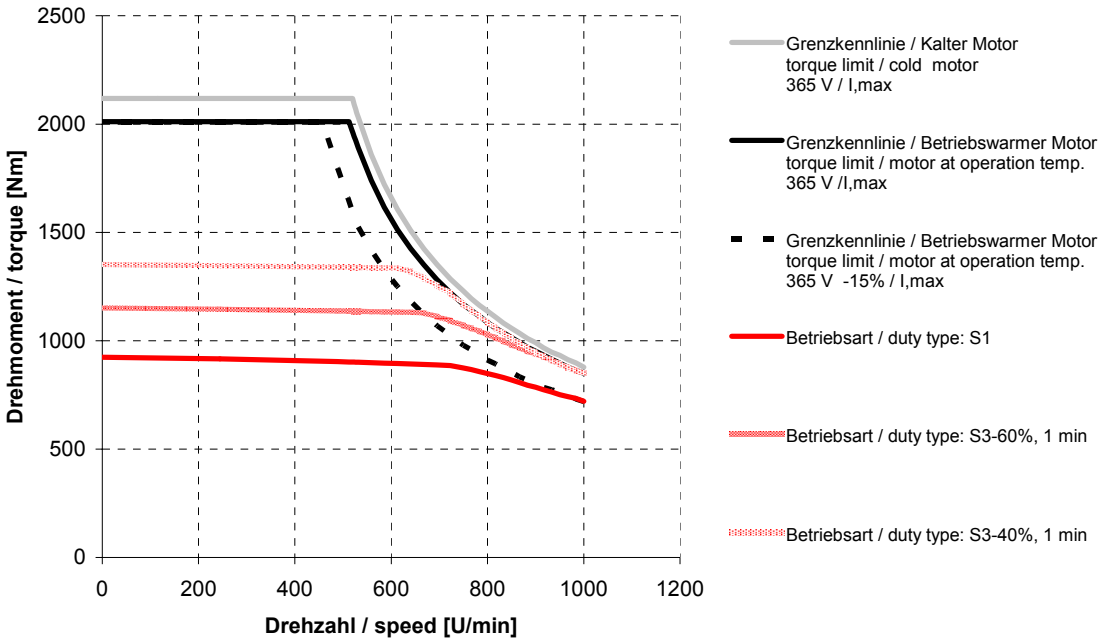

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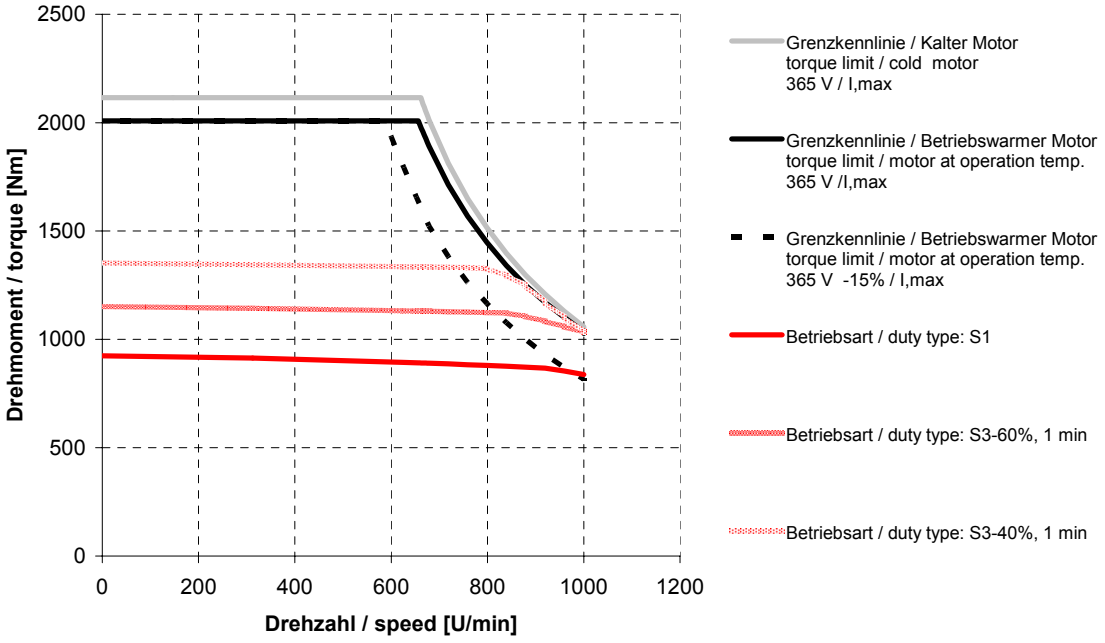

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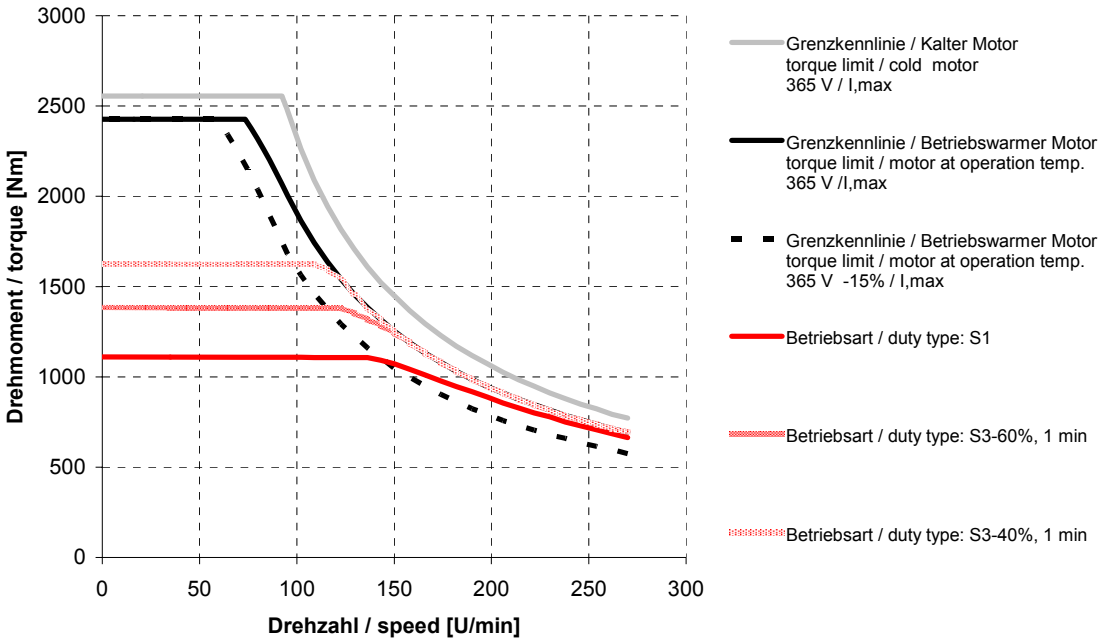

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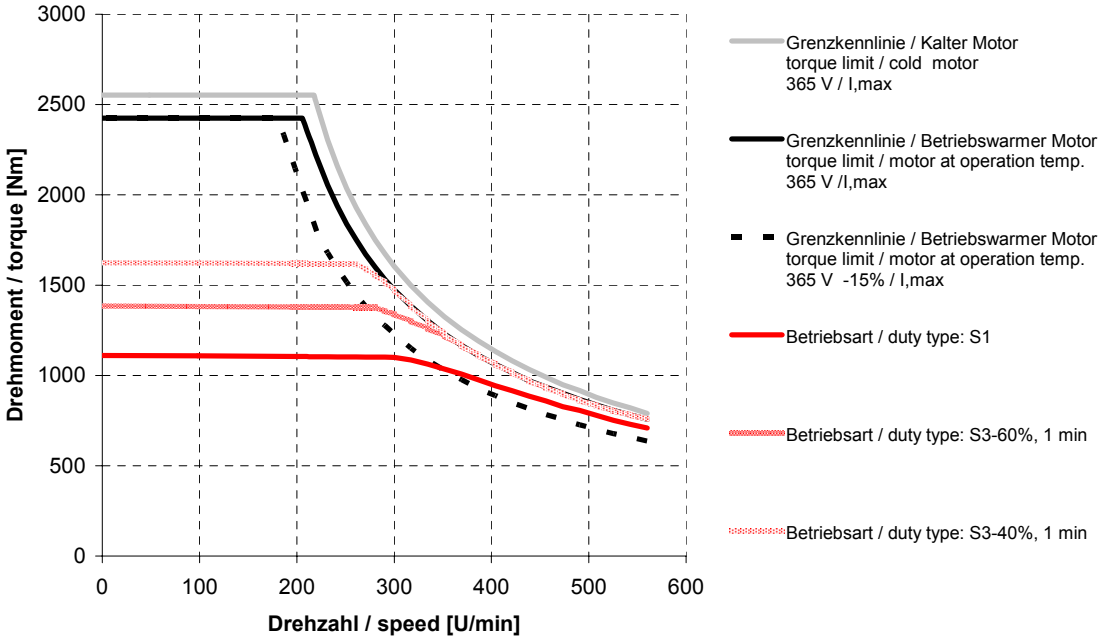

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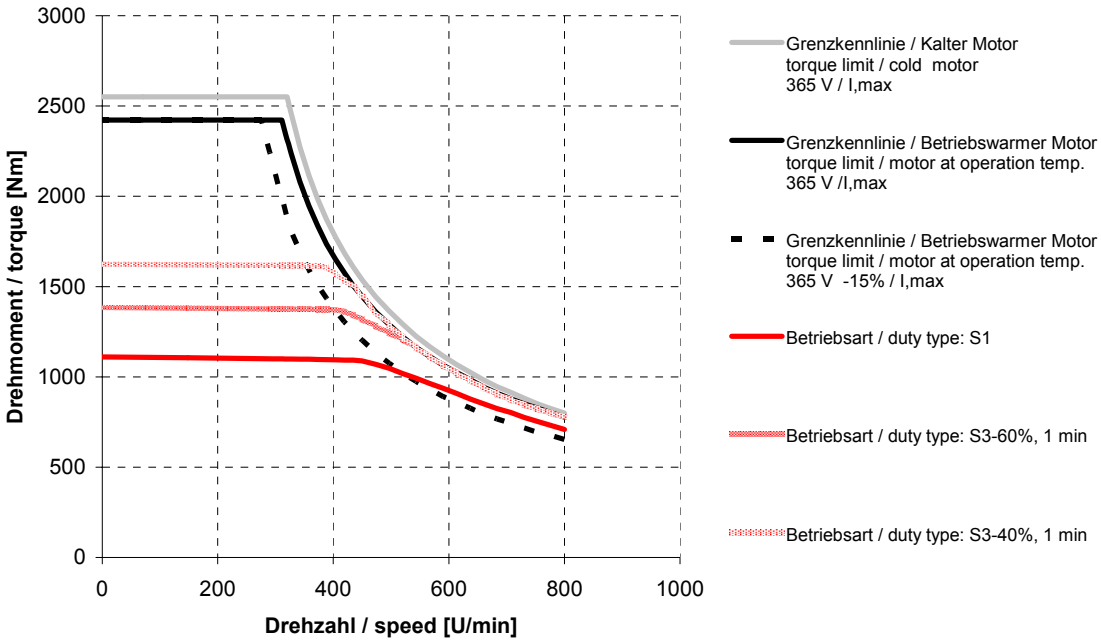

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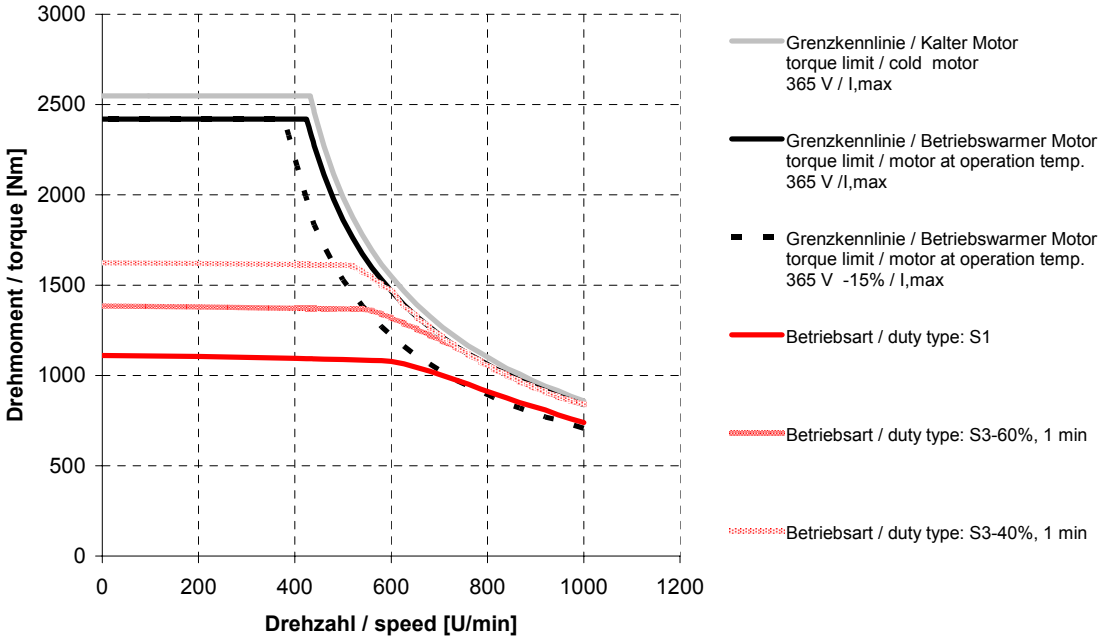

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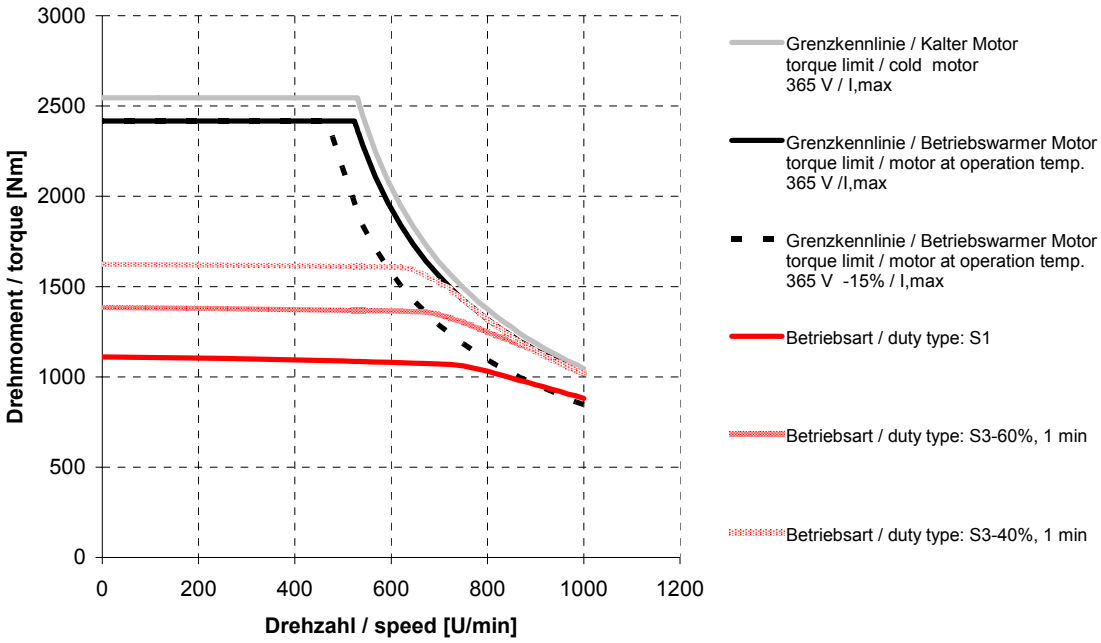

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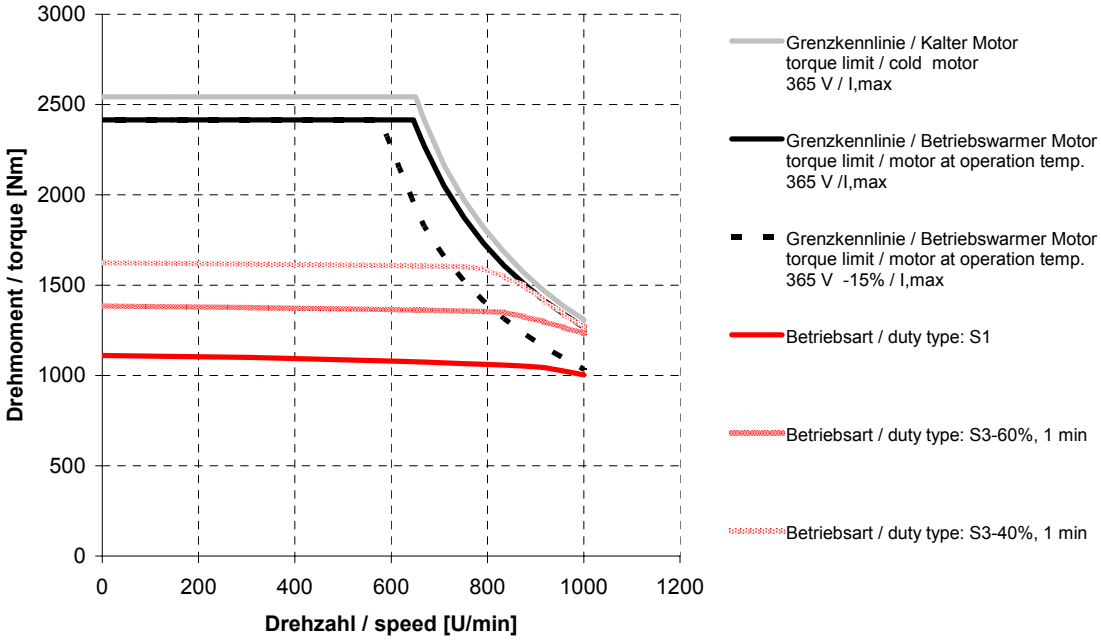

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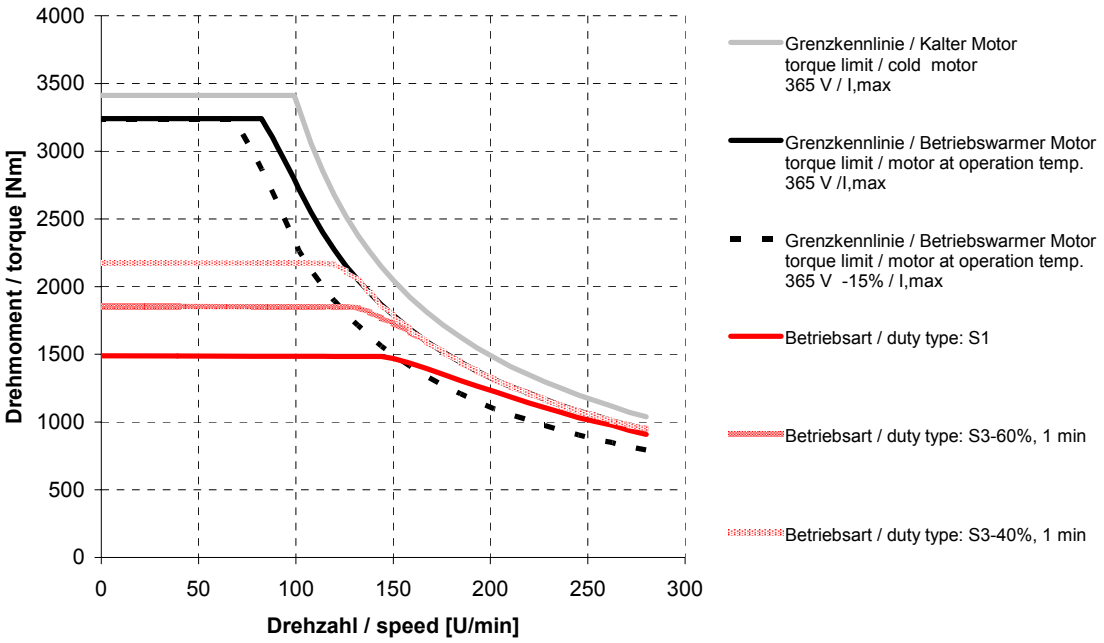

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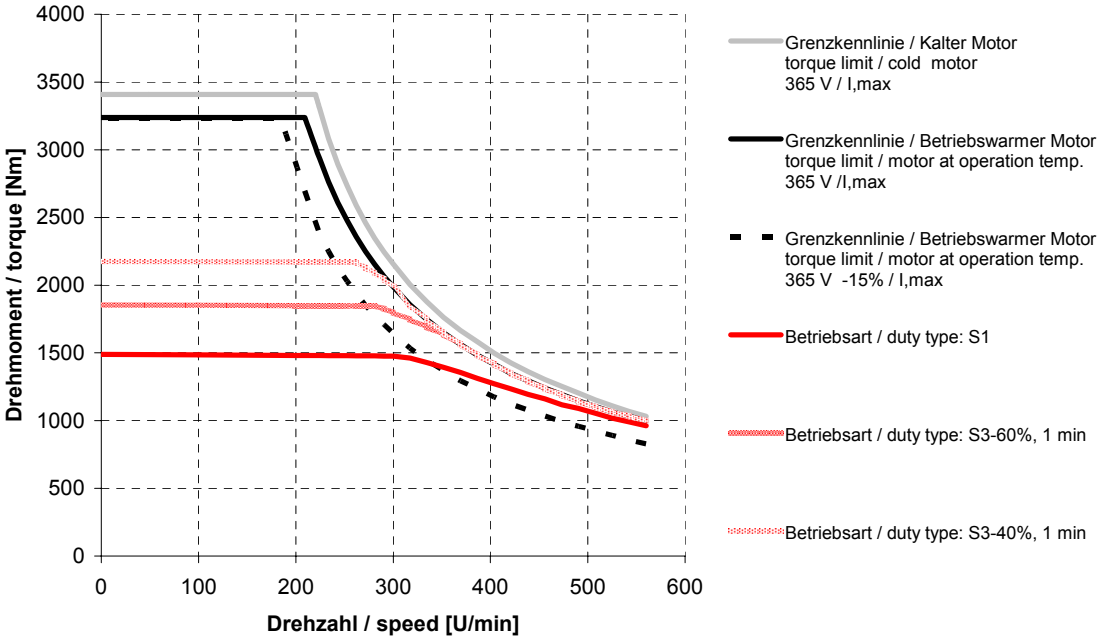

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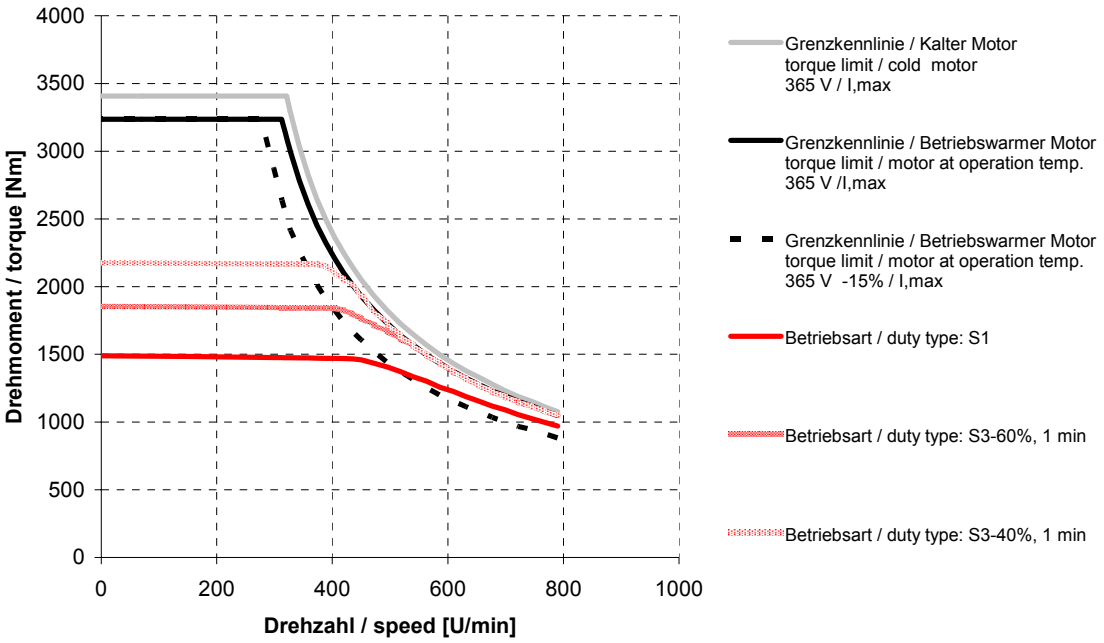

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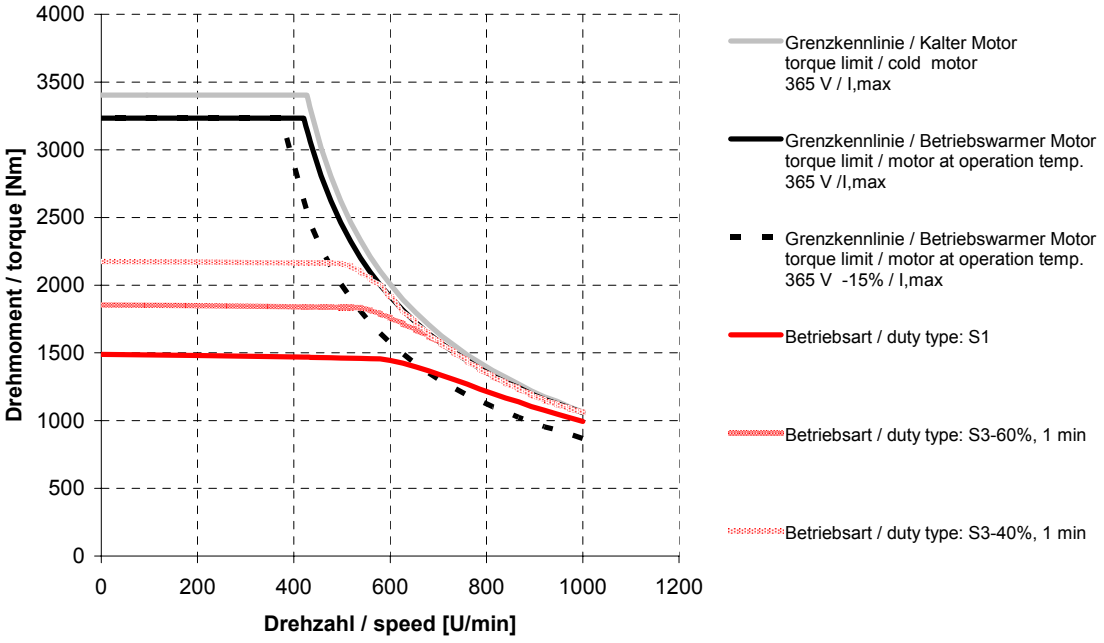

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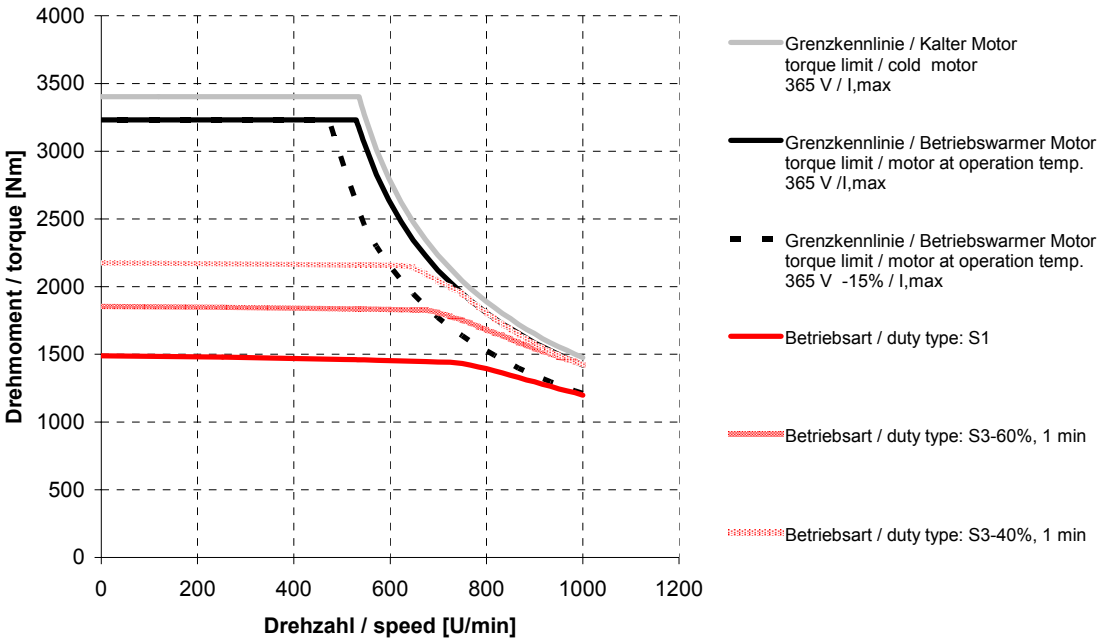

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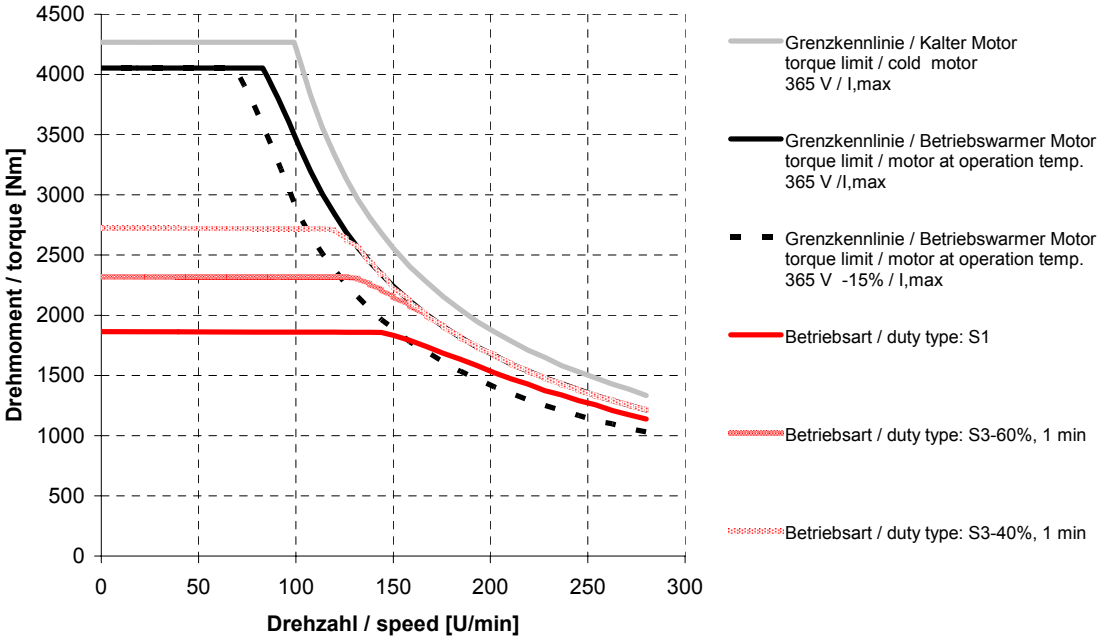

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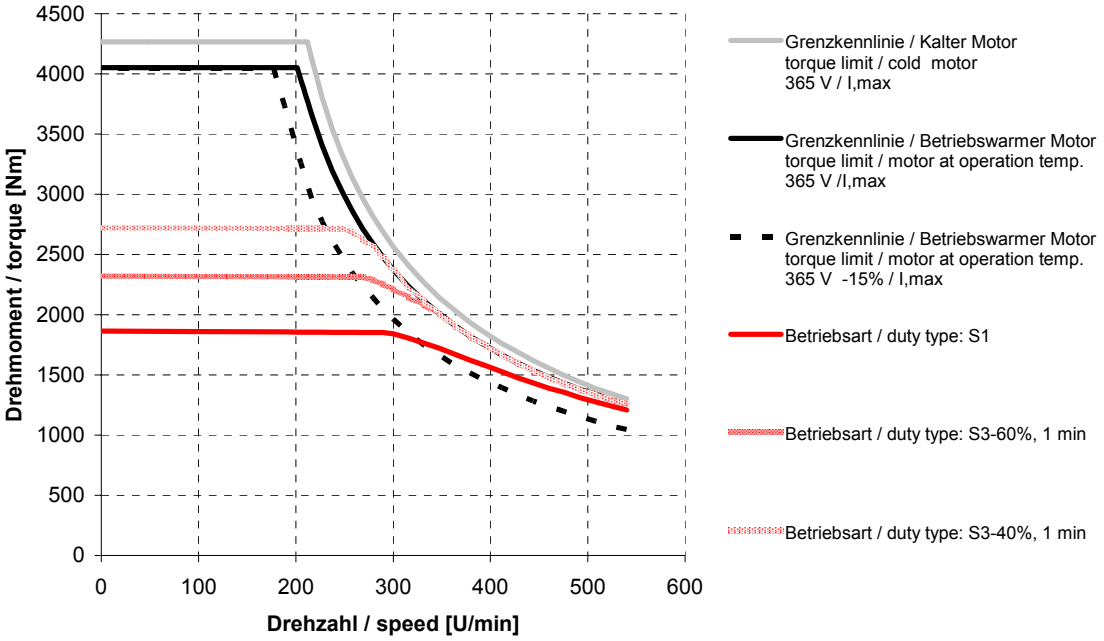

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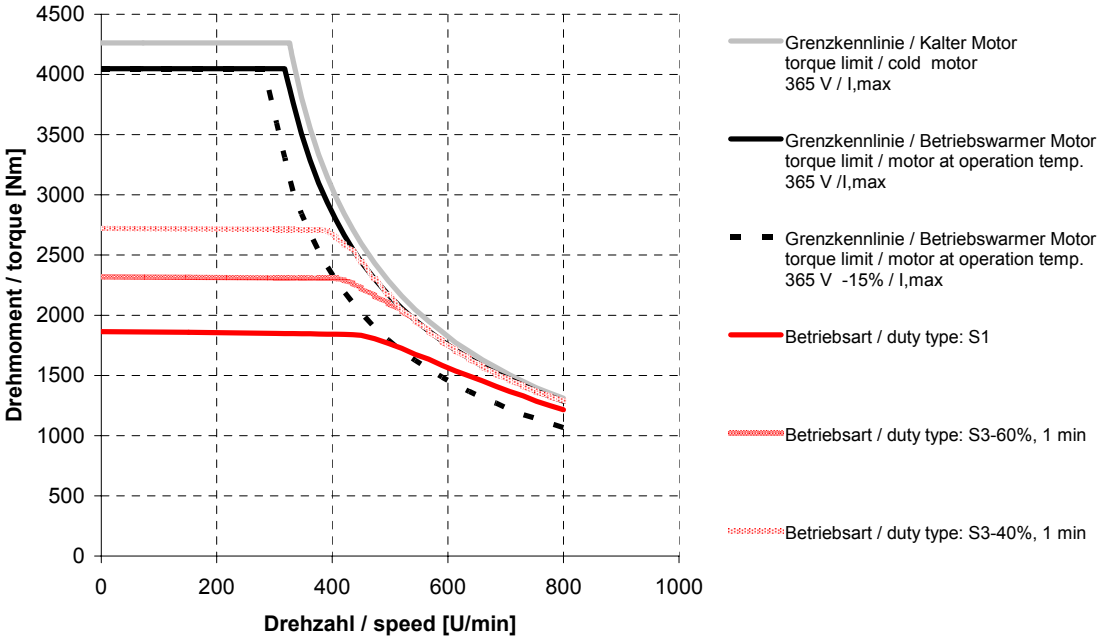

