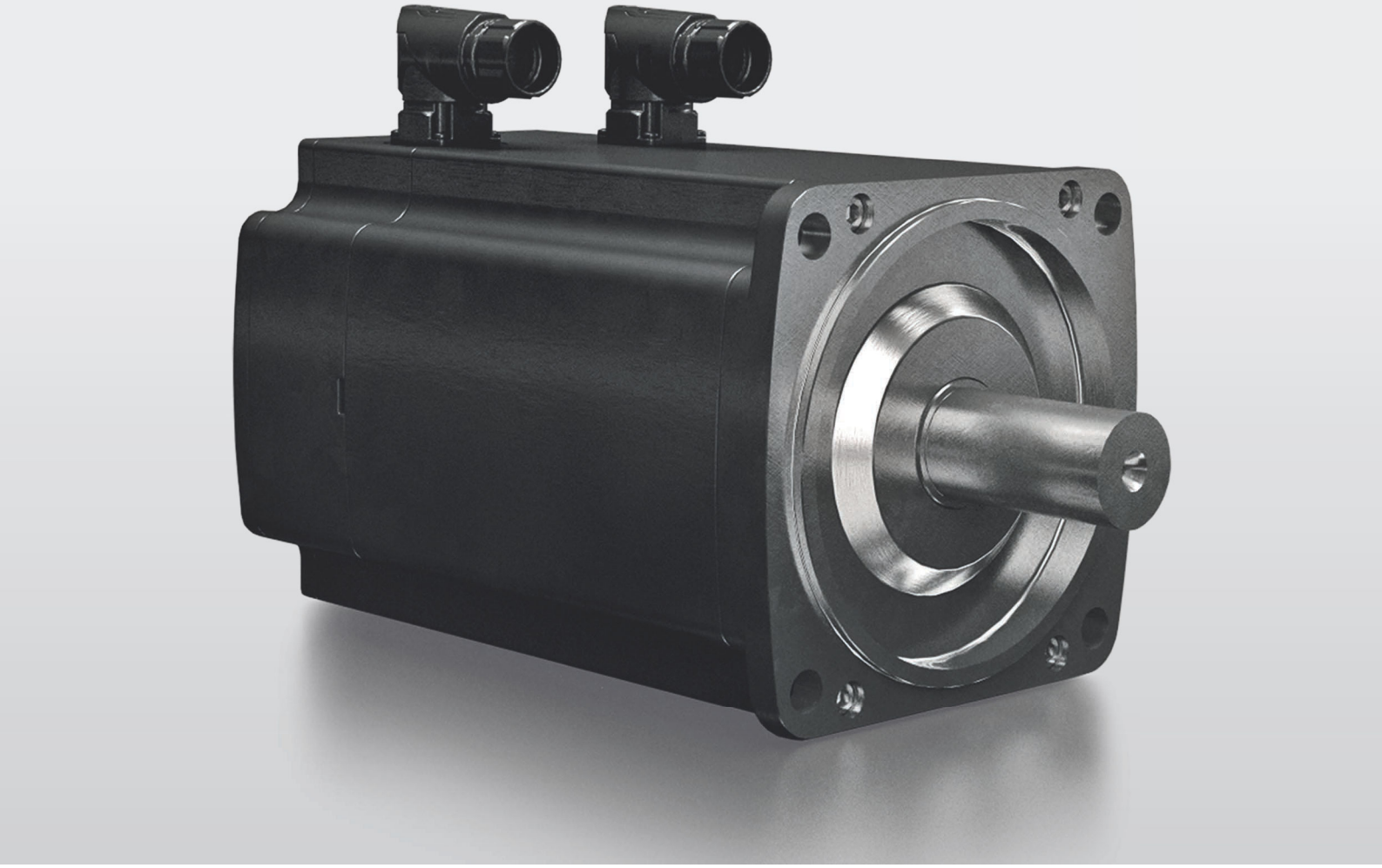
BAUMÜLLER



DSC2-071

Technical documentation
Three-phase synchonous motor

E | 5.22013T.02

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1

GENERAL

1.1 Safety

The standard version of the motors is not suitable for operation in salty or aggressive atmospheres or for outdoor installation. If the ambient air of ventilated motors is contaminated with dust particles or similar substances that cannot be reliably separated by the filter elements used, consult the manufacturer to find a solution.

Before commissioning the motor, appropriate measures must be taken to reduce bearing currents depending on the application and system. The motor manufacturer must be consulted in this regard.

NOTE

The assignment of the motor to a specific protection class is based on a standardized, short-term test procedure. This may differ significantly from the actual environmental conditions at the place of use. Depending on the environmental conditions, such as the chemical composition of the dust or the cooling media used at the place of use, it is only possible to assess the suitability of the motor on the basis of the protection class to a limited extent (e.g., electrically conductive dust or aggressive coolant vapors or liquids). In these cases, the motor must be additionally protected on the machine side by appropriate measures.

1.2 Instruction handbook

For commissioning, please use our instruction handbook for the **DSC2-071**, doc. no. 5.22013.

Download at:

https://www.baumueller.com/en/download

1.3 Customer service

Our customer service is available to provide you with information. Info on the responsible contact persons is available at all times via telephone, fax, mail or the Internet.

2

DESIGN AND OPERATION

This chapter describes the **DSC2-071** and explains the type code of this motor.

2.1 Description of the product

The new DSC servo motors provide a torque motor with servo functionality.

This types provide better power data because of a higher torque density and a compactness compared with standard servo motors (30 percent lower construction volume). However the typical speed range of servo motors up to 6000 U/min is provided.

The **DSC2-071** provides a smooth housing surface protected against dirt, it is especially quick and easy to mount and it provides a high type of protection.

2.2 Type plate

The type plate is the identifier for each Baumüller motor. Especially, the accordant motor number is distinctive for each electric motor – this number is essential to make a backtracking in our company possible. Therefore the type plate always must be readable. Never remove the type plate from your motor.

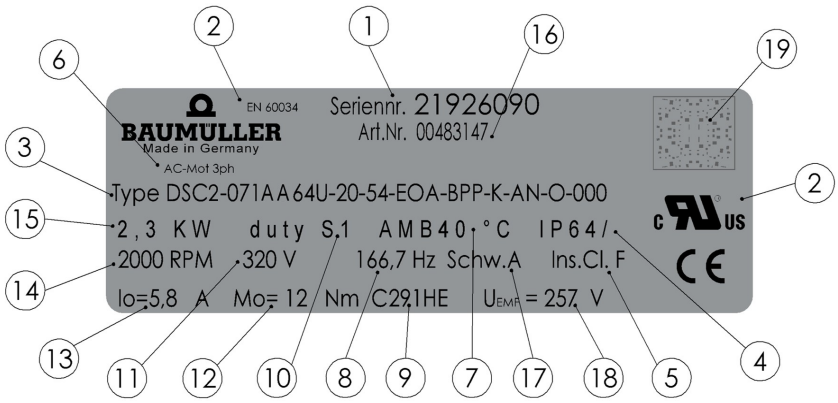


Figure 1: Type plate

1	Motor number	**11**	Rated voltage U_N
2	Standards and approvals	**12**	Standstill torque M_0
3	Motor type / designation	**13**	Standstill current I_0
4	Type of protection	**14**	Rated speed n_N
5	Temperature class (insulating material class VDE)	**15**	Rated power P_N
6	Motor type: 3 phase motor	**16**	Part No.
7	Permitted ambient temperature	**17**	Vibration resistance
8	Rated frequency	**18**	Rotor voltage
9	Insulation system UL	**19**	Barcode
10	Motor operation mode		

2.3 Type code

DSC2-XXXXXXXX-XX-XX-XXXX-XXX-XXX-X-XXX	Motor type (Three phase synchronous compact) 2nd generation
DSC2-**XXX**XXXXX-XX-XX-XXXX-XXX-XXX-X-XXX	Size 071
DSC2-XXX**XX**XXX-XX-XX-XXXX-XXX-XXX-X-XXX	Length AA BB CC DD EE FF
DSC2-XXXXX**XX**X-XX-XX-XXXX-XXX-XXX-X-XXX	Type of protection 64 - IP64 65 - IP65
DSC2-XXXXXXX**X**-XX-XX-XXXX-XXX-XXX-X-XXX	Colling U - Uncooled, without fan, IC 410 O - Surface cooled with fan, IC 416 W - Water-cooled IC 3W7
DSC2-XXXXXXXX-**XX**-XX-XXXX-XXX-XXX-X-XXX	Nominal speed 10 - 1000 min^{-1} 20 - 2000 min^{-1} 30 - 3000 min^{-1} 40 - 4000 min^{-1} 50 - 5000 min^{-1}
DSC2-XXXXXXXX-XX-**XX**-XXXX-XXX-XXX-X-XXX	U_{zk} - DC 54 - 540 V

DSC2-XXXXXXXX-XX-XX-**X**XXX-XXX-XXX-X-XXX	Encoder type A - Resolver (option safety) B - EDS35 C - EDM35 D - SRS50 (option safety) E - SRM50 (option safety) F - ECN1313 G - EQN1325 H - ECN1325 (option safety) I - EQN1337 (option safety) J - EES37 K - EEM37 L - SEK37 M - SEL37 P - ECI1319 gen. 3 Q - EQI1331 gen. 3 W - SKS36 X - SKM36 a - EKS36 b - EKM36
DSC2-XXXXXXXX-XX-XX-X**X**XX-XXX-XXX-X-XXX	Encoder option O - Without option E - With electronic Baumüller type plate F With electronic customer specific type plate S - Safety T - With electronic Baumüller type plate + safety
DSC2-XXXXXXXX-XX-XX-XX**X**X-XXX-XXX-X-XXX	Brake O - Without brake B - With PE brake
DSC2-XXXXXXXX-XX-XX-XXX**X**-XXX-XXX-X-XXX	Shaft option A - Smooth shaft B - With featherkey
DSC2-XXXXXXXX-XX-XX-XXXX-**X**XX-XXX-X-XXX	Type of main connection B - Mounting socket Speedtec (PT1000 on main connection) D - Mounting socket Speedtec (PT1000 on encoder) K - Terminal box (with PT1000) N - Terminal box (PT1000 on encoder)

DSC2-XXXXXXXX-XX-XX-XXXX-X**X**X-XXX-X-XXX	Position main connection T - On top L - On the left, viewing direction DE toward shaft end R - On the right, viewing direction DE toward shaft end D - DE N - NDE P - Pivoted
DSC2-XXXXXXXX-XX-XX-XXXX-XX**X**-XXX-X-XXX	Position encoder connection O - Without encoder connection T - On top L - On the left, viewing direction DE toward shaft end R - On the right, viewing direction DE toward shaft end D - DE N - NDE P - Pivoted
DSC2-XXXXXXXX-XX-XX-XXXX-XXX-**X**XX-X-XXX	Bearing K - Ball bearing DE R - Roller bearing DE V - Roller bearing DE, for higher radial forces
DSC2-XXXXXXXX-XX-XX-XXXX-XXX-X**X**X-X-XXX	Vibration resistance A - Vibration resistance A B - Vibration resistance B
DSC2-XXXXXXXX-XX-XX-XXXX-XXX-XX**X**-X-XXX	Concentricity N - Normal R - Reduced
DSC2-XXXXXXXX-XX-XX-XXXX-XXX-XXX-**X**-XXX	Gear / pump mounting O - Without gear and without pump mounting A - BPE - gear B - BPEF - gear C - BPEA - gear D - BPN - gear E - BPNA - gear F - BPNF - gear G - BPV - gear H - BPVF - gear

DSC2-XXXXXXXX-XX-XX-XXXX-XXX-XXX-X-**XXX**	Special version 000 - No special version AJ1 - Water connection with John-Guest connector AP1 - Water connection with cutting ring screw connection DA1 - Standard shaft sealing OS1 - Fan with 115 V_{AC} connection voltage OS2 - Fan with 24 V_{DC} connection voltage XXX - Special version (internal code) Special version code is alphanumeric

3

TECHNICAL DATA



NOTICE!

If the delivered motor does not correspond to the standard version according to the technical list or if special agreements have been made in the contract, technical deviations may occur.

In this case, request the corresponding technical additions.

Construction type	M B5	Horizontal mounting
	IM V1	Vertical mounting, shaft end down
	IM V3	Vertical mounting, shaft end up



NOTICE!

The shaft exit must be protected against water and dirt at vertical mounting IM V3 and type of protection IP 64.

Type of protection (EN 60034-5)



NOTICE!

All mentioned degrees of protection are reached only, if the plug connectors are mounted completely and the terminal box is completely closed.

Considering the shaft exit

IP 64	Standard: without shaft seal ring
IP 65	Option: with shaft seal ring

Without consideration of shaft exit

IP 67	For unventilated or water-cooled types (IC410 and IC 3W7); not for motors with terminal box
IP 65	For surface-ventilated types (IC416)
IP 65	Types with terminal box

Methods of cooling (EN 60034-6)

IC 410	Standard: Completely closed motor type, self-cooled without fan
IC 416	Option: Completely closed motor type, surface-cooled with fan, air-direction from B- to A-end of the motor
IC 3W7	Option: Completely closed motor type, water-cooled, cooling circuit connection in direction NDE



NOTE!

Electrical connection via angled, rotatably mounted flange.

The main connection is done via terminal box at standstill currents I_0 > 36 A.

Main connection

Flange (8-pin) or terminal box (I_0 > 36 A)

Standard:	U V W + temperature sensor
Option:	Brake

Encoder connection

Flange (rotatable)

Standard:	Resolver	12-pin
Option:	Absolute encoder	12 /17-pin
	Encoder + temperature sensor	12 /17-pin
	Hiperface interface	12-pin
	Endat 2.1 interface	17-pin
	Endat 2.2 interface	9-pin



NOTE!

Main-, encoder- and fan-connection only available with speedtec connector.
Electrical connections (see ▷ Pin assignment control connections ◁ on page 73) via angled (2x90°) rotatable flanges.

Thermal motor protection (EN 60034-11)	Temperature sensor PT1000 in stator winding		
Winding insulation (EN 60034-1)	Insulation class F ($\Delta\theta$ = 105 K)		
Roller bearing with for-life grease lubrication	Standard:	(shaft height 71)	deep groove ball bearing
	Option:	(shaft height 71)	cylindrical roller bearing (A end)
Service life of bearing	L_{10H} 20.000 h, (four point bearing dependent on no. of cycles)		
Vibration resistance (EN 60034-14)	Standard:	A	
	Special:	B (with deep groove ball bearing)	
Concentricity (DIN 42955)	Standard:	N	
	Special:	R (reduced)	
Vibration resistance	See ▹ Vibrations and resistance to vibrations ◃ from page 64		
Holding brake	Option		
Actual speed encoder	Standard:	2-pin resolver (high-quality type on request)	
	Option:	Absolute encoder with Hiperface interface Absolute encoder with Endat interface	
Weight	8.5 - 34 kg		
Approvals	CE, cURus, UKCA, CEL		

Liquid-cooled motors

Type of cooling / type of protection	IC3 W7 / IP 64	water-cooled motor



NOTICE!

All mentioned degrees of protection are reached only, if the plug connectors are mounted completely and the terminal box is completely closed.

Terminal box	B end	on top
Coolant inlet temperature	10°C to 25 °C	max. 5 K lower than ambient temperature
Water inlet	B end	behind

Ventilated motors

Type of cooling / type of protection	IC 416 / IP 64	surface-ventilated motor with fan



NOTICE!

All mentioned degrees of protection are reached only, if the plug connectors are mounted completely and the terminal box is completely closed.

Connection fan motor	Integrated fan motor	Connector 6-pin
Terminal box	B end	on top

3.1 Winding insulation

The motors are designed for operation with converters with a DC link voltage of up to 640 V. The motors can be operated at higher DC link voltages.

At higher DC link voltages, ensure that voltage peaks of >1200 V at the motor terminals are prevented by taking appropriate measures. This can be achieved, for example, by installing suitable filters in the motor supply cable. When operating braked applications, it must also be ensured during the braking process that the voltage at the motor terminals never exceeds 1200 V.

This ensures that the winding insulation is not damaged, thus preventing short circuits.

3.2 Installation conditions

Environment

The motor can be installed in roofed rooms complying with the degree of protection in dusty or damp environment and under normal climatic conditions.

Unless different arrangements have been made, the motor is designed by default for the following climatic conditions:

- Ambient temperature 0 °C bis 40 °C
- Installation height ≤1000 m above sea level
- Relative humidity 5 % to 85 %
- Absolute humidity from 1 g/m² to 25 g/m²

All other allowed application conditions have to correspond to DIN EN 60721-3-3 (class 3K3/3Z12).

It is absolutely imperative to comply with these climatic conditions when installing the motor.

Aggressive, corrosive, abrasive and plastic-dissolving solutions should be kept well away from the motor and the air that is used to cool it.

Consultation with the motor manufacturer is essential in the case of installation outdoors.

3.2.1 Air cooling

Type of cooling IC 410 - self-cooled **without** fan (unventilated)

Type of cooling IC 416 - surface-cooled motor **with** fan (surface-ventilated)

The following must be observed:

- The installation conditions must not impair thermal convection and radiation.
- The cooling air used for forced ventilation must be able to flow in freely and the hot air must be able to flow out freely. The hot exhaust air must not be sucked back in.
- A clearance of at least 100 mm must be observed in relation to neighboring machine parts.
- If installed in very dirty locations, the housing surface and airways must be cleaned regularly.

3.2.2 Flange mounting

By attaching the motor to the mounting surface, a part of the motor loss performance is lead away via the flange.

The dimensions of the mounting surface based on their axis height are listed in the following table. This information provides minimum values for the safe heat dissipation via the motor flange surfaces.

Axis height	Steel plate: width x height x thickness in mm	Mounting surface in m^2
71	450 x 400 x 30	0.18

The heat dissipation approve on larger mounting surfaces.

3.3 Specifications for water-cooling

3.3.1 Specifications referring to the required cooling flows

Motor DSC2-	Volume current [l/min]	Pressure drop ± 15% [bar]	Heating [K]	Max. coolant pressure [bar]	Connection (G–inside thread)
071**AA** .. **W** ..	5	0.5	2	6	Stainless steel tube Ø8x1
071**BB** .. **W** ..					
071**CC** .. **W** ..					
071**DD** .. **W** ..					
071**EE** .. **W** ..					
071**FF** .. **W** ..					

3.3.2 Motor cooling

Additions of corrosion and nucleation protections may be used in closed cooling systems performed accordingly to the coolant's characteristic complying with ▷ Specification of cooling water ◁ on page 19). Type and quantity is based upon the accordant recommendations of the manufacturer and of the prevailing environmental conditions.

The following media-contacting materials are used in the motor:

- Cooling system: Stainless steel tube

3.3.3 Cooling circuits

Reduction factors for water as a coolant, refer to ▷ Definition of performance for water-cooled machines ◁ on page 22.

Closed cooling circuit

In the closed cooling circuit (see figure below), the cooling water tank is closed and thus no oxygen can enter the circuit.

This ensures very low water consumption and stable water quality.

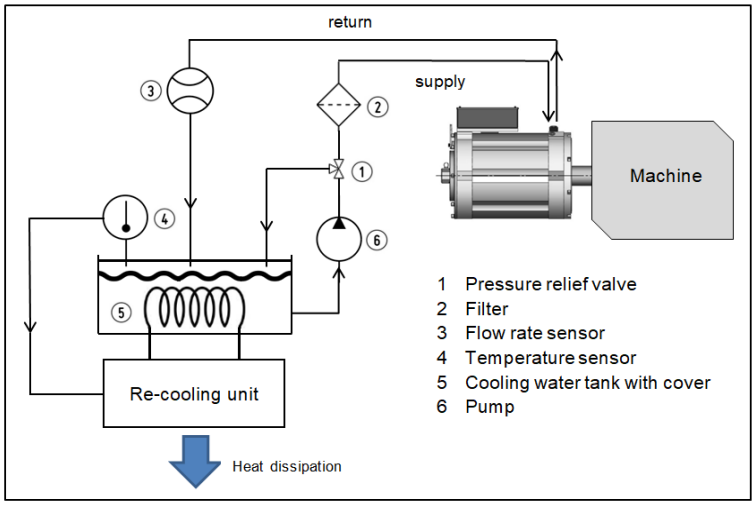


Figure 2: Example of a closed cooling circuit

Semi-open cooling circuit

The semi-open cooling circuit (see figure below) has an open cooling water tank and is otherwise constructed like the closed cooling circuit.

This prevents the accumulation of corrosion products in the circuit.

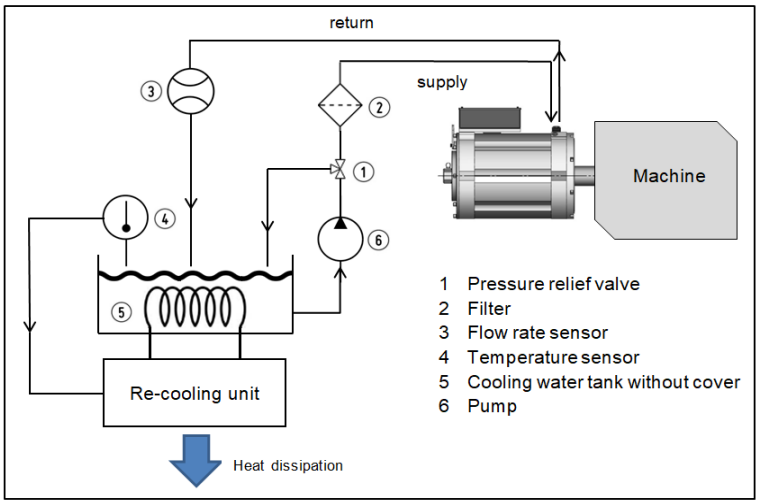


Figure 3: Example of a semi-open cooling circuit

Overview of refrigeration unit manufacturers

- ait-deutschland GmbH www.kkt-chillers.com
- BKW Kälte-Wärme-Versorgungstechnik GmbH www.bkw-kuema.de
- DELTATRHERM Hirmer GmbH www.deltatherm.de
- Glen Dimplex Deutschland GmbH www.riedel-cooling.com
- Helmut Schimpke und Team Industriekühlanlagen www.schimpke.org
- Hydac System GmbH www.hydac.com
- Hyfra Industriekühlanlagen GmbH www.hyfra.de
- Parker Hannifin GmbH www.ph.parker.com
- Pfannenberg GmbH www.pfannenberg.com
- Technotrans SE www.technotrans.de



NOTE!

You can also use equivalent cooling units from other manufacturers.

The responsibility for the quality of third-party products lies with the plant manufacturer.

3.3.4 Specification of cooling water

The cooling water must comply with the following requirements:

	Unit	Value
Permitted system pressure at maximum	bar	6
Temperature of coolant for motor	°C	10 to 25
pH value (at 20 °C)	---	6,5 to 9
Total hardness	mmol / l	1.43 to 2.5
Chloride - Cl	mg / l	< 200
Sulfate - SO_4^{2}	mg / l	< 200
Oil	mg / l	< 1
Permissible particle size, solid bodies, particles (e.g. sand)	mm	< 0.1

Clear water free of suspended particles and dirt must be used as the coolant.

Sufficient additives must be added for corrosion protection and germ protection. The type and amount of additives to be added depends on the respective recommendations of the manufacturers of these additives and the respective environmental conditions.

3.3.5 Minimum coolant temperature in dependence of the environmental conditions.

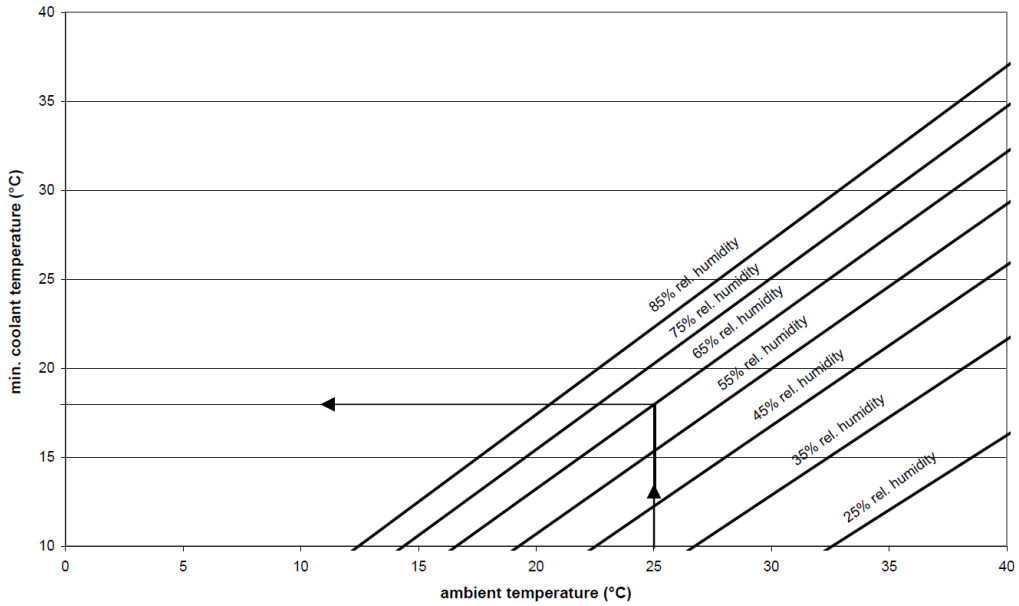


Figure 4: Evaluation of coolant temperature

The permitted temperature of the coolant is dependent of the relative humidity during the operation and the ambient temperature. For example a minimum coolant inlet temperature of 18 °C is permitted at an ambient temperature of 25°C and a relative humidity of 65 %. The presented characteristics in the diagrams are limit characteristics. Therefore, in the example a coolant inlet temperature of greater 18°C should be selected.

