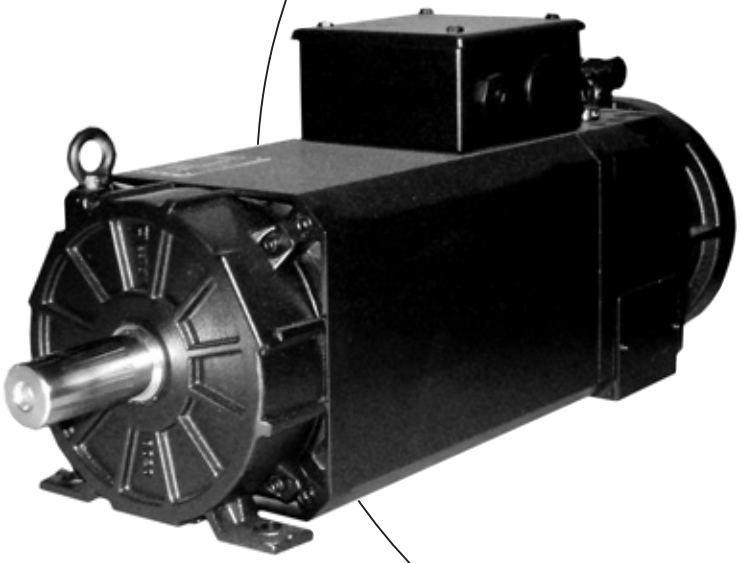
BAUMÜLLER



be in motion be in motion

AC Asynchronous Motors

DA 100 – 280

Table of contents

All the details in this list constitute non-binding customer information. These details are subject to ongoing change and are constantly updated by our editing staff. Please note that all details/figures/information represent current data at the time of going to press. These details are not legally binding for the purposes of dimensioning, computation, or calculation. Before using any of the information listed in this brochure or taking it as the basis for your own calculations, please check that you have the latest version.
For this reason, we cannot accept any liability for the accuracy of the information!

Version 01/2013

1. Three-phase asynchronous motor DA 100-280

Due to the very high power density and huge flexibility achieved by its modular system, this range of motors is ideally suited for the most demanding applications in mechanical engineering. The motors have high speed setting ranges and feature roller bearings to cope with high lateral force loads. These durable, compact motors are also largely maintenance-free, which helps ensure efficient operation. The use of liquid cooling makes for a highly compact design and also reduces noise emissions.

1.1. General technical data

Version	IM B3, B5	Frame size 100 / 132 / 160
	IM B3, B35	Frame size 180 / 225
	IM B3	Frame size 280
Connection	Main connection	U V W (Terminal box)
	Control connection	12-pin connector, 17-pin connector with ENDAT interface
	Thermal sensor	In the main connection
	Brake	Axial ventilation: 8-pin connector
		Radial ventilation or water cooling: Terminal design
Thermal sensor	Linear thermal sensor	For evaluation in the controller
Temperature rise	$\Delta\vartheta \leq 105K$	Insulation class F acc. to EN 60034
Environmental conditions for running	Class 3K3/3Z12 as per DIN EN 60721-3-3, however: temperature range 0-40 °C	Represents 0 to 40 °C at 5 % to 85 % rel. humidity and an absolute humidity of 1 g/m³ to 25 g/m³ and an installation height up to approx. 1,400 m.
Environmental conditions for long-term storage	Class 1K2/1M1 DIN EN 60721-3-1, however: temperature range -15-60 °C	Represents -15 to 60 °C at 5 % to 85 % rel. humidity and an absolute humidity of 1 g/m³ to 25 g/m³; at temperatures below 3 °C you should drain the cooling water
Environmental conditions for transport	Class 2K2/2M1 DIN EN 60721-3-2, however: temperature range -15-60 °C	Represents -15 to 60 °C at 5 % to 85 % rel. humidity and an absolute humidity of 1 g/m³ to 25 g/m³; at temperatures below 3 °C you should drain the cooling water
Shaft end	Cylindrical	According to DIN 748 without key
		Centering with internal thread acc. to DIN 332 form D
		Also available with key DIN 6885 as an option (consider torque)
Bearing	D-side	Standard = ball bearing; option = roller bearing
	N-side	Ball bearing, locating bearing
Surface	Black matt	RAL 9005
Actual speed encoder	2-pin resolver	Standard – see chapter 3.2
	Sincos Encoder	Option – see chapter 3.2; other encoders on request
Brake	Disk brakes from Baumüller	N-side mounting as a module, other brands on request
UL design	CE	Standard
		Order options: Size 100-225

Technical data for air-cooled motors

Type of protection / cooling method	IP23 / IC06	Internally ventilated with fan
	IP54 / IC641	Surface-cooled with fan
DA 100	Axial fan on N-side; integrated fan	Air conduction D-side to N-side, axial air outlet at N-side
DA 132-225	Standard: Standard fan motor for axial ventilation on the N-side;	Air conduction from D-side to N-side, lateral air outlet at N-side
	option: Axially integrated fan on the N-side;	Air conduction from D-side to N-side, lateral air outlet at N-side
	option: Standard fan motor for radial ventilation on the N-side	Air conduction from N-side to D-side, lateral air outlet at D-side
DA 280	Radial fan at N-side; mounted standard motor	Air conduction from N-side to D-side, lateral air outlet at D-side
Fan motor connection	Mounted standard motor	Terminal box of standard motor
	Integrated fan motor	6-pin connector
Vibration-resistant DA 100	Radial 0.5 g / axial 0.5 g	10 Hz - 150 Hz acc. to EN 60068-2-6
Vibration-resistant DA 132-280	Radial 3 g / axial 1 g	10 Hz - 55 Hz acc. to EN 60068-2-6
Terminal box with axial ventilation	N-end	Above; With left and right-hand options
Terminal box with radial ventilation	D-end	Right; With left-hand or above options

Technical data for liquid-cooled motors

Type of protection/cooling method	IP54/ IC3W7	Water-cooled machine
Vibration-resistant DA 100-280	Radial 3 g / axial 1 g	10 Hz - 55 Hz acc. to EN 60068-2-6
Terminal box	N-side; top	
Coolant input temperature	10 °C to 35 °C	Consider how ambient temperature/humidity can affect the accumulation of condensed water, and how this phenomenon can be avoided.
Water connection	D-side	lateral

1.2. General safety instructions

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

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

1.3. Definitions of power ratings

1.3.1. Definitions of power ratings for air-cooled machines

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

Ambient temperature	40 °C	45 °C	50 °C	55 °C	60 °C
Correction factor k_1	1	1.06	1.13	1.22	1.34
Altitude a.m.s.l. up to	1,000 m	2,000 m	3,000 m	4,000 m	5,000 m
Correction factor k_2	1	1.07	1.16	1.27	1.55

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

If, in the case of an increasing site altitude above 1,000 m, the ambient temperature decreases by approx. 10 °C per 1,000 m increase, no power correction is necessary (note the minimum operating temperature).

1.3.2. Definitions of power ratings for water-cooled machines

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

The reduction factors included in the table below must be considered when operating DSD2 motors with higher coolant inlet temperatures:

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

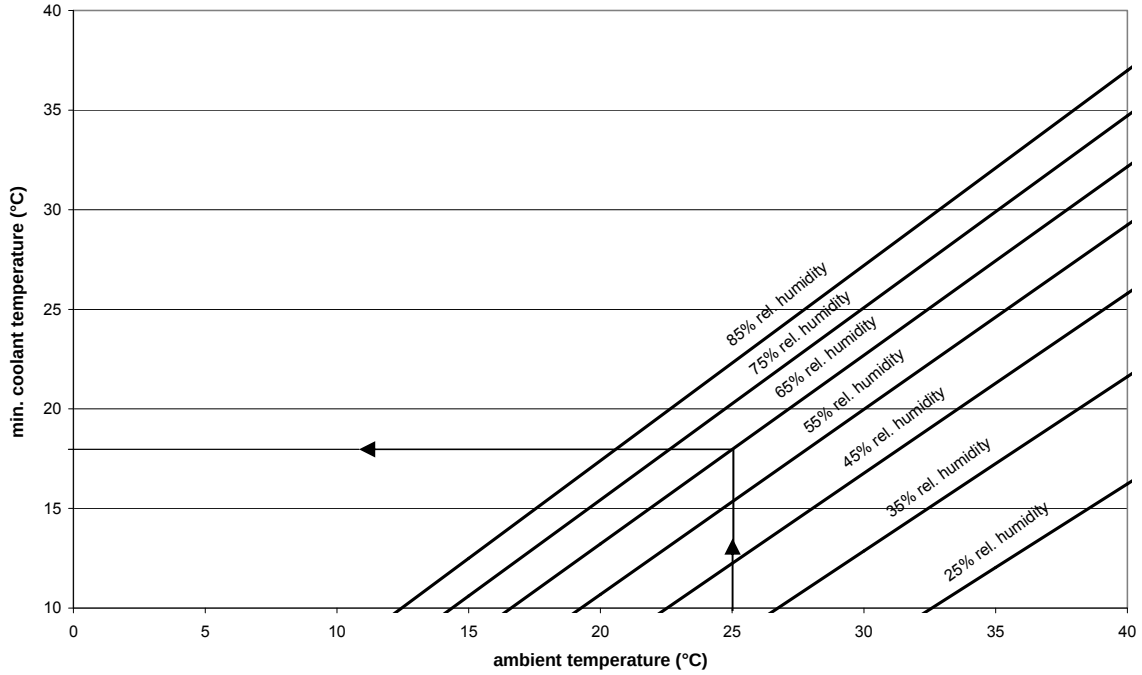
1.4. Water cooling

1.4.1. Coolant consistency

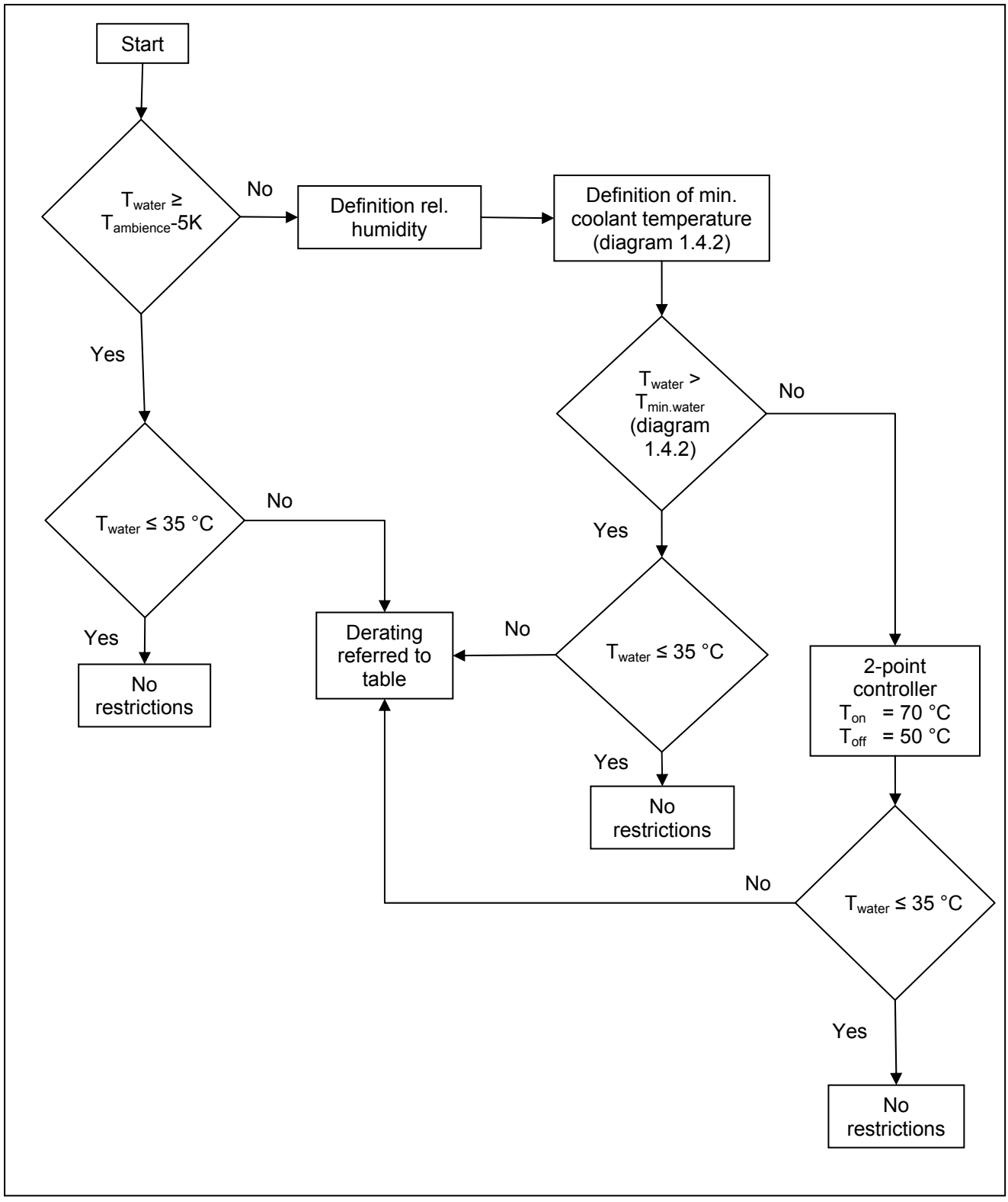
Conditions	Unit	Value
Maximum permitted system pressure	bar	6
Temperature of coolant - for motor	° C	10 to 35
pH value (at 20° C)	---	6.5 to 9
Overall hardness	mmol/l	1.43 to 2.5
Chloride - Cl^-	mg/l	< 200
Sulphate - SO_4^{2-}	mg/l	< 200
Oil	mg/l	< 1
Permitted particle size of solid foreign objects, particles (e.g. sand)	mm	< 0.1

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

1.4.2. Min. coolant temperature against ambient temperature and humidity



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



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

1.4.3. Details relating to the amounts of coolant required

DA frame size	100	132	160	180	225	280
Min. flow rate [l/min]	7 (5)	9 (6.5)	11 (9)	12 (10)	13 (11)	17 (14.5)
Pressure drop [bar]	0.3 ±10 %	0.3 ±10 %	1.1 ±10 %	1.4 ±10 %	2.6 ±10 %	2.6 ±10 %
Max. temperature rise [K]	6 (9)	7 (10)	8 (10)	10 (12)	11 (13)	11 (13)
Max. coolant pressure [bar]	5	5	5	5	5	6
Connection (G-internal thread)	2x 1/2“	2x 1/2“	4x 1/4“	4x 1/4“	4x 1/4“	4x 3/8“

Sufficient quantities of additives for corrosion and germ protection must be mixed in. The additive type and dosage are based on recommendations from the additive manufacturer and the prevailing ambient conditions.

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

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

Size 100-132

Cooling system: Cathodic dip painted aluminum
Connections: Galvanized steel
Seals: NBR seals

Size 160-280:

Cooling system: Stainless steel
Connections: Brass
Seals: Vulcanized fiber

1.5. Winding insulation

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

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

1.6. Explanation of the motor data

n_N	Nominal speed (rpm)
P_N	Nominal power (kW) with nominal speed nN in continuous operation (S1)
M_N	Nominal torque (kW) with nominal speed nN in continuous operation (S1)
I_N	Nominal r.m.s. current (A) at nominal speed nr in continuous operation (S1); TA= 40 °C
U_N	Nominal voltage (V)
n_1	Limit speed for field weakening (constant power) (rpm)
n_{max}	mechanically permissible operating speed (rpm)
cos φ	Power factor
Iμ	Magnetizing current (A)
η_N	Efficiency
f_N	Nominal frequency (Hz)
$M_{0, max,}$	Maximum standstill torque (Nm) at maximum current (A) at speed = 0
J	Rotor inertia incl. resolver without holding brake (kgm²)
m	Weight (kg)

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

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

1.7. Noise intensity

The ventilated motors do not exceed the limit values specified in EN 60034.
A converter clock frequency of > 6 kHz is recommended.

Noise level

Motor frame size	Type of protection IP 23	Type of protection IP 54, surface-cooled	Type of protection IP 54, water-cooled
DA 100	-	73 ± 3 dBA	71 ± 3 dBA
DA 132	75 ± 3 dBA	74 ± 3 dBA	72 ± 3 dBA
DA 160	77 ± 3 dBA	76 ± 3 dBA	74 ± 3 dBA
DA 180	79 ± 3 dBA	78 ± 3 dBA	75 ± 3 dBA
DA 225	82 ± 3 dBA	80 ± 3 dBA	76 ± 3 dBA
DA 280	85 ± 3 dBA	-	78 ± 3 dBA

1.8. Type key

DA	FF	G	225	M	54	A	17	5	UL

approval	UL	Motor with UL approval
DC link voltage:	5	540V
	6	640V
Nominal speed	17	1750 rpm
Cooling method	W	Water cooling
	A	Axially mounted separate fan
	R	Radially mounted separate fan
Type of protection	54	IP54
	23	IP23
Length:	K	
	M	
	L	
	B	
Frame size	100	
	132	
	160	
	180	
	225	
	280	
Brake	G	Brake
Design	F	Flange-mounting
	FF	Foot-flange mounting
Motor type	DA	Three-phase asynchronous motor

2. Technical data

2.1. DA 100

2.1.1. DA 100..54 A.. (IP 54 surface-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA100K54A10-5	3.5	33	9.0	345	2400	8000	0.82	5.2	0.790	35.5
	DA100M54A10-5	5.0	48	13.2	330	3000	8000	0.81	7.8	0.810	35.3
	DA100L54A10-5	6.0	57	15.0	345	2400	8000	0.81	8.5	0.824	35.3
	DA100B54A10-5	7.0	67	18.0	345	2400	8000	0.79	11.1	0.830	35.1
1750	DA100K54A17-5	5.8	32	14.5	335	3500	8000	0.80	7.5	0.849	60.6
	DA100M54A17-5	7.8	43	18.3	350	2600	8000	0.80	9.3	0.866	60.5
	DA100L54A17-5	9.5	52	23.0	345	3000	8000	0.79	12.1	0.874	60.4
	DA100B54A17-5	11.0	60	27.8	335	3500	8000	0.78	15.2	0.878	60.3
2300	DA100K54A23-5	7.2	30	17.0	350	3400	8000	0.81	8.0	0.871	79.0
	DA100M54A23-5	9.6	40	22.2	350	3400	8000	0.80	11.1	0.886	78.7
	DA100L54A23-5	11.0	46	25.5	350	3400	8000	0.80	13.0	0.893	78.6
	DA100B54A23-5	13.0	54	29.0	355	3000	8000	0.82	13.5	0.897	78.7
3000	DA100K54A30-5	8.0	25	19.0	345	4500	8000	0.80	9.3	0.882	102.1
	DA100M54A30-5	11.0	35	25.0	350	4500	8000	0.81	11.9	0.898	102.1
	DA100L54A30-5	13.0	41	31.0	345	5100	8000	0.78	16.4	0.902	101.8
	DA100B54A30-5	15.0	47	35.3	345	5100	8000	0.78	19.0	0.906	101.8

Mains voltage 3 AC 480 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA100K54A10-6	3.5	33	7.1	445	2500	4000	0.80	4.1	0.800	35.4
	DA100M54A10-6	5.0	48	10.4	435	3200	4000	0.79	6.1	0.820	35.3
	DA100L54A10-6	6.0	57	11.6	445	2700	4000	0.80	6.6	0.830	35.2
	DA100B54A10-6	7.0	67	14.0	440	3200	4000	0.78	8.4	0.840	35.1
1750	DA100K54A17-6	5.8	32	11.5	440	3300	8000	0.77	5.9	0.860	60.5
	DA100M54A17-6	7.8	43	15.0	450	3300	8000	0.79	7.3	0.880	60.4
	DA100L54A17-6	9.5	52	18.0	435	3700	8000	0.78	9.3	0.880	60.3
	DA100B54A17-6	11.0	60	22.0	420	4800	8000	0.77	11.7	0.890	60.2
2300	DA100K54A23-6	7.2	30	13.0	435	4800	8000	0.81	6.3	0.870	78.9
	DA100M54A23-6	9.6	40	19.0	430	5100	8000	0.78	9.0	0.900	78.7
	DA100L54A23-6	11.0	46	20.0	440	4400	8000	0.78	10.0	0.900	78.6
	DA100B54A23-6	13.0	54	23.0	440	4400	8000	0.80	10.7	0.900	78.7
3000	DA100K54A30-6	8.0	25	16.0	430	6400	8000	0.77	7.6	0.890	102.0
	DA100M54A30-6	11.0	35	20.0	440	5800	8000	0.78	9.3	0.910	102.0
	DA100L54A30-6	13.0	41	24.0	445	5200	8000	0.75	13.0	0.910	101.7
	DA100B54A30-6	15.0	47	29.0	435	6400	8000	0.75	16.0	0.900	101.7

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA100K54A	66	0.017	42
DA100M54A	96	0.023	53
DA100L54A	114	0.029	62
DA100B54A	134	0.034	70

2.1.2. DA 100..54 W.. (IP 54 water-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA100K54W10-5	4.5	43	12.4	330	3000	8000	0.83	6.5	0.755	35.8
	DA100M54W10-5	6.5	62	17.2	335	3000	8000	0.84	8.9	0.776	35.8
	DA100L54W10-5	7.8	74	21.0	330	3000	8000	0.81	11.7	0.794	35.5
	DA100B54W10-5	9.0	86	23.5	340	2700	8000	0.80	13.5	0.805	35.4
1500	DA100K54W15-5	6.5	41	16.5	340	2800	8000	0.82	7.4	0.805	52.7
	DA100M54W15-5	9.0	57	23.5	335	3000	8000	0.79	11.9	0.826	52.4
	DA100L54W15-5	11.0	70	28.0	335	3000	8000	0.79	14.3	0.839	52.3
	DA100B54W15-5	13.0	83	32.5	345	2500	8000	0.79	16.8	0.847	52.3
2000	DA100K54W20-5	8.5	41	22.0	330	4000	8000	0.81	10.0	0.835	69.3
	DA100M54W20-5	12.0	57	30.0	330	4000	8000	0.81	13.4	0.853	69.2
	DA100L54W20-5	15.0	72	37.0	340	3800	8000	0.80	17.5	0.863	69.1
	DA100B54W20-5	17.5	84	41.0	350	3000	8000	0.81	18.5	0.870	69.1
2500	DA100K54W25-5	10.0	38	24.5	340	4700	8000	0.81	10.3	0.854	86.0
	DA100M54W25-5	15.0	57	37.0	335	5000	8000	0.80	16.7	0.867	85.9
	DA100L54W25-5	18.5	71	44.0	340	4700	8000	0.81	18.7	0.877	85.9
	DA100B54W25-5	22.0	84	55.0	330	5000	8000	0.80	25.5	0.883	85.7
3000	DA100K54W30-5	11.5	37	28.0	340	5700	8000	0.80	12.0	0.865	102.6
	DA100M54W30-5	17.0	54	40.0	340	5700	8000	0.81	16.2	0.879	102.6
	DA100L54W30-5	21.0	67	49.0	345	5100	8000	0.80	21.5	0.887	102.4
	DA100B54W30-5	25.0	80	57.0	350	4500	8000	0.80	25.5	0.893	102.3

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA100K54W	69	0.017	41
DA100M54W	99	0.023	51
DA100L54W	118	0.029	60
DA100B54W	138	0.034	68

2.2. DA 132

2.2.1. DA 132..23 A(R).. (IP 23 internally ventilated)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 r min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA132K23A.10-5	15.0	143	38.0	335	2600	5000	0.82	18.6	0.835	35.0
	DA132M23A10-5	18.0	172	42.0	340	2400	5000	0.85	18.6	0.847	35.1
	DA132L23A10-5	20.0	191	48.0	345	2200	5000	0.82	23.9	0.862	34.8
	DA132B23A10-5	22.5	215	57.0	325	3000	5000	0.81	29.7	0.867	34.8
1500	DA132K23A15-5	22.0	140	51.0	350	2300	5000	0.83	20.2	0.869	51.9
	DA132M23A15-5	26.0	166	60.0	350	2300	5000	0.82	25.3	0.882	51.7
	DA132L23A15-5	29.0	185	65.0	350	2300	5000	0.83	25.5	0.889	51.7
	DA132B23A15-5	33.0	210	78.0	335	3000	5000	0.81	33.8	0.895	51.5
2000	DA132K23A20-5	28.0	134	68.0	335	4000	5000	0.80	29.5	0.890	68.4
	DA132M23A20-5	33.0	158	75.0	350	3000	5000	0.82	30.0	0.900	68.4
	DA132L23A20-5	37.0	177	84.0	345	3400	5000	0.82	33.8	0.906	68.3
	DA132B23A20-5	41.0	196	97.0	330	4000	5000	0.82	39.7	0.910	68.1
3000	DA132K23A30-5	36.0	115	82.0	345	5000	5000	0.81	30.5	0.910	101.7
	DA132M23A30-5	42.0	134	94.0	350	4500	5000	0.80	37.0	0.916	101.6
	DA132L23A30-5	45.0	143	98.0	355	4000	5000	0.82	36.0	0.922	101.5
	DA132B23A30-5	50.0	159	108.0	350	4500	5000	0.83	38.2	0.925	101.5

Mains voltage 3 AC 480 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA132K23A.10-6	15.0	143	29.0	435	2100	4000	0.82	14.5	0.830	35.1
	DA132M23A10-6	18.0	172	33.0	440	1750	4000	0.86	14.0	0.850	35.1
	DA132L23A10-6	20.0	191	38.0	435	2500	4000	0.82	18.5	0.860	34.8
	DA132B23A10-6	22.5	215	43.0	430	2700	4000	0.81	22.0	0.860	34.8
1500	DA132K23A15-6	22.0	140	40.0	445	2350	5000	0.82	16.0	0.870	51.9
	DA132M23A15-6	26.0	166	48.0	440	2350	5000	0.81	20.0	0.880	51.8
	DA132L23A15-6	29.0	185	52.0	440	2800	5000	0.82	21.0	0.890	51.7
	DA132B23A15-6	33.0	210	61.0	435	2800	5000	0.81	26.0	0.890	51.6
2000	DA132K23A20-6	28.0	134	52.0	445	3100	5000	0.78	24.0	0.890	68.4
	DA132M23A20-6	33.0	158	60.0	445	3000	5000	0.81	24.0	0.900	68.4
	DA132L23A20-6	37.0	177	68.0	435	3500	5000	0.80	29.0	0.900	68.2
	DA132B23A20-6	41.0	196	76.0	425	3850	5000	0.81	31.0	0.910	68.2
3000	DA132K23A30-6	36.0	115	65.0	430	5000	5000	0.81	25.0	0.910	101.7
	DA132M23A30-6	42.0	134	73.0	450	4000	5000	0.81	28.0	0.920	101.6
	DA132L23A30-6	45.0	143	80.0	430	5000	5000	0.82	30.0	0.920	101.5
	DA132B23A30-6	50.0	159	85.0	440	5000	5000	0.83	31.0	0.920	101.5