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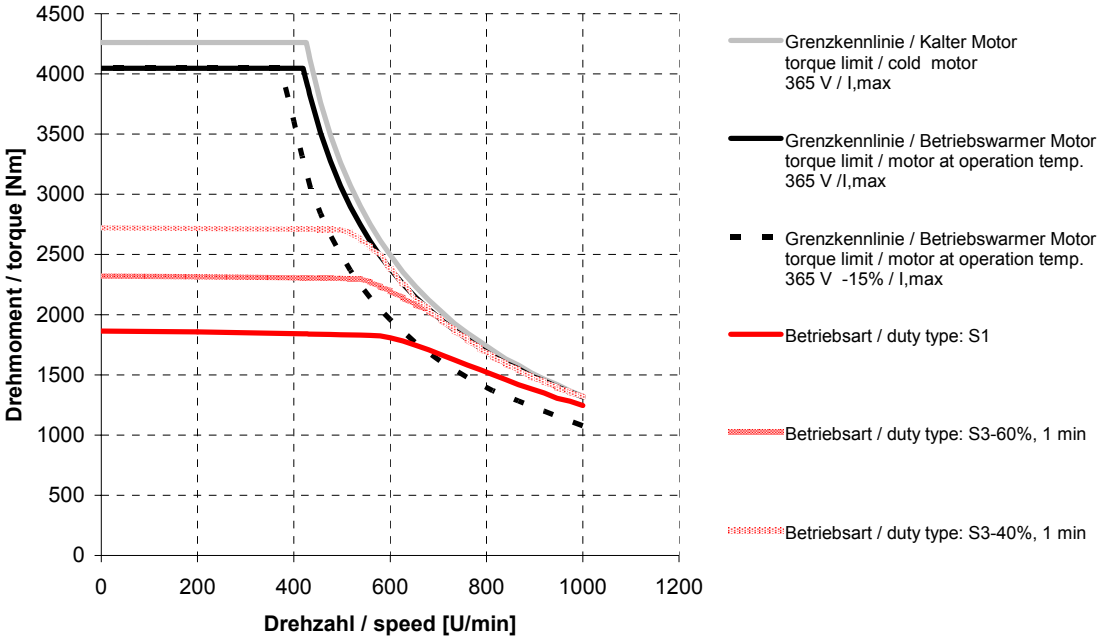

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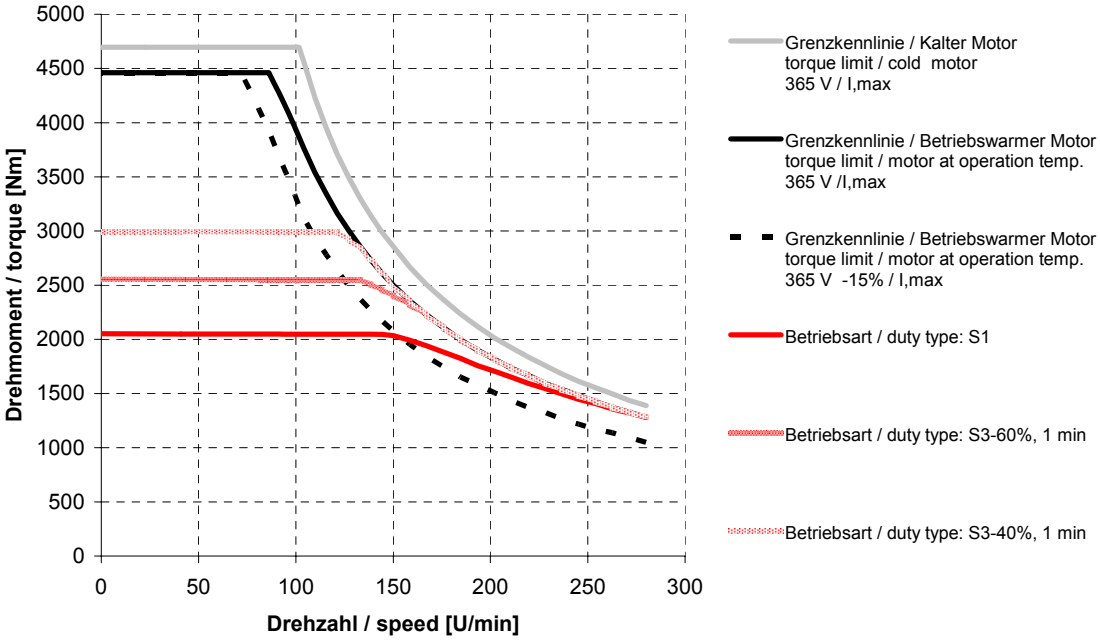

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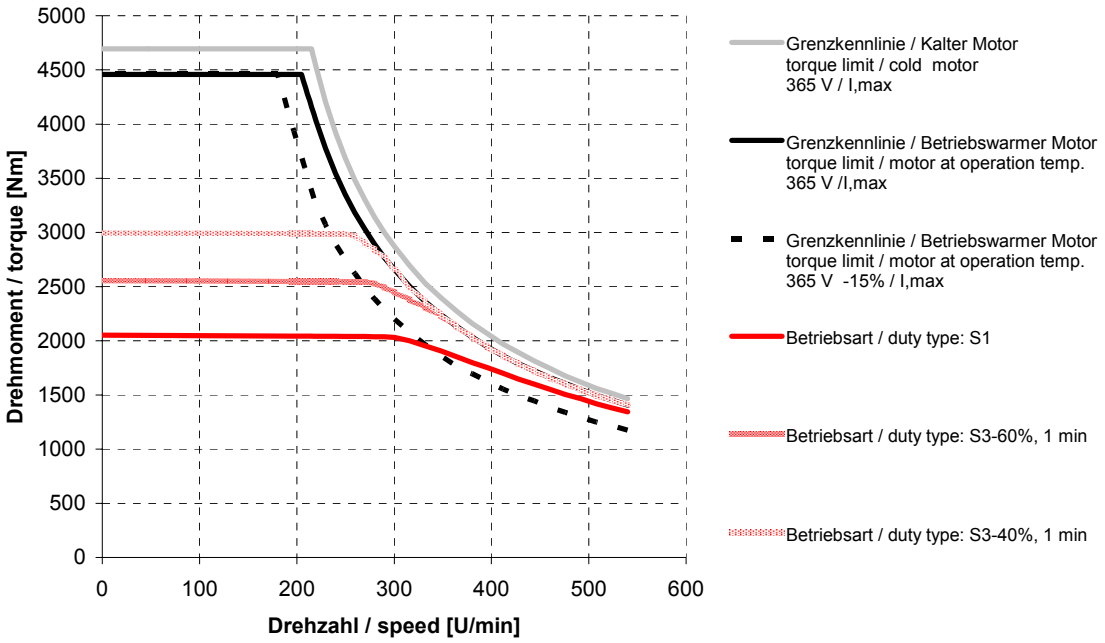

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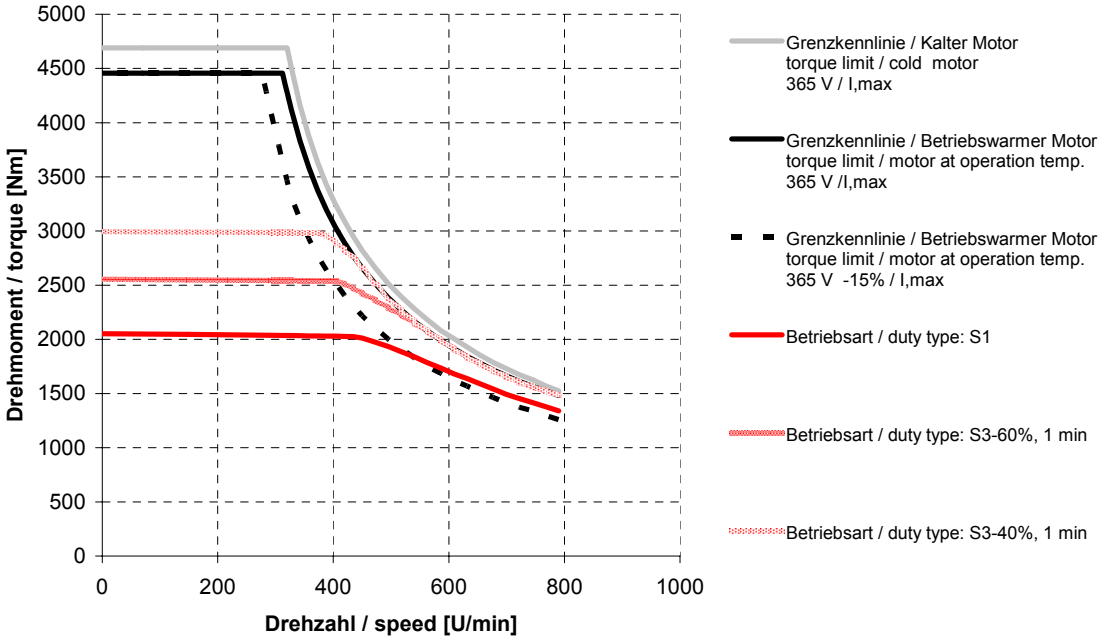

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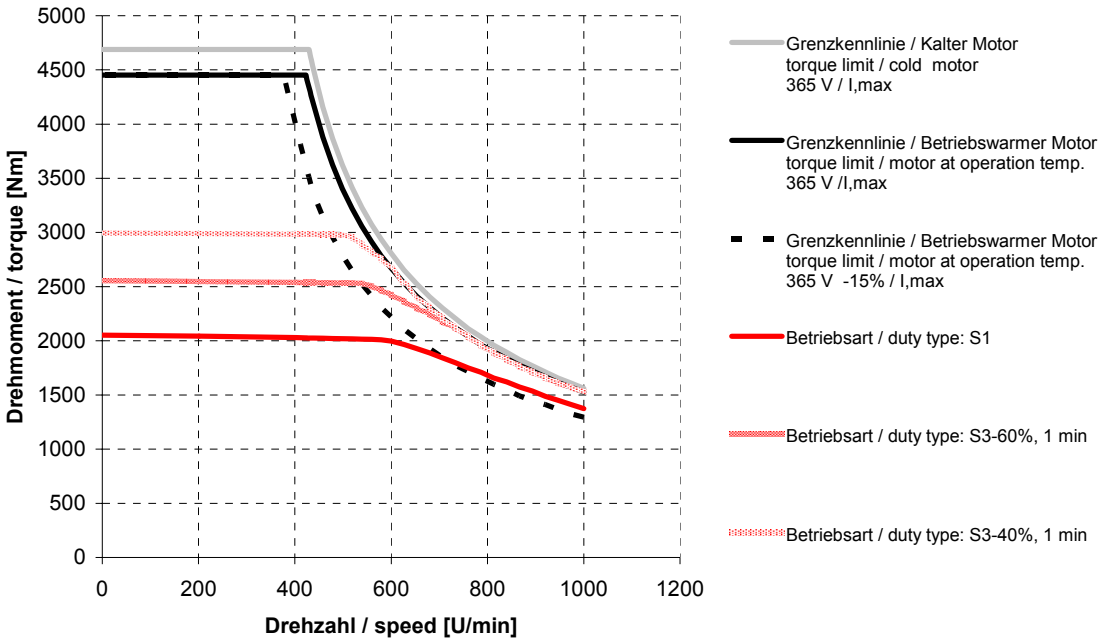
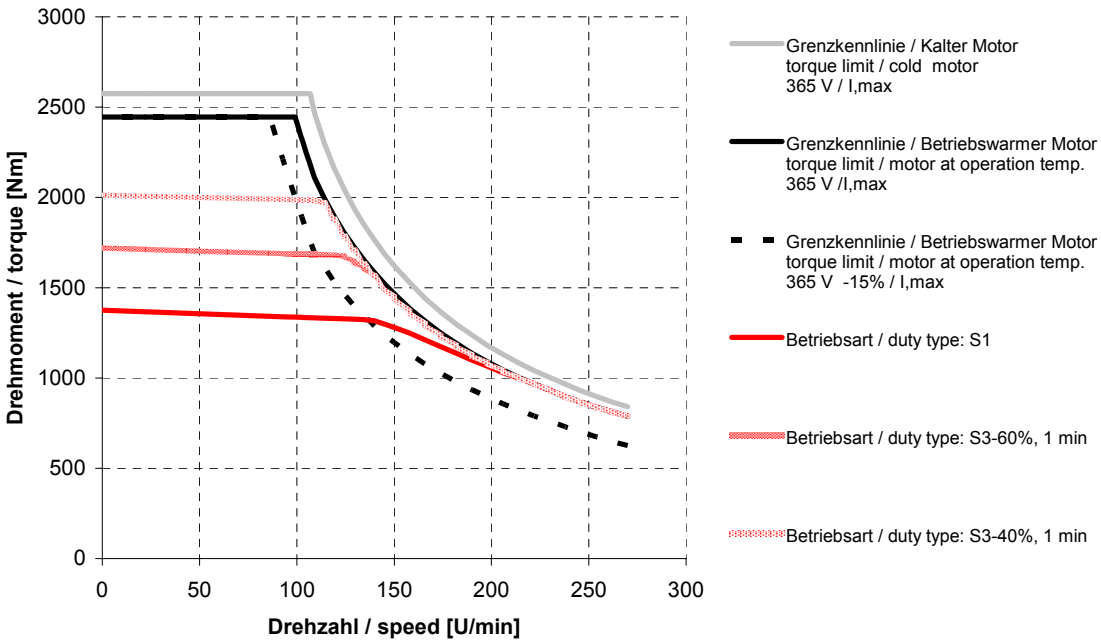


5.3. Characteristic curves DST2-260..54 W

DST2-260KO54W-015-5



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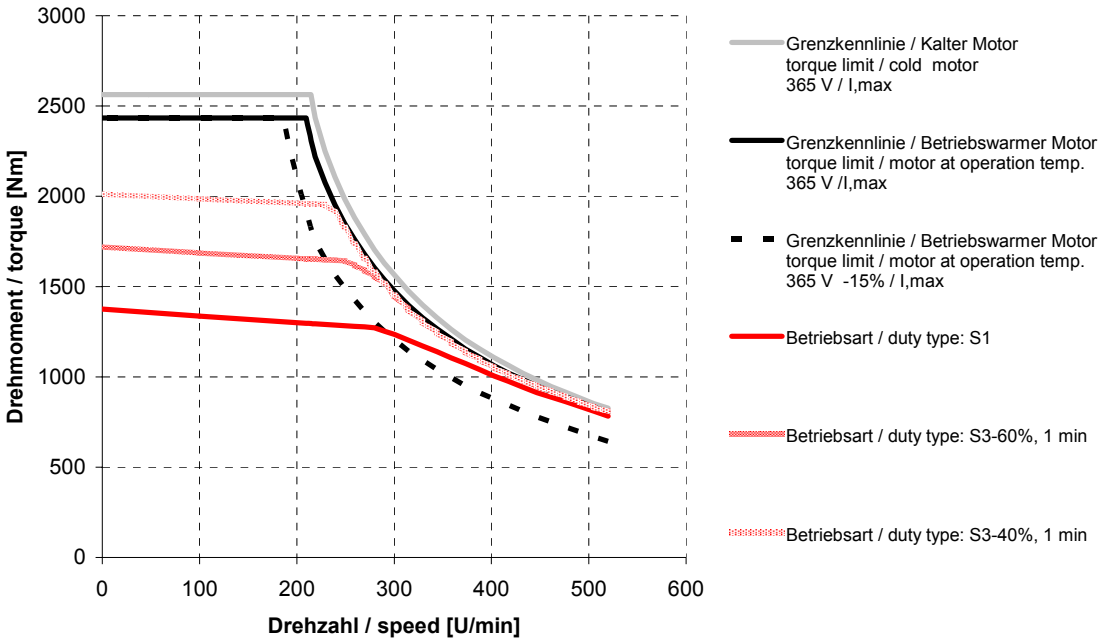

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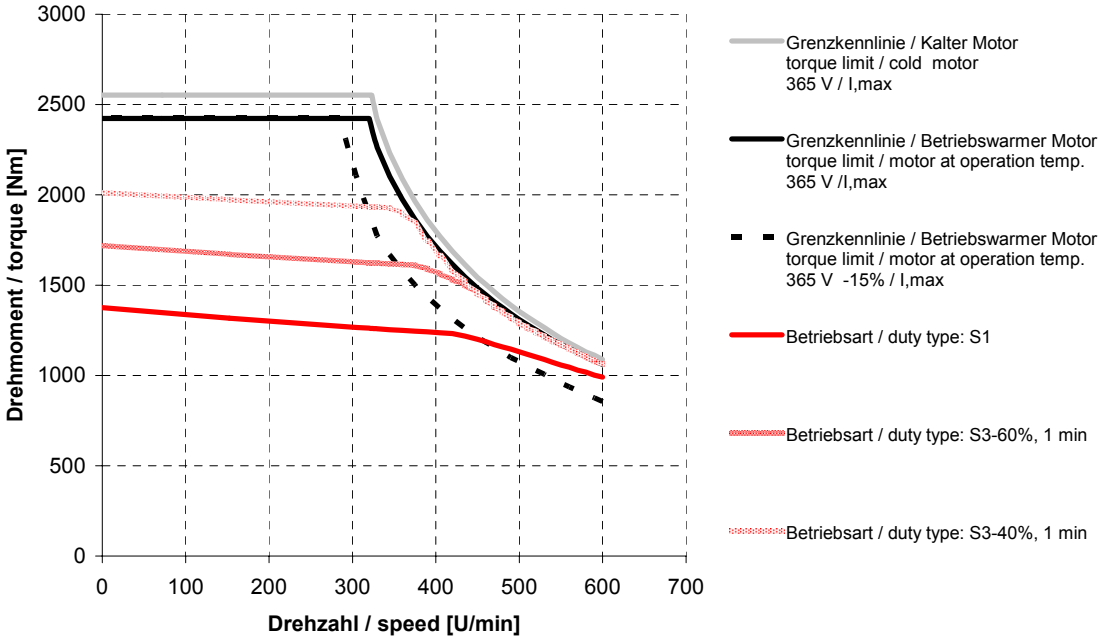

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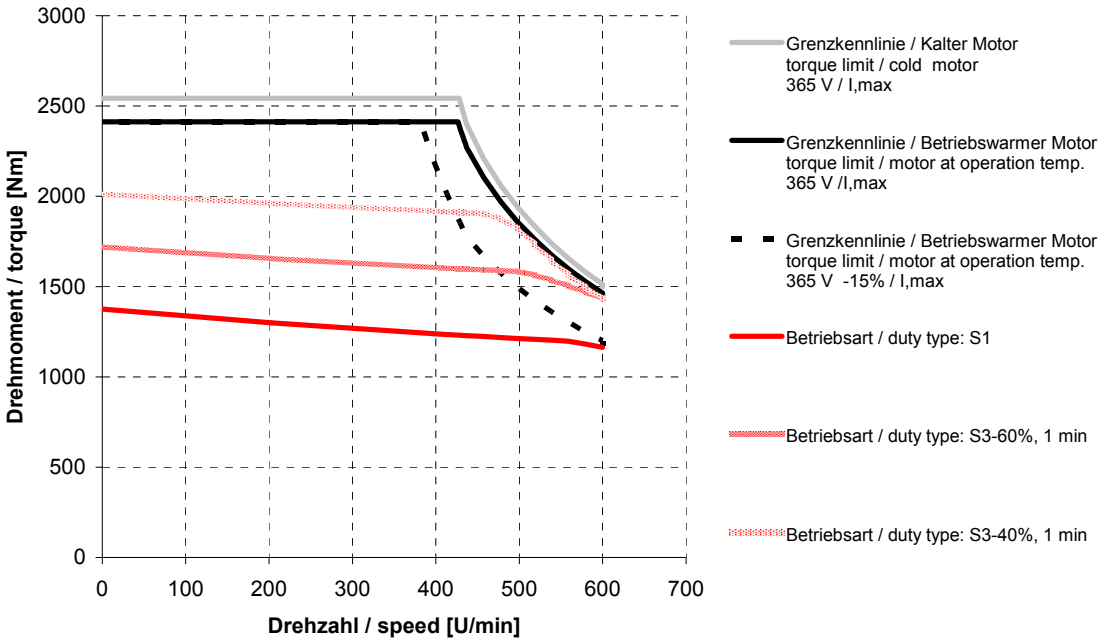

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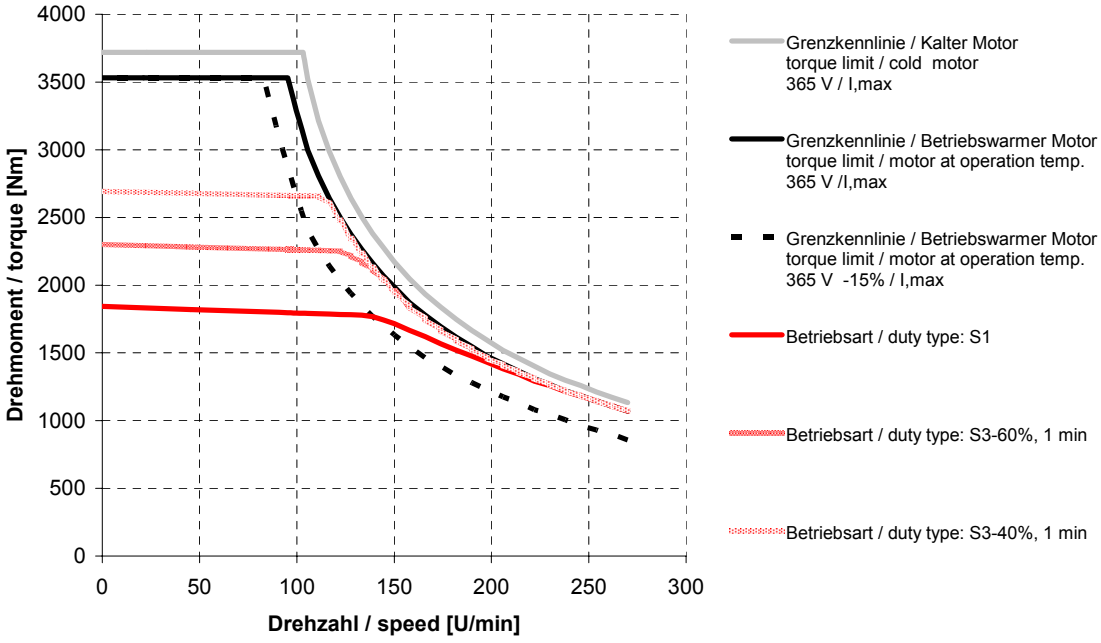

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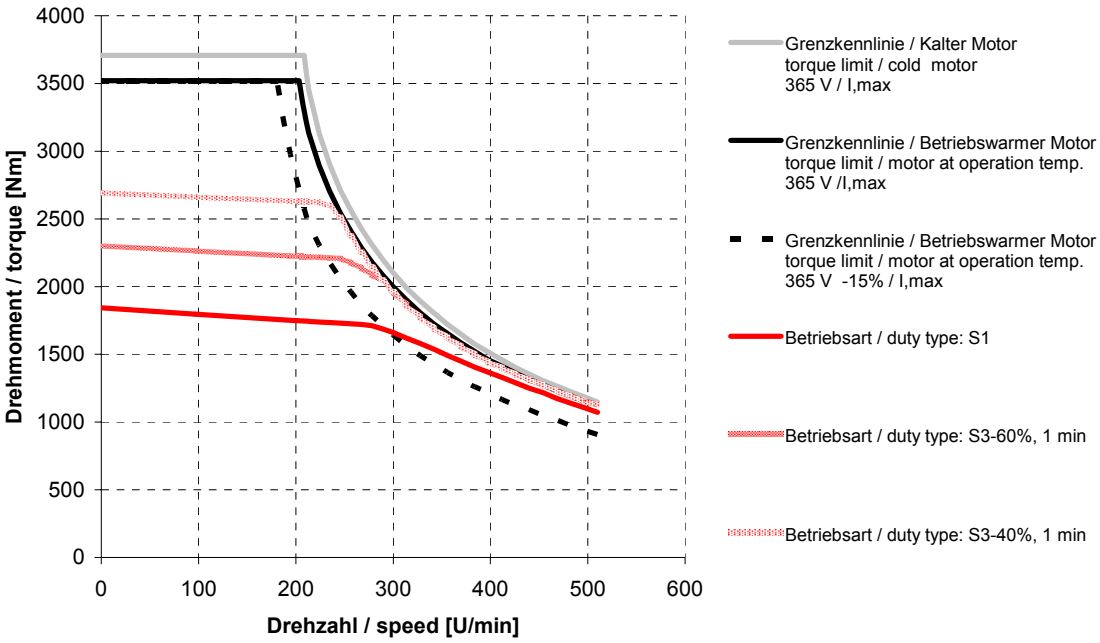

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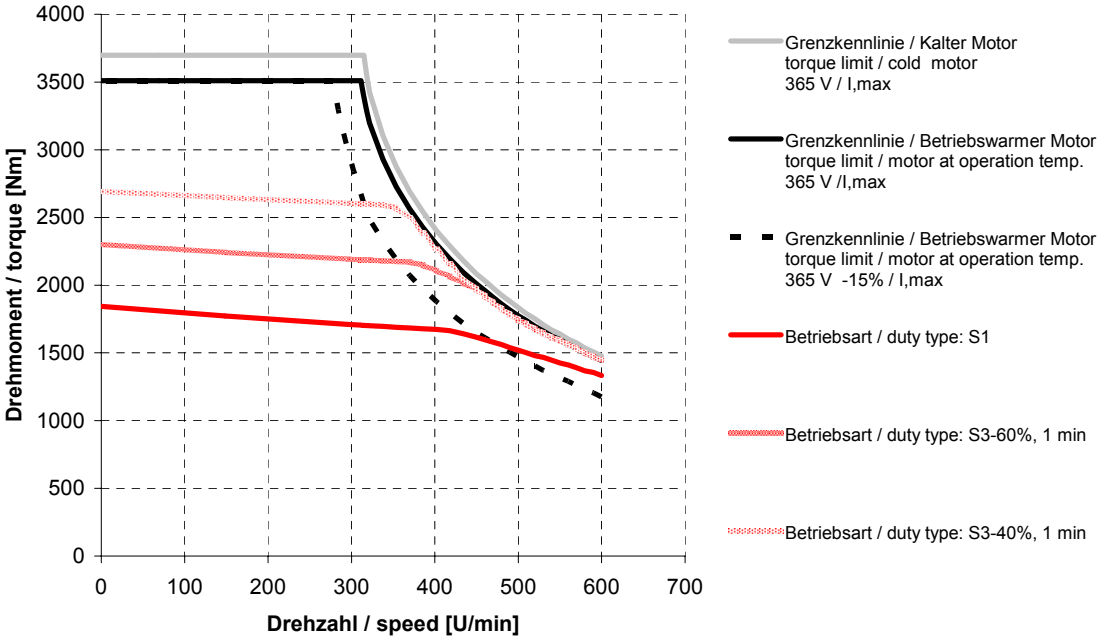

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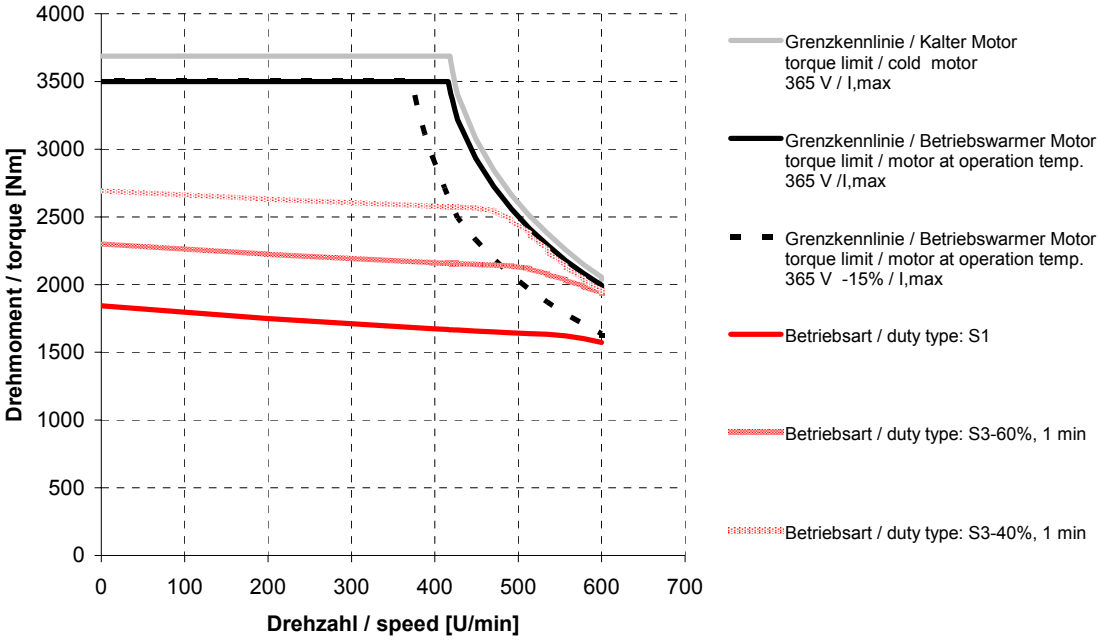

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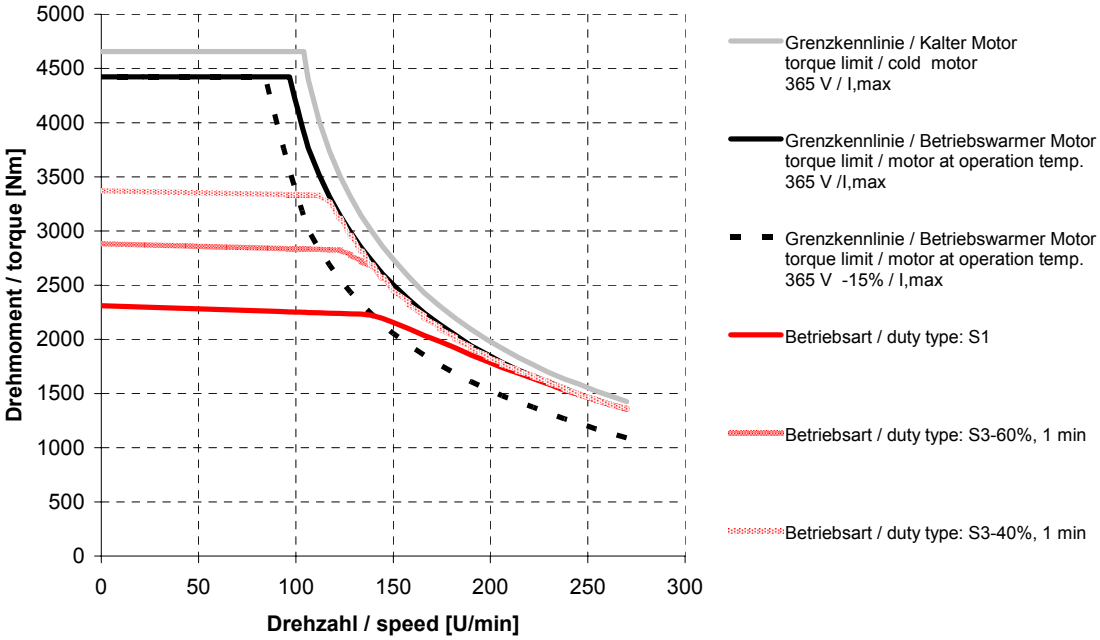

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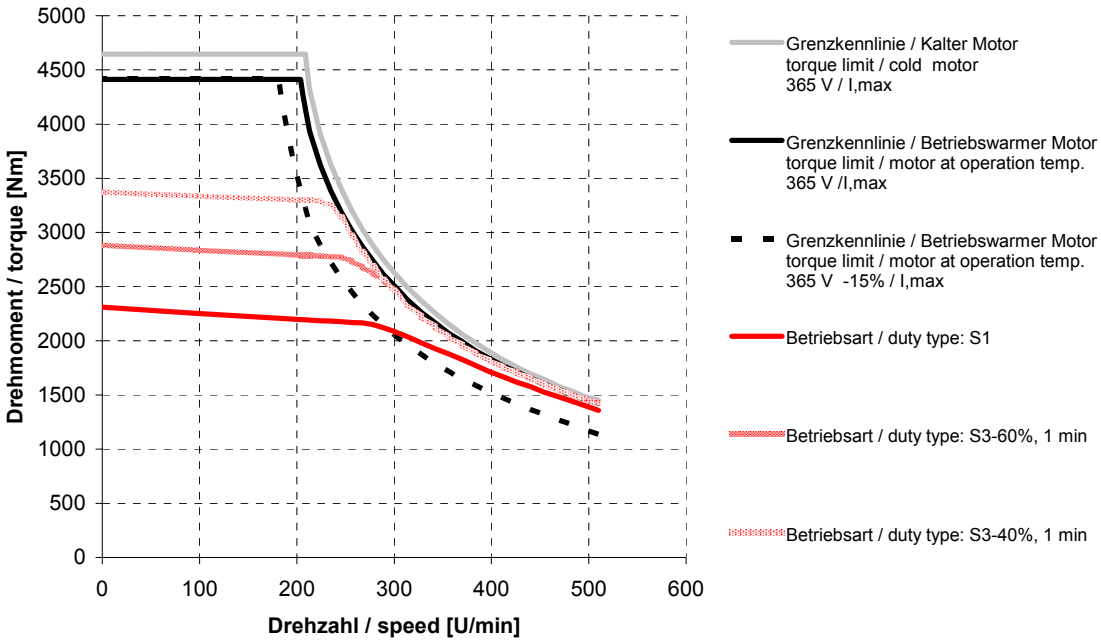

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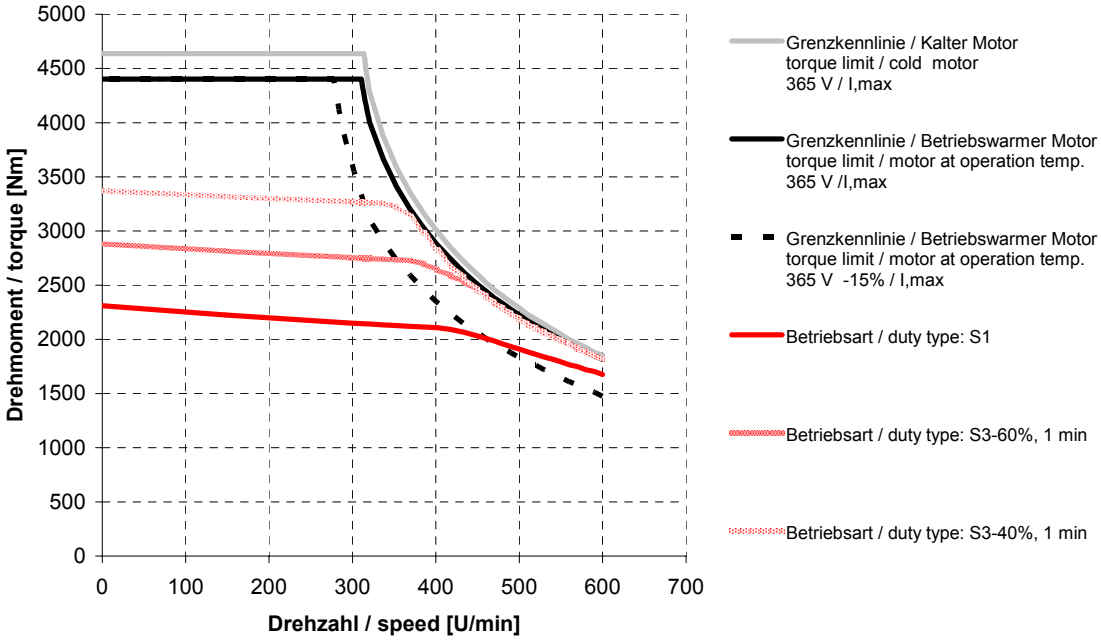

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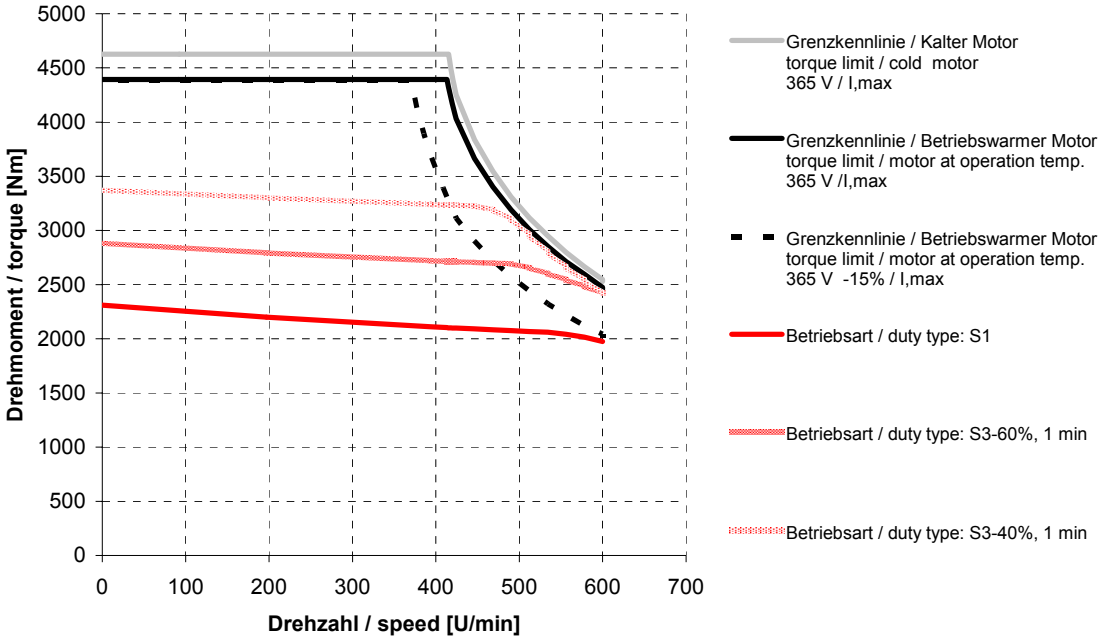

