

HIMMEL[®] - FLAT MOTORS

HIMMEL[®]
technologies
YOUR DRIVE FOR SUCCESS.



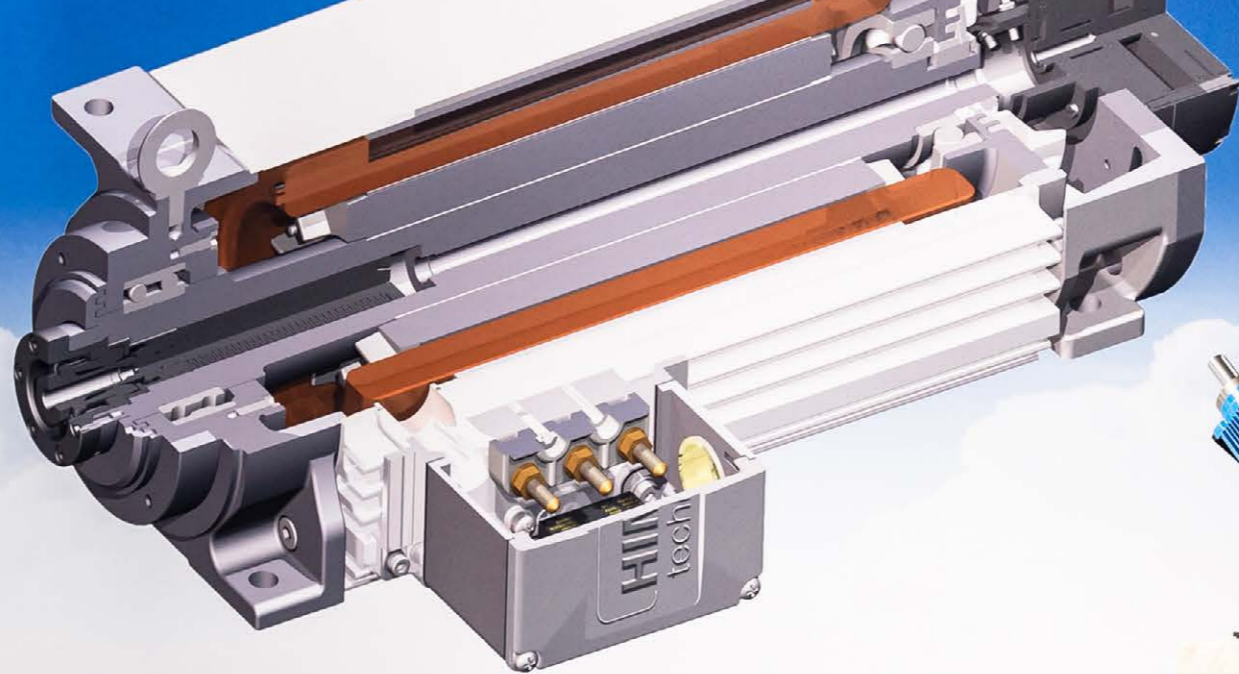
| WHO WE ARE

HIMMEL® technologies - eight companies from the fields of mechanical and drive engineering, automation technology, plant engineering, water treatment and environmental technology are united under this umbrella.

The headquarters of the group of companies is located in Gescher - in the western Münsterland. In total, HIMMEL® technologies employs about 350 people on a production area of more than 35,000 m².

The group of companies represents a wide range of competencies on which more and more customers worldwide rely. Whether for the development of individual components or turnkey plants - the companies of HIMMEL® technologies offer solutions tailored to your individual requirements.

All companies work closely together in the realization of complex projects. The special thing: You always deal with the same contact person - from planning and production to assembly and commissioning to turnkey handover. This shortens decision-making paths and thus helps to realize your project on schedule.



HIMMEL® Flachmotoren



HIMMEL Antriebstechnik GmbH & Co. KG

Venneweg 28 | 487

02542/910-0

WWW.HIMMELINFO.DE

DRIVE FOR BUSINESS

HIMMEL Antriebstechnik GmbH & Co. KG

HIMMEL Antriebstechnik is the specialist for the fields of motor manufacturing, gearbox construction and automation. Drive technology represents one of the core businesses of our company and is an important link within the group of companies. Our flat motors with power ratings of up to 123

kW and gearboxes with torques of up to 28,000 Nm document our special capabilities.

Another area of our DIN EN ISO 9001 certified company is automation. Our expertise in electrical and control engineering enables us to develop

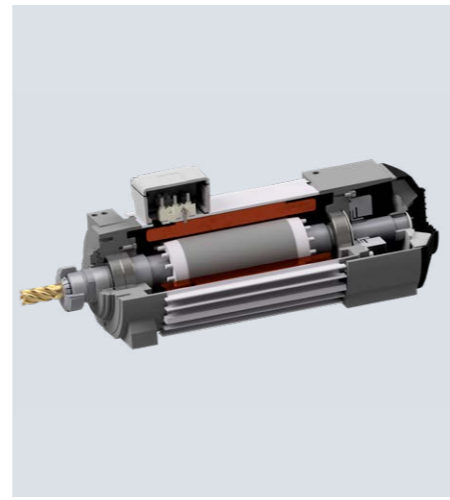
and manufacture the most economical solution for your control and regulation systems. With our engineering department we plan, supervise and realize small and large projects with regard to the individual requirements of our national and international customers.

CONTENT



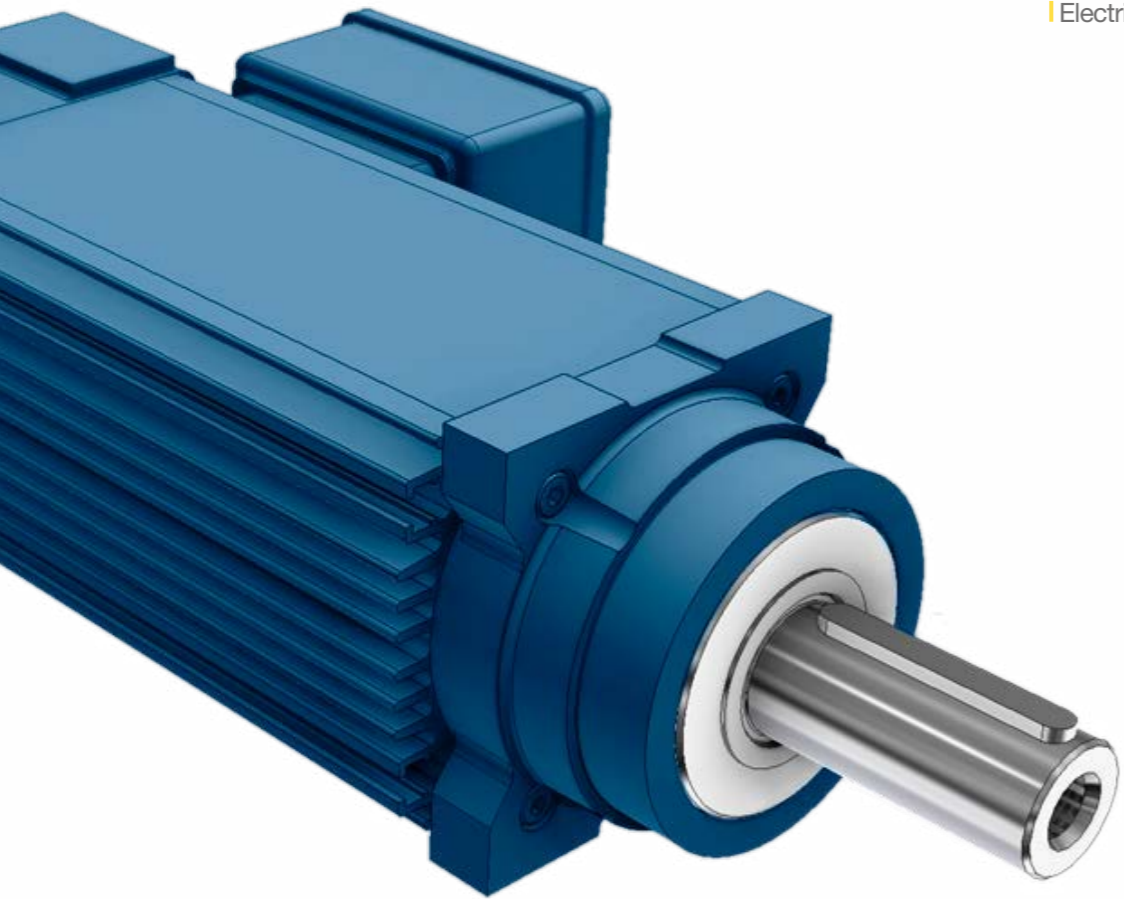
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SIZE K62

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WHAT DISTINGUISHES US

Due to their compact and space-saving design, HIMMEL®-flat motors are ideal for milling, cutting, scoring, boring, sawing, chipping or grinding - both in complex machine systems where high demands are made, especially on the running accuracy and power of the drive unit, and in simple machine systems where an inexpensive and reliable drive solution is required.

Our flat motors are designed to run trouble-free even under the harshest conditions. The HIMMEL® flat motor series consists of six sizes, so the right motor size is always available for the most diverse operating conditions. In addition to decades of experience, our motors are characterized by continuous further development. State-of-the-art technology and the specific requirements of our customers are the measure of all things.



SPECIAL-CUSTOM-MADE PRODUCTS

HIMMEL®-flat motors are available in various designs that can be adapted according to the application purpose and environment. For example, the **shaft design** can be designed to meet different requirements, such as a specific length or diameter.

The designs with flange disks can also be adapted as required. Here, the **flange disks** can be manufactured in different dimensions and materials. Similarly, the **tool holders, foot dimensions** and **terminal box designs** can be customized.

The **winding design** of the HIMMEL® flat motor can be matched to **special voltages and frequencies** to allow the motor to be used worldwide, or a specific operating point at 100Hz, for example. An important factor in the design of HIMMEL®-flat motors is also the **motor protection**, which should be adapted to the respective application and environment.

Overall, our HIMMEL®-flat motors offer a high degree of flexibility and adaptability to different requirements and areas of application.



Safety and application instructions

Safety note

The installation and maintenance of the flat motors may only be carried out by qualified personnel. The motors may only be installed, maintained and operated in compliance with the safety regulations and local regulations. The instructions for maintenance and commissioning must be observed. Please request these instructions from your responsible contact person, stating the motor Type and production number, if they are not available. HIMMEL®-flat motors are intended for installation on or in another machine or system. Commissioning is prohibited until the conformity of the end product has been determined in accordance with currently applicable regulations and directives.

Electrical design

All HIMMEL®-flat motors are designed in accordance with the currently applicable standard for rotating electrical machines. Only modern high-quality insulating materials of insulation class F are used for the electrical insulation. As a rule, the rated power of the motor will correspond to the thermal utilization of insulation material class B, in order to avoid excessive bearing temperatures which would reduce the service life of the bearings.

Power

The specified electrical motor ratings apply to ambient temperatures from -20°C to +40°C and an installation altitude of up to 1000m above sea level. If HIMMEL®-flat motors are used in ambient conditions deviating from this, there will be a reduction in power.

Mechanical design

The motors are completely enclosed with surface cooling. The protection class can be implemented between IP54 and IP65. All HIMMEL®-flat motors are designed in such a way that the shaft passage is sealed on the output and ventilation side by gap or labyrinth ring seals. Extensive dust chamber tests have proven that these designs reliably prevent the ingress of dust and chips during operation.

The electrical connection is made inside a closed terminal box as standard. The terminal box can usually be mounted in the defined positions (see page 25). To avoid unnecessarily impairing the self-ventilation of the motors, it is advisable to position the terminal box on the flat side or towards the front of the shaft end. The terminal box position must be specified when ordering. Otherwise, terminal box position 1B is assumed as standard (see page 25).

Bearing

Only high-quality rolling bearings agreed with the bearing manufacturer are used for the motor shaft bearings. The bearings are generally sealed and greased for life, making them virtually maintenance-free and easy to operate. The ball bearing on the drive side is designed as a locating bearing, the one on the ventilation side as a non-locating bearing.

For higher speeds or special accuracy requirements, precision bearings specially selected for the application are used for increased running smoothness and shaft rigidity.

Further information can be found in the dimension drawings.



General information for the model range

Tool holder

The production of special shafts / tool holders specially designed for HIMMEL®-flat motors offers a wide range of designs. The following tool holders are available as standard:

- Cylindrical shaft with or without feather key for holding tools with center bore; an external thread for nut or internal thread for screw and washer serves as axial securing of tools:
- Shaft with saw blade flange disks for holding disk-Type tools
- Internal taper with external thread for holding collets
- HSK clamping systems in manual but also automatic design

Other tool holders are available on request. When ordering, the thread direction must be specified, taking into account the direction of rotation!

Balancing

A careful dynamic balancing process of the motor shafts ensures smooth, low-vibration running even at higher speeds. For special requirements or high speeds above 6000 1/min, the flat motors are finely balanced in the test bay during final testing. As standard, the motors are designed with full wedge balancing. There is no special marking for this.

We ask you to note this for safety reasons. The tools used must also be balanced accordingly to avoid premature bearing failure or unsatisfactory machining results. In the delivery condition, the effective value of the vibration velocity is <1.6 mm/s.

Important note

If the HIMMEL® flat motor is equipped with a brake, the nut must be secured against loosening or the flanged disk cover must be secured against rotation by a positive drive (feather key, dowel pin). The brake may only be applied from a rotational speed below 3,600 rpm. Earlier application leads to significantly higher wear of the brake disk material and to premature failure. In the case of flat motors with a non-screwed labyrinth, only operation with a clamped tool is permissible. In this case, this can be seen from the corresponding dimension diagram.