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA132K23A/R	229	0.074	126
DA132M23A/R	275	0.090	141
DA132L23A/R	306	0.105	156
DA132B23A/R	344	0.120	171

2.2.2. DA 132..54 A(R).. (IP 54 surface-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA132K54A10-5	10.0	96	26.0	335	2600	5000	0.79	14.6	0.859	34.6
	DA132M54A10-5	12.0	115	29.0	340	2400	5000	0.82	15.0	0.868	34.6
	DA132L54A10-5	14.0	134	33.0	340	2400	5000	0.82	17.0	0.877	34.5
	DA132B54A10-5	16.5	158	40.0	340	2400	5000	0.80	22.3	0.879	34.5
1750	DA132K54A17-5	16.0	87	39.0	335	3500	5000	0.79	18.4	0.896	59.7
	DA132M54A17-5	20.0	109	49.5	330	3500	5000	0.79	23.9	0.901	59.6
	DA132L54A17-5	23.5	128	56.0	335	3500	5000	0.80	26.0	0.907	59.6
	DA132B54A17-5	26.5	145	64.0	335	3500	5000	0.79	31.5	0.910	59.5
2300	DA132K54A23-5	20.0	83	47.0	340	4400	5000	0.80	21.3	0.907	78.0
	DA132M54A23-5	24.0	100	62.0	320	4600	5000	0.78	30.7	0.911	77.8
	DA132L54A23-5	29.0	120	68.0	340	4400	5000	0.79	32.0	0.917	77.8
	DA132B54A23-5	32.0	133	73.0	345	4000	5000	0.80	32.3	0.921	77.8
3000	DA132K54A30-5	23.0	73	58.0	330	5000	5000	0.77	28.2	0.912	101.2
	DA132M54A30-5	27.0	86	68.0	330	5000	5000	0.77	33.8	0.918	101.1
	DA132L54A30-5	33.0	105	77.0	340	5000	5000	0.79	34.8	0.925	101.1
	DA132B54A30-5	37.0	118	85.0	345	5000	5000	0.79	38.3	0.928	101.1

Mains voltage 3 AC 480 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA132K54A10-6	10.0	96	20.0	430	2000	4000	0.79	9.8	0.850	34.7
	DA132M54A10-6	12.0	115	23.0	440	2100	4000	0.81	12.0	0.870	34.6
	DA132L54A10-6	14.0	134	26.0	440	1500	4000	0.81	12.0	0.870	34.6
	DA132B54A10-6	16.5	158	31.0	435	2700	4000	0.80	17.0	0.880	34.5
1750	DA132K54A17-6	16.0	87	30.0	435	4100	5000	0.79	14.0	0.890	59.7
	DA132M54A17-6	20.0	109	38.0	435	3500	5000	0.78	18.5	0.900	59.6
	DA132L54A17-6	23.0	126	41.0	440	3200	5000	0.82	17.0	0.900	59.7
	DA132B54A17-6	26.5	145	50.0	440	3100	5000	0.79	24.0	0.910	59.5
2300	DA132K54A23-6	20.0	83	36.0	440	3900	5000	0.79	16.0	0.910	78.0
	DA132M54A23-6	24.0	100	44.0	445	3600	5000	0.78	21.5	0.910	77.8
	DA132L54A23-6	29.0	120	54.0	430	5000	5000	0.78	26.0	0.920	77.9
	DA132B54A23-6	32.0	133	57.0	440	4300	5000	0.81	24.0	0.920	78.0
3000	DA132K54A30-6	23.0	73	44.0	435	5000	5000	0.77	21.0	0.910	101.2
	DA132M54A30-6	27.0	86	52.0	425	5000	5000	0.76	26.0	0.920	101.1
	DA132L54A30-6	33.0	105	63.0	425	5000	5000	0.78	30.0	0.920	101.1
	DA132B54A30-6	37.0	118	68.0	435	5000	5000	0.79	31.0	0.930	101.1

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA132K54A/R	192	0.074	126
DA132M54A/R	230	0.090	141
DA132L54A/R	268	0.105	156
DA132B54A/R	316	0.120	171

2.2.3. DA 132..54 W.. (IP 54 water-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA132K54W10-5	11.5	110	30.1	335	2600	5000	0.78	17.0	0.832	34.8
	DA132M54W10-5	13.7	131	36.0	330	3000	5000	0.78	20.7	0.846	34.7
	DA132L54W10-5	16.2	155	43.5	335	2600	5000	0.76	26.5	0.852	34.6
	DA132B54W10-5	18.3	175	45.5	340	2400	5000	0.79	25.5	0.864	34.6
1500	DA132K54W15-5	16.5	105	42.0	320	3000	5000	0.81	18.5	0.869	51.6
	DA132M54W15-5	20.0	127	48.5	340	2800	5000	0.79	22.5	0.879	51.5
	DA132L54W15-5	24.0	153	58.0	340	2800	5000	0.79	28.0	0.885	51.4
	DA132B54W15-5	27.5	175	66.0	345	2500	5000	0.78	33.0	0.890	51.4
2000	DA132K54W20-5	21.5	103	51.0	340	3800	5000	0.80	21.5	0.889	68.3
	DA132M54W20-5	26.5	127	66.0	335	4000	5000	0.77	32.5	0.894	68.1
	DA132L54W20-5	31.0	148	76.0	335	4000	5000	0.78	36.5	0.900	68.1
	DA132B54W20-5	36.0	172	83.0	345	3400	5000	0.80	36.5	0.904	68.1
2500	DA132K54W25-5	25.5	97	59.0	345	4200	5000	0.80	24.5	0.900	84.9
	DA132M54W25-5	31.0	118	73.0	335	5000	5000	0.80	31.5	0.905	84.8
	DA132L54W25-5	37.0	141	89.0	335	5000	5000	0.78	40.5	0.909	84.7
	DA132B54W25-5	43.0	164	99.0	345	4200	5000	0.79	44.0	0.913	84.7
3000	DA132K54W30-5	29.0	92	66.0	350	4500	5000	0.80	26.0	0.906	101.5
	DA132M54W30-5	36.0	115	86.0	335	5000	5000	0.79	36.0	0.911	101.4
	DA132L54W30-5	43.0	137	97.0	345	5000	5000	0.81	38.0	0.915	101.4
	DA132B54W30-5	50.0	159	109.0	355	4000	5000	0.81	44.0	0.919	101.4

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA132K54W	220	0.074	115
DA132M54W	262	0.090	130
DA132L54W	310	0.105	145
DA132B54W	350	0.120	160

2.3. DA 160

2.3.1. DA 160..23 A(R).. (IP 23 internally ventilated)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA160K23A04-5	17.0	406	43.0	345	1000	4500	0.87	19.2	0.745	14.7
	DA160M23A04-5	21.0	501	54.0	340	1200	4500	0.87	25.2	0.762	14.6
	DA160L23A04-5	24.0	573	65.0	325	1200	4500	0.86	31.5	0.769	14.5
1000	DA160K23A10-5	40.0	382	90.0	345	2500	4500	0.85	38.0	0.870	34.7
	DA160M23A10-5	48.0	458	111.0	335	3000	4500	0.85	49.0	0.882	34.5
	DA160L23A10-5	56.0	535	123.0	345	2500	4500	0.87	50.0	0.885	34.6
1500	DA160K23A15-5	55.0	350	120.0	350	2300	4500	0.85	41.5	0.900	51.5
	DA160M23A15-5	67.0	427	147.0	345	2400	4500	0.83	55.0	0.908	51.3
	DA160L23A15-5	78.0	497	170.0	345	2400	4500	0.85	60.0	0.911	51.3
2000	DA160K23A20-5	70.0	334	148.0	350	3000	4500	0.85	46.0	0.915	68.2
	DA160M23A20-5	85.0	406	192.0	330	4000	4500	0.84	66.0	0.922	68.0
	DA160L23A20-5	97.0	463	227.0	322	4000	4500	0.83	86.0	0.925	67.9
3000	DA160K23A30-5	87.0	277	182.0	350	4500	4500	0.86	47.0	0.929	101.6
	DA160M23A30-5	103.0	328	212.0	350	4500	4500	0.85	55.0	0.934	101.5
	DA160L23A30-5	120.0	382	255.0	345	4500	4500	0.84	82.0	0.938	101.2

Mains voltage 3 AC 480 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA160K23A04-6	17.0	406	36.0	425	1200	2000	0.88	15.5	0.740	14.7
	DA160M23A04-6	21.0	501	43.0	435	1100	2000	0.86	21.0	0.760	14.6
	DA160L23A04-6	24.0	573	50.0	420	1200	2000	0.85	24.0	0.770	14.5
1000	DA160K23A10-6	40.0	382	70.0	440	2100	4500	0.85	30.0	0.870	34.7
	DA160M23A10-6	48.0	458	88.0	425	3000	4500	0.84	40.0	0.880	34.6
	DA160L23A10-6	56.0	535	103.0	410	3400	4500	0.86	41.5	0.890	34.6
1500	DA160K23A15-6	55.0	350	93.0	445	2200	4500	0.86	31.0	0.910	51.5
	DA160M23A15-6	67.0	427	120.0	430	3100	4500	0.83	45.0	0.910	51.3
	DA160L23A15-6	78.0	497	135.0	440	2800	4500	0.84	47.0	0.910	51.4
2000	DA160K23A20-6	70.0	334	120.0	440	3200	4500	0.85	37.0	0.910	68.2
	DA160M23A20-6	85.0	406	145.0	440	3400	4500	0.84	51.0	0.920	68.0
	DA160L23A20-6	97.0	463	165.0	440	3400	4500	0.84	57.0	0.930	68.0
3000	DA160K23A30-6	87.0	277	153.0	410	4500	4500	0.86	41.0	0.930	101.5
	DA160M23A30-6	103.0	328	175.0	425	4500	4500	0.86	46.0	0.930	101.4
	DA160L23A30-6	120.0	382	205.0	435	4500	4500	0.84	65.0	0.940	101.2

Motor type	Maximum standstill torque $M_{0\ max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA160K23A/R	650	0.245	235
DA160M23A/R	802	0.303	270
DA160L23A/R	917	0.346	305

2.3.2. DA 160..54 A(R).. (IP 54 surface-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA160K54A04-5	9.7	232	25.0	345	1000	4500	0.81	14.2	0.801	14.2
	DA160M54A04-5	11.7	279	31.8	320	1200	4500	0.81	18.3	0.818	14.2
	DA160L54A04-5	13.5	322	34.0	335	1200	4500	0.82	18.8	0.829	14.2
1000	DA160K54A10-5	24.0	229	56.0	340	2800	4500	0.81	29.5	0.895	34.3
	DA160M54A10-5	29.0	277	70.0	345	2500	4500	0.77	41.0	0.902	34.2
	DA160L54A10-5	33.0	315	73.0	345	2500	4500	0.83	36.0	0.909	34.2
1350	DA160K54A13-5	30.0	212	67.0	350	2100	4500	0.81	30.0	0.912	46.0
	DA160M54A13-5	37.0	262	89.0	330	2700	4500	0.80	42.6	0.917	45.9
	DA160L54A13-5	44.0	311	102.0	335	2500	4500	0.81	46.2	0.921	45.9
1750	DA160K54A17-5	38.0	207	89.0	335	3300	4500	0.81	39.4	0.921	59.3
	DA160M54A17-5	47.0	256	100.0	350	2700	4500	0.84	38.7	0.927	59.4
	DA160L54A17-5	53.0	289	113.0	350	2700	4500	0.84	43.0	0.930	59.4
2300	DA160K54A23-5	46.0	191	108.0	335	4300	4500	0.80	49.0	0.929	77.6
	DA160M54A23-5	57.0	237	127.0	345	3700	4500	0.81	55.0	0.934	77.6
	DA160L54A23-5	65.0	270	150.0	330	4500	4500	0.81	65.0	0.937	77.5
3000	DA160K54A30-5	55.0	175	121.0	350	4500	4500	0.81	50.5	0.935	101.0
	DA160M54A30-5	67.0	213	146.0	345	4500	4500	0.83	56.0	0.938	101.0
	DA160L54A30-5	75.0	239	175.0	335	4500	4500	0.80	79.0	0.939	100.8

Mains voltage 3 AC 480 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA160K54A04-6	9.7	232	19.0	445	1600	2000	0.81	11.2	0.800	14.2
	DA160M54A04-6	11.7	279	24.0	425	1500	2000	0.82	11.7	0.820	14.2
	DA160L54A04-6	13.5	322	27.0	430	1600	2000	0.82	14.4	0.830	14.2
1000	DA160K54A10-6	24.0	229	45.0	430	3000	4500	0.81	24.0	0.890	34.3
	DA160M54A10-6	29.0	277	56.0	425	4000	4500	0.78	32.0	0.900	34.2
	DA160L54A10-6	33.0	315	58.0	430	2900	4500	0.84	27.0	0.910	34.2
1350	DA160K54A13-6	30.0	212	53.0	440	2900	4500	0.81	24.0	0.910	46.0
	DA160M54A13-6	37.0	262	67.0	435	2900	4500	0.80	32.0	0.920	45.9
	DA160L54A13-6	44.0	311	82.0	415	3700	4500	0.81	36.0	0.920	46.0
1750	DA160K54A17-6	38.0	207	66.0	440	3000	4500	0.81	29.0	0.920	59.3
	DA160M54A17-6	47.0	256	80.0	435	3100	4500	0.84	31.0	0.930	59.4
	DA160L54A17-6	52.0	284	87.0	440	2900	4500	0.85	32.0	0.930	59.4
2300	DA160K54A23-6	46.0	191	83.0	430	4500	4500	0.79	38.0	0.930	77.6
	DA160M54A23-6	57.0	237	95.0	445	3400	4500	0.83	37.0	0.930	77.7
	DA160L54A23-6	65.0	270	110.0	445	3400	4500	0.83	41.0	0.940	77.6
3000	DA160K54A30-6	55.0	175	105.0	415	4500	4500	0.80	44.0	0.930	100.9
	DA160M54A30-6	67.0	213	120.0	420	4500	4500	0.83	46.0	0.940	101.0
	DA160L54A30-6	75.0	239	140.0	420	4500	4500	0.78	63.0	0.950	100.8

Motor type	Maximum standstill torque $M_{0\ max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA160K54A/R	464	0.245	235
DA160M54A/R	558	0.303	270
DA160L54A/R	644	0.346	305

2.3.3. DA 160..54 W.. (IP 54 water-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA160K54W10-5	26.0	248	59.0	345	2500	4500	0.82	28.5	0.882	34.5
	DA160M54W10-5	32.0	306	72.0	345	2500	4500	0.83	35.0	0.892	34.4
	DA160L54W10-5	37.0	353	85.0	340	3000	4500	0.83	42.0	0.896	34.4
1500	DA160K54W15-5	38.0	242	86.0	345	2400	4500	0.81	36.5	0.905	51.3
	DA160M54W15-5	47.0	299	105.0	345	2400	4500	0.83	43.5	0.912	51.2
	DA160L54W15-5	55.0	350	118.0	355	2200	4500	0.82	49.5	0.915	51.2
2000	DA160K54W20-5	48.0	229	100.0	350	3000	4500	0.85	36.0	0.920	68.0
	DA160M54W20-5	60.0	287	131.0	345	3500	4500	0.83	54.0	0.925	67.9
	DA160L54W20-5	70.0	334	153.0	350	3000	4500	0.82	66.0	0.928	67.8
2500	DA160K54W25-5	58.0	222	127.0	345	4500	4500	0.81	53.0	0.928	84.5
	DA160M54W25-5	72.0	275	149.0	355	3500	4500	0.84	56.0	0.932	84.5
	DA160L54W25-5	82.0	313	176.0	350	4000	4500	0.82	74.0	0.935	84.4
3000	DA160K54W30-5	65.0	207	141.0	345	4500	4500	0.82	58.0	0.933	101.2
	DA160M54W30-5	80.0	255	169.0	350	4500	4500	0.83	66.0	0.936	101.1
	DA160L54W30-5	92.0	293	210.0	325	4500	4500	0.83	85.0	0.938	101.1

Motor type	Maximum standstill torque $M_{0\ max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA160K54W	496	0.245	235
DA160M54W	612	0.303	275
DA160L54W	706	0.346	310

2.4. DA 180

2.4.1. DA 180..23 A(R).. (IP 23 internally ventilated)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA180M23A04-5	30.0	716	74.0	345	1200	4300	0.88	29.8	0.773	14.5
	DA180L23A04-5	40.0	955	101.0	335	1200	4300	0.86	46.5	0.795	14.4
1000	DA180M23A10-5	70.0	669	159.0	345	1700	4300	0.84	55.6	0.880	34.6
	DA180L23A10-5	90.0	860	219.0	330	2000	4300	0.81	94.0	0.894	34.4
1500	DA180M23A15-5	96.0	611	214.0	340	2900	4300	0.83	74.3	0.912	51.2
	DA180L23A15-5-	125.0	796	291.0	330	3000	4300	0.82	112.0	0.920	51.0
2000	DA180M23A20-5	120.0	573	288.0	330	4000	4300	0.82	105.0	0.927	67.8
	DA180L23A20-5	152.0	726	345.0	335	4000	4300	0.82	126.0	0.932	67.7
3000	DA180M23A30-5	155.0	493	330.0	350	4300	4300	0.82	104.0	0.942	101.1
	DA180L23A30-5	200.0	637	425.0	350	4300	4300	0.82	142.0	0.946	101.0

Mains voltage 3 AC 480 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA180M23A04-6	30.0	716	60.0	420	1100	2000	0.91	24.0	0.750	14.6
	DA180L23A04-6	40.0	955	80.0	420	1200	2000	0.85	38.0	0.790	14.4
1000	DA180M23A10-6	70.0	669	125.0	445	2200	4300	0.83	44.0	0.880	34.6
	DA180L23A10-6	90.0	860	170.0	420	2400	4300	0.81	72.0	0.900	34.4
1500	DA180M23A15-6	96.0	611	167.0	440	2500	4300	0.83	58.0	0.830	51.2
	DA180L23A15-6	125.0	796	210.0	450	2900	4300	0.84	72.0	0.920	51.1
2000	DA180M23A20-6	120.0	573	205.0	445	3000	4300	0.81	75.0	0.930	67.8
	DA180L23A20-6	152.0	726	275.0	415	4300	4300	0.82	98.0	0.930	67.7
3000	DA180M23A3065	155.0	493	440.0	440	4300	4300	0.83	85.0	0.940	101.1
	DA180L23A30-6	200.0	637	425.0	445	4300	4300	0.85	91.0	0.940	101.1

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA180M23A/R	1146	0.515	350
DA180L23A/R	1528	0.676	430

2.4.2. DA 180..54 A(R).. (IP 54 surface-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA180M54A04-5	16.0	382	39.5	335	1200	4300	0.84	20.0	0.830	14.1
	DA180L54A04-5	20.0	478	49.5	340	1200	4300	0.81	27.0	0.852	14.0
1000	DA180M54A10-5	38.0	363	89.0	335	2000	4300	0.82	39.0	0.907	34.2
	DA180L54A10-5	50.0	478	107.0	350	1500	4300	0.84	42.0	0.915	34.2
1350	DA180M54A13-5	52.0	368	125.0	335	2700	4300	0.79	60.0	0.921	45.8
	DA180L54A13-5	68.0	481	142.0	350	2100	4300	0.86	49.0	0.925	45.9
1750	DA180M54A17-5	63.0	344	137.0	345	3000	4300	0.83	52.0	0.932	59.2
	DA180L54A17-5	85.0	464	192.0	330	3500	4300	0.82	78.0	0.936	59.1
2300	DA180M54A23-5	75.0	311	179.0	320	4300	4300	0.80	76.0	0.938	77.4
	DA180L54A23-5	100.0	415	224.0	335	4300	4300	0.82	92.0	0.942	77.4
3000	DA180M54A30-5	87.0	277	210.0	320	4300	4300	0.80	88.0	0.940	100.7
	DA180L54A30-5	105.0	334	261.0	315	4300	4300	0.80	115.0	0.940	100.6

Mains voltage 3 AC 480 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA180M54A04-6	16.0	382	31.0	430	1400	2000	0.83	16.0	0.840	14.1
	DA180L54A04-6	20.0	478	39.0	425	1800	2000	0.80	22.0	0.860	14.0
1000	DA180M54A10-6	38.0	363	70.0	430	2200	4300	0.80	31.0	0.910	34.2
	DA180L54A10-6	50.0	478	88.0	435	2000	4300	0.83	35.0	0.920	34.2
1350	DA180M54A13-6	52.0	368	100.0	420	3500	4300	0.77	49.0	0.930	45.8
	DA180L54A13-6	68.0	481	110.0	445	2100	4300	0.85	36.0	0.930	46.0
1750	DA180M54A17-6	63.0	344	107.0	440	2800	4300	0.82	40.0	0.940	59.2
	DA180L54A17-6	82.0	447	135.0	450	2500	4300	0.83	50.0	0.940	59.2
2300	DA180M54A23-6	75.0	311	128.0	450	3300	4300	0.80	53.0	0.940	77.5
	DA180L54A23-6	100.0	415	180.0	425	4300	4300	0.80	73.0	0.950	77.4
3000	DA180M54A30-6	87.0	277	165.0	410	4300	4300	0.78	72.0	0.950	100.7
	DA180L54A30-6	105.0	334	195.0	425	4300	4300	0.79	85.0	0.950	100.6

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA180M54A/R	764	0.515	330
DA180L54A/R	956	0.676	425

2.4.3. DA 180..54 W.. (IP 54 water-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequenc
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA180M54W10-5	40.0	382	92.0	335	2000	4300	0.82	44.0	0.909	34.1
	DA180L54W10-5	57.0	544	132.0	335	2000	4300	0.82	66.0	0.913	34.1
1500	DA180M54W15-5	60.0	382	130.0	350	2300	4300	0.83	49.0	0.924	51.0
	DA180L54W15-5	84.0	535	180.0	350	2300	4300	0.84	66.0	0.928	50.9
2000	DA180M54W20-5	76.0	363	166.0	350	3000	4300	0.81	71.0	0.932	67.5
	DA180L54W20-5	105.0	501	255.0	315	4000	4300	0.80	113.0	0.935	67.5
2500	DA180M54W25-5	92.0	351	197.0	355	3500	4300	0.81	81.0	0.937	84.2
	DA180L54W25-5	122.0	466	248.0	360	3000	4300	0.83	89.0	0.940	84.2
3000	DA180MW30-5	102.0	325	235.0	340	4300	4300	0.79	103.0	0.937	100.8
	DA180L54W30-5	135.0	430	312.0	340	4300	4300	0.79	141.0	0.940	100.7

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA180M54W	764	0.515	330
DA180L54W	1088	0.676	435

2.5. DA 225

2.5.1. DA 225..23 A(R).. (IP 23 internally ventilated)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA225K23A04-5	50.0	1194	118.0	340	1200	3800	0.86	49.5	0.830	14.0
	DA225M23A04-5	65.0	1552	153.0	340	1200	3800	0.85	69.0	0.847	14.0
	DA225L23A04-5	78.0	1862	179.0	340	1200	3800	0.86	74.0	0.856	13.9
1000	DA225K23A10-5	115.0	1098	243.0	350	1500	3800	0.86	74.0	0.908	34.2
	DA225M23A10-5	147.0	1404	315.0	345	1700	3800	0.85	105.0	0.919	34.0
	DA225L23A10-5	176.0	1681	373.0	350	1500	3800	0.84	128.0	0.925	34.0
1500	DA225K23A15-5	160.0	1019	371.0	325	3000	3800	0.83	129.0	0.930	50.7
	DA225M23A15-5	205.0	1305	449.0	340	2800	3800	0.83	163.0	0.937	50.6
1750	DA225K23A17-5	176.0	960	366.0	350	2700	3800	0.85	102.0	0.933	59.2
	DA225M23A17-5	217.0	1184	446.0	345	3000	3800	0.87	106.0	0.938	59.1
	DA225L23A17-5	265.0	1446	567.0	345	3000	3800	0.83	205.0	0.946	58.9
2000	DA225K23A20-5	195.0	931	436.0	335	3800	3800	0.82	153.0	0.939	67.4
	DA225M23A20-5	240.0	1146	558.0	320	3800	3800	0.82	196.0	0.944	67.3
2500	DA225K23A25-5	220.0	840	541.0	315	3800	3800	0.80	224.0	0.942	84.0
	DA225M23A25-5	260.0	993	529.0	345	3800	3800	0.87	132.0	0.947	84.1
3000	DA225K23A30-5	240.0	764	508.0	345	3800	3800	0.84	170.0	0.946	100.7