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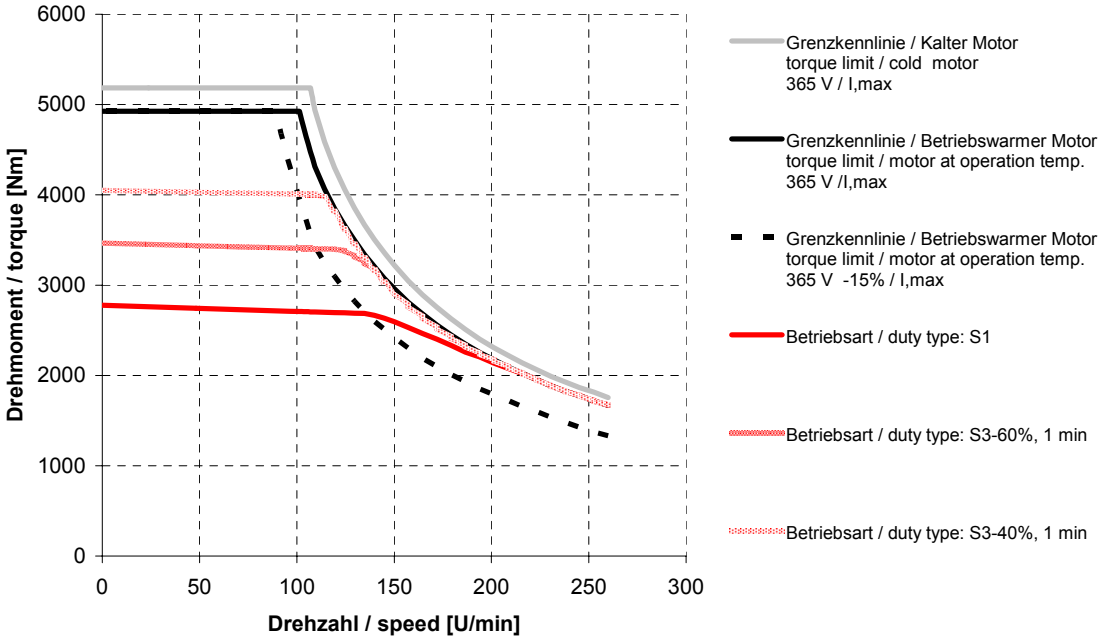

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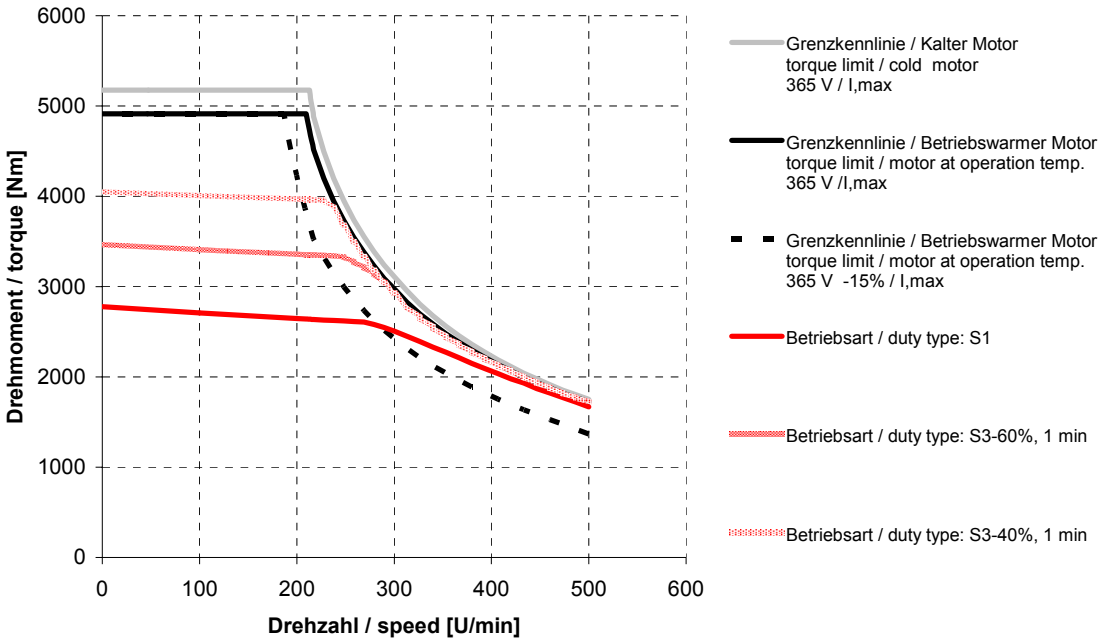

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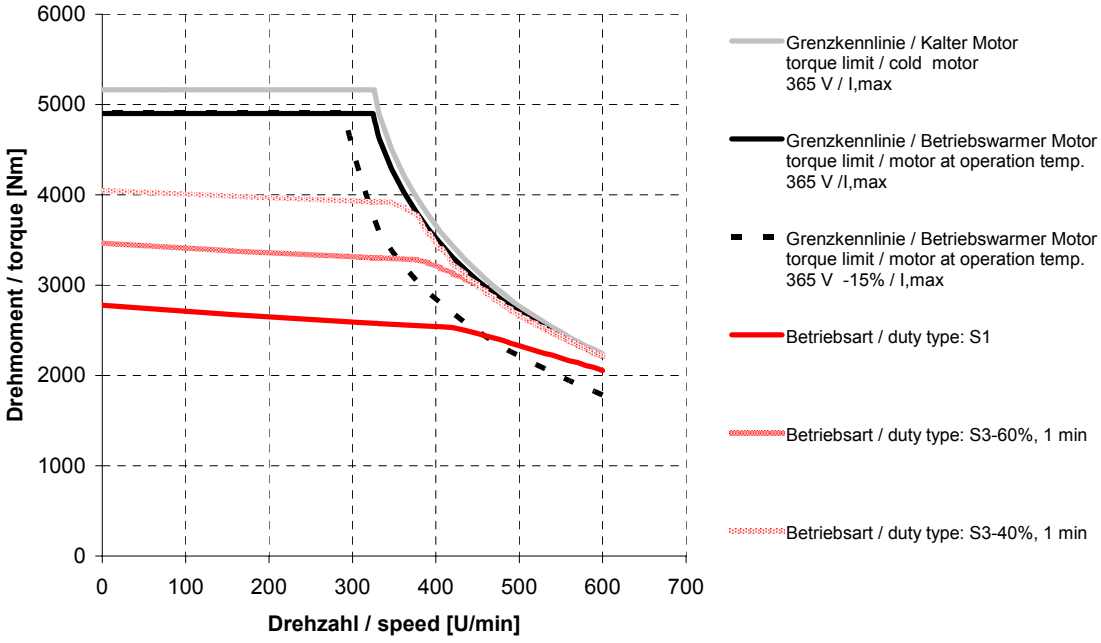

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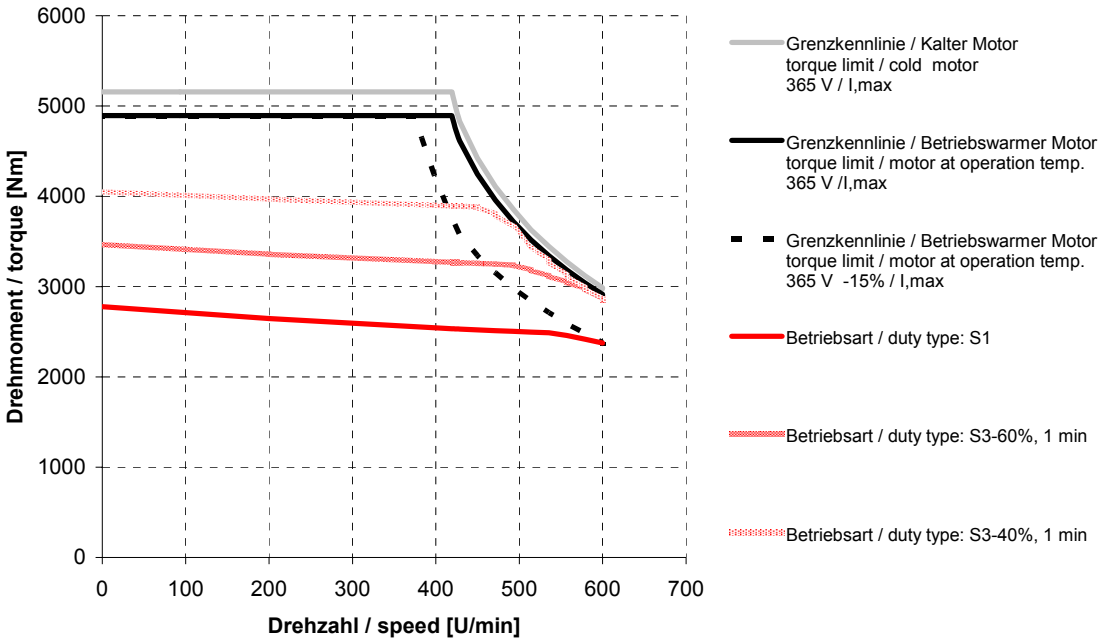

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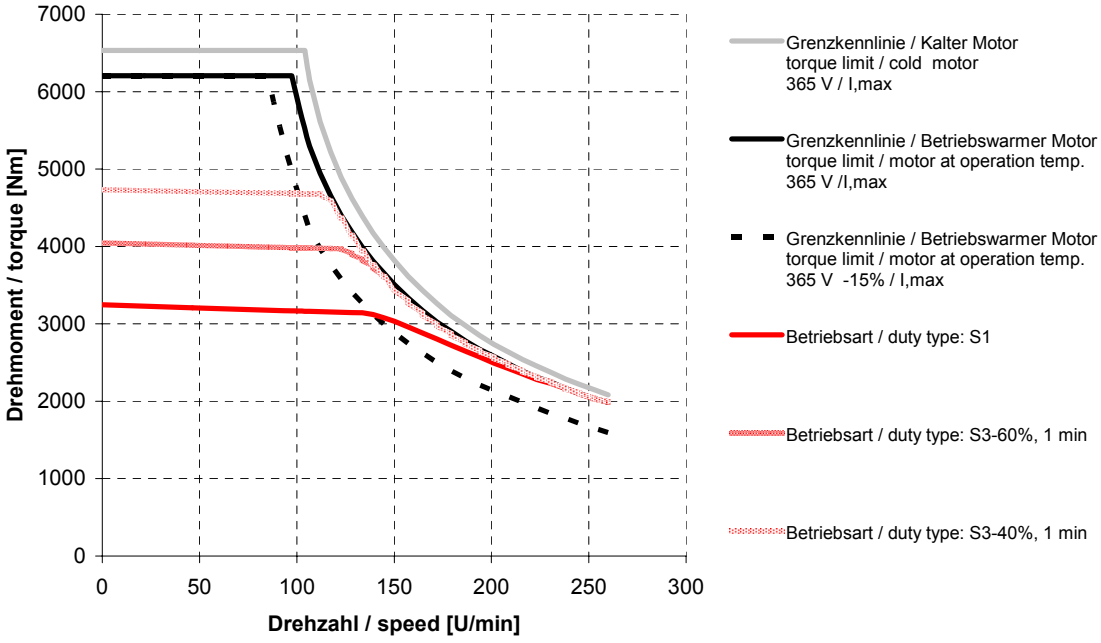

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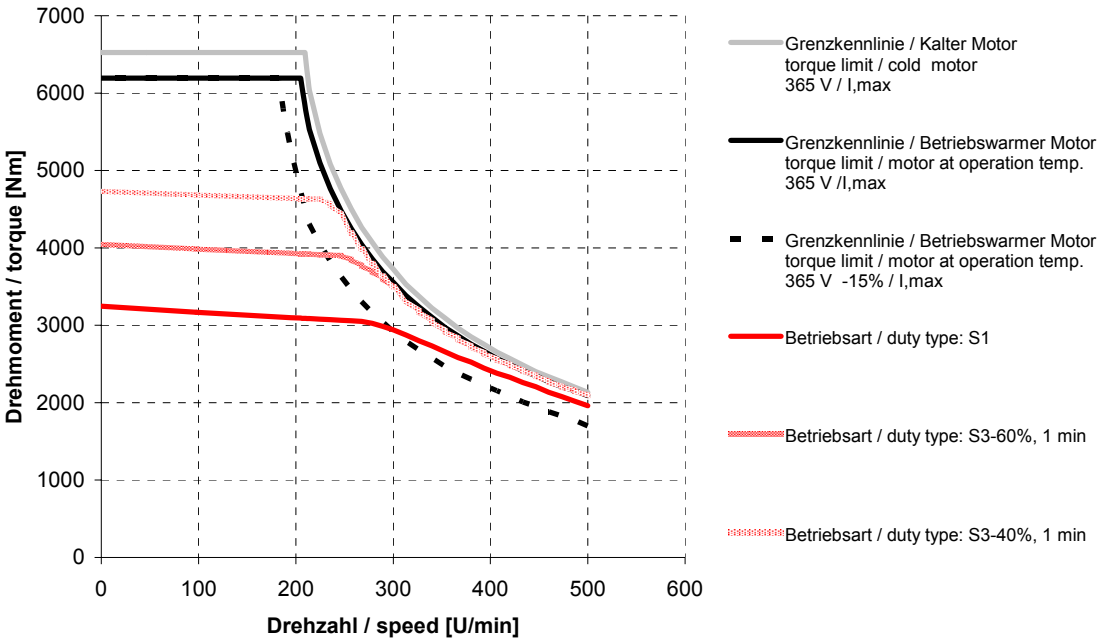

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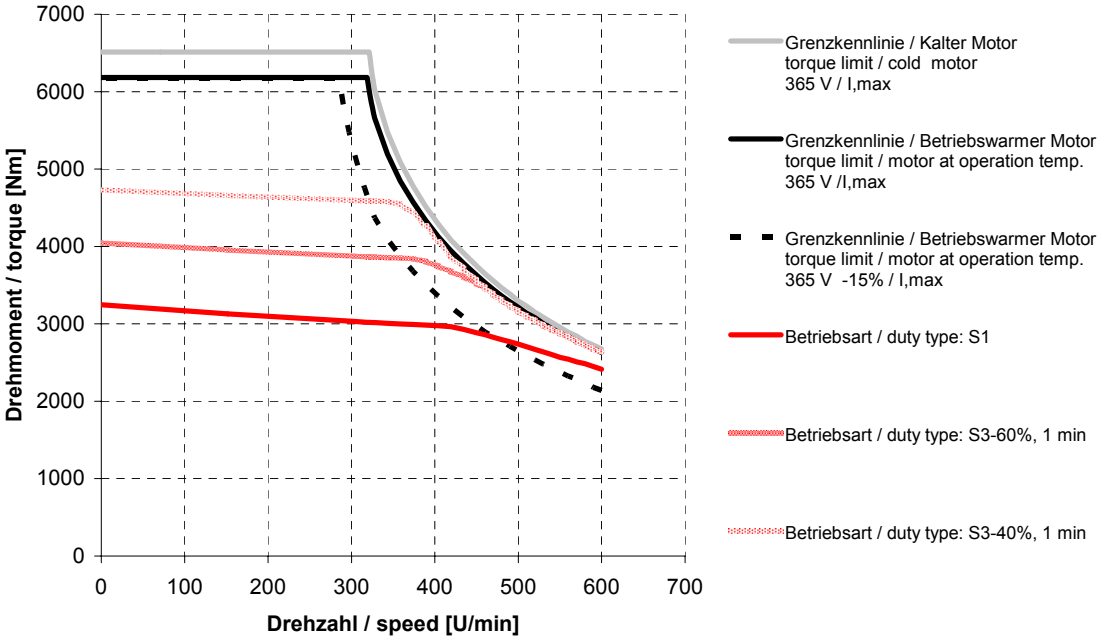

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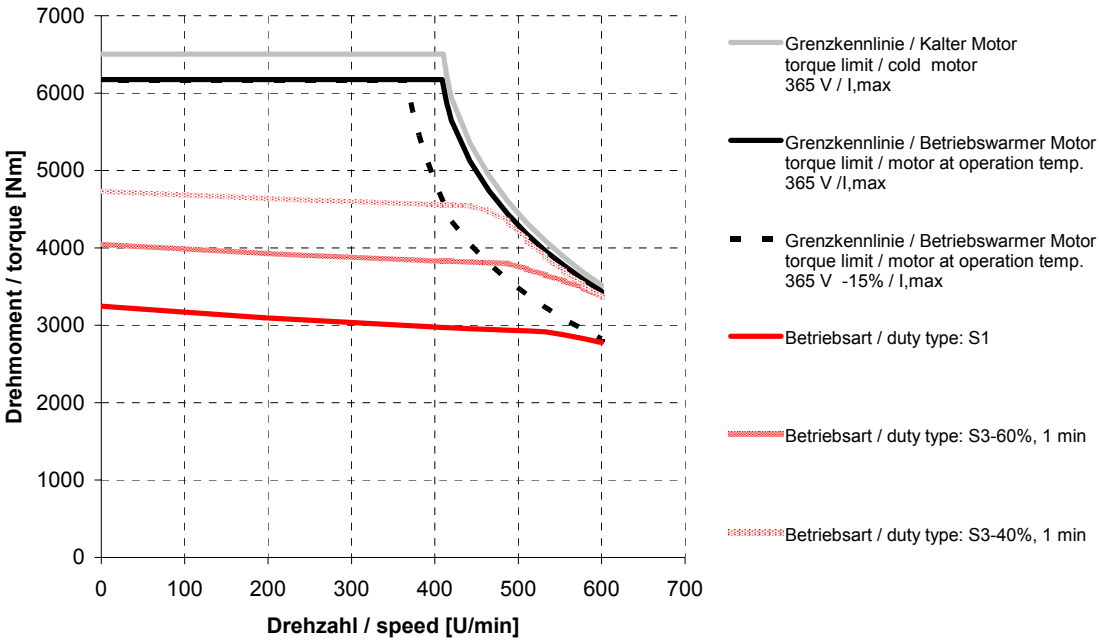

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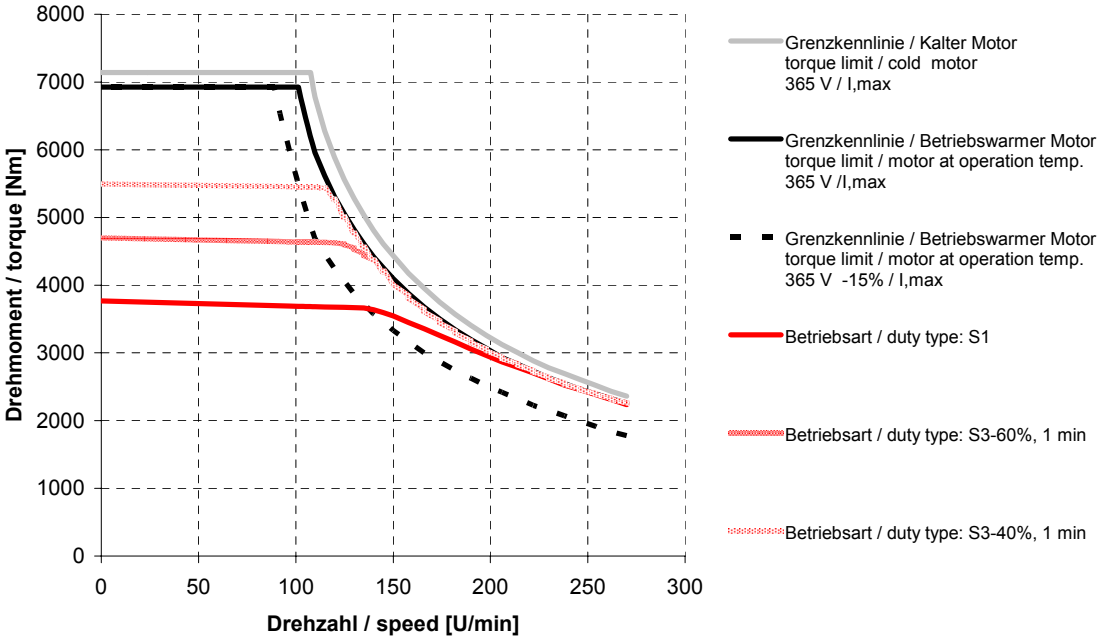

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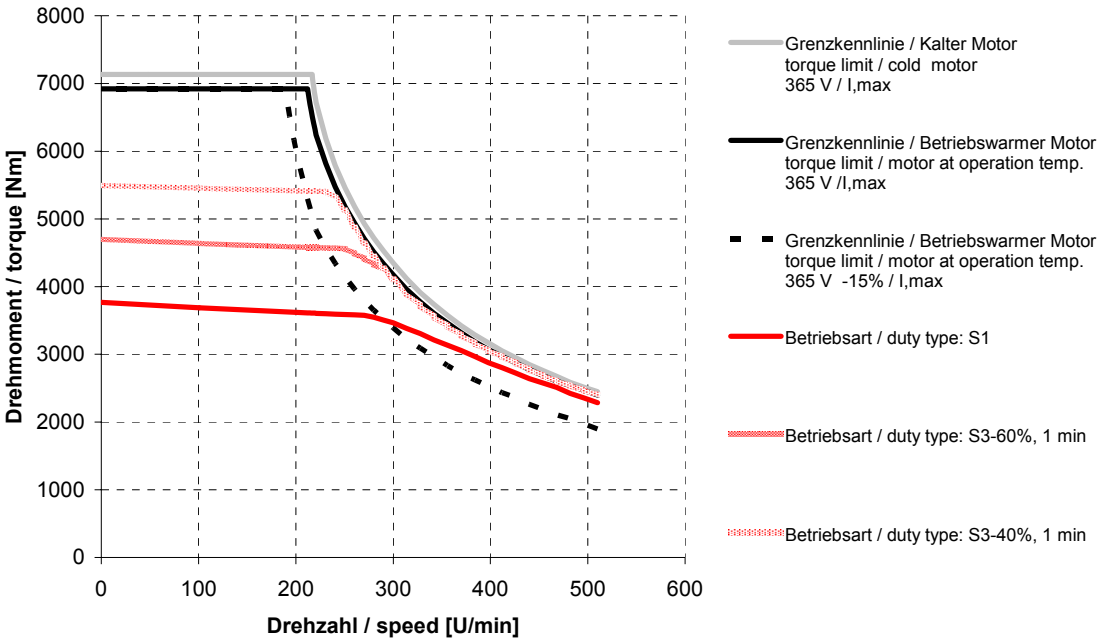

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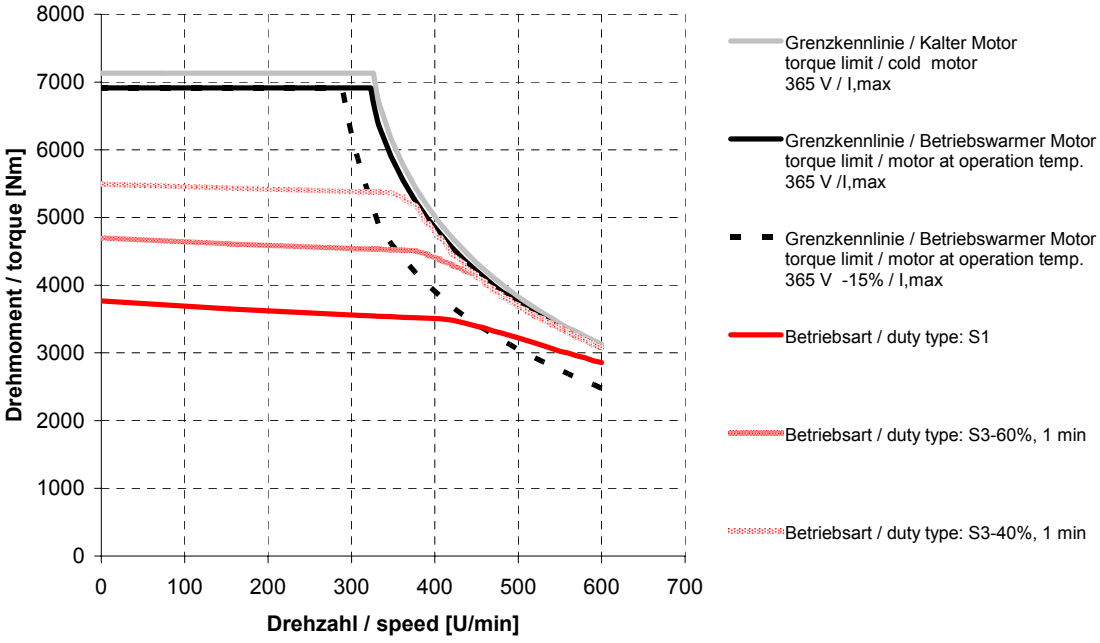

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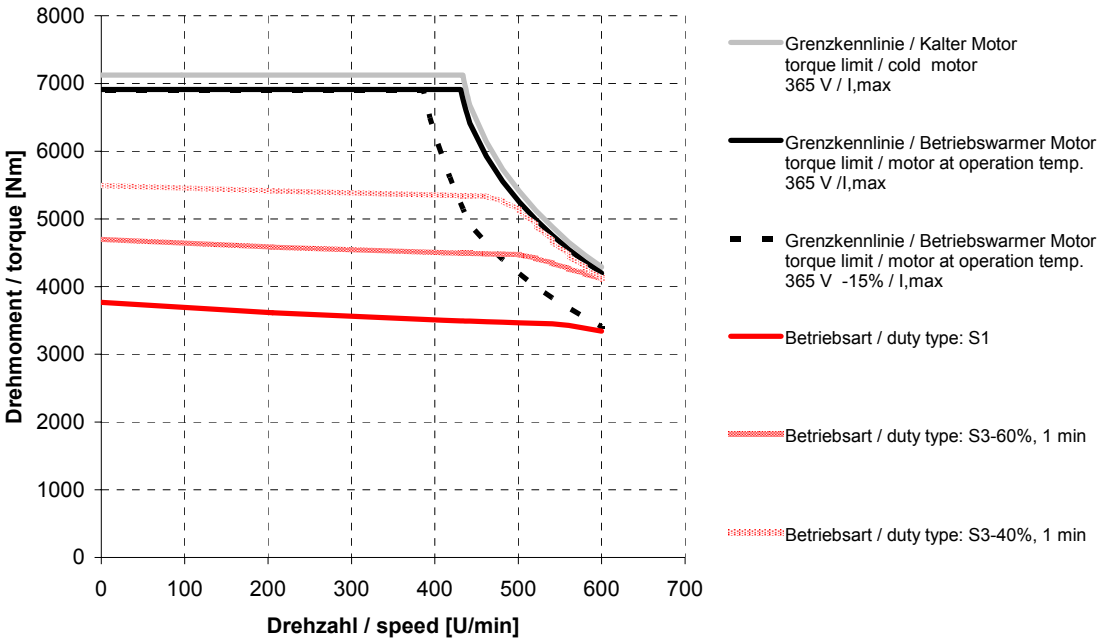

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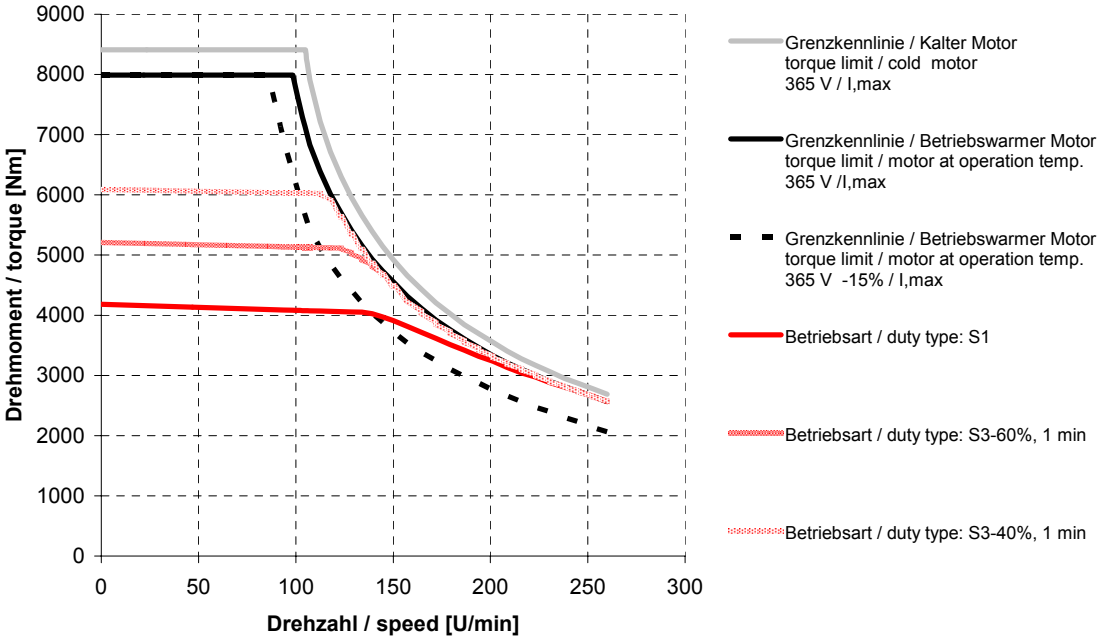

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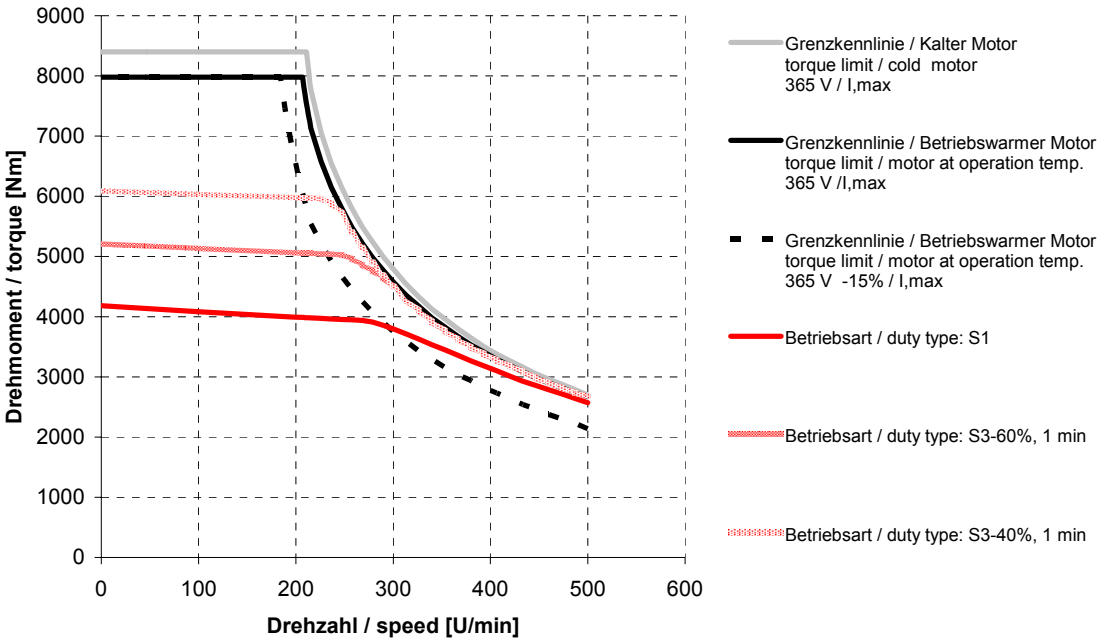

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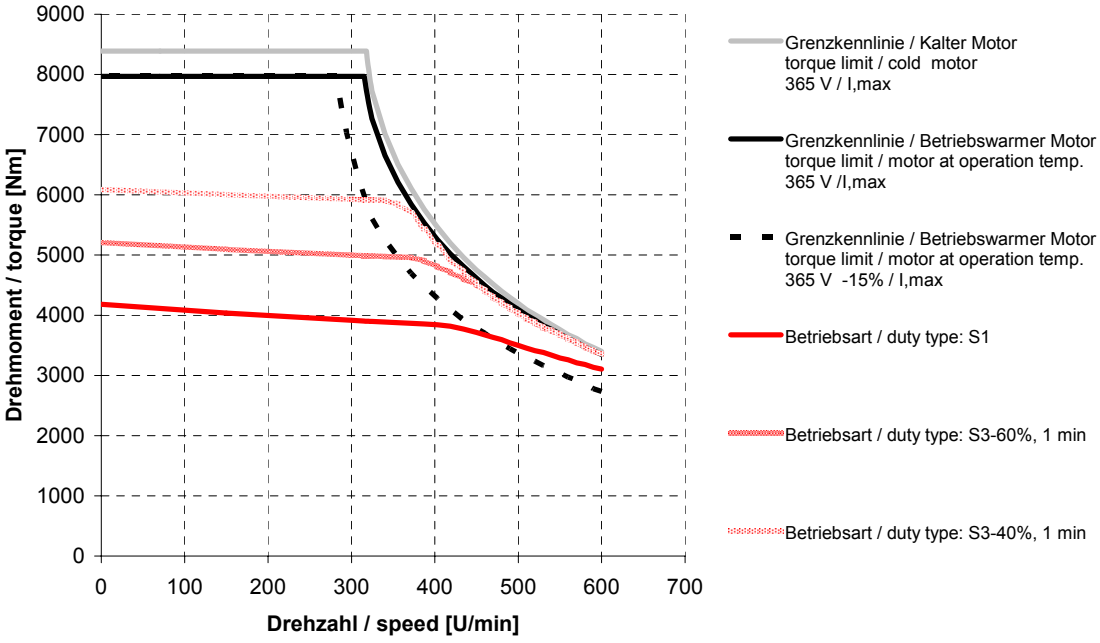

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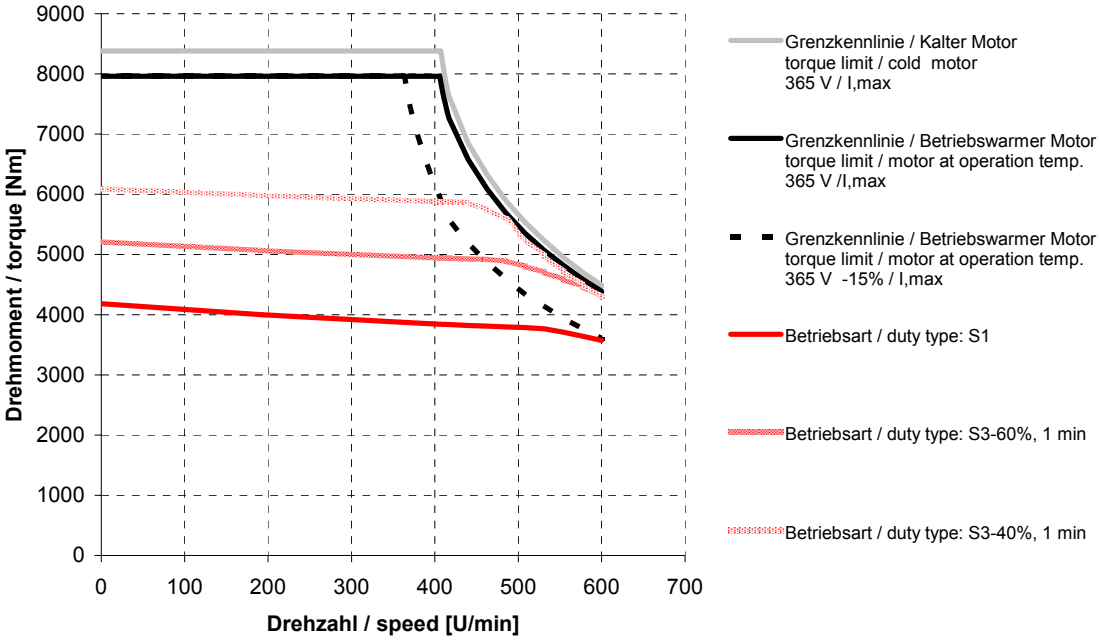