Calculation formulas for the flat motors

Torque: $M = 9550 \cdot P/n$

Nominal power: $P = \frac{1}{9550} \cdot M \cdot n$

Power consumption: $P_1 = \sqrt{3} \cdot U \cdot I \cdot \cos \varphi$

Power output: $P_2 = \sqrt{3} \cdot U \cdot I \cdot \cos \varphi \cdot \eta$

Apparent power: $S = \sqrt{3} \cdot U \cdot I$

Nominal current: $I = \frac{S}{\sqrt{3}} \cdot U$

M = Torque [Nm]

P = Power [kW]

n = Rotational speed [1/min]

η = Efficiency

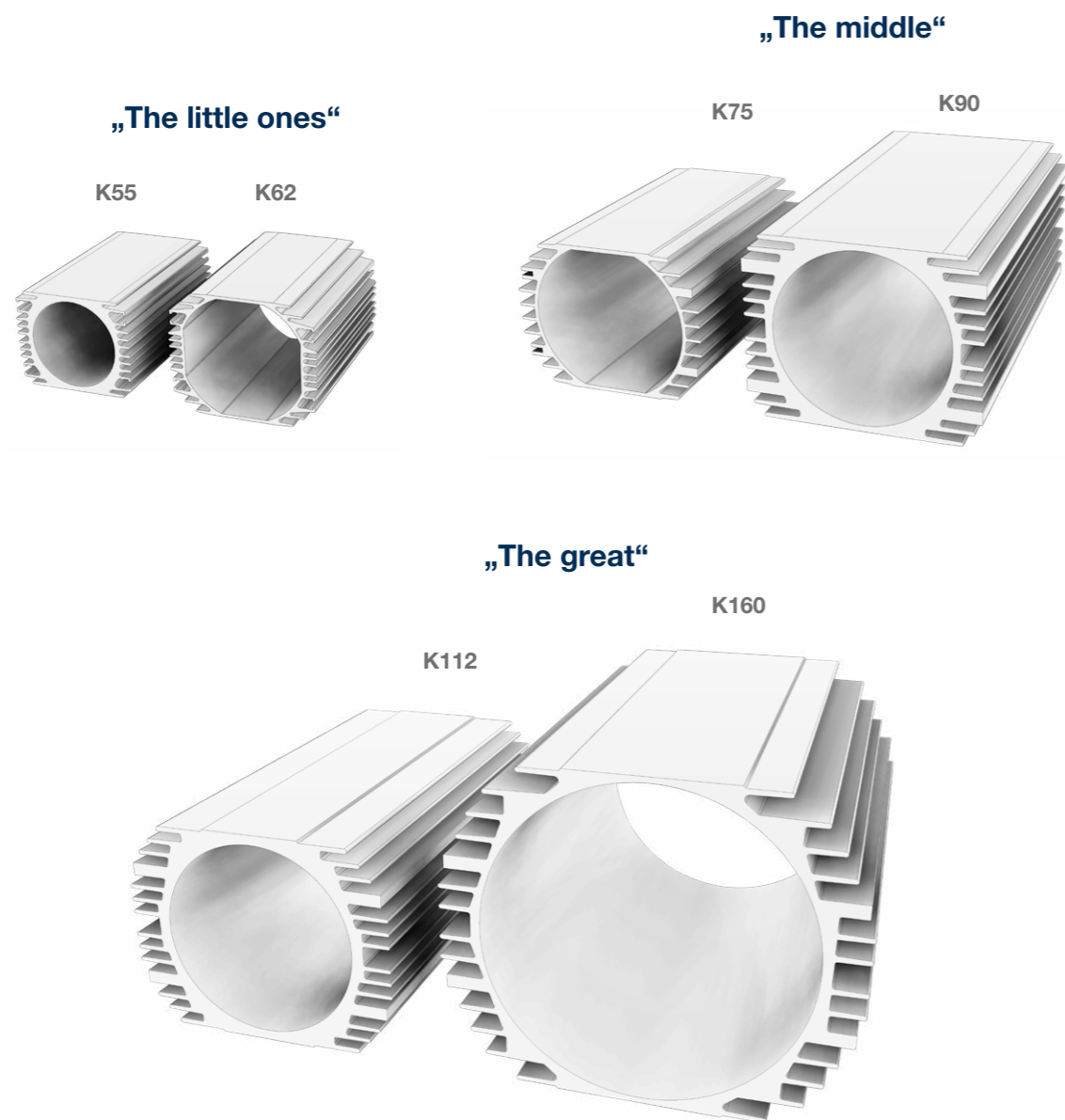
cos φ = Power factor

U = Voltage [V]

I = Power [A]

S = Apparent power [kVA]

Size definition



The center height from the base to the center of the shaft is an important parameter in determining the size of HIMMEL®-flat motors. The dimensioning of tools and clamping devices is also based on the center height. The designations such as for the K55 means that the center height of the HIMMEL®-flat motor is 55mm.

Overall, the center height is a decisive feature when selecting a suitable HIMMEL®-flat motor.

Storage

Tables

The values listed (see pages 15-17) have been determined under certain general conditions and with certain calculation methods and represent results from complex tests and calculations. In specific applications, deviations from these values must be expected in individual cases. The above data refer to standard HIMMEL®-flat motors without brake attachment.

Standard bearing

All flat motors are designed with high-quality rolling bearings, which as standard consist of a single bearing on the drive side and a single bearing on the driven side. The bearing on the output side is designed as a locating bearing and the bearing on the ventilation side as a non-locating bearing. The non-locating bearing is spring-loaded so that the shaft bearing arrangement is largely clearance-free. This means that tight machining tolerances can be achieved even in the standard version.

Double bearing

Double bearings in various designs are used on the output side, especially when higher demands are made on the cutting accuracy and rigidity of the flat motor. These have proved particularly effective in milling and machining. The double bearing arrangement ensures significantly higher load ratings and greater output rigidity, enabling faster feed rates and the use of heavier tools.

Precision bearing

High-precision bearing pairs with special lubricants are used to meet the highest demands for precision and rotational speed. These bearings are unsurpassed in terms of running speed, smoothness, accuracy and load. Preload and rigidity can be optimally matched by measures specially tailored to the application. State-of-the-art machining centers ensure the dimensional accuracy and narrowed tolerances of add-on parts such as shafts and end shields. This ensures highly precise radial and axial runout tolerances and very high cutting and machining accuracy.

Hybrid bearings

In certain applications, the use of hybrid bearings is sensible and recommended. In hybrid bearings, the rolling elements consist of a ceramic material. Due to the chemical and physical properties of the ceramic rolling elements, the bearings achieve maximum operating performance in terms of speed capacity and operating life of the lubricant. Due to the electrically insulating properties of the hybrid bearings, bearing failure caused by bearing currents is excluded. HIMMEL®-flat motors can be designed with single bearings as hybrid bearings as well as with high precision bearing pairs as hybrid bearings. In order to effectively prevent shaft currents, one hybrid bearing is usually sufficient on the ventilation side. The use of hybrid bearings is typically indicated on the motor and in the characteristics of the data sheet.

Any kind of shock or impact acting on the motor can damage the bearing and lead to premature failure.

Lubrication / grease service life

All rolling bearings used are normally sealed bearings filled with lubricant by the bearing manufacturer. Regreasing or relubrication is not necessary. The bearings are greased for life and are maintenance-free. Precise motor seals virtually eliminate the possibility of contamination entering the bearings.

In special cases, special greasing with special greases adapted to the application is possible. The use of hybrid bearings significantly increases the grease operating life under the same ambient and operating conditions.

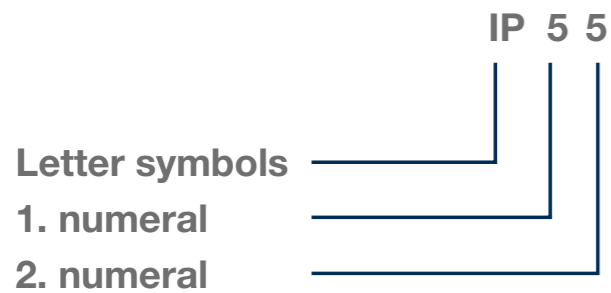
TECHNICAL NOTES

Degrees of motor protection according to EN 60034-5

Protection	1. Numeral: * Protection against contact and solid foreign bodies	2. Numeral: Protection against water
IP54	Protection against dust deposits	Protection against splashed water
IP55		Protection against water projected by a nozzle over any angle
IP56		Protection against powerful water jets
IP64	Complete protection against dust deposits	Protection against splashed water on all sides
IP65		Protection against water projected over any angle
IP66		Protection against powerful water jets

* Contact of the test finger according to EN 60034-5 with the fan or other rotating or life parts is prevented.

Example for designation of type of protection:



TECHNICAL NOTES

Circular and axial runs

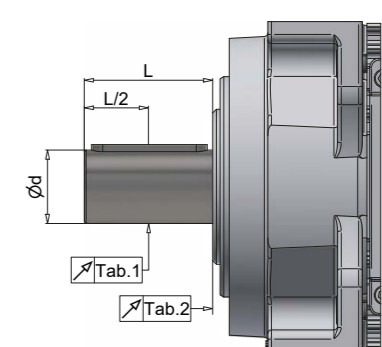
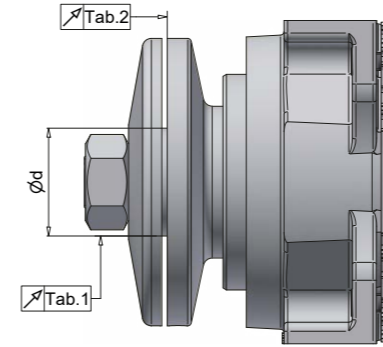


Table 1			
Concentricity tolerance analog DIN 42955			
d1 Shaft diameter [mm]	N normal	R reduces	F fine
to 10	0,03	0,015	–
via 10 to 18	0,035	0,018	0,009
via 18 to 30	0,04	0,021	0,011
via 30 to 50	0,05	0,025	0,013
via 50 to 80	0,06	0,03	0,015

In the absence of special specifications, the concentricity and axial runout tolerances are executed according to class "N" (normal). Tolerance class "R" (reduced) and "F" (fine) are possible by agreement. The dimensions L or L/2 refer to the standard

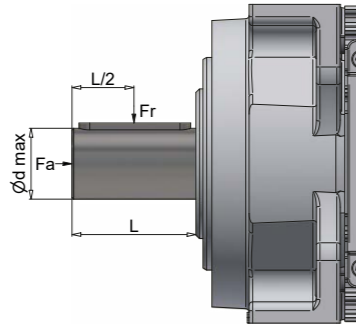
Table 2			
Axial runout tolerance analog DIN SPEC 42955			
d2 Test diameter on the flange disk or labyrinth ring [mm]	N normal	R reduces	F fine
to 22	0,05	0,025	0,0125
via 22 to 40	0,06	0,03	0,015
via 40 to 100	0,08	0,04	0,02
via 100 to 230	0,1	0,05	0,025

motors shown in this catalog. For speeds above 6,000 rpm, at least tolerance class "R" must be observed. Tolerances deviating from these specifications can be specified in the dimension drawing.

TECHNICAL NOTES

Permissible radial and axial forces at the shaft ends of the flat motors

Permissible load on the shaft end with bearing life expectancy of approx. 20,000 operating hours

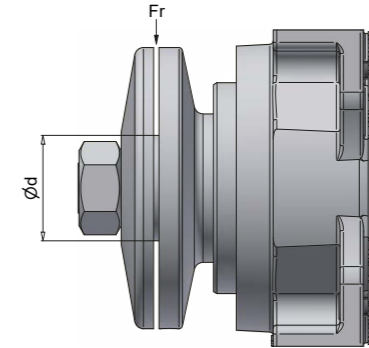


Permissible axial and radial forces at the shaft end									
Model series	Permissible load n=3,000 1/min		Dimension sheet	Page	max. perm. rotational speed [1/min]				max. shaft diameter [mm]
	Fr [N]	Fa [N]				Single bearing	Double bearing	Spindle bearing	
KF55	800	300	1NJ000937	15	7.200	X			35
KF55	1.200	600	1NJ000945	15	7.200		X		35
KF55	1.000	500	1NJ000945	15	18.000			X	35
KH55	800	300	1NJ000885	16	7.200	X			35
KH55	1.200	600	1NJ000887	16	7.200		X		30
KH55	1.000	500	1NJ000825	16	18.000			X	30
KC55	1.000	500	1NJ000828	17	18.000			X	Adapter for collet DIN ISO – C 25
KH55 Hydro-Format-System	700	300	1NJ001813	19	18.000			X	Tool holder 25
KF62	1.600	600	1NJ1-097	29	7.200		X		35
KH62	1.600	600	1NJ1-098	30	7.200		X		35
KD62	900	400	1NJ1-346	31	18.000			X	48
KC62	1.050	500	1NJ1-375	31	18.000			X	Adapter for collet ISO 10897 – C 25
KF75	1.750	600	1NJ1-005	43	7.200		X		40
KN75	1.700	600	1NJ1-351	45	7.200		X		40
KD75	2.300	950	1NJ008591	46	10.000			X	Hydro-Format-System, 40
KC75	2.150	1.000	1NJ011529	48	10.000			X	Adapter for collet ISO 10897 – C 25
KP75	1.900	700	1NJ004635	48	7.200		X		40
KP75	1.900	700	1NJ004635	48	7.500			X	40
KH75	1.500	600	1NJ000935	49	7.200	X			50
KH75	1.900	700	1NJ000935	49	7.200		X		40
KH75	2.000	800	1NJ000935	49	10.000			X	50
KF90	2.000	800	1NJ004606	58	7.200		X		40
KF90	2.000	800	1NJ004606	58	10.000			X	50
KH90	2.000	800	1NJ004366	60	7.200		X		65
KH90	2.000	800	1NJ004366	60	10.000			X	65
KD90	2.600	800	1NJ007552	61	10.000			X	Hydro-Format-System, 50
KC90	2.000	800	1NJ004158	68	10.000			X	Adapter for collet DIN ISO – C 40
K112	3.200	1.000	2NJ000104	70	3.600		X		80
K112	3.200	1.000	2NJ000118	70	7.200			X	80
KF112	4.350	1.200	2NJ000114	71	3.600		X		80
KF112	4.350	1.200	2NJ000119	71	7.200			X	80
K112	3.200	1.000	2NJ000401	72	7.200		X		80
KF160	6.000	1.500	1NJ005244	81	3.400		X		80
KF160	5.500	1.000	1NJ005255	81	7.200			X	80

TECHNICAL NOTES

Permissible radial forces on shaft extensions of flat motors with flange disk

Permissible load on the shaft end with bearing life expectancy of approx. 20,000 operating hours