Mains voltage 3 AC 480 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA225K23A04-6	50.0	1194	92.0	440	900	2000	0.87	37.0	0.830	14.1
	DA225M23A04-6	65.0	1552	120.0	445	900	2000	0.85	51.0	0.850	14.0
	DA225L23A04-6	78.0	1862	142.0	435	1000	2000	0.86	58.0	0.860	13.9
1000	DA225K23A10-6	115.0	1098	200.0	440	1500	3800	0.85	60.0	0.910	34.2
	DA225M23A10-6	147.0	1404	270.0	405	2400	3800	0.84	93.0	0.920	34.0
	DA225L23A10-6	176.0	1681	315.0	420	2200	3800	0.84	108.0	0.930	34.0
1500	DA225K23A15-6	160.0	1019	265.0	450	2000	3800	0.83	88.0	0.930	50.8
	DA225M23A15-6	205.0	1305	360.0	425	3200	3800	0.82	130.0	0.940	50.7
1750	DA225K23A17-6	176.0	960	295.0	440	2800	3800	0.83	100.0	0.940	59.1
	DA225M23A17-6	217.0	1184	355.0	435	2900	3800	0.87	85.0	0.940	59.1
	DA225L23A17-6	265.0	1446	430.0	450	2200	3800	0.85	134.0	0.940	59.0
2000	DA225K23A20-6	195.0	931	350.0	430	3800	3800	0.80	135.0	0.940	67.4
	DA225M23A20-6	240.0	1146	415.0	440	3500	3800	0.81	162.0	0.950	67.3
2500	DA225K23A25-6	220.0	840	410.0	420	3800	3800	0.79	168.0	0.950	84.0
	DA225M23A25-6	260.0	993	405.0	455	3000	3800	0.87	91.0	0.950	84.1
3000	DA225K23A30-6	240.0	764	385.0	455	3700	3800	0.84	119.0	0.950	100.7

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA225K23A/R	1910	1.313	610
DA225M23A/R	2483	1.710	710
DA225L23A/R	2979	2.063	800

2.5.2. DA 225..54 A(R).. (IP 54 surface-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA225K54A04-5	27.0	645	70.0	325	1200	3800	0.79	40.0	0.867	13.8
	DA225M54A04-5	36.0	860	90.0	330	1200	3800	0.80	51.0	0.882	13.8
	DA225L54A04-5	43.0	1027	103.0	335	1200	3800	0.80	57.0	0.891	13.7
1000	DA225K54A10-5	64.0	611	150.0	330	2000	3800	0.80	70.0	0.929	33.8
	DA225M54A10-5	87.0	831	205.0	325	2000	3800	0.81	92.0	0.935	33.8
	DA225L54A10-5	107.0	1022	250.0	325	2000	3800	0.82	107.0	0.938	33.8
1350	DA225K54A13-5	85.0	580	193.0	330	2700	3800	0.80	88.0	0.941	45.5
	DA225M54A13-5	110.0	778	236.0	345	2300	3800	0.83	96.0	0.945	45.5
	DA225L54A13-5	135.0	955	299.0	340	2600	3800	0.81	128.0	0.947	45.4
1750	DA225K54A17-5	98.0	535	221.0	335	3500	3800	0.81	95.0	0.946	58.8
	DA225M54A17-5	130.0	709	280.0	345	3000	3800	0.82	112.0	0.950	58.8
	DA225L54A17-5	157.0	857	375.0	315	3500	3800	0.81	161.0	0.952	58.7
2300	DA225K54A23-5	112.0	465	257.0	330	3800	3800	0.81	107.0	0.948	77.1
	DA225M54A23-5	143.0	594	333.0	325	3800	3800	0.80	144.0	0.951	77.1
	DA225L54A23-5	175.0	727	362.0	340	3800	3800	0.86	110.0	0.954	77.2
3000	DA225K54A30-5	122.0	388	252.0	350	3800	3800	0.85	73.0	0.952	100.6
	DA225M54A30-5	155.0	493	328.0	335	3800	3800	0.86	98.0	0.952	100.5

Mains voltage 3 AC 480 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
400	DA225K54A04-6	27.0	645	55.0	420	1600	2000	0.78	33.0	0.870	13.8
	DA225M54A04-6	36.0	860	70.0	430	1500	2000	0.78	41.0	0.880	13.8
	DA225L54A04-6	43.0	1027	77.0	445	900	2000	0.82	40.0	0.890	13.8
1000	DA225K54A10-6	64.0	611	110.0	445	1500	3800	0.81	48.0	0.930	33.8
	DA225M54A10-6	87.0	831	155.0	435	2200	3800	0.80	71.0	0.930	33.8
	DA225L54A10-6	107.0	1022	180.0	445	1700	3800	0.83	72.0	0.940	33.8
1350	DA225K54A13-6	85.0	601	150.0	440	2600	3800	0.79	70.0	0.940	45.5
	DA225M54A13-6	110.0	778	200.0	430	3100	3800	0.78	95.0	0.940	45.4
	DA225L54A13-6	135.0	955	240.0	435	3300	3800	0.79	110.0	0.950	45.4
1750	DA225K54A17-6	95.0	518	220.0	445	2800	3800	0.83	59.0	0.940	58.8
	DA225M54A17-6	130.0	709	225.0	430	3800	3800	0.82	89.0	0.950	58.8
	DA225L54A17-6	157.0	857	280.0	425	3800	3800	0.80	123.0	0.950	58.7
2300	DA225K54A23-6	112.0	465	205.0	440	3800	3800	0.76	102.0	0.950	77.1
	DA225M54A23-6	143.0	594	250.0	440	3800	3800	0.79	111.0	0.950	77.1
	DA225L54A23-6	175.0	727	270.0	455	3100	3800	0.86	78.0	0.950	77.2
3000	DA225K54A30-6	122.0	388	200.0	435	3800	3800	0.86	57.0	0.950	100.6
	DA225M54A30-6	155.0	493	245.0	450	3800	3800	0.86	71.0	0.950	100.5

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA225K54A/R	1290	1.313	610
DA225M54A/R	1720	1.710	710
DA225L54A/R	2054	2.063	800

2.5.3. DA 225..54 W.. (IP 54 water-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
1000	DA225K54W10-5	68.0	649	161.0	325	2000	3800	0.81	71.0	0.926	33.9
	DA225M54W10-5	95.0	907	223.0	330	2000	3800	0.80	100.0	0.932	33.8
	DA225L54W10-5	120.0	1146	278.0	330	2000	3800	0.80	123.0	0.935	33.8
1500	DA225K54W15-5	97.0	618	208.0	350	2300	3800	0.81	85.0	0.940	50.6
	DA225M54W15-5	135.0	860	326.0	320	3000	3800	0.80	146.0	0.944	50.5
1750	DA225K54W17-5	108.0	589	244.0	340	3200	3800	0.80	107.0	0.943	58.9
	DA225M54W17-5	148.0	808	313.0	360	2300	3800	0.80	133.0	0.948	58.8
	DA225L54W17-5	185.0	1010	430.0	330	3500	3800	0.79	194.0	0.948	58.8
2000	DA225K54W20-5	120.0	573	300.0	310	3800	3800	0.79	137.0	0.943	67.2
	DA225M54W20-5	162.0	774	410.0	310	3800	3800	0.78	196.0	0.947	67.1
	DA225L54W20-5	205.0	979	423.0	355	3000	3800	0.82	162.0	0.952	67.2
2500	DA225K54W25-5	135.0	516	280.0	360	3200	3800	0.82	108.0	0.948	83.8
	DA225M54W25-5	185.0	707	388.0	355	3500	3800	0.81	153.0	0.951	83.8
3000	DA225K54W30-5	150.0	478	360.0	330	3800	3800	0.78	164.0	0.946	100.4

Motor type	Maximum standstill torque $M_{0\ max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA225K54W	1298	1.313	600
DA225M54W	1796	1.710	710
DA225L54W	2292	2.063	810

2.6. DA 280

2.6.1. DA 280..23 R.. (IP 23 internally ventilated)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. curren	Nom. voltage	Limit speed with field weaken-ing	Max. operat. speed	Power factor	Magne-tizing current	Effi-ciency	Nom. Fre-quenc
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
750	DA280K23R07-5	158.0	2012	340.0	350	1250	3000	0.84	120.6	0.923	25.5
700	DA280M23R07-5	193.0	2633	395.0	365	700	3000	0.83	145.6	0.930	23.8
650	DA280L23R07-5	222.0	3262	475.0	350	1150	3000	0.83	178.0	0.929	22.1
1050	DA280K23R10-5	235.0	2137	500.0	350	1750	3000	0.83	176.0	0.938	35.5
1050	DA280M23R10-5	290.0	2638	600.0	355	1500	3000	0.83	218.6	0.945	35.5
1200	DA280L23R12-5	380.0	3024	765.0	365	1200	3000	0.83	287.4	0.951	40.4
1350	DA280K23R15-5	290.0	2051	610.0	350	2200	3000	0.83	216.1	0.947	45.5
1500	DA280M23R15-5	390.0	2483	775.0	365	1500	3000	0.83	275.9	0.954	50.5
2000	DA280K23R20-5	400.0	1910	775.0	380	3000	3000	0.82	283.2	0.959	67.1

Motor type	Maximum standstill torque $M_{0\,max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA280K23R	3200	3.300	1170
DA280M23R	4200	4.200	1370
DA280L23R	5200	5.100	1570

2.6.2. DA 280..54 W.. (IP 54 water-cooled)

Mains voltage 3 AC 400 V for converters with uncontrolled supply

Nom. speed	Motor type	Nom. power	Nom. torque	Nom. current	Nom. voltage	Limit speed with field weakening	Max. operat. speed	Power factor	Magnetizing current	Efficiency	Nom. Frequency
n_N min^{-1}		P_N kW	M_N Nm	I_N A	U_N V	n_1 min^{-1}	n_{max} min^{-1}	cos φ	I_μ A	η_N	f_N Hz
750	DA280K54W07-5	82.0	1044	160.0	365	750	3000	0.88	40.0	0.930	25.5
750	DA280M54W07-5	125.0	1592	255.0	345	1200	3000	0.89	61.6	0.933	25.5
750	DA280L54W07-5	155.0	1974	298.0	365	750	3000	0.89	72.8	0.937	25.5
1100	DA280K54W10-5	120.0	1042	230.0	365	1100	3000	0.88	56.6	0.946	37.1
1100	DA280M54W10-5	175.0	1519	345.0	350	1500	3000	0.88	85.8	0.946	37.1
1150	DA280L54W10-5	230.0	1910	445.0	360	1300	3000	0.88	107.3	0.950	38.8
1500	DA280K54W15-5	160.0	1019	310.0	360	1500	3000	0.87	84.6	0.953	50.4
1500	DA280M54W15-5	220.0	1401	415.0	365	1500	3000	0.88	102.4	0.953	50.5
1600	DA280L54W15-5	295.0	1761	560.0	360	1600	3000	0.88	142.8	0.956	53.8
2000	DA280K54W20-5	200.0	955	380.0	365	2000	3000	0.88	99.8	0.954	67.1
2000	DA280M54W20-5	280.0	1337	535.0	365	2000	3000	0.87	140.7	0.958	67.1
2600	DA280K54W25-5	255.0	937	495.0	360	3000	3000	0.87	138.2	0.955	87.1

Motor type	Maximum standstill torque $M_{0\ max}$ [Nm]	Inertia J [kgm^2]	Weight m [kg]
DA280K54W	2100	3.300	1250
DA280M54W	3200	4.200	1470
DA280L54W	3950	5.100	1700

2.7. Bearings and shaft load

All machines are equipped with rolling-contact bearings. Normally, the non-locating bearing (ball bearing) is intended for the drive end and the locating bearing (ball bearing) for the non-drive end. Machines with roller bearings at the drive end are available for applications where increased radial forces can occur, for instance when using pulleys. Please specify radial forces in your order.

Ball bearing assignment for D-side

Frame size	D-side	N-side
100	6209 2ZRC3	6306 2ZRC3
132	6312 2ZRC3	6310 2ZRC3
160	6313 2ZRC3	6311 2ZRC3
180	6314 2ZRC3	6312 2ZRC3
225	6316 2ZRC3	6314 2ZRC3
280	6220 C3	6220 C3

Roller bearing assignment for D-side

Frame size	D-side	N-side
100	NU 209 E	6306 2ZRC3
132	NU 312 E	6310 2ZRC3
160	NU 313 E	6311 2ZRC3
180	NU 314 E	6312 2ZRC3
225	NU 316 E	6314 2ZRC3
280	NU 2220 E	6220 C3

The bearings at motor size 100-225 have a permanent lubrication.
The bearings at motor size 280 have a relubrication device.

The bearings at motor size 180-280 are on the N-side in insulated version by default.

NOTE:
In the option "roller bearings for D-side" the rotor is secured by default with a transport lock. The transport lock must be fixed during the transport and must first be removed before reassembling a driven element.
If the machine will be transport after mounting of a driven element, a suitable method for the axial and radial fixation of the rotor must are taken.

Determination of radial forces F_R

When using pulleys, the radial load is calculated according to the following formula:

$$F_R = k\frac{2\cdot 10^7 \cdot P_N}{n\cdot D}\ [N]$$

P_N = Nominal power in kW
n = Nominal speed in rpm
D = Pulley diameter in mm

The belt tightening factor k is approximately:
k = 1.8...2.5 for V-belt
k = 2.2…3.5 for flat belt
(Observe specifications of the belt manufacturer)

To ensure safe and reliable torque transmission, it is necessary to utilize the entire bearing length of the key. Otherwise, the key may be subjected to an excessive compressive load per unit area, which in turn can result in the failure of the motor. The pulley must be mounted up to the shaft shoulder and only tightened to the following maximum tightening torques.

Gland	M5	M6	M8	M10	M12	M16	M20
Tightening torque	2.2 Nm	4.0 Nm	10.0 Nm	19.0 Nm	33.0 Nm	80 Nm	160 Nm

Permissible radial forces F_R at the shaft end

The ball bearings have been dimensioned for a calculated service life of approx. 20,000 operating hours [1)]. The load values specified below must not be exceeded. The specified permissible radial forces F_R are only valid for horizontal mounting of the motor without additional axial forces. If additional axial forces are involved, please consult the manufacturer.

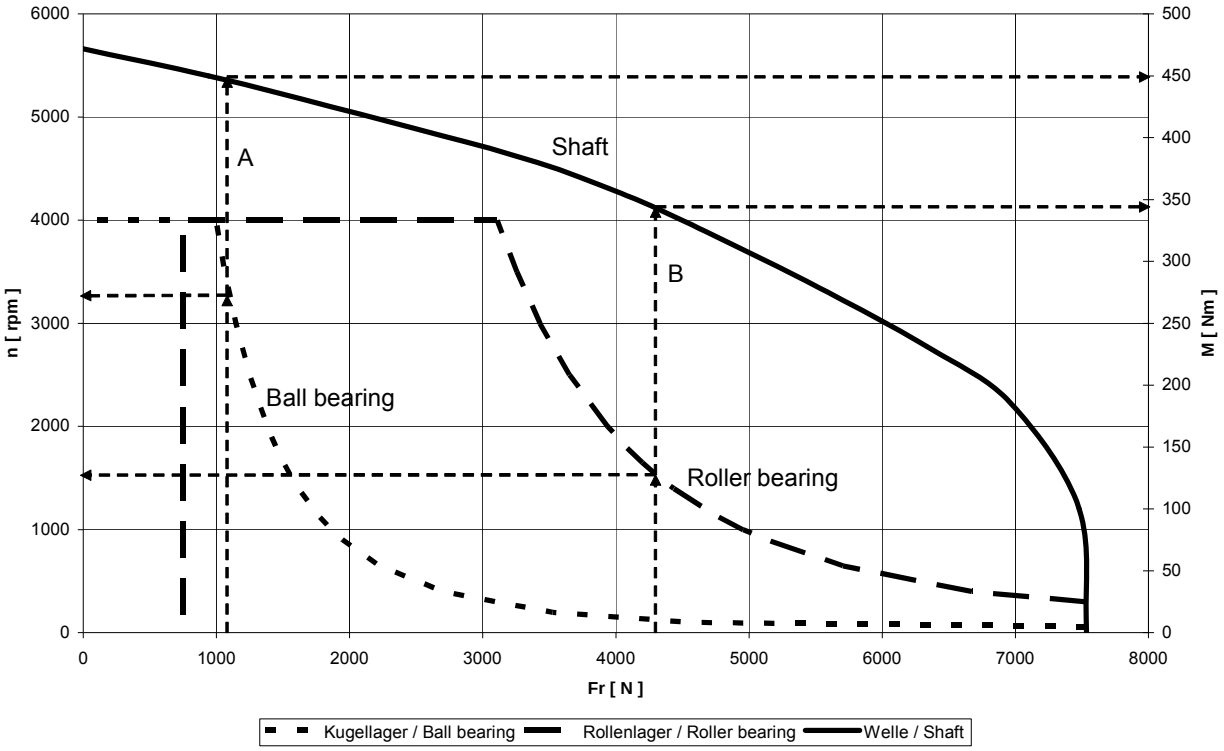
Axial load on the motor shaft

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

1) medium operating temperature < 90 °C
medium operating speed < 2000 rpm (DA 100-160), medium operating sped < 1500 rpm (DA 180-225)

2.8. Radial force diagrams

Example



Explanation of the example diagram

Force acting on the end of the shaft end (for force acting on the middle of the shaft end Fr x 1.1)
Shaft end with keyway

Case A – Ball bearing:

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

Radial force 1.100 N => maximum speed 3.250 rpm

The maximum transmittable torque is based on the “Shaft” characteristic.

Radial force 1.100 N => maximum transmittable torque 450 Nm

Case B – Roller bearing:

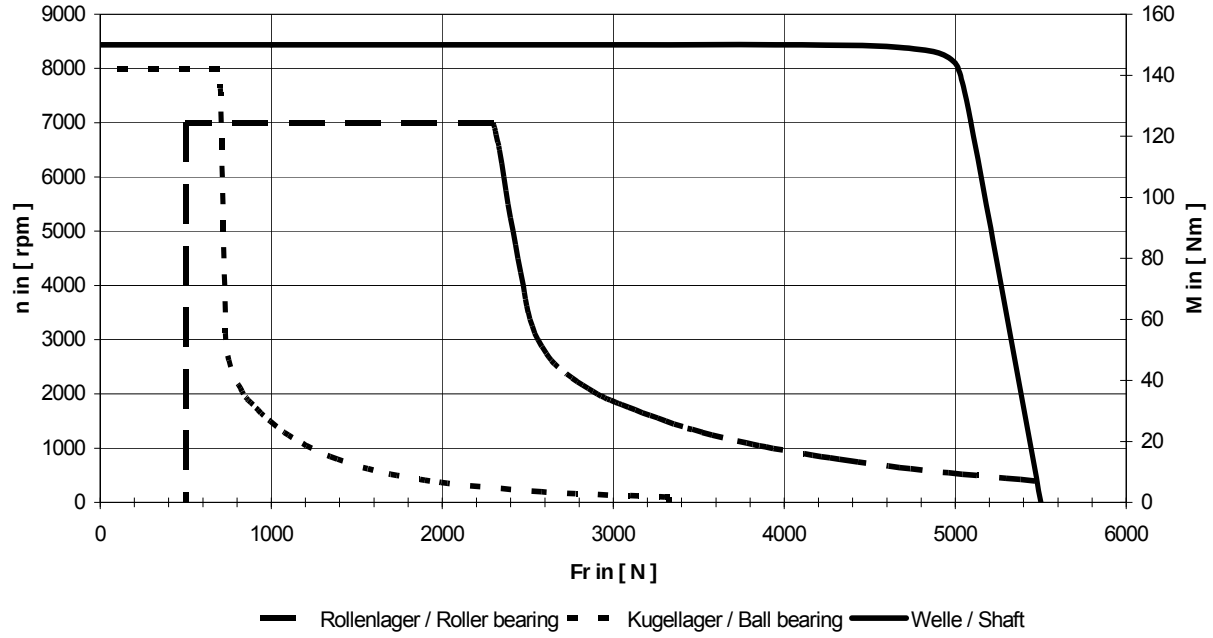
The radial force Fr of the application is used to determine the possible maximum speed of the bearing in the “Roller bearing” characteristic.

Radial force 4.300 N => maximum speed 1.500 rpm

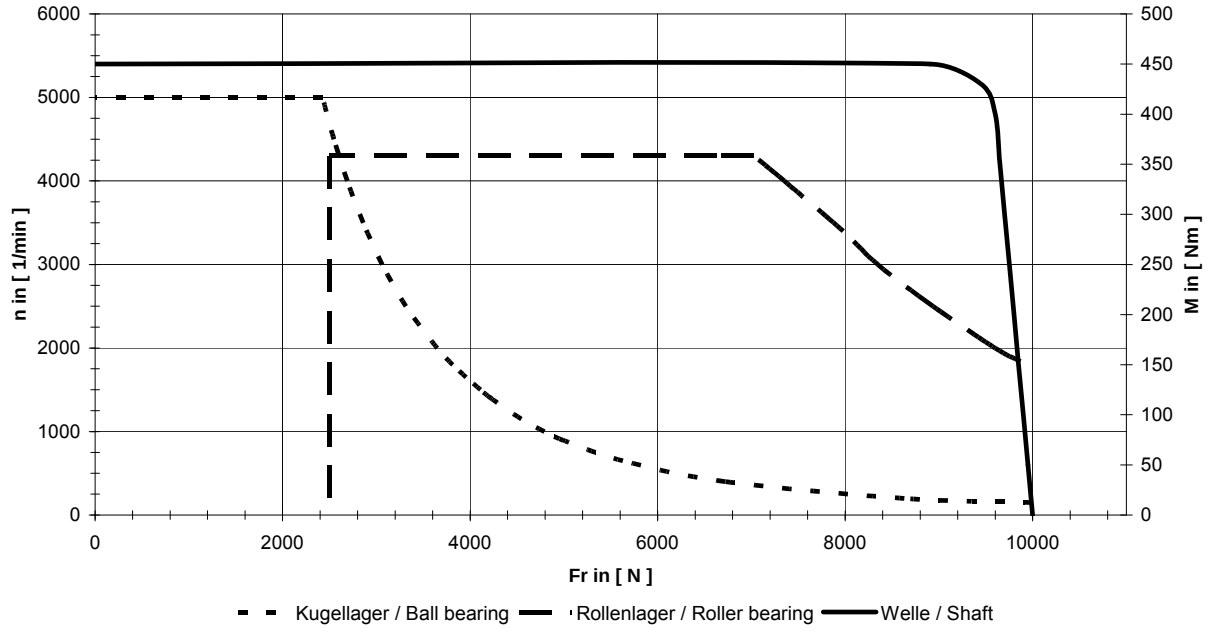
The maximum transmittable torque is based on the “Shaft” characteristic.

Radial force 4.300 N => maximum transmittable torque 345 Nm

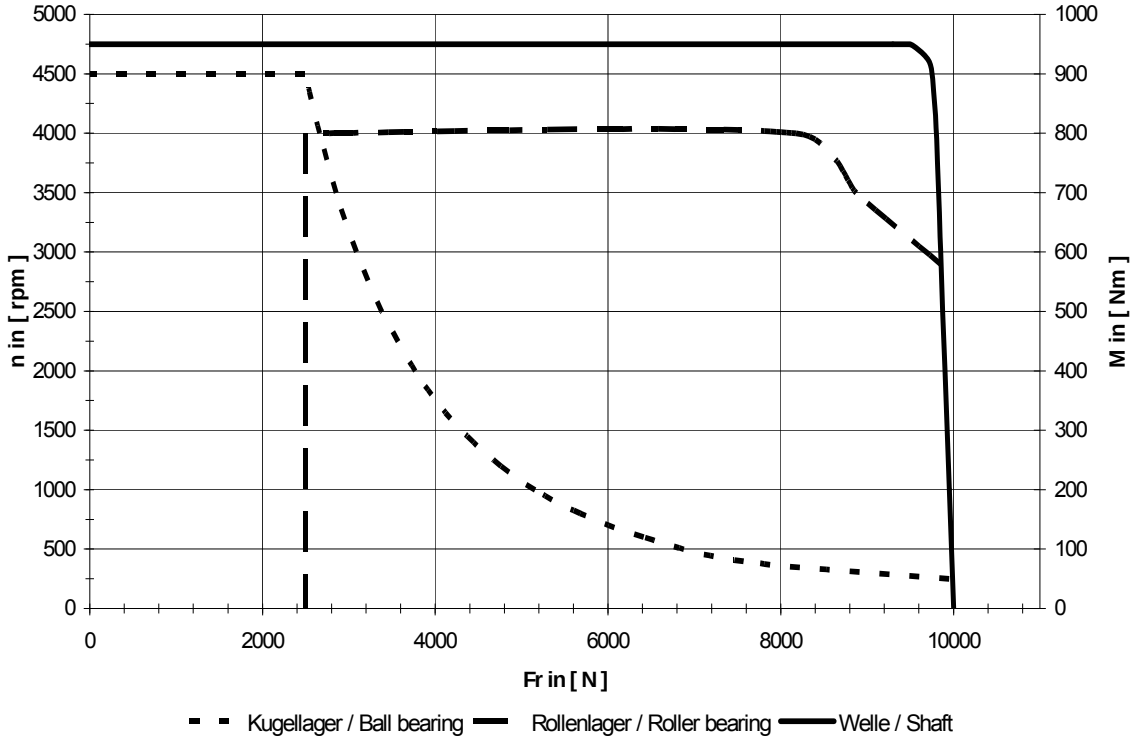
DA 100


9000
8000
7000
6000
5000
4000
3000
2000
1000
0
n in [rpm]
160
140
120
100
80
60
40
20
0
M in [Nm]
0
1000
2000
3000
4000
5000
6000
Fr in [N]
Rollenlager / Roller bearing
Kugellager / Ball bearing
Welle / Shaft