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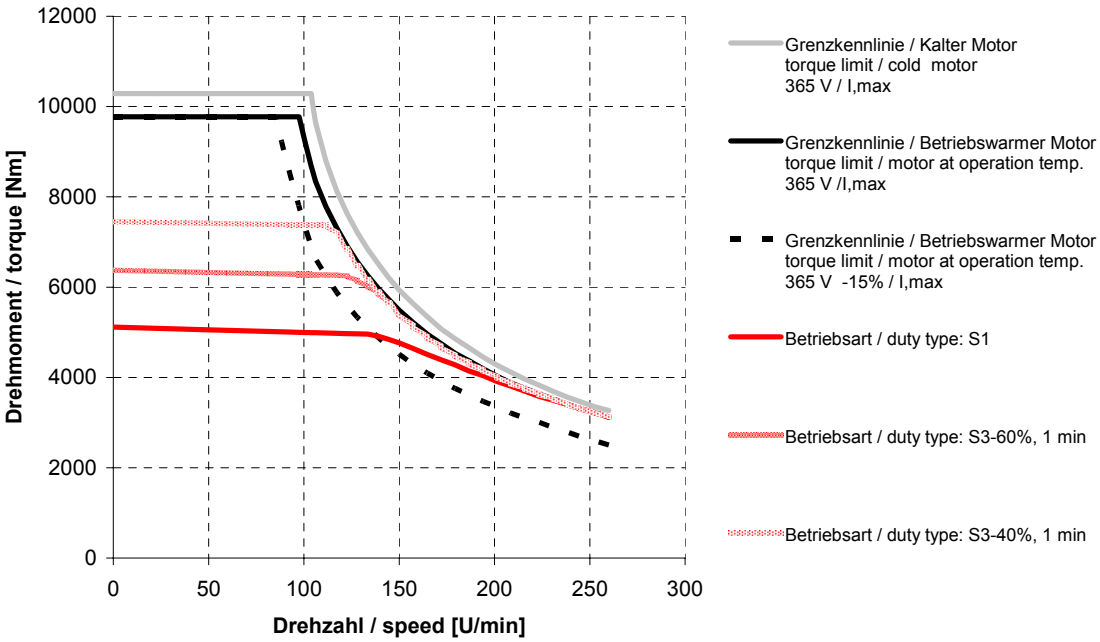

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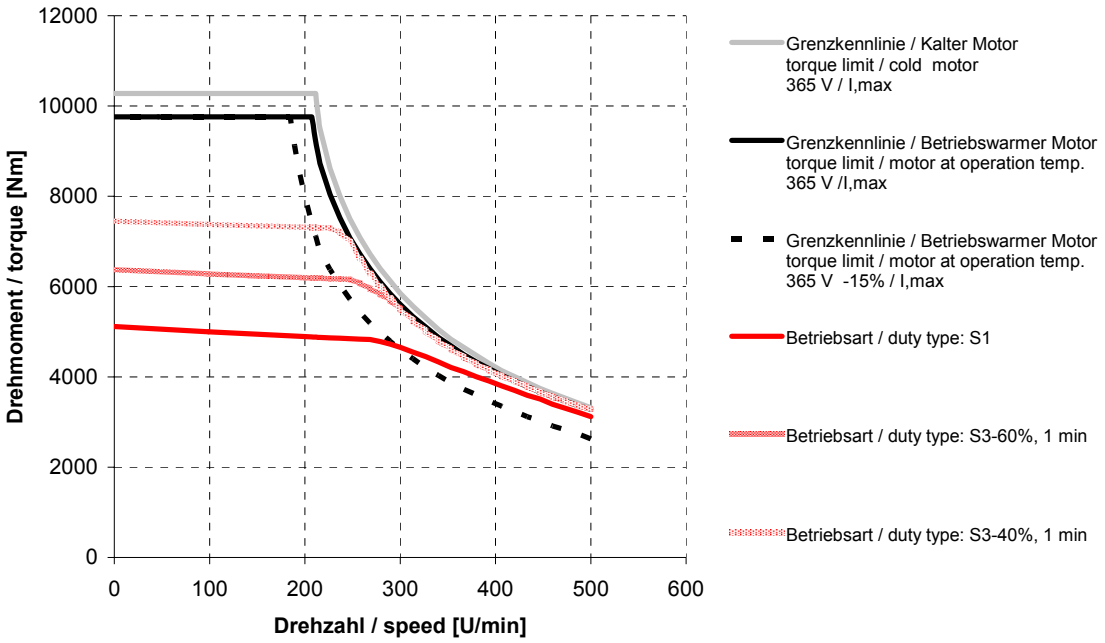

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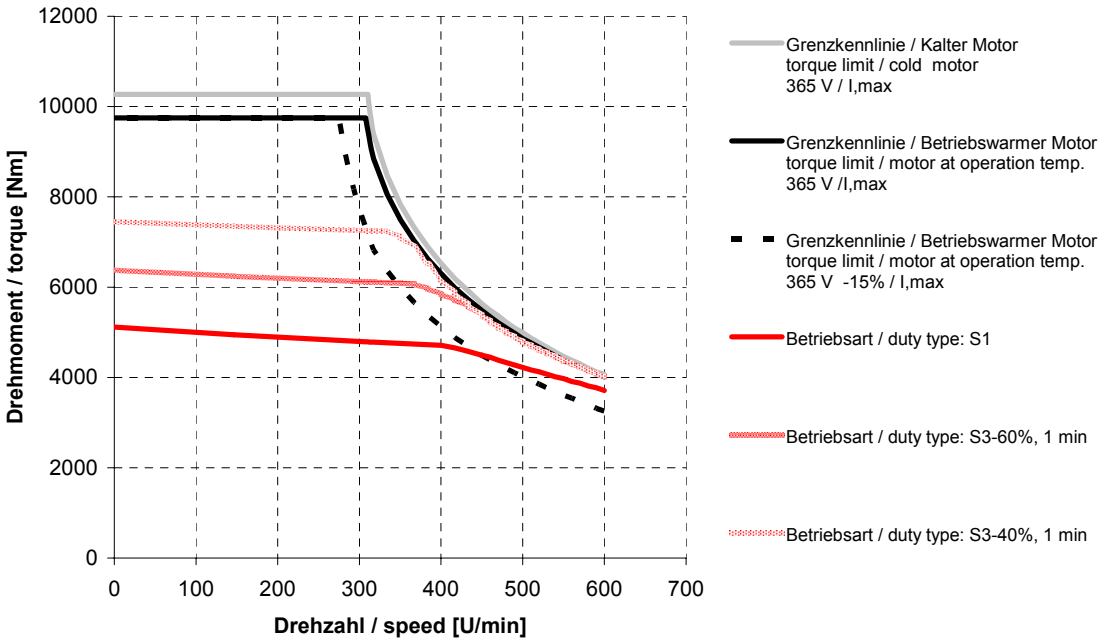
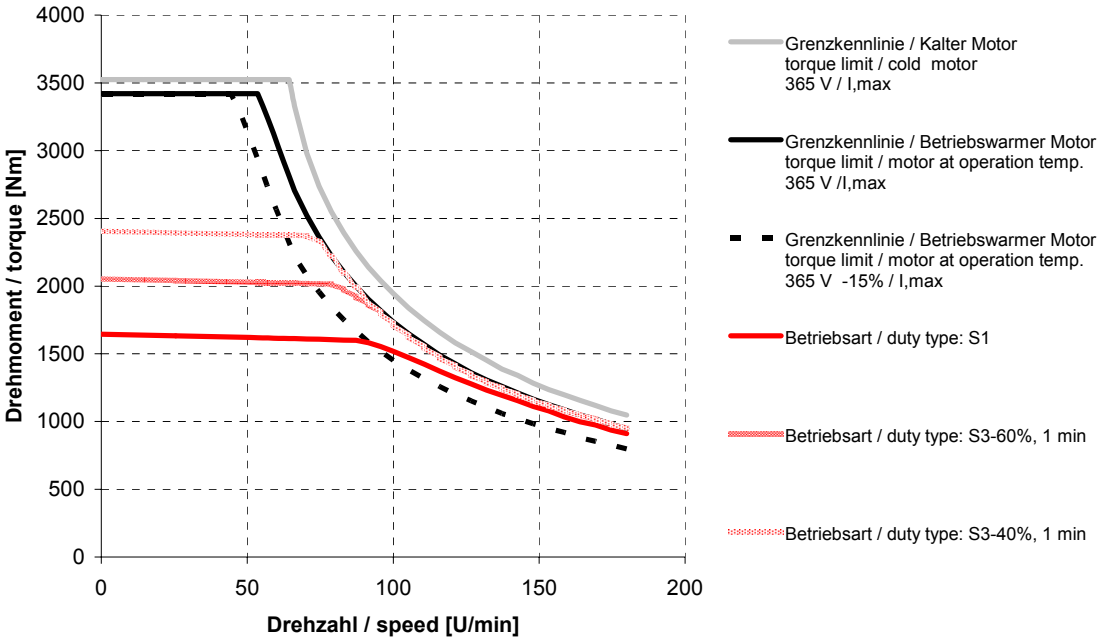


5.4. Characteristic curves DST2-315..54 W

DST2-315KO54W-010-5



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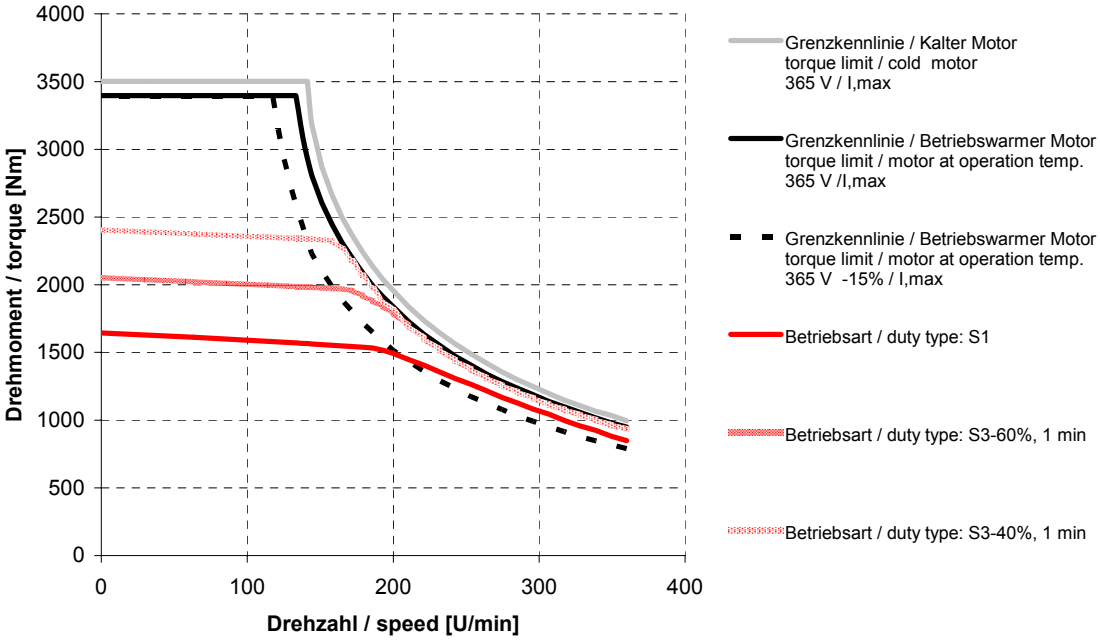

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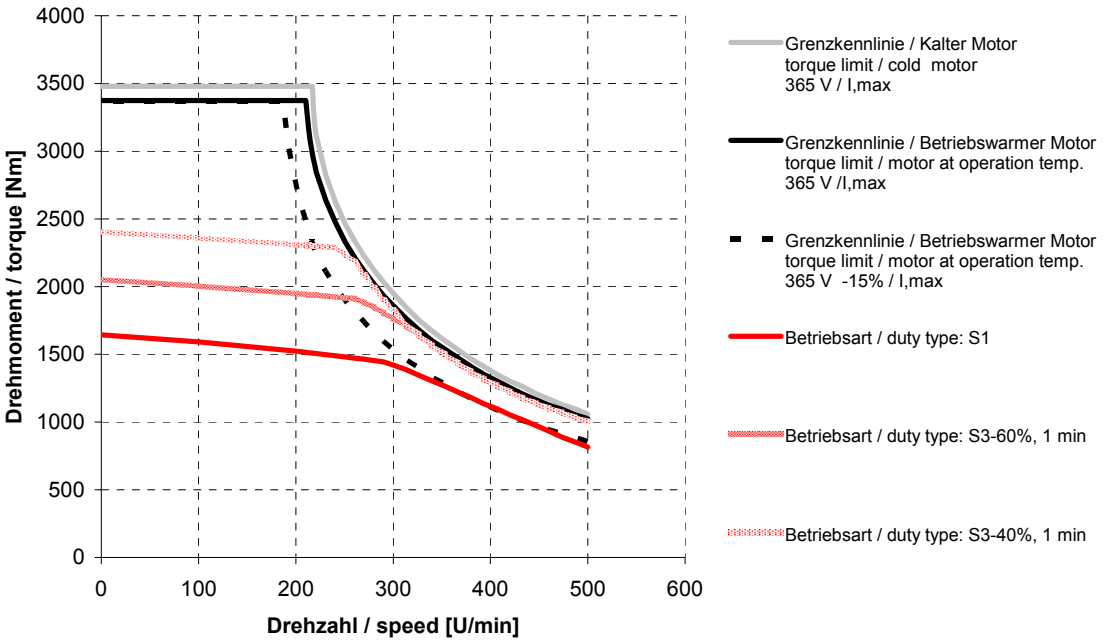

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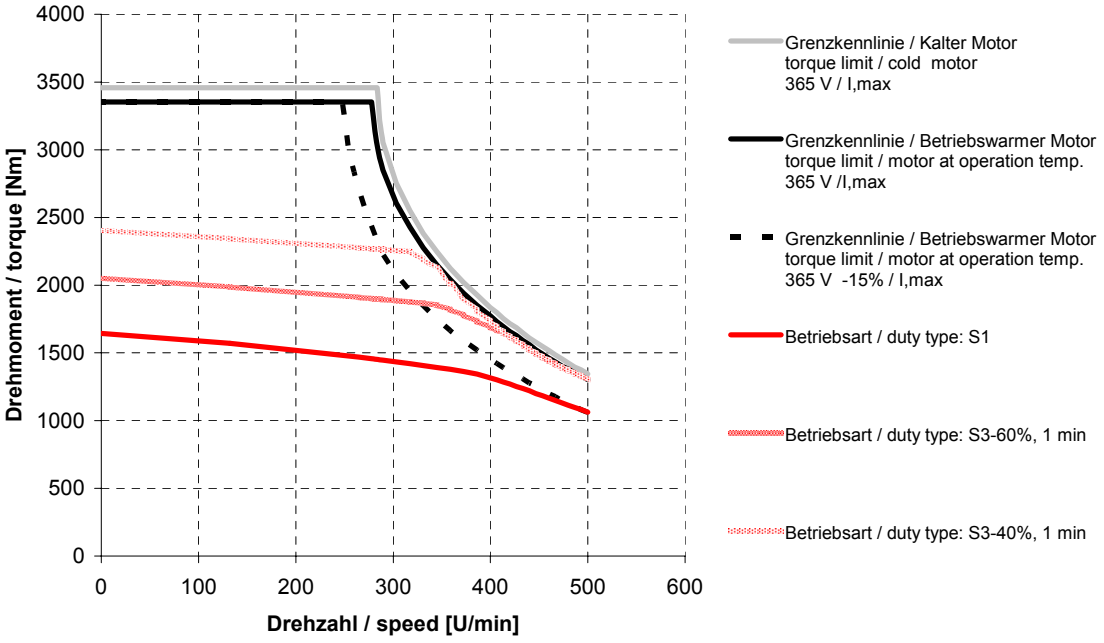

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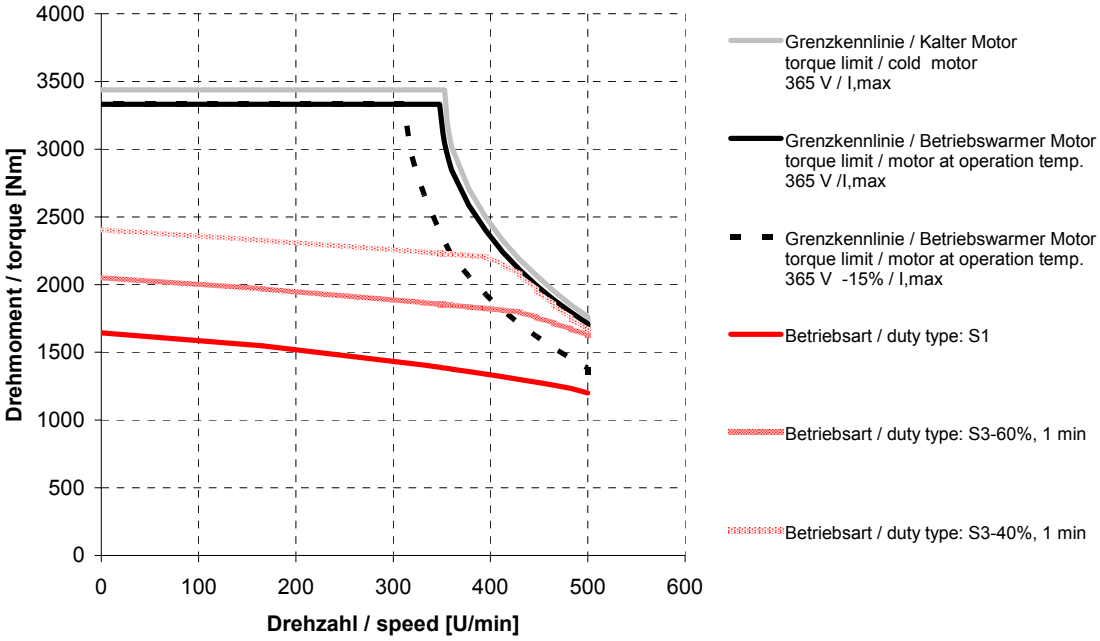

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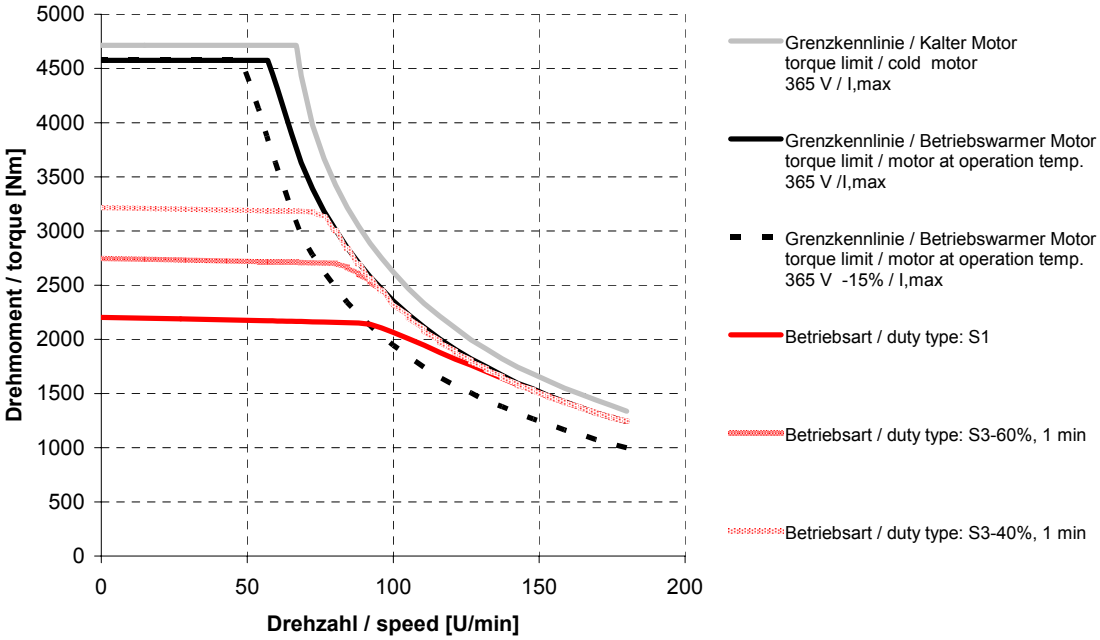

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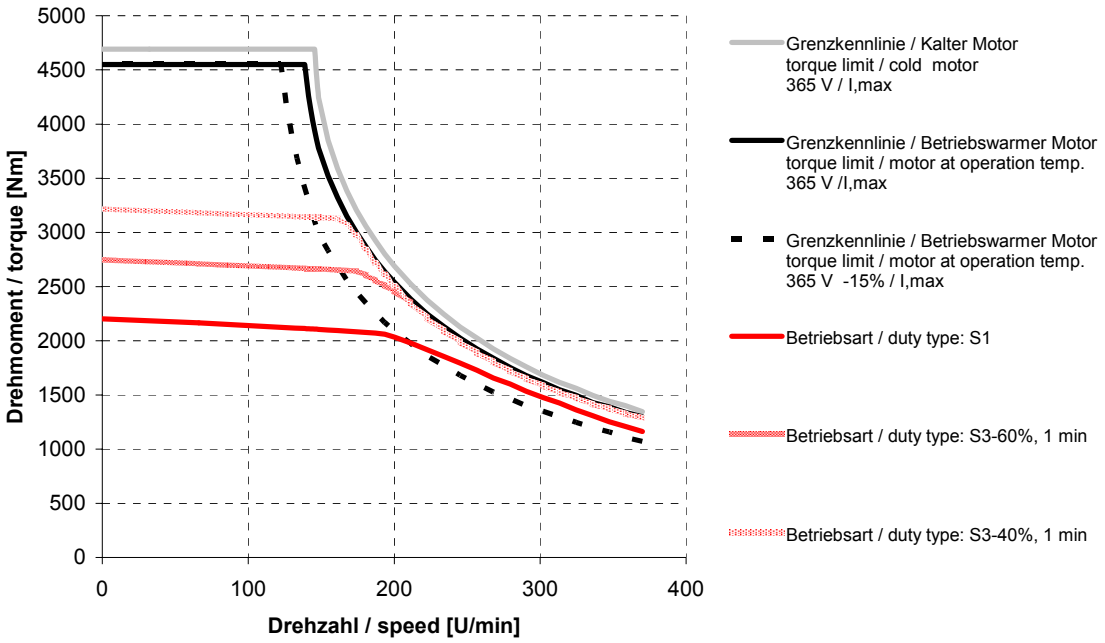

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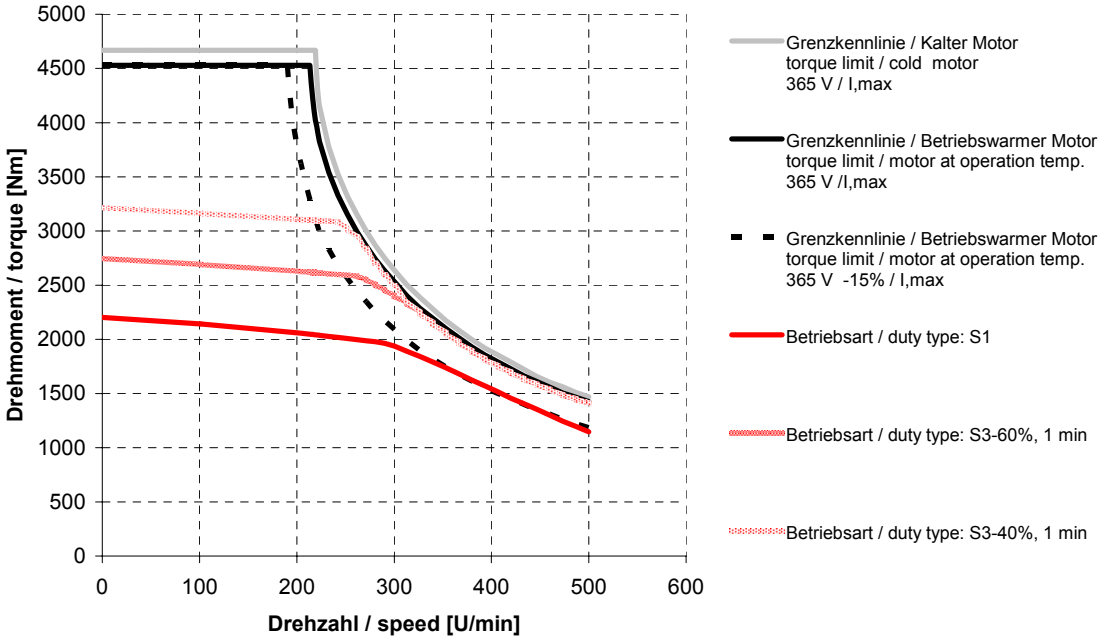

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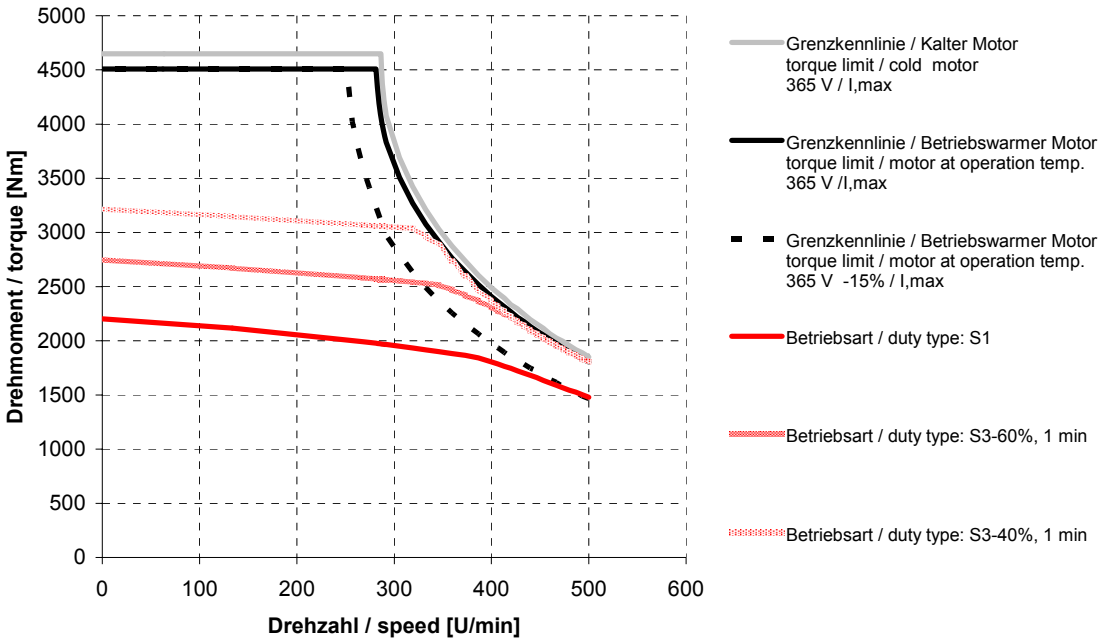

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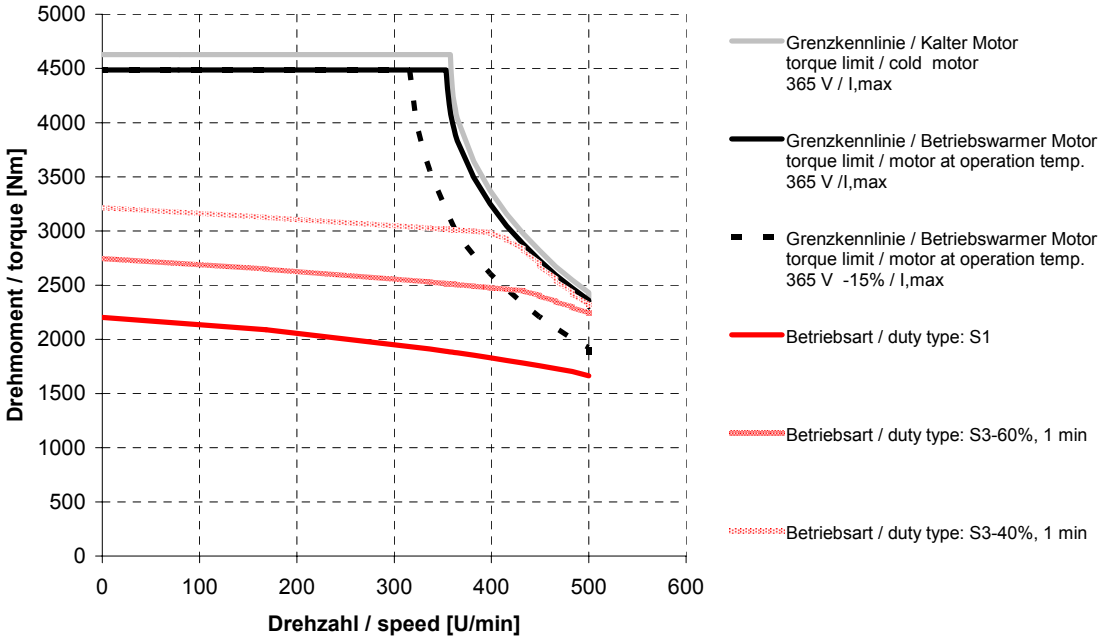

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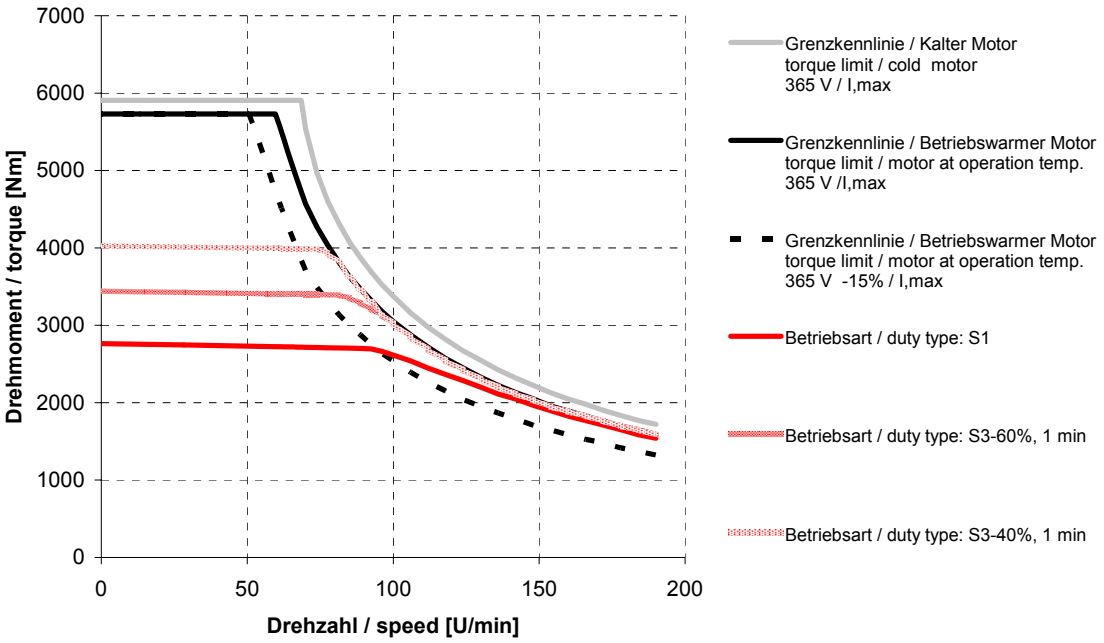

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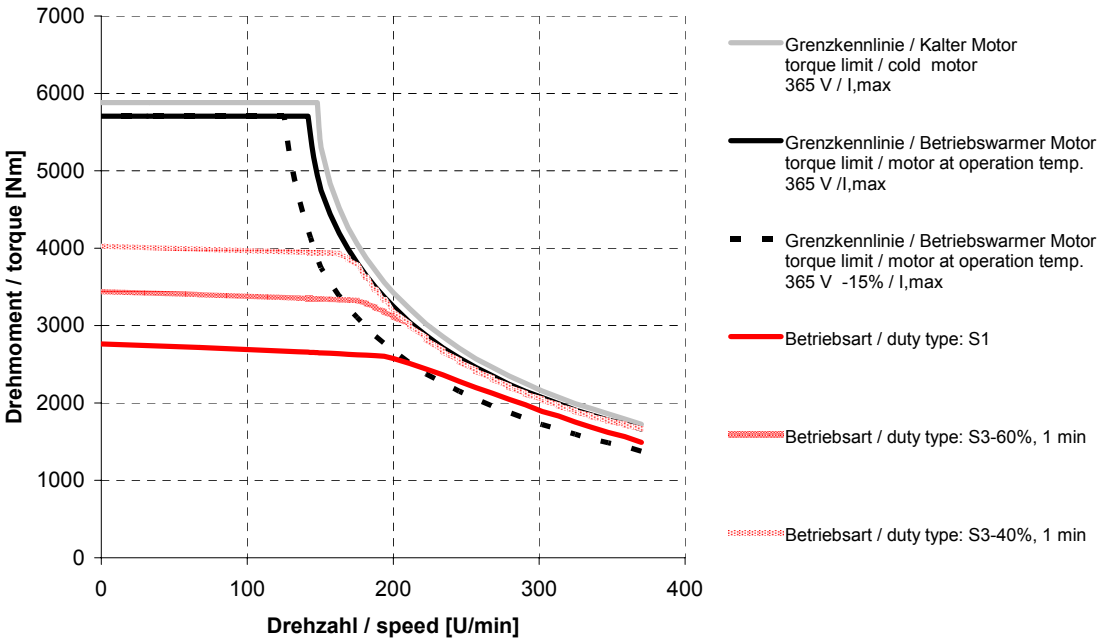

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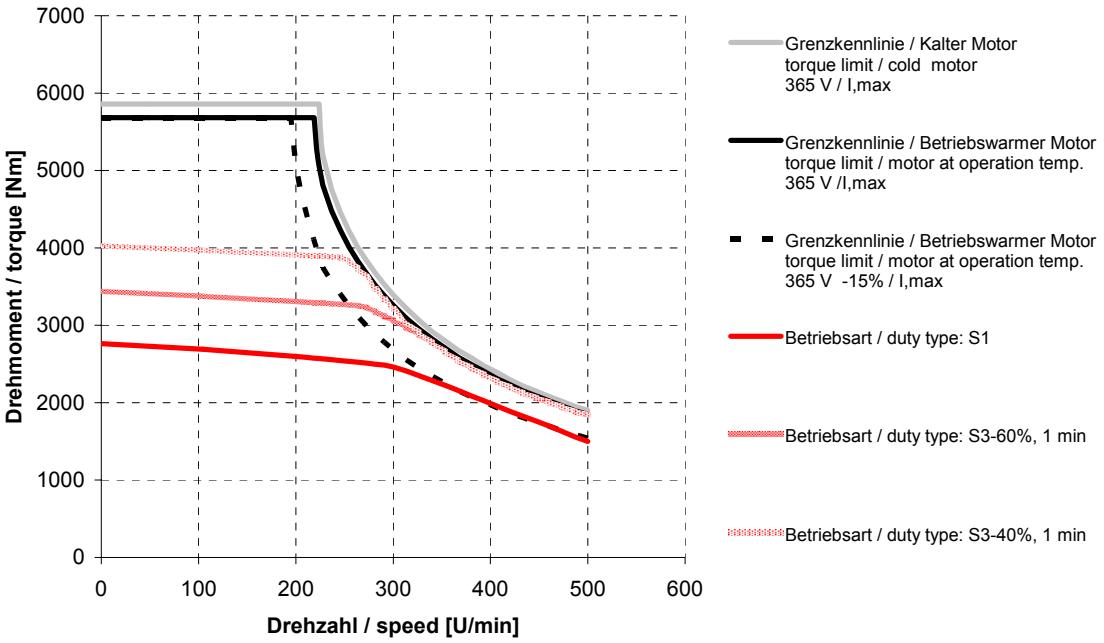

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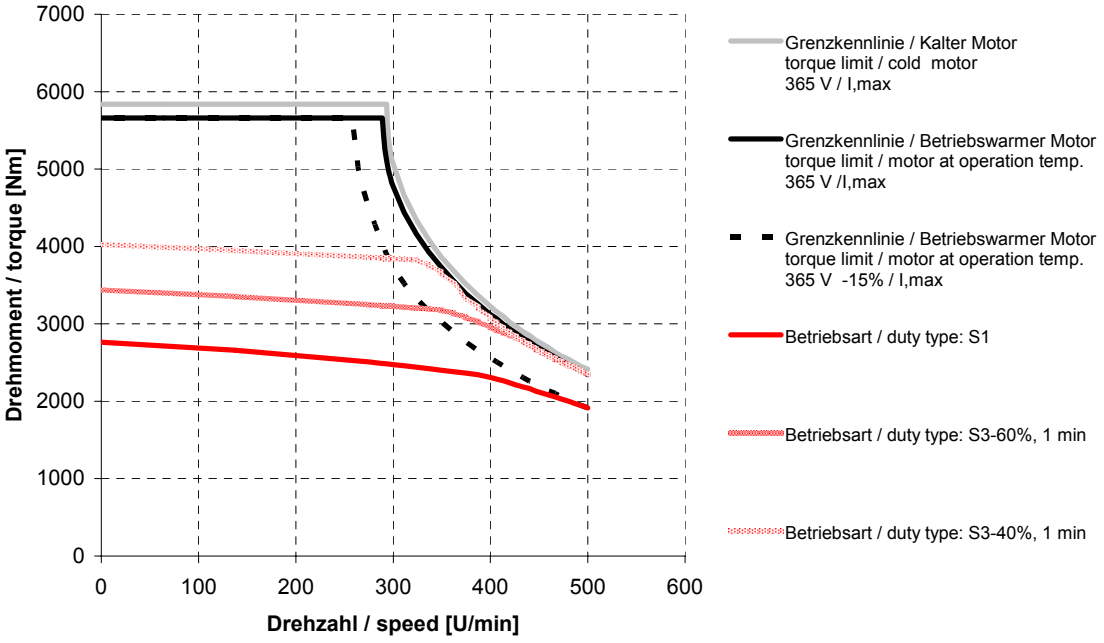