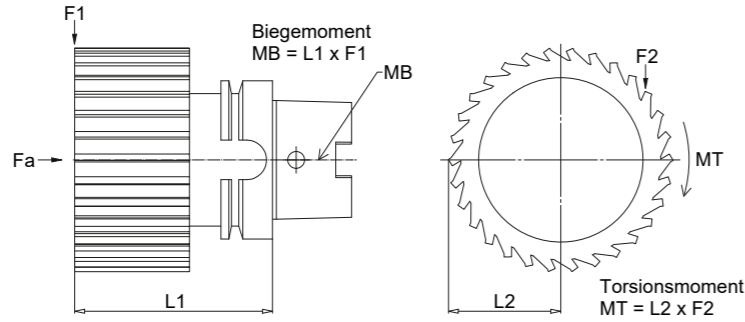
Radial forces Fr on the flange washer									
Model series	Permissible load n=3.000 1/min		Dimension sheet	Page	max. perm. rotational speed [1/min]	Storage			max. shaft diameter [mm]
	Fr [N]	Fa [N]				Single bearing	Double bearing	Spindle bearing	
KF55	800	300	1NJ000937	15	7.200	X			35
KF55	1.200	600	1NJ000945	15	7.200		X		35
KF55	1.000	500	1NJ000945	15	18.000			X	35
KH55	800	300	1NJ000885	16	7.200	X			35
KH55	1.200	600	1NJ000887	16	7.200		X		30
KH55	1.000	500	1NJ000825	16	18.000			X	30
KC55	1.000	500	1NJ000828	17	18.000			X	Adapter for collet DIN ISO – C 25
KH55 Hydro-Format-System	700	300	1NJ001813	19	18.000			X	Tool holder 25
KF62	1.600	600	1NJ1-097	29	7.200		X		35
KH62	1.600	600	1NJ1-098	30	7.200		X		35
KD62	900	400	1NJ1-346	31	18.000			X	48
KC62	1.050	500	1NJ1-375	31	18.000			X	Adapter for collet ISO 10897 – C 25
KF75	1.750	600	1NJ1-005	43	7.200		X		40
KN75	1.700	600	1NJ1-351	45	7.200		X		40
KD75	2.300	950	1NJ008591	46	10.000			X	Hydro-Format-System, 40
KC75	2.150	1.000	1NJ011529	48	10.000			X	Adapter for collet ISO 10897 – C 25
KP75	1.900	700	1NJ004635	48	7.200		X		40
KP75	1.900	700	1NJ004635	48	7.500			X	40
KH75	1.500	600	1NJ000935	49	7.200	X			50
KH75	1.900	700	1NJ000935	49	7.200		X		40
KH75	2.000	800	1NJ000935	49	10.000			X	50
KF90	2.000	800	1NJ004606	58	7.200		X		40
KF90	2.000	800	1NJ004606	58	10.000			X	50
KH90	2.000	800	1NJ004366	60	7.200		X		65
KH90	2.000	800	1NJ004366	60	10.000			X	65
KD90	2.600	800	1NJ007552	61	10.000			X	Hydro-Format-System, 50
KC90	2.000	800	1NJ004158	68	10.000			X	Adapter for collet DIN ISO – C 40
K112	3.200	1.000	2NJ000104	70	3.600		X		80
K112	3.200	1.000	2NJ000118	70	7.200			X	80
KF112	4.350	1.200	2NJ000114	71	3.600		X		80
KF112	4.350	1.200	2NJ000119	71	7.200			X	80
K112	3.200	1.000	2NJ000401	72	7.200		X		80
KF160	6.000	1.500	1NJ005244	81	3.400		X		80
KF160	5.500	1.000	1NJ005255	81	7.200			X	80

* S.W.S. = Quick-change clamping system

TECHNICAL NOTES

Permissible radial and axial forces on shaft extensions of the flat motors with HSK

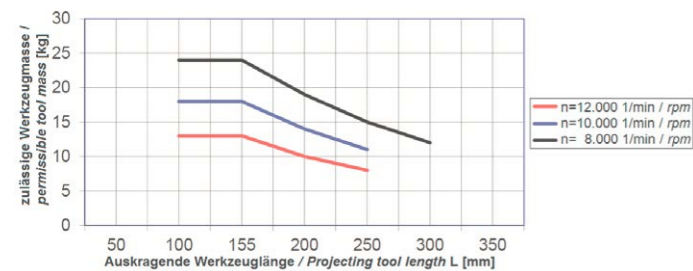
Permissible load on the shaft end with bearing life expectancy of approx. 20,000 operating hours



Permissible axial and radial forces at the shaft end										
Model series	Perm. load n=3.000 1/min				Dimension sheet	Page	max. perm. rotational speed [1/min]	Storage		Clamping system size [mm]
	max. linear bending moment [Nm]	max. transmissible torsional moment MT [Nm]	Max. pull-in force [kN]	Fa [N]				Type of clamping system	Spindle bearing	
K55 HSK-C 40	20	30	18	500	1NJ001097	18	18.000	manual	X	HSK-C 40
K62 HSK-C 50	40	50	27	150	1NJ004648	32	18.000	manual	X	HSK-C 50
K62 HSK-F 63	see figure 1			150	1NJ004380	33	12.000	automatic	X	HSK-F-63
K75 HSK-C 63	60	90	35	500	1NJ000953	49	10.000	manual	X	HSK-C 63
KP75.01 HSK-F 63	see figure 1			500	1NJ001188	51	12.000	automatic	X	HSK-F-63
K90 HSK-C 63	90	135	35	800	1NJ003906	62	10.000	manual	X	HSK-C 63
K90 HSK-F 63	see figure 1			800	1NJ004687	64	12.000	automatic	X	HSK-F-63
K112 HSK-C 63	135	150	35	1.000	2NJ000411	73	6.000	manual	X	HSK-C 63
K112 HSK-C 80	150	180	50	1.000	2NJ000561	-	6.000	manual	X	HSK-C 80
K112 HSK-E 80	see figure 2			1.000	2NJ000466	-	6.000	automatic	X	HSK-E-80

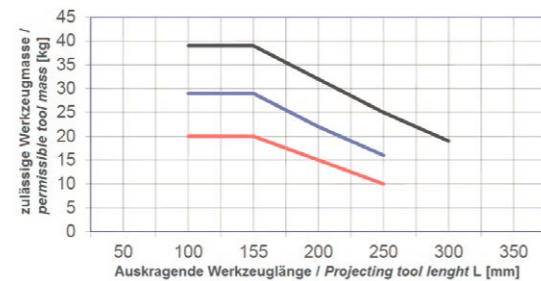
Permissible loads for higher speeds on request.

HSK63F automatic clamping unit with HSK pull-in force Fz = 20kN: Permissible mold masses for HSK63-F molds.



Graphic 1

HSK63E automatic clamping unit with HSK pull-in force Fz = 30kN: Permissible mold masses for HSK63-E molds.

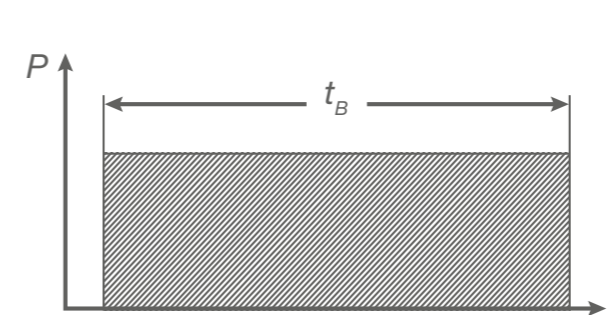


Graphic 2

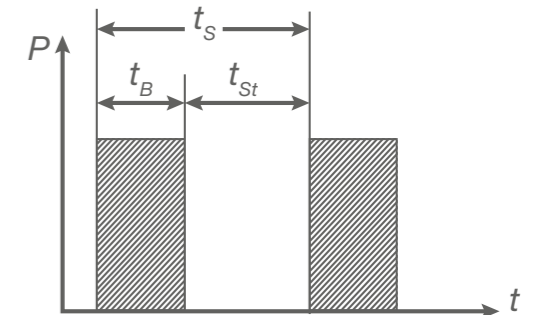
TECHNICAL NOTES

Operating modes of the motors

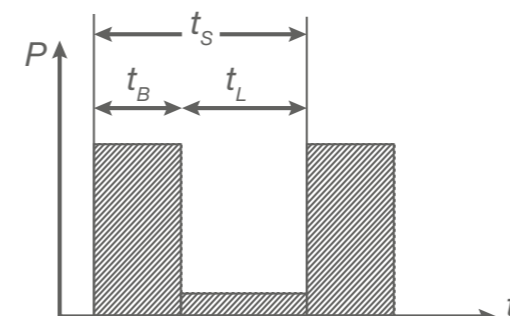
Operating modes according to DIN EN 60034-1				
Abbreviation	Nominal operating mode	Further explanation	Additional information	For example
S1	Continuous operation	Operation with a constant load.		S1
S2	Short-term operation	Operation with a constant load and currentless pauses until complete cooling.	Duty cycle [ED] in Minutes	S2-60 min
S3	Intermittent duty	Sequence of similar short loads. Each operating time comprises a constant load and a standstill time in the de-energized state.	Duty cycle [ED] in % of operating time	S3-25 %
S4	Intermittent operation with influence of the start-up process	Sequence of identical start-ups, operating times and downtimes with currentless pauses.	Duty cycle [ED] in % of operating time	S4-25 %
S6	Continuous operation with Intermittent load	Operating time with constant load and idle time without downtime in de-energized state.	Load duration in % of the operating time	S6-40 %



Marking: S1



Marking: S3



Marking: S6

Formula symbols used:

- P Power
- t Time
- t_B Load time
- t_L Idle
- t_S Playing time
- t_{St} Downtime

TECHNICAL NOTES

Weights

Weight tables [kg]						
Motor types marking K55						
Overall length	KC55	K55 / KF55 / KH55	K55 incl. Flange	K55 HSK-C	KH55 incl. Hydro-Format-System	Brake P5
S	11	11	12	11	12	1
M	12	12	13	12	13	1
L	14	14	15	14	15	1
XL	15	15	16	15	16	1

Motor types marking K62						
Overall length	KL62 / KS62	K62 / KA62 / KM62	KF62 / KH62 / KD62 / KC62	KP62	Brake G4K	Brake M7K
S	10	12	15	16	0,7	1,5
M	12	14	18	16	0,7	1,5
L	15	17	21	22	0,7	1,5
XL	22	25	29	30	0,7	1,5

Motor types marking K75							
Overall length	KL75	K75	KG75	KF75 / KN75	KD75 / KC75 / KP75	Brake M12K	Brake M16K
S	26	32	36	28	33	2	3
SB	28	34	38	30	35	2	3
SP	28	34	38	30	35	2	3
M	36	42	46	38	43	2	3
MB	42	48	52	44	51	2	3
L	48	54	58	50	55	2	3
LB	55	61	65	57	62	2	3
LP	60	66	70	60	67	2	3
XL	78	84	88	80	85	2	3

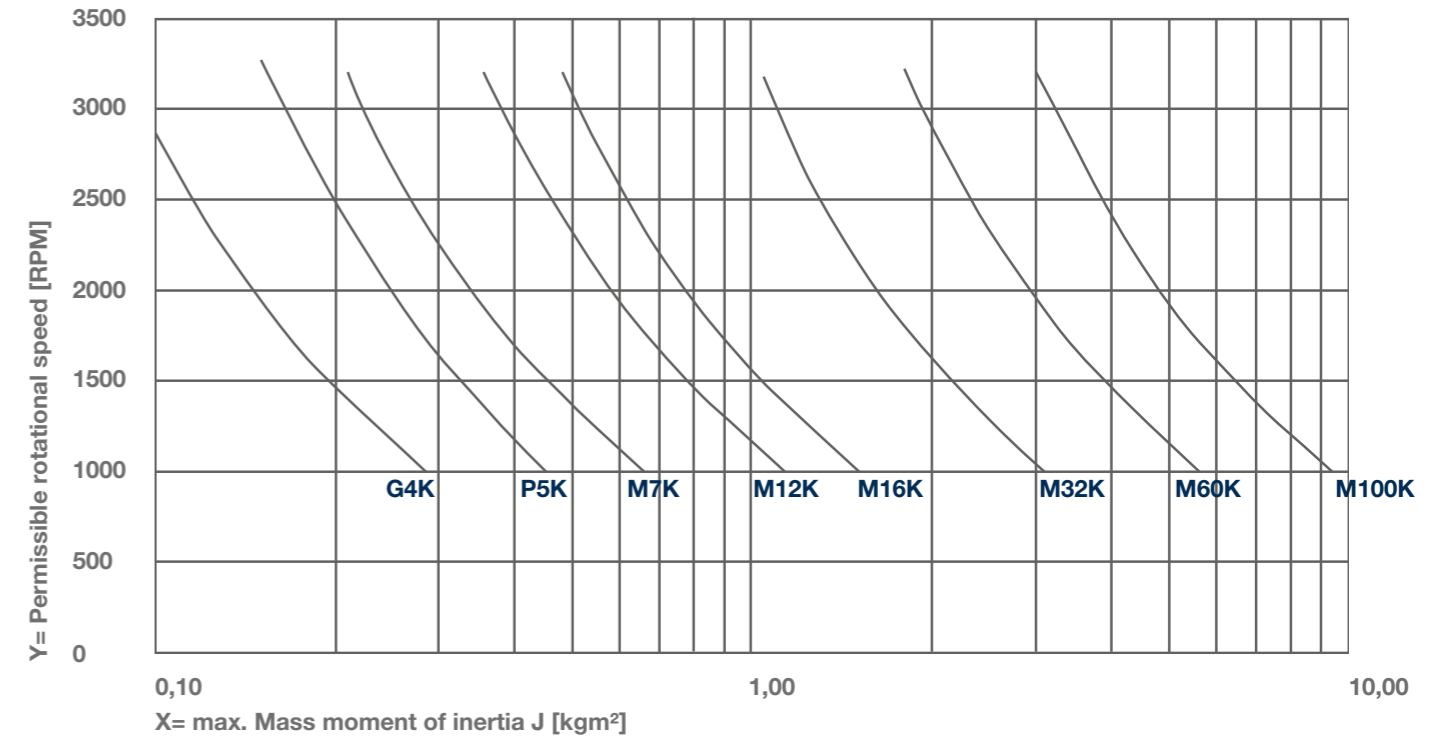
Motor types marking K90				
Overall length	K90	KH90	KD90	Brake M32K
S	78	75	75	4
M	87	84	84	4
MB	95	92	92	4
L	103	100	100	4
XL	118	115	115	4

Motor types marking K112				
Overall length	K112	KF112	Brake M60K	Brake M100K
S	100	90	7	14
SB	124	114	7	14
M	140	130	7	14
L	158	148	7	14
XL	197	187	7	14

Motor types marking K160			
Overall length	K160	KF160	Brake M150K
S	302	270	22
M	337	305	22
L	372	340	22
XL	407	375	22

TECHNICAL NOTES

Overview of electromechanical brakes



Device description

The catalog values are guide values which may deviate in individual cases. The brakes are designed for dry running. The braking torque depends on the respective running-in condition of the brake. If the friction surfaces come into contact with oil, grease or similar substances, the braking torque can drop sharply.

Notes

The brakes listed are designed for dry running. The actual braking torque is highly dependent on the respective running-in condition of the brake. If the friction surfaces come into contact with oil, grease or other substances that reduce the coefficient of friction, the braking torque can drop sharply.