If the minimum permitted coolant entry temperature is fallen below, the 2-point controller of the Baumüller drive electronics must be used, to avoid condensation

NOTE!

At a longer standstill of the motor the coolant supply must be interrupted (avoidance of condensation).

At a longer standstill ambient temperatures <3 °C can occur, the coolant is to be drained as a precautionary measure (Avoidance of frost damage).

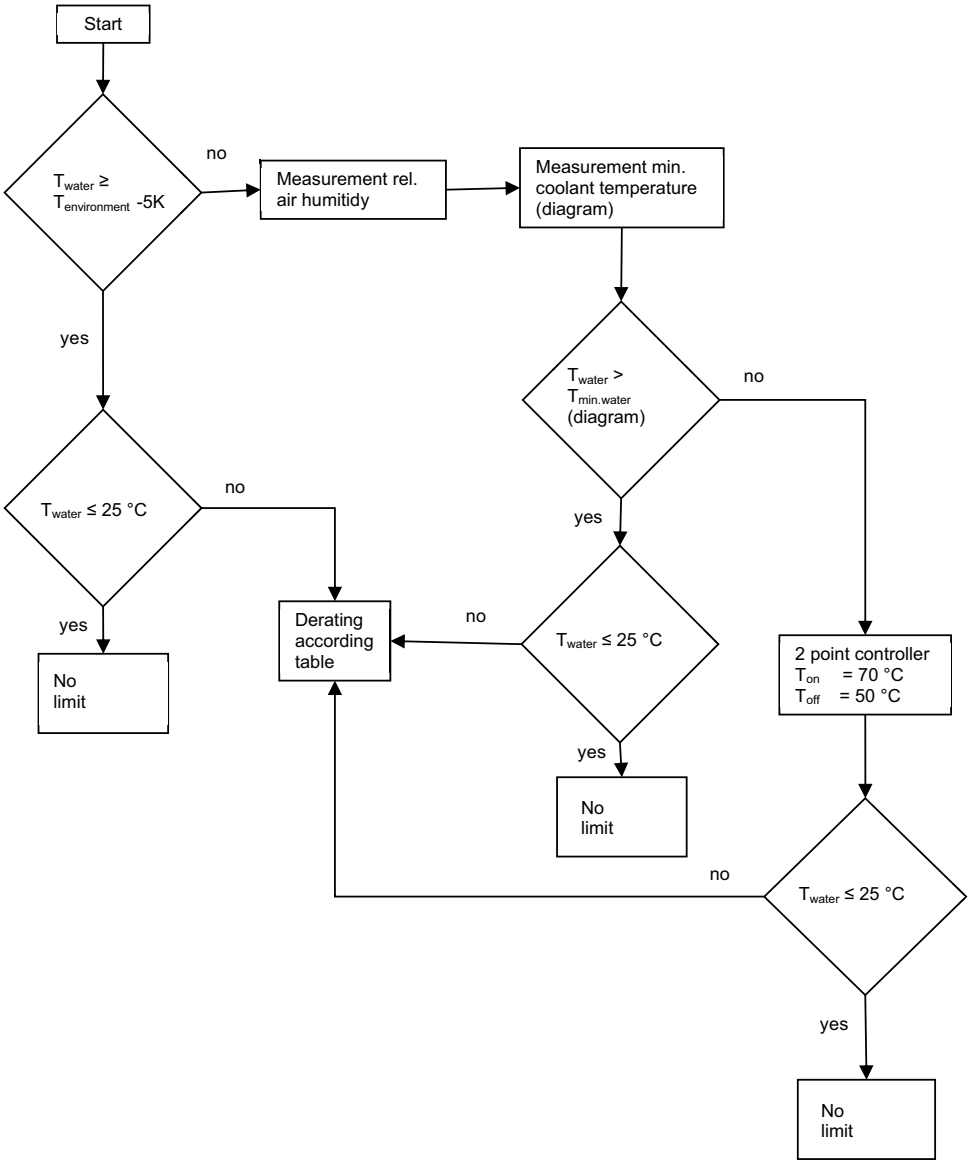


Figure 5: Function chart coolant entry temperature

3.4 Definition of performance

3.4.1 Definition of performance for unventilated and surface-ventilated machines

The mentioned performances (torques) apply to the continuous operation S1 with rated speed at a max. ambient temperature of 40°C and a installation height below 1000 m above MSL.

If motors are to be operated in an ambient temperature of more than 40 °C or altitudes above 1000 m MSL, the required list nominal power (list nominal torque Mn) can be calculated from the product of the factors k1, k2 and the required power P (torque M).

Ambient temperature	40°C	45°C	50°C	55°C
Correction factor k1	1	1.06	1.13	1.22

Height above MSL	1000 m	2000 m	3000 m	4000 m
Correction factor k2	1	1.07	1.16	1.27

Consult our applications department for ambient temperatures above 40°C and encapsulated mounting of the motors, perhaps constructive measures are necessary.

If the ambient temperature drops approx. 10 °C per 1000 m increase in height, there is no additional power correction necessary (note min. operation temperature).

3.4.2 Definition of performance for water-cooled machines

The mentioned performances (torques) apply to the continuous operation S1 with rated speed as long as the demands to the cooling system for water-cooled motors are complied with!

During the operation of the motors with higher coolant inlet temperatures the reduction factors below must be considered:

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

- If the specific heat capacity is reduced, for example by adding glycol, this will result in a reduction in performance depending on the mixing ratio, which must be checked with the manufacturer.
- When using hydraulic oil (HLP 46), there is a reduction in rated power of 20 to 25% compared to water cooling, depending on the overall length and speed.
- The basis is an inlet temperature of 35 °C for both cooling media and an identical volume flow. The pressure drop is higher when using hydraulic oil. If the HLP46 inlet temperature is higher than 35 °C, the following additional derating applies:

- Oil-cooled drives:

HLP46 inlet temperature	35 °C	40 °C	45 °C	50 °C
Percentage of rated power (torque)	100 %	93 %	88 %	82 %

  - These adjustment rates are valid for all motors up to a speed of 3,000 rpm. For higher speeds, the operating point and the corresponding derating must be determined separately.
  - The exact performance specifications and data sheets for oil-cooled drives are available on request.

3.5 Motor data

Explanation of motor data

n_N	Rated speed [min^{-1}]
M_0	Standstill torque [Nm] at speed ≥ 1 min^{-1} zor an unlimited period of time
I_0	Standstill rms current [A] at M_0
$M_{0,max}$	Maximum standstill torque [Nm] at maximum current [A] and speed = 0, for a short time
$I_{0,max}$	Standstill current [A] at $M_{0,max}$; $I_{0,max}$ is rms value
P_N	Rated poser [kW] at M_N and n_N (see power definition)
M_N	Rated torque [Nm]
I_N	Rated rms current [A]
$K_{E/KALT}$	Voltage constant (EMK) [V/1000 min^{-1}]
f_N	Rated frequency [Hz]
J	Rotor moment of inertia [kgcm²]
m	Motor mass [kg]

The specified rated power and torque at rated speed are achieved during converter operation with a clock frequency in the power section of ≥ 4 kHz. A clock frequency of > 6 kHz is recommended.

The possibility of field weakening is assumed for the converters to be used. The **sizemaXX** drive configurator at www.baumueller.de is available for designing the motors and the entire drive system.

3.5.1 DSC2-071 ... 64U without fan

Mains voltage 3 x 400V_{AC} for converters with unregulated supply

Motor	n min^{-1}	M_0 Nm	I_0 A	$M_{0,max}$ Nm	$I_{0,max}$ A	P_N kW	M_N Nm	I_N A	$K_{E/kalt}$ V/1000 min^{-1}	f_N Hz	J kgcm²	m kg
DSC2-071AA64U-10-54	1000	12.6	3.5	26	11.6	1.21	11.6	3.2	249	116.7	9.5	8.5
DSC2-071BB64U-10-54		23	5.2	55	17.8	2.2	21	4.8	304		17.3	11.7
DSC2-071CC64U-10-54		32	6.7	82	22.9	3.1	29	6.2	319		25.2	14.8
DSC2-071DD64U-10-54		41	11.5	110	40.3	3.9	37	10.2	242		33.1	18
DSC2-071EE64U-10-54		51	13.6	140	49.1	4.5	43	11.6	248		41	21.1
DSC2-071FF64U-10-54		51	12.6	170	55	4.2	40	10	269		48.9	24.3
DSC2-071AA64U-20-54	2000	12.6	6.7	26	22	2.2	10.5	5.5	131	233.3	9.5	8.5
DSC2-071BB64U-20-54		23	10.1	55	34.4	3.9	18.4	7.9	158		17.3	11.7
DSC2-071CC64U-20-54		32	12.6	82	42.9	4.9	23	9.2	170		25.2	14.8
DSC2-071DD64U-20-54		41	20	110	71	5.9	28	13.7	137		33.1	18
DSC2-071EE64U-20-54		51	23.4	140	84	6.5	31	14.4	145		41	21.1
DSC2-071FF64U-20-54		51	20.6	170	90	4.4	21	8.7	164		48.9	24.3
DSC2-071AA64U-30-54	3000	12.6	9.7	26	31.8	2.9	9.4	7.1	90.7	350	9.5	8.5
DSC2-071BB64U-30-54		23	15.3	54	52	4.5	14.2	9.3	104		17.3	11.7
DSC2-071CC64U-30-54		32	18	82	61	4.4	13.9	8	119		25.2	14.8
DSC2-071DD64U-30-54		41	28.5	110	100	4.6	14.6	10.3	97.5		33.1	18
DSC2-071EE64U-30-54		51	27.7	140	100	4.2	13.3	7.7	122		41	21.1
DSC2-071AA64U-40-54	4000	12.6	13	26	42.6	3.4	8.1	8.3	67.6	466.7	9.5	8.5
DSC2-071BB64U-40-54		23	18.9	54	64	3.6	8.7	7.2	84.2		17.3	11.7
DSC2-071AA64U-50-54	5000	12.6	16.4	26	54	3.6	6.9	9	53.4	583.3	9.5	8.5
DSC2-071BB64U-50-54		23	24	54	82	0.98	1.9	2.5	66.2		17.3	11.7

3.5.2 DSC2-071 ... 64O surface-ventilated (with fan)

Mains voltage 3 x 400V_{AC} for converters with unregulated supply

Motor	n min^{-1}	M_0 Nm	I_0 A	$M_{0,max}$ Nm	$I_{0,max}$ A	P_N kW	M_N Nm	I_N A	$K_{E/kalt}$ V/1000 min^{-1}	f_N Hz	J kgcm²	m kg
DSC2-071AA64O-10-54	1000	14.9	4.2	27	11.6	1.53	14.6	4.1	249	116.7	9.5	11.7
DSC2-071BB64O-10-54		29	6.6	55	17.8	2.9	28	6.4	304		17.3	14.85
DSC2-071CC64O-10-54		43	9.1	83	22.9	4.2	40	8.6	319		25.2	18
DSC2-071DD64O-10-54		55	15.5	110	40.3	5.3	50	14.1	242		33.1	21.15
DSC2-071EE64O-10-54		66	18.1	140	49.1	6.1	58	15.8	248		41	24.3
DSC2-071FF64O-10-54		77	19.6	170	55	6.8	65	16.3	269		48.9	27.45
DSC2-071AA64O-20-54	2000	14.9	8	26	22	2.9	14	7.6	131	233.3	9.5	11.7
DSC2-071BB64O-20-54		29	12.8	55	34.4	5.6	27	11.7	158		17.3	14.85
DSC2-071CC64O-20-54		43	17	83	42.9	7.8	37	14.9	170		25.2	18
DSC2-071DD64O-20-54		55	27.3	110	71	9	43	21.2	137		33.1	21.15
DSC2-071EE64O-20-54		66	31.2	140	84	9.4	45	21	145		41	24.3
DSC2-071FF64O-20-54		77	32	170	90	9.2	44	17.9	164		48.9	27.45
DSC2-071AA64O-30-54	3000	14.9	11.5	26	31.8	4.2	13.3	10.4	90.7	350	9.5	11.7
DSC2-071BB64O-30-54		29	19.4	54	52	7.8	25	16.5	104		17.3	14.85
DSC2-071CC64O-30-54		43	24.4	82	61	10.5	33	19.3	119		25.2	18
DSC2-071DD64O-30-54		55	38.4	110	100	10.4	33	23	97.5		33.1	21.15
DSC2-071EE64O-30-54		66	37	140	100	8.2	26	14.6	122		41	24.3
DSC2-071AA64O-40-54	4000	14.9	15.4	26	42.6	5.2	12.4	13	67.6	466.7	9.5	11.7
DSC2-071BB64O-40-54		29	23.9	54	64	9.4	22	18.4	84.2		17.3	14.85
DSC2-071CC64O-40-54		43	28.3	82	71	11.5	28	19.6	103		25.2	18
DSC2-071DD64O-40-54		55	38.4	110	100	8.5	20	14.6	97.5		33.1	21.15
DSC2-071AA64O-50-54	5000	14.9	19.5	26	54	5.8	11.2	14.9	53.4	583.3	9.5	11.7
DSC2-071BB64O-50-54		29	30.4	54	82	10.3	19.6	20.5	66.2		17.3	14.85
DSC2-071CC64O-50-54		43	33.5	82	84	11.5	22	19.6	86.5		25.2	18

3.5.3 DSC2-071 ... 64W water-cooled

Mains voltage 3 x 400V_{AC} for converters with unregulated supply

Motor	n min^{-1}	M_0 Nm	I_0 A	$M_{0,max}$ Nm	$I_{0,max}$ A	P_N kW	M_N Nm	I_N A	$K_{E/kalt}$ V/1000 min^{-1}	f_N Hz	J kgcm²	m kg
DSC2-071AA64W-10-54	1000	18.9	5.5	27	11.6	1.94	18.5	5.4	249	116.7	9.5	10.8
DSC2-071BB64W-10-54		39	9.2	56	17.8	3.8	36	9.1	304		17.3	15.25
DSC2-071CC64W-10-54		61	13.5	84	22.9	5.8	55	13.3	319		25.2	19.7
DSC2-071DD64W-10-54		82	24.1	115	40.3	8.5	81	23.7	242		33.1	24.15
DSC2-071EE64W-10-54		105	29.3	145	49.1	10.6	100	28.9	248		41	28.6
DSC2-071FF64W-10-54		115	29	175	55	11.3	110	27.7	269		48.9	33.05
DSC2-071AA64W-20-54	2000	18.9	10.5	27	22	3.8	18	10.1	131	233.3	9.5	10.8
DSC2-071BB64W-20-54		39	17.9	55	34.4	7.5	36	17.2	158		17.3	15.25
DSC2-071CC64W-20-54		61	25.3	83	42.9	11.2	54	24.2	170		25.2	19.7
DSC2-071DD64W-20-54		82	42.4	110	71	16.3	78	40.5	137		33.1	24.15
DSC2-071EE64W-20-54		105	50	140	84	20	97	48	145		41	28.6
DSC2-071FF64W-20-54		115	47.3	170	90	20	97	42.4	164		48.9	33.05
DSC2-071AA64W-30-54	3000	18.9	15.2	26	31.8	5.5	17.5	14.2	90.7	350	9.5	10.8
DSC2-071BB64W-30-54		39	27.1	55	52	11.1	35	25.1	104		17.3	15.25
DSC2-071CC64W-30-54		61	36	83	61	16	51	33.1	119		25.2	19.7
DSC2-071DD64W-30-54		82	60	110	100	23	74	54	97.5		33.1	24.15
DSC2-071EE64W-30-54		105	60	140	100	27	85	54	122		41	28.6
DSC2-071AA64W-40-54	4000	18.6	20	26	42.6	7.1	16.8	18.5	67.6	466.7	9.5	10.8
DSC2-071BB64W-40-54		39	33.4	55	64	13.9	33	29.5	84.2		17.3	15.25
DSC2-071CC64W-40-54		61	41.9	82	71	18.9	45	36	103		25.2	19.7
DSC2-071DD64W-40-54		82	60	110	100	26	62	50	97.5		33.1	24.15
DSC2-071AA64W-50-54	5000	18.9	25.8	26	54	8.5	16.2	22.6	53.4	583.3	9.5	10.8
DSC2-071BB64W-50-54		39	42.5	55	82	16.6	32	35.2	66.2		17.3	15.25
DSC2-071CC64W-50-54		61	49.7	82	84	22	41	39.4	86.5		25.2	19.7

3.6 Temperature sensor

The connection of the temperature sensor of the DSD2 series is implemented via the main connection.

An option is the connection via the encoder socket., see ▷ Type code ◁ from page 8.

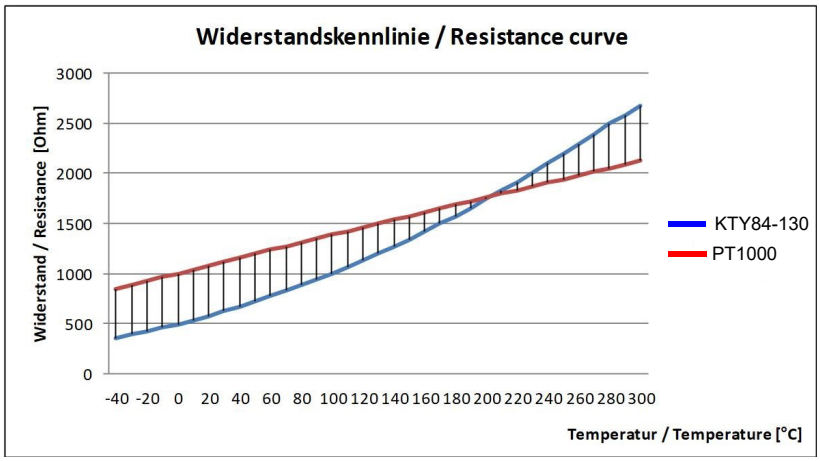


Figure 6: Resistance curve temperature sensor

The temperature sensor PT1000 continuously monitors the motor temperature. If the sensor is supplied with a measured current of 2 mA the above shown resistance curve results.

3.7 Balancing, output elements and vibrations

Balancing

In the standard version with featherkey the rotor is dynamically balanced with a half featherkey (accordant to EN 60034-14 / ISO 8821 / ISO 21940).

Output elements

When mounting the output elements the accordant balancing must be considered. The output elements must be balanced complying with ISO 21940.

When fitting and removing the output elements (e.g. coupling disks, rack-wheels, pulley wheels) adequate facilities must be used.

- Use thread hole in the end of the shaft.
- During removal use spacing washers to mechanically protect the shaft.
- If required before fitting warm up the output elements (max. permitted temperature at the shaft end is 150 °C for a short time).

Vibrations

Notice!

The system's vibration response at the location caused by output elements, installation options, alignment and setup as well as influences of external vibrations can cause an increase of vibration values at the motor.

Considering a correct functioning of the motor and a long bearing service life the permitted vibration values accordant to EN 60034-14 may not be exceeded. It may be necessary to balance the complete rotor with the drive element (according to ISO 21940).

The limited vibration loads and accelerations after mounting are not to be exceeded, see ▹ Vibrations and resistance to vibrations ◃ on page 64.

At changes compared with the normal operation – e.g. increased temperatures, noises, vibrations – the motor is to be switched off in case of doubt, the cause is to be evaluated and the manufacturer is to be contacted if required.

3.8 Radial force diagrams

All bearings are designed for a service life of 20,000 h L_{10h}. The load values specified below may thereby not be exceeded. The permissible radial forces F_r are valid only for the horizontal installation of the motor without

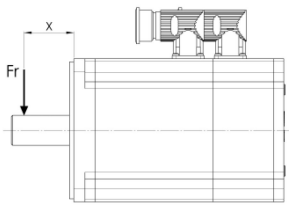
additional axial forces.

Furthermore, the specified average speeds must be adhered to reach the grease consumption period of 20,000 h under the following conditions:

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

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

Sample diagram



Force application x = 30 mm from the shaft shoulder
Bearing service life 20000 h

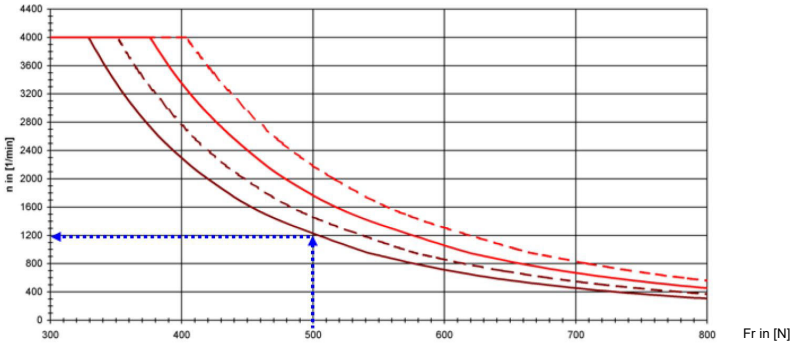


Figure 7: Sample diagram radial force ball bearing

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

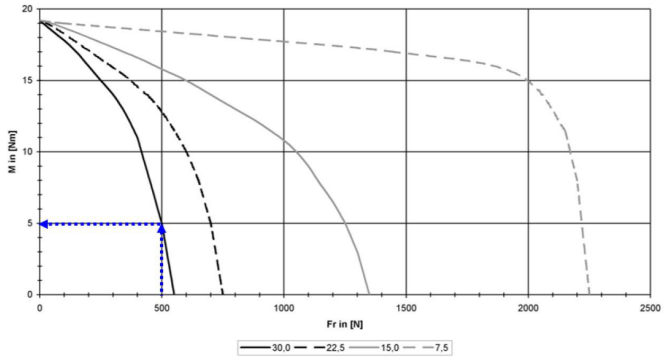


Figure 8: Sample diagram radial force shaft

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

Radial force diagrams Ball bearing

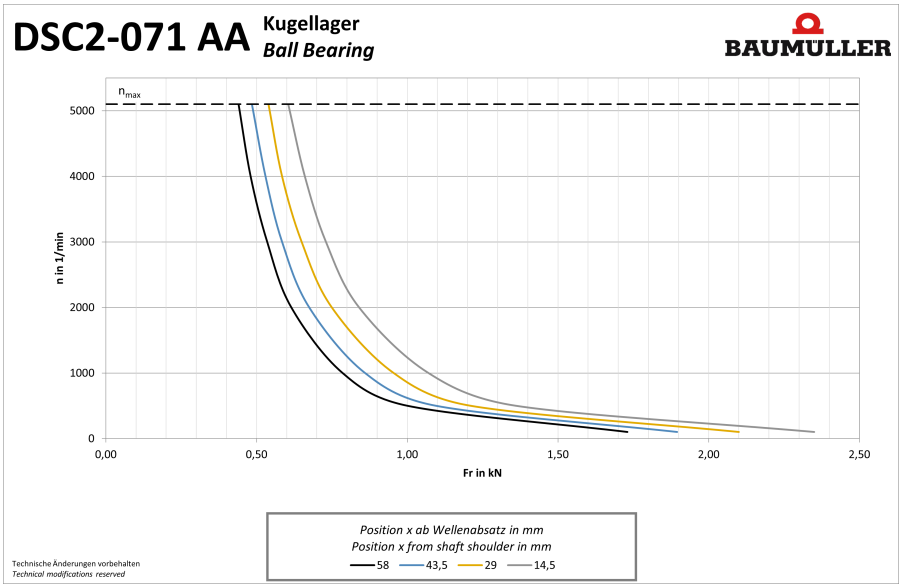


Figure 9: Radial force diagram ball bearing DSC2-071AA

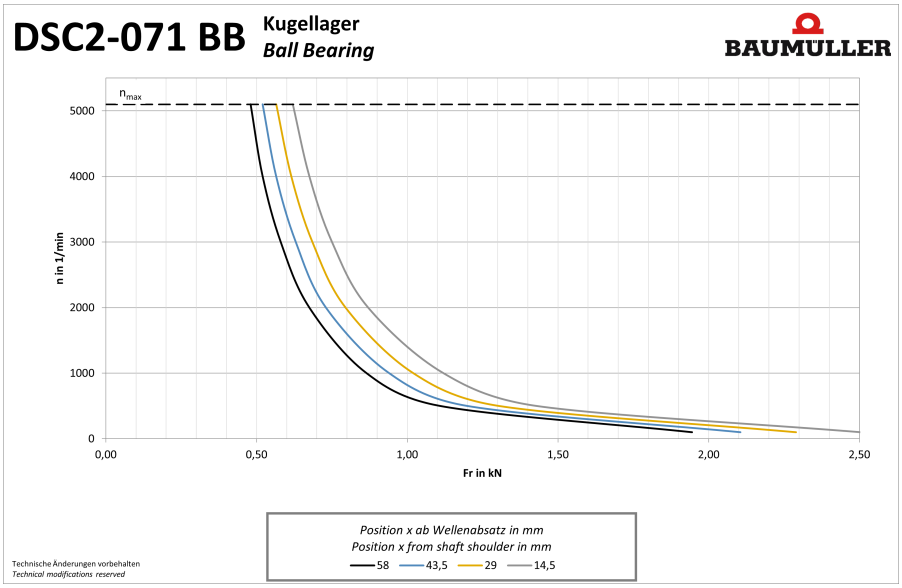


Figure 10: Radial force diagram ball bearing DSC2-071BB

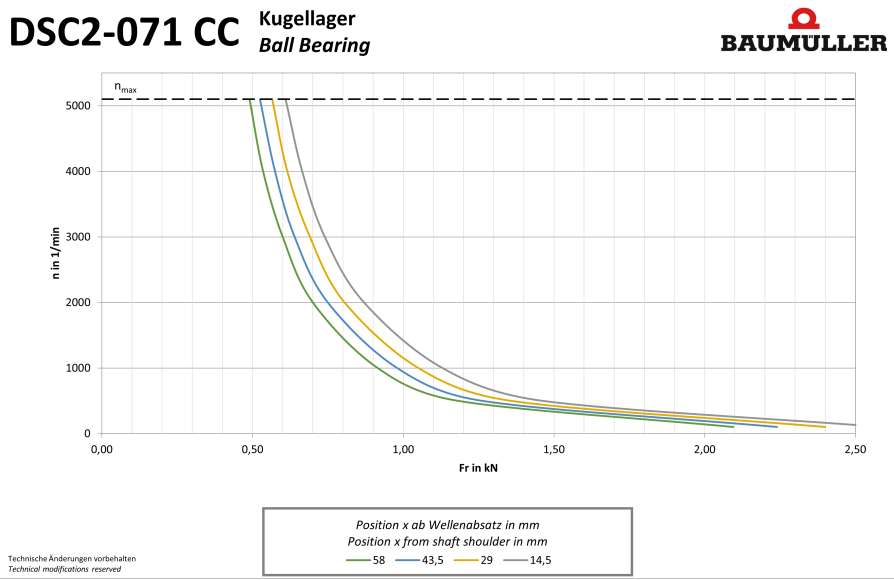


Figure 11: Radial force diagram ball bearing DSC2-071CC

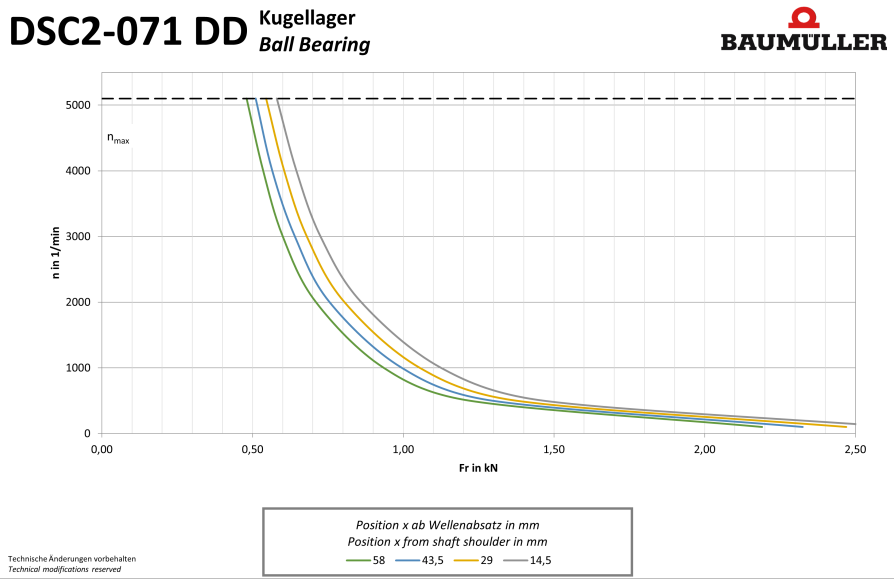


Figure 12: Radial force diagram ball bearing DSC2-071DD

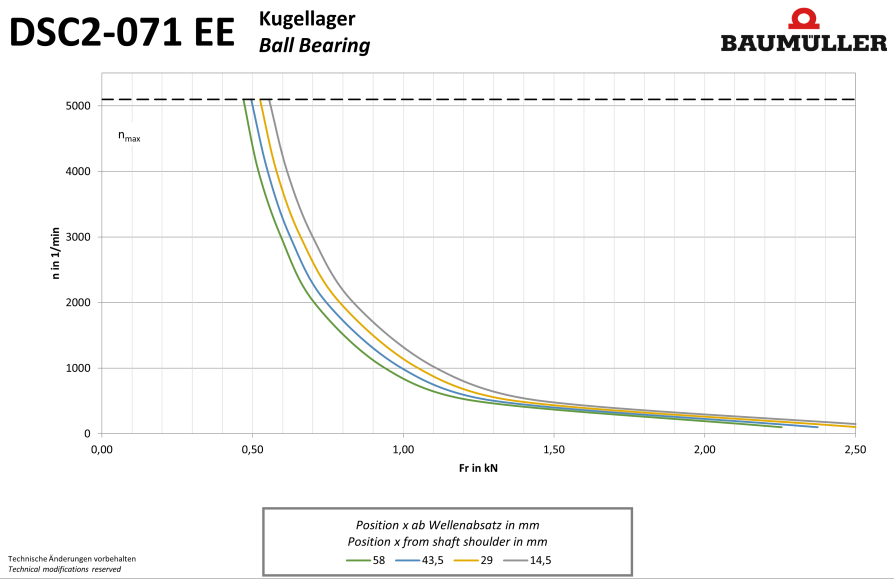


Figure 13: Radial force diagram ball bearing DSC2-071EE

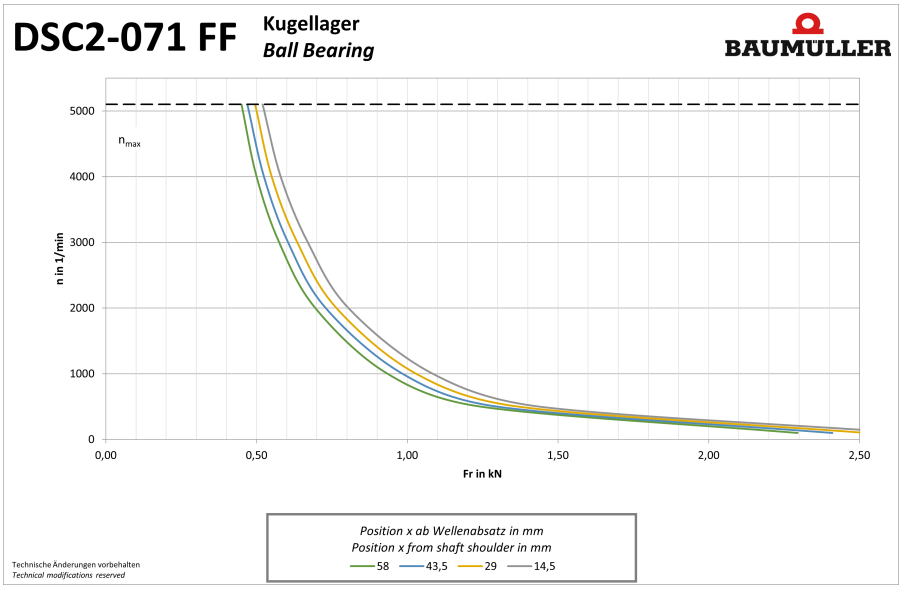


Figure 14: Radial force diagram roller bearing DSC2-071FF

Radial force diagrams Roller bearing

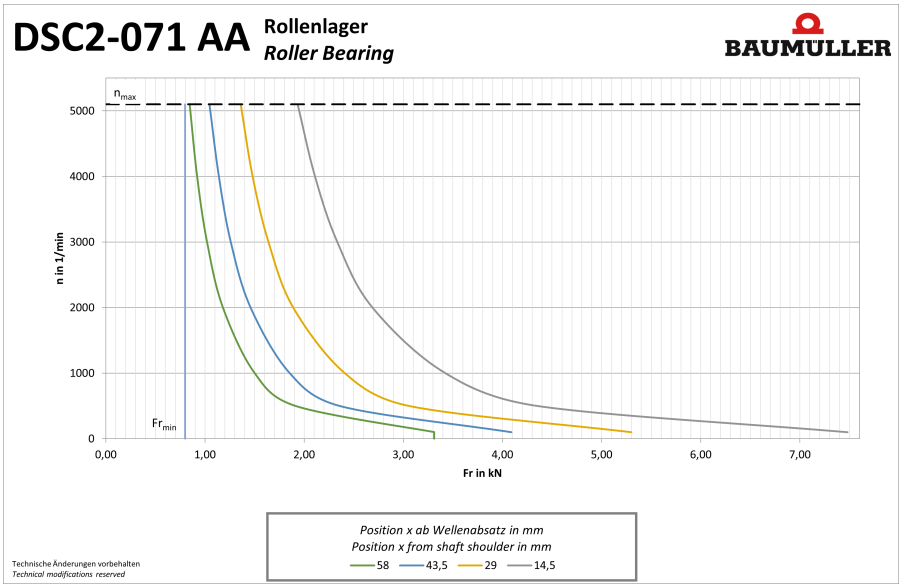


Figure 15: Radial force diagram roller bearing DSC2-071AA

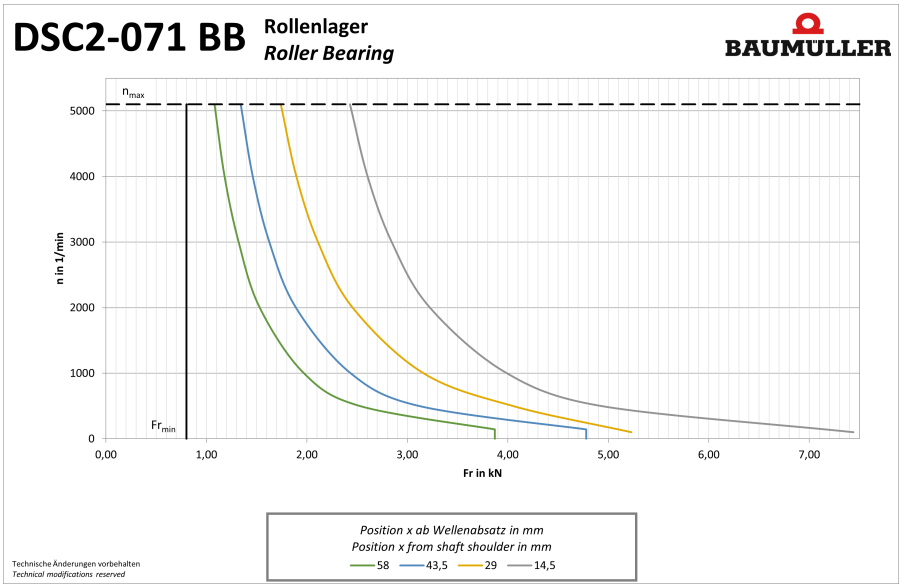


Figure 16: Radial force diagram roller bearing DSC2-071BB

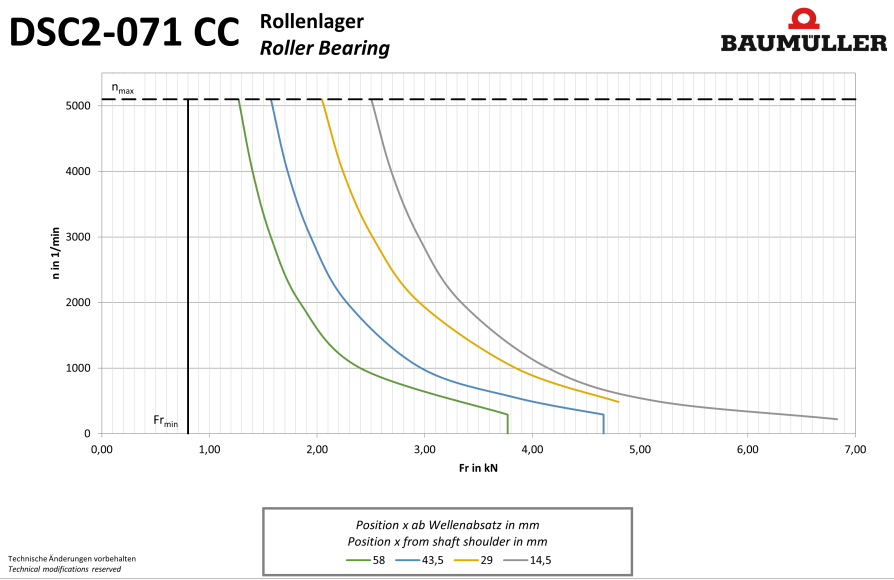


Figure 17: Radial force diagram roller bearing DSC2-071CC

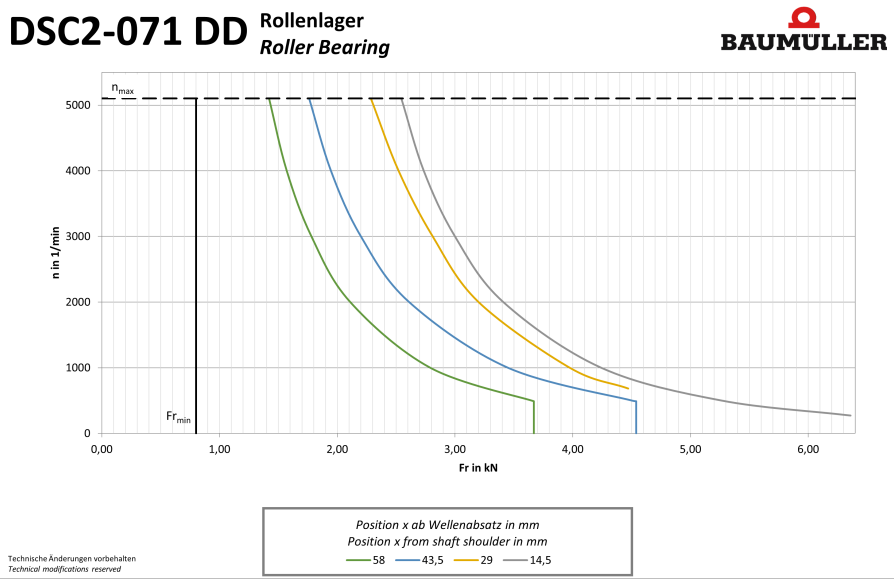


Figure 18: Radial force diagram roller bearing DSC2-071DD

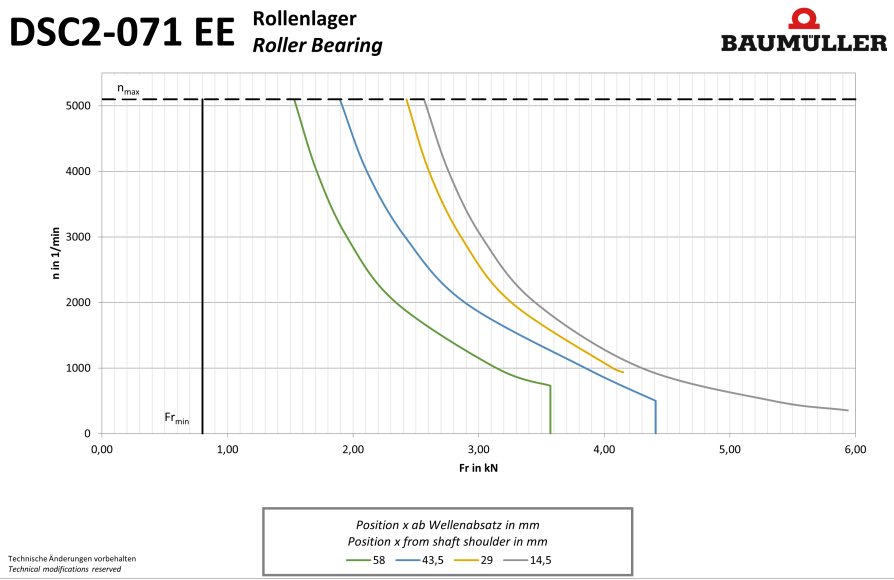


Figure 19: Radial force diagram roller bearing DSC2-071EE

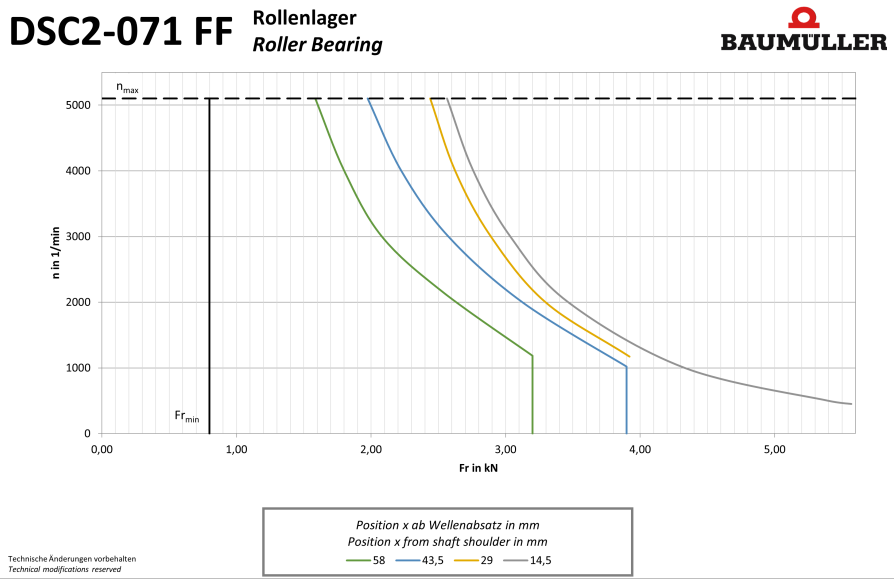


Figure 20: Radial force diagram roller bearing DSC2-071FF

Torque-radial force diagrams

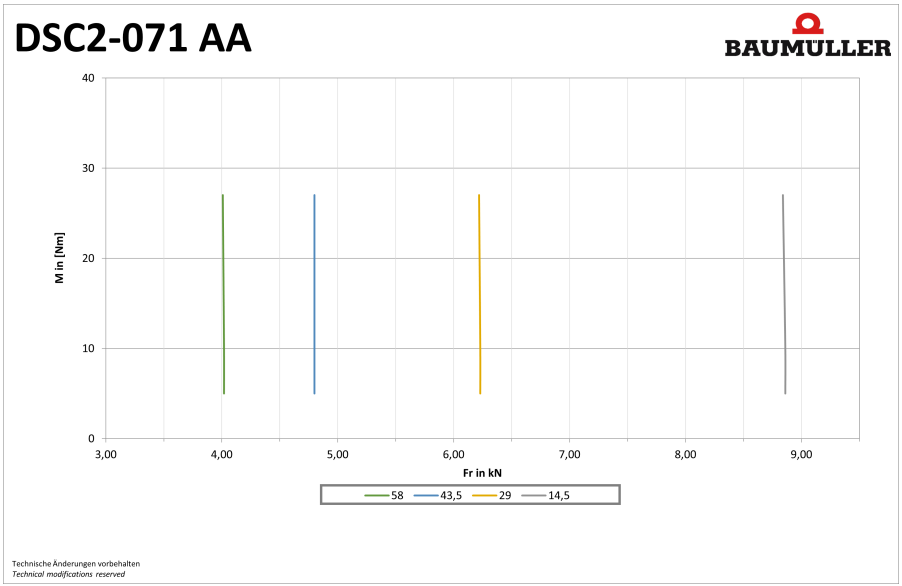


Figure 21: Torque-radial force diagram DSC2-071AA

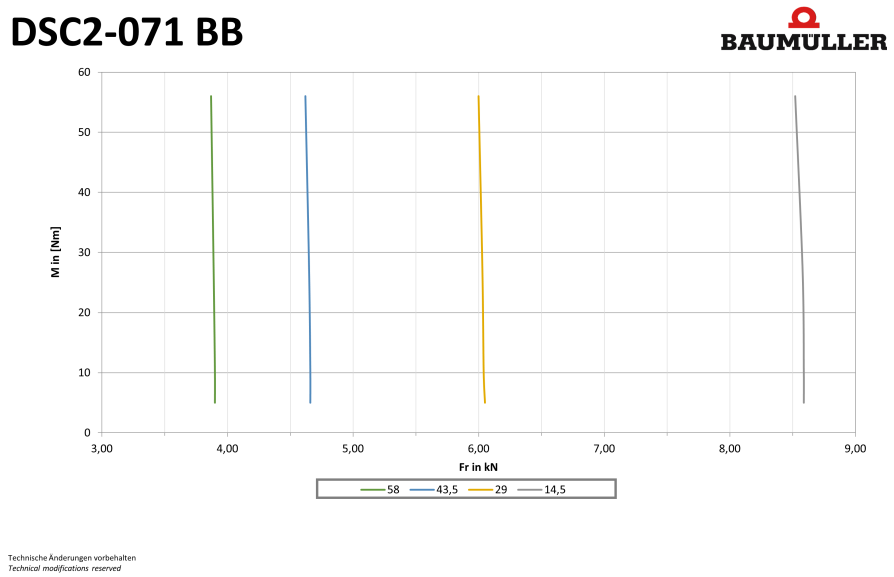


Figure 22: Torque-radial force diagram DSC2-071BB

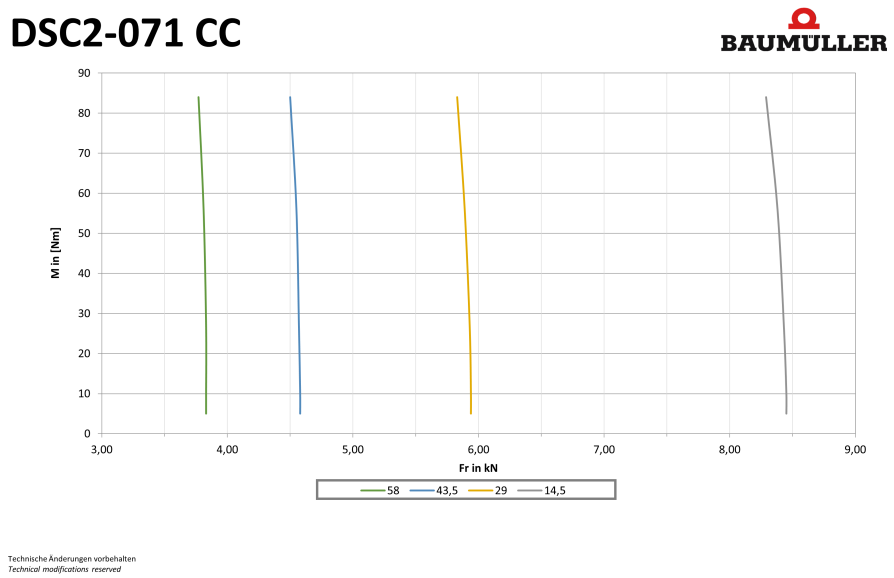


Figure 23: Torque-radial force diagram DSC2-071CC

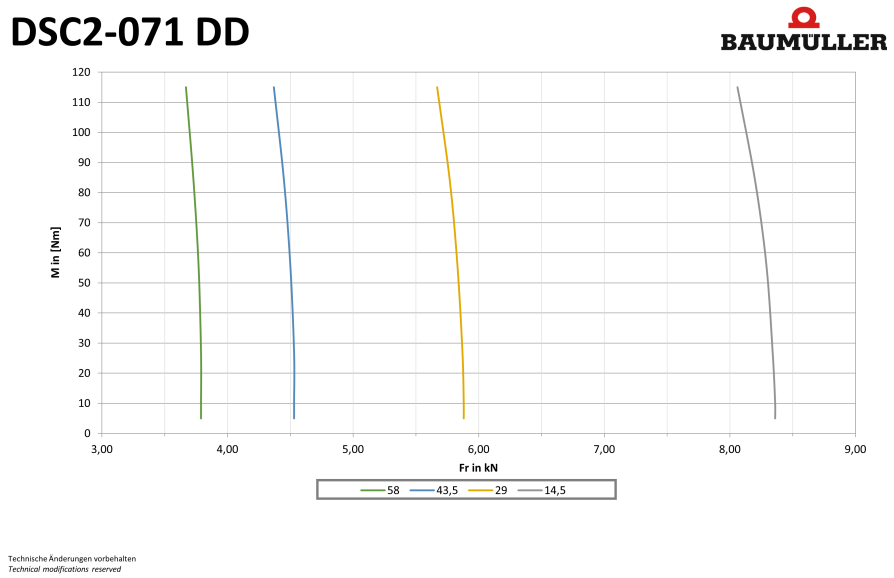


Figure 24: Torque-radial force diagram DSC2-071DD

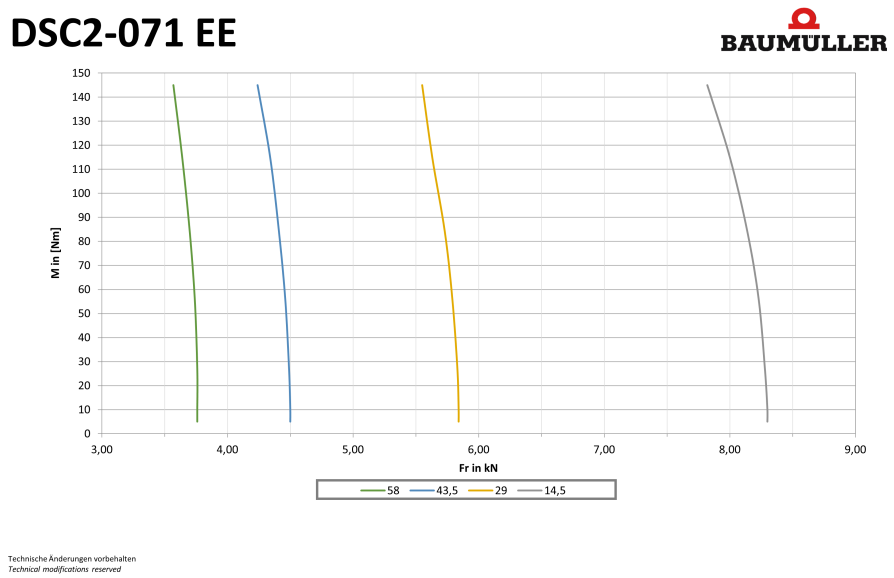


Figure 25: Torque-radial force diagram DSC2-071EE

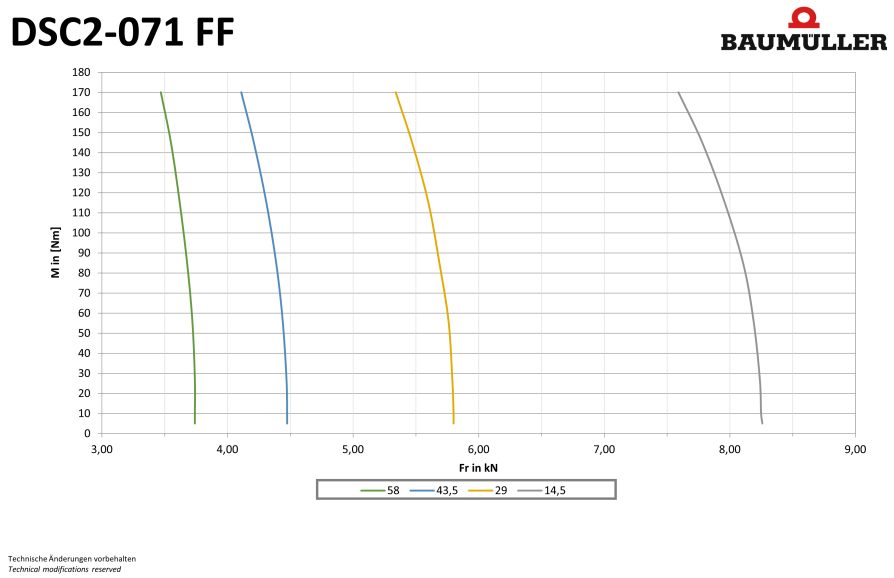


Figure 26: Torque-radial force diagram DSC2-071FF

3.9 Holding brake

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

The motors are available with the following holding brakes:

Motor	DSC2-071
Minimal static holding torque [Nm] at 120 °C	45
Rated dynamic holding torque [Nm] at 120 °C	25
Maximum switching energy [J] per braking from n = 3,000 rpm	1400
Connection values [V] (+6 % / -10 %)	24
Power consumption [W]	28
Moment of inertia [kgcm^2]	7.9
Switching time On [ms] Releasing brake; with basic air gap	100
Switching time Off [ms] Braking; with basic air gap	40

None of the brakes are safety brakes in the sense that torque reduction cannot occur due to uncontrollable disruptive factors. Depending on the application, the relevant accident prevention regulations, the basic safety and health requirements of Annex I of the Machinery Directive, and the harmonized European standards must be observed.