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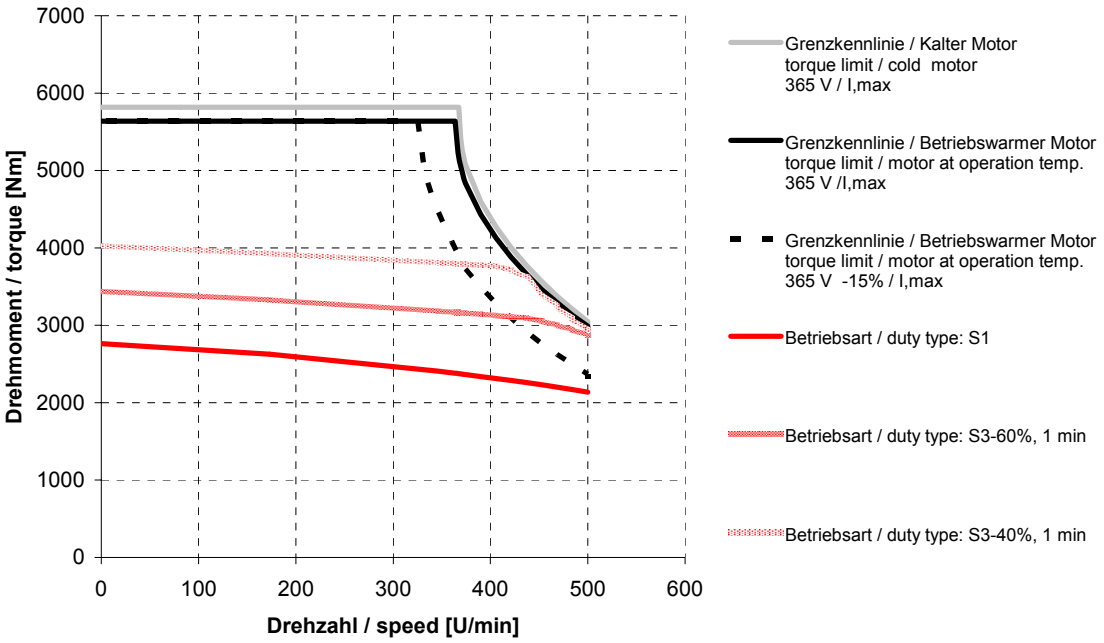

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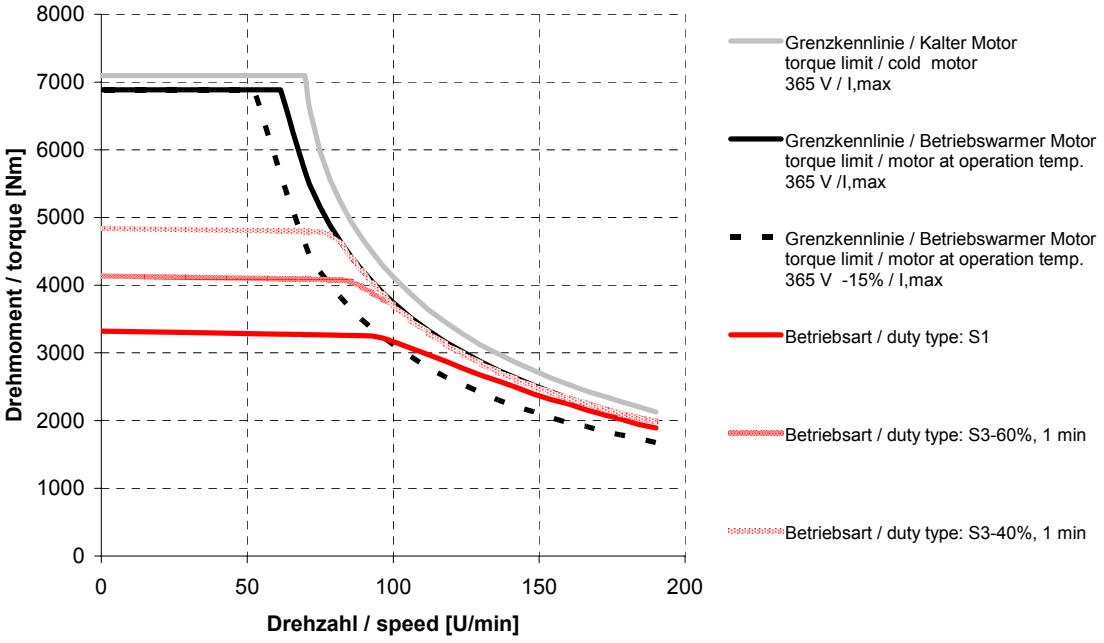

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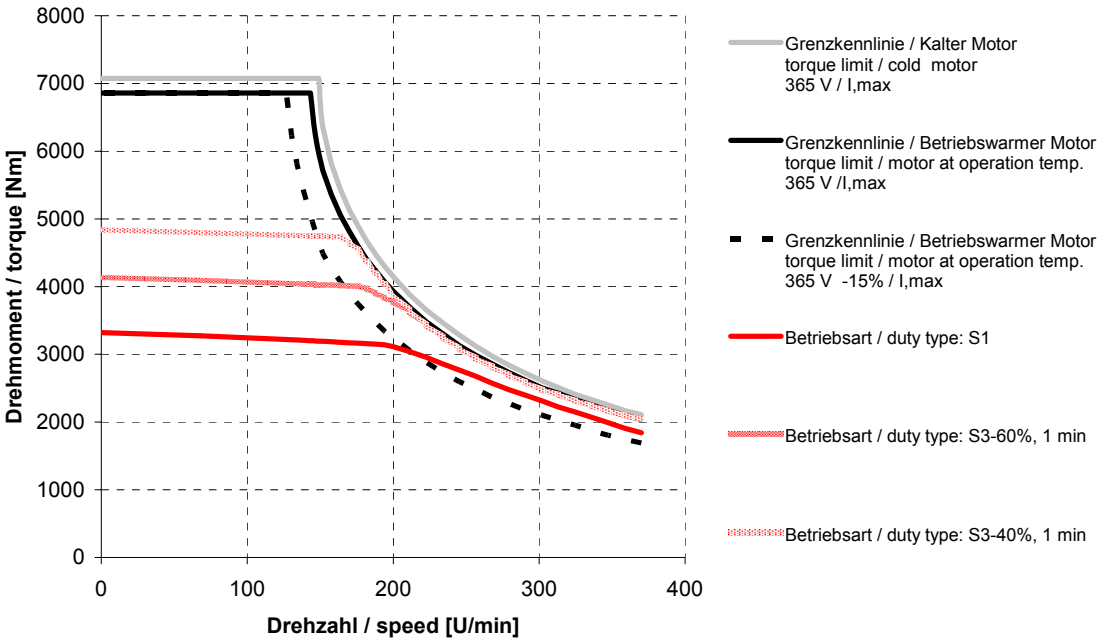

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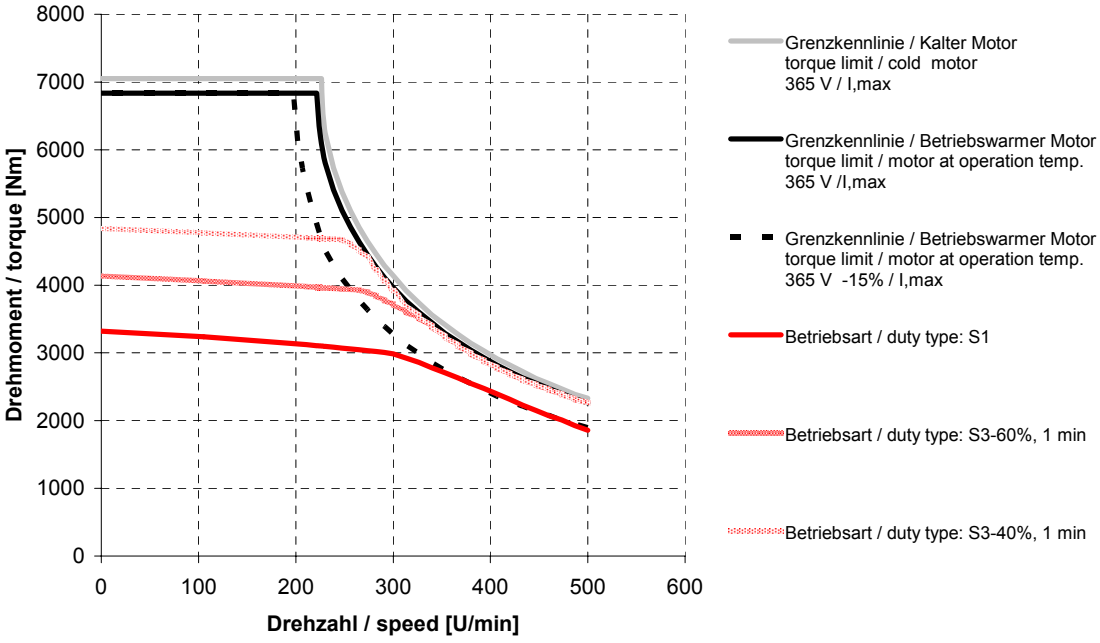

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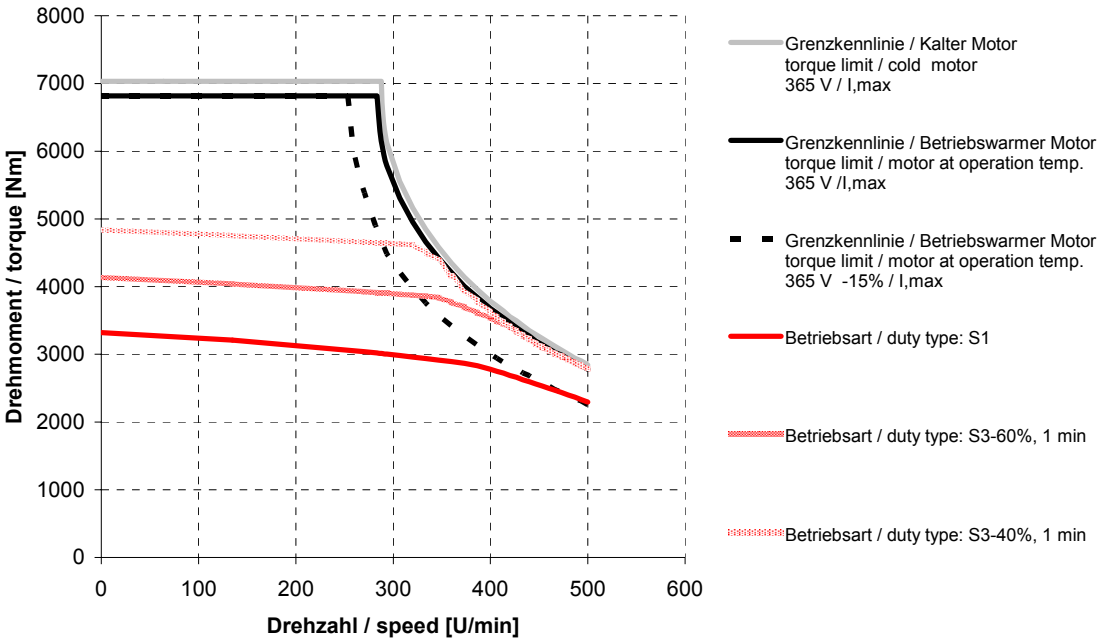

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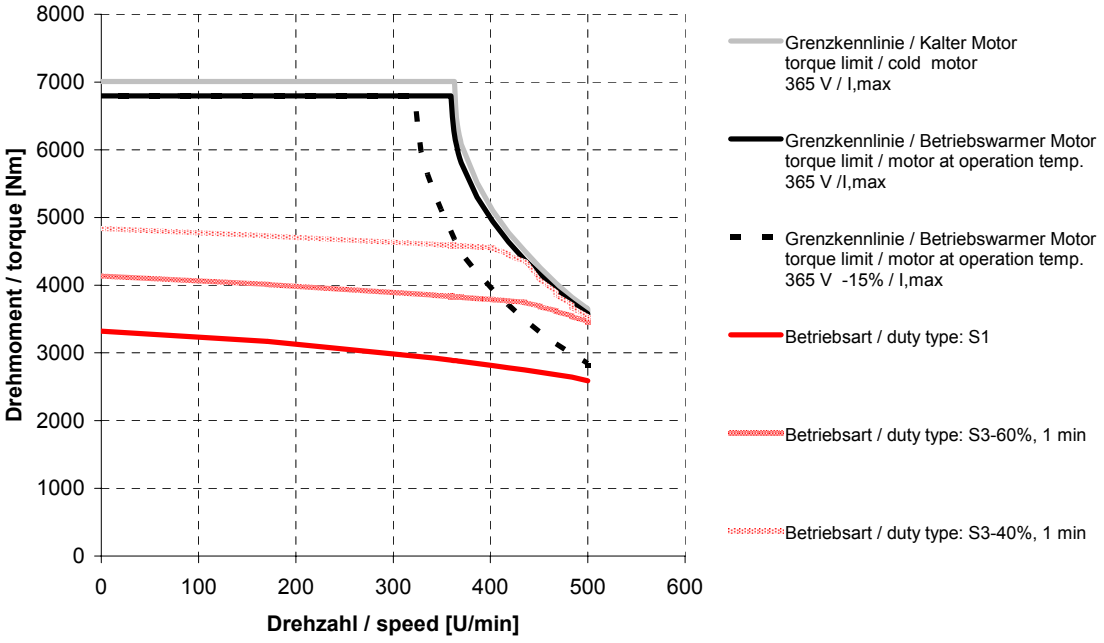

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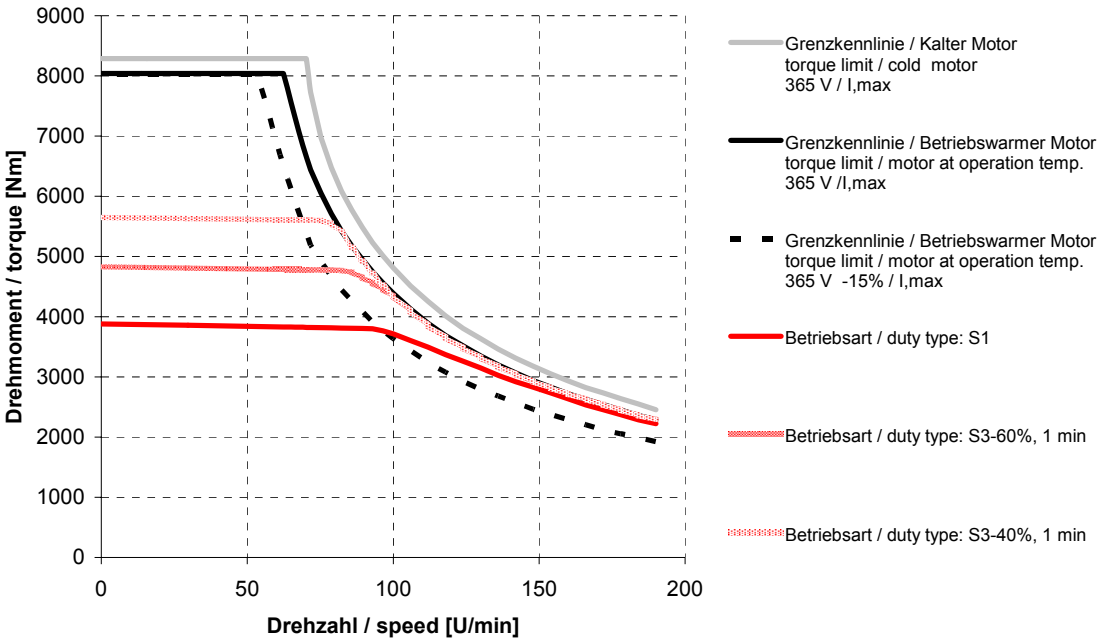

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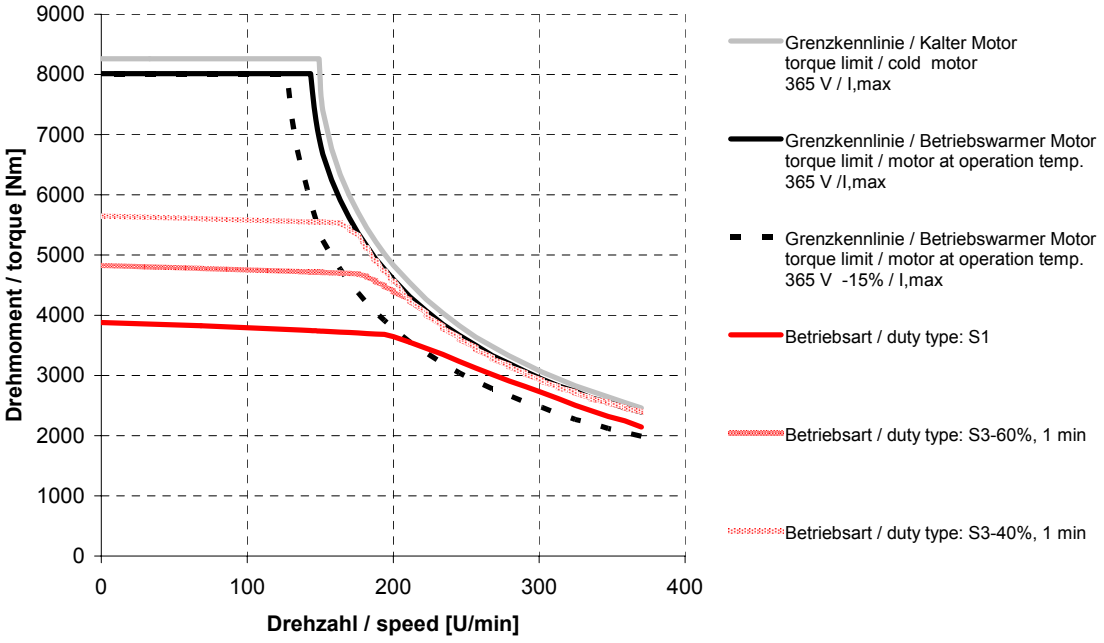

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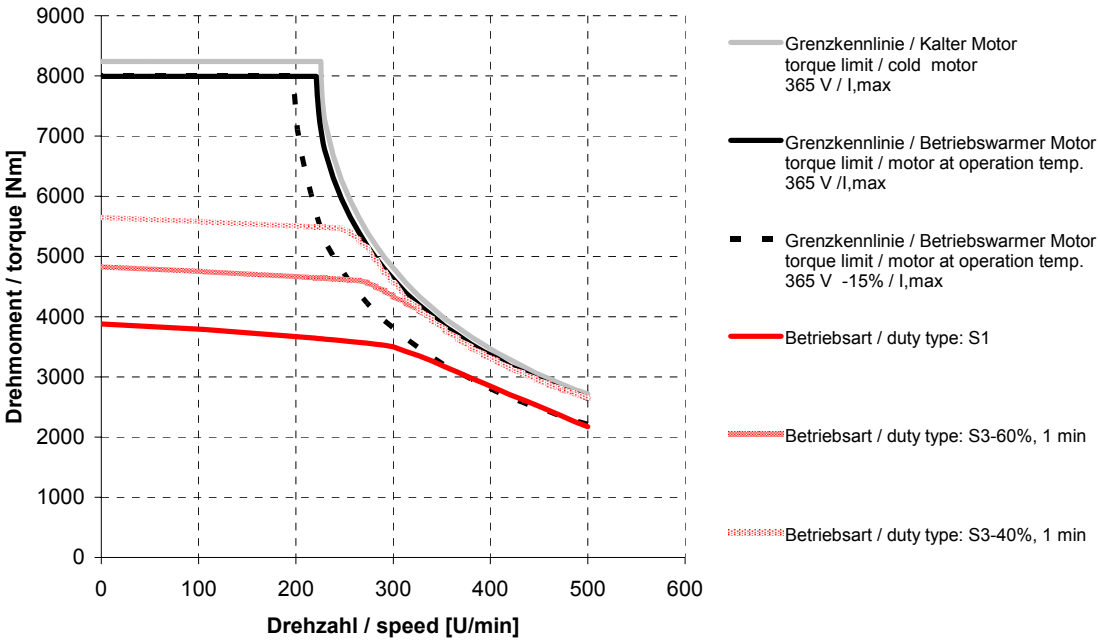

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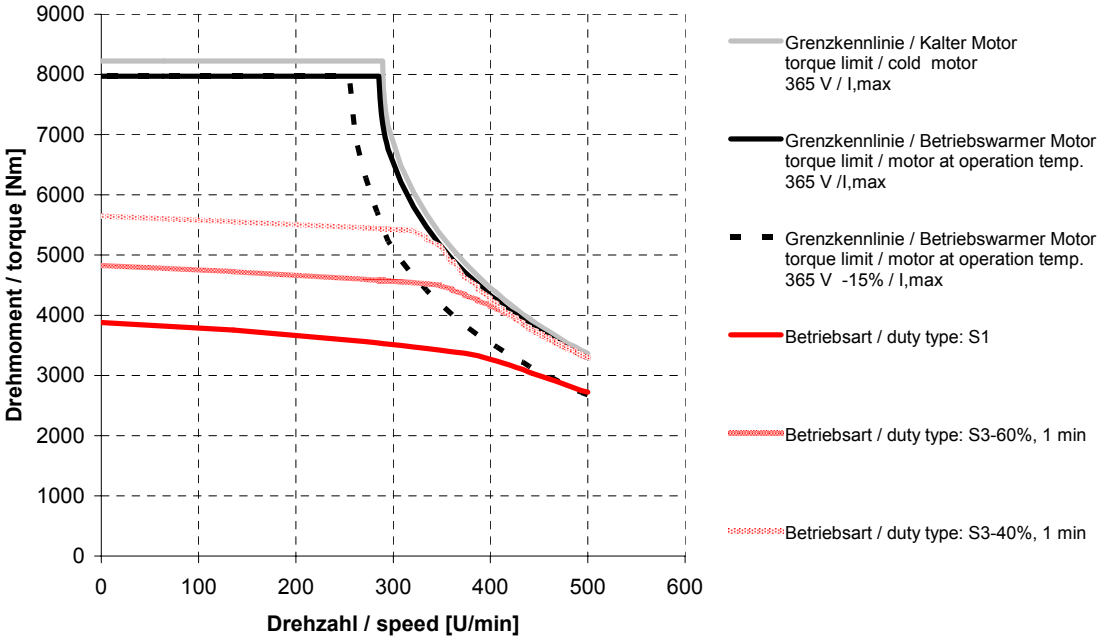

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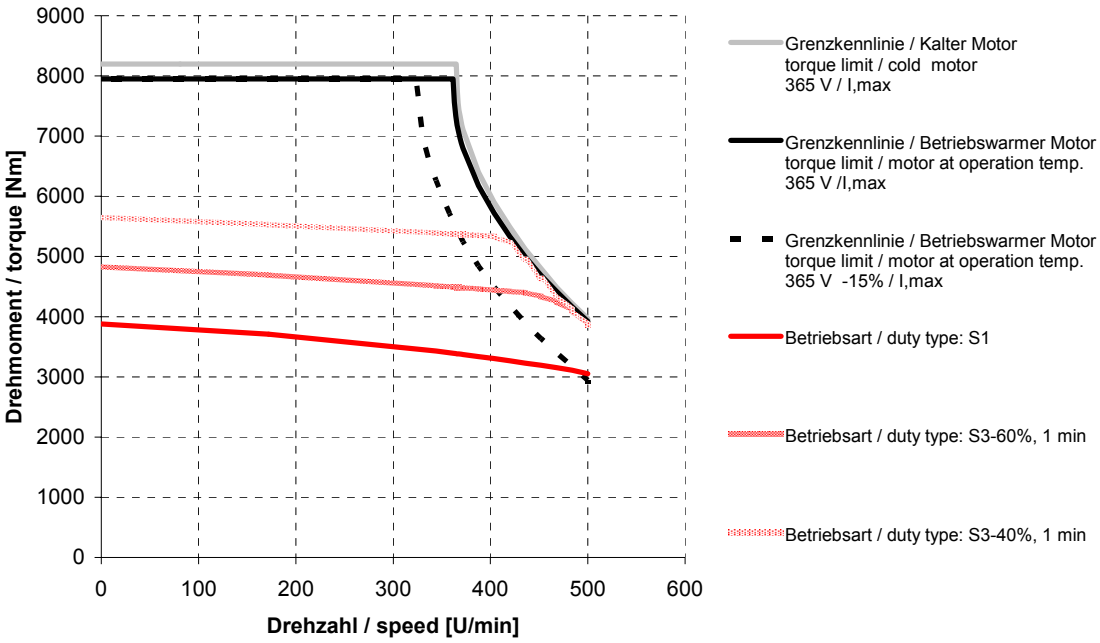

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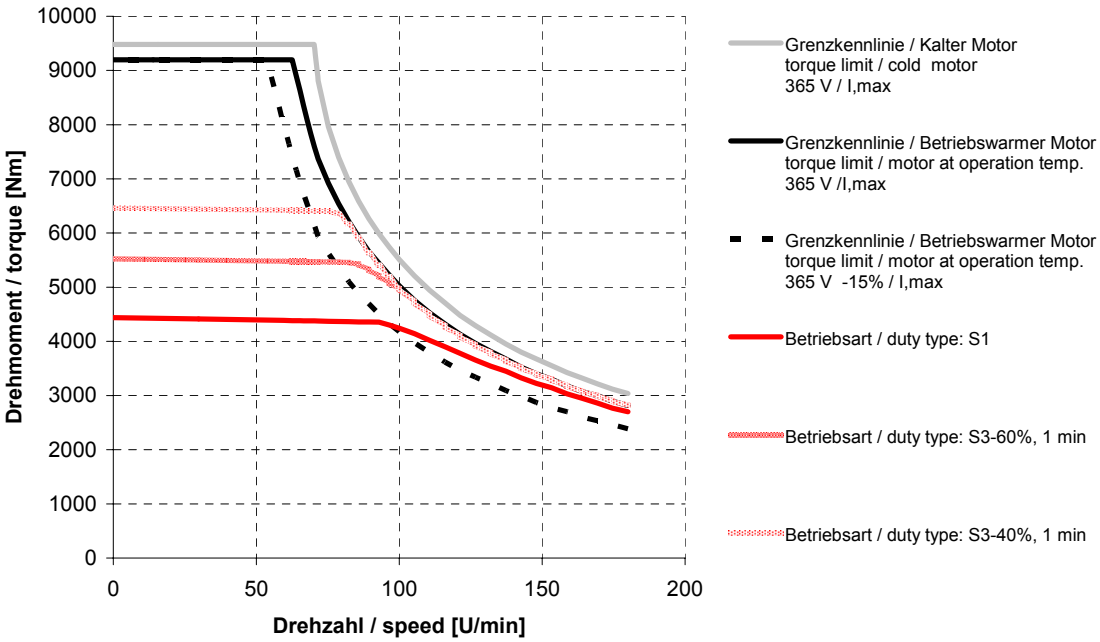

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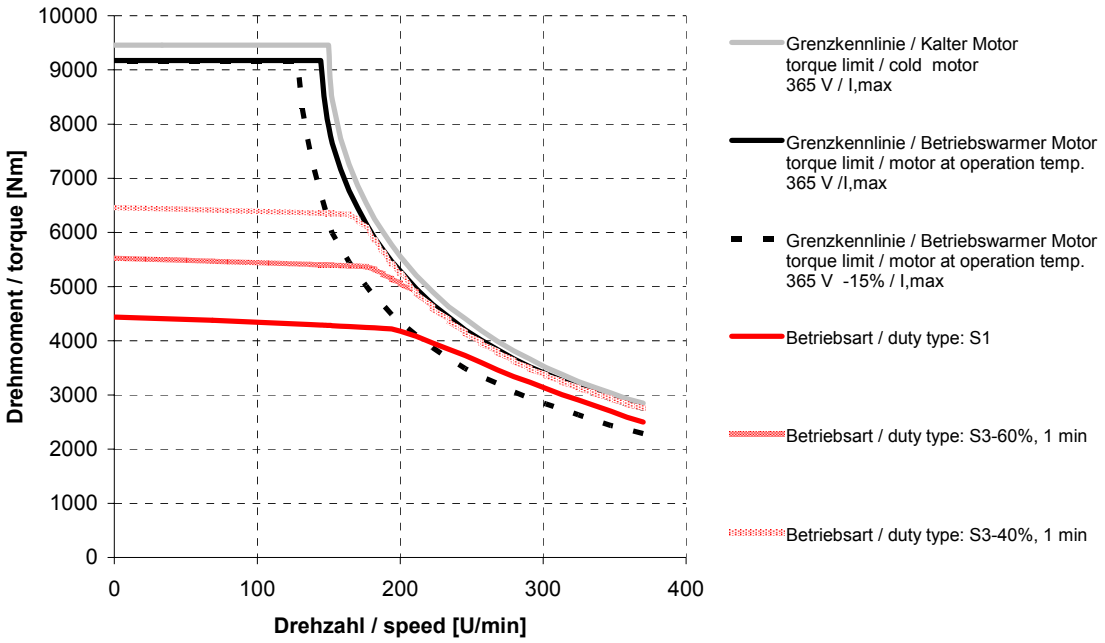

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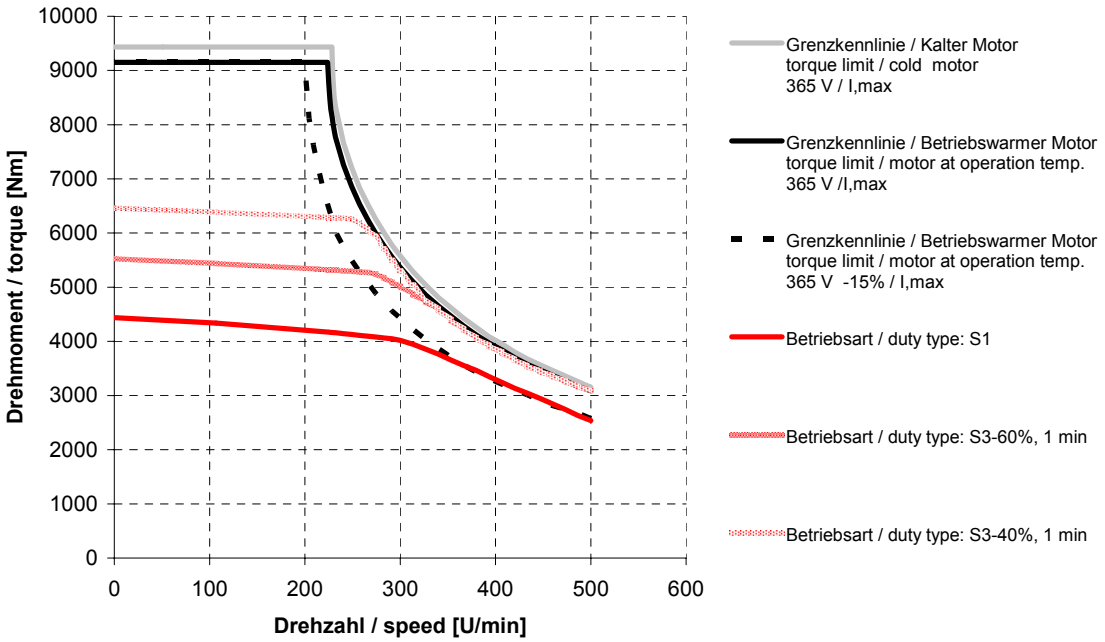

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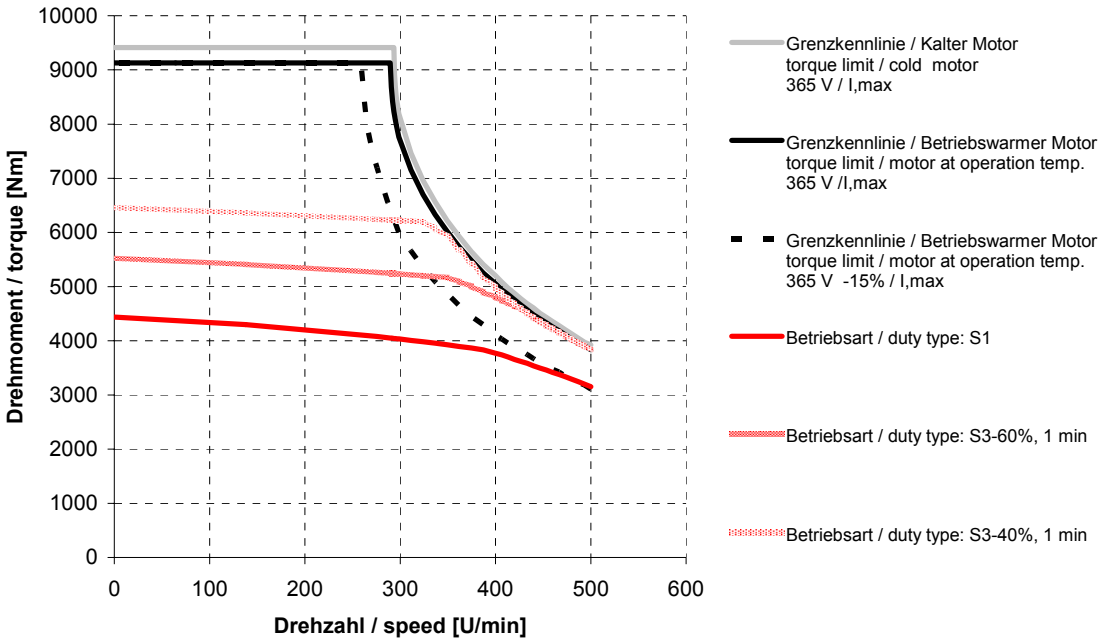

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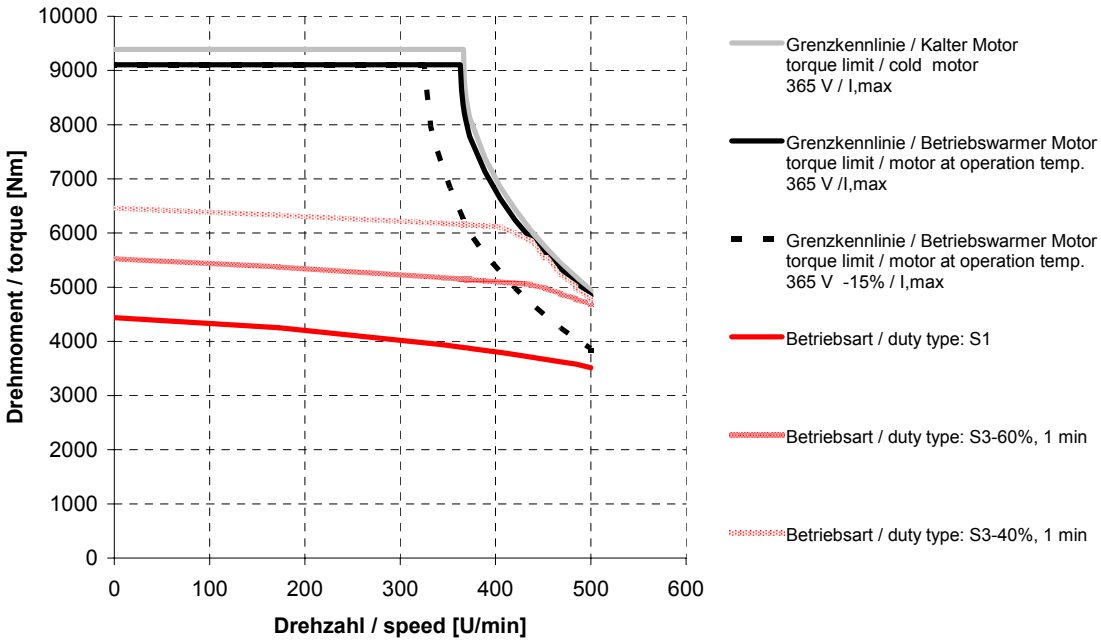