Brake Type	Nominal torque [Nm]	Application for model series
P5K	5	K55
G4K	3	K62
M7K	7	K62
M12K	12	K75
M16K	20	K75
M32K	32	K90
M60K	60	K112
M100K	100	K112

Attention:

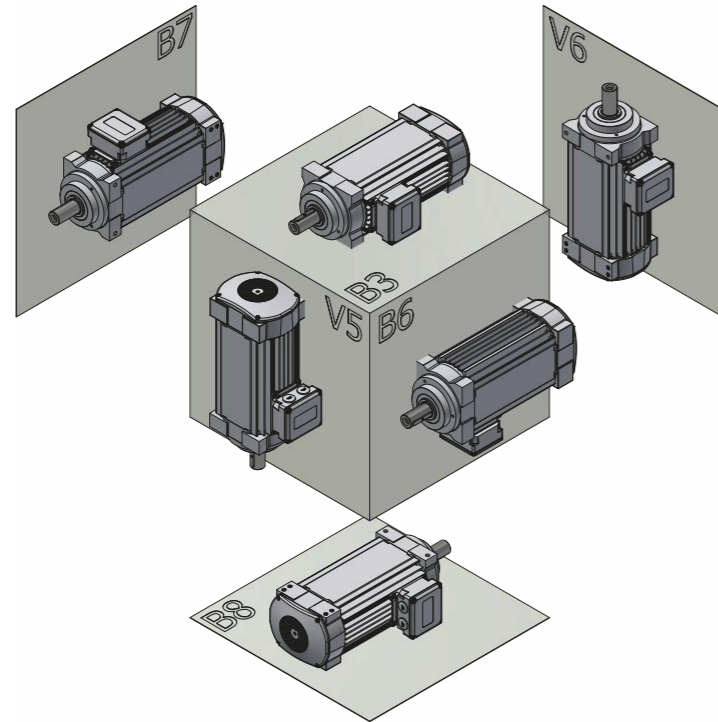
The brakes are only to be used as run-out brakes!

Standard brake voltage is 230V (50-60Hz) or 400V (50-60Hz). Special voltages on request.

TECHNICAL NOTES

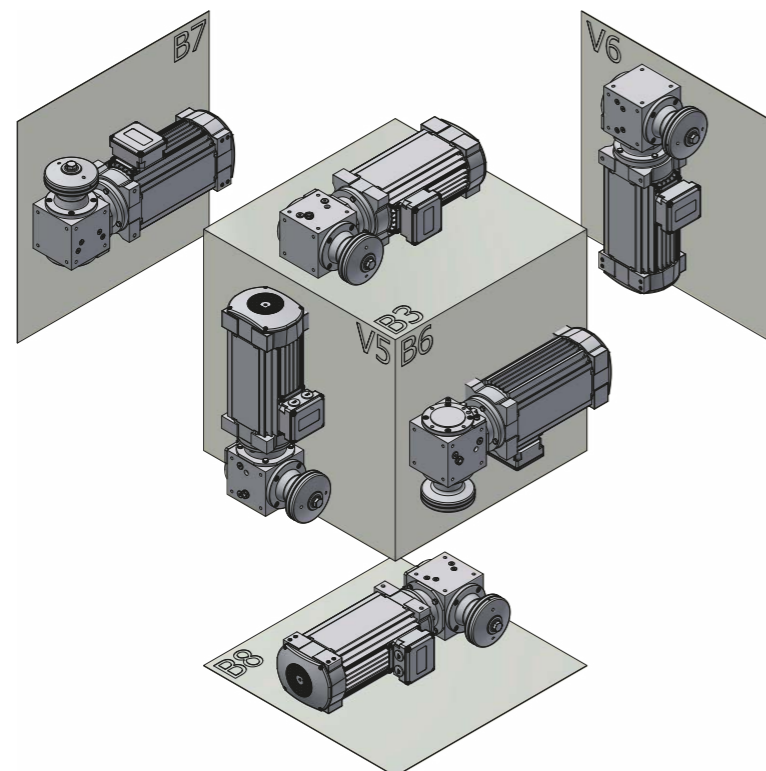
Mounting positions for electrical machines according to IEC or DIN

Position of the terminal box as an example only.
Definition of the terminal box position see right



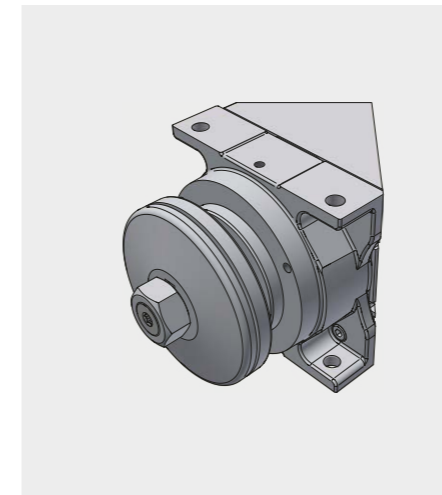
Mounting position with angle gear

Position of the gear unit as an example only. Position of the gear units see respective flat motor overview

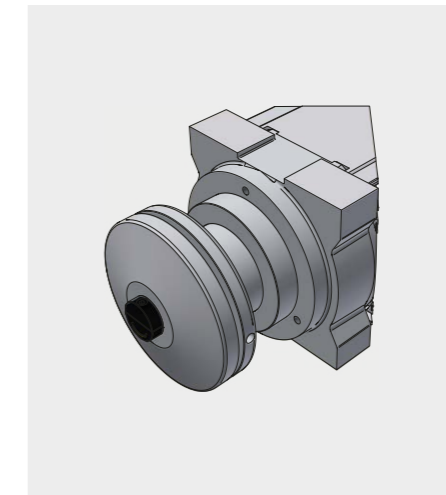


TECHNICAL NOTES

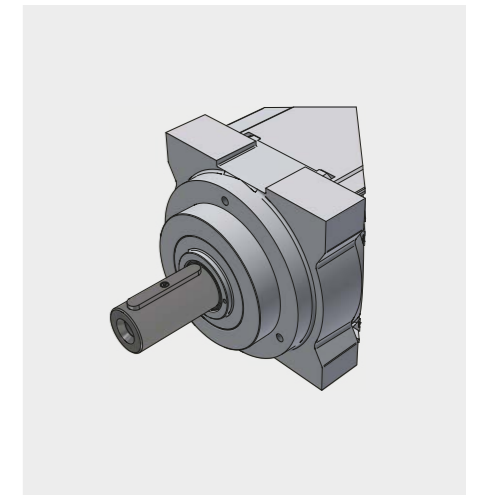
Output variants



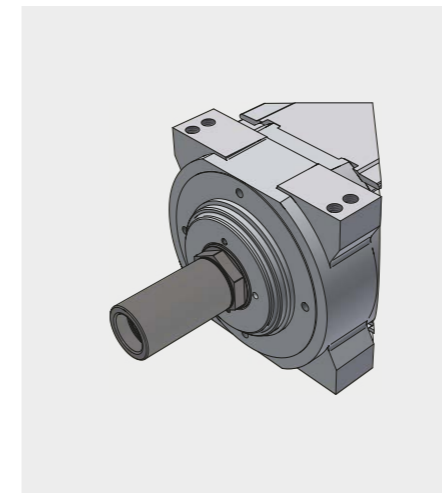
FLANGE DISK



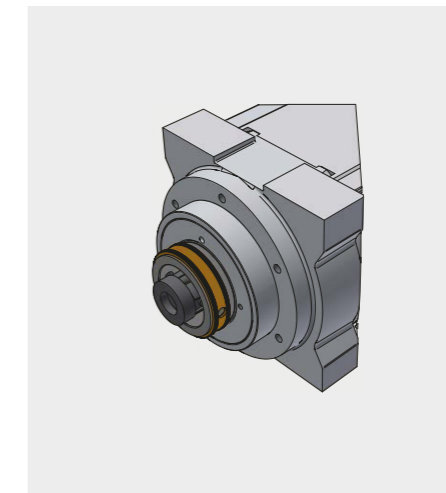
FLANGED DISK WITH QUICK CHANGE CLAMPING SYSTEM



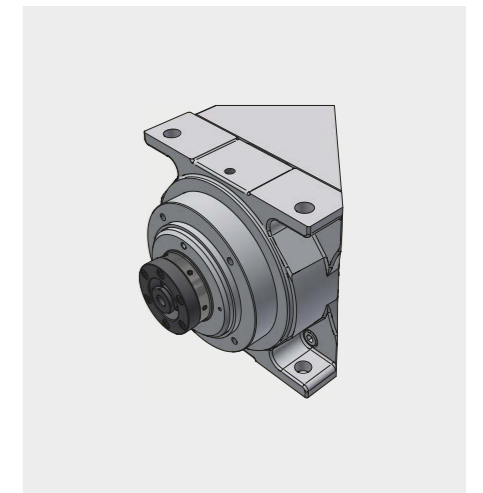
SHAFT WITH KEY



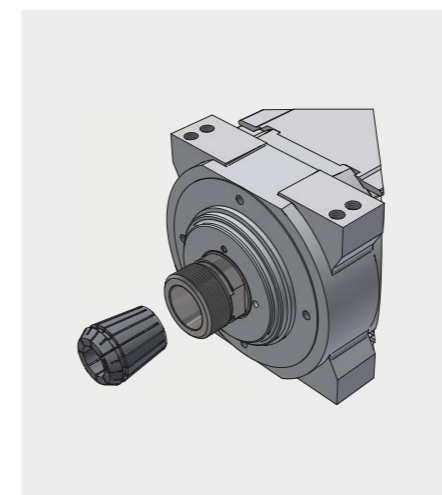
HYDRO-FORMAT-SYSTEM



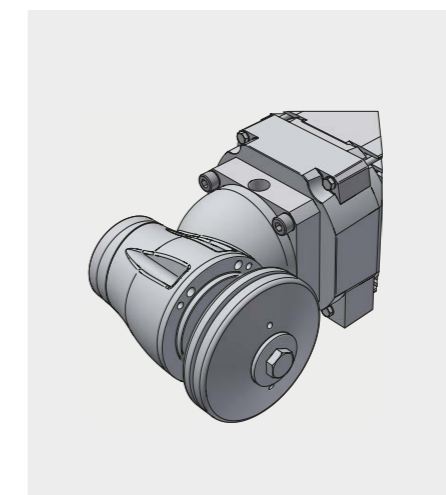
HSK MANUAL CLAMPING SYSTEM



HSK AUTOMATIC CLAMPING SYSTEM



COLLET



ANGULAR GEAR

TECHNICAL NOTES

Electrical connection variants

K55	1	2	3	4	5	6
	Plastic	Aluminium	Elbow fitting	Plug design		Plastic
	2x M20x1,5	2x M20x1,5	1x M20x1,5	-		With capacitor
					-	-

K62	1	2	3	4	5	6
	Plastic	Aluminium	Elbow fitting	Plug design		Plastic
	2x M20x1,5	2x M20x1,5	1x M20x1,5	-		With capacitor

K75	1	2	3	4	5	6
	Plastic	Aluminium	Elbow fitting	Plug design		Plastic
	2x M25x1,5	2x M25x1,5 or 2x M32x1,5	1x M20x1,5	-		-
			-	-	-	

TECHNICAL NOTES

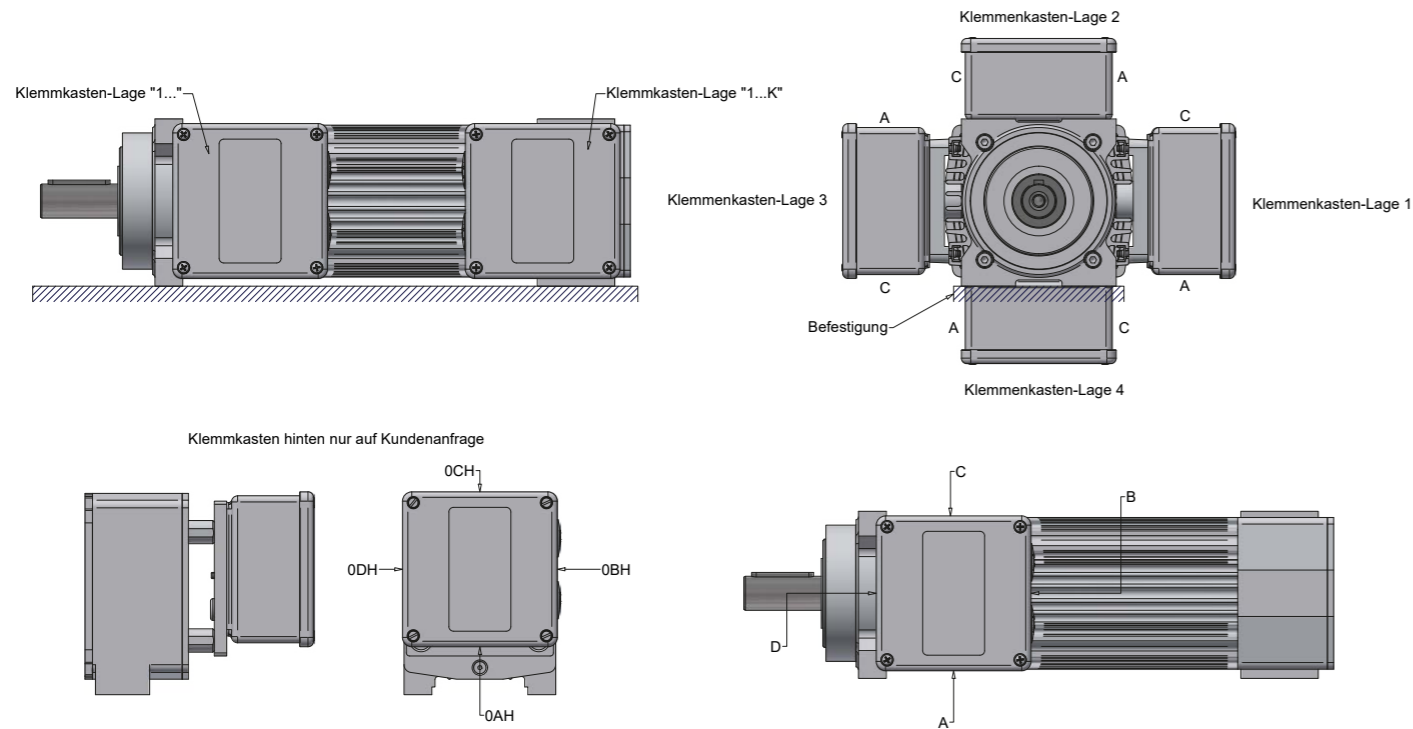
Electrical connection variants

K90	1	2	3	4	5	6
	Plastic	Aluminium	Elbow fitting	Plug design		Plastic
	-	2x M40x1,5 or 2x M32x1,5	-	-		-
-		-		-	-	-

K112	1	2	3	4	5	6
	Plastic	Aluminium	Elbow fitting	Plug design		Plastic
	-	2x M40x1,5 or 2x M32x1,5	-	-		-
-		-	-	-	-	-

K160	1	2	3	4	5	6
	Plastic	Aluminium	Elbow fitting	Plug design		Plastic
	-	2x M40x1,5	-	-		-
-		-	-	-	-	-

Definition of the terminal box and cable gland position



Explanation

The numbers 1 to 4 indicate the position of the terminal box when viewed from the output side (viewing direction "P"). The letters A to D indicate the position of the cable entry with the position of the terminal box determined by the numbers 1 to 4. For HIMMEL®-flat motors of size K55 and K62 a terminal box at the rear is possible. The marking is then made by "0...H". The suffix "K" indicates the position of the terminal box towards the ventilation side. Unless otherwise specified, the standard terminal box position is "1B".