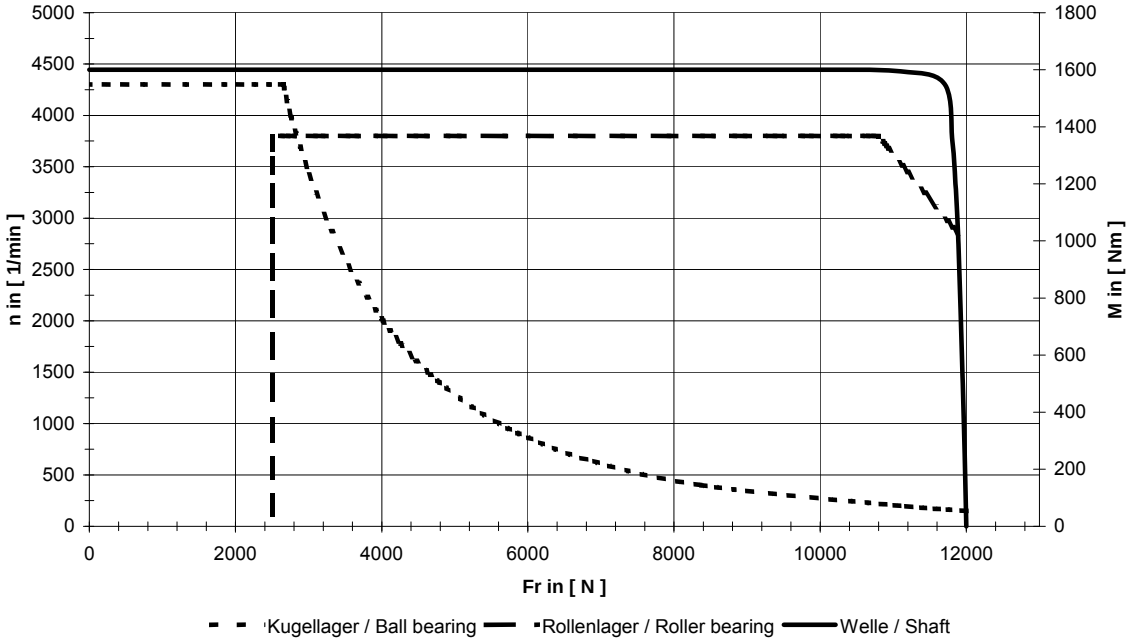
DA 132


6000
5000
4000
3000
2000
1000
0
n in [1/min]
500
450
400
350
300
250
200
150
100
50
0
M in [Nm]
0
2000
4000
6000
8000
10000
Fr in [N]
Kugellager / Ball bearing
Rollenlager / Roller bearing
Welle / Shaft

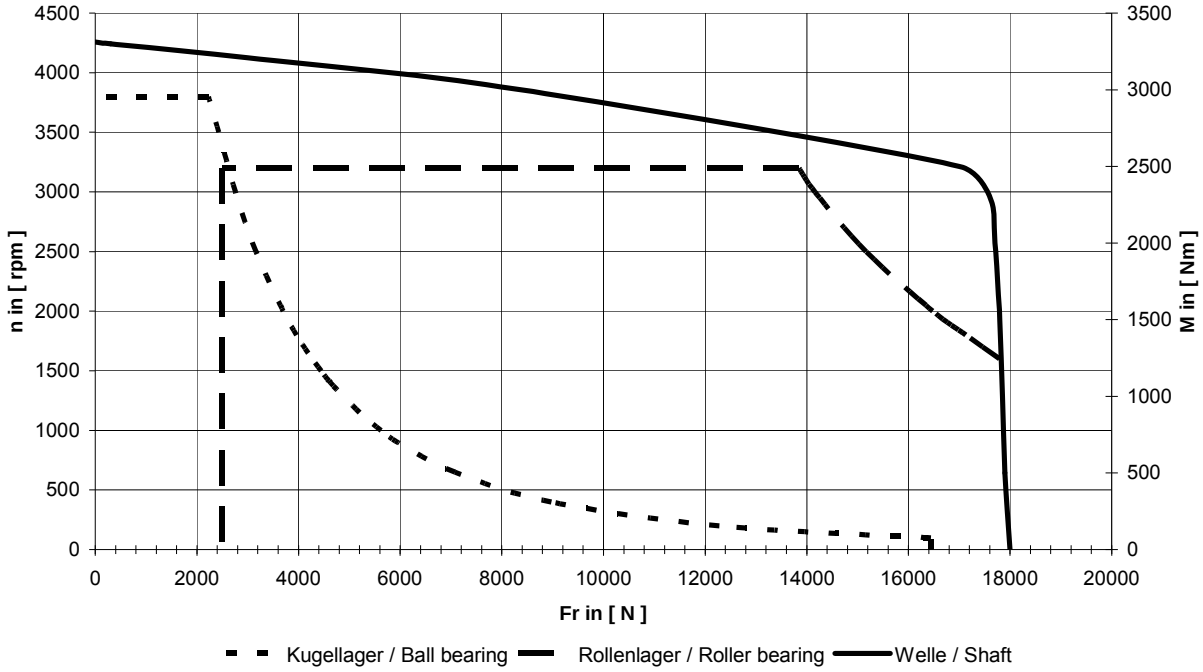
DA 160


n in [rpm]
M in [Nm]
Fr in [N]
Kugellager / Ball bearing
Rollenlager / Roller bearing
Welle / Shaft

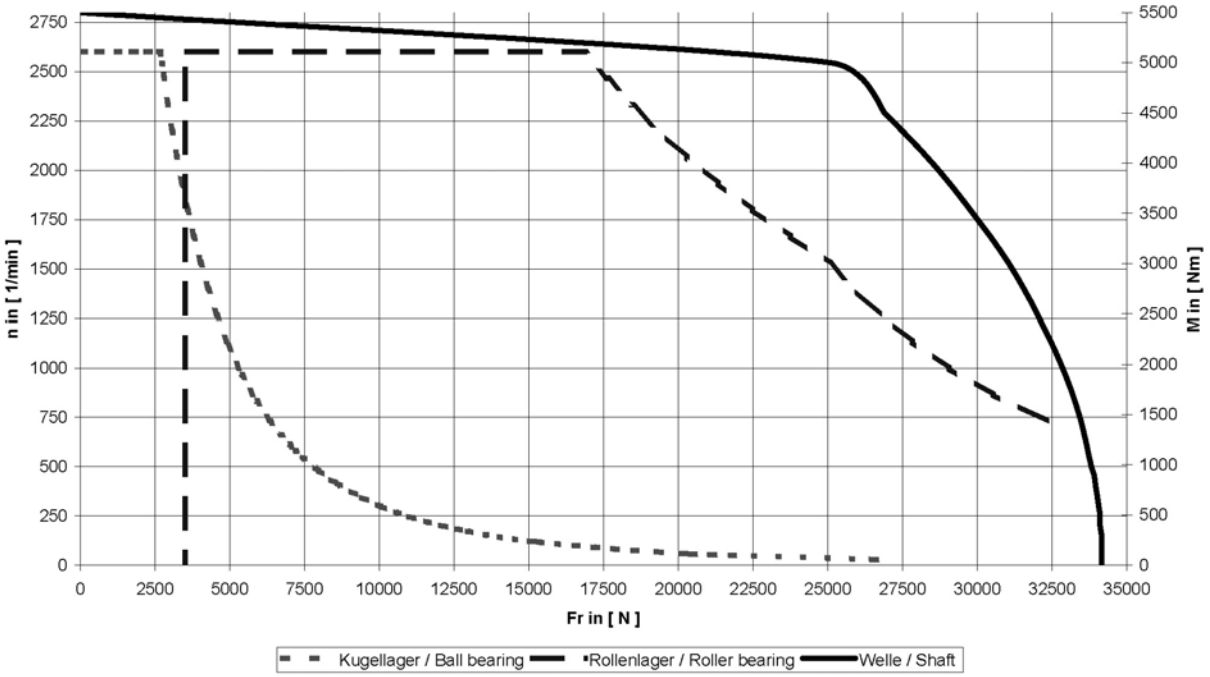
DA 180


n in [1/min]
M in [Nm]
Fr in [N]
Kugellager / Ball bearing
Rollenlager / Roller bearing
Welle / Shaft

DA 225


n in [rpm]
M in [Nm]
Fr in [N]
Kugellager / Ball bearing
Rollenlager / Roller bearing
Welle / Shaft

DA 280


n in [1/min]
M in [Nm]
Fr in [N]
Kugellager / Ball bearing
Rollenlager / Roller bearing
Welle / Shaft

3. Motor components (options)

3.1. Holding brake

For motor type	Brake type	Brake torque M_B for holding brake [Nm)]	Input power [W]	Max. perm. switching energy Wperm. per switching operation [kJ]	Dis-engaging time [s]	Engaging time [s]	Inertia [kgm²]	Max. perm. speed [rpm]	Weight [kg]
DAG 100…A	SB 50	50	96	10	0.120	0.160	0.0005	4000	5
DAG 100…W	SB100	100	106	15	0.180	0.250	0.0015	3500	9.5
DAG 132	SB 200	200	170	20	0.225	0.300	0.0040	3000	13
DAG 160	SB 360	320	190	30	0.350	0.300	0.0090	3000	29
DAG 180	On request								
DAG 225	On request								
DAG 280	On request								

For use as a **holding brake** the following must be observed:

- **3 emergency stops** (individual braking operations) per hour are possible if evenly distributed
- Switching times values are valid for switching on the AC side, in a cold state, with basic air gap and holding brake
- Disengaging time – Time until the brake has completely disengaged (brake without torque)
- Engaging time – Time until the brake torque is reached
- All information is valid for installation on a horizontal shaft.
- The supplier must be contacted before vertical installation.
- Requirements other than those indicated can be catered for on request

Brake time / Switching energy
It is necessary to check that the brake is suited for its application. For this, the switching energy must be determined.

Determination of the braking time [t_B]

t_B $\quad t_B = \dfrac{\sum J * \Delta n}{9{,}55 * (M_B \pm M_L)} + t_0$ in s

$\sum J$ Total moment of inertia in kgm² = J_{mot} + J_{add} (referred to motor shaft)
J_{mot} Motor moment of inertia in kgm²
J_{add} Additional moment of inertia in kgm² (referred to motor shaft)
Δn Motor speed in rpm
M_B Brake torque in Nm
M_L Load torque in Nm (positively calculated if it decelerates, negatively calculated if it accelerates)
t_0 Time in s from the switching instant to the full extent of the braking torque (response time)
I Number of cycles per hour

Determining the switching energy [W_R]

$$W_R = \frac{\sum J \cdot \Delta n^2}{182.4} \cdot \frac{M_B}{(M_B \pm M_L)} \quad \text{in} \quad \frac{\text{joules}}{\text{switching operation}}$$

Determining the switching capacity [P_R]

$$P_R = \frac{W_R \cdot i}{1000} \quad \text{in} \quad \frac{kJ}{h}$$

$W_{Rperm} \leq$ value from table

In most cases, t_0 is negligible. If this is not the case and the time t_0 must be reduced, you can achieve this by interrupting the magnet circuit on the DC side.
However, this measure must be known before dimensioning the brake motor.

3.1.1. Brake supply

Standard: Normal voltage 24 DC Supply with transformer and rectifier
Option: Normal voltage 104 and 176V DC Supply using brake supply unit
The brake supply unit must be order separately.
The brakes are designed with micro-switch (normally open contact). The silver contacts are coated with a layer of gold, which enables two applications. By maximum load of the gold layer, the gold layer can be burned irreversible. In this case, the contact material "gold layer" can not longer be used.

Electrical data of the switches:

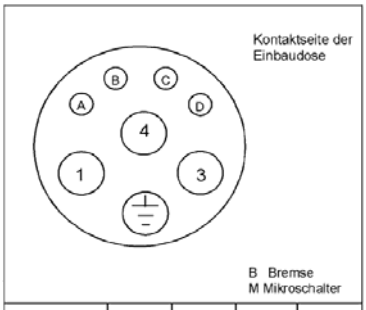
Contact material	Min. load	Ideal range of use		Max. load
Gold coat	0 mA; 0 V up to 3 Mio. cycles	0 mA; 0 V up to 3 Mio. cycles	10 mA; 12 V up to 1 Mio. cycles	0,1 A; 12 V up to 100.000 cycles
Argent	10 mA; 12 V up to 3 Mio. cycles	100 mA; 12 V up to 3Mio. cycles	5 A; 30 V up to 50.000 cycles	5 A; 30 V up to 50.000 cycles

The brakes can be executed optional with hand ventilation and lock.

3.1.2. Brake connection

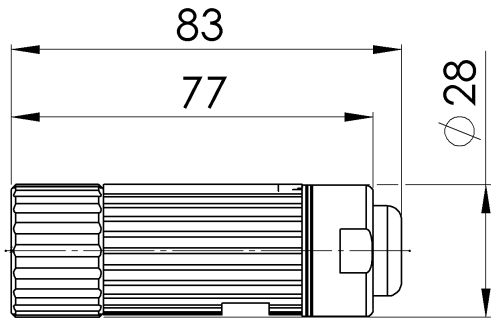
DAG100 – 225 for axial forced ventilation

Connector:



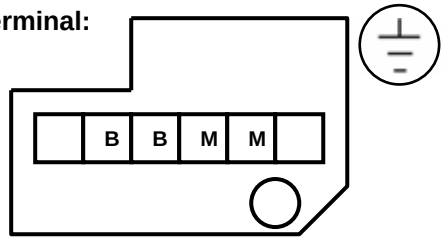
Pin	A	B	C	D
Signal	M	M		
Pin	1	⏚	3	4
Signal	B		B	

Mating plug size 1 for current levels I_0 to 20 A
Art. no. 00261740:



DAG132 – 280 for radial forced ventilation and water cooling

Terminal:



B - Brake
M - Microswitch

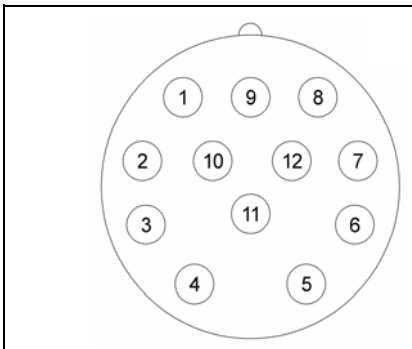
Brake attachment with radial forced ventilation on request.

3.2. Encoder

3.2.1. Resolver (LTN)

	RE-21
Pole pair number	1
Transmission ratio	0,5 ± 0,05
Frequency	5 kHz
Nominal input voltage	7 V_{rms}
Effective input power at no-load speed	112 mW
Current consumption at no-load speed	70 mA
Max. output voltage at no-load speed	3,5 V ± 10%
Voltage constant	61 mV/°
Rotor resistance	48 Ω ± 10%
Stator resistance	31 Ω ± 15%
Rotor impedance at no-load speed	70 + j 74Ω ± 15%
Rotor impedance with short circuit	62 + j 66Ω ± 15%
Stator impedance at no-load speed with minimum coupling	108 + j 206Ω ± 15%
Stator impedance with short circuit and maximum coupling	97 + j 183Ω ± 15%
Phase shift	8° ± 3°
Zero voltage	30 mV
Angle error in relation to $(\Delta\varphi_{max}+\Delta\varphi_{min})/2$	± 6’
Shock according to DIN EN 60068-2-27 (11ms)	≤ 1000 m/s²
Vibration according to DIN EN 60068-2-6 (55-2000 Hz)	≤ 500 m/s²

Resolver connection



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

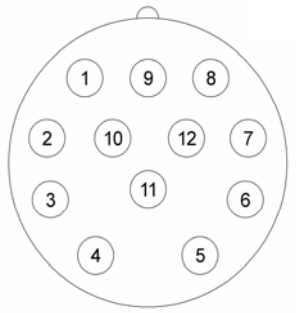
View on the contact side of the receptacle

NOTE:
Use only at low demands on the true running characteristics of the motor.
The technical data is specification from the encoder manufacturer.

3.2.2. SINCOS SRS/SRM 50 (SICK/STEGMANN)

	SRS50	SRM50
Number of sine, cosine periods per revolution	1024	
Number of increments per revolution	32768	
Number of absolute resolved revolutions	1	4096
Code type for the absolute value	binär	
Output frequency of the sine and cosine signals	0-200 kHz	
Error limits for evaluating the sine, cosine periods, integral non-linearity	+/- 45''	
Non-linearity within a sine, cosine, differential non-linearity at nominal position	+/- 7''	
Operating speed until the absolute position can be formed	6000 rpm	
Max. operating speed	12000 rpm	
Output signals; 2 x 90° offset sinusoidal signals	1 V_{ss}	
Output signal	serial RS 485 asynchronous, half duplex	
Operating voltage range	7-12 V	
max. no-load operating current	80 mA	
Shock according to DIN EN 60068-2-27 (10 ms)	100 g	
Vibration according to EN 60068-2-6 (10-2000 Hz)	20 g	

SRS/SRM 50 connection



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

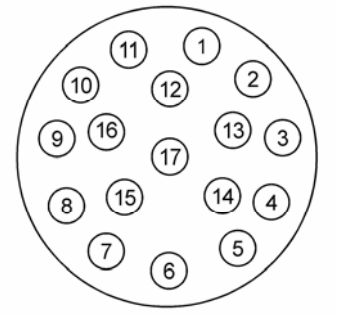
View on the contact side of the receptacle

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

3.2.3. ECN 1313/EQN 1325 (Heidenhain)

	ECN 1313	EQN 1325
Number of sine and cosine periods per revolution	2048	
System accuracy	± 20”	
Number of absolute completed revolutions	1	4096 (12 bit)
Code type for the absolute value	EnDat 2.1	
Sampling limit frequency or limit frequency	0-200 kHz	
Position values/revolution	8192 (13 bit)	
Maximum speed at which the absolute position can be defined	12000 rpm	
Maximum operating speed	12000 rpm	
Power supply	3.6-14 V	
Current consumption without load	≤ 160 mA	≤ 200 mA
Shock 6ms according to DIN EN 60068-2-27 (6ms)	≤ 2000 m/s²	
Vibration 55-2000Hz according to DIN EN 60068-2-6 (55-2000 Hz)	≤ 300 m/s²	

ECN 1313/EQN 1325 connection



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

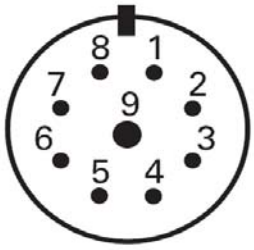
View on the contact side of the receptacle

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

3.2.4. ECN 1325/EQN1337 (Heidenhain)

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

ECN1325/EQN1337 connection



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

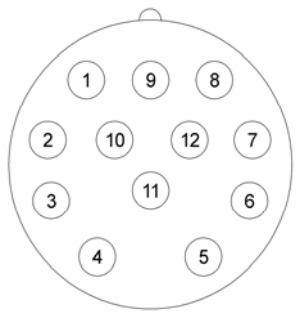
View on the contact side of the receptacle

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

3.2.5. ERN 1320 (Heidenhain)

	ERN 1320
Incremental signals	TTL
Line numbers/Precision	1024/ ± 64'' 2048/ ± 32'' 4096/ ± 16''
Sample frequency	≥ 300 kHz
Maximum operational speed	15000 rpm
Supply voltage	5 V ± 10 %
Power consumption without load	≤ 120 mA
Shock according to DIN EN 60068-2-27 (6 ms)	≤ 1000 m/s²
Vibration according to DIN EN 60068-2-6 (55-2000 Hz)	≤ 300 m/s²

ERN 1320 connection



Pin	Signal
1	U2 -
2	U_p sense
3	U0 +
4	U0 -
5	U1 +
6	U1 -
7	-
8	U2 +
9	-
10	0V
11	0V sense
12	U_p

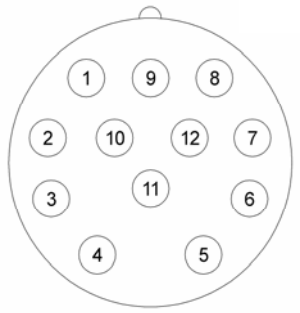
View on the contact side of the receptacle

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

3.2.6. ERN 1380 (Heidenhain)

	ERN 1380
Incremental signals	1 V_{SS}
Line numbers/Precision	1024/ ± 40''
Cut-off frequency -3 dB	≥ 210 kHz
Maximum operational speed	15000 rpm
Supply voltage	5 V ± 10 %
Power consumption without load	≤ 120 mA
Shock according to DIN EN 60068-2-27 (6 ms)	≤ 2000 m/s²
Incremental signals	≤ 300 m/s²

ERN 1380 connection



Pin	Signal
1	U2 -
2	+ 5V sense
3	U0 +
4	U0 -
5	U1 +
6	U1 -
7	-
8	U2 +
9	-
10	0V
11	0V sense
12	UG

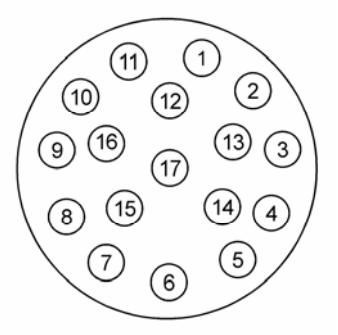
View on the contact side of the receptacle

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

3.2.7. ERN 1385 (Heidenhain)

	ERN 1385
Incremental signals	1 V_{SS}
Line numbers/Precision	2048/ ± 20''
Sample frequency	≤ 300 kHz
Maximum operational speed	15000 rpm
Supply voltage	5 V ± 5 %
Power consumption without load	≤ 130 mA
Shock according to DIN EN 60068-2-27 (6 ms)	≤ 1000 m/s²
Vibration according to DIN EN 60068-2-6 (55-2000 Hz)	≤ 300 m/s²

ERN 1385 connection



Pin	Signal
1	A +
2	A -
3	R +
4	D -
5	C +
6	C -
7	M-Encoder
8	TM +
9	TM -
10	P-Encoder
11	B +
12	B -
13	R -
14	D +
15	0V sense
16	5V sense
17	-

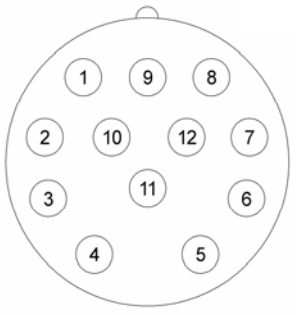
View on the contact side of the receptacle

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

3.2.8. DFS60 (SICK/Stegmann)

	DFS60
Incremental signals	TTL HTL
Line numbers	1024 1-65536 (on request)
Maximum output frequency	820 kHz
Maximum operational speed	10000 1/min
Operating voltage range	4,5-5,5 V, TTL 10-32 V, TTL 10-32 V, HTL
Operational current without load	40 mA
Shock according to DIN EN 60068-2-27 (6 ms)	50 g
Vibration according to DIN EN 60068-2-6 (10-2000 Hz)	20 g

DFS60 connection



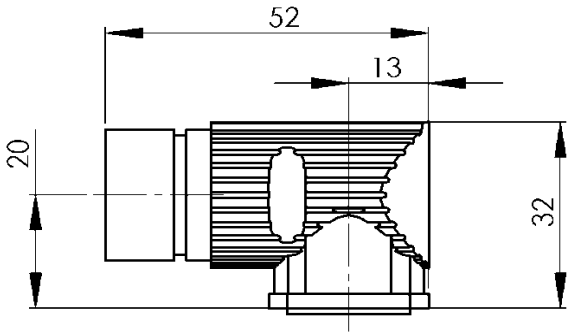
Pin	Signal
1	U2 -
2	U_p sense
3	U0 +
4	U0 -
5	U1 +
6	U1 -
7	-
8	U2 +
9	Schielding
10	0V
11	0V sense
12	U_p

View on the contact side of the receptacle

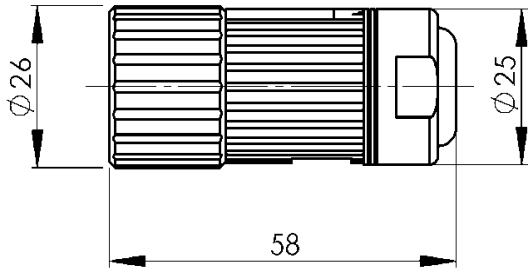
NOTE:
This encoder is a component susceptible to ESD.
The technical data is specification from the encoder manufacturer.

3.2.9. Dimensional drawing - socket for encoder and -plug

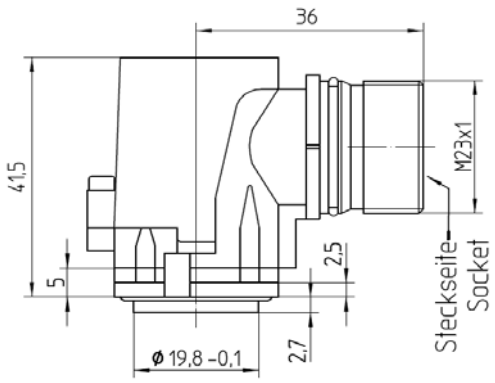
Socket for encoder



Mating plug for encoder
(Not for ECN1325 and EQN1337)



Socket for ECN1325/EQN1337 encoder
(Mating plug cannot be supplied separately)



3.3. Encoder cables for b maXX 4000

General Information

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

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

3.3.1. Technical data

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

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

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

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

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

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

Technical description - dragable for EnDat® 2.1-interface

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

Technical description - dragable for EnDat® 2.2-interface

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

3.3.2. Application references

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

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

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

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

- **Routing of cable on motor**

The cables must not touch the surface of the motor.

3.3.3. Order information for encoder cables

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

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

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

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

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

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

Not dragable, prefabricated
Cable 5 x (2x0.14mm2) + 2 x 0.5 mm2 with plug connector

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

Dragable, prefabricated
Cable 5 x (2x0.14mm2) + 2 x 0.5 mm2 with plug connector

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

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

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

Length in m	Item Number
2	434056
3	434057
5	434058
10	434059
15	434060
20	434061
25	434062
50	434063

3.4. Encoder cables for b maXX 5000

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

3.4.1. Technical data

Technical description - dragable for resolver

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

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

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

Technical description – dragable for EnDat® 2.1-interface

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

3.4.2. Application references

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

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

- **Routing of cable on motor**

The cables must not touch the surface of the motor.