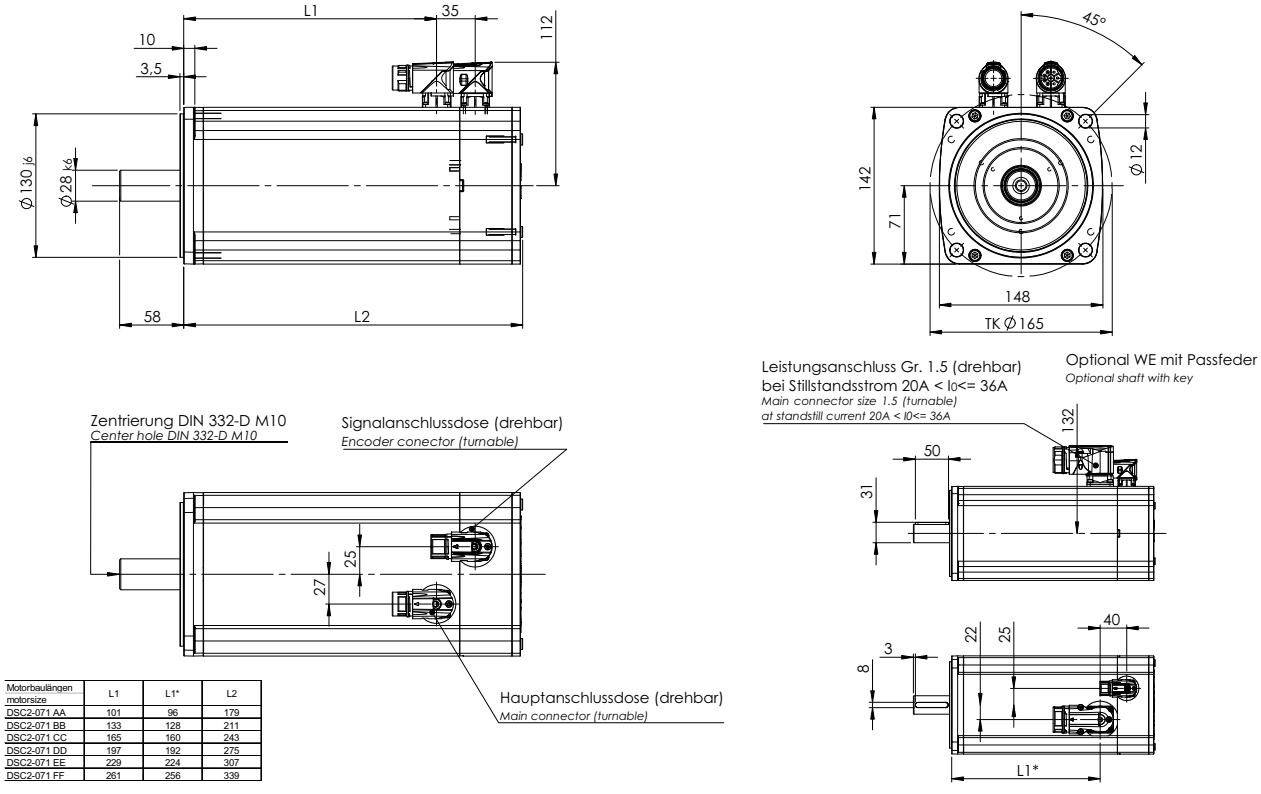
Approximately 2000 braking operations can be performed for emergency stops or in the event of a power failure.
(Condition: maximum external moment of inertia = motor moment of inertia and n_{max} type-related; max. braking operations/hour < 20; evenly distributed).

4

MOUNTING

4.1 Dimensions

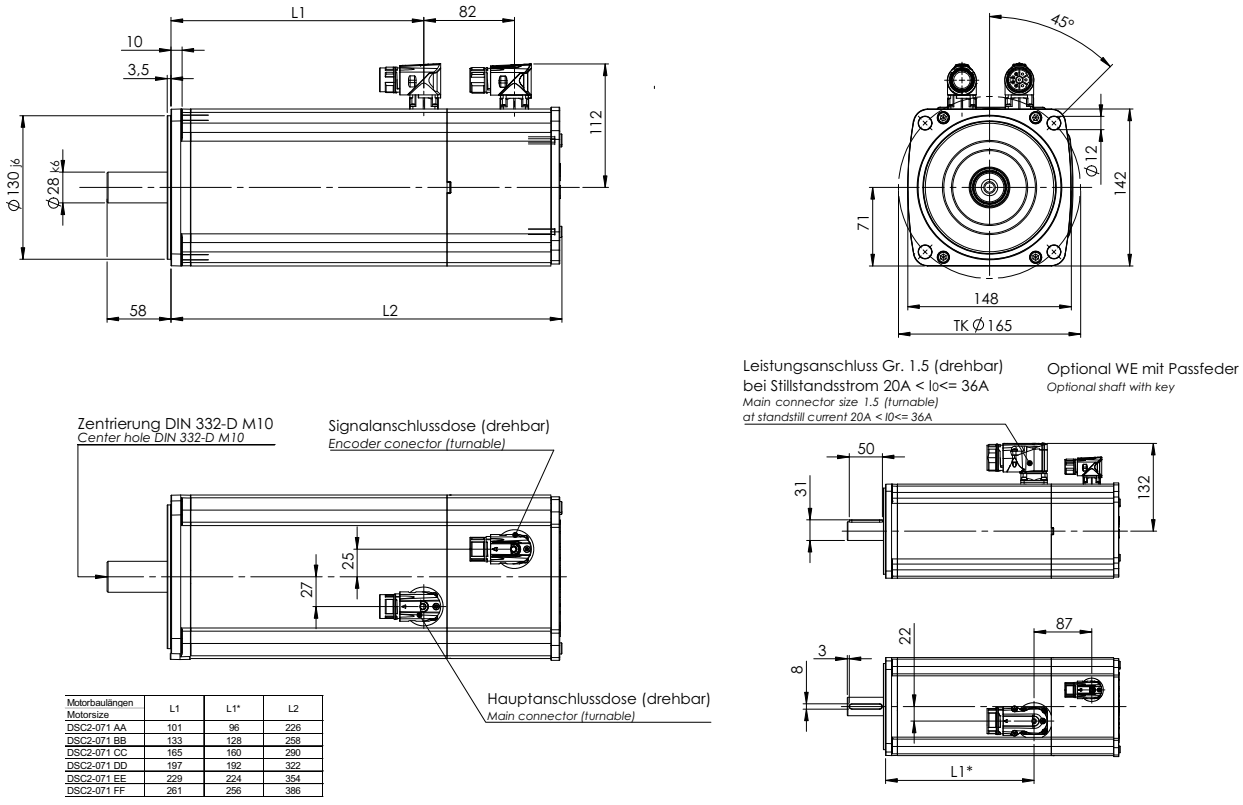
4.1.1 DSC2-071..U (without brake)



Motorbaulängen motorsize	L1	L1*	L2
DSC2-071 AA	101	96	179
DSC2-071 BB	133	128	211
DSC2-071 CC	165	160	243
DSC2-071 DD	197	192	275
DSC2-071 EE	229	224	307
DSC2-071 FF	261	256	339

Figure 27: Dimension DSC2-071..U

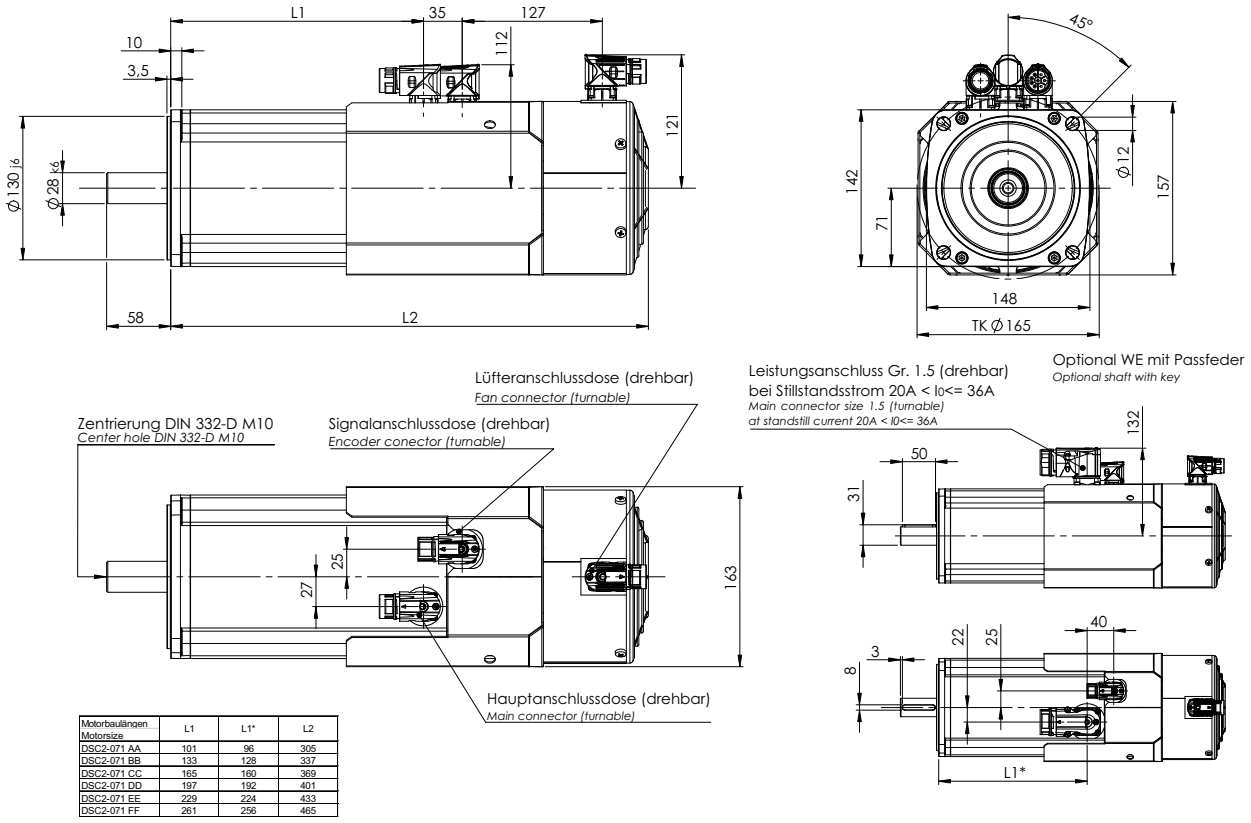
4.1.2 DSC2-071..U..B (without brake)



Motorbaulängen Motorsize	L1	L1*	L2
DSC2-071 AA	101	96	226
DSC2-071 BB	133	128	258
DSC2-071 CC	165	160	290
DSC2-071 DD	197	192	322
DSC2-071 EE	229	224	354
DSC2-071 FF	261	256	386

Figure 28: Dimension DSC2-071..U..B

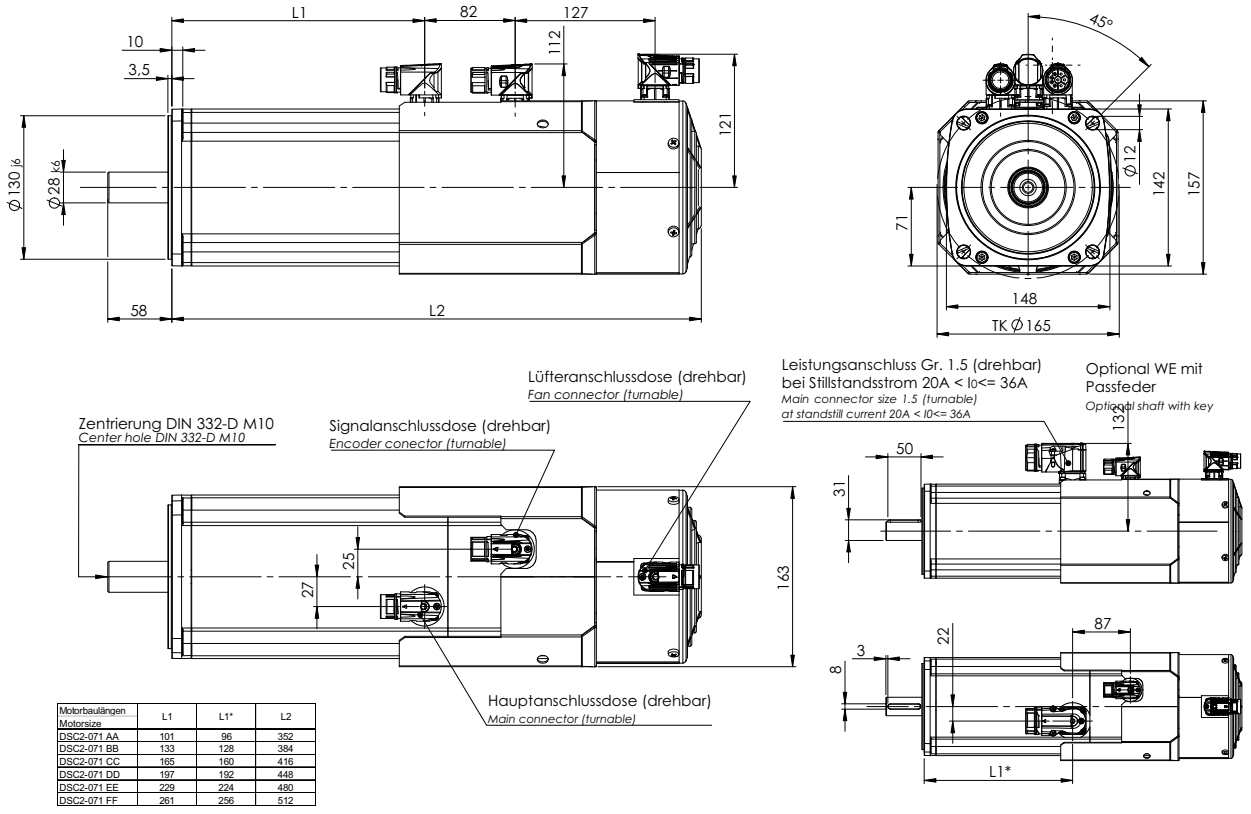
4.1.3 DSC2-071..O (without brake)



Motorbaulängen Motorsize	L1	L1*	L2
DSC2-071 AA	101	96	305
DSC2-071 BB	133	128	337
DSC2-071 CC	165	160	369
DSC2-071 DD	197	192	401
DSC2-071 EE	229	224	433
DSC2-071 FF	261	256	465

Figure 29: Dimension DSC2-071..O

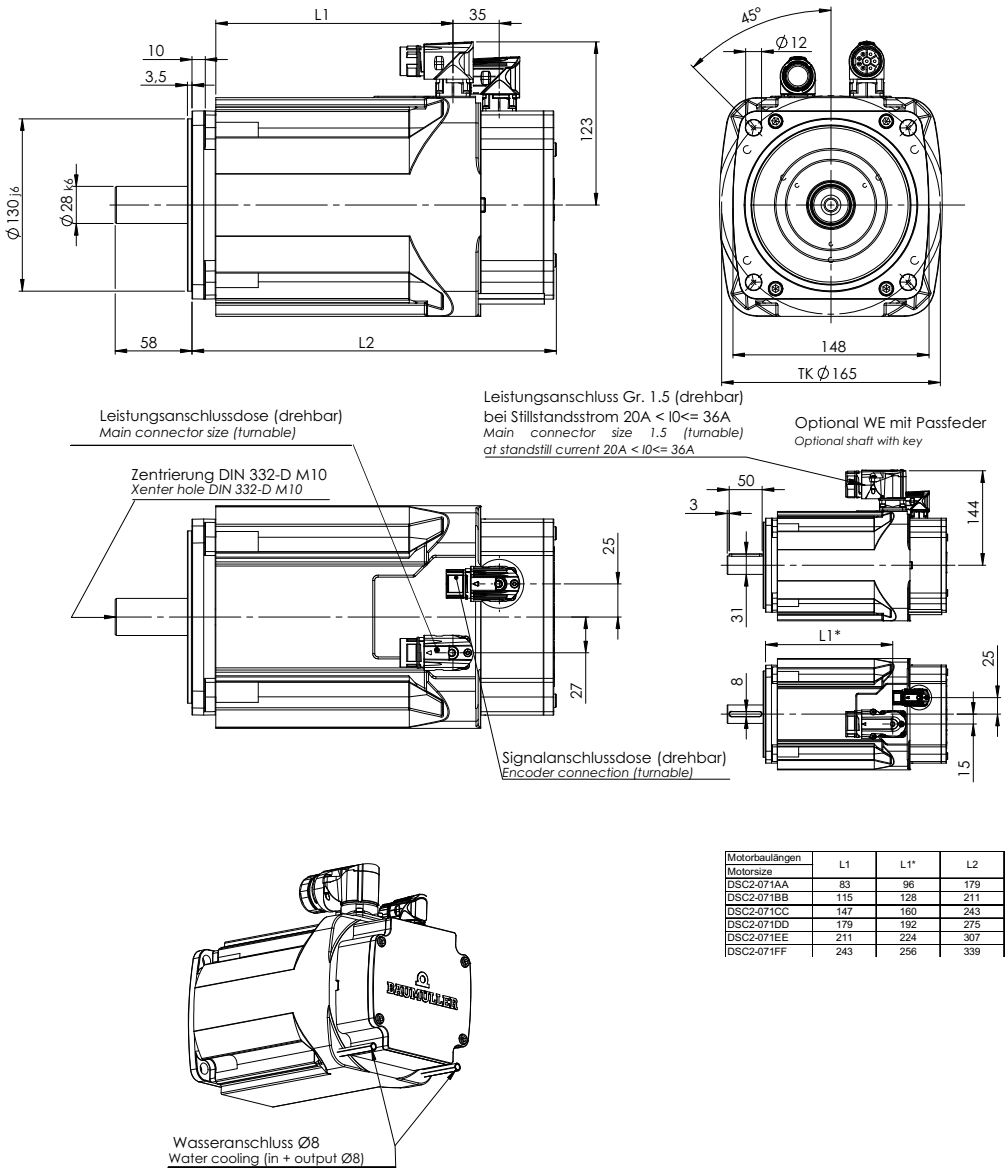
4.1.4 DSC2-071..O..B (with brake)



Motorbaulängen Motorsize	L1	L1*	L2
DSC2-071 AA	101	96	352
DSC2-071 BB	133	128	384
DSC2-071 CC	165	160	416
DSC2-071 DD	197	192	448
DSC2-071 EE	229	224	480
DSC2-071 FF	261	256	512

Figure 30: Dimension DSC2-071..O..B

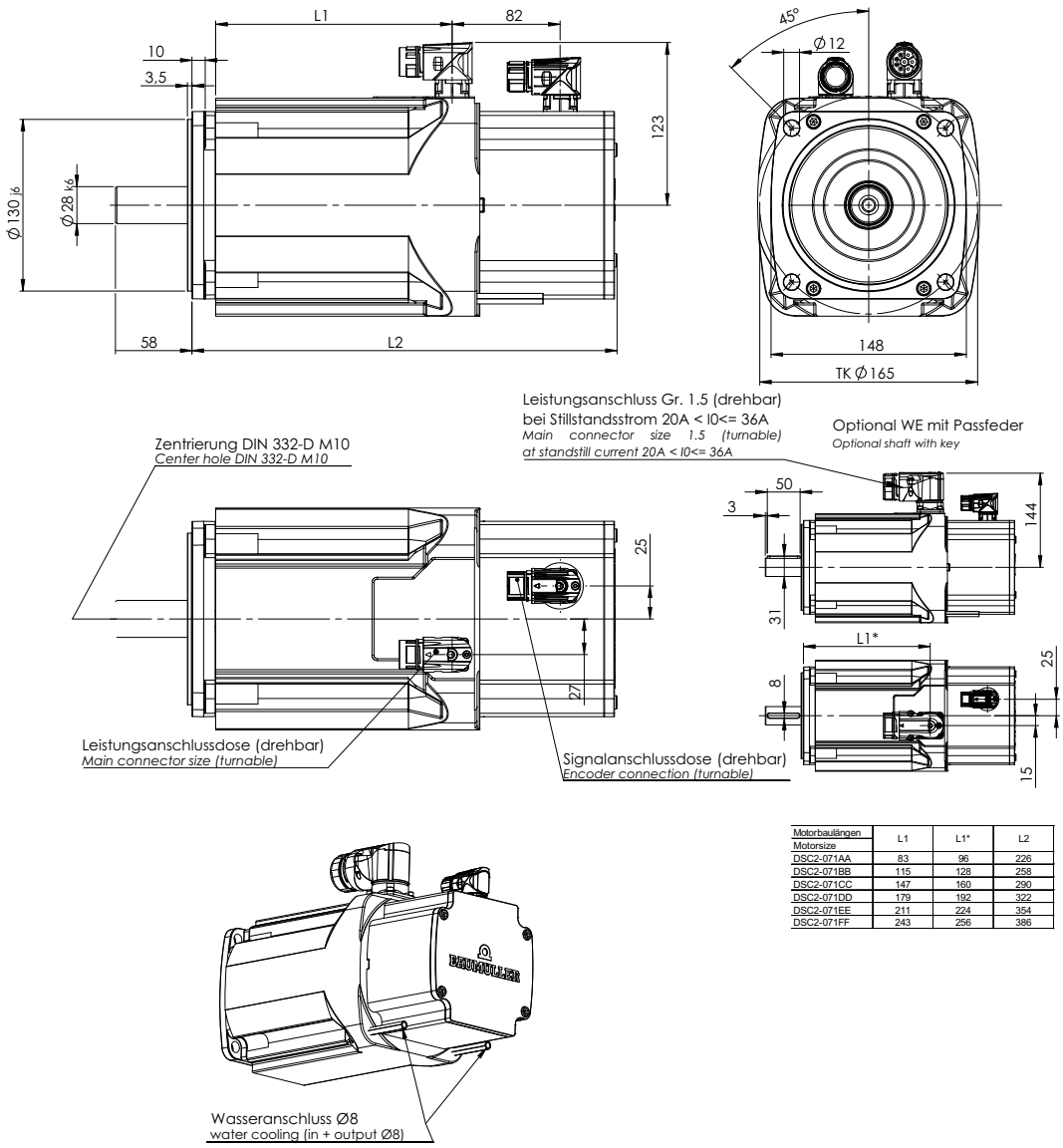
4.1.5 DSC2-071..W (without brake)



Motorbaulängen / Motorsize	L1	L1*	L2
DSC2-071AA	83	96	179
DSC2-071BB	115	128	211
DSC2-071CC	147	160	243
DSC2-071DD	179	192	275
DSC2-071EE	211	224	307
DSC2-071FF	243	256	339

Figure 31: Dimension DSC2-071..W

4.1.6 DSC2-071..W..B (with brake)

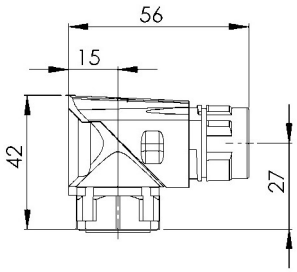


Motorbaulängen Motorsize	L1	L1*	L2
DSC2-071AA	83	96	226
DSC2-071BB	115	128	258
DSC2-071CC	147	160	290
DSC2-071DD	179	192	322
DSC2-071EE	211	224	354
DSC2-071FF	243	256	386

Figure 32: Dimension DSC2-071..W..B

4.1.7 Dimension of main connection

Speedtec - Rotary angle socket
(size 1 for current I_0 up to 20 A



Speedtec - Mating connector
(size 1 for current I_0 up to 20 A)

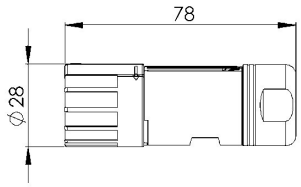
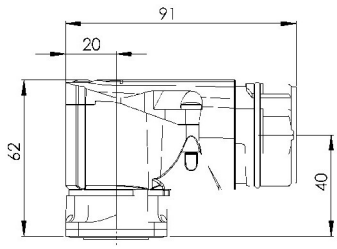


Figure 33: Dimension of main connection size 1

Speedtec - Rotary angle socket
(size 1,5 for current I_0 up to 36 A)



Speedtec - Mating connector
(size 1,5 for current I_0 up to 36 A)

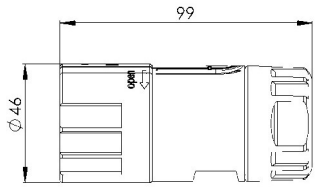
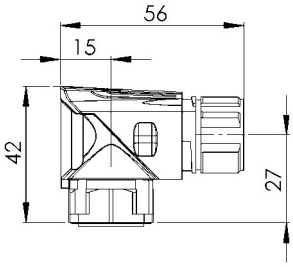


Figure 34: Dimension of main connection size 1,5

4.1.8 Dimension of encoder connection

Speedtec - Rotary angle socket



Speedtec - Mating connector

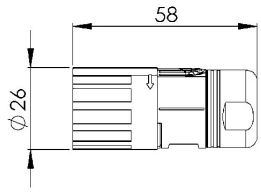


Figure 35: Dimensions of encoder connector

4.2 Tightening torques

NOTE!