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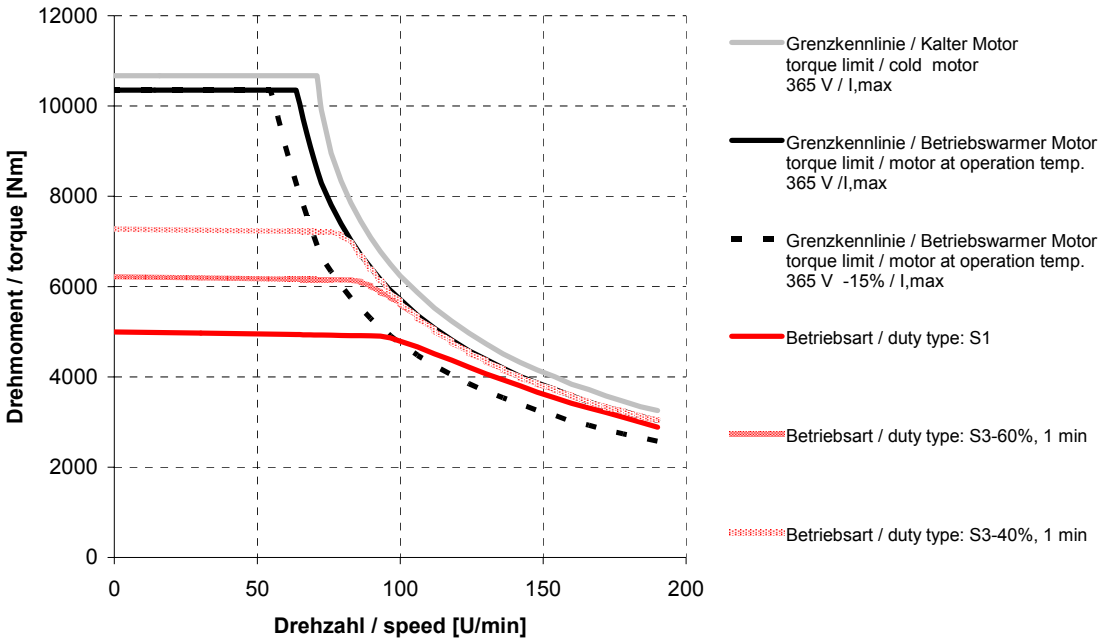

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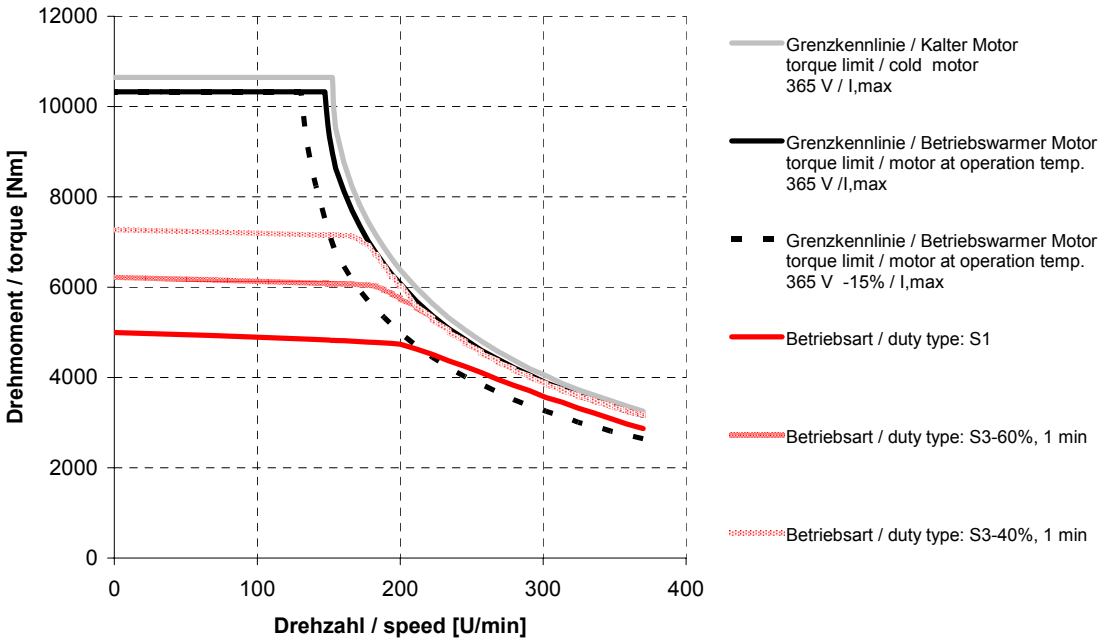

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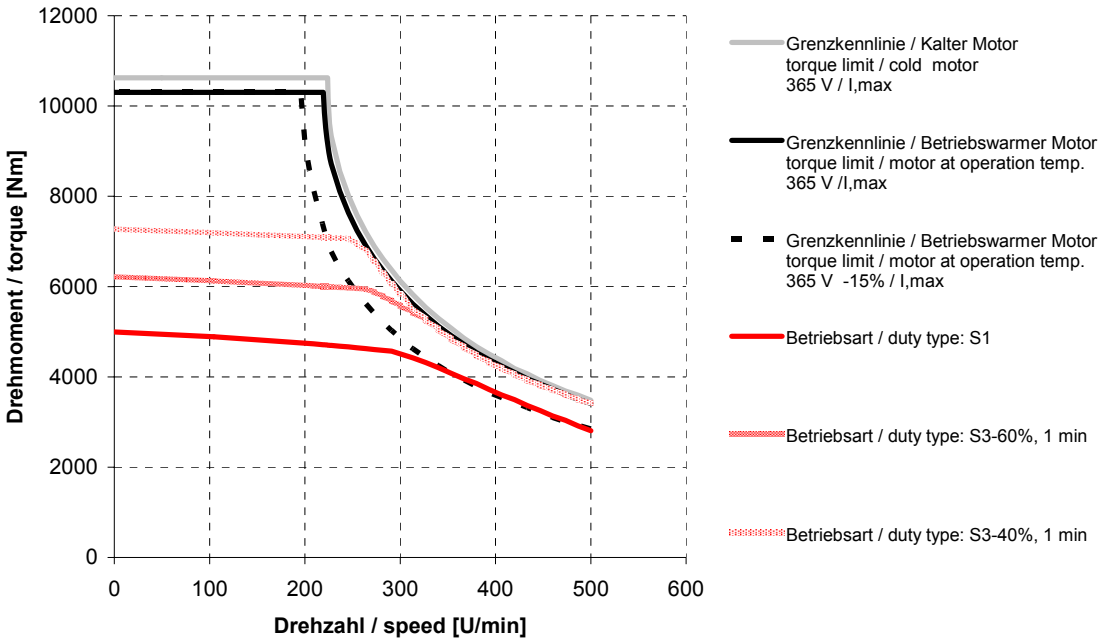

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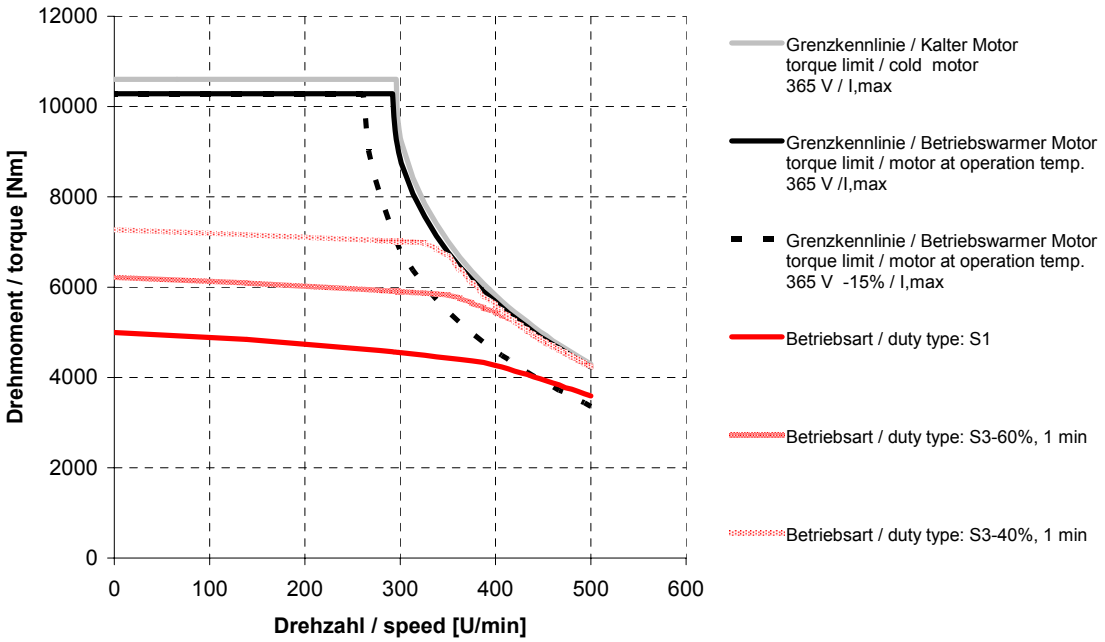

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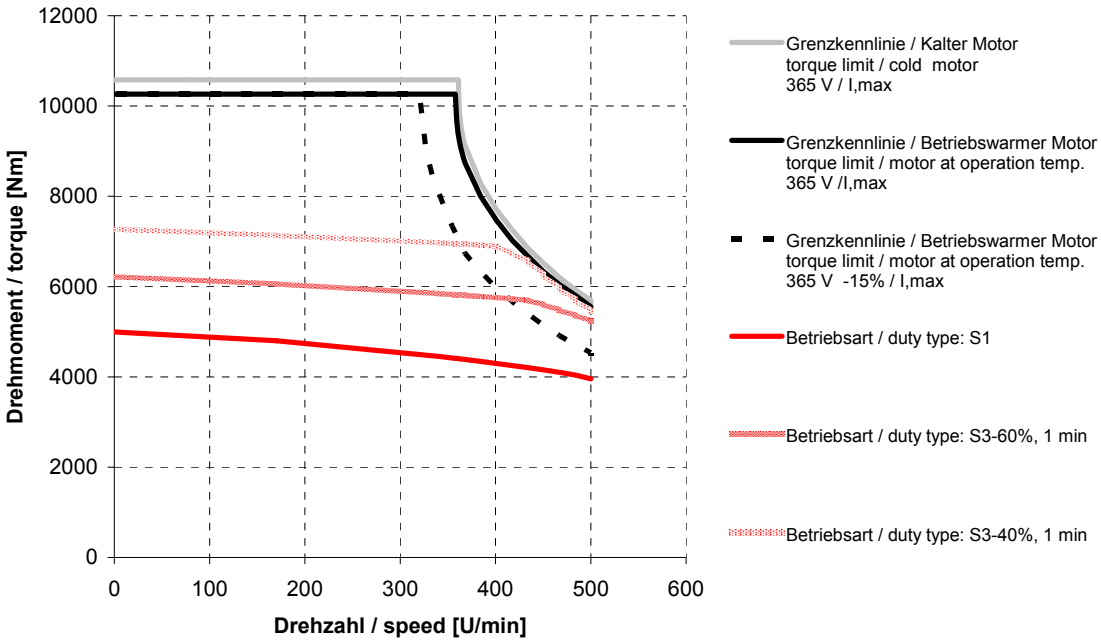

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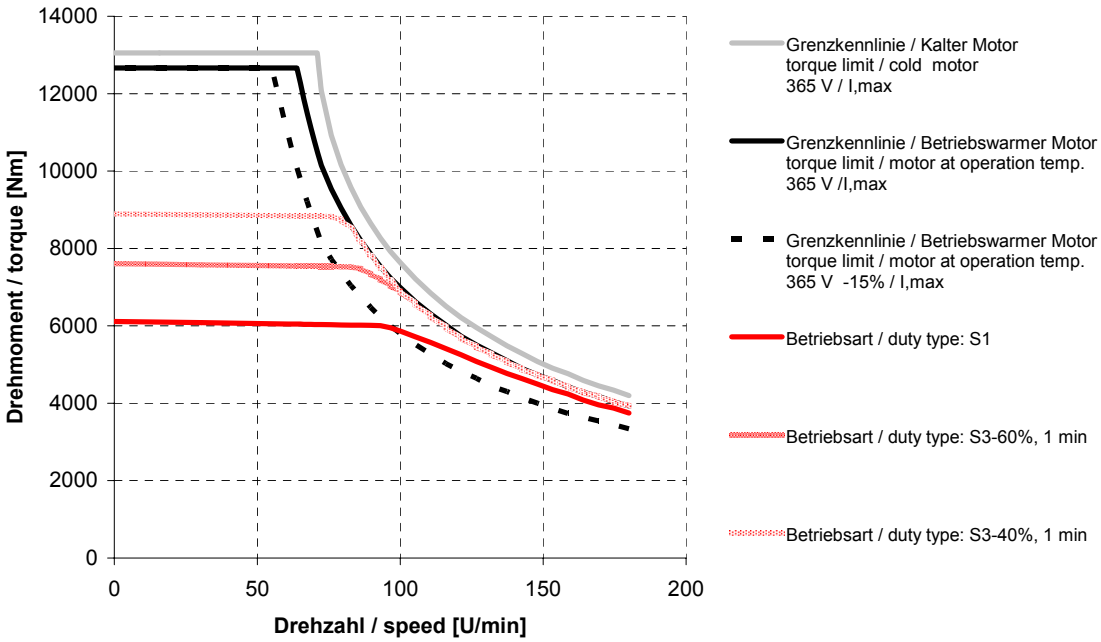

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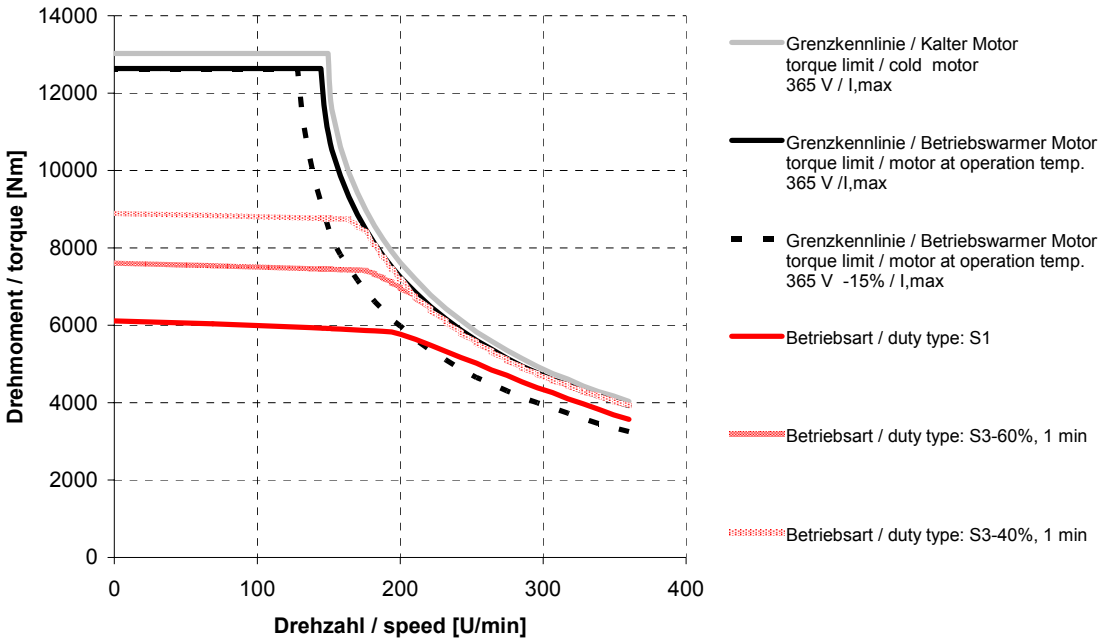

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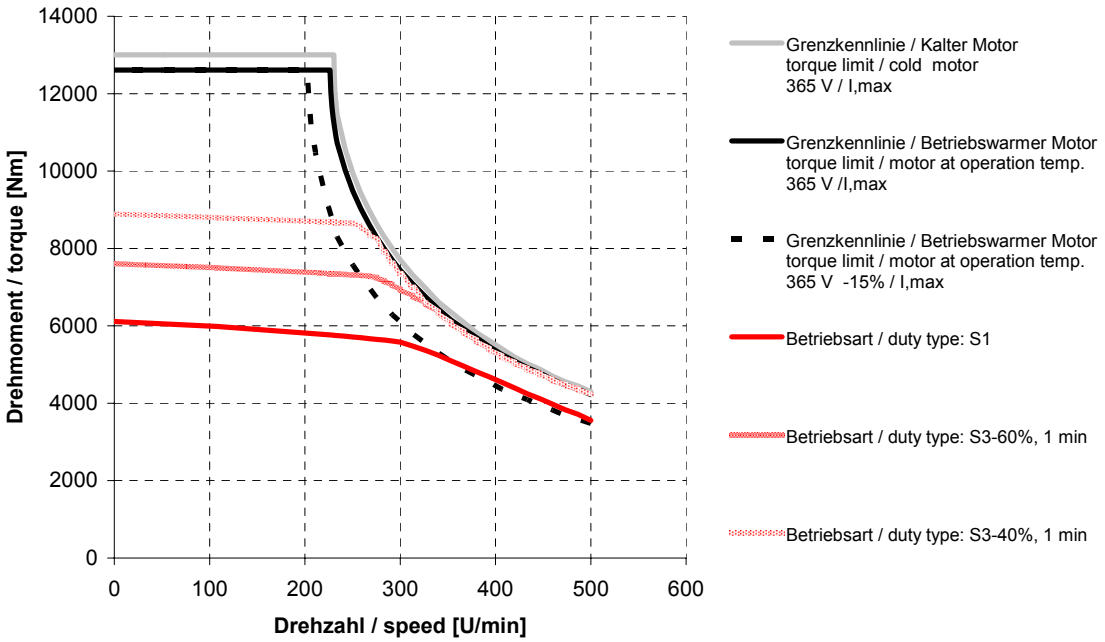

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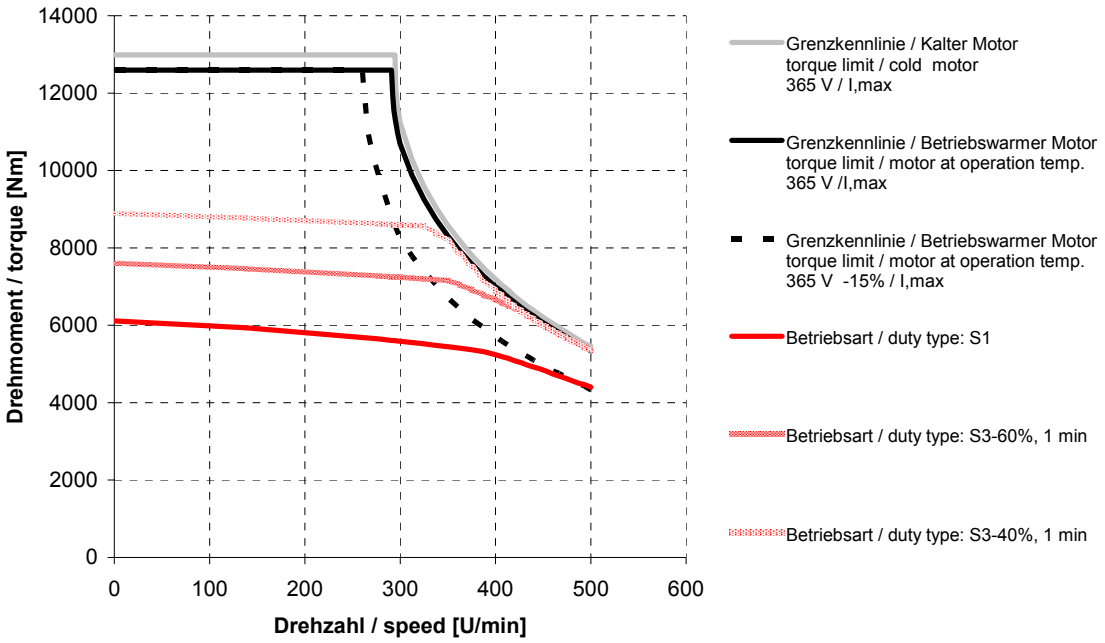

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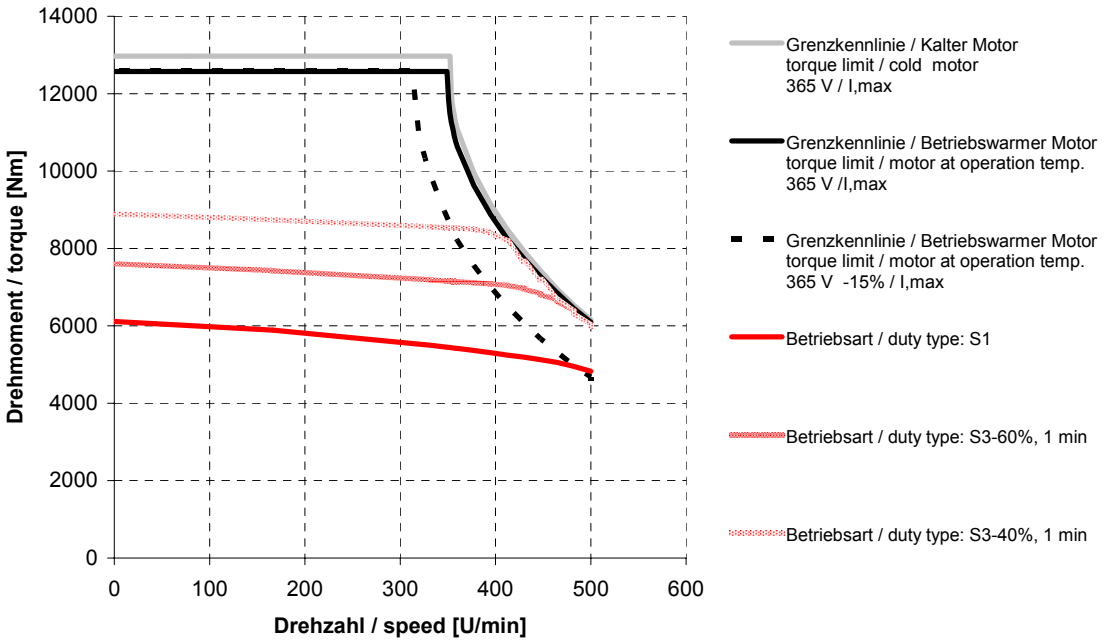

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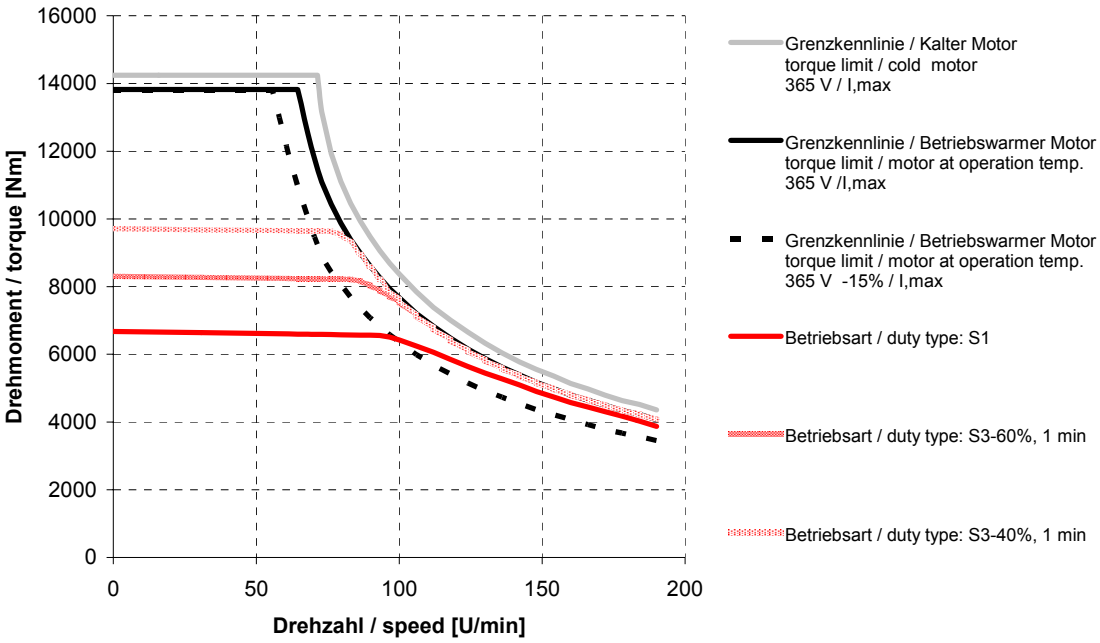

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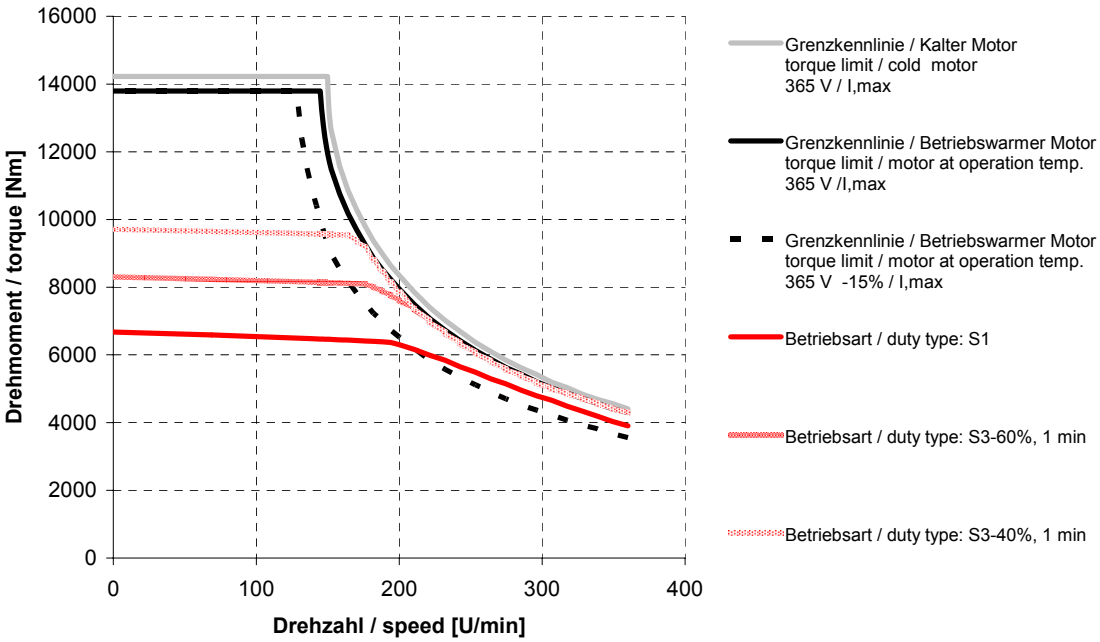

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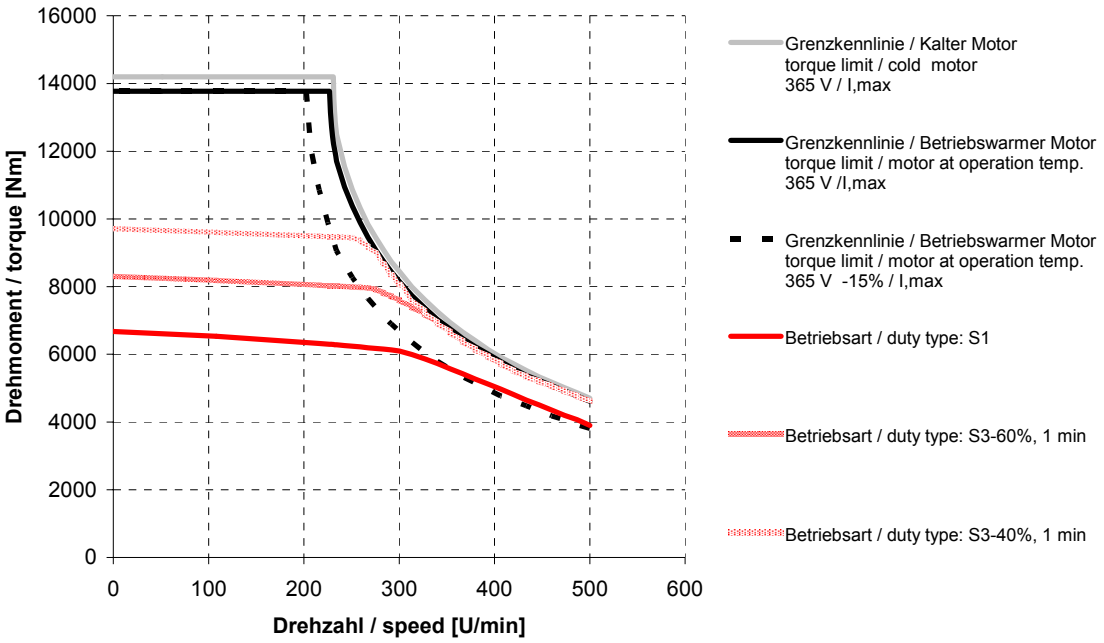

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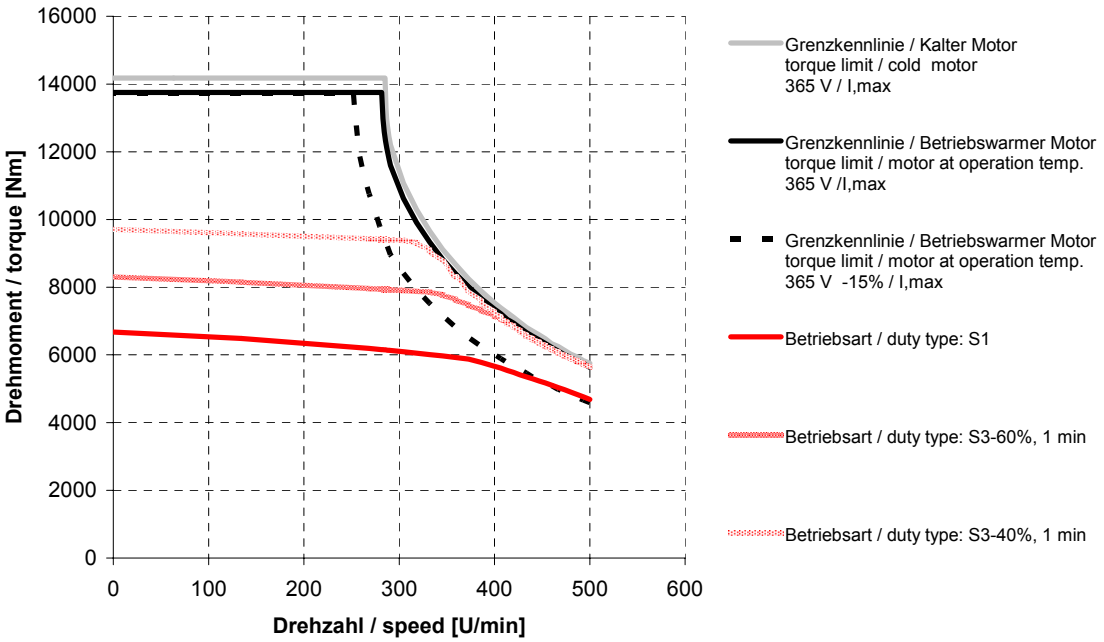

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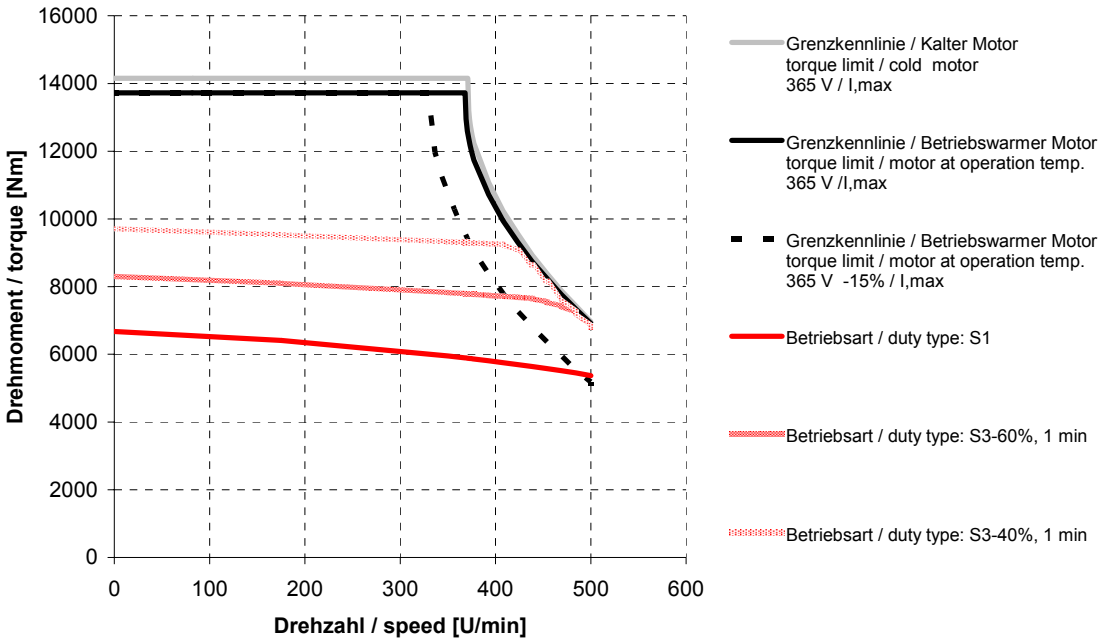

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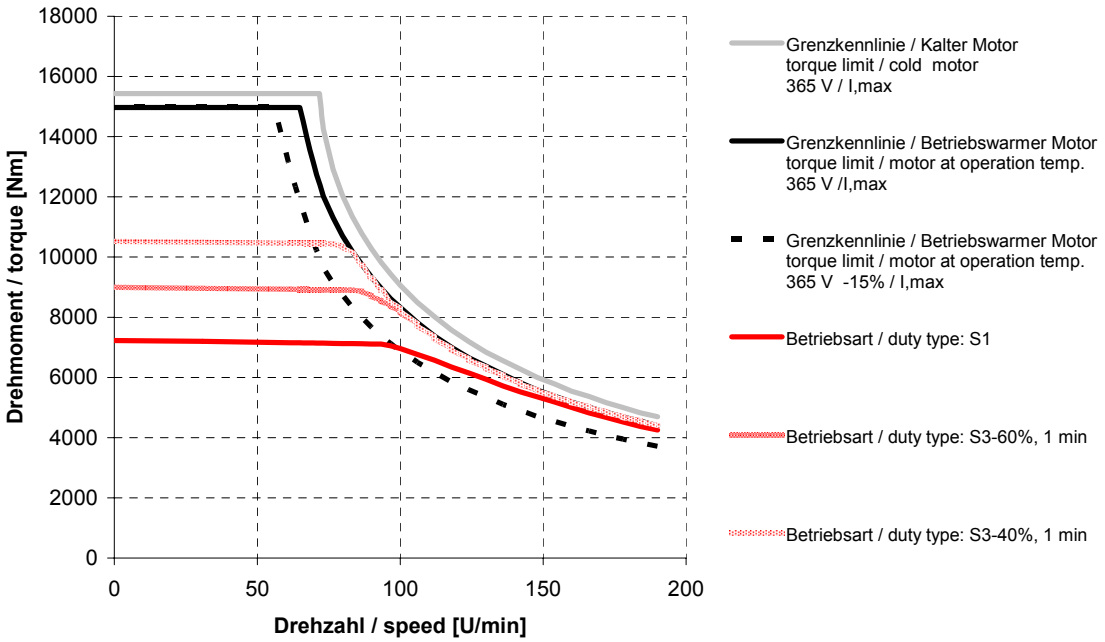

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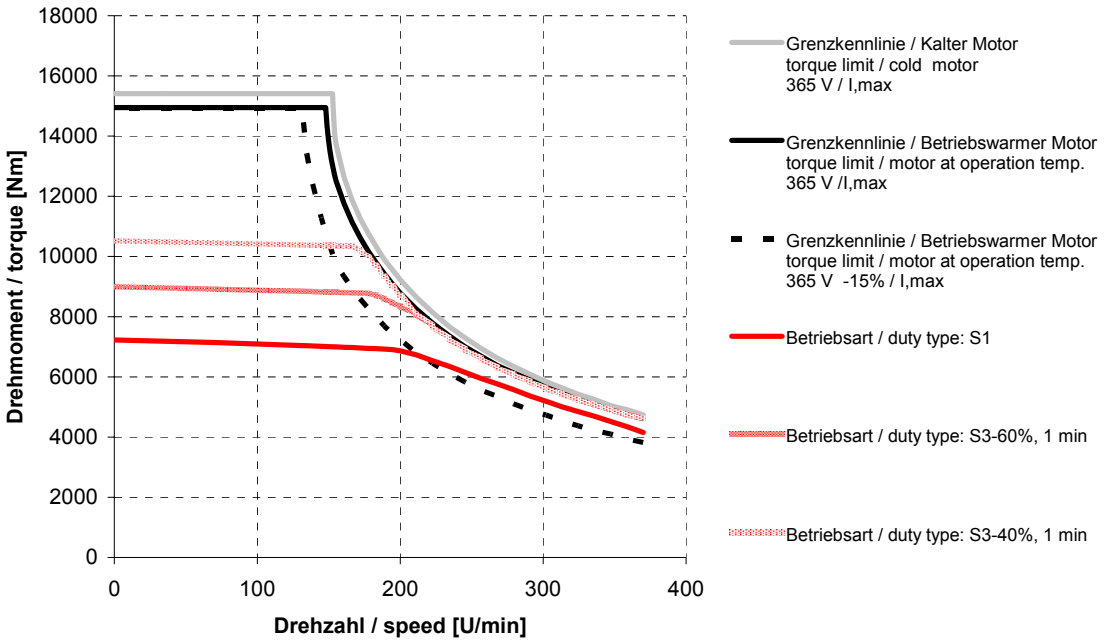