3.4.3. Order information for encoder cables

Encoder cable - prefabricated with plug

For resolver

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

For SinCos Hiperface® - interface

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

For SinCos - and TTL - incremental encoder

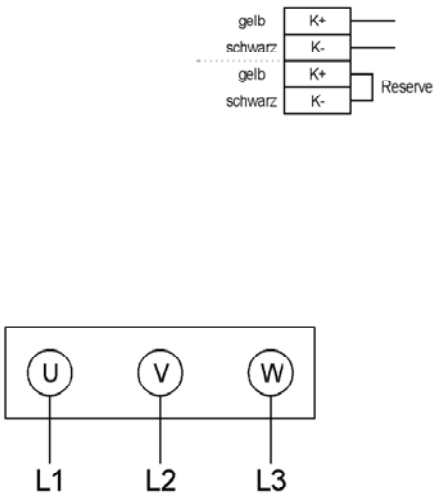
Length in m	Item Number
1	430015
2	430016
3	430017
5	430018
7	430019
10	430020
15	430021
20	430022
25	430023
30	430024
35	430025
40	430026
50	430027
75	430028

For SinCos EnDat® 2.1 - interface

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

3.5. Main connection – Terminal box

3.5.1. Terminal marking



Terminal marking
Connection diagram

U V W Power connection
K + K - Thermal sensor

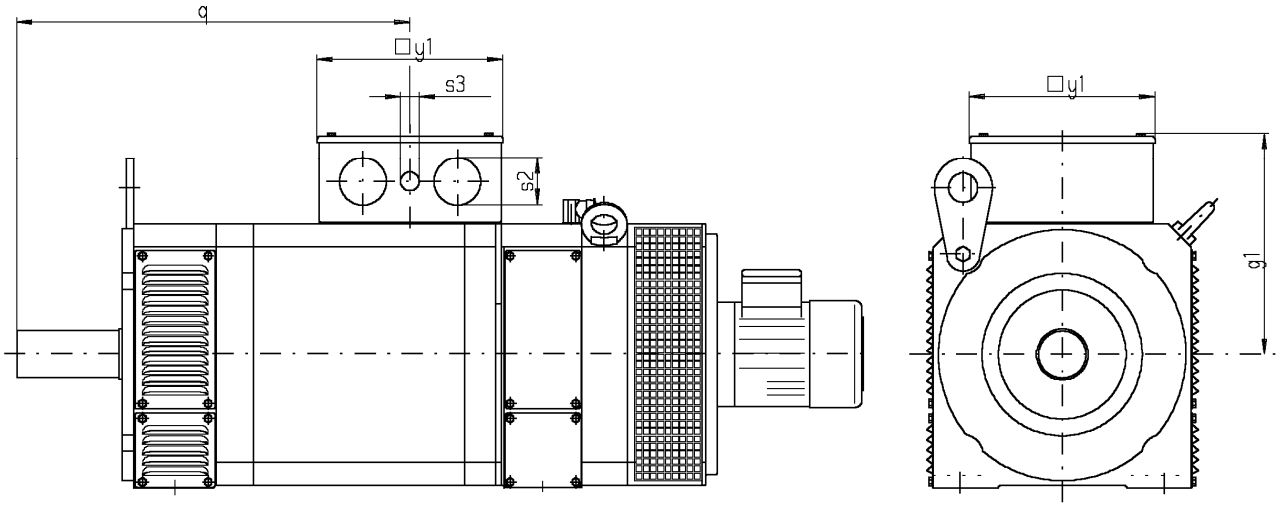
3.5.2. Terminal box version

The terminal box sizes can vary depending on the nominal motor current. An assignment of current – terminal box size – bore diameter for glands and connecting bolt size is listed in the following section. EMC glands should be used.

Motor size	Nominal current up to [A]	Terminal box	Access holes for cable connection	Maximum possible cable dia. [mm]	Number of main connection terminals	Maximum cross-section per terminal [mm²]
100	57 [2]	Size 140	1 x M 40 + 1 x M 25	32	3x pluggable	1 x 16
132	57 [2]	Size 140	1 x M 40 + 1 x M 25	32	3x pluggable	1 x 16
	115 [2]	Size 210	2 x M 50 + 1 x M 25	38	3 x M 6	2 x 35
160	115 [2]	Size 210	2 x M 50 + 1 x M 25	38	3 x M 6	2 x 35
	200 IP 54 [2] 260 IP 23 [2]	Size 250	2 x M 63 + 1 x M 25	48	3 x M 10	2 x 120
180	300 IP 54 [2] 350 IP 23 [2]	Size 290	2 x M 63 + 1 x M 25	48	3 x M 12	2 x 185
	430 [2]	Size 290-II	2 x M 75 + 1 x M 25	63 [1]	3 x M 16	2 x 240
225	300 IP 54 [2] 350 IP 23 [2]	Size 290	2 x M 63 + 1 x M 25	48	3 x M 12	2 x 185
	500 [2]	Size 360	2 x M 75 + 1 x M 25	63 [1]	3 x M 16	2 x 240
	570 [3]	Size 360-II	2 x M 75 + 1 x M 25	63 [1]	3 x M 16	2 x 240
280	800	Size 360	3 x M 80 + 1 x M 20	63 [1]	3 x M 16	2 x 240

[1] Shielding for the main connection cable wired to terminal in terminal box
[2] Terminal box is UL approved
[3] No UL approval for nominal current > 500 A

3.5.3. Dimensions of terminal boxes



Motor size	Terminal box	q				g1	y1	s2	s3
		K	M	L	B			Through-holes for	
100	Size 140	232	282	327	367	184	145	1 x M 40	1 x M 25
132	Size 140	376	416	456	496	220	145	1 x M 40	1 x M 25
	Size 210	341	381	421	461	240	215	2 x M 50	1 x M 25
160	Size 210	483	543	593	-	270	215	2 x M 50	1 x M 25
	Size 250	463	523	573	-	280	255	2 x M 63	1 x M 25
180	Size 290	-	519	619	-	308	295	2 x M 63	1 x M 25
	Size 290-II	-	519	619	-	345	295	2 x M 75	1 x M 25
225	Size 290	575	675	765	-	355	295	2 x M 63	1 x M 25
	Size 360	540	640	730	-	352	365	2 x M 75	1 x M 25
	Size 360-II	540	640	730	-	390	365	2 x M 75	1 x M 25
280	Size 360	775	885	995	-	441	365	3 x M 80	1 x M 20

3.6. Fan data

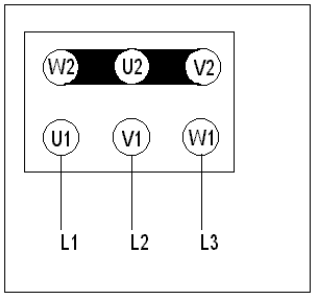
The motors are available with the following types of fan:

- Standard fan motor for axial ventilation (standard for size 132-225, not available for size 280)
- Standard fan motor for radial ventilation (standard for size 280, not available for size 100)
- Axially integrated fan (standard for size 100, not available for size 280)

3.6.1. Standard fan motors

Blower connection for standard fan motors via terminal box

Connection diagram



U V W Power connection

Standard fan motor for axial ventilation

Δ/Y 200-265V / 345-460V 50 // 60Hz

Size	Power [kW]	Nominal current [A]	Fan motor	Nominal input power [kW]	Flow rate [m³/min]	Stat. pressure [Pa]	Speed [1/min]	Spec. ratio
132	0.08 // 0.12	0.57 / 0.33	DF 56-2A	0.16	5.15	514	2800	1
160	0.2 // 0.3	1.4 / 0.8	ODF 63-2	0.28	6.4	824	2810	1
180	0.45 // 0.6	2.4 / 1.4	ODF 71-2	0.61	14.6	970	2850	1

Δ/Y 265-345V / 460-600V 50 // 60Hz

Size	Power [kW]	Nominal current [A]	Fan motor	Nominal input power [kW]	Flow rate [m³/min]	Stat. pressure [Pa]	Speed [1/min]	Spec. ratio
132	0.08 // 0.12	0.45 / 0.26	DF 56-2A	0.16	5.15	514	2800	1
160	0.2 // 0.3	1.1 / 0.6	ODF 63-2	0.28	6.4	824	2810	1
180	0.45 // 0.6	2.25 / 1.3	ODF 71-2	0.61	14.6	970	2850	1

Δ/Y 230/400V // 280/480V 50 // 60Hz

Size	Power [kW]	Nominal current [A]	Fan motor	Nominal input power [kW]	Flow rate [m³/min]	Stat. pressure [Pa]	Speed [1/min]	Spec. ratio
225	1.1 // 1.65	5.5 / 3.2	ODF 90-L2	1.19	27.5	1300	2947	1

Δ/Y 240/420V // 280/480V 50 // 60Hz - UL approved

Size	Power [kW]	Nominal current [A]	Fan motor
132	0.08 // 0.12	0.48 / 0.28	LF56/2B-11H
160	0.25 // 0.3	1.07 / 0.62	AF63/2A-7H
180	0.45 // 0.6	1.8 / 1.05	AF71/2B-7H
225	1.1 // 1.1	3.7 / 2.15	NF80/2Z-11H+E2

The nominal currents are maximum values.

Standard fan motors for radial ventilation

∆/Y 200-265V / 345-460V 50 // 60Hz

Size	Power [kW]	Nominal current [A]	Blower/ Fan motor	Nominal input power [kW]	Flow rate [m³/min]	Stat. pressure [Pa]	Speed [1/min]	Spec. ratio
132	0.2 // 0.3	1.4 / 0.8	BFB 519/ ODF 63-2	0.36	11.5	599	2790	1
160	0.45 // 0.6	2.4 / 1.4	BFB 635/ ODF 71-2	0.52	13.9	879	2850	1

∆/Y 265-345V / 460-600V 50 // 60Hz

Size	Power [kW]	Nominal current [A]	Blower/ Fan motor	Nominal input power [kW]	Flow rate [m³/min]	Stat. pressure [Pa]	Speed [1/min]	Spec. ratio
132	0.2 // 0.3	1.1 / 0.6	BFB 519/ ODF 63-2	0.36	11.5	599	2790	1
160	0.45 // 0.6	2.25 / 1.3	BFB 635/ ODF 71-2	0.52	13.9	879	2850	1

∆/Y 230/400V // 280/480V 50 // 60Hz

Size	Power [kW]	Nominal current [A]	Blower/ Fan motor	Nominal input power [kW]	Flow rate [m³/min]	Stat. pressure [Pa]	Speed [1/min]	Spec. ratio
180	1.1 // 1.65	5.5 / 3.2	BFB 752/ ODF 90-L2	0.54	14.5	1048	2962	1
225	3 // 3.6	11.8 / 11.8	BFB 880/ ODF 100-LB2	1.48	29.3	1350	2980	1

Y 400V 50Hz

Size	Power [kW]	Nominal current [A]	Blower
280	5.5	10.5	D09

Y 480V 60Hz

Size	Power [kW]	Nominal current [A]	Blower
280	6.6	10.3	D09

∆/Y 240/420V // 280/480V 50 // 60Hz - UL approbiert

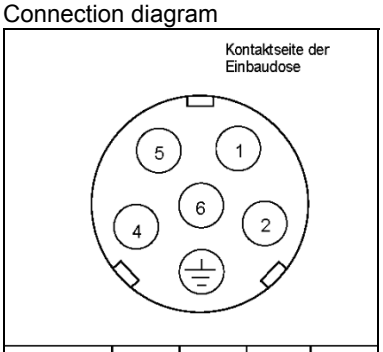
Size	Power [kW]	Nominal current [A]	Blower
132	0.25 // 0.3	1.07 / 0.62	BFB 519
160	0.45 // 0.6	1.8 / 1.05	BFB 635
180	1.1 // 1.1	3.7 / 2.15	BFB 752
225	3 // 3	9.6 / 5.5	BFB 880

The nominal currents are maximum values.

3.6.2. Integrated axial blowers

Ventilation connections for integrated axial blowers

Connection diagram



Pin	1	2	4	5
Signal	V	W		U
Pin	6	⏚		
Signal		⏚		

Integrated axial blowers

Y 400V // 480V 50 // 60Hz - UL approbiert

Size	Power [kW]	Nominal current [A]
100	0.043 // 0.054	0.13 // 0.14

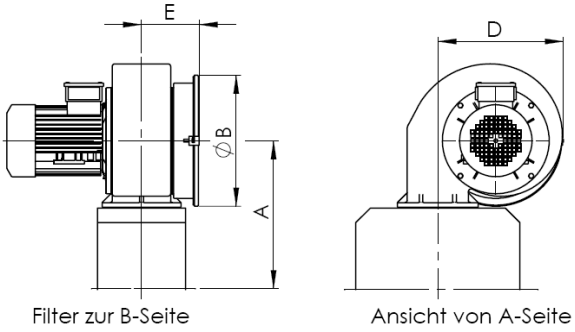
Y 400V // 460V 50 // 60Hz

Size	Power [kW]	Nominal current [A]
132	0.15 // 0.21	0.27 // 0.3
160	0.47 // 0.54	0.7 // 0.75
180	0.78 // 0.91	1.3 // 1.3
225	1.1 // 1.4	2.1 // 2

The nominal currents are maximum values.

3.6.3. Filter

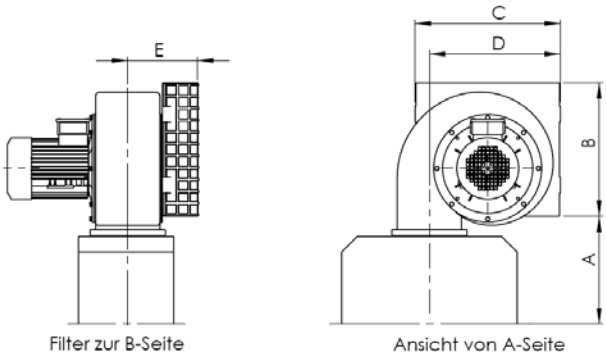
Flat filter DA132-180



Dimensions for fan mounting at top or on the side

Motor size	Fan type	A	Ø B	D	E
132	BFB 519	243	210	214	105
160	BFB 635	280	240	237	124
180	BFB 752	325	284	271	124

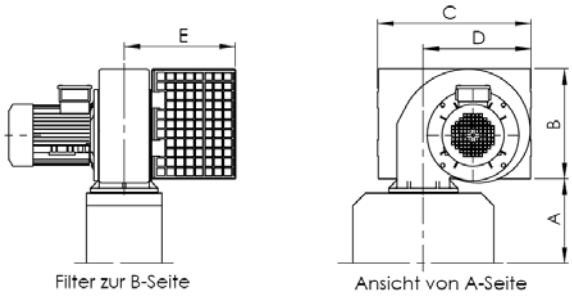
Flat filter DA225-280



Dimensions for fan mounting at top or on the side

Motor size	Fan type	A	B	C	D	E
225	BFB 880	272	337	366	330	178
280	D 09	333	337	406	384	271

Rectangle filter DA132-280

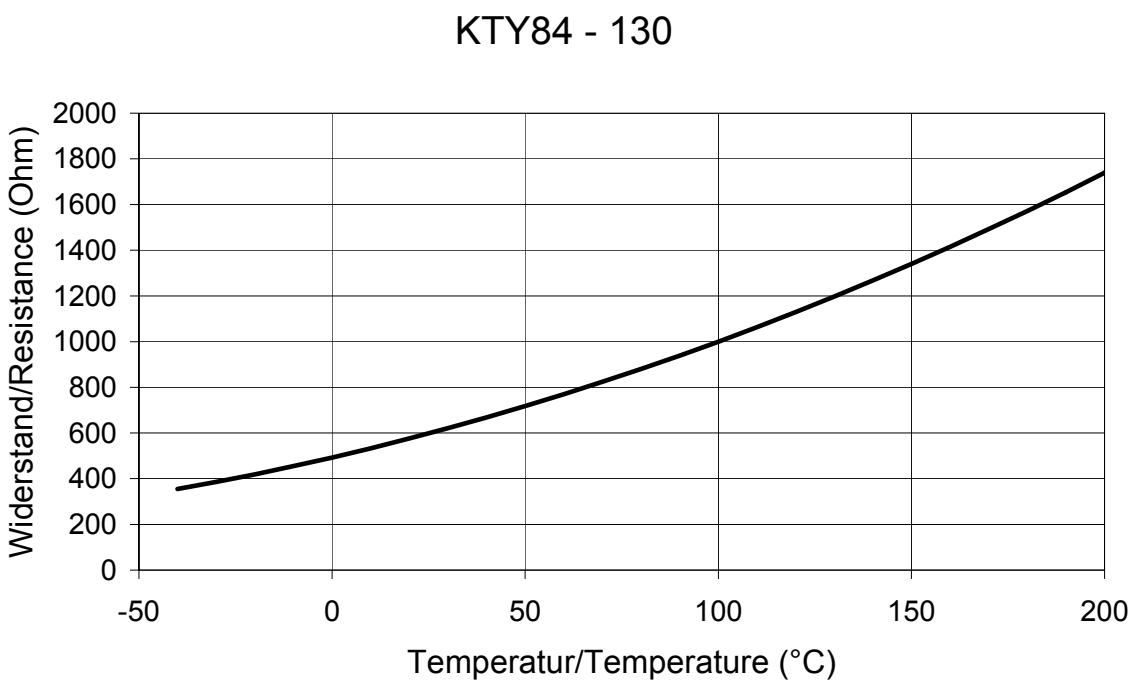


Dimensions for fan mounting at top or on the side

Motor size	Fan type	A	B	C	D	E
132	BFB 519	153	207	306	213	163
160	BFB 635	186	237	338	237	189
180	BFB 752	215	277	386	271	280
225	BFB 880	272	337	476	332	410
280	D 09	333	337	476	404	431

3.7. Thermal sensor

As standard, the motors are equipped with a thermal sensor in the stator winding, the data of which is evaluated in the motor controller. Additional PTCs or thermal sensors can be fitted on request. They are connected through the terminal box.

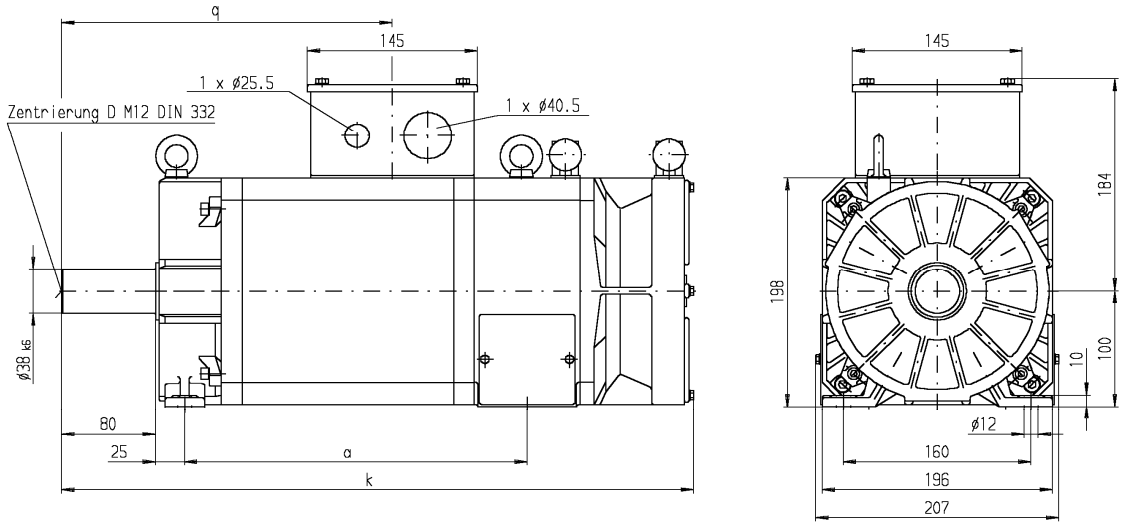


The motor temperature is continuously monitored using the thermal sensor type KTY84-130.
The resistance shown above results when the sensor is supplied with a measuring current of 2 mA.

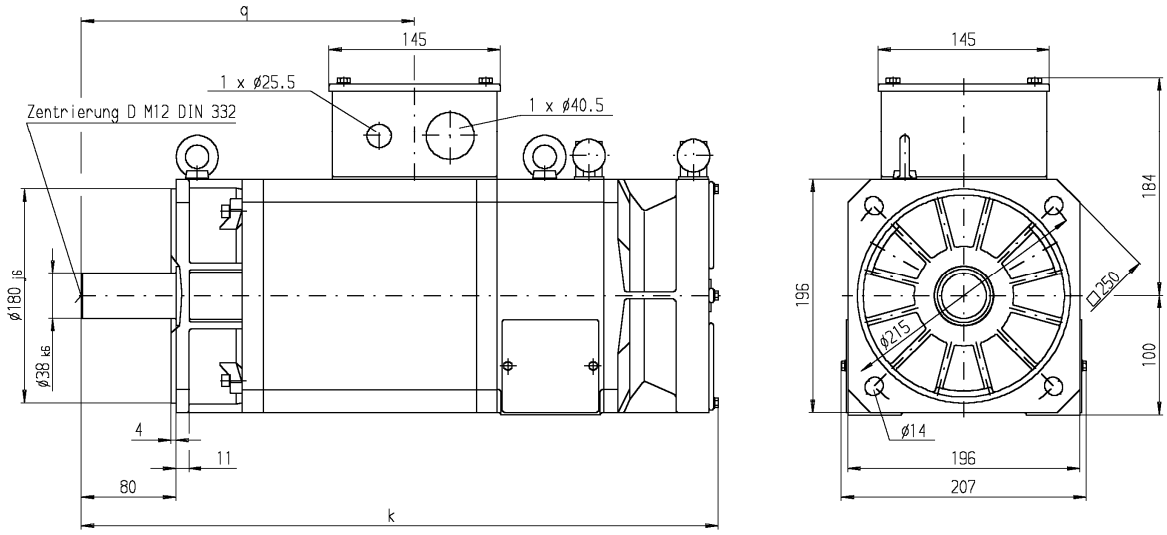
4. Dimension drawings

4.1. Dimension drawing DA 100

Version IMB3 standard
DA..100..A



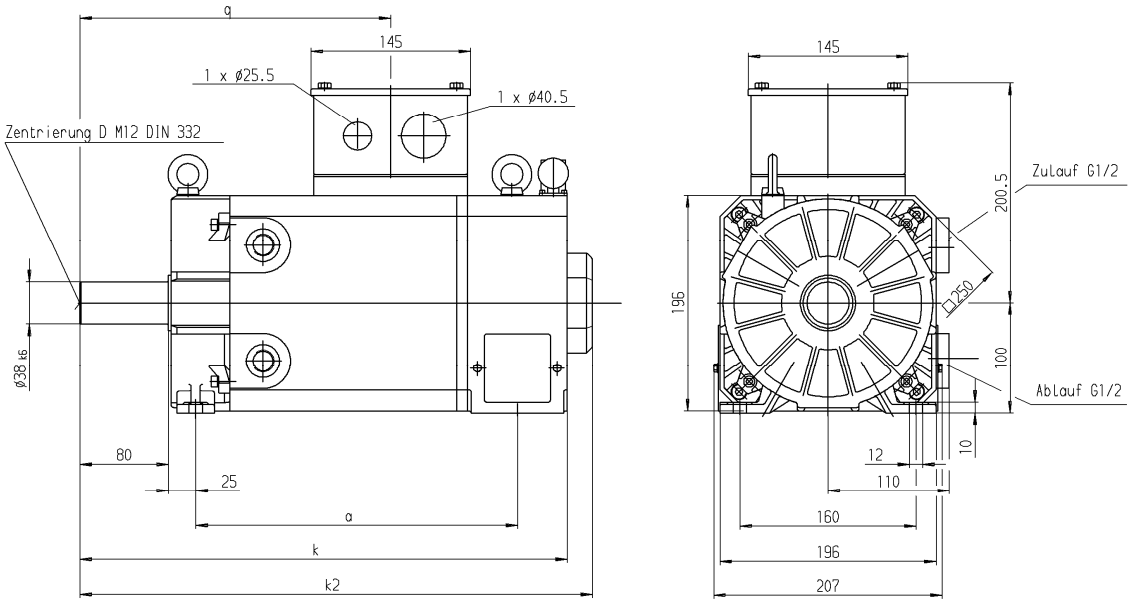
Version IMB5 standard
DAF..100..A



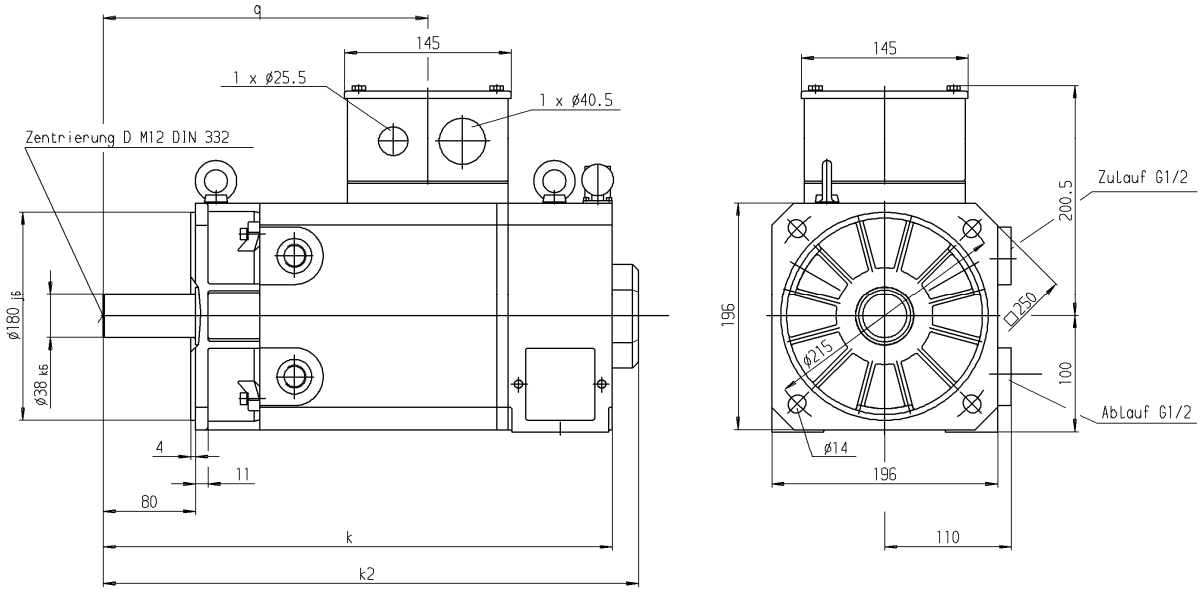
Type	a	k	q
DA 100 K...A..	242	489	232
DA 100 M..A..	292	539	282
DA 100 L..A..	337	584	327
DA 100 B..A..	377	624	367

When brake is attached: k +145 mm
For terminal box dimensions and gland sizes see pages 57 and 58

Version IMB3 standard
DA..100..54W..



Version IMB5 standard
DAF.100..54W..