Example

Terminal box position "3CK" defines the position as follows:

- The number 3 defines the terminal box on the left side of the motor when looking in direction P.
- The letter C defines the position of the cable entry downwards.
- The letter K defines the position of the terminal box on the fan side.

Speed tables for higher speeds

Model series	Selection table for higher speeds up to 18,000 rpm Rated power P_2 [kW]				
	50 Hz 3.000 1/min	100 Hz 6.000 1/min	150 Hz 9.000 1/min	200 Hz 12.000 1/min	300 Hz 18.000 1/min
	S1*	S1	S1	S1	S1
	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]
K55 S/ 2	0,6	1,3	1,8	2,3	3,0
K55 M/ 2	0,9	1,8	2,5	3,0	4,0
K55 L/ 2	1,1	2,4	3,5	4,0	5,0
K55 XL/ 2	1,2	2,7	4,0	4,5	-
K62 S/ 2	1,1	1,8	2,0	2,1	3,5
K62 M/ 2	1,5	2,4	2,6	2,7	4,5
K62 L/ 2	2,0	3,0	3,3	3,5	6,0
K62 XL/ 2	3,0	4,6	5,1	5,4	8,5
K75 S/ 2	3,0	5,0	5,3	5,6	
K75 SB/ 2	3,7	5,9	6,3	6,7	
K75 SP/ 2	4,0	6,1	6,6	7,0	
K75 M/ 2	4,5	8,0	8,5	9,0	
K75 MB/ 2	6,0	11,0	11,5	12,2	
K75 L/ 2	7,5	13,0	13,7	14,5	
K75 LB/ 2	8,8	15,5	-		
K75 LP/ 2	10,0	17,5	-		
K75 XL/ 2	14,0	24,0	-		
K90 S/ 2	7,0	14,0	19,0		
K90 M/ 2	10,0	20,0	27,0		
K90 MB/ 2	12,0	24,0	31,0		
K90 L/ 2	15,0	30,0			
K90 XL/ 2	18,0	36,0			
K112 S/ 2	12,5	20,0			
K112 SB/ 2	18,5	30,0			
K112 M/ 2	22,0	37,0			
K112 L/ 2	30,0	50,0			
K112 XL/ 2	37,0	60,0			
K160 S/ 2	45,0	74,0			
K160 M/ 2	55,0	90,0			
K160 L/ 2	65,0	107,0			
K160 XL/ 2	75,0	123,0			

* Power specification for motors which are not subject to mandatory marking, e.g. motors in potentially explosive atmospheres,

or brake motors, frequency-controlled or pole-changing motors. Others on request.

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| MODEL SERIES K55

MODEL SERIES K55

Performance overview

Table data refer to: Synchronous rotational speed 3.000 1/min, motor voltage: 3-phase 400V / 50Hz

Synchronous Rotational speed 1/min	Model series	Nominal power P_2 [kW]					
		S1*		S6-60%		S6-40%	
		P_2 [kW]	I_n [A]	P_2 [kW]	I_n [A]	P_2 [kW]	I_n [A]
3.000	K55 S/ 2	0,6	1,6	0,7	1,8	0,8	2,0
	K55 M/ 2	0,9	2,2	1,0	2,4	1,1	2,6
	K55 L/ 2	1,1	2,5	1,3	3,0	1,4	3,3
	K55 XL/ 2	1,2	2,7	1,5	3,4	1,7	4,1

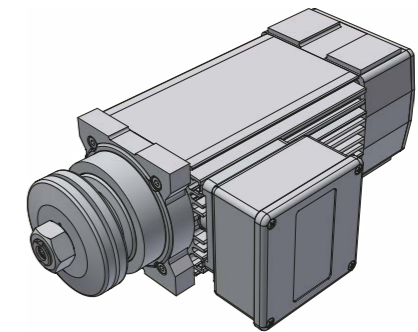
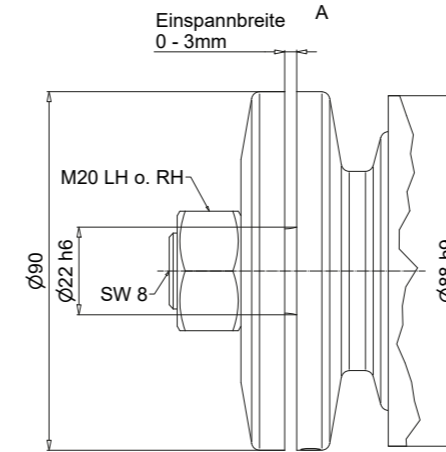
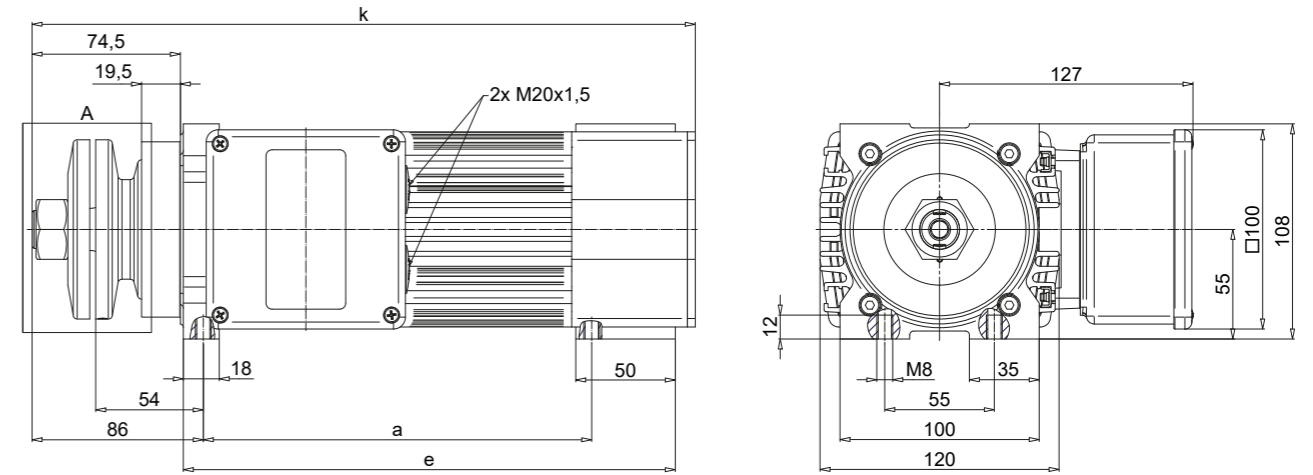
* Power rating for engines that are not subject to mandatory labeling. Others on request.

Performances for higher speeds

Model series	Selection table for higher speeds up to 18.000 1/min			
	Nominal power P_2 [kW]			
	100 Hz 6.000 1/min	150 Hz 9.000 1/min	200 Hz 12.000 1/min	300 Hz 18.000 1/min
	S1	S1	S1	S1
	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]
K55 S/ 2	1,3	1,8	2,3	3,0
K55 M/ 2	1,8	2,5	3,0	4,0
K55 L/ 2	2,4	3,5	4,0	5,0
K55 XL/ 2	2,7	4,0	4,5	-

MODEL SERIES K55

Flat motor K55.01 with flange disk, Single bearing on output side

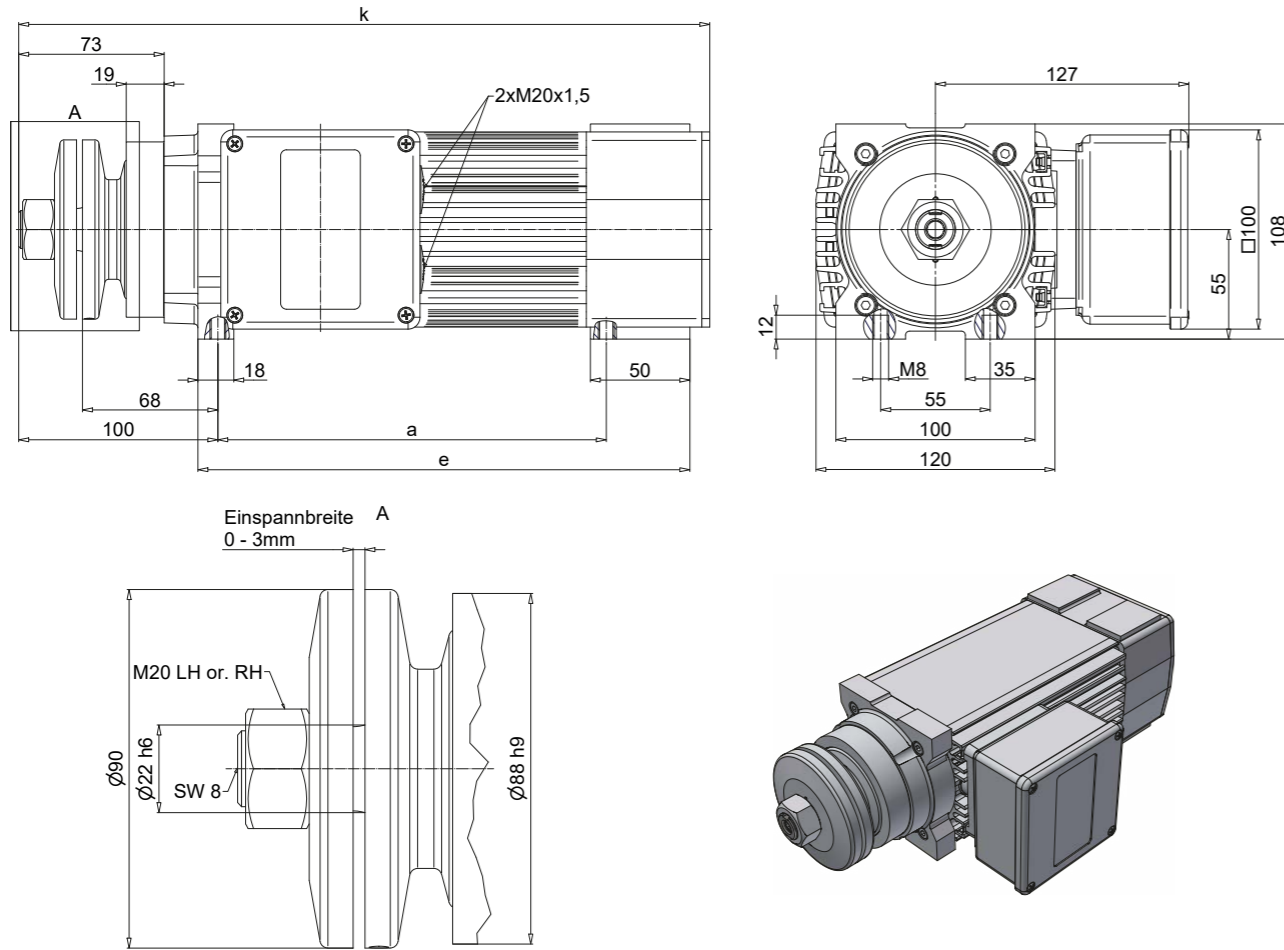


Dimensions [mm]	without brake		with brake	
Type	a	e	k	k
K55 - S	195	247	333	375
K55 - M	195	247	333	375
K55 - L	225	277	363	405
K55 - XL	245	297	383	425

Execution	Dimension sheet
without brake	1NJ000939
with brake	1NJ001117

MODEL SERIES K55

Flat motor K55.01 with flange disk,
Double bearing on output side

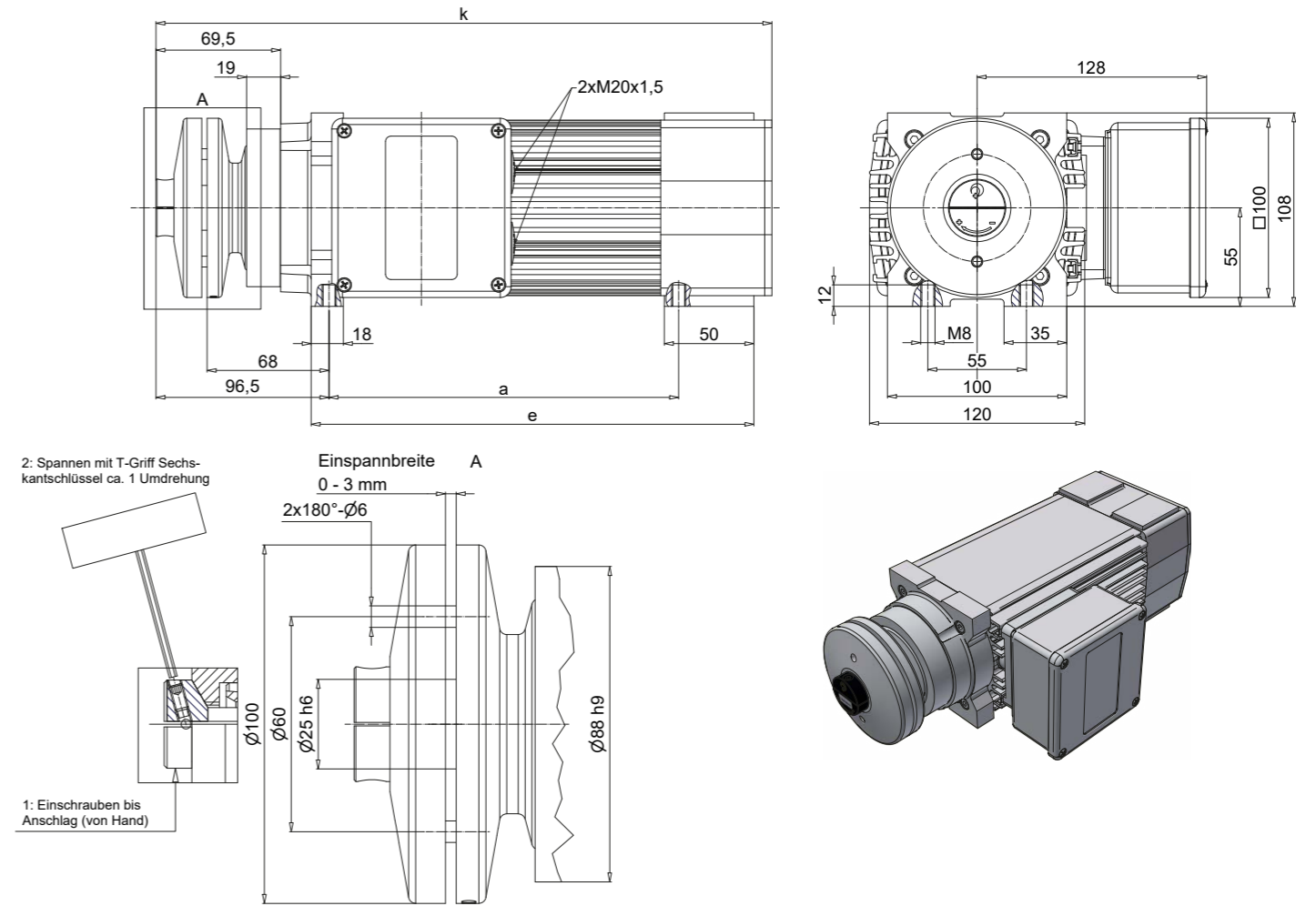


Dimensions [mm]			without brake	with brake
Type	a	e	k	k
K55 - S	195	247	347	389
K55 - M	195	247	347	389
K55 - L	225	277	377	419
K55 - XL	245	297	397	439