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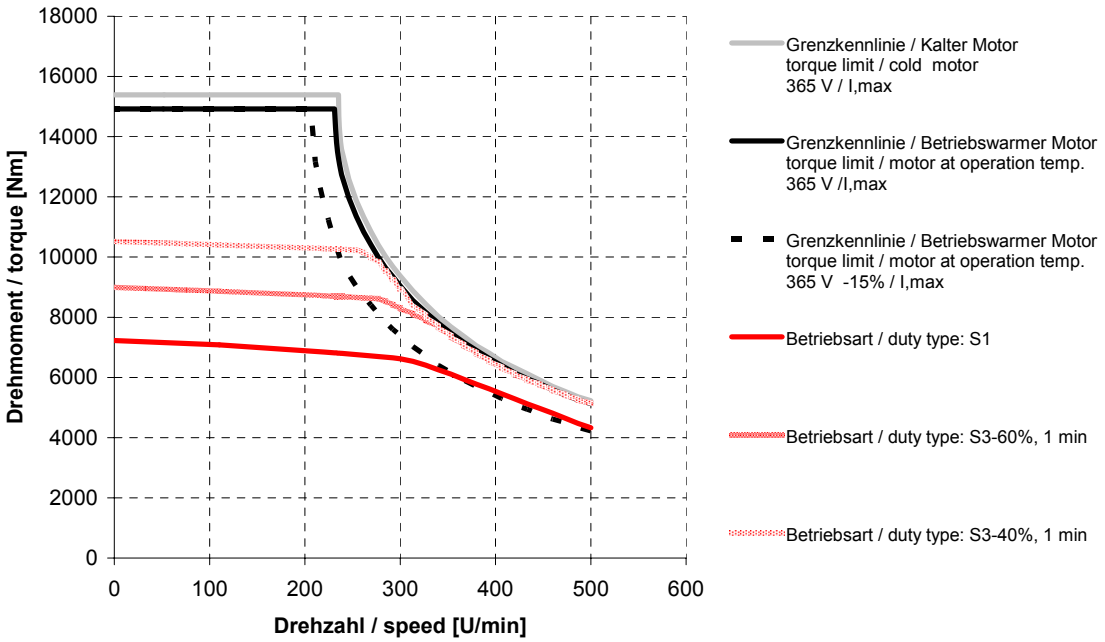

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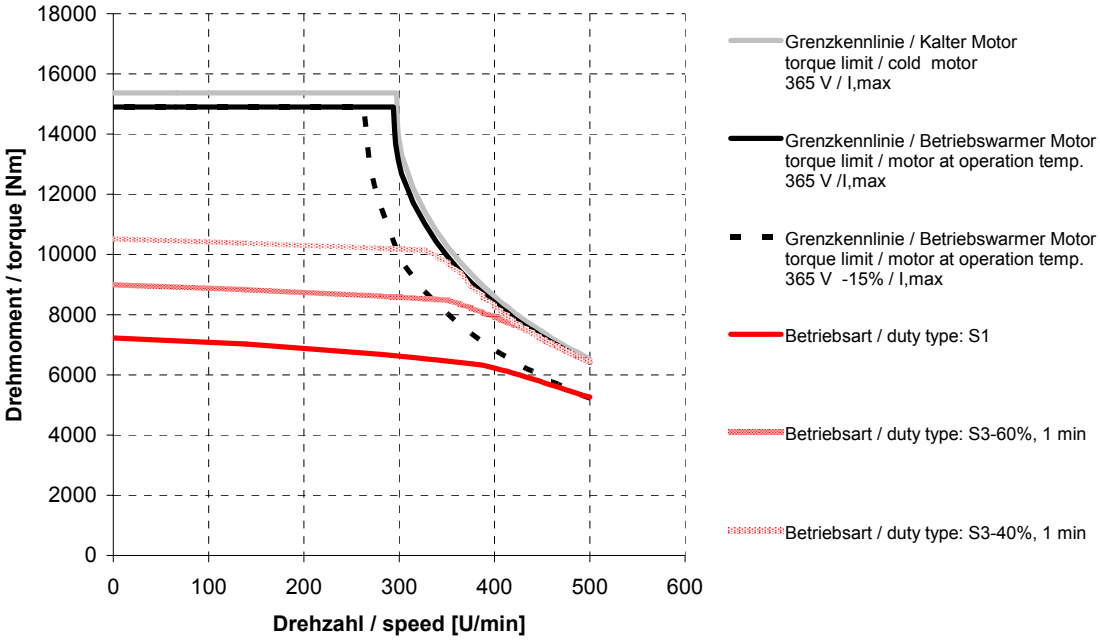

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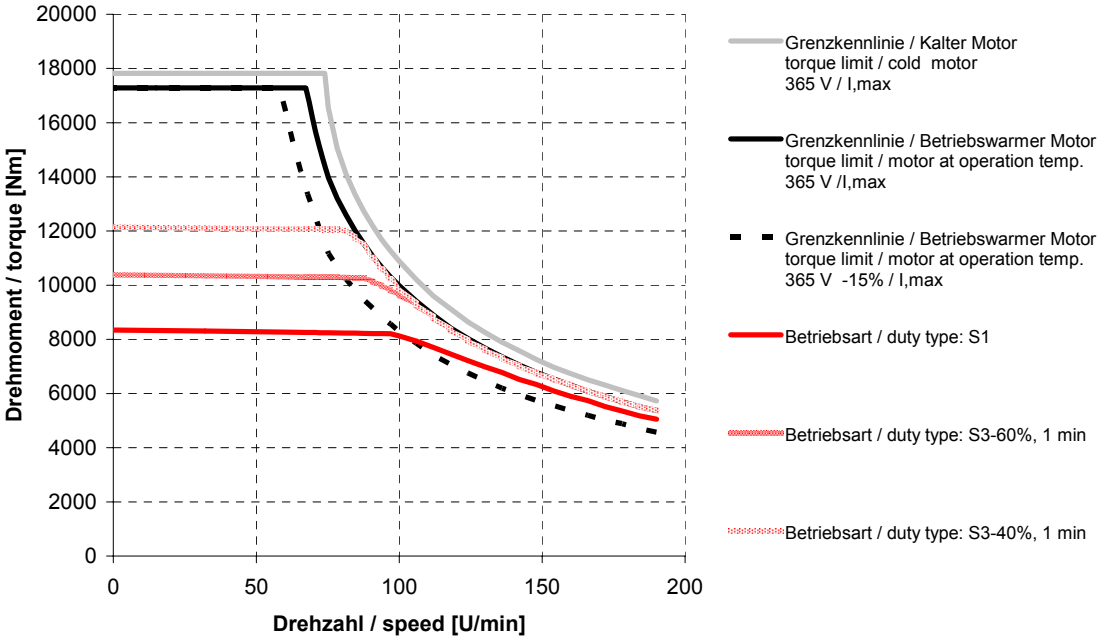

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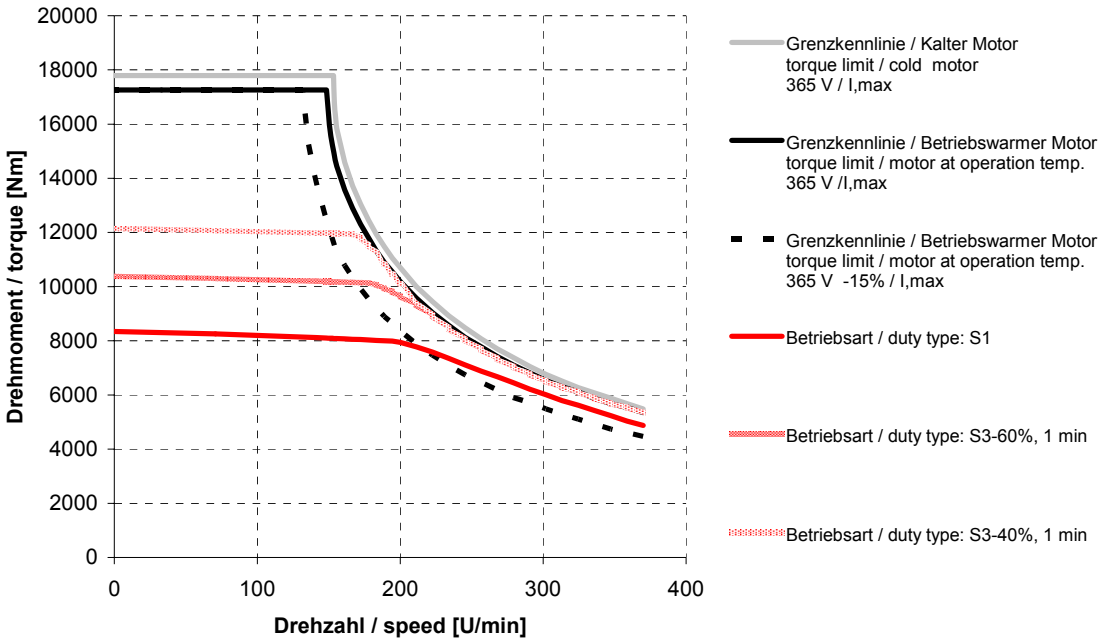

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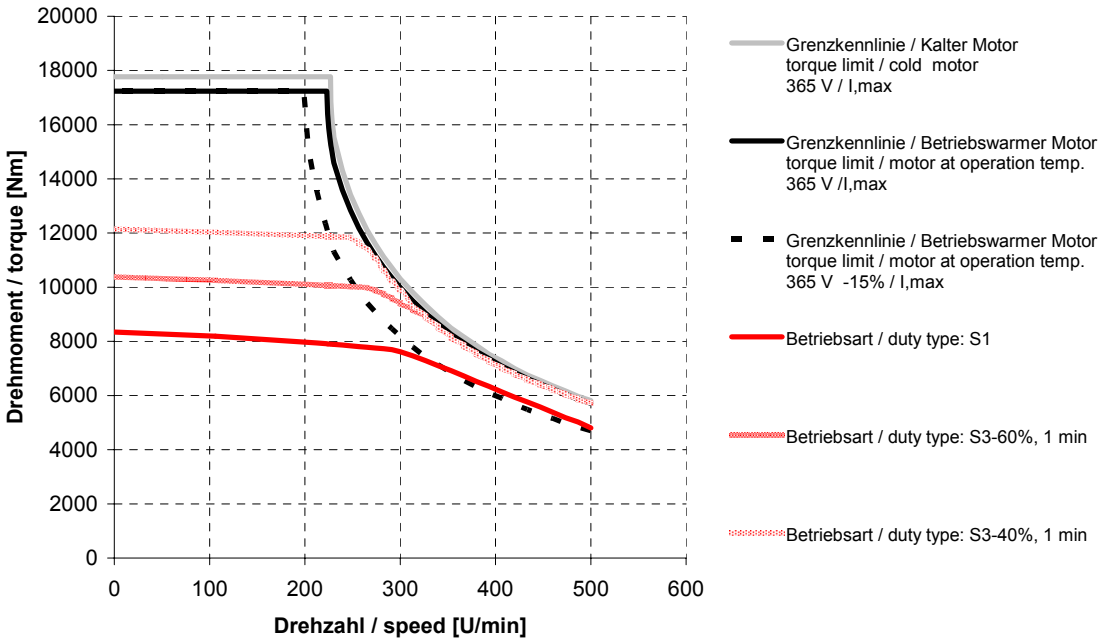

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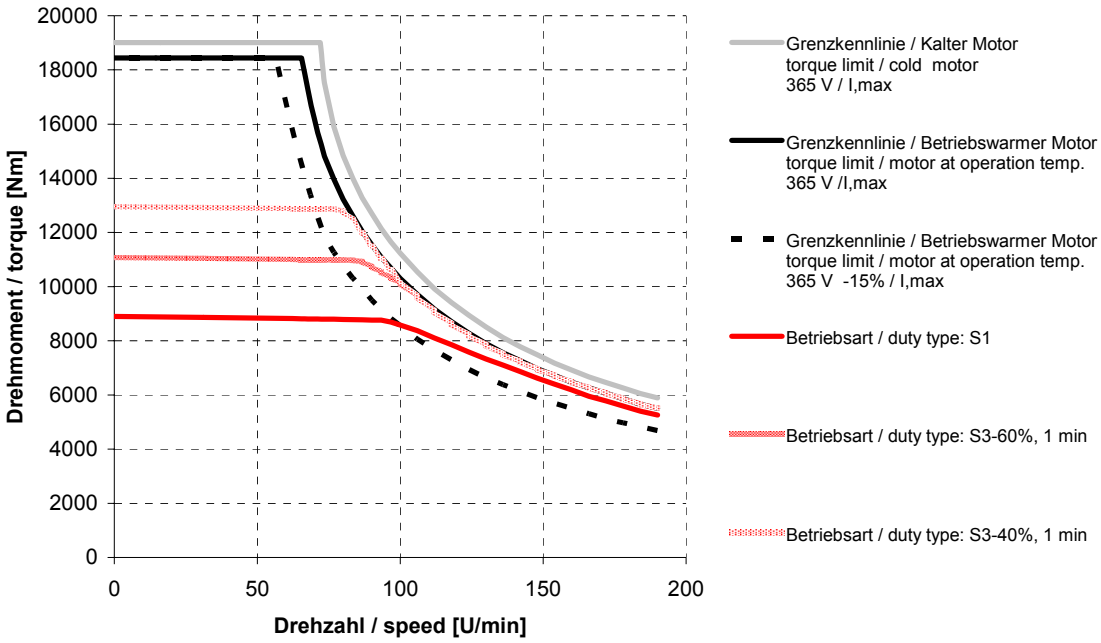

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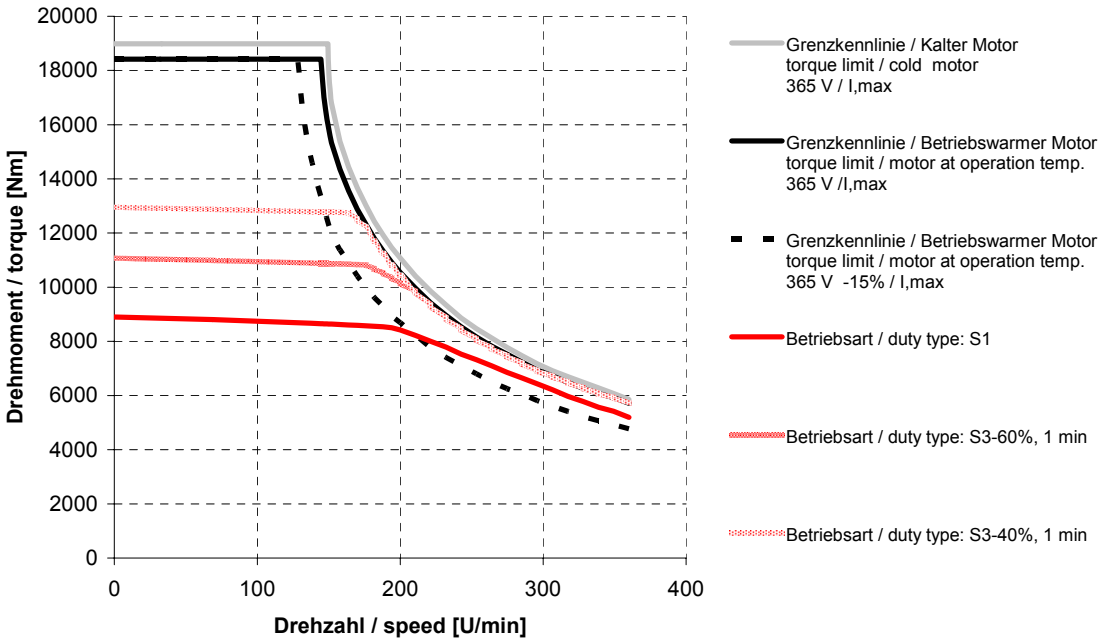

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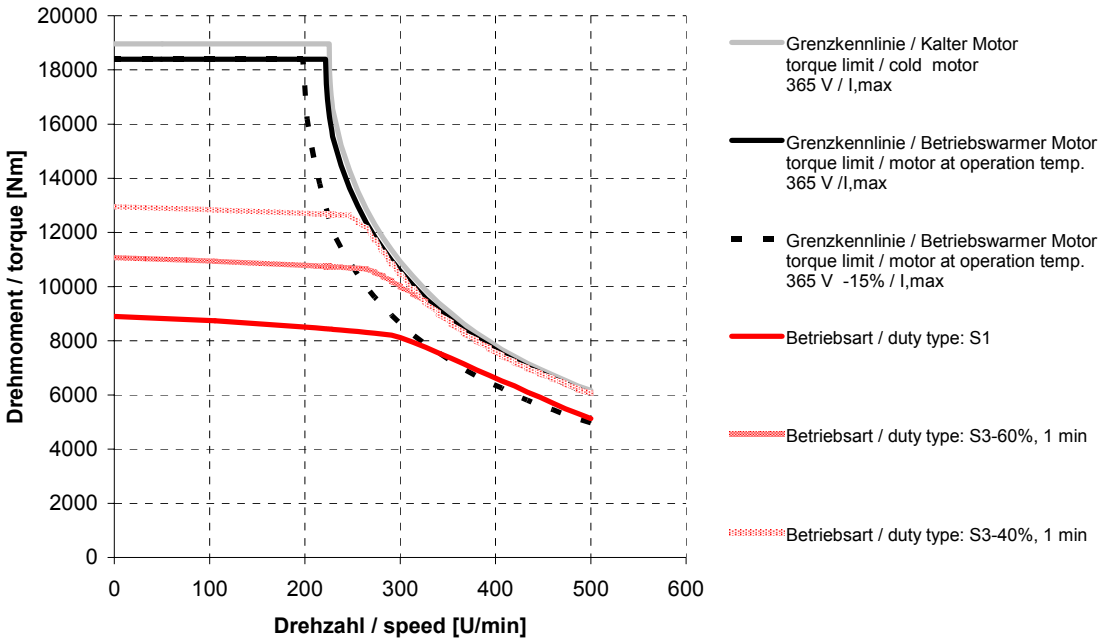

5.5. Characteristic curves DST2-400..54 W

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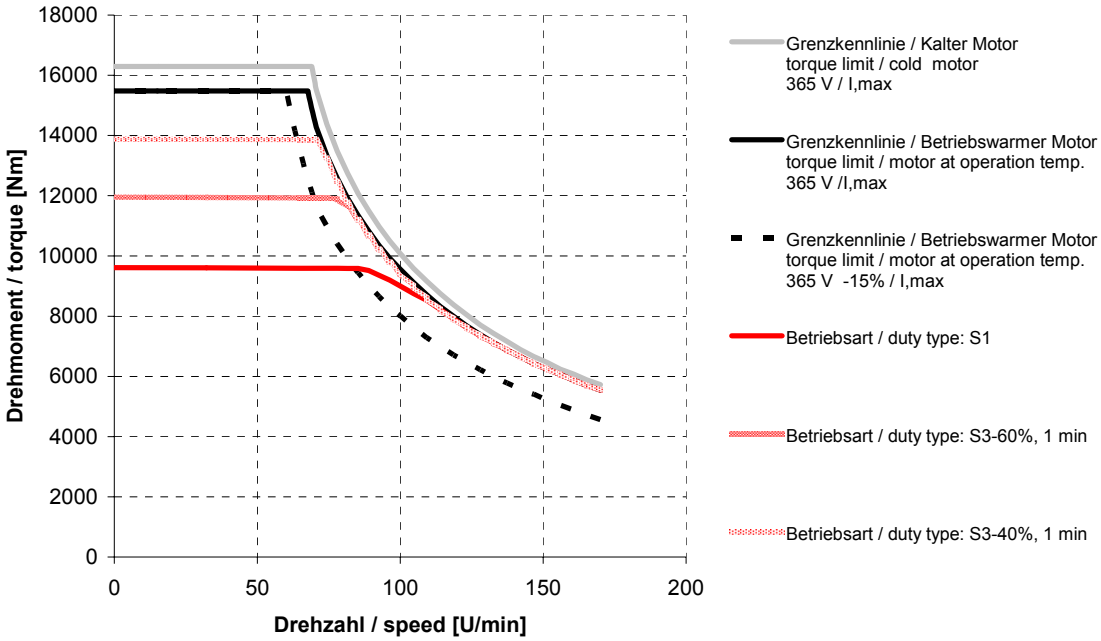

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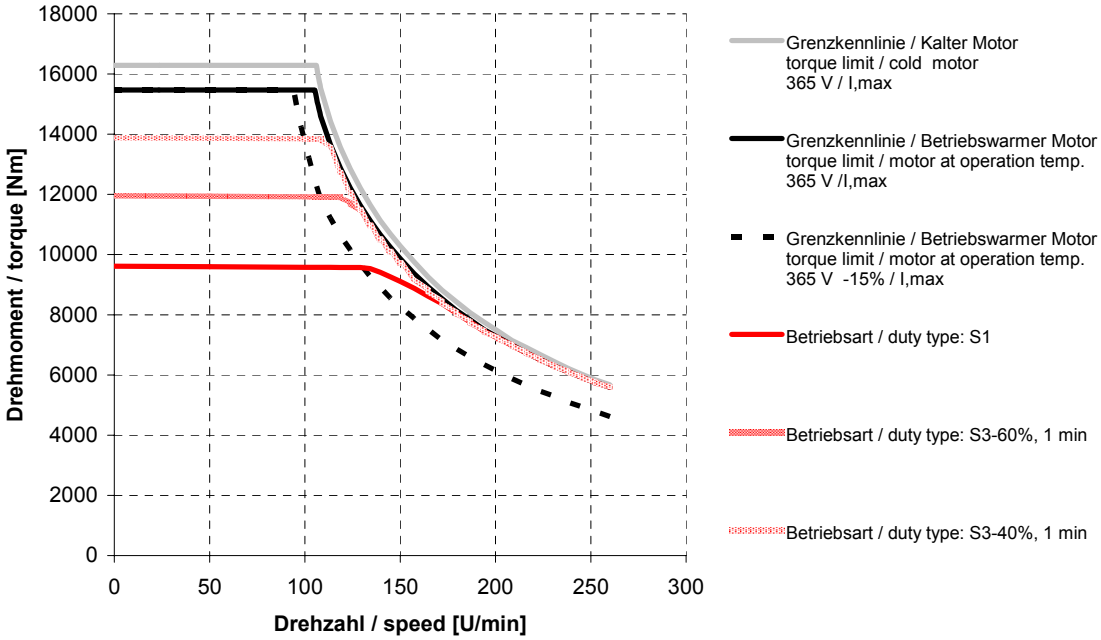

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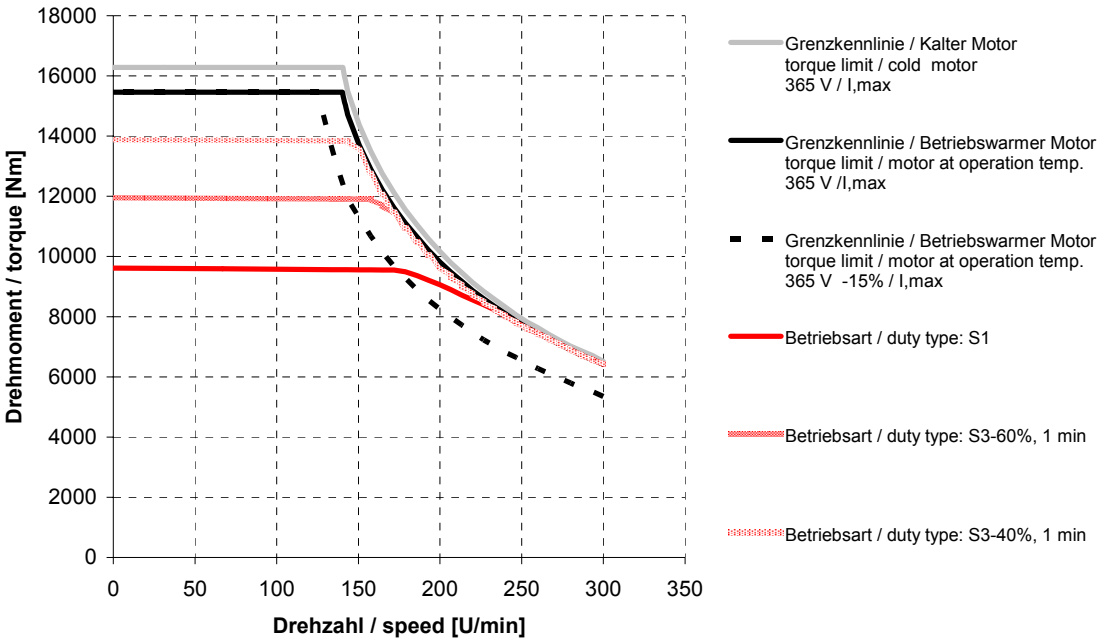

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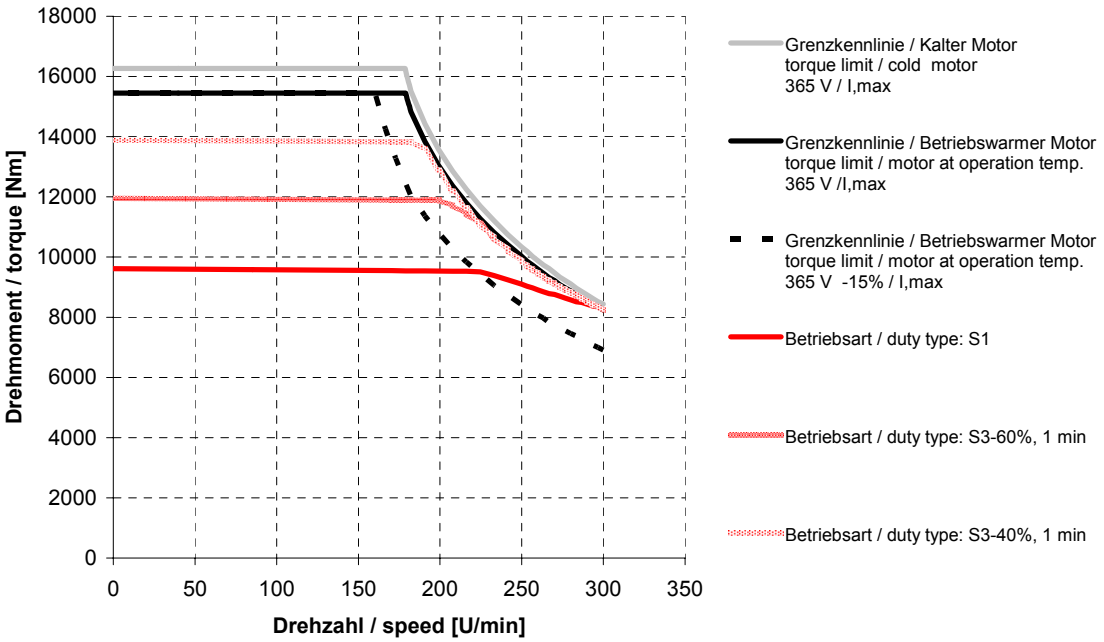

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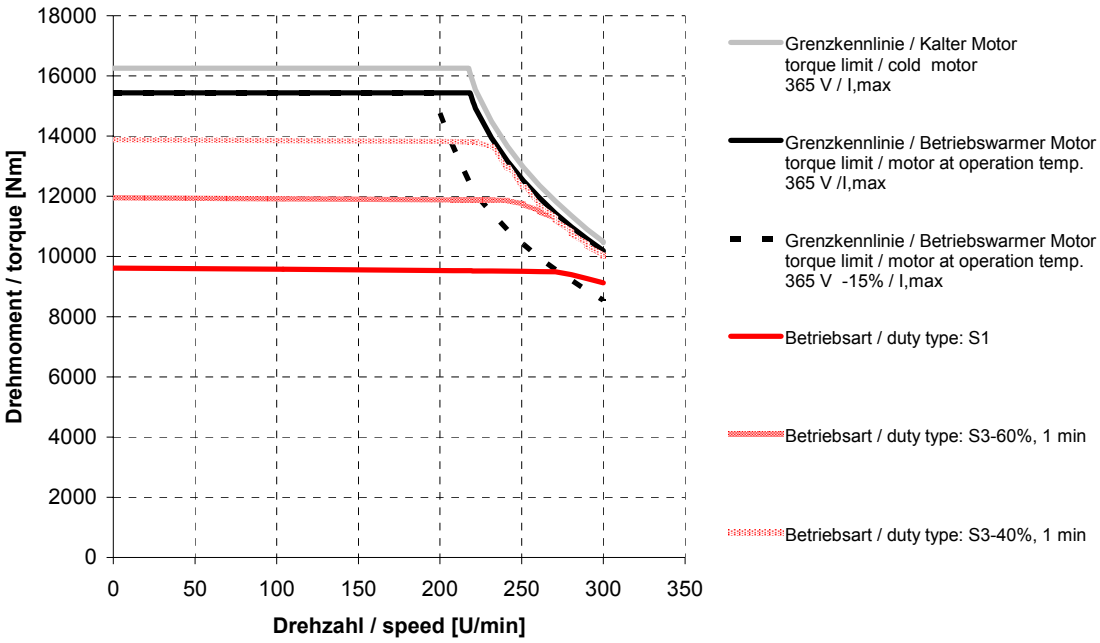

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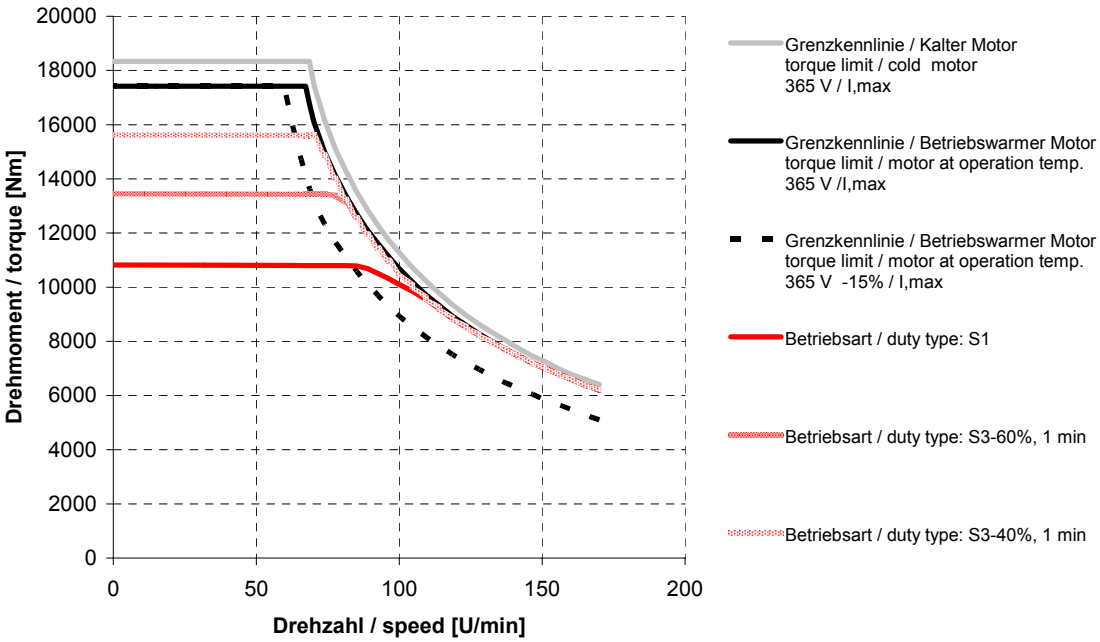

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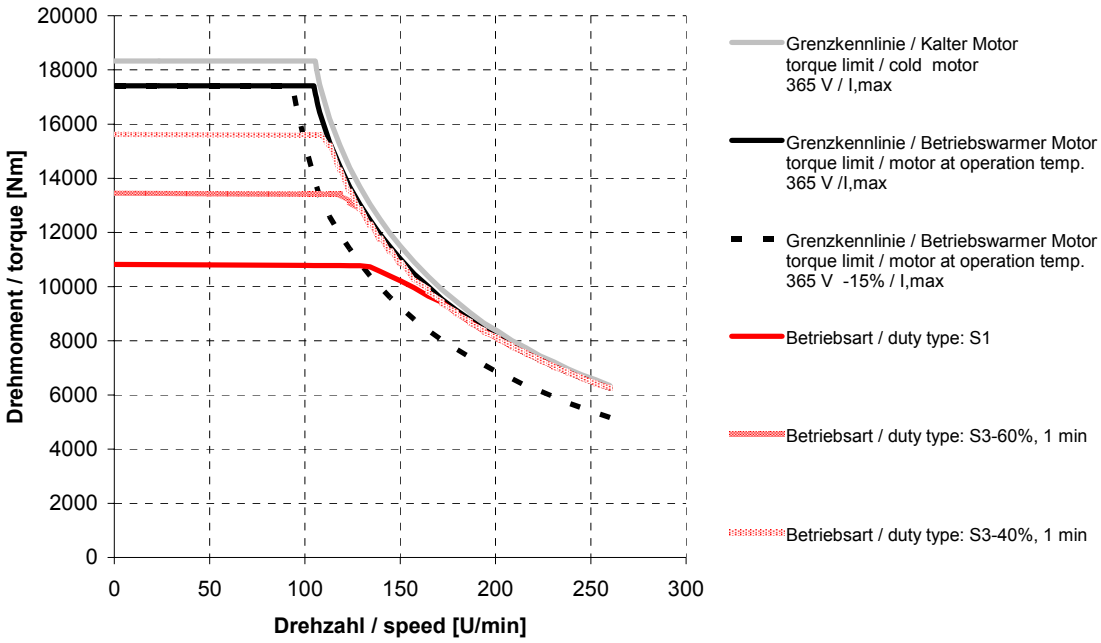

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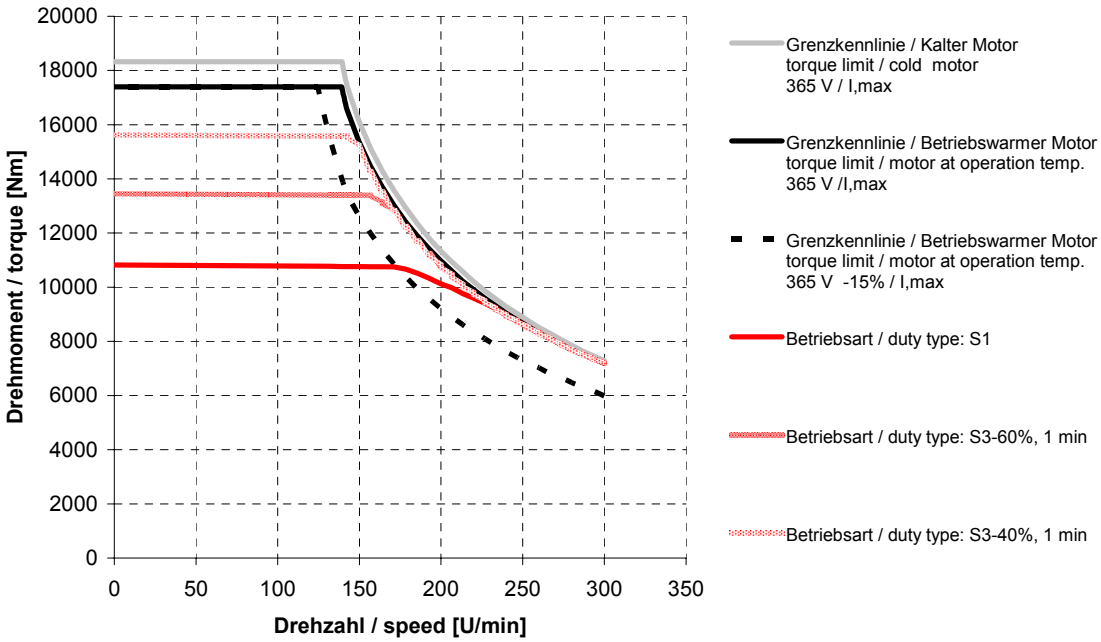