The tightening torques mentioned below are general specification. Single specifications, e.g. tightening torques in motor specific dimension sheets or data sheets, have to be complied with first.

Tightening torques in Nm, tolerance +/- 10 %

	M4	M5	M6	M8	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56
Torque in Nm [1)]	1.3	2.6	4.5	11	22	38	92	180	310	620	1080	1700	2600	4200
Torque in Nm [2)]	3	5	8	20	40	70	170	340	600	1200	2000	3100	4700	7500

1) For screws of strength category 8.8 according to ISO 898-1 in components with lower strength (e. g. aluminum).

2) For screws of strength category 8.8 or A4-70 according to ISO 898-1 in components with higher strength (e.g. steel, gray cast iron).

4.3 Vibrations and resistance to vibrations

The vibration response of the entire system at the place of use, caused by output elements, mounting conditions, alignment and installation as well as by influences of external vibrations, can lead to an increase in the vibration values at the motor. Under certain circumstances a complete balancing of the rotor with the output element becomes necessary.

In order to be able to guarantee perfect function and service life the specified vibration values based on DIN ISO 10816 must not be exceeded at the specified measuring points of the motor (see figure below).

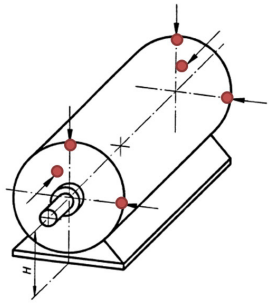


Figure 36: Measuring points for vibration

The specified maximum radial and axial vibration values must be adhered to at the same time. They apply to substructures which can be described as elastic. An elastic substructure is present if the lowest natural frequency of the overall system (machine and base) in the measuring direction is at least 25 % below the essential excitation frequency. All of

the other substructures can be described as rigid. In case of rigid substructures, the manufacturer must be consulted.

Maximum radial vibration load:

Peak vibration acceleration 1 g	> 250 Hz
Peak vibration displacement ≤ 0.16 mm	< 6.3 Hz
Effective vibration speed ≤ 4.5 mm/s	6.3 Hz - 250 Hz

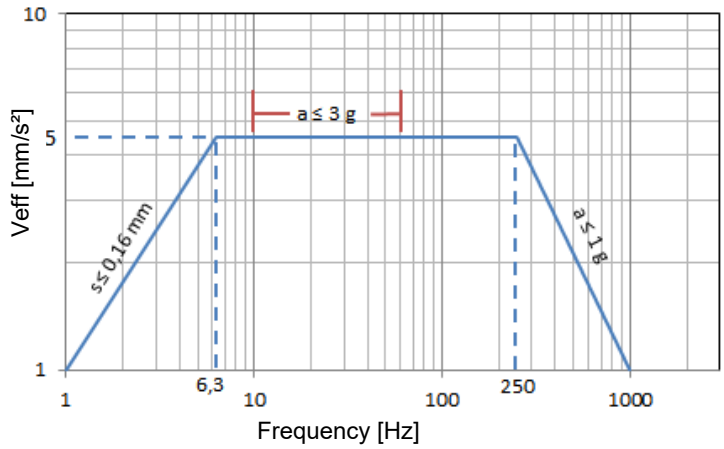


Figure 37: Permitted radial vibration load

Maximum axial vibration load:

Peak vibration acceleration 0.225 g	> 55 Hz
Peak vibration displacement ≤ 0.16 mm	< 6.3 Hz
Effective vibration speed ≤ 4.5 mm/s	6.3 Hz - 55 Hz

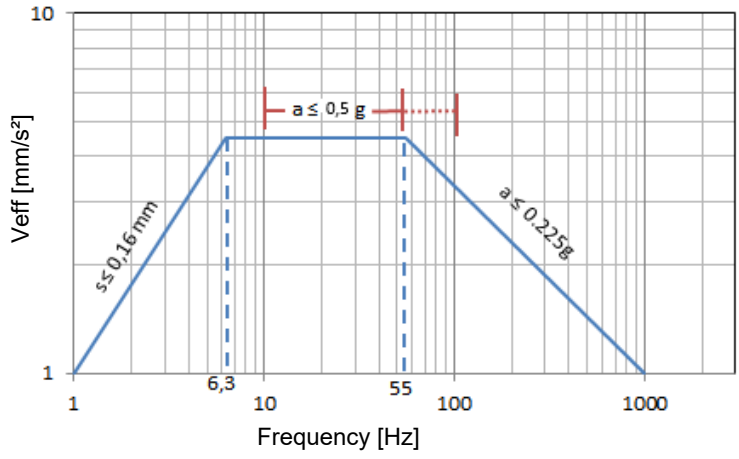


Figure 38: Permitted axial vibration load

Additional vibration resistance:

Shaft height 45 to 100 3 g radial and 2 g axial 10 Hz to 100 Hz

The specified vibrations are additionally endured by the motor. However, the service life of wear parts (such as bearings) can be reduced.

Shock load:

If there are increased vibration loads in the form of shocks, measurements on the installed machine are necessary.
Based on this, constructive revisions and evaluations are carried out with the company Baumüller.

To evaluate the vibration speed, the measuring equipment shall meet the requirements of ISO 2954. The vibration acceleration shall be evaluated in the time range in the frequency band from 10 Hz to 2 kHz.

If significant vibration excitations above 2 kHz are to be expected, such as meshing frequencies, the measuring range must be adapted accordingly. The permissible maximum values thereby do not change.

INSTALLATION

5.1 Electrical connections

5.1.1 Overview of available connection types

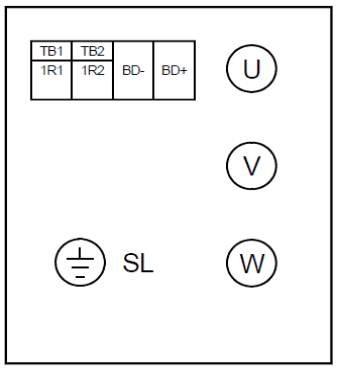
DSC2-071 ... 64U
without fan

	Speed	Main connection	Single cable available
DSC2-071AA64U-10-54	1000	Stecker Gr. 1	✓
DSC2-071AA64U-20-54	2000	Stecker Gr. 1	✓
DSC2-071AA64U-30-54	3000	Stecker Gr. 1	✓
DSC2-071AA64U-40-54	4000	Stecker Gr. 1	✓
DSC2-071AA64U-50-54	5000	Stecker Gr. 1	✓
DSC2-071BB64U-10-54	1000	Stecker Gr. 1	✓
DSC2-071BB64U-20-54	2000	Stecker Gr. 1	✓
DSC2-071BB64U-30-54	3000	Stecker Gr. 1	✓
DSC2-071BB64U-40-54	4000	Stecker Gr. 1	✓
DSC2-071BB64U-50-54	5000	Stecker Gr. 1	✓
DSC2-071CC64U-10-54	1000	Stecker Gr. 1	✓
DSC2-071CC64U-20-54	2000	Stecker Gr. 1	✓
DSC2-071CC64U-30-54	3000	Stecker Gr. 1	✓
DSC2-071DD64U-10-54	1000	Stecker Gr. 1	✓
DSC2-071DD64U-20-54	2000	Stecker Gr. 1	✓
DSC2-071DD64U-30-54	3000	Stecker Gr. 1,5	✓
DSC2-071EE64U-10-54	1000	Stecker Gr. 1	✓
DSC2-071EE64U-20-54	2000	Stecker Gr. 1,5	✓
DSC2-071EE64U-30-54	3000	Stecker Gr. 1,5	✓
DSC2-071FF64U-10-54	1000	Stecker Gr. 1	✓
DSC2-071FF64U-20-54	2000	Stecker Gr. 1,5	✓
DSC2-071FF64U-30-54	3000	Stecker Gr. 1,5	✓

DSC2-071 ... 64O surface-ventilated (with fan)

	Speed	Main connection	Single cable available
DSC2-071AA64O-10-54	1000	Stecker Gr. 1	✓
DSC2-071AA64O-20-54	2000	Stecker Gr. 1	✓
DSC2-071AA64O-30-54	3000	Stecker Gr. 1	✓
DSC2-071AA64O-40-54	4000	Stecker Gr. 1	✓
DSC2-071AA64O-50-54	5000	Stecker Gr. 1	✓
DSC2-071BB64O-10-54	1000	Stecker Gr. 1	✓
DSC2-071BB64O-20-54	2000	Stecker Gr. 1	✓
DSC2-071BB64O-30-54	3000	Stecker Gr. 1	✓
DSC2-071BB64O-40-54	4000	Stecker Gr. 1,5	✓
DSC2-071BB64O-50-54	5000	Stecker Gr. 1,5	✓
DSC2-071CC64O-10-54	1000	Stecker Gr. 1	✓
DSC2-071CC64O-20-54	2000	Stecker Gr. 1	✓
DSC2-071CC64O-30-54	3000	Stecker Gr. 1,5	✓
DSC2-071CC64O-40-54	4000	Stecker Gr. 1,5	✓
DSC2-071CC64O-50-54	5000	Stecker Gr. 1,5	✓
DSC2-071DD64O-10-54	1000	Stecker Gr. 1	✓
DSC2-071DD64O-20-54	2000	Stecker Gr. 1,5	✓
DSC2-071DD64O-30-54	3000	Klemmenkasten	○
DSC2-071DD64O-40-54	4000	Klemmenkasten	○
DSC2-071DD64O-50-54	5000	Klemmenkasten	○
DSC2-071EE64O-10-54	1000	Stecker Gr. 1	✓
DSC2-071EE64O-20-54	2000	Stecker Gr. 1,5	✓
DSC2-071EE64O-30-54	3000	Stecker Gr. 1,5	✓
DSC2-071EE64O-40-54	4000	Klemmenkasten	○
DSC2-071EE64O-50-54	5000	Klemmenkasten	○
DSC2-071FF64O-10-54	1000	Stecker Gr. 1	✓
DSC2-071FF64O-20-54	2000	Stecker Gr. 1,5	✓
DSC2-071FF64O-30-54	3000	Klemmenkasten	○
DSC2-071FF64O-40-54	4000	Klemmenkasten	○
DSC2-071FF64O-50-54	5000	Klemmenkasten	○

5.1.2 Main connection via terminal box



U V W	**Power connection**
1R1/ 1R2	**Temperature sensor**
BD+ / BD-	**Brake**
⏚	**Protective earth conductor**

Figure 39: Main connection standard with temperature sensor and brake

We recommend to use EMC screw connections at the fittings for the cable entries.

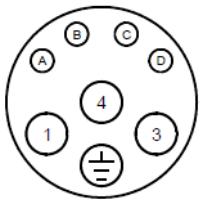
While tightening the clamping screw we recommend to hold up at the conductor to avoid a deformation of the mounting rail and to keep the base of the terminal free of torsional forces.

The following terminal box versions for the terminals are available including the tightening torques which are to be complied with:

Size of terminal box	Cable entry	No. of main connection terminals	Tightening torques of main connection terminals [Nm]
156	1 x M40 + 1 x M25	3 x M6	3.0
196	1 x M40 + 1 x M25	3 x M8	6.0

5.1.3 Main connection via connector

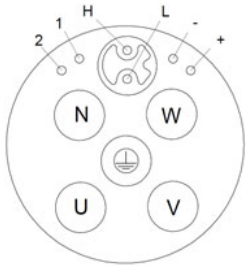
Size 1: $I_0 \leq 20$ A



View on the contact side of the mounting socket

Pin	Signal	Color / labeling
1	Phase U	U
⏚	Protective earth conductor	green/yellow
3	Phase V	V V
4	Phase W	W W W
A	B+	red
B	B-	black
C	R1	white
D	R2	yellow

Size 1,5: $I_0 \leq 36$ A



View on the contact side of the mounting socket

Pin	Signal	Color / labeling
U	Phase U	U
V	Phase V	V V
W	Phase W	W W W
⏚	Protective earth conductor	green/yellow
+	B+	red
-	B-	black
1	R1	white
2	R2	yellow

5.2 Fan connection

24 V DC

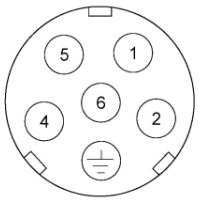
	Pin	Signal
 View on the contact side of the mounting socket	1	
	2	
	3	
	4	L+ (+24 V)
	5	L- (0 V)
	6	
	⏚	Protective earth conductor

Figure 40: Fan connection 24 V

115 V AC

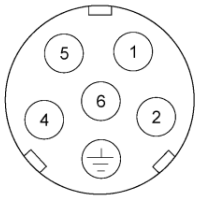
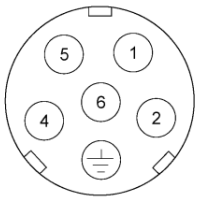
	Pin	Signal
 View on the contact side of the mounting socket	1	
	2	N
	3	
	4	
	5	
	6	U
	⏚	Protective earth conductor

Figure 41: Fan connection 115 V

230 V AC



View on the contact side of the mounting socket

Pin	Signal
1	U
2	N
3	
4	
5	
6	
⏚	Protective earth conductor

Figure 42: Fan connection 230 V

5.3 Pin assignment control connections

5.3.1 Resolver

Pole pair number	1
Transmission ratio	0,5 ±0,05
Frequency	5 kHz
Nominal input voltage	7 V_{rms}
Effective input power at no-load speed	112 mW
Current consumption at no-load speed	50 mA
Max. output voltage at no-load speed	3,5 V ±10 %
Stator impedance with short circuit and maximum coupling	61 mV/°
Phase shift	0° ±3°
Zero voltage	30 mV
Angle error in relation to $(\Delta\varphi_{max}+\Delta\varphi_{min})/2$	±6’
Shock according to DIN EN 60068-2-27 (11ms)	≤ 101 g
Vibration according to DIN EN 60068-2-6 (55 – 2000Hz)	≤ 50 g

View on the contact side
of the mounting socket

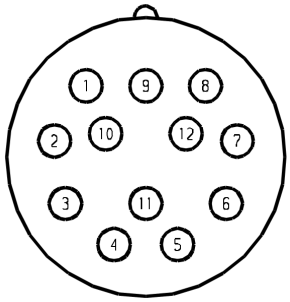


Figure 43: Pin assignment resolver

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

5.3.2 Resolver Safety

Pole pair number	1
Transmission ratio	0,5 ±0,05
Frequency	5 kHz
Sicherheits-Integritätslevel	SIL 3 (IEC 61508) with b maXX 5000/6000
Performance Level	PL e (EN ISO 13849) with b maXX 5000/6000
Maximum angular acceleration	100.000 rad/s²
Nominal input voltage	7 V_{rms}
Effective input power at no-load speed	112 mW
Current consumption at no-load speed	50 mA
Max. output voltage at no-load speed	3,5 V ±10 %
Stator impedance with short circuit and maximum coupling	61 mV/°
Phase shift	0° ±3°
Zero voltage	30 mV
Angle error in relation to $(\Delta\varphi_{max}+\Delta\varphi_{min})/2$	±6'
Shock according to DIN EN 60068-2-27 (11ms)	≤ 101 g
Vibration according to DIN EN 60068-2-6 (55 – 2000Hz)	≤ 50 g

View on the contact side
of the mounting socket

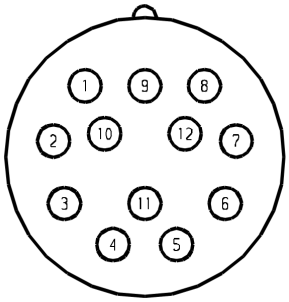


Figure 44: Pin assignment resolver

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

5.3.3 SEK/SEL 37 (SICK)

	SEK 37	SEL 37
Number of sine, cosine periods per revolution	16	
Measuring step for the interpolation of the sine, cosine periods such as 12 bi	20“	
Number of absolute completed revolutions	1	4096
Code type for the absolute value	Binary	
Error limits for evaluating the sine, cosine periods, integral non-linearity	±288"	
Non-linearity within a sine, cosine, differential non-linearity at nominal position ±0.1 mm	±144"	
Maximum speed at which the absolute position can be defined	6000 min^{-1}	
Maximum operating speed	12000 min^{-1}	
Output signal	Serial RS 485 asynchronous, half duplex	
Power supply range	7 - 12 V	
Max. operating current without Last	50 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	100 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	50 g	
SEK/SEL37 – with mechanical adaption	The notch position is 0° (identical to SEK/SEL52 encoder)	

View on the contact side of the mounting socket

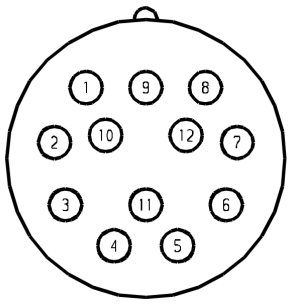


Figure 45: Pin assignment SEK/SEL 37

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

NOTE
Encoders are ESD sensitive devices. The technical data is specification from the encoder manufacturer.

5.3.4 SRS/SRM 50 (SICK)

	SRS 50	SRM 50
Number of sine, cosine periods per revolution	1024	
Number of increments per revolution	32768	
Number of absolute completed revolutions	1	4096
Code type for the absolute value	Binary	
Output frequency of the sine, cosine signals	0 - 200 kHz	
Fault limits in evaluation of the sine, cosine signals; Integral non-linearity	±45°	
Non-linearity within a sine or cosine period. Differential non-linearity ±0,1mm	±7°	
Maximum speed at which the absolute position can be defined	6000 min^{-1}	
Maximum operating speed	12000 min^{-1}	
Output signals; 2x90° offset sinusoidal signals	1 V_{SS}	
Output signal	Serial RS 485 asynchronous, half duplex	
Power supply range	7 - 12 V	
Max. operating current without load	80 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	100 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	50 g	

View on the contact side of the mounting socket

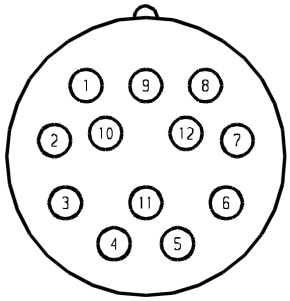


Figure 46: Pin assignment SRS/SRM 50

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

NOTE
Encoders are ESD sensitive devices. The technical data is specification from the encoder manufacturer.

5.3.5 SRS/SRM 50 Safety (SICK)

	SRS 50-S	SRM 50-S
Safety integrity level	SIL2 (IEC 61508), SILCL2 (IEC 62061)	
Category	3 (EN ISO 13849)	
Performance Level	PL d (EN ISO 13849)	
Maximum angular acceleration	200.000 rad/s^2	
Number of sine, cosine periods per revolution	1024	
Number of increments per revolution	32768	
Number of absolute completed revolutions	1	4096
Code type for the absolute value	Binary	
Output frequency of the sine, cosine signals	0-200 kHz	
Fault limits in evaluation of the sine, cosine signals; Integral non-linearity	±45°	
Non-linearity within a sine or cosine period. Differential non-linearity ±0,1mm	±7°	
Maximum speed at which the absolute position can be defined	6000 min^{-1}	
Maximum operating speed	12000 min^{-1}	
Output signals; 2x90° offset sinusoidal signals	1 V_{SS}	
Output signal	Serial RS 485 asynchronous, half duplex	
Power supply range	7 - 12 V	
Max. operating current without load	80 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	100 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	20 g	

View on the contact side of the mounting socket

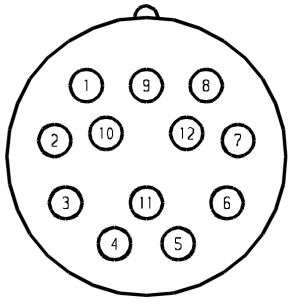


Figure 47: Pin assignment SRS/SRM 50-S

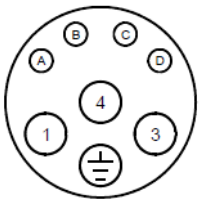
Pin	Signal	Option with PT1000 (R1/R2) on encoder socket
1	cos -	cos -
2	+ 485	+ 485
3		R1
4		R2
5	sin +	sin +
6	sin -	sin -
7	- 485	- 485
8	cos +	cos +
9		
10	GND	GND
11		
12	- U	- U

NOTE
Encoders are ESD sensitive devices. The technical data is specification from the encoder manufacturer. The technical data is the specifications of the encoder manufacturer. The configuration options for the safety encoders with different engine versions can be found in
the product configurator. The combination SRS/SRM50-S with add-on gearbox is available by request.

5.3.6 EES 37/EEM 37 Hiperface DSL® (SICK)

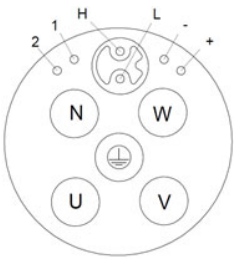
	EES 37	EEM 37
Number of absolute completed revolutions	1 (15 bit)	4096 (15 bit)
Code type for the absolute value	Binary	
Interface signals	Digital, RS485	
Position values / revolution	32768	
Maximum angular acceleration	500 000 rad/s²	
Maximum operating speed	12000 min^{-1}	
Power supply range	7 - 12 V	
Current consumption without load	≤150 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	100 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	50 g	
Working temperature	-40 °C .. +115 °C	

View on the contact side of the socket, size 1



Pin	Signal
1	Phase U
⏚	Ground
3	Phase V
4	Phase W
A	B+
B	B-
C	DSL+
D	DSL-

View on the contact side of the socket, size 1,5



Pin	Signal
U	Phase U
V	Phase V
W	Phase W
⏚	Ground
+	B+
-	B-
1	
2	
H	+U / DSL+
L	GND / DSL-

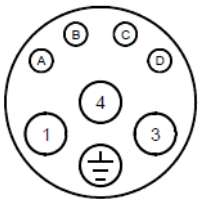
Figure 48: Pin assignment EES 37/ EEM 37

NOTE
Encoders are ESD sensitive devices. The technical data is specification from the encoder manufacturer. The configuration options of the Hiperface DSL® encoder with various motor versions are to be taken from the product configurator. The encoder can be used up to a cable length of 60 m.

5.3.7 EDS 35/EDM 35 Hiperface DSL® (SICK)

	EDS 35	EDM 35
Number of absolute completed revolutions	1 (24 bit)	4096 (24 bit)
Code type for the absolute value	Binary	
Interface signals	Digital, RS485	
System accuracy	±20“	
Maximum angular acceleration	160 000 rad/s²	
Maximum operating speed	9 000 min^{-1}	
Power supply range	7 - 12 V	
Current consumption without load	≤150 mA	
Shock according to DIN EN 60068-2-27 (6 ms)	100 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	50 g	
Working temperature	-40 °C ... +125°C	

View on the contact side of the socket, size 1



Pin	Signal
1	Phase U
⏚	Ground
3	Phase V
4	Phase W
A	B+
B	B-
C	DSL+
D	DSL-

View on the contact side of the socket, size 1,5

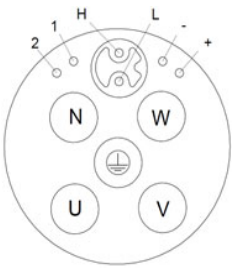


Figure 49: Pin assignment EDS 35/ EDM 35

Pin	Signal
U	Phase U
V	Phase V
W	Phase W
⏚	Ground
+	B+
-	B-
1	Shielding
2	
H	+U / DSL+
L	GND / DSL-

NOTE
Encoders are ESD sensitive devices. The technical data is specification from the encoder manufacturer. The configuration options of the Hiperface DSL® encoder with various motor versions are to be taken from the product configurator. The encoder can be used up to a cable length of 60 m.