Execution	Dimension sheet
without brake	1NJ004524
with brake	1NJ001129

MODEL SERIES K55

K55 flat motor with quick-change clamping system



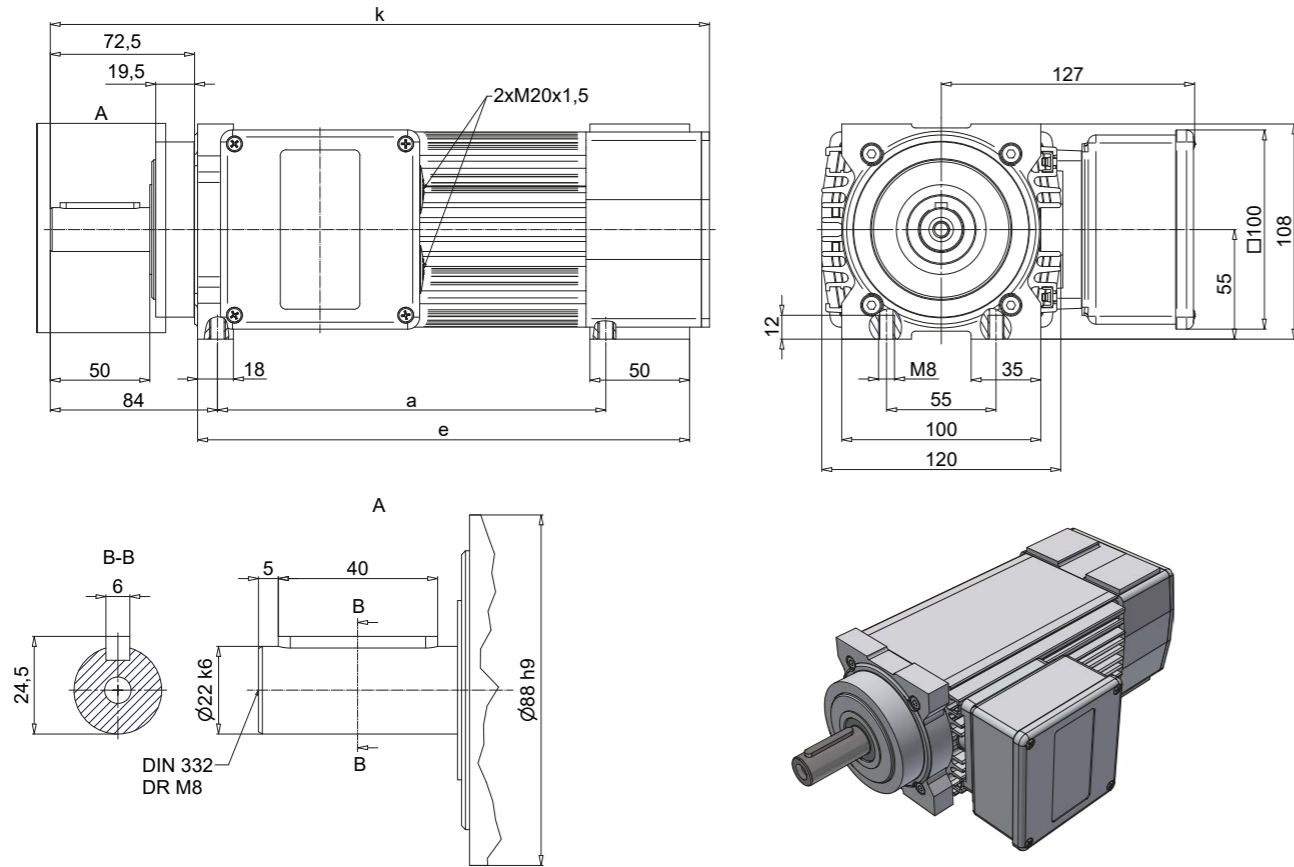
Right-left rotation possible

Dimensions [mm]			without brake	with brake
Type	a	e	k	k
K55 - S	195	247	345	387
K55 - M	195	247	345	387
K55 - L	225	277	375	417
K55 - XL	245	297	395	437

Execution	Dimension sheet
without brake	1NJ003930
with brake	1NJ004480

MODEL SERIES K55

Flat motor KF55.01 Shaft, Single bearing

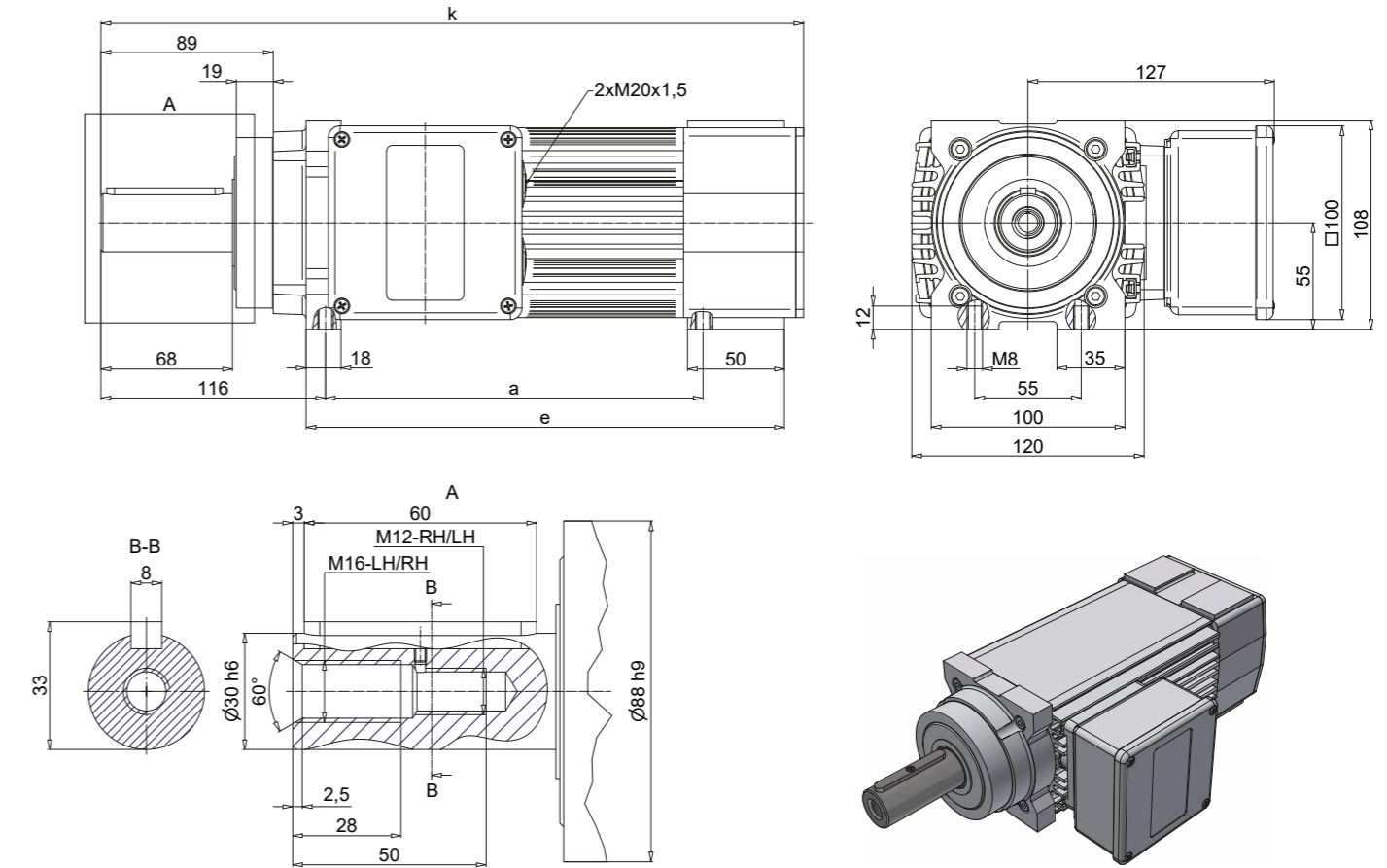


Dimensions [mm]			without brake	with brake
Type	a	e	k	k
KF55 - S	195	247	331	373
KF55 - M	195	247	331	373
KF55 - L	225	277	361	403
KF55 - XL	245	297	381	423

Execution	Dimension sheet
without brake	1NJ000937
with brake	1NJ001116

MODEL SERIES K55

Flat motor KF55.01 Shaft, Double/spindle bearing

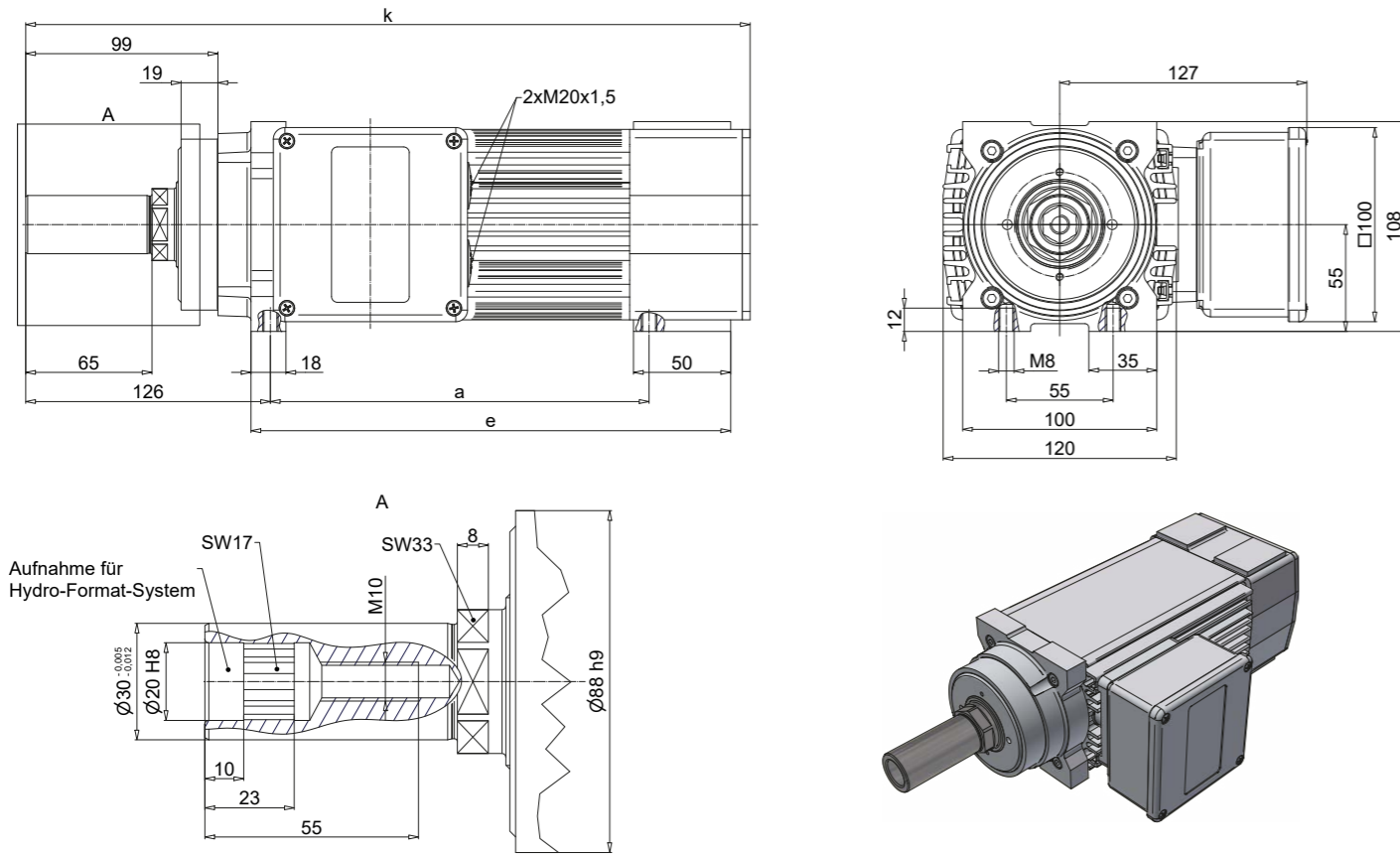


Dimensions [mm]			without brake	with brake
Type	a	e	k	k
KF55 - S	195	247	363	405
KF55 - M	195	247	363	405
KF55 - L	225	277	393	435
KF55 - XL	245	297	413	455