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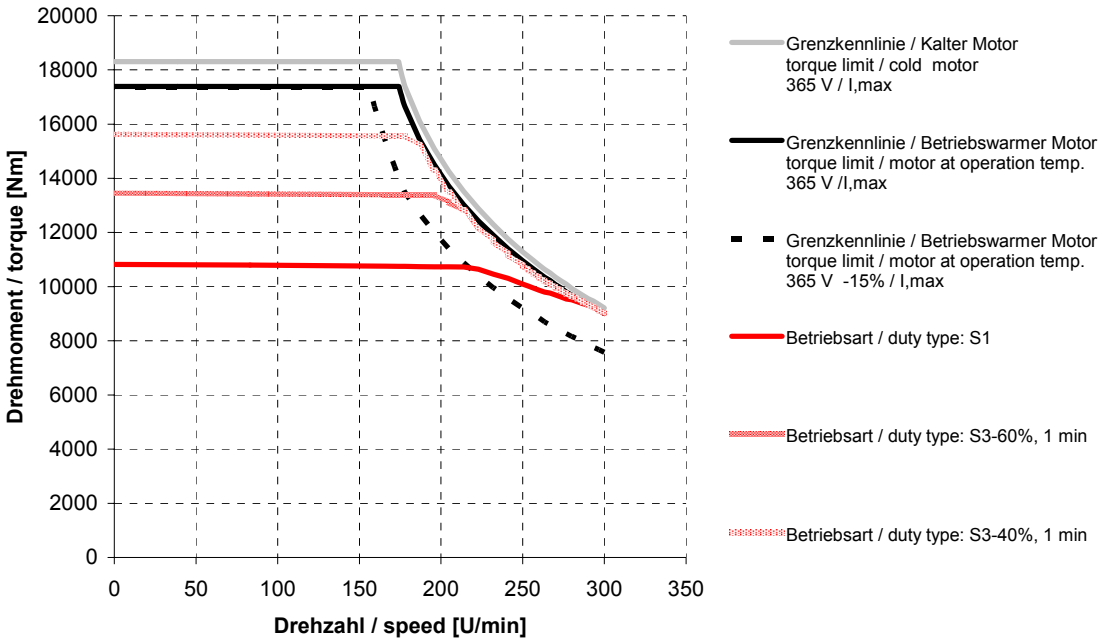

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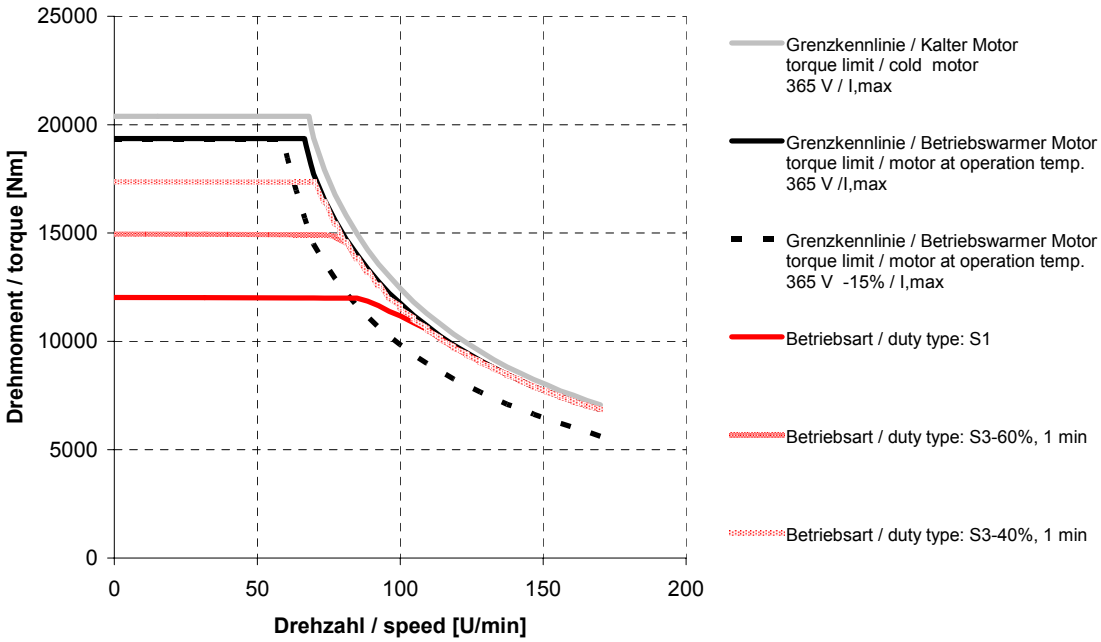

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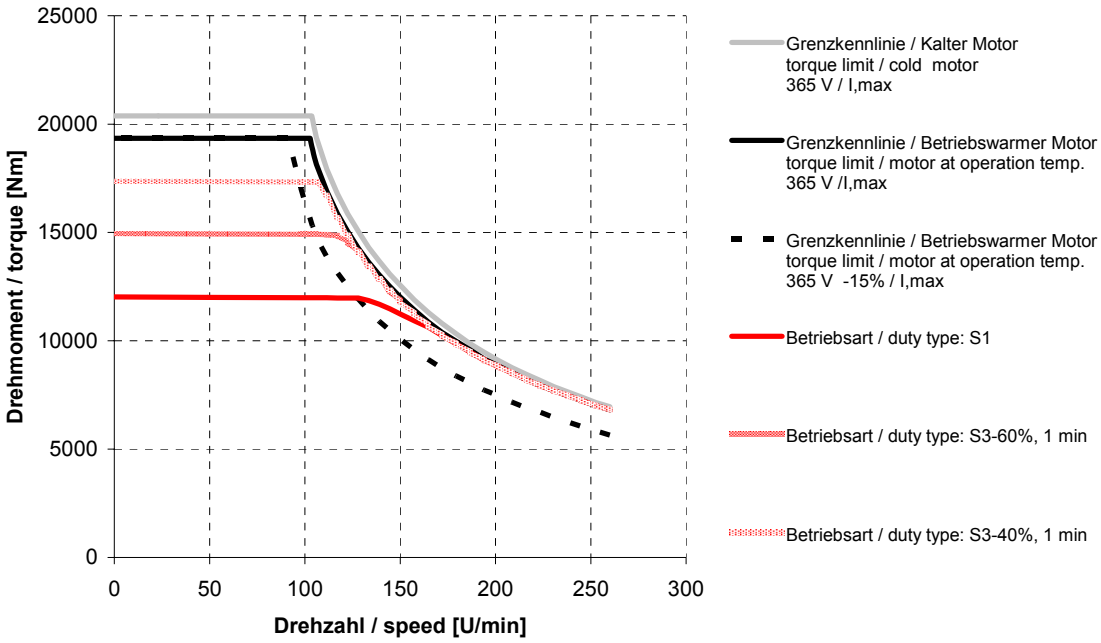

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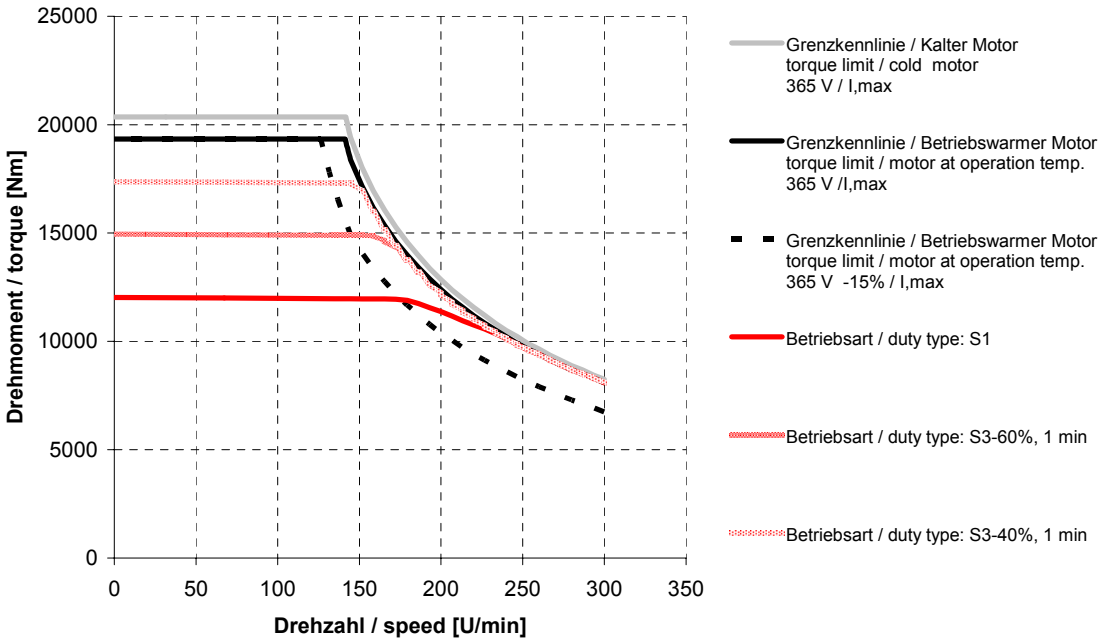

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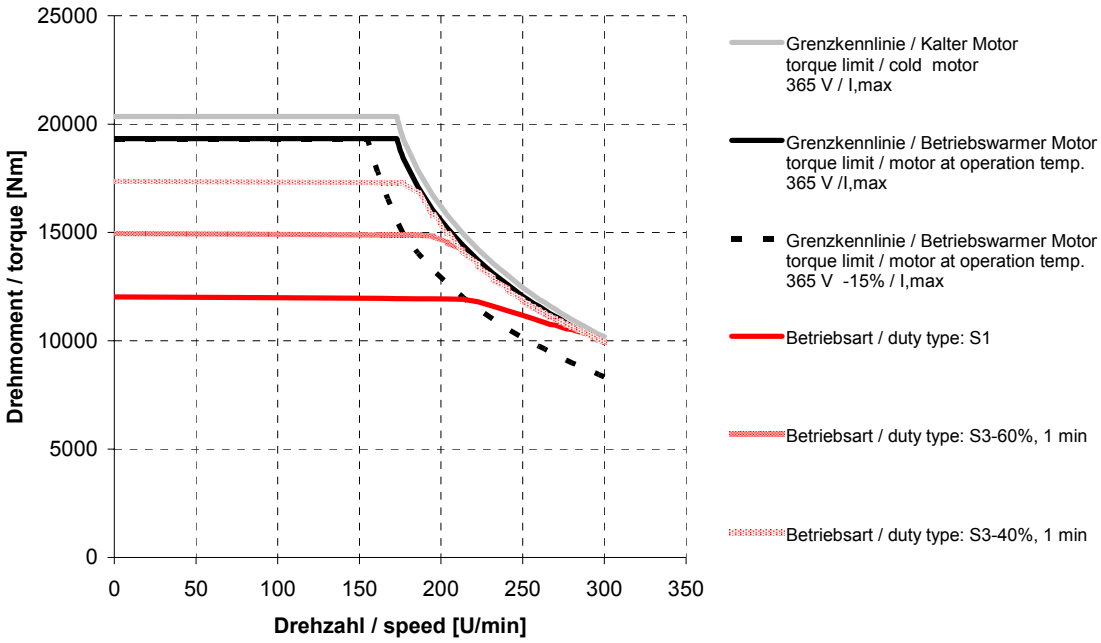

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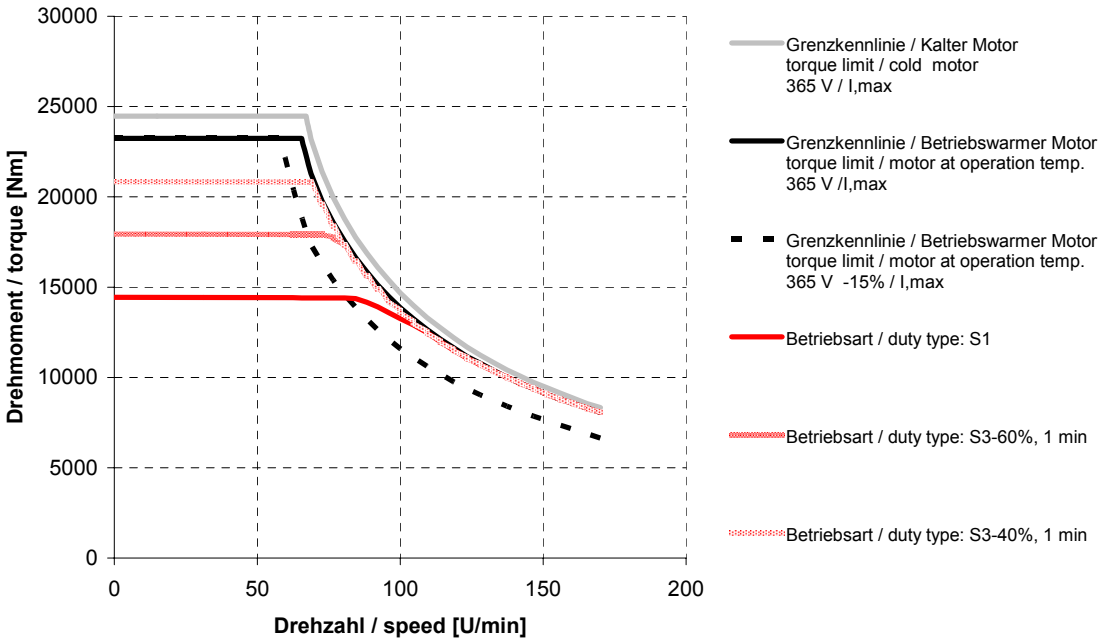

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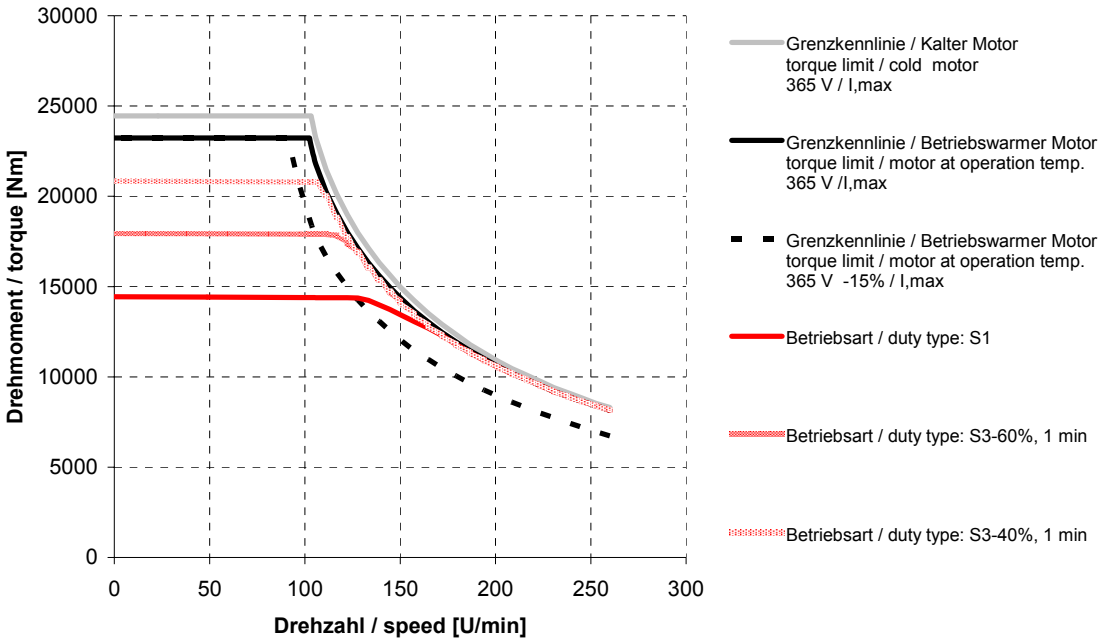

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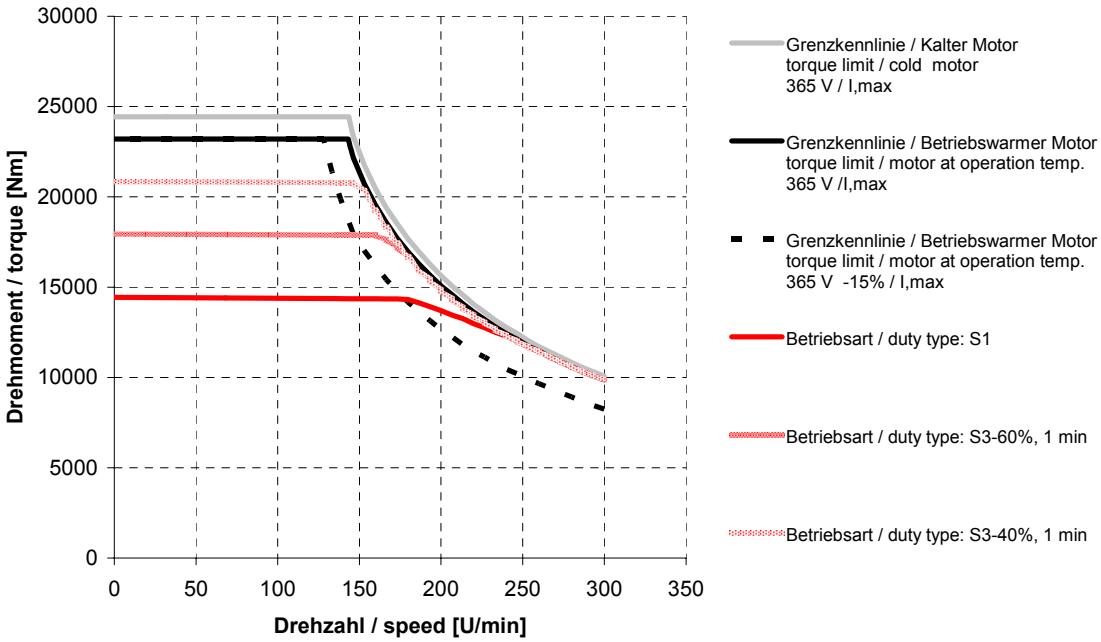

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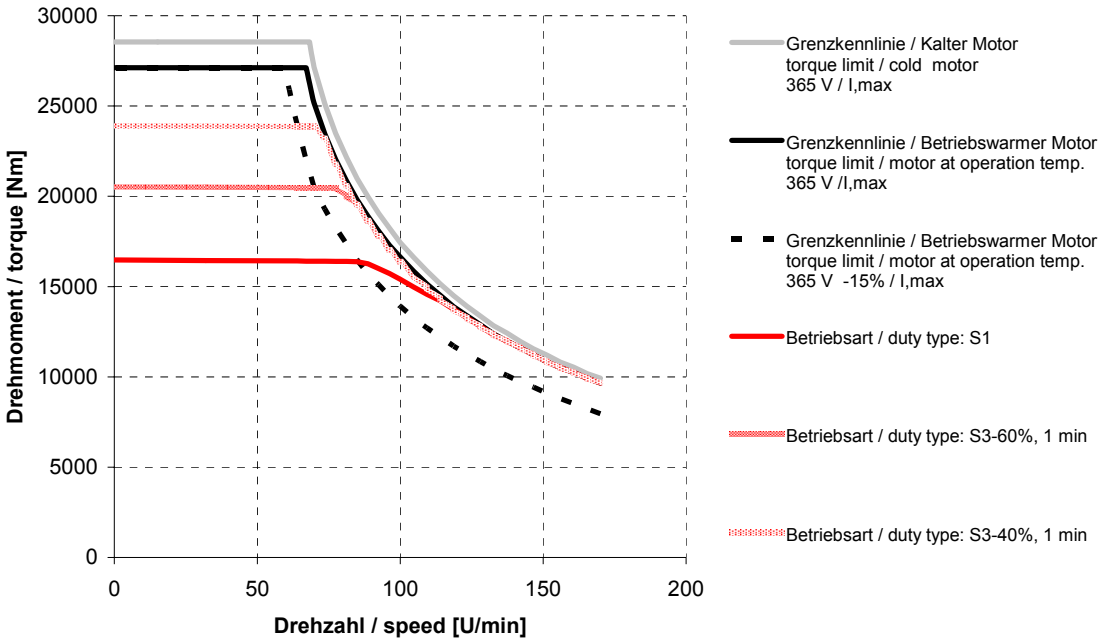

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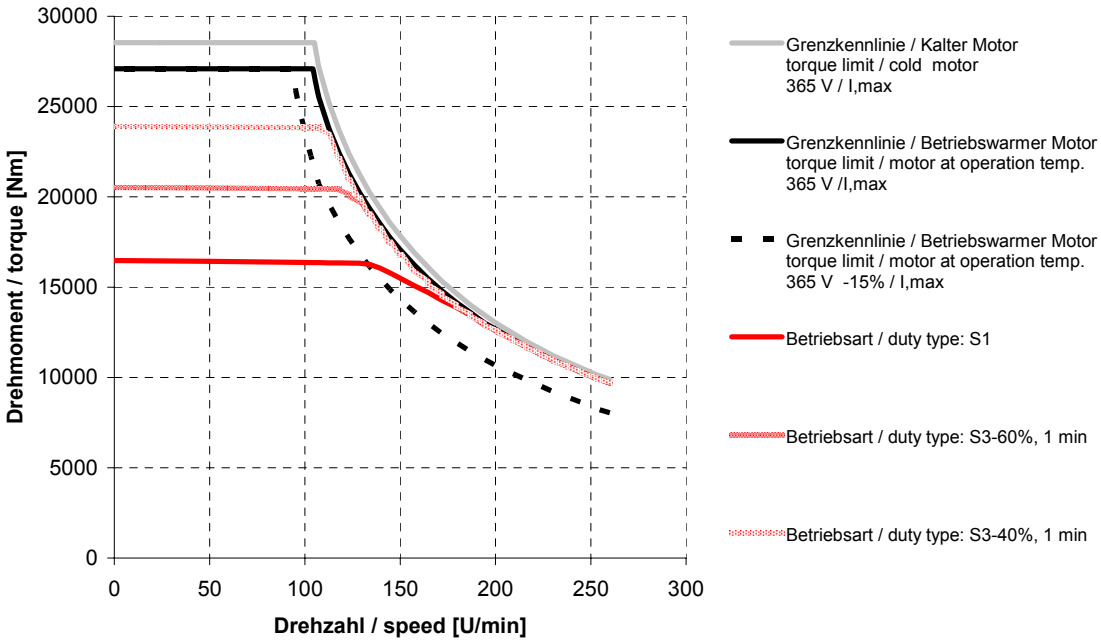

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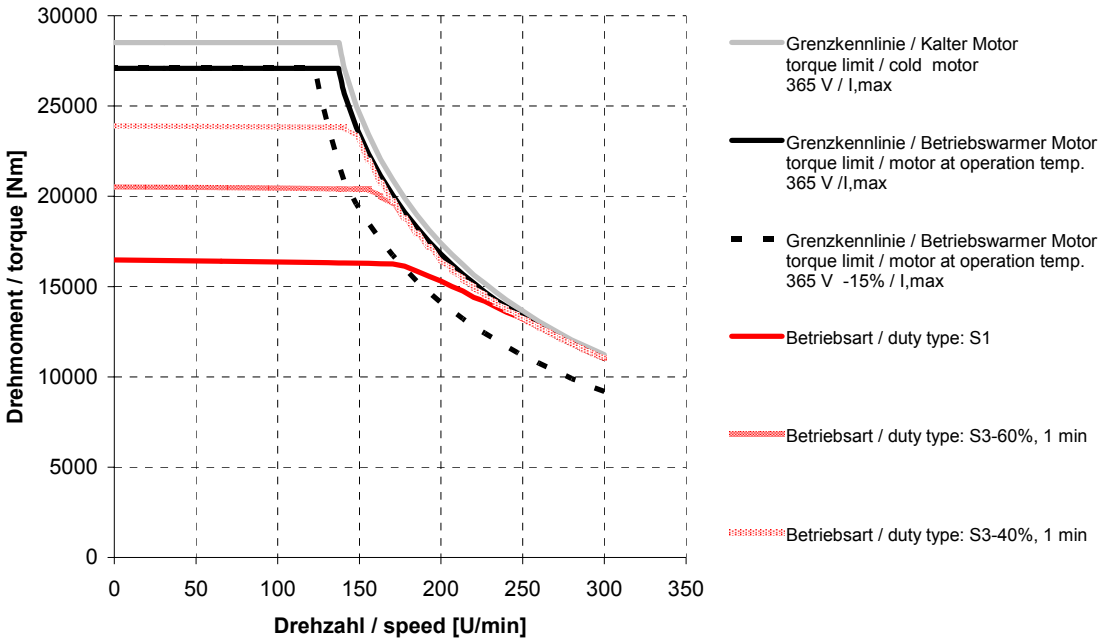

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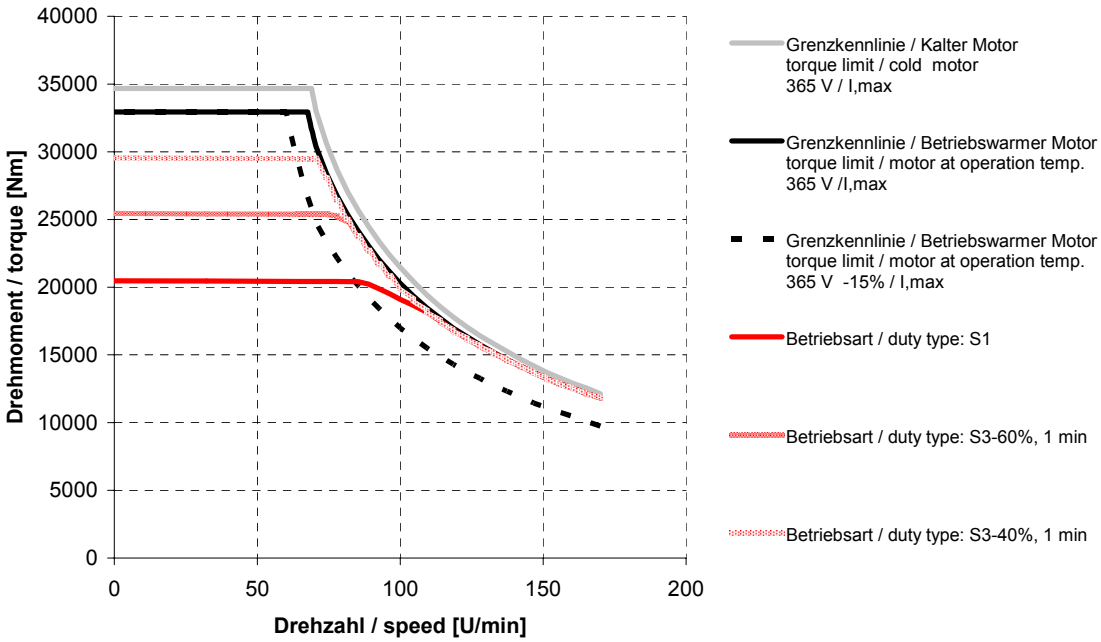

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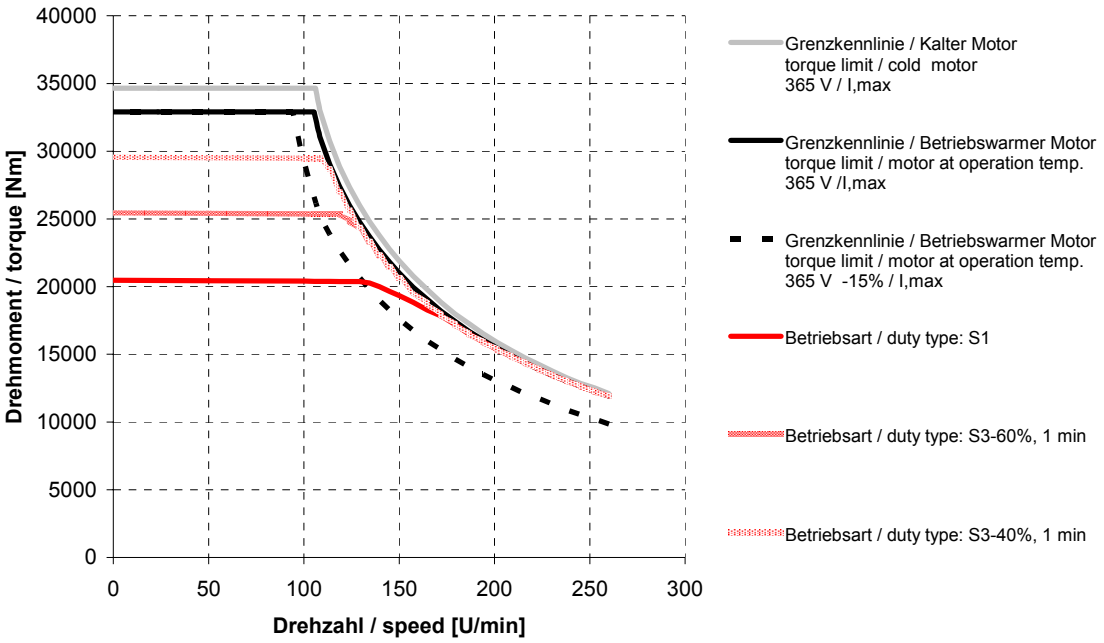

6. Commissioning and maintenance instructions

For information on commissioning the motors, please request a copy of our commissioning and maintenance instructions, specifying the designation TAM 00695.

7. Declaration of Conformity

This chapter contains general information on EC Directives, the CE marking and the Declaration of Conformity.

7.1. What is an EC Directive?

EC Directives stipulate specific requirements. The Directives are compiled by the corresponding organisations within the EU and transposed by all EU member states into national law to guarantee free trade within the European Union.

An EC Directive only outlines basic minimum requirements. More detailed requirements are included in standards to which the Directive makes direct reference.

7.2. What does the CE marking signify?

a) The CE marking symbolises conformity to all the obligations incumbent on manufacturers for the product by virtue of the Community Directives providing for its affixing.

b) The CE marking affixed to industrial products symbolises the fact that the natural or legal person having affixed or been responsible for affixing the said marking has verified that the product conforms to all Community provisions for total harmonisation which apply to it and has been the subject of the appropriate conformity evaluation procedures.

Council Decision 93/465/EEC, appendix I B. a) + c)

We affix the CE marking to the device and include it in the documentation as soon as we have established that the product fulfils the requirements outlined in the relevant Directives.

If this Baumüller product is used in your machine as specified, you can assume that the product satisfies the requirements stipulated in 2006/95/EC.

Correct installation is a decisive factor in ensuring that this product complies with 89/336/EEC (EMC Directive). Since you are installing the product yourself, you are also responsible for ensuring compliance with 89/336/EEC.

We will provide you with assistance in the form of EMC information, which can be found in the corresponding technical instructions. Once you have satisfied all the requirements outlined in this documentation and the technical instructions, you can assume (or "suppose") that the product meets all the requirements stipulated in the EMC Directive.

Please remember to observe all binding national, local and system-specific regulations as well.

In order for you to operate your machine within the EU, the following must be available:

- Mark of conformity (CE symbol)
- Declaration(s) of Conformity relating to the relevant Directive(s) for the machine

7.3. Definition of terms in the Declaration of Conformity

A Declaration of Conformity based on this documentation is a declaration that the electrical equipment brought into circulation meets all the basic health and safety regulations that currently apply.

By including the Declaration of Conformity in this chapter, Baumüller Nürnberg GmbH declares that the product complies with all the relevant basic health and safety regulations from the Directives and standards listed in the Declaration of Conformity.

7.4. EU Declaration of Conformity

CE

EG-Konformitätserklärung
gemäß

- Richtlinie 2006/95/EG
  (betreffend elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen)

Hersteller

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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 grundlegenden Anforderungen der oben genannten Richtlinie 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.

Angewandte harmonisierte Normen:

- DIN EN 60034-1:2004
  Drehende elektrische Maschinen – Teil 1:
  Bemessung und Betriebsverhalten
- DIN EN 60034-5:2001/A1:2007
  Drehende elektrische Maschinen – Teil 5:
  Schutzarten aufgrund der Gesamtkonstruktion von drehenden elektrischen Maschinen (IP-Code) – Einteilung
- DIN EN 60034-6:1993
  Drehende elektrische Maschinen – Teil 6:
  Einteilung der Kühlverfahren (IC-Code)
- DIN EN 60034-7:1993/A1:2001
  Drehende elektrische Maschinen - Teil 7:
  Klassifizierung für Bauarten, der Aufstellungsarten und der Klemmkasten-Lage (IM-Code)

(Wird fortgesetzt auf der nächsten Seite…)

EU-Declaration of Conformity
according

- Directive 2006/95/EC
  (relating to electrical equipment designed for use within certain voltage limits)

Manufacturer

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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 directive(s) 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.

Applied harmonised standards:

- DIN EN 60034-1:2004
  Rotating electrical machines – Part 1:
  Rating and performance
- DIN EN 60034-5:2001/A1:2007
  Rotating electrical machines – Part 5:
  Degree of protection provided by integral design of rotating electrical machines (IP-Code) – Classification
- DIN EN 60034-6:1993
  Rotating electrical machines – Part 6:
  Methods of cooling (IC-Code)
- DIN EN 60034-7:1993/A1:2001
  Rotating electrical machines - Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM code)

(To be continued on the next page…)

(... Fortsetzung von der vorherigen Seite)

- DIN EN 60034-9:2005/A1:2007
  Drehende elektrische Maschinen – Teil 9:
  Geräuschgrenzwerte
- DIN EN 60034-11:2004
  Drehende elektrische Maschinen – Teil 11:
  Thermischer Schutz
- DIN EN 60034-14:2004/A1:2007
  Drehende elektrische Maschinen – Teil 14:
  Mechanische Schwingungen von bestimmten Maschinen mit einer Achshöhe von 56 mm und höher – Messung, Bewertung und Grenzwerte der Schwingstärke
- DIN EN 60204-1:2006
  Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1:
  Allgemeine Anforderungen
- DIN EN 61800-5-1:2007
  Elektrische Leistungsantriebssysteme mit einstellbarer Drehzahl – Teil 5-1:
  Anforderungen an die Sicherheit – Elektrische, thermische und energetische Anforderungen

(... continued from the previous page)

- DIN EN 60034-9:2005/A1:2007
  Rotating electrical machines – Part 9:
  Noise limits
- DIN EN 60034-11: 2004
  Rotating electrical machines – Part 11:
  Thermal protection
- DIN EN 60034-14:2004/A1:2007
  Rotating electrical machines – Part 14:
  Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity
- DIN EN 60204-1:2006
  Safety of machinery - Electrical equipment of machines - Part 1:
  General requirements
- DIN EN 61800-5-1:2007
  Adjustable speed electrical power drive systems – Part 5-1:
  Safety requirements – Electrical, thermal and energy

Produkt / Product (x): optionaler Buchstabe / optional character	**Jahr der erstmaligen CE-Kennzeichnung /** **Year of first CE marking**
DST2-135XXXXX–XXX–X-X-XX-X-XXX-X-XXX **DST2-200XXXXX–XXX–X-X-XX-X-XXX-X-XXX** **DST2-315XXXXX–XXX–X-X-XX-X-XXX-X-XXX**	**2008**
DST2-400XXXXX–XXX–X-X-XX-X-XXX-X-XXX	**2009**
DST2-260XXXXX–XXX–X-X-XX-X-XXX-X-XXX	**2010**

Nürnberg, 11.12.2012

i. V.

Dipl. Ing. Siegfried Seidler

Leiter Entwicklung Motoren
Head of Motor Development

i. A.

Dipl.-Ing.(FH)Stefan Buchner

Bereichsleitung Produktion
Production Manager

8. Product configuration

Fax: +49(0)911 5432-466

Title ☐ Mr ☐ Mrs/Ms ☐ Dr. ☐ Prof.	Number, street ____
Name ____	Town/city, postcode ____
Company ____	Telephone ____
Department ____	Fax ____
Country ____	E-mail ____

Configure your customised direct drive

Overall size: ☐ 135 ☐ 200 ☐ 260 ☐ 315 ☐ 400

Overall length: ☐ KO ☐ KM ☐ MO ☐ ML ☐ LO ☐ LB ☐ BO ☐ XO ☐ XY ☐ YO ☐ ZO ☐ ZA

Degree of protection: ☐ IP 54 ☐ IP 00

Nominal speed class: ☐ 100 rpm ☐ 150 rpm ☐ 175 rpm ☐ 200 rpm
☐ 250 rpm ☐ 300 rpm ☐ 350 rpm ☐ 400 rpm
☐ 450 rpm ☐ 500 rpm ☐ 550 rpm ☐ 600 rpm
☐ 750 rpm ☐ 1000 rpm ☐ 1500 rpm

Encoder type: ☐ Resolver ☐ SRS50 ☐ SRM50 ☐ ECN1313
☐ EQN1325 ☐ ECN1325 ☐ EQN1337 ☐ No encoder

Shaft type: ☐ Solid shaft ☐ Hollow shaft ☐ Thrust bearing

Shaft options: ☐ Smooth shaft ☐ With key
☐ Internal teeth as per DIN 5480 ☐ External teeth as per DIN 5480
☐ External teeth as per DIN ISO14 ☐ Blind bore with key
☐ Blind bore with 2 keys

Type of construction: ☐ IM B14 ☐ IM B34 - Foot N-side ☐ IM B34 - Foot A and N-side ☐ IM 5205 - Kit

Position of main connection: ☐ N-side at top ☐ N-side at bottom ☐ N-side on left with D-side facing towards shaft end
☐ N-side on right with D-side facing towards shaft end

Main connection outlet: ☐ top ☐ bottom ☐ Left with D-side facing towards shaft end
☐ Right with D-side facing towards shaft end

Notes:

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