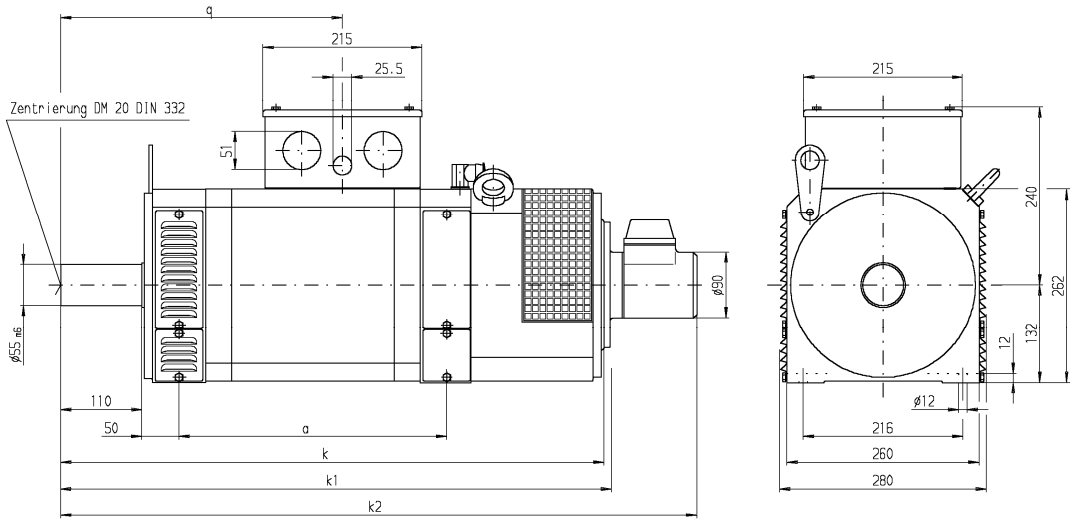


Type	a	k	k2	q
DA 100 K...W..	242	392	415	232
DA 100 M..W..	292	442	465	282
DA 100 L..W..	337	487	510	327
DA 100 B..W..	377	527	550	367

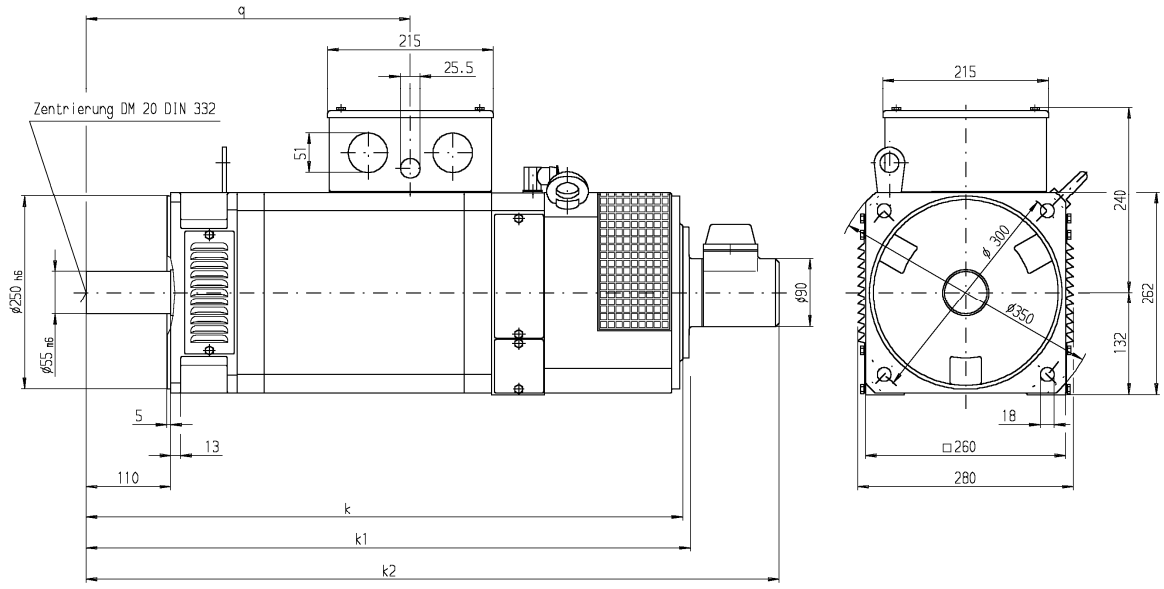
Brake k2 + 155 mm
For terminal box dimensions and gland sizes see pages 57 and 58

4.2. Dimension drawing DA 132

Version IMB3 standard
DA..132..A



Version IMB5 standard
DAF..132..A

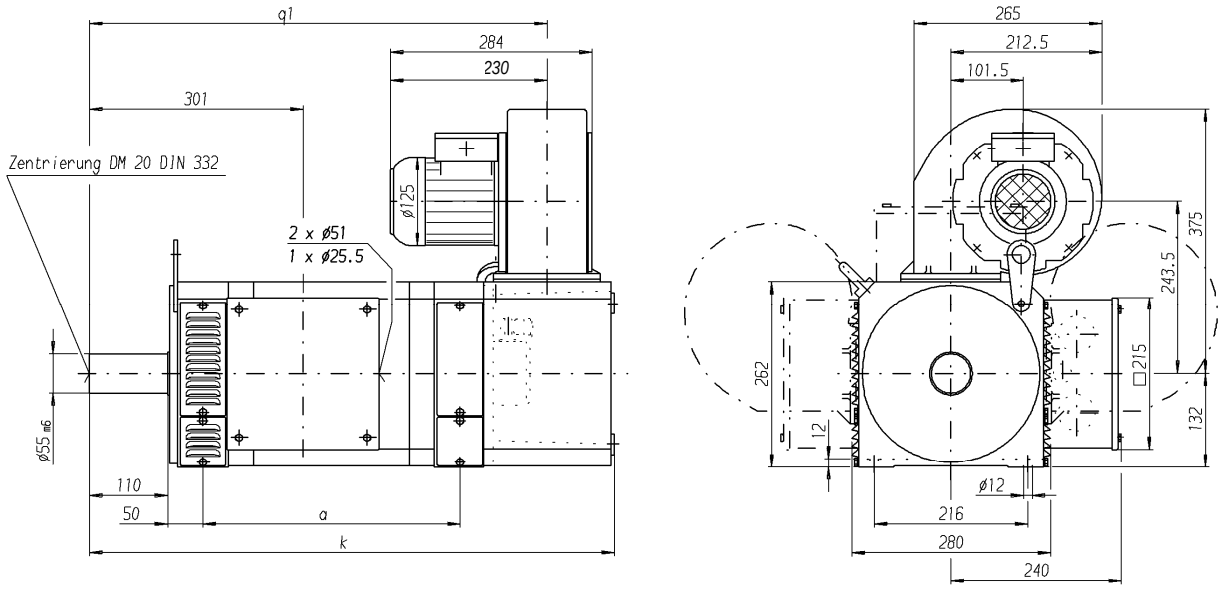


k2 standard with standard fan motor
k1 optional with integrated fan motor

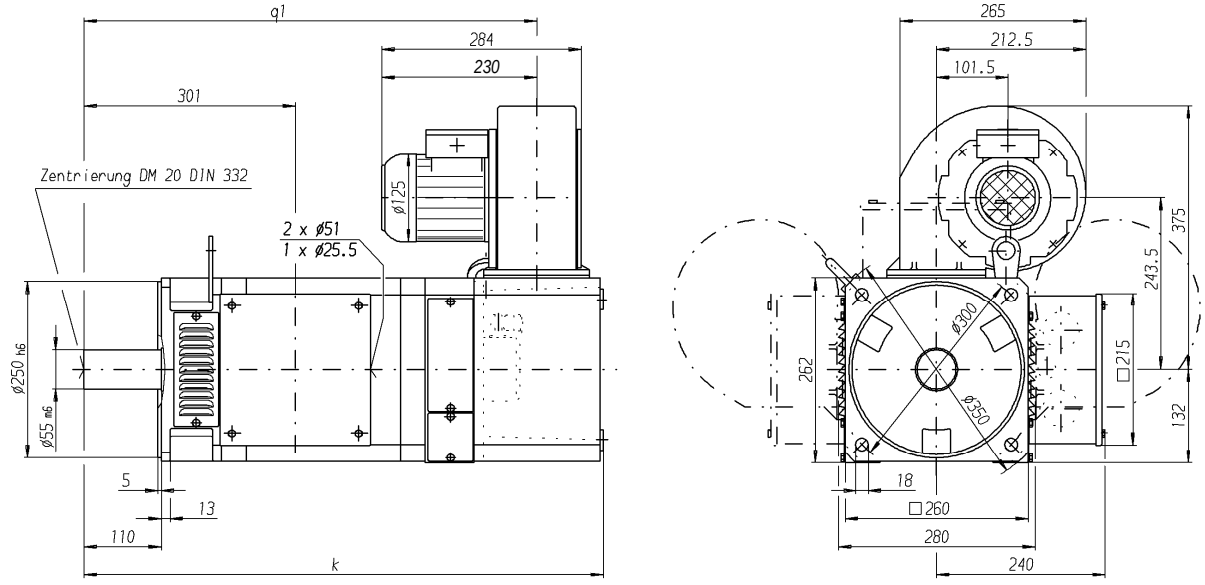
Type	A	k	k1	k2	q
DA 132 K...A..	322	695	705	827	341
DA 132 M..A..	362	735	745	867	381
DA 132 L..A..	402	775	785	907	421
DA 132 B..A..	442	815	825	947	461

When brake is attached: k1, k2 + 150 mm
For terminal box dimensions and gland sizes see pages 57 and 58

Version IMB3 with radial fan attached
DA..132..R



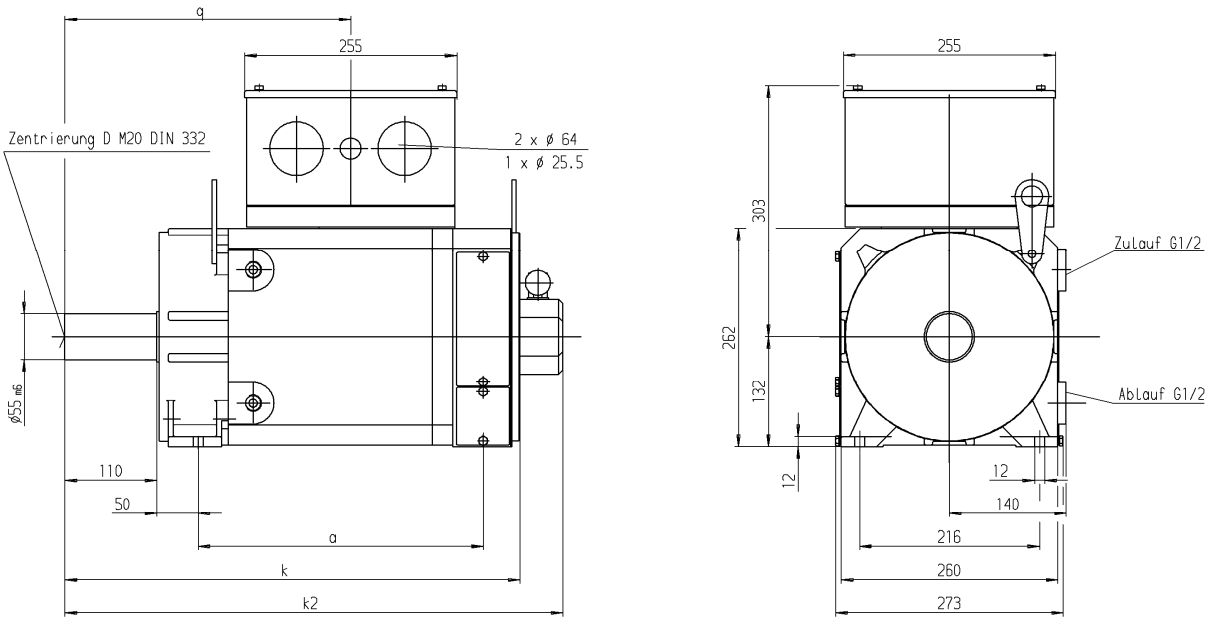
Version IMB5 with radial fan attached
DAF..132..R



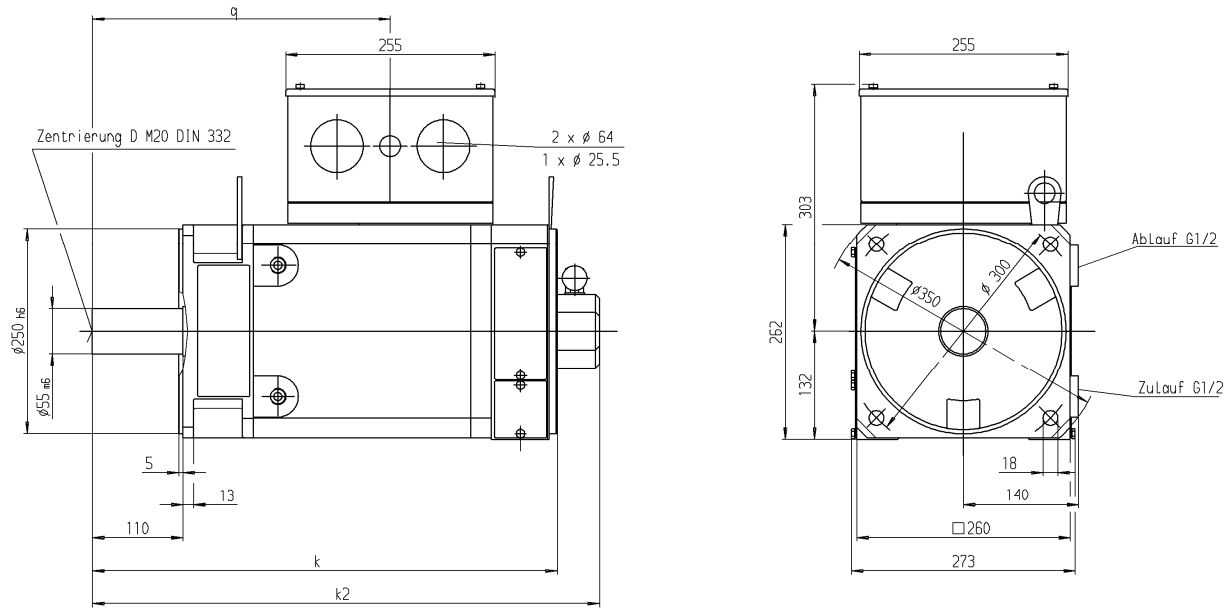
Type	a	k	q1
DA 132 K...R..	322	699	605
DA 132 M..R..	362	739	645
DA 132 L..R..	402	779	685
DA 132 B..R..	442	819	725

Brake attachment on request
For terminal box dimensions and gland sizes see pages 57 and 58

Version IMB3 standard
DA..132..54W..



Version IMB5 standard
DAF..132..54W..

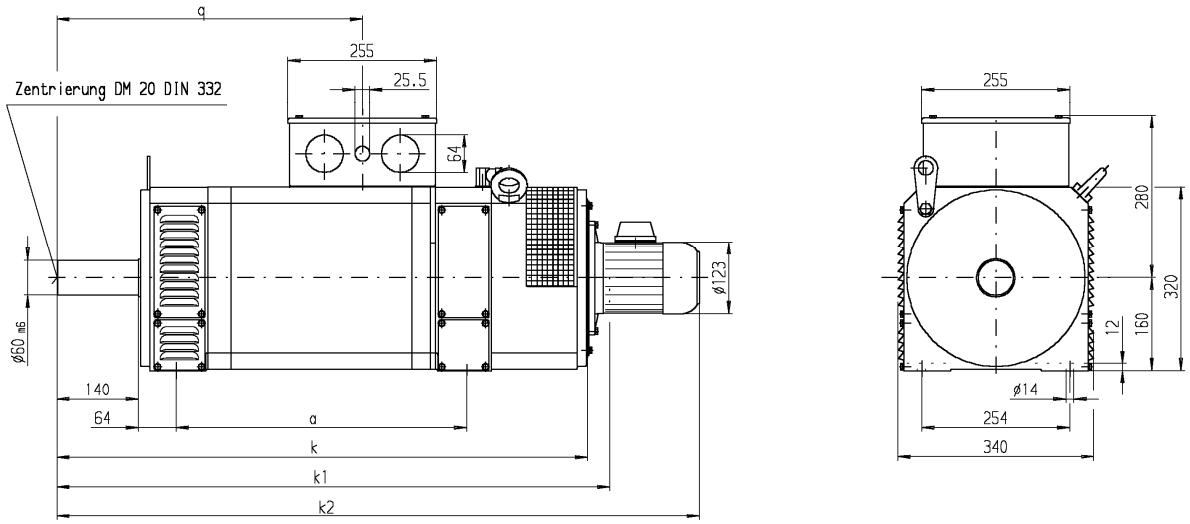


Type	a	k	k2	q
DA 132 K...W..	322	527	578	323
DA 132 M..W..	362	567	618	363
DA 132 L..W..	402	607	658	403
DA 132 B..W..	442	647	698	443

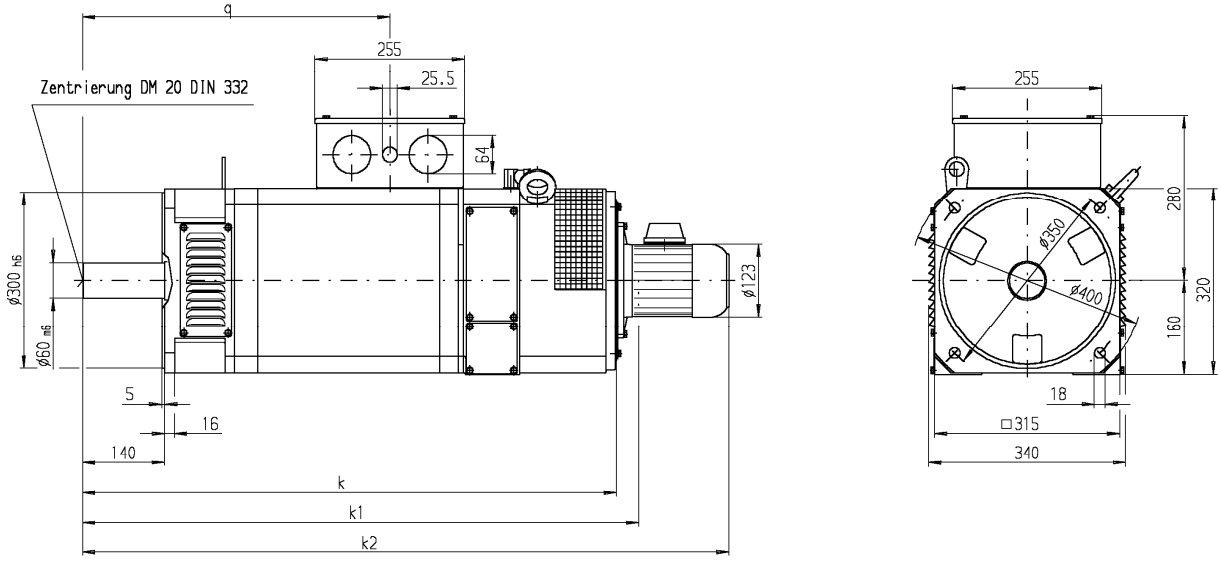
Brake k2 + 130 mm
For terminal box dimensions and gland sizes see pages 57 and 58

4.3. Dimension drawing DA 160

Version IMB3 standard
DA..160..A



Version IMB5 standard
DAF..160..A

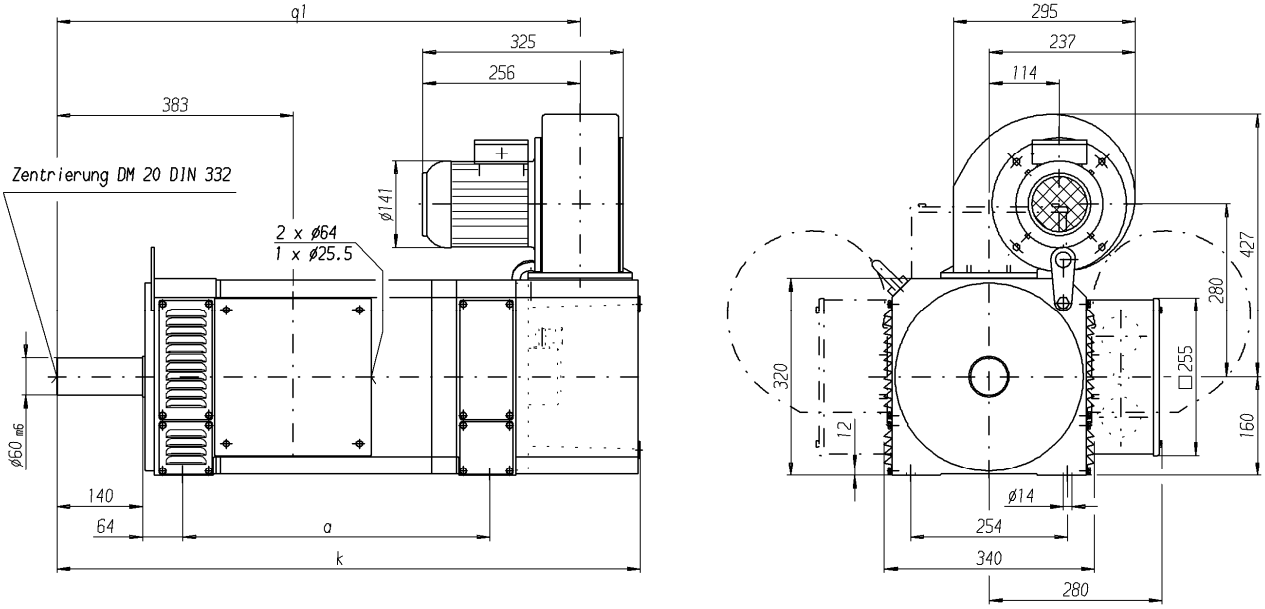


k2 standard with standard fan motor
k1 optional with integrated fan motor

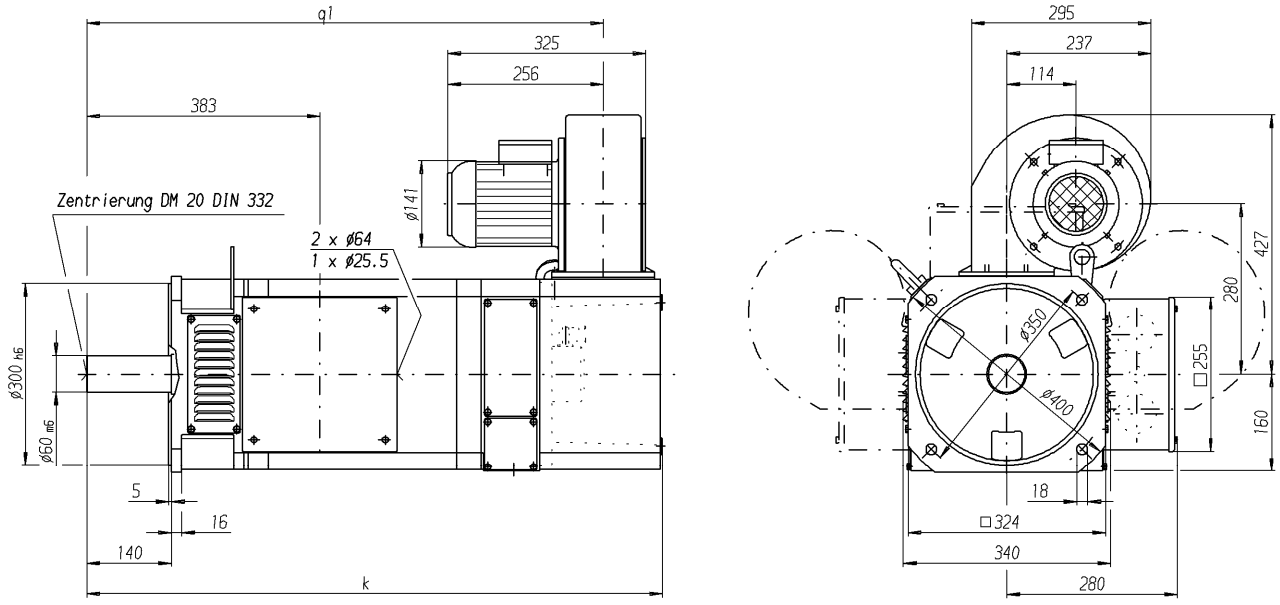
Type	a	K	k1	k2	q
DA 160 K..A..	438	885	907	1061	463
DA 160 M..A..	498	945	967	1121	523
DA 160 L..A..	548	995	1017	1171	573

When brake is attached: k1, k2 + 175 mm
For terminal box dimensions and gland sizes see pages 57 and 58

Version IMB3 with radial fan attached
DA..160..R



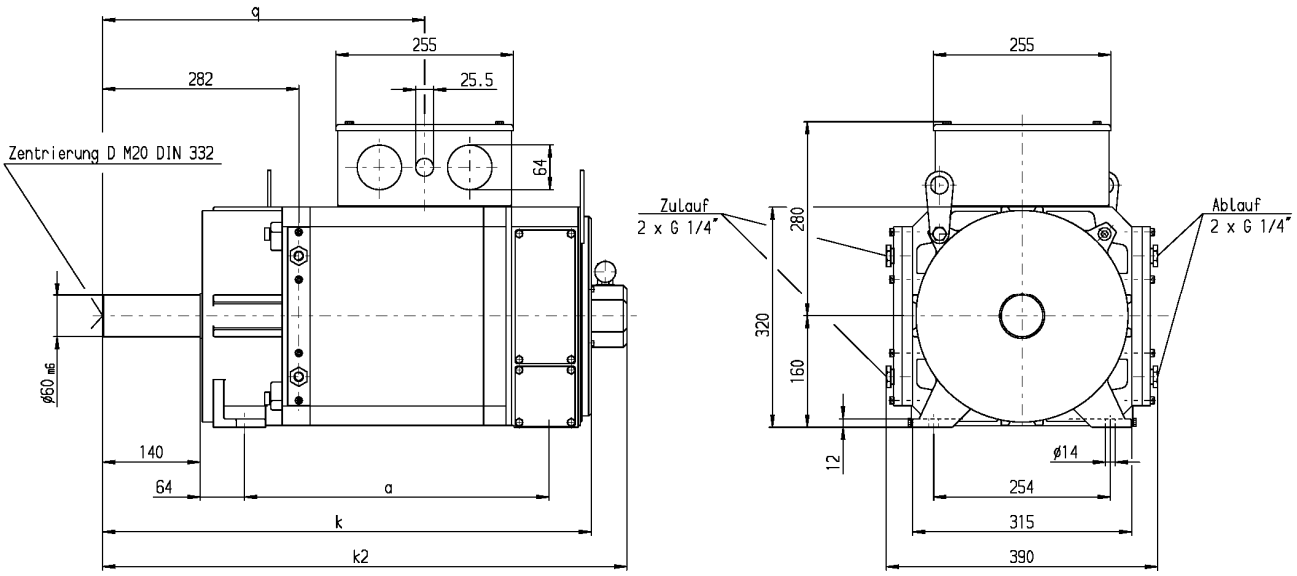
Version IMB5 with radial fan attached
DAF..160..R



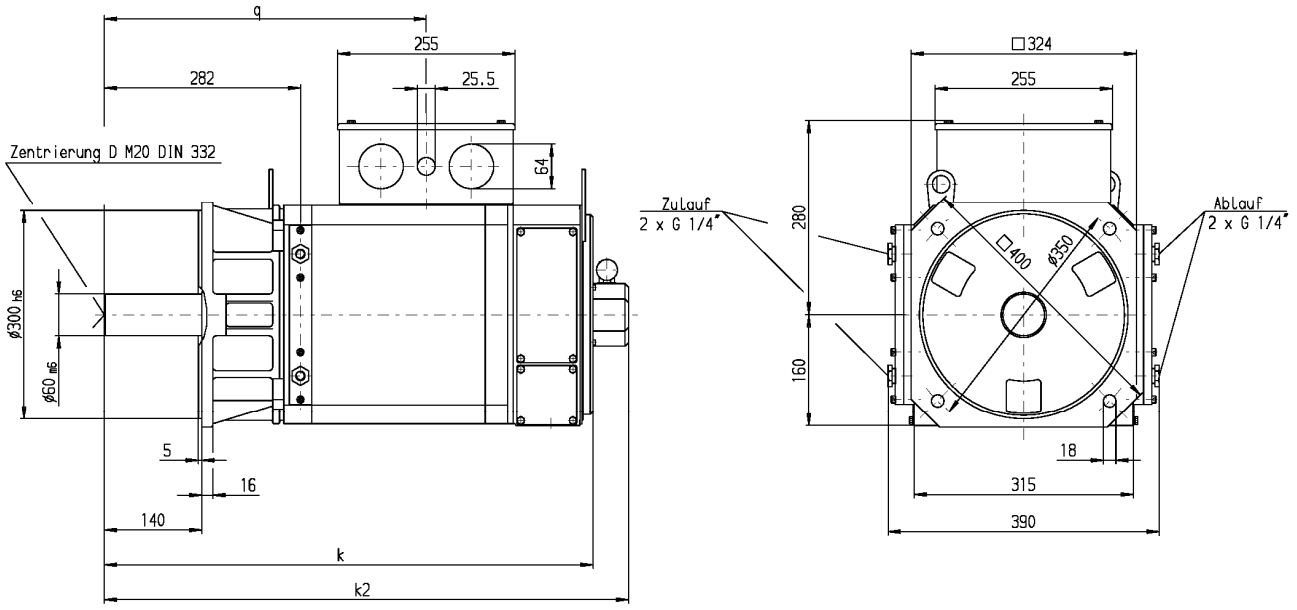
Type	a	K	q1
DA 160 K..R..	438	886	789
DA 160 M..R..	498	946	849
DA 160 L..R..	548	996	899

Brake attachment on request
For terminal box dimensions and gland sizes see pages 57 and 58

Version IMB3 standard
DA..160..54W..