5.3.8 ECN 1313 / EQN 1325 (Heidenhain)

	ECN 1313	EQN 1325
Number of sine, cosine periods per revolution	2048	
System accuracy	±20“	
Number of absolute completed revolutions	1	4096 (12 bit)
Code type for the absolute value	EnDat 2.1	
Sampling limit frequency or limit frequency	0 - 200 kHz	
Position values / revolution	8192 (13 bit)	
Maximum speed at which the absolute position can be defined	12000 min^{-1}	
Maximum operating speed	12000 min^{-1}	
Power supply	3,6 - 14 V	
Current consumption without load	≤160 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	≤204 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	≤31 g	

View on the contact side of the mounting socket

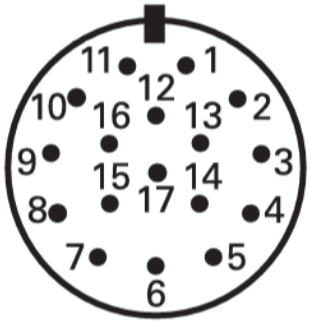


Figure 50: Pin assignment ECN 1313/ EQN 1325

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

NOTE
Encoders are ESD sensitive devices. The technical data is specification from the encoder manufacturer.

5.3.9 ECN 1325 / EQN 1337 (Heidenhain)

	ECN 1325	EQN 1337
Number of sine, cosine periods per revolution	2048	
System accuracy	±20“	
Number of absolute completed revolutions	1	4096 (12 bit)
Code type for the absolute value	EnDat 2.2	
Position values / revolution	33.554.432 (25 bit)	
Maximum speed at which the absolute position can be defined	12000 min^{-1}	
Maximum operating speed	12000 min^{-1}	
Power supply	3,6 - 14 V	
Current consumption without load	≤160 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	≤203 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	≤30 g	

View on the contact side
of the mounting socket (M23)

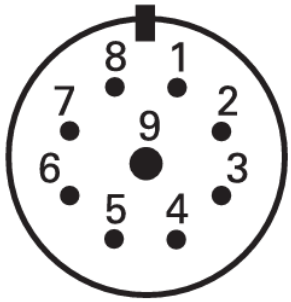


Figure 51: Pin assignment ECN 1325 / EQN 1337

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

NOTE
Encoders are ESD sensitive devices. The technical data is specification from the encoder manufacturer.

5.3.10 ECN 1325 Safety / EQN 1337 Safety (Heidenhain)

	ECN 1325-S	EQN 1337-S
Safety integrity level	SIL 2 according to EN 61508	
Category	3 (EN ISO 13849)	
Performance Level	PL d (EN ISO 13849)	
Maximum angular acceleration	50.000 rad/s^2	
Number of sine, cosine periods per revolution	2048	
System accuracy	±20“	
Number of absolute completed revolutions	1	4096 (12 bit)
Code type for the absolute value	EnDat 2.2	
Position values / revolution	33.554.432 (25 bit)	
Maximum speed at which the absolute position can be defined	12000 min^{-1}	
Maximum operating speed	12000 min^{-1}	
Power supply	3,6 - 14 V	
Current consumption without load	≤160 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	≤203 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	≤30 g	

View on the contact side
of the mounting socket (M23)

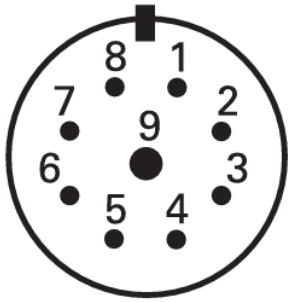


Figure 52: Pin assignment ECN 1325-S / EQN 1337-S

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

NOTE
Encoders are ESD sensitive devices. The technical data is specification from the encoder manufacturer. Die The configuration options for the safety encoders with different engine versions can be found in the product configurator.

5.3.11 ECI 1319 / EQI 1331 (Heidenhain)

	ECI 1319	EQI 1331
No. of increments	-	
System accuracy	±65“	
Number of absolute completed revolutions	1	4096 (12 bit)
Code type for the absolute value	EnDat 2.2	
Position values / revolution	524 2882 (19 bit)	
Maximum speed at which the absolute position can be defined	15000 min^{-1}	
Maximum operating speed	15000 min^{-1}	12000 min^{-1}
Power supply	3,6 - 14 V	
Current consumption at 5 V typical, without load	95 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	≤203 g	
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	≤40 g	

View on the contact side
of the mounting socket (M23)

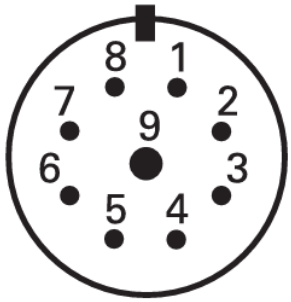


Figure 53: Pin assignment ECI 1319 / EQI 1331

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

NOTE
Encoders are ESD sensitive devices. The technical data is specification from the encoder manufacturer.

NOTE!

Refer to the details on the wiring diagrams and technical documentation in case the encoder used is not described above or the temperature sensor is provided at the encoder cable.

6

SPARE PARTS

6.1 Motor cables

The motor cables are highly flexible trailing cables with overall shielding, They comply with VDE, UL, and CSA regulations. The control cables are integrated in star quad formation. The connector for brake control and the temperature sensor is available via main connection.

The cables are particularly suitable for the optimum use of cable racks thanks to their low cross-section, low weight and non-impeding surface. It also allows for an efficient use of the cables in drag chains. It is an EMC uncritical cable because of the overall shielding with > 85 % optical covering.

Technical data

- Cable sheath resists to mediums as for coolants and lubricants, machine or gear box oil
- Abrasion resistant surface for cable chains and drag chains
- Cable highly flexible, trailing cable, min. bending radius 12 x D at flexible use
- Sheath surface not blocking, silk mat
- Overall shielding of Cu copper braid > 85 % optical covering
- TPE or polyester wire insulation, sheath PUR - non-halogen cable
- Cable no FCKW and no silicone
- Halogen-free and flame-resistant
- Cable color RAL 1028, melon yellow
- Labeled with Baumüller company logo, VDE, UL and CSA

Nominal voltage

- Uo/U 600 / 1000 V (power wires)
- 24 V_{DC} (control wires)

Wire labeling

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

Assignments of the pairs

Note polarity!

- red - black (brake)
- white - yellow (temperature sensor)

Main connection via connector

Cable cross section	Nominal current I_N [A][1)]	I_N [A] for c UL us approved motors	Connector size at 540 V	Cable diameter [mm]
4×1.5 mm² + 4×0.75 mm²	15	12	1	11.7-12.3
4x2.5 mm² + 4×0.75 mm²	20	16	1	12.7-14.6
4x4 mm² + 4×0.75 mm²	28	22.4	1.5	14.2-15.4
4x6 mm² + 4×0.75 mm²	36	28.8	1.5	16.6-17.9
4x10 mm² + 4x0.75 mm²	50	40	1.5	20.5-21.5
4x16 mm² + 4x0.75 mm²	66	52.8	-	23.0-25.8
4x25 mm² + 2x(2x1.5 mm²)	84	67.2	-	26.3-29.7
4x35 mm² + 2x(2x1.5 mm²)	104	83.2	-	30.8-32.5

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

Application notes

- Operating temperature
  The cables can be operated within a temperature range of between -20 °C and +80 °C.
- Cable laying at the motor
  The cables must not touch the motor surface.
- Smallest permissible bending radii
  12x outer cable diameter.

Main connection cables

Nominal current: 15 A	
Cable 4 x 1,5 mm² + 4x 0,75 mm² with connector size 1	
Length [m]	Part No. (Speedtec)
5	445872
7	445887
10	445889
15	447675
20	447676
25	447677
30	447678
35	447679
40	447680
50	447681
75	447682
100	447683

Nominal current: 28 A	
Cable 4 x 4 mm² + 4x 0,75 mm² with connector size 1,5	
Length [m]	Part No. (Speedtec)
5	448063
7	448064
10	448065
15	448066
20	448067
25	448069
30	448070
35	448071
40	448072

Nominal current: 20 A	
Cable 4 x 2,5 mm² + 4x 0,75 mm² with connector size 1	
Length [m]	Part No. (Speedtec)
5	447684
7	447687
10	447688
15	447692
20	447698
25	447852
30	447853
35	447854
40	447855
50	447856
75	447857
100	447858

Nominal current: 36 A	
Cable 4 x 6 mm² + 4x 0,75 mm² with connector size 1,5	
Length [m]	Part No. (Speedtec)
5	448080
7	448118
10	448119
15	448120
20	448121
25	448122
30	448123
35	448124
40	448125

Nominal current: 21 A	
Cable 4 x 2,5 mm² + 4x 0,75 mm² with connector size 1	
Length [m]	Part No. (Speedtec)
5	447686
7	447689
10	447690
15	447691
20	447693
25	447694
30	447695
35	447696
40	447697
50	447699
75	448060
100	448061

Nominal current: 50 A	
Cable 4 x 6 mm² + 4x 0,75 mm² with connector size 1,5	
Length [m]	Part No. (Speedtec)
5	448129
7	448131
10	448132
15	448133
20	448134
25	448135
30	448136
35	448137
40	448138

Mating connector		
	Type	Part No. (Speedtec)
Size 1	4x1,5 mm^2 o. 4x2,5 mm^2	445486
Size 1	4x2,5 mm^2 bis 4x4 mm^2	500064
Size 1,5	4x2,5 mm^2 bis 4x6 mm^2	445487
Size 1,5	4x10 mm^2	445488

Different regulations apply to the current rating of c UL us approved engines.

6.2 Encoder cables for b maXX 5000/6000

A prefabricated encoder cable is used for all encoder systems.

The connection at the motor end consists of a 12-pole circular signal connector on resolvers and Hiperface® encoder, a 17-pole circular signal connector on ECN1313/EQN1325.

The connection at the controller side consists of a 26-pole D-Sub connector. Alternatively, the signal connector on the motor side is available in a Speedtec version.

Technical data

Dragable for resolver

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

Dragable for SinCos Hiperface® interface and SinCos - and TTL incremental encoders

- Li9YC, 3x(2x0.25)+Li9Y, 3x(2x0.25)+Li9YC11Y, 1x(2x0.34), copper strand, twisted pairs
- PUR sheat, green; inscription with Baumüller Nürnberg and encoder cable Hiperface or Incremental
- 1st side: 12-pole circular signal plug connector with 12 socket contacts
- 2nd side: 26-pole Sub-D plug connector with pin contacts and locking screws 4-40UNC
- Outer diameter 9.6 mm (+/- 0.3 mm)
- Bending radius: r ≥ 4 x D (fixed routing), r ≥ 10 x D (flexible use)

Dragable for EnDat® 2.1 interface

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

Dragable hybrid cable for Hiperface DSL®

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

Application references

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

Limit temperature	on the surface
Storage temperature	- 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.

Order information for encoder cables

Encoder cable - prefabricated with plug

For Resolver	
Length [m]	Part No. (Speedtec)
1	448746
2	448747
3	448748
5	448749
7	448750
10	448751
15	448752
20	448753
25	448754
30	448755
35	448756
40	448757
50	448758
75	448759

For SinCos Hiperface® interface	
Length [m]	Part No. (Speedtec)
1	448761
2	448762
3	448763
5	448764
7	448765
10	448766
15	448767
20	448768
25	448769
30	448770
35	448772
40	448773
50	448774
75	448775

For SinCos - and TTL- incremental encoders	
Length [m]	Part No. (Speedtec)
1	448777
2	448778
3	448779
5	448780
7	448781
10	448782
15	448783
20	448784
25	448785
30	448786
35	448787
40	448788
50	448789
75	448790

For SinCos EnDat® 2.1 interface	
Length [m]	Part No. (Speedtec)
1	448796
2	448797
3	448798
5	448799
7	448800
10	448801
15	448802
20	448803
25	448804
30	448805
35	448806
40	448807
50	448808
75	448809

For Hiperface DSL® hybrid cables size 1		
	Nominal current 15 A 4G1.5+(2x0,75)+(2x22AWG)	Nominal current 20 A 4G2.5+(2x1.0)+(2x22AWG)
Length [m]	Part No.	Part No.
3	464201	464217
5	464202	464218
7	464203	464219
10	464204	464220
15	464205	464221
20	464206	464222
25	464207	464223
30	464208	464224
35	464209	464225
40	464210	464226
50	464211	464227
60	464212	464228

For Hiperface DSL® hybrid cables size 1,5			
	Nominal current 21A 4G2.5+(2x1.0)+(2x22AWG)	Nominal current 28A 4G4.0+(2x1.0)+(2x22AWG)	Nominal current 36A 4G6.0+(2x1.0)+(2x22AWG)
Length [m]	Part No.	Part No.	Part No.
3	464235	464278	464294
5	464236	464279	464295
7	464237	464280	464296
10	464238	464281	464297
15	464239	464282	464298
20	464240	464283	464299
25	464241	464284	464300
30	464242	464285	464301
35	464243	464286	464302
40	464244	464287	464303
50	464245	464288	464304
60	464246	464289	464305

Appendix A - Motor Characteristic Curves

Definition

Cold motor = Environmental temperature (0 °C bis 40 °C)

Motor at operating temperature = Continuous operation (S1) with nominal data of the motor or cyclical operation with corresponding effective output

⇒ Environmental temperature + Delta temperature rise (105 K)

A.1 DSC2-071 .. U .. without fan

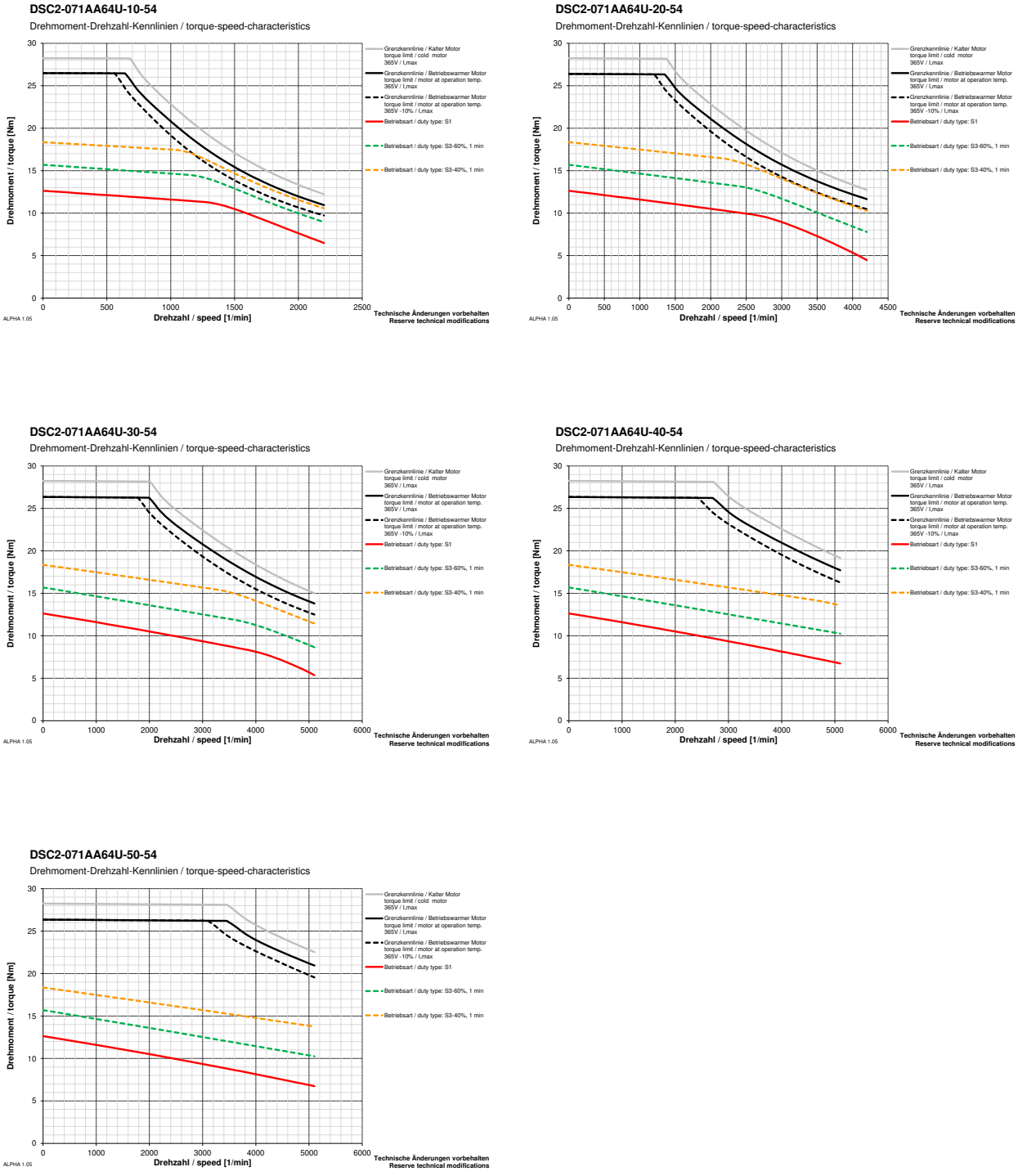
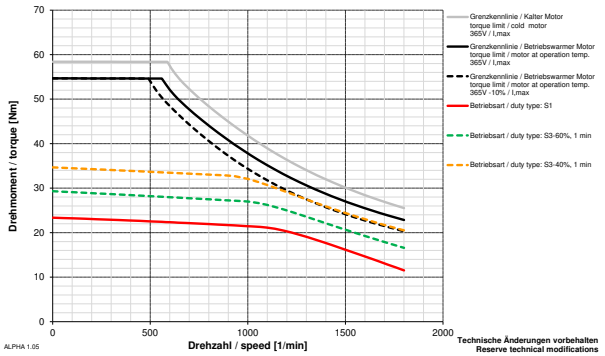


Figure 54: Motor characteristic curves DSC2-071AA .. U .. unventilated

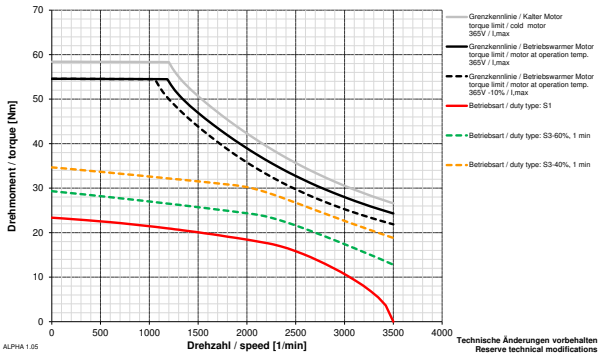
DSC2-071BB64U-10-54

Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics



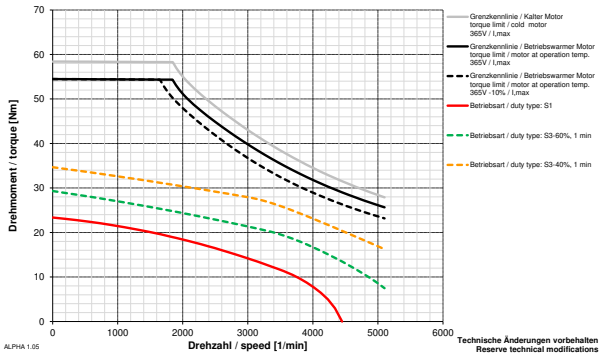
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Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics



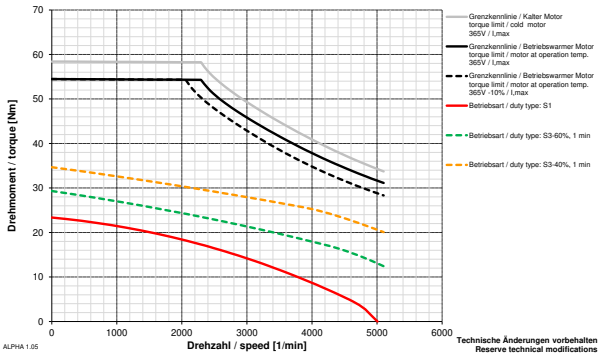
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Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics



DSC2-071BB64U-40-54

Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics



DSC2-071BB64U-50-54

Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics

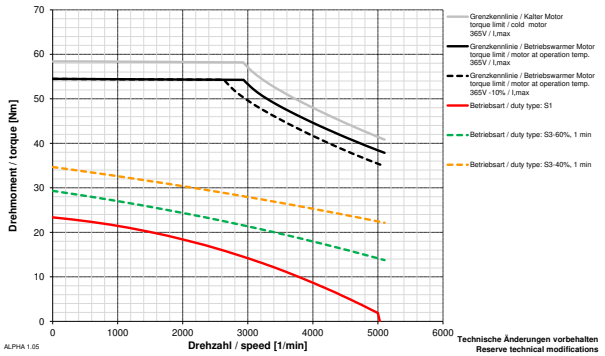


Figure 55: Motor characteristic curves DSC2-071BB .. U .. unventilated

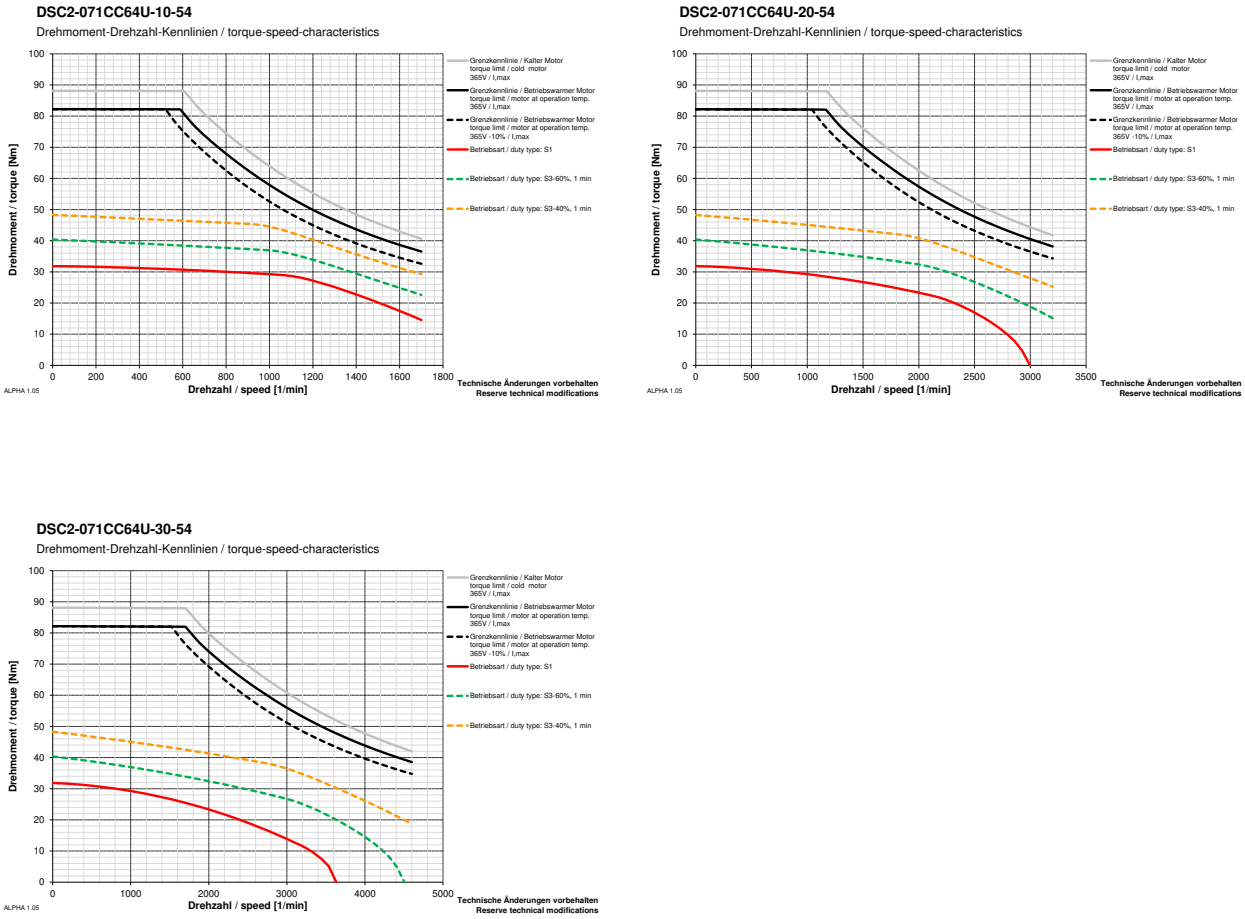


Figure 56: Motor characteristic curves DSC2-071CC .. U .. unventilated

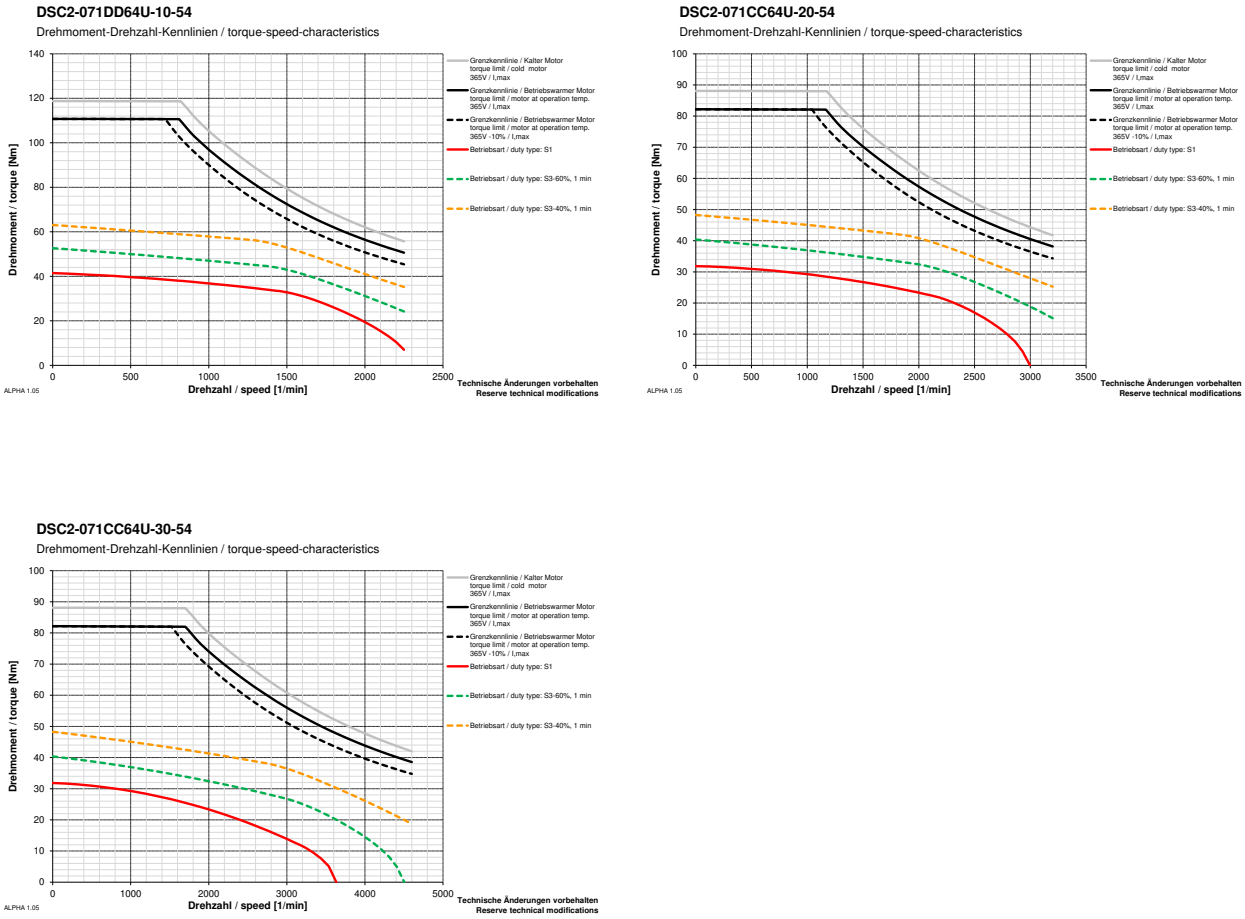


Figure 57: Motor characteristic curves DSC2-071DD .. U .. unventilated

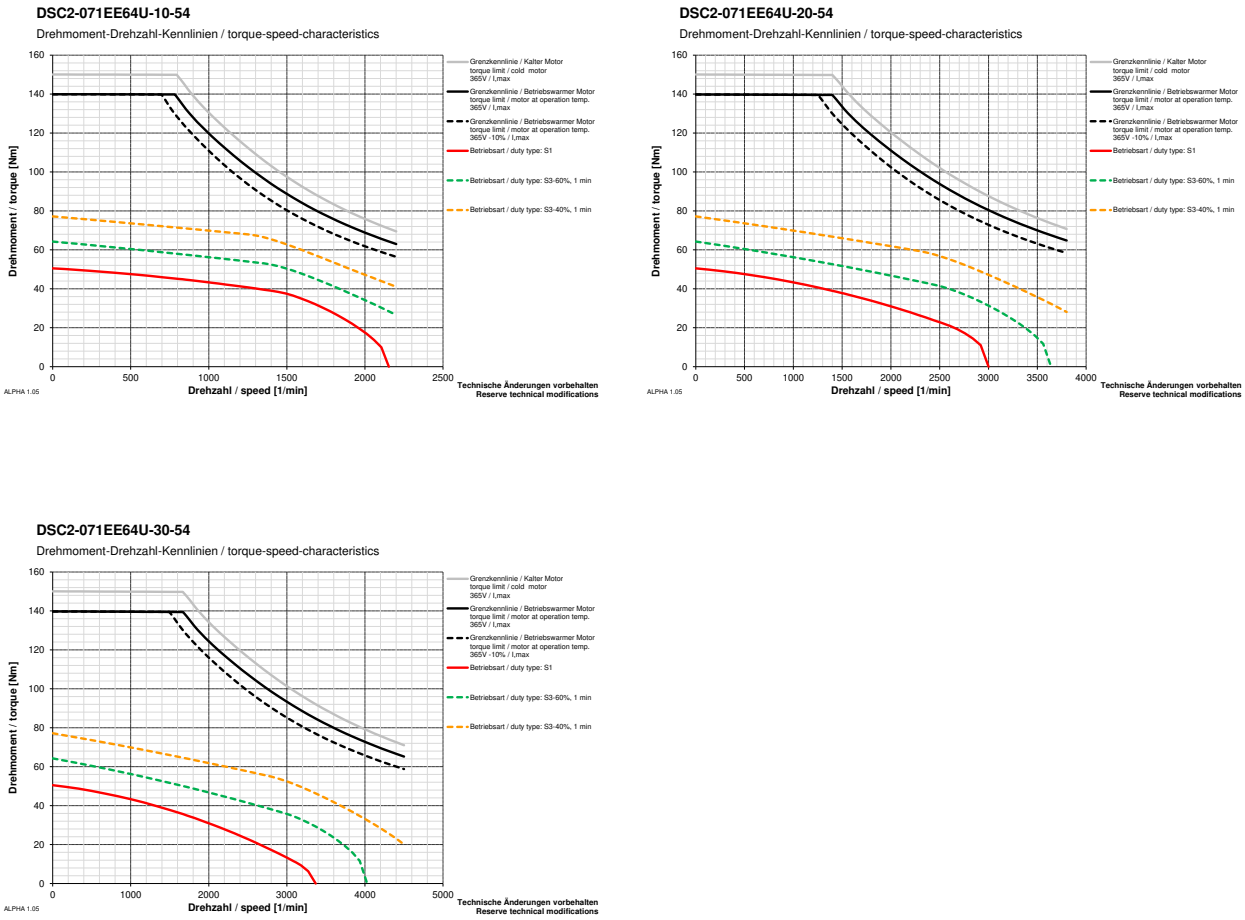
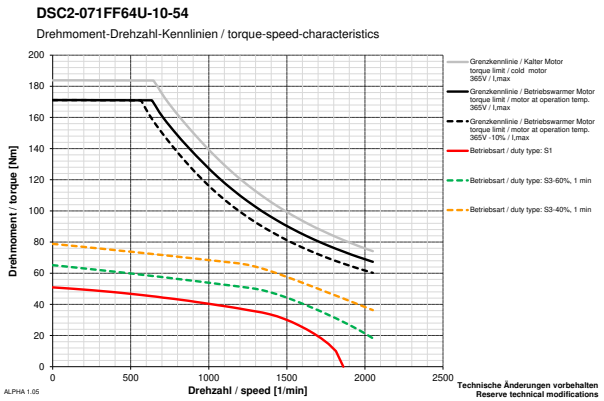
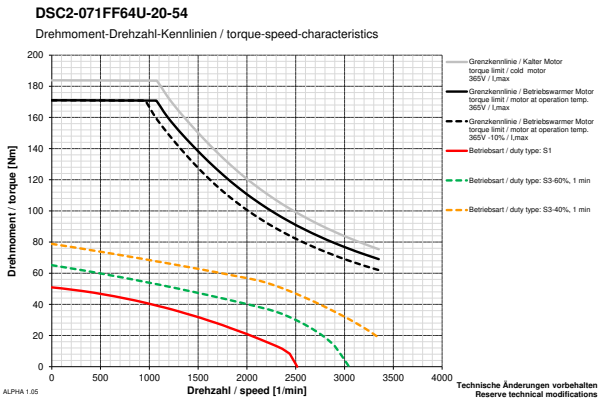


Figure 58: Motor characteristic curves DSC2-071EE .. U .. unventilated





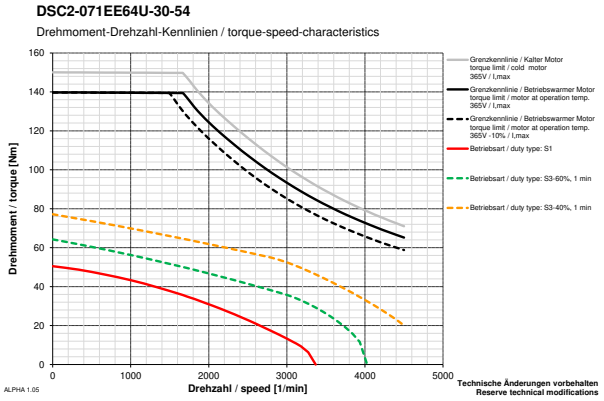
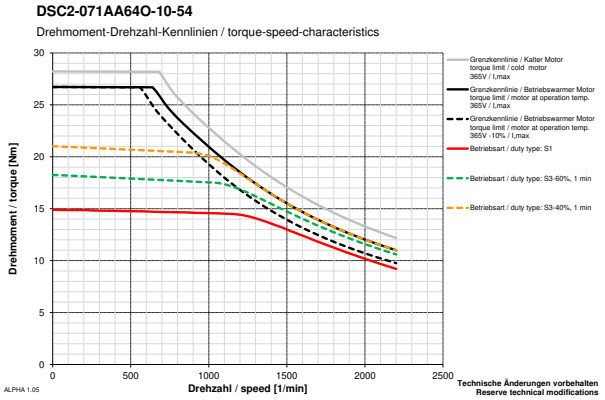
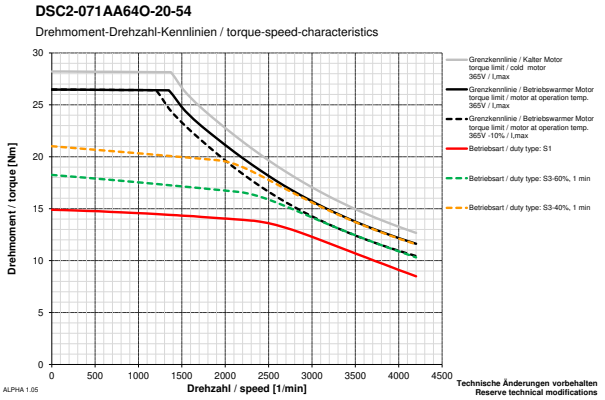
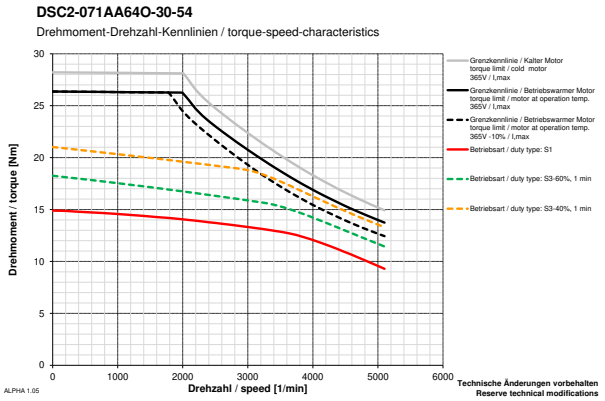


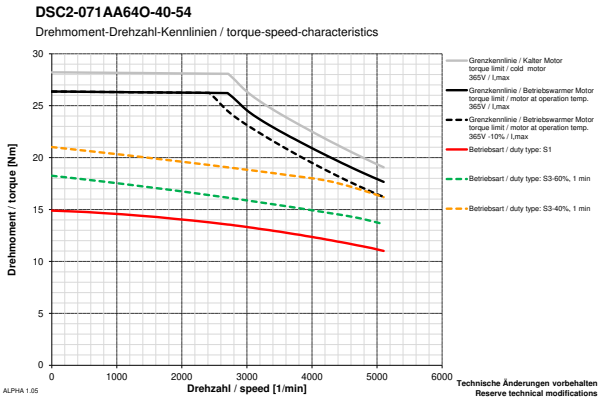
Figure 59: Motor characteristic curves DSC2-071FF .. U .. unventilated

A.2 DSC2-071 .. O .. surface-ventilated (with fan)









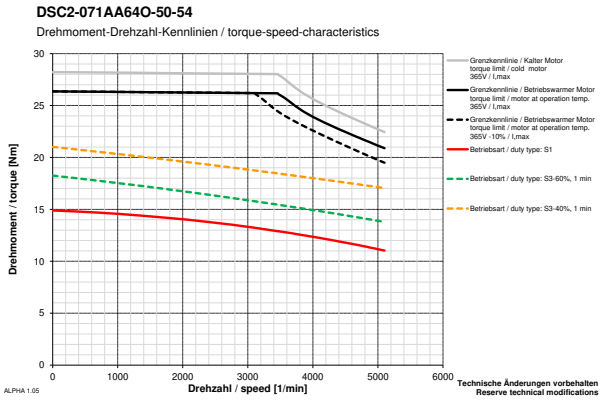
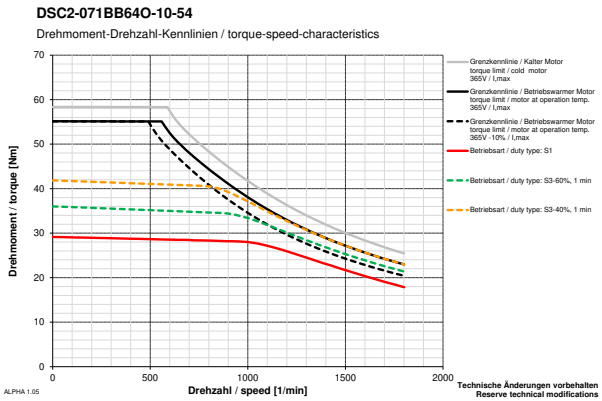
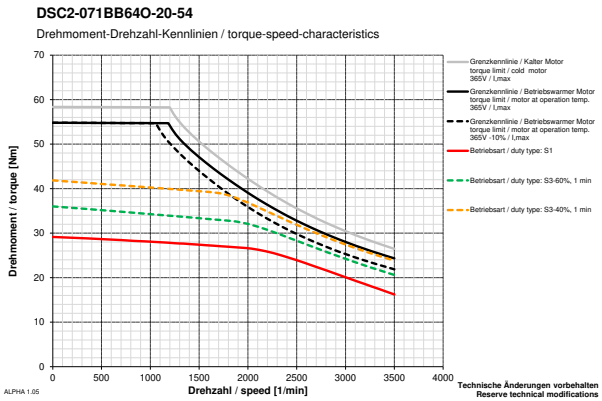
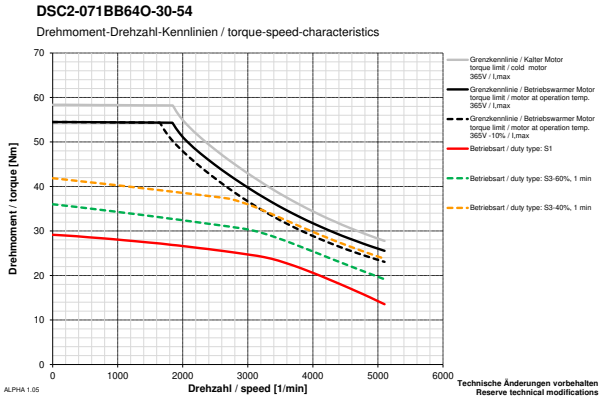
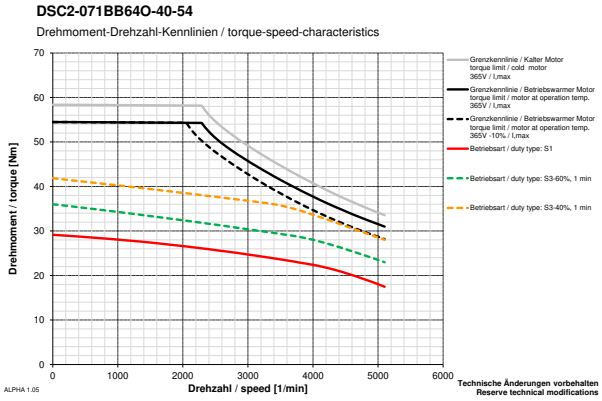


Figure 60: Motor characteristic curves DSC2-071AA .. O .. surface-ventilated









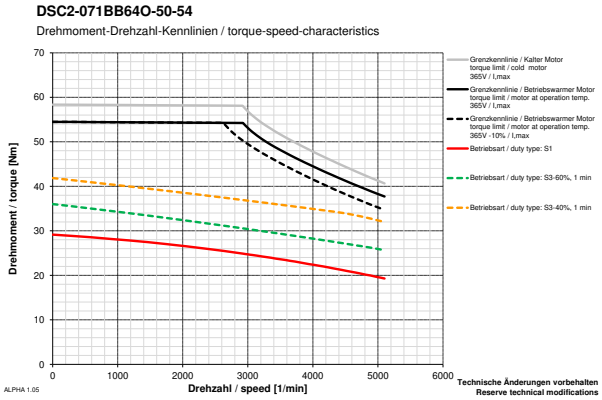
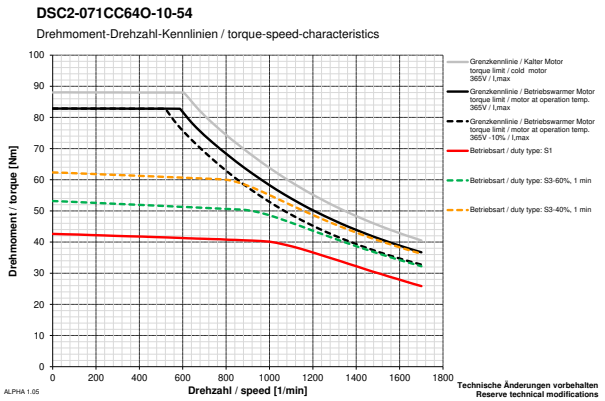
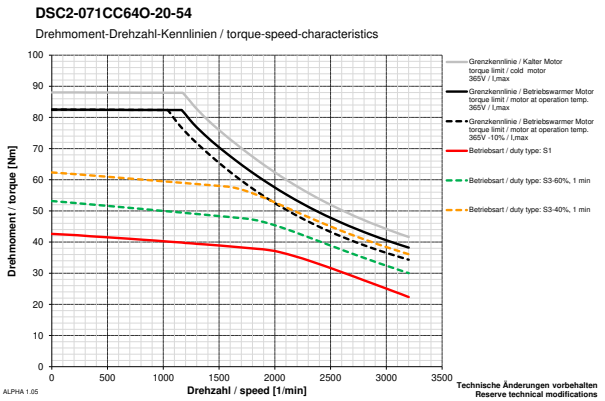
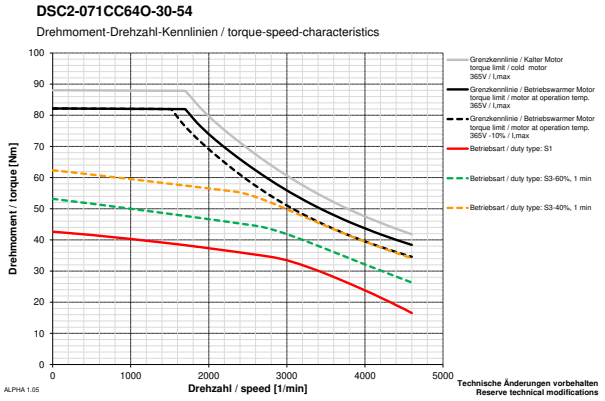
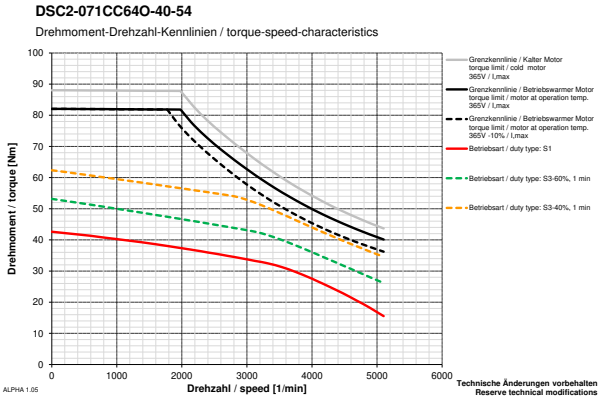


Figure 61: Motor characteristic curves DSC2-071BB .. O .. surface-ventilated









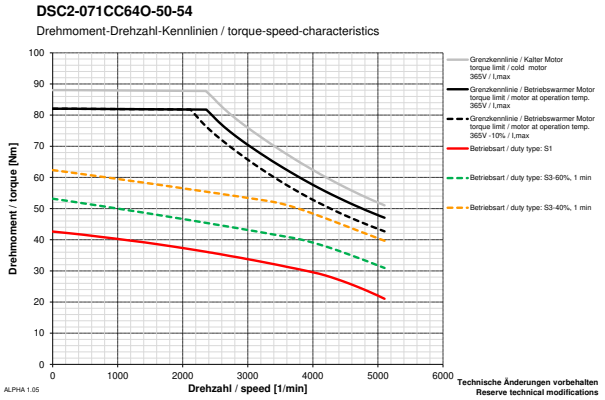
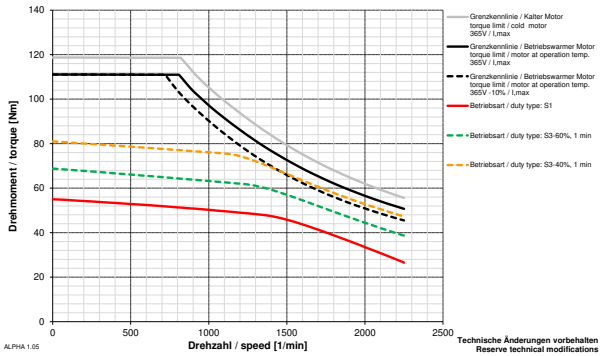


Figure 62: Motor characteristic curves DSC2-071CC .. O .. surface-ventilated

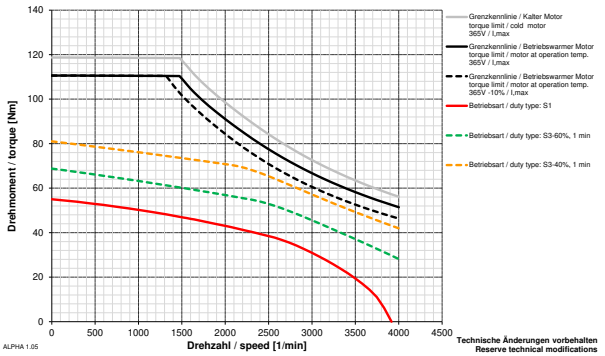
DSC2-071DD64O-10-54

Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics



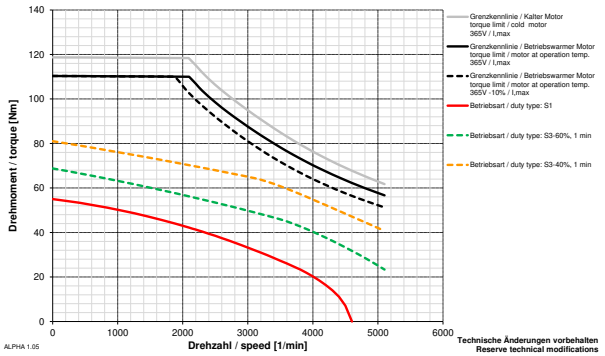
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Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics



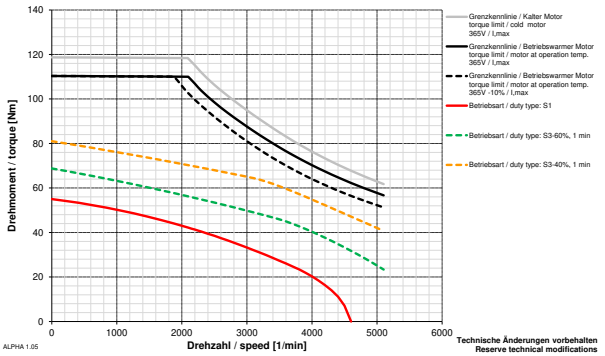
DSC2-071DD64O-30-54

Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics



DSC2-071DD64O-40-54

Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics



DSC2-071DD64O-50-54

Drehmoment-Drehzahl-Kennlinien / torque-speed-characteristics

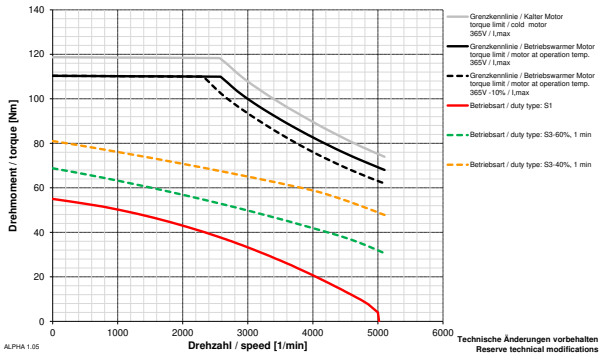
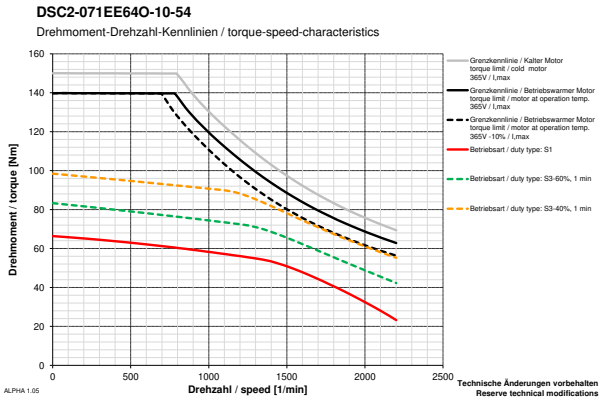
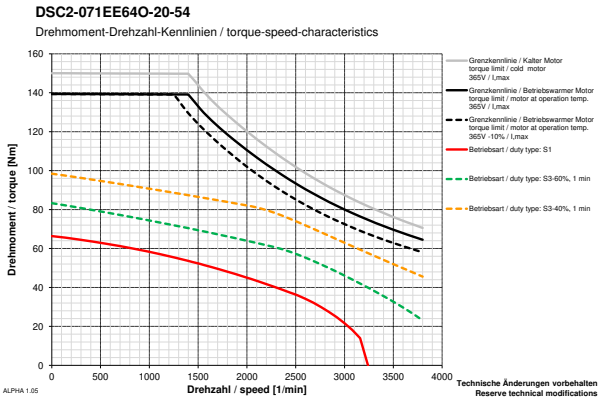