Execution	Dimension sheet
without brake	1NJ000945
with brake	1NJ004476

MODEL SERIES K55

K55 flat motor with adapter for Hydro-Format-System

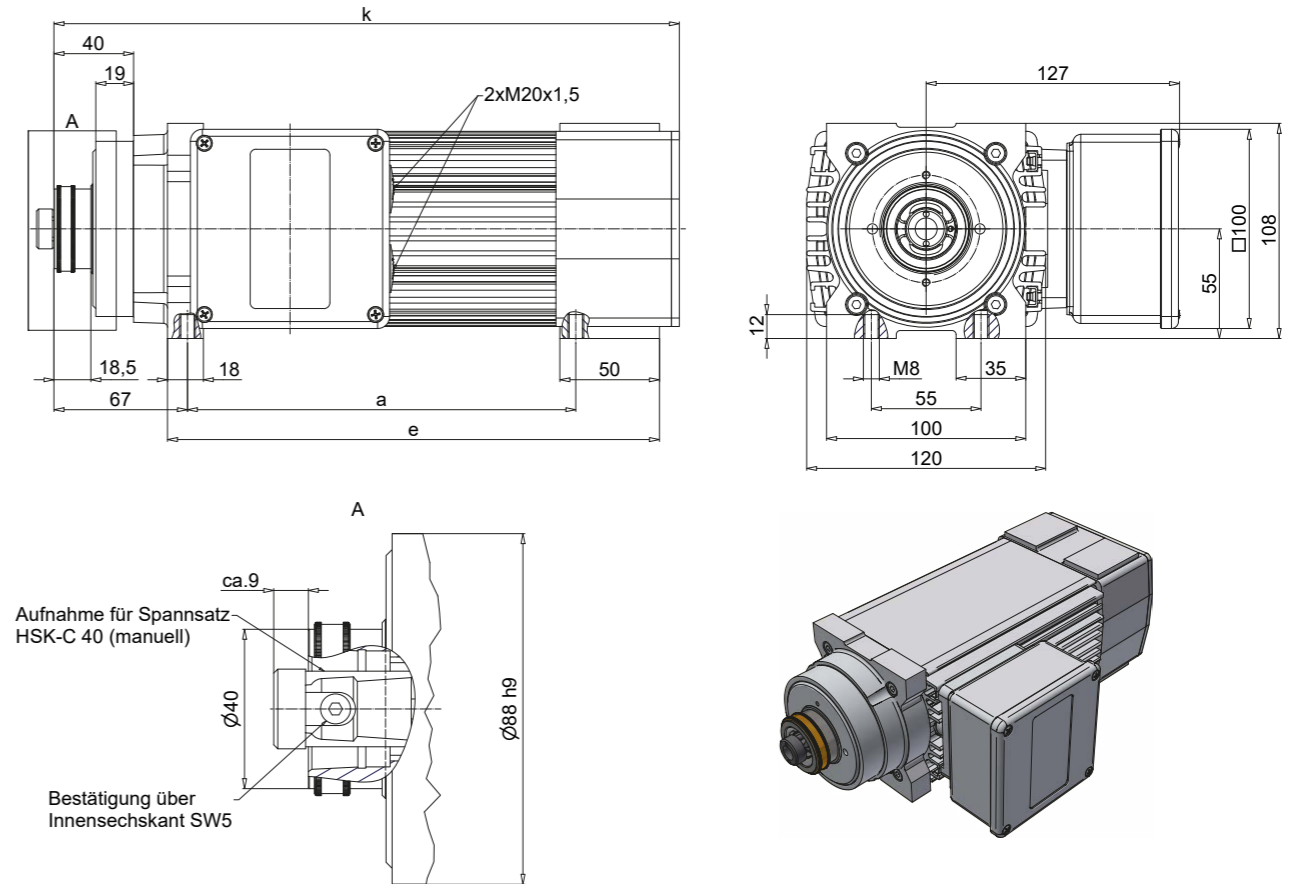


Dimensions [mm]			without brake	with brake
Type	a	e	k	k
K55 - S	195	247	373	415
K55 - M	195	247	373	415
K55 - L	225	277	403	445
K55 - XL	245	297	423	465

Execution	Dimension sheet
without brake	1NJ003910
with brake	1NJ004481

MODEL SERIES K55

K55 flat motor with HSK-C 40 adapter

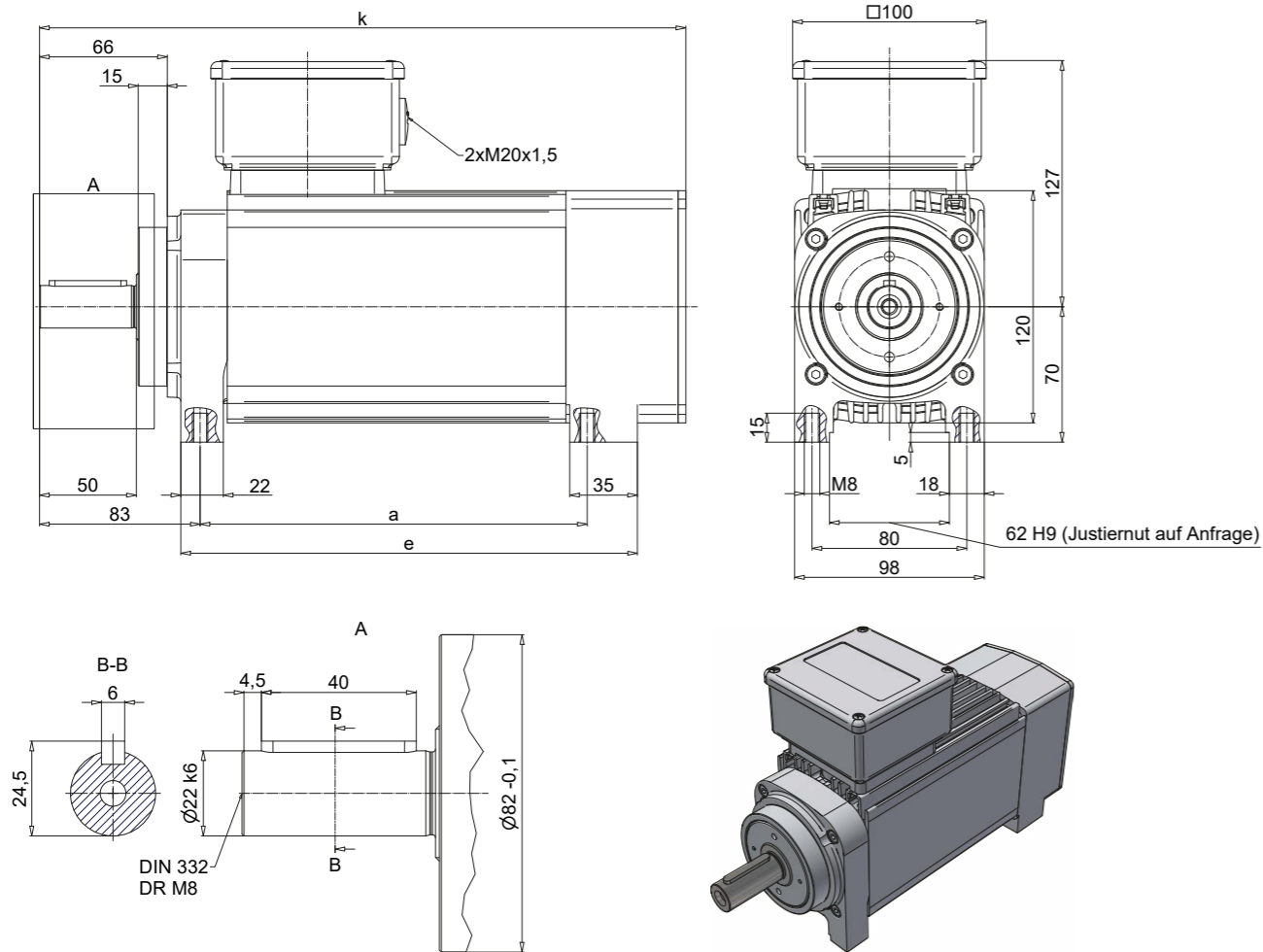


Dimensions [mm]			without brake	with brake
Type	a	e	k	k
KH55 - S	195	247	314	356
KH55 - M	195	247	314	356
KH55 - L	225	277	344	386
KH55 - XL	245	297	364	406

Execution	Dimension sheet
without brake	1NJ000845
with brake	1NJ004478

MODEL SERIES K55

Flat motor KH55.01 Standard shaft, edgewise,
Single bearing on output side

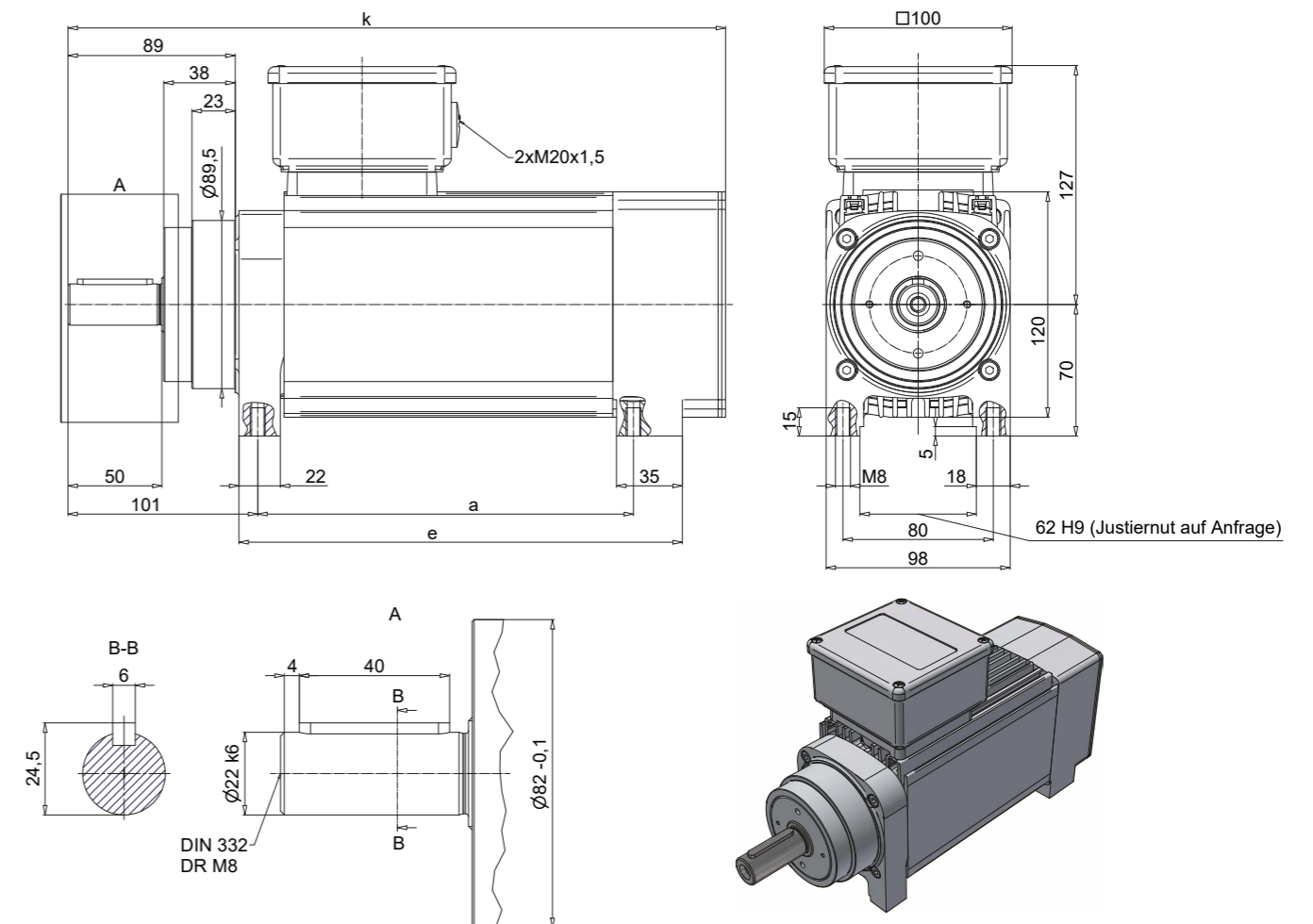


Dimensions [mm]			without brake	with brake
Type	a	e	k	k
KH55-S	200	236	334	374
KH55-M	200	236	334	374
KH55-L	230	266	364	404
K55-XL	250	286	384	424

Execution	Dimension sheet
without brake	1NJ000885
with brake	1NJ000914

MODEL SERIES K55

Flat motor KH55.01 Standard shaft, edgewise,
double bearing on output side



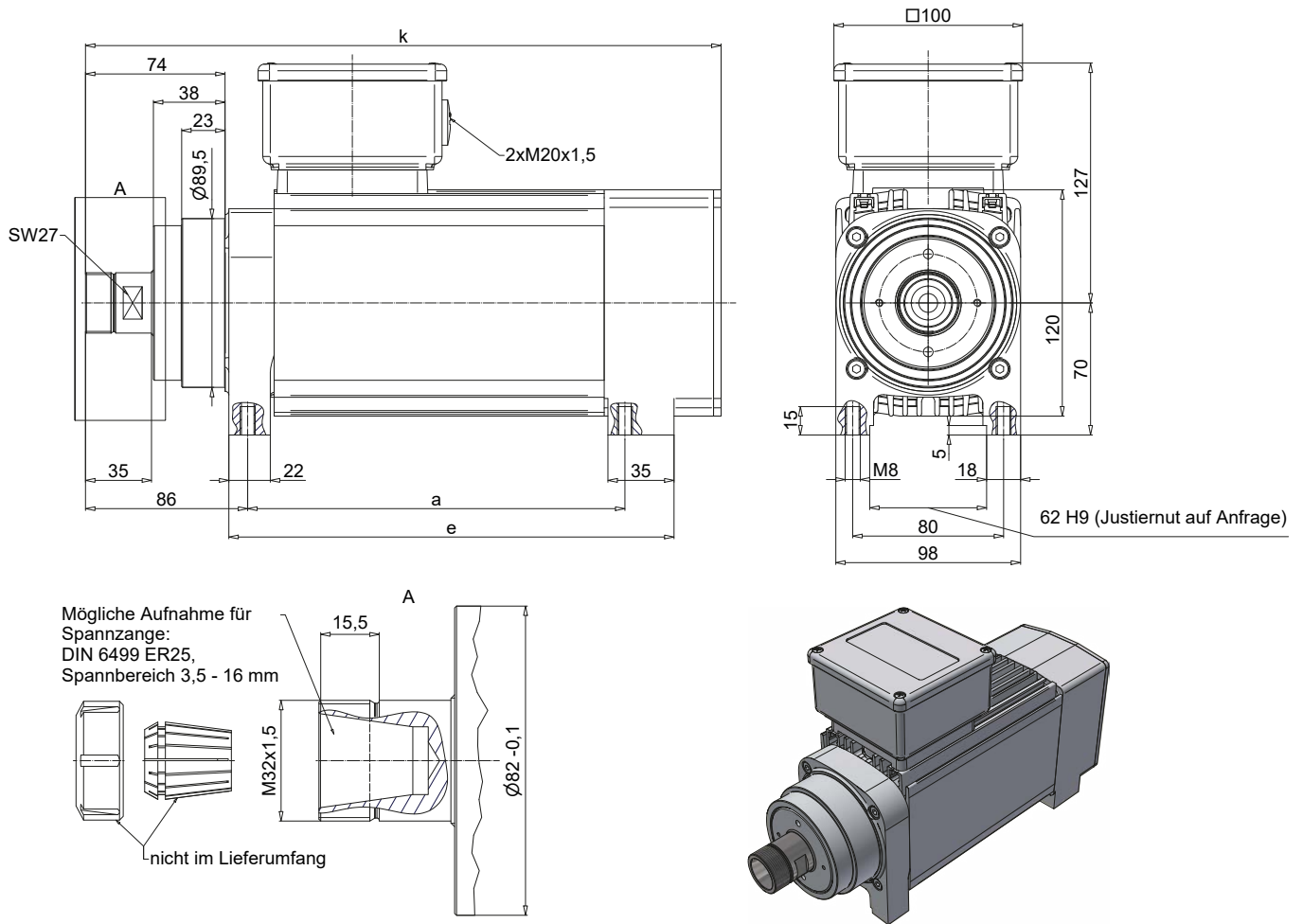
Dimensions [mm]			without brake	with brake
Type	a	e	k	k
KH55 - S	200	236	352	388
KH55 - M	200	236	352	388
KH55 - L	230	266	382	418
KH55 - XL	250	286	402	438