Version IMB5 standard
DAF..160..54W.. .

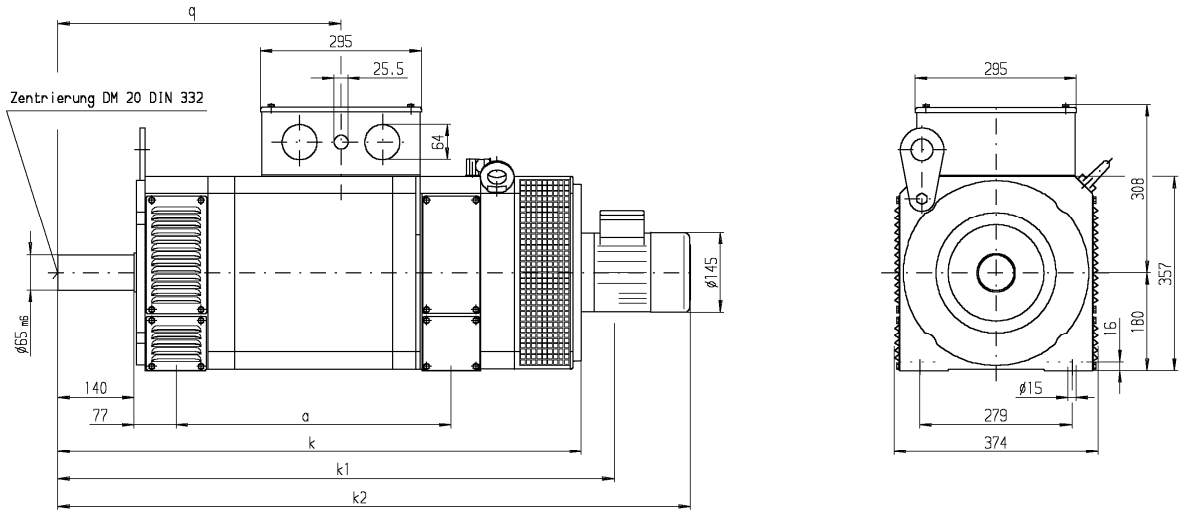


Type	a	k	k2	Q
DA 160 K...W..	438	703	754	463
DA 160 M..W..	498	763	814	523
DA 160 L..W..	548	813	864	573

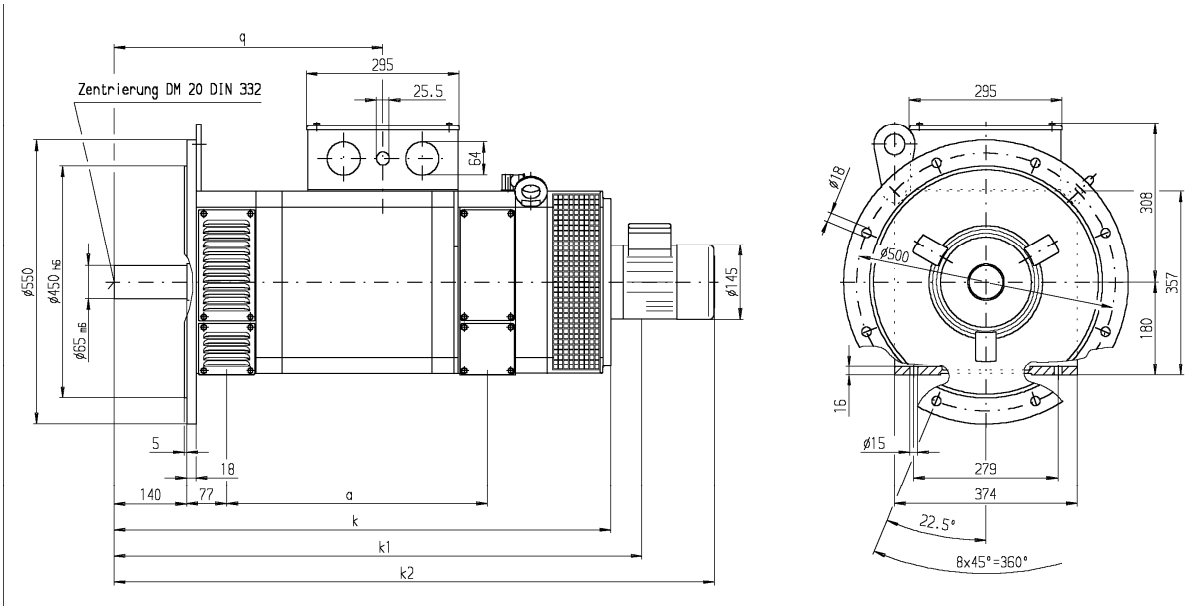
Brake k2 + 150 mm
For terminal box dimensions and gland sizes see pages 57 and 58

4.4. Dimension drawing DA 180

Version IMB3 standard
DA..180..A



Version IMB35 standard
DAFF..180..A

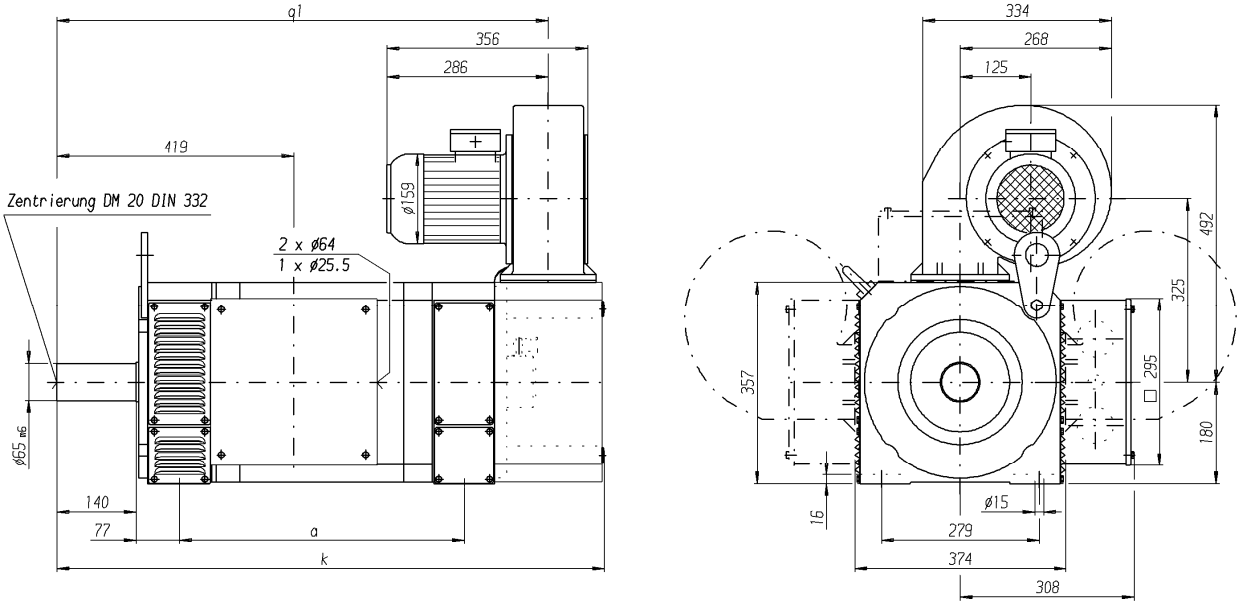


k2 standard with standard fan motor
k1 optional with integrated fan motor

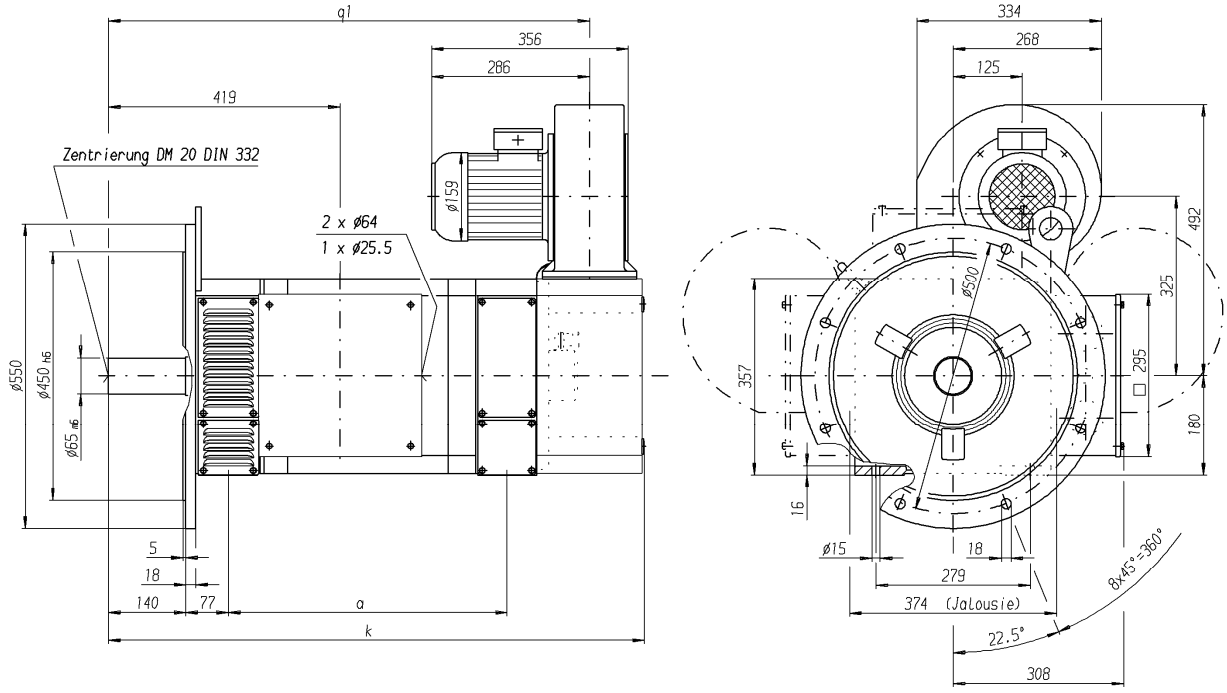
Type	a	k	k1	k2	q
DA 180 M..A..	504	960	1020	1160	519
DA 180 L..A..	604	1060	1120	1260	619

For terminal box dimensions and gland sizes see pages 57 and 58

Version IMB3 with radial fan attached
DA..180..R



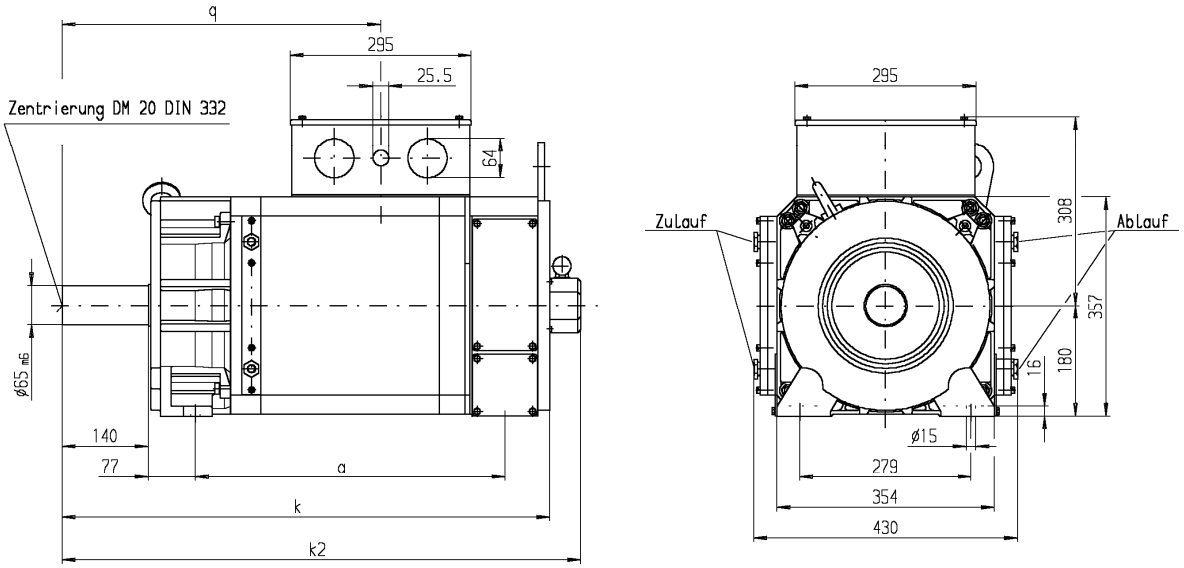
Version IMB35 with radial fan attached
DAFF..180..R



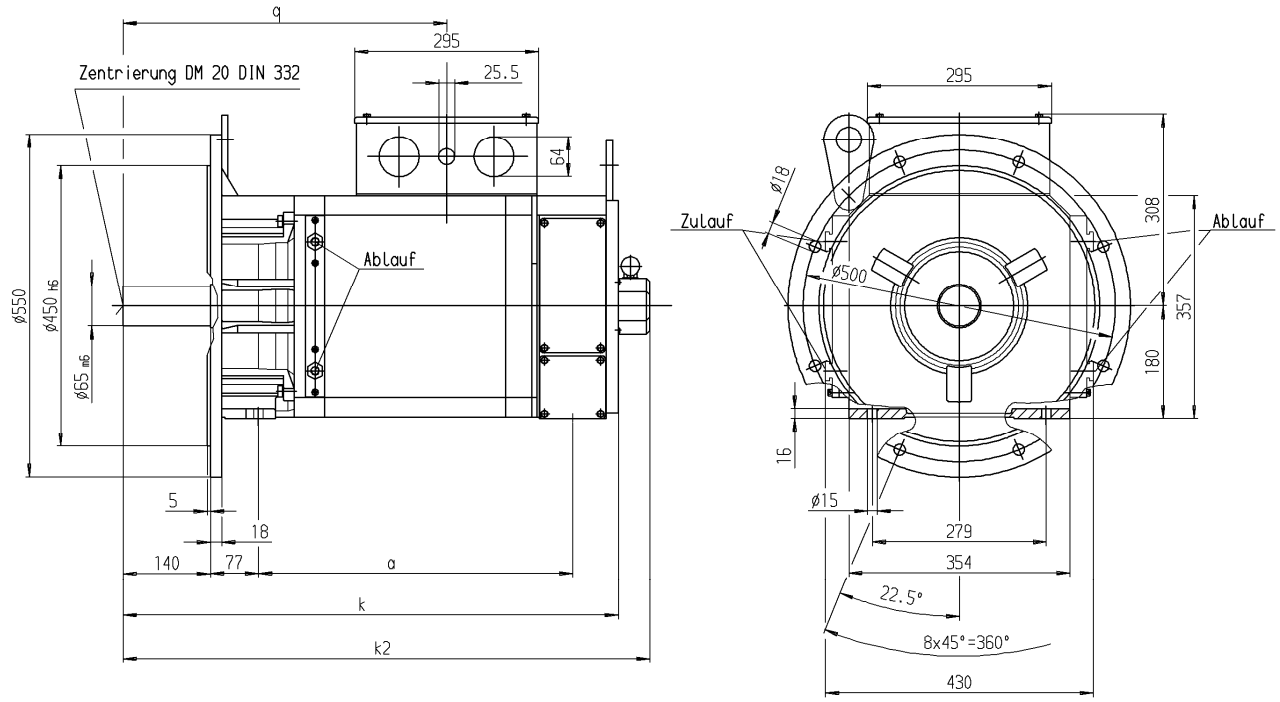
Type	a	k	q1
DA 180 M..R..	504	969	870
DA 180 L..R..	604	1069	970

For terminal box dimensions and gland sizes see pages 57 and 58

Version IMB3 standard
DA..180..54W..



Version IMB35 standard
DAFF..180..54W..

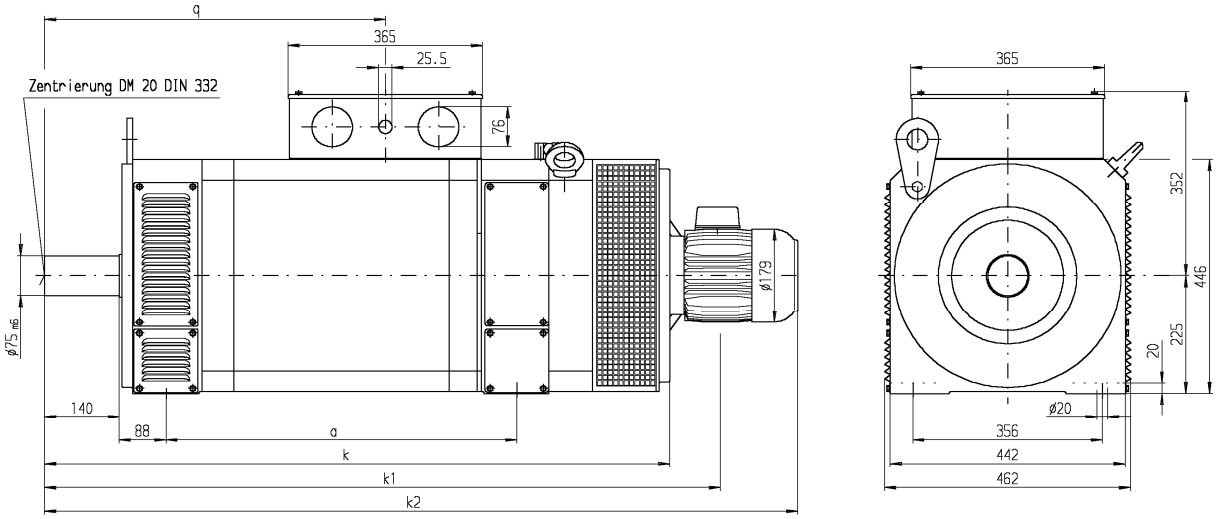


Type	a	k	k2	q
DA 180 M..W..	504	794	845	519
DA 180 L..W..	604	894	945	619

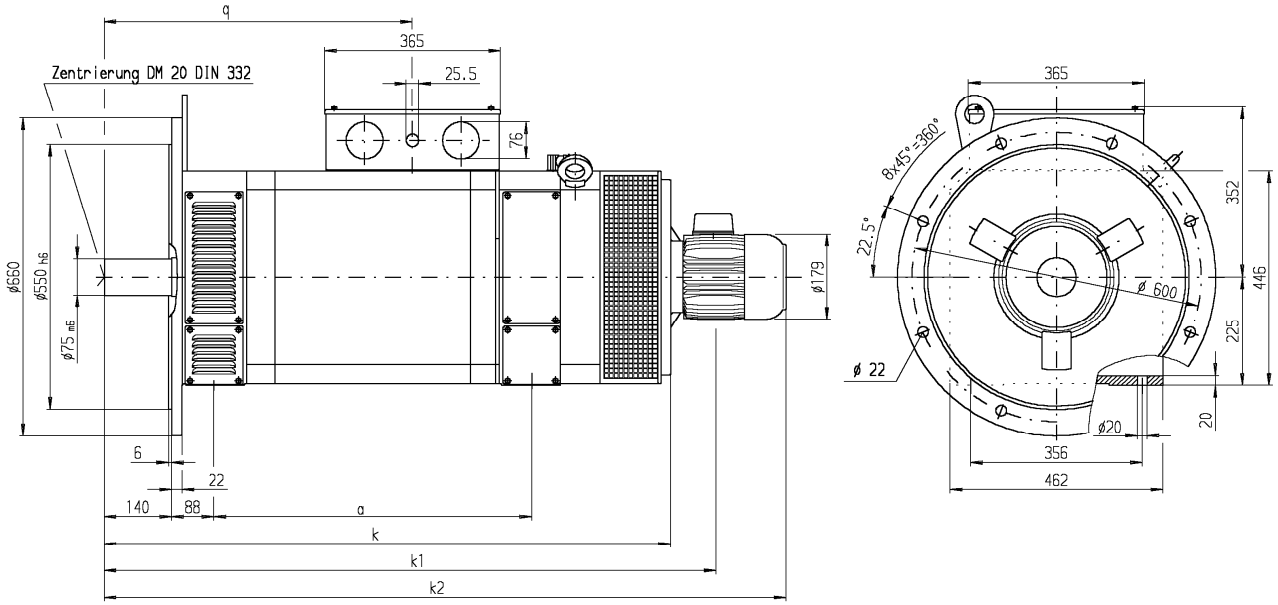
For terminal box dimensions and gland sizes see pages 57 and 58

4.5. Dimension drawing DA 225

Version IMB3 standard
DA..225..A



Version IMB35 standard
DAFF..225..A

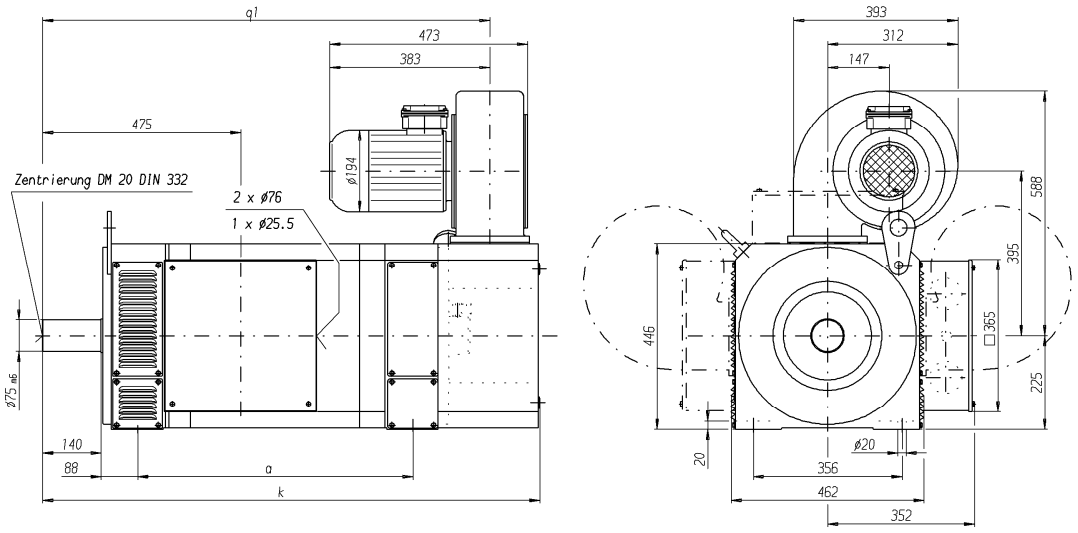


k2 standard with standard fan motor
k1 optional with integrated fan motor

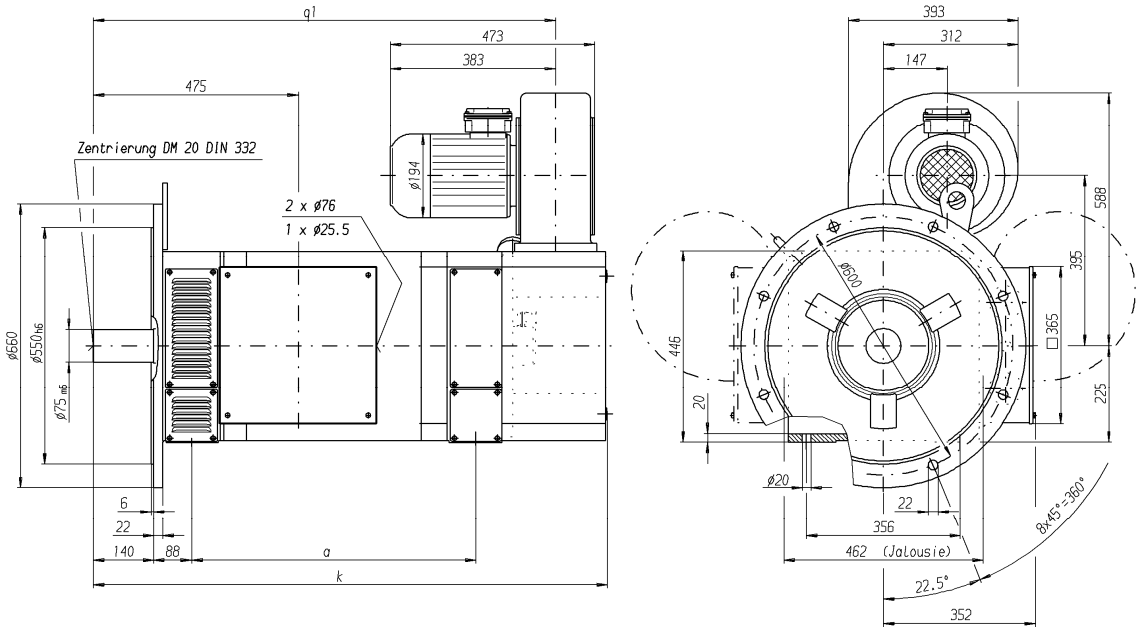
Type	a	k	k1	k2	q
DA 225 K..A..	559	1075	1170	1315	540
DA 225 M..A..	659	1175	1270	1415	640
DA 225 L..A..	749	1265	1360	1505	730