Figure 63: Motor characteristic curves DSC2-071DD .. O .. surface-ventilated





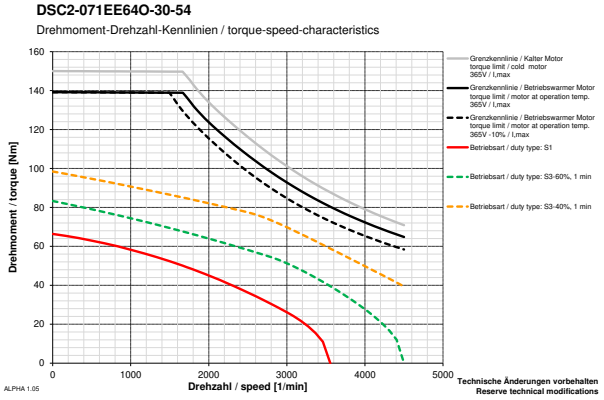
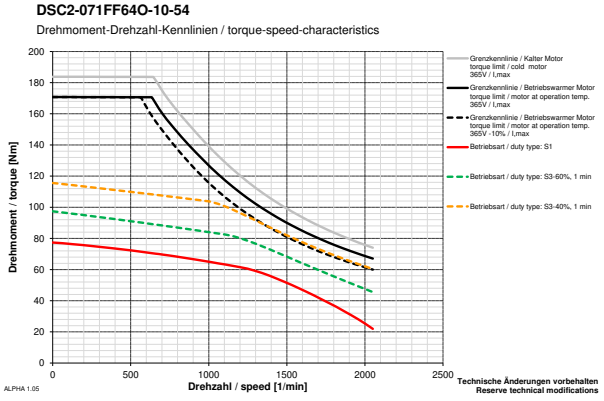


Figure 64: Motor characteristic curves DSC2-071EE .. O .. surface-ventilated



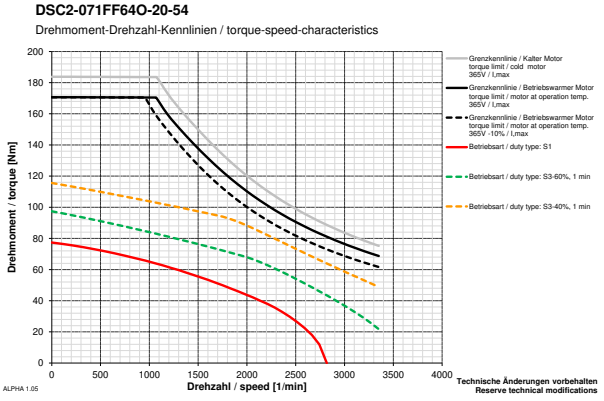


Figure 65: Motor characteristic curves DSC2-071FF .. O .. surface-ventilated

A.3 DSC2-071 .. W .. water-cooled

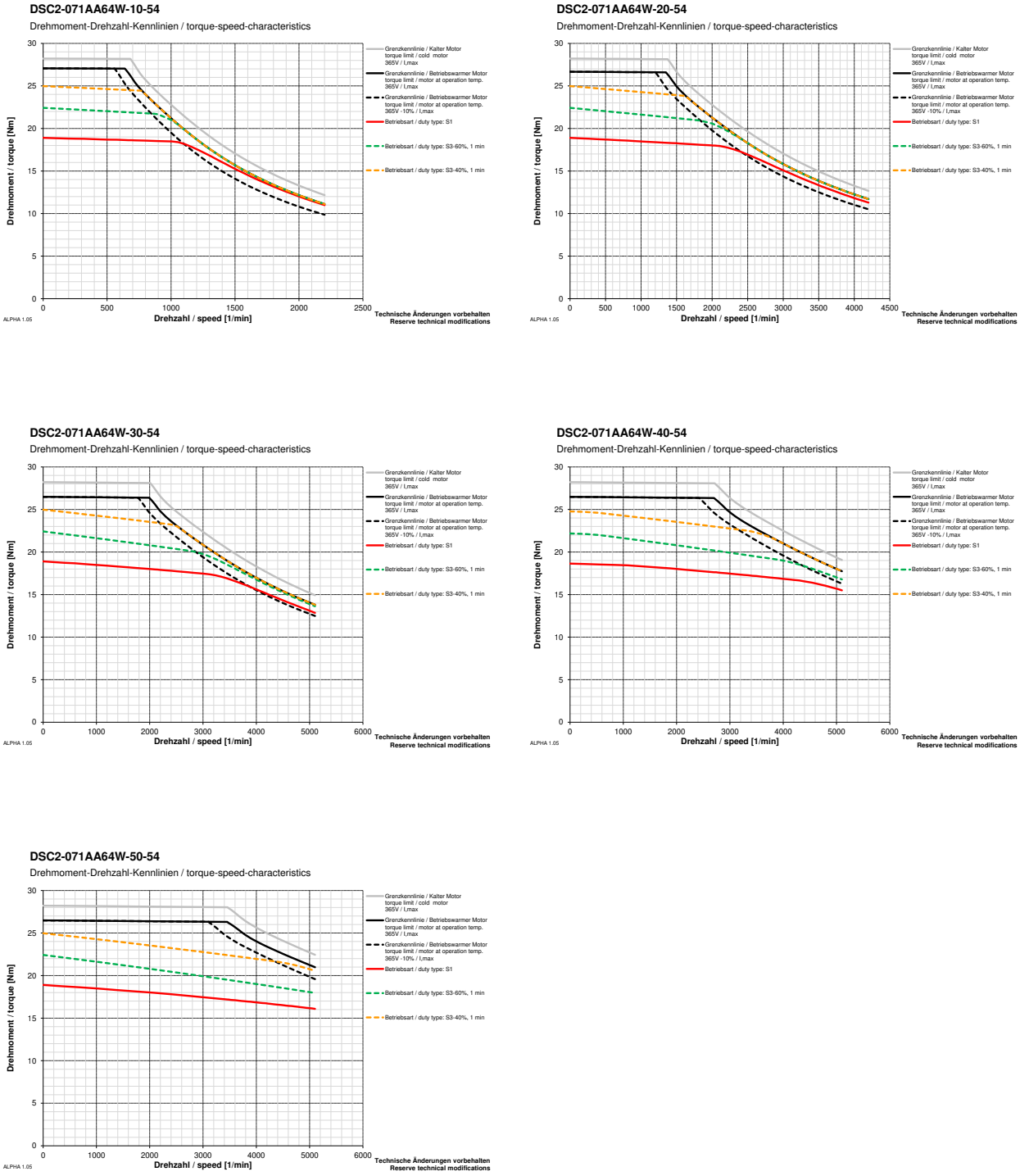
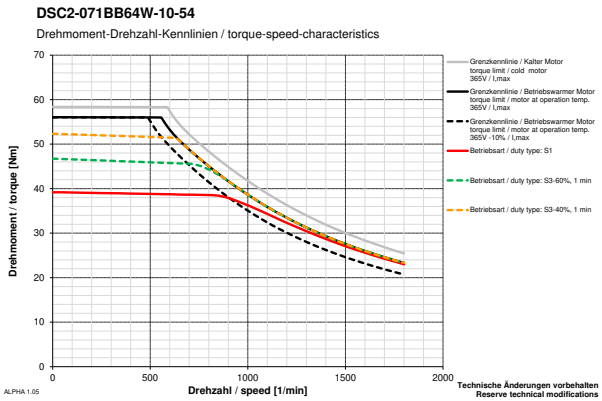
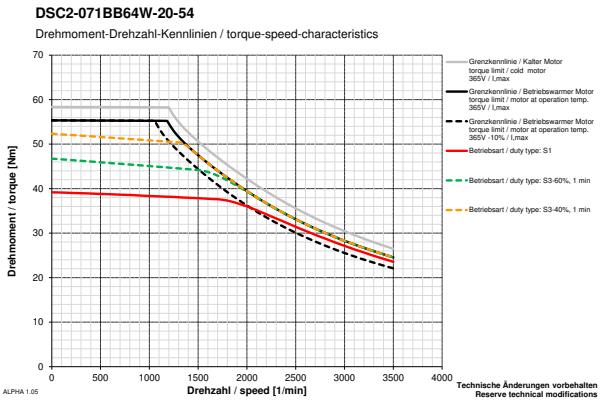
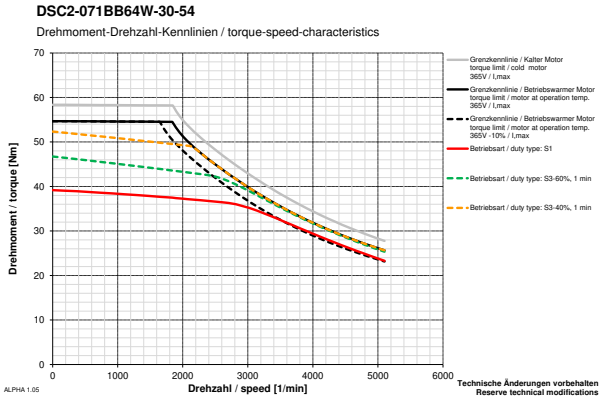
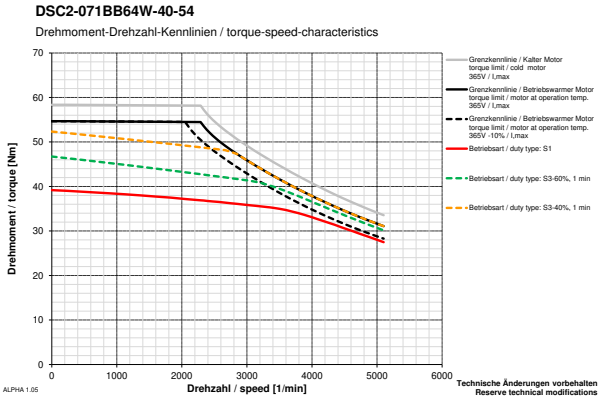


Figure 66: Motor characteristic curves DSC2-071AA .. W .. water-cooled









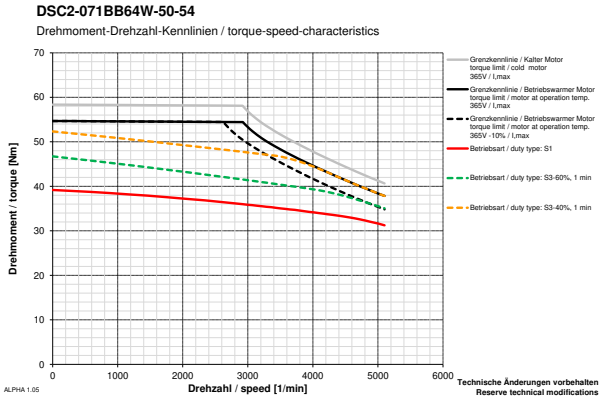


Figure 67: Motor characteristic curves DSC2-071BB .. W .. water-cooled

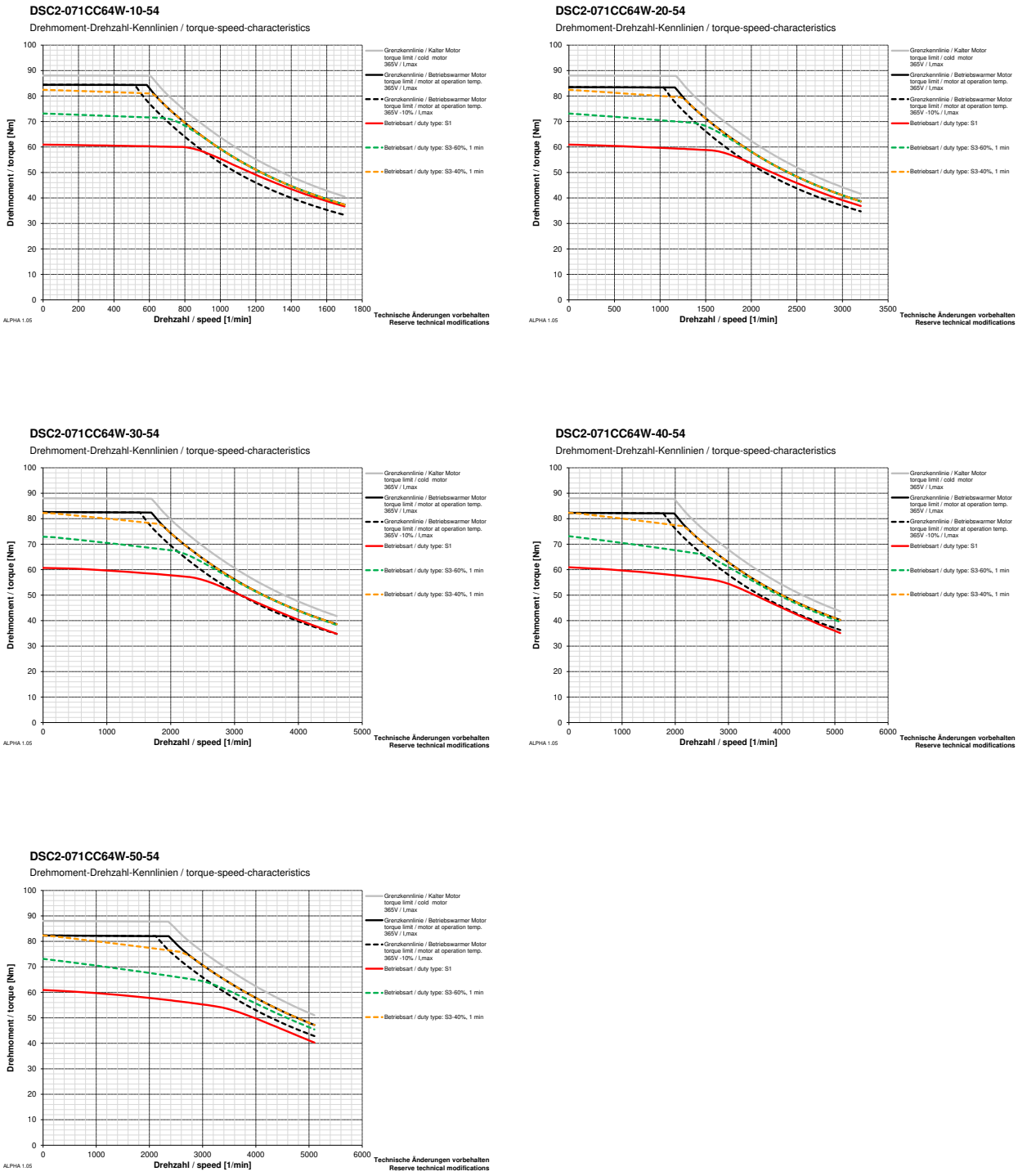


Figure 68: Motor characteristic curves DSC2-071CC .. W .. water-cooled

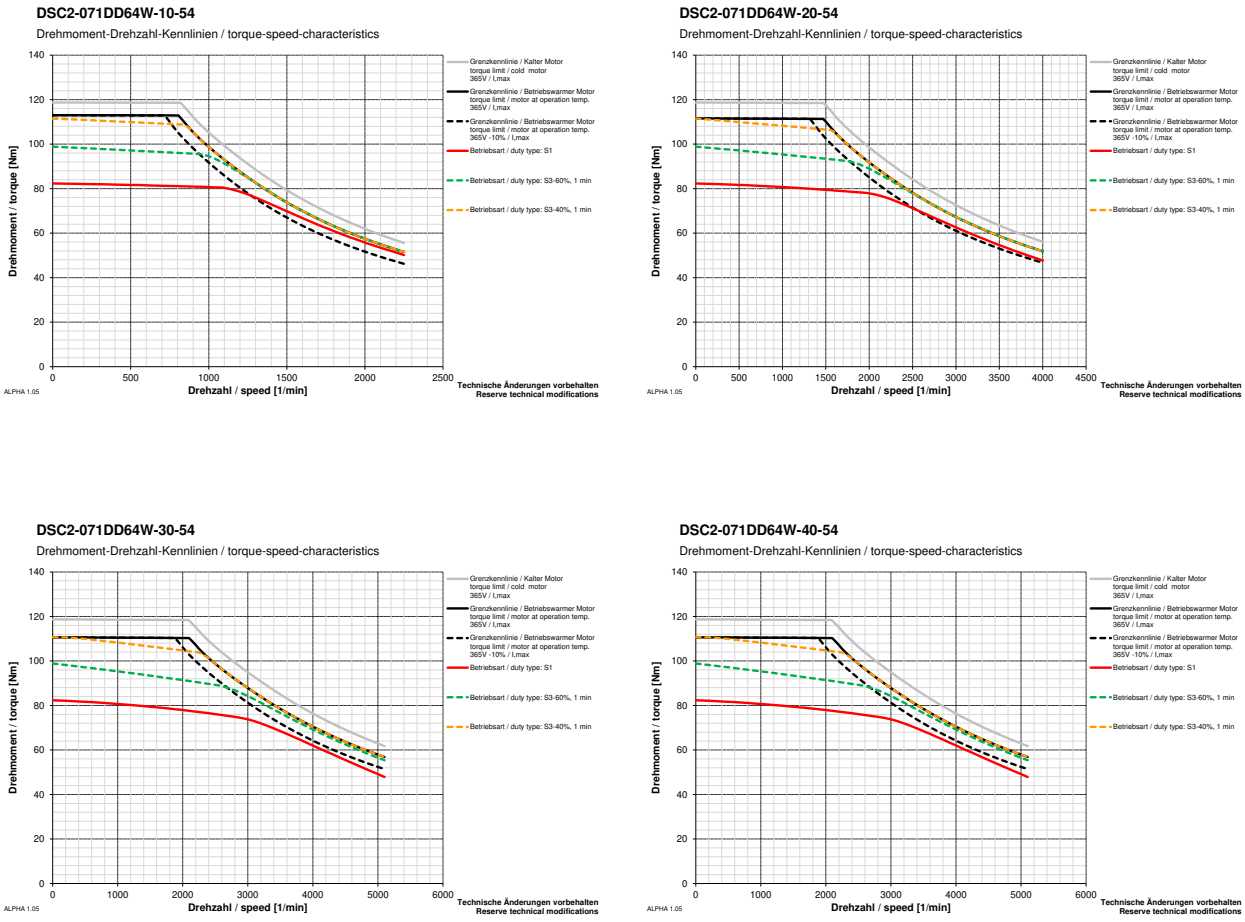
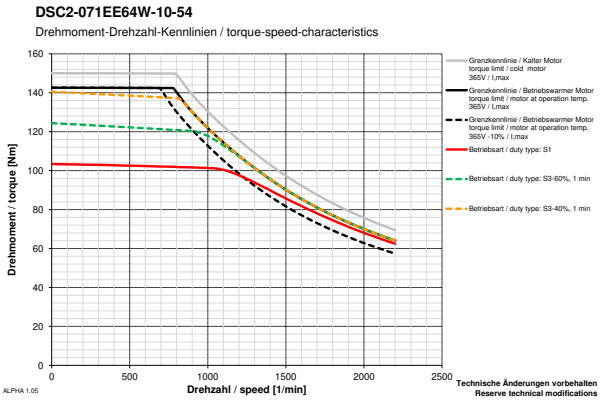
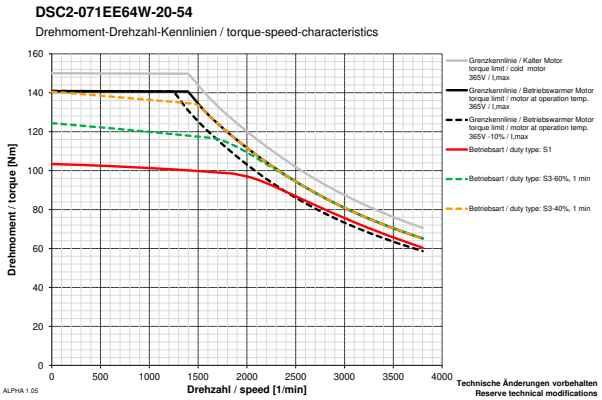


Figure 69: Motor characteristic curves DSC2-071DD .. W .. water-cooled





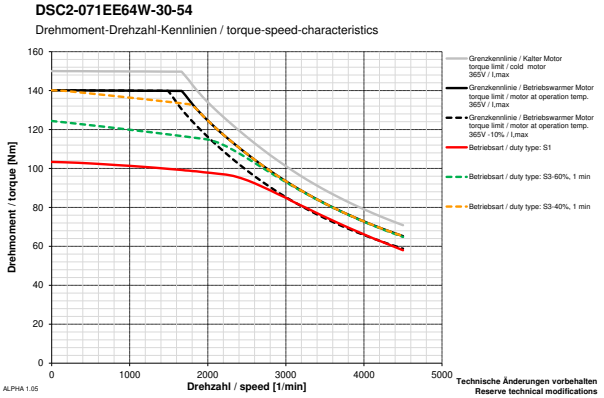
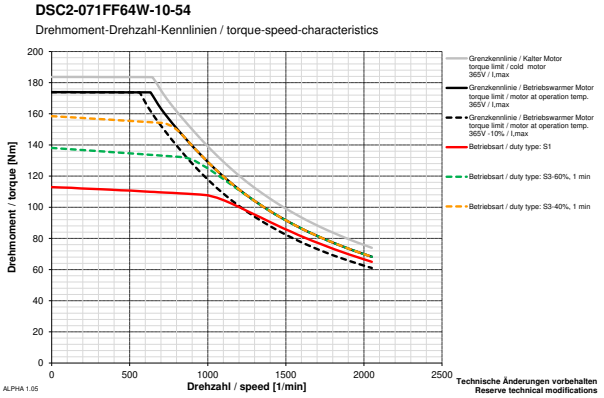


Figure 70: Motor characteristic curves DSC2-071EE .. W .. water-cooled



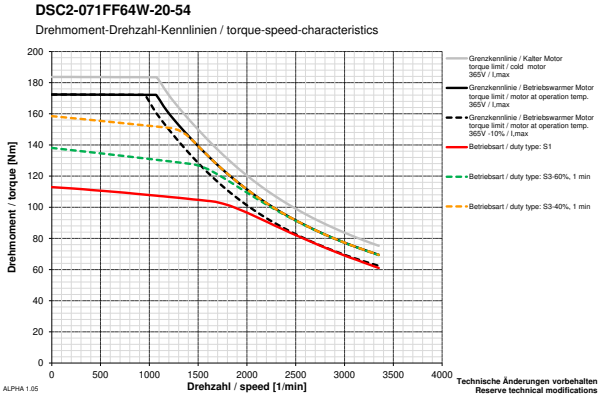


Figure 71: Motor characteristic curves DSC2-071FF .. W .. water-cooled

B

APPENDIX B - DECLARATION OF CONFORMITY

CE

BAUMÜLLER

EU-Konformitätserklärung
gemäß

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

  Richtlinie 2014/30/EU (EMV-Richtlinie)

  Richtlinie 2011/65/EU (RoHS-Richtlinie)

Hersteller

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

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

Hinweise:

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

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

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

Angewandte harmonisierte Normen:

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

(Wird fortgesetzt auf der nächsten Seite ...)

EU-Declaration of Conformity
according

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

  Directive 2014/30/EU (EMC-directive)

  Directive 2011/65/EU (RoHS-directive)

Manufacturer

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

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

Notes:

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

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

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

Applied harmonised standards:

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

(To be continued on the next page ...)

(... Fortsetzung von der vorherigen Seite)

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

(... continued from the previous page)

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

Markenname: Baumüller
Produktbezeichnung: Drehstrommotor

Brand Name: Baumüller
Product Name: AC motor

Produkt / Product (x): optionaler Buchstabe / optional character (x, y): alternative Buchstaben oder Zahlen / alternative characters	**Jahr der erstmaligen CE-Kennzeichnung / Year of first CE marking**
DSC2-071XXXXX-XX-XX-XXX-XXX-X-XX-X-XXX	**2022**

Nürnberg, 03.05.2022

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Revision survey

Version	Status	Changing
5.22013.02	19-Jan-2026	First release, Instruction handbook and Technical documentation from shared files

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  - was mounted, connected, put into operation, and operated and / or maintained by unqualified personnel,
  - is overloaded,
  - is operated with
    - defective safety equipment,
    - not properly fixed or without safety equipment,
    - not functioning safety and protective equipment,
  - is not operated within the specified environmental conditions.

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HOUSE OF AUTOMATION



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