For terminal box dimensions and gland sizes see pages 57 and 58

Version IMB3 with radial fan attached
DA..225..R



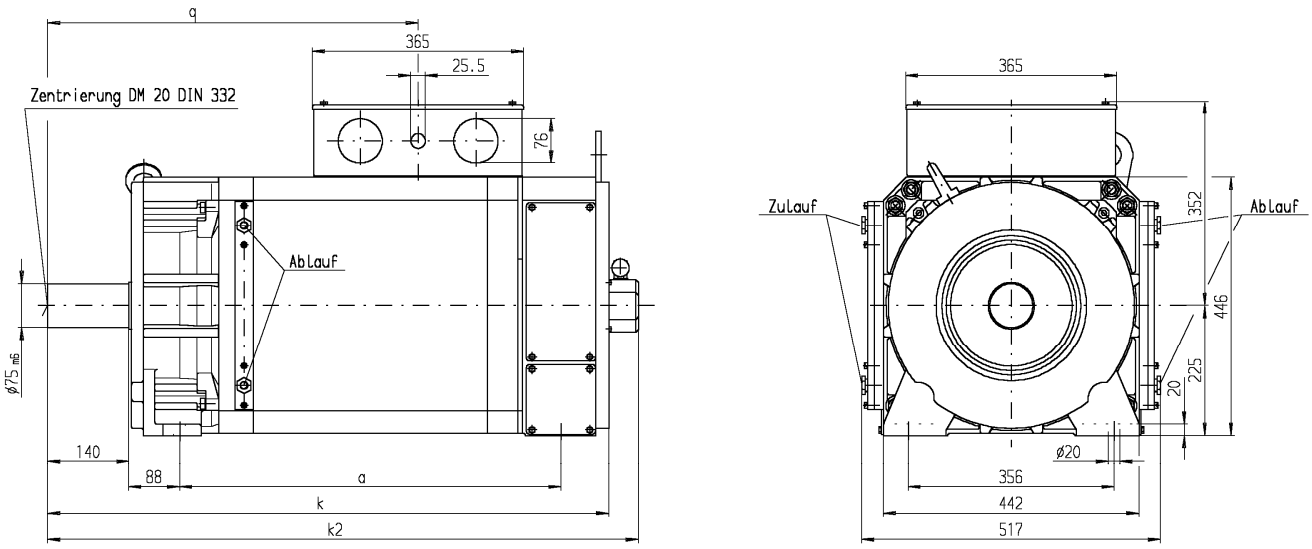
Version IMB35 with radial fan attached
DAFF..225..R



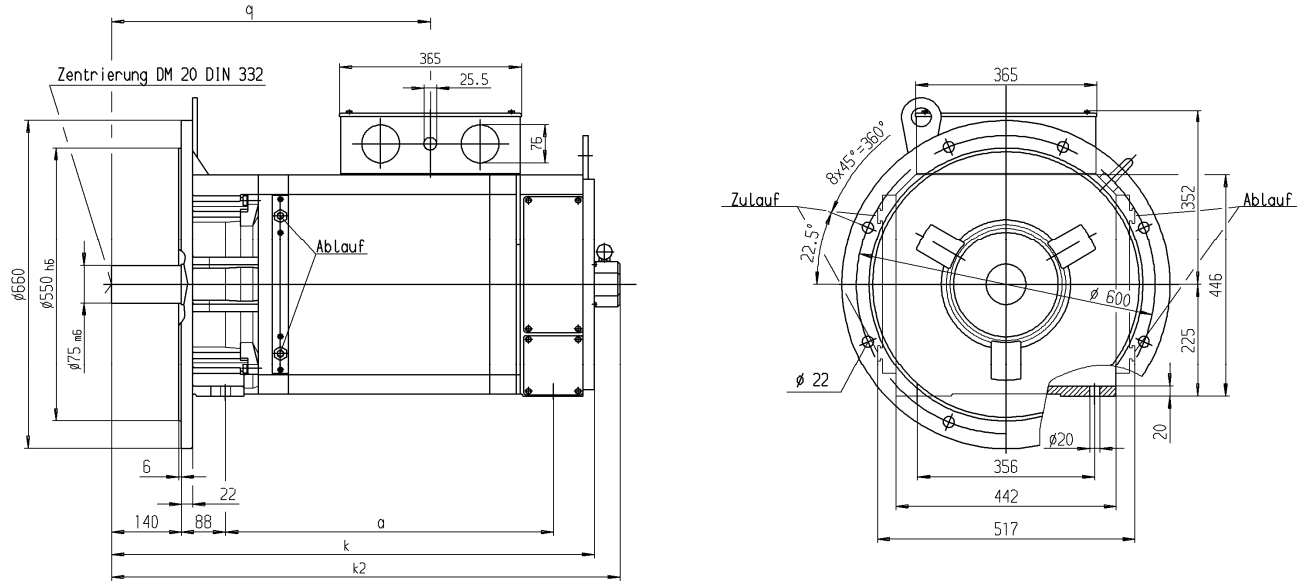
Type	a	k	q1
DA 225 K..R..	559	1091	972
DA 225 M..R..	659	1191	1072
DA 225 L..R..	749	1281	1162

For terminal box dimensions and gland sizes see pages 57 and 58

Version IMB3 standard
DA..225..54W..



Version IMB35 standard
DAFF..225..54W..

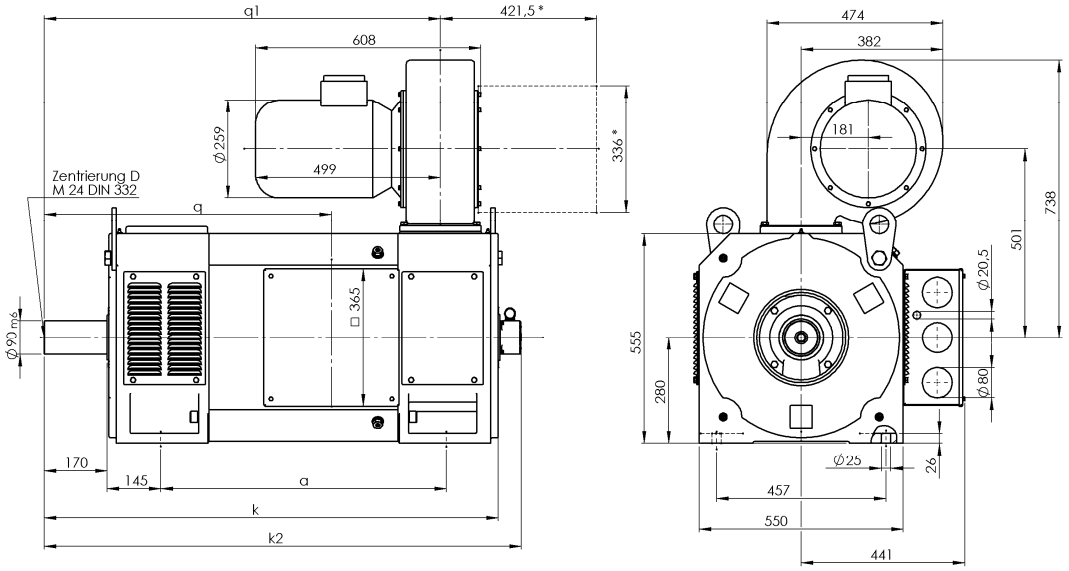


Type	a	k	k2	q
DA 225 K..W..	559	870	921	540
DA 225 M..W..	659	970	1021	640
DA 225 L..W..	749	1060	1111	730

For terminal box dimensions and gland sizes see pages 57 and 58

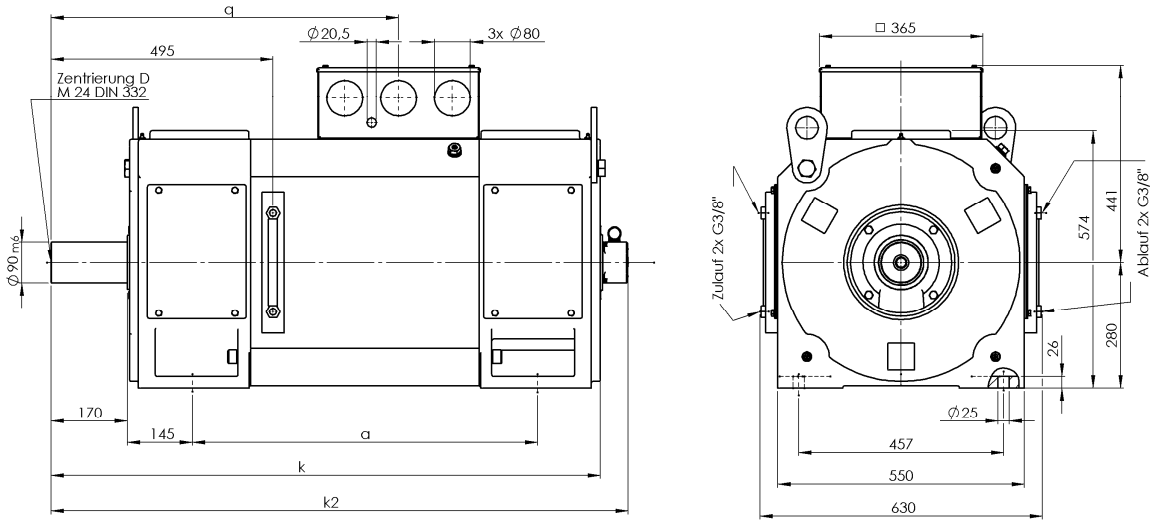
4.6. Dimension drawing DA 280

Version IMB3 standard with radial fan attached
DA 280..23R



Type	k	k2	a	q	q1
DA 280 K..23R..	1225	1287	770	775	1069
DA 280 M..23R..	1335	1397	880	885	1179
DA 280 L..23R..	1445	1507	990	995	1289

Version IMB3 standard
DA 280..54W..



Type	k	k2	a	q
DA 280 K..54W..	1225	1287	770	775
DA 280 M..54W..	1335	1397	880	885
DA 280 L..54W..	1445	1507	990	995

For terminal box dimensions and gland sizes see pages 57 and 58

5. Commissioning and maintenance instructions

When commissioning water-cooled motors, please request the Commissioning and Maintenance Instructions numbered 00612. Ventilated motors are covered by the Commissioning and Maintenance Instructions numbered 00609.

6. Declaration of Conformity

In this section we give general information on EC directives, CE marking and on the Declaration of Conformity.

6.1. What is an EC directive

EC directives state requirements. The directives are compiled by the relevant authorities within the EU and are implemented in national law by all member states.
In this way, the EC directives safeguard free trade within the EU.

An EC directive contains only essential minimum requirements. You will find detailed requirements in standards that are referenced in the directive.

6.2. What does the CE mark signify?

a) CE marking certifies conformity with all the obligations that need to be met by the manufacturer in relation to a product, based on the community directives containing provisions relating to CE marking.

b) The CE mark applied to industrial products signifies that the natural or legal person who applies the mark or has the mark applied, has ensured that the product meets all Community directives on complete harmonization and has been subjected to all the conformity assessment procedures demanded by the regulations.

Decision 93/465/EEC of the Council, Annex I B. a) + c)

We apply the CE mark to the unit and to the documentation as soon as we have ascertained that we have met the requirements of the relevant directives.

As long as this Baumüller product is used correctly within your overall machine, you can assume that the product complies with the requirements of 2006/95/EC.

A key aspect for ensuring compliance with 89/336/EEC (EMC directive) is how this product is installed. Since you are performing the installation, you are also responsible for compliance with 89/336/EEC.

We provide you with support in the form of EMC instructions. This information can be found in the relevant technical instructions. If you have met all the requirements stated in this documentation and in the technical instructions, you can assume (standard: ”suppose”) that the product complies with the requirements of the EMC directive.

All national, local, and system-specific regulations must also be observed.

To operate your machine in the EU, the following must be available:

- Conformity mark (CE mark)
- Declaration(s) of Conformity in relation to the directive(s) relevant for the machine.

6.3. Declaration of Conformity, definition of term

Within the context of this documentation, a Declaration of Conformity is a declaration that the electrical equipment placed on the market complies with all applicable essential health and safety requirements.

With the Declaration of Conformity provided in this section, Baumüller Nürnberg GmbH declares that the product complies with the applicable essential health and safety requirements from the directives and standards that are listed in the Declaration of Conformity.

6.4. EU-Declaration of Conformity

CE

EG-Konformitätserklärung
gemäß

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

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 grundlegenden Anforderungen der oben genannten Richtlinie einschließlich der zum Zeitpunkt der Erklärung geltenden Änderungen entsprechen.

Hinweise:

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

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

Angewandte harmonisierte Normen:

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

(Wird fortgesetzt auf der nächsten Seite…)

EU-Declaration of Conformity
according

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

Manufacturer

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 directive(s) and their respective changes which were valid at the point of declaration.

Notes:

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

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

Applied harmonised standards:

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

(To be continued on the next page…)

(... Fortsetzung von der vorherigen Seite)

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

(... continued from the previous page)

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

Produkt / Product (x): optionaler Buchstabe / optional character {x,y}: alternative Buschstaben oder Zahlen / alternative character or number	**Jahr der erstmaligen CE-Kennzeichnung /** **Year of first CE marking**
DA(FF)(G) 225 x {23,54} A xx-x	**1998**
DA(F)(G) 132 x {23,54} A xx-x **DA(F)(G) 160 x {23,54} A xx-x** **DA(FF)(G) 180 x {23,54} A xx-x**	**1999**
DA(F)(G) 100 x 54 {A,W} xx-x **DA(F)(G) 132 x 54 W xx-x** **DA(F)(G) 160 x 54 W xx-x** **DA(FF)(G) 180 x 54 W xx-x** **DA(FF)(G) 225 x 54 W xx-x**	**2000**
DA(F)(G) 132 x {23,54} R xx-x **DA(F)(G) 160 x {23,54} R xx-x** **DA(FF)(G) 180 x {23,54} R xx-x** **DA(FF)(G) 225 x {23,54} R xx-x**	**2002**
DA(G) 280 x 23 R xx-x **DA(G) 280 x 54 W xx-x**	**2005**

Nürnberg, 11.12.2012

i.V.

Dipl. Ing. Siegfried Seidler

Leiter Entwicklung Motoren
Head of Motor Development

i.A. Stefan Buchner

Dipl.-Ing.(FH)Stefan Buchner

Bereichsleitung Produktion
Production Manager

Headquarters

Baumüller Nürnberg GmbH
Ostendstraße 80–90, 90482 Nürnberg
T: +49 (0) 911 5432 – 0, F: +49 (0) 911 5432 – 130
www.baumueller.com

Baumüller Anlagen-Systemtechnik GmbH & Co. KG
Ostendstraße 84, 90482 Nürnberg
T: +49 (0) 911 54408 – 0, F: +49 (0) 911 54408 – 769
www.baumueller.com

Baumüller Reparaturwerk GmbH & Co. KG
Andernacher Straße 19, 90411 Nürnberg
T: +49 (0) 911 9552 – 0, F: +49 (0) 911 9552 – 999
www.baumueller-services.com

Baumüller DirectMotion GmbH
Ostendstraße 80, 90482 Nürnberg
Standort Bad Gandersheim:
Flugplatzweg 2, 37581 Bad Gandersheim
T: +49 (0) 5382 9805 – 0, F: +49 (0) 5382 9805 – 55
www.baumueller.com

Nürmont Installations GmbH & Co. KG
Am Keuper 14, 90475 Nürnberg
T: +49 (0) 9128 9255 – 0, F: +49 (0) 9128 9255 – 333
www.nuermont.com

Subsidiaries

Argentina
Mektron
Ingenieria y desarrollo, Maza 1452 C.A.B.A., Buenos Aires
T: +54 11 4931 8721, F: +54 11 4931 8721

Australia
Baumüller Australia Pty. Ltd.
19 Baker Street, Botany NSW 2019, Sydney
T: +61 2 83350 – 100, F: +61 2 83350 – 169

Austria
Baumüller Austria GmbH
Schärdinger Straße 13, 4061 Pasching
T: +43 (0) 7229 22822–0, F: +43 (0) 7229 22822–32

Brazil
NC Service Indústria e Comércio Ltda.
Av. Marcos Penteado de U.Rodrigues, 1119–Sala 1905
CEP 06460–040 Barueri – Tamboré
T: +55 (11) 4134–0502, F: +55 (11) 4195–2479

China
Baumueller Automation Equipment Trading (Shanghai) Co., Ltd.
T20–3, No. 258 Jinzang Road Jinqiao Export Processing Zone, Pudong, 201206 Shanghai,
T: +86 (0) 21 5031 0336, F: +86 (0) 21 5031 6106

China
Beijing Yanghai Automation Technology Co., Ltd.
Room 1008, No.7, Huaqing Business Building, Huaqing Garden, Wudaokou, Haidian District, 100083 Beijing
T: +86 (0) 10 8286 7980, F: +86 (0) 10 8286 7987

France
Baumüller France S.à.r.l.
Parc Saint Exupéry 6 bis, rue Maryse Bastié, 69500 Bron
T: +33 (0) 4 3724 0900, F: +33 (0) 4 7826 3420

France
Baumüller France S.à.r.l.
9 rue de la Durance, 67100 Strasbourg
T: +33 (0) 3 8840 1251, F: +33 (0) 3 8840 0724

Germany
Sales office Dresden
Baumüller Nürnberg GmbH
Fritz-Reuter-Str. 34a, 01097 Dresden
T: +49 (0) 911 5432–515, F: +49 (0) 911 5432–99518

Germany
Sales office Griesheim
Baumüller Nürnberg GmbH
Waldstraße 1, 64347 Griesheim
T: +49 (0) 6155 8430 – 0, F: +49 (0) 6155 8430 – 20

Germany
Sales office Langenhagen
Baumüller Nürnberg GmbH
Bohlenweg 10, 30853 Langenhagen
T: +49 (0) 511 771 968 – 0, F: +49 (0) 511 771 968 – 77

Germany
Sales office Nürnberg
Baumüller Nürnberg GmbH
Ostendstraße 80–90, 90482 Nürnberg
T: +49(0)911 5432–501, F: +49(0)911 5432–510

Germany
Sales office Velbert
Baumüller Nürnberg GmbH
Sontumer Str. 18, 42551 Velbert
T: +49 (0) 2051 80858 – 0 F: +49(0)2051 80858 – 15

Germany – Freiberg
Nürmont Installations GmbH & Co. KG
Am Junger Löwe Schacht 11, 09599 Freiberg
T: +49 (0) 3731 3084 – 0, F: +49 (0) 3731 3084 – 33

Germany – Kamenz
Baumüller Reparaturwerk GmbH & Co. KG
Nordstraße 57, 01917 Kamenz
T: +49 (0) 3578 3406 – 15, F: +49 (0) 3578 3406 – 50

Germany – München
Baumüller Reparaturwerk GmbH & Co. KG
Meglingerstraße 58, 81477 München
T: +49 (0) 89 748 898 – 0, F: +49 (0) 89 748 898 – 55

Germany – Neuruppin
Nürmont Installations GmbH & Co. KG
Alfred–Wegener–Straße 15, 16816 Neuruppin
T: +49 (0) 3391 40597 – 0, F: +49 (0) 3391 40597 – 19

Germany – Rossau
Baumüller Anlagen-Systemtechnik GmbH & Co. KG
Am Rossauer Wald 7, 09661 Rossau
T: +49 (0) 37207 6508 – 10, F: +49 (0) 37207 6508 – 61

Great Britain
Baumüller (UK) Ltd.
Unit 9 Rugby Park, Bletchley Road
Heaton Mersey Industrial Estate
Heaton Mersey, Stockport SK4 3EJ
T: +44 (0) 1614 3278 – 24, F: +44 (0) 1614 3284 – 93

India
Baumüller India Pvt. Ltd.
„Kavi" – Survey–94/7, Plot–38, Paud Road,
Bhusari Colony, Kothrud, 411038 Pune
T: +91 20 401603 33, F: +91 20 254241 79

Israel
SERVI–TECH LTD.
48d HaHaroshet St. Building 34/10
P.O.B 6371, Ind. Zone Carmiel 20651
T: +972–4–9589550, F: +972–4–9589551

Italy
Baumüller Italia S.r.l.
Viale Italia 12, 20094 Corsico (Mi)
T: +39 02 45100 – 181, F: +39 02 45100 – 426

Netherlands
Baumüller Benelux B.V.
Regenbeemd 6, 4825 AT Breda
T: +31 (0) 76 5717111, F: +31 (0) 76 5871211

Poland
Mekelburger Polska
Ul. Kóscielna 39 F/3, 60537 Poznán
T: +48 601 87 87 03, F: +48 (0) 61 8481 520

Russia
ProSensor
Zavodskaya Street 1B building 2
124365 Moscow, Zelenograd
T: +7 495 6428 476, F: +7 495 6428 477

Slovenia, Croatia
Baumüller Dravinja d.o.o.
Delavska cesta 10, 3210 Slovenske–Konjice
T: +386 3 75723 – 00, F: +386 3 75723 – 32/33

South Africa
Motion Tronic cc
Unit 18 Wareing Park, 3610 Pinetown
T: +27 31 7011620, F: +27 86 6150597

South Korea
Bomac Systems
417 Yucheon Factophia, 196 Anyang–7 dong, Mananku, Anyangsi, Kyungkido 430–017
T: +82 31 467 – 2030, F: +82 31 467 – 2033

South Korea
HYUNWOO CORPORATION
273Changgok–Ri, Paltan–Myeon, Kyunggi–Do
T: +82–10–7734–3073

Spain
Baumüller Ibérica S.A.
Cañada de Recueros 20A, 28946 Fuenlabrada
T: 0034 91 685 66 55, F: 0034 91 600 08 64

Switzerland
Baumüller Swiss AG
Oberwiesenstrasse 75, 8500 Frauenfeld
T: +41 (0) 52 723 28 – 00, F: +41 (0) 52 723 28 – 01

Thailand
Mr. Tom Sale and Service Co., Ltd.
39/9 Moo 1, Tepkanjana Rd., Tambol Nadee
Amphur Muang, 74000 Samutsakorn
T: +66 34 854932–4, F: +66 34 854935

Turkey
Baumüller Motor Kontrol Sistem San. ve Tic. Ltd. Sti.
Girne Mah., Kücükyali Is Merkezi, B Blok No. 12
Maltepe, 34852 Maltepe – Istanbul
T: +90 216 519 – 9071, F: +90 216 519 – 9072

USA
Baumueller–Nuermont Corp.
1858 S. Elmhurst Road, Mount Prospect, IL 60056
T: +1 847 956–7392, F: +1 847 956–7925

USA
Baumueller–Nuermont Corp.
1555 Oakbrook Drive Suite 120, Norcross, GA 30093
T: +1 678 291–0535, F: +1 678 291–0537

USA
Baumueller–Nuermont Corp.
429 B Hayden Station Road, Windsor, CT 06095
T: +1 860 243–0232, F: +1 860 286–3080

Venezuela, Colombia, Ecuador
Nimbus International
6861 SW 196th Ave, Ste. 304, Pembroke Pines, FL 33332, USA
T: +1 954 252 9242; F: +1 954 252 5372

be in motion be in motion

Responsible for content: **Baumüller Nürnberg GmbH** Ostendstraße 80–90 90482 Nürnberg T: +49 (0) 911 5432 – 0 F: +49 (0) 911 5432 – 130 **www.baumueller.com**
Baumüller Anlagen-Systemtechnik GmbH & Co. KG Ostendstraße 84 90482 Nürnberg T: +49 (0) 911 54408 – 0 F: +49 (0) 911 54408 – 769
Baumüller Reparaturwerk GmbH & Co. KG Andernacher Straße 19 90411 Nürnberg T: +49 (0) 911 9552 – 0 F: +49 (0) 911 9552 – 999
Baumüller DirectMotion GmbH Ostendstraße 80 90482 Nürnberg
Location Bad Gandersheim: Flugplatzweg 2 37581 Bad Gandersheim T: +49 (0) 5382 9805 – 0 F: +49 (0) 5382 9805 – 55

3.144.e.04/13.05E
01/13