Execution	Dimension sheet
without brake	1NJ000825
with brake	1NJ001132

MODEL SERIES K55



Flat motor KC55.01 with adapter for collet, edgewise

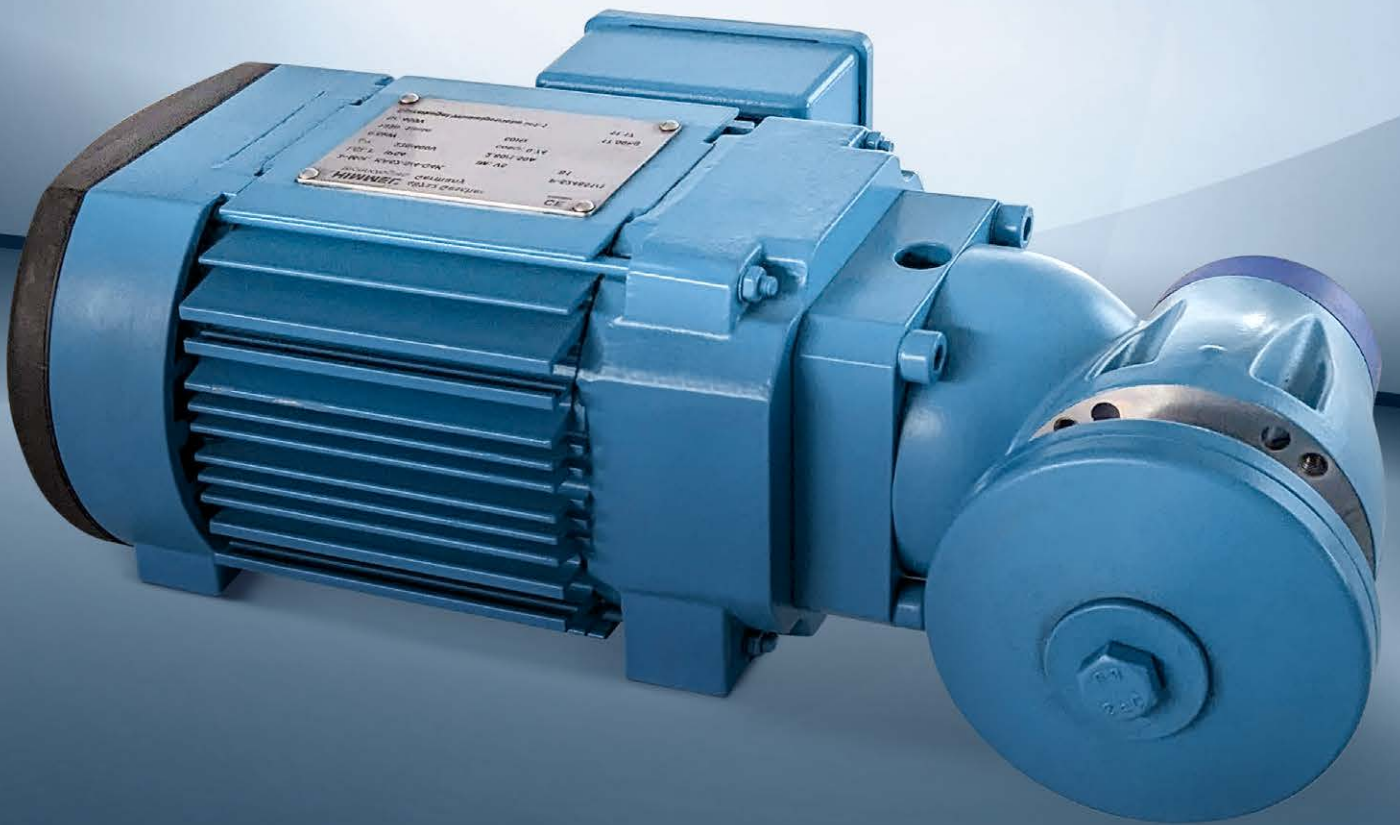


Dimensions [mm]			without brake	with brake
Type	a	e	k	k
KC55 - S	200	236	337	377
KC55 - M	200	236	337	377
KC55 - L	230	266	367	407
KC55 - XL	250	286	387	427

Execution	Dimension sheet
without brake	1NJ000828
with brake	1NJ004477

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MODEL SERIES K62

MODEL SERIES K62

Performance overview

Table data refer to: Synchronous speed 3.000 / 1.500 1/min,
Motor voltage: 3-Phase 400V / 50Hz

Synchronous Speed 1/min	Model series	Nominal power P ₂ [kW]					
		S1*		S6-60 %		S6-40 %	
		P ₂ [kW]	I _n [A]	P ₂ [kW]	I _n [A]	P ₂ [kW]	I _n [A]
3.000	K62 S/ 2	1,1	2,85	1,5	3,4	1,75	4,1
	K62 M/ 2	1,5	3,4	1,85	4,1	2,2	5,2
	K62 L/ 2	2,0	4,75	2,5	5,5	3,0	6,4
	K62 XL/ 2	3,0	6,5	4,0	8,3	5,0	10,5
1.500	K62 S/ 4	0,5	1,5	0,6	1,8	0,65	2,0
	K62 M/ 4	0,65	1,9	0,75	2,2	0,85	2,6
	K62 L/ 4	0,85	2,5	1,0	2,9	1,1	3,4
	K62 XL/ 4	1,3	3,9	1,5	4,5	1,6	4,9

* Power rating for engines that are not subject to mandatory labeling. Others on request.

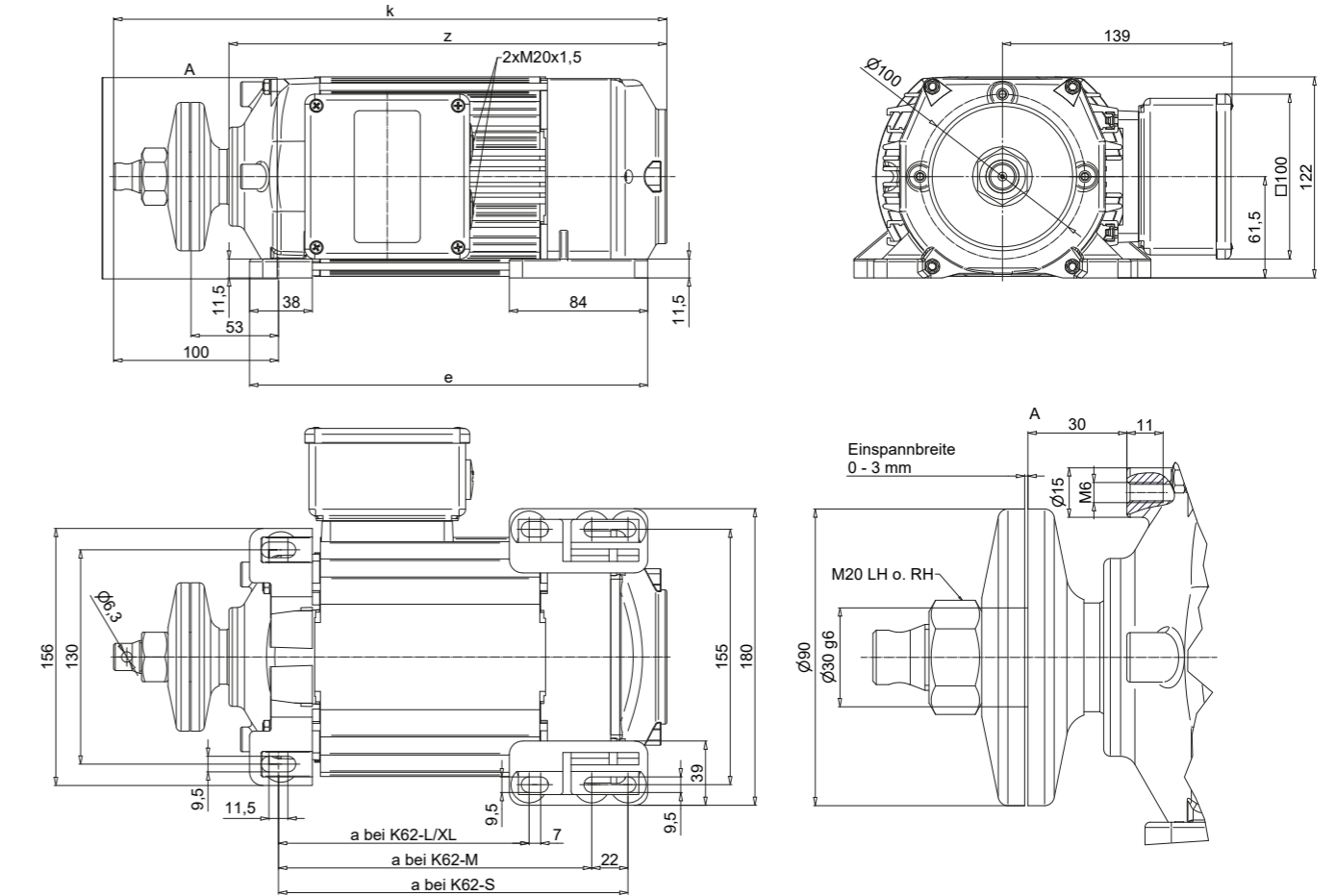
	Single-phase motors						
		S1		S6-60 %		S6-40 %	
		P ₂ [kW]	I _n [A]	P ₂ [kW]	I _n [A]	P ₂ [kW]	I _n [A]
3.000	KB62 S/2	Not standard				1,5	10,0
	KB62 M/2	Not standard				1,7	11,0
	KB62 L/2	Not standard				2,2	14,0

Performances for higher speeds

Model series	Selection table for higher speeds up to 18.000 1/min			
	Nominal power P ₂ [kW]			
	100 Hz 6.000 1/min	150 Hz 9.000 1/min	200 Hz 12.000 1/min	300 Hz 18.000 1/min
	S1	S1	S1	S1
	P ₂ [kW]	P ₂ [kW]	P ₂ [kW]	P ₂ [kW]
K62 S/ 2	1,8	2,0	2,1	3,5
K62 M/ 2	2,4	2,6	2,7	4,5
K62 L/ 2	3,0	3,3	3,5	6,0
K62 XL/ 2	4,6	5,1	5,4	8,5

MODEL SERIES K62

Flat motor KL62 with flange disk

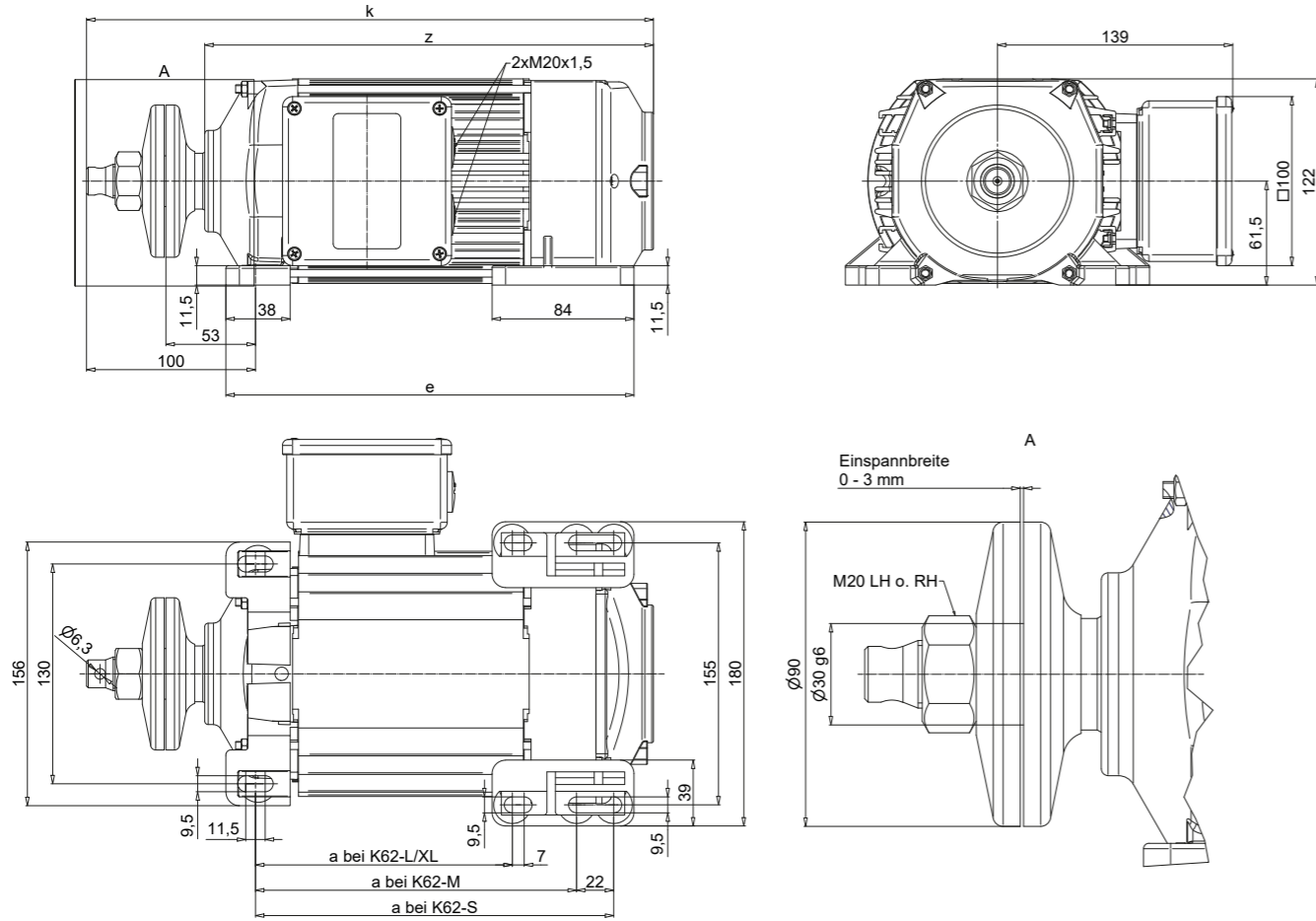


Dimensions [mm]	without brake		with brake G4K		with brake M7K	
	a	e	k	z	k	z
Type						
KL62 - S	190	220	314	244	323	253
KL62 - M	190	242	336	266	345	275
KL62 - L	190	280	374	304	383	313
KL62 - XL	270	360	454	384	463	393

Execution	Dimension sheet
without brake	1NJ100000000095
with brake	

MODEL SERIES K62

Flat motor KS62 with flange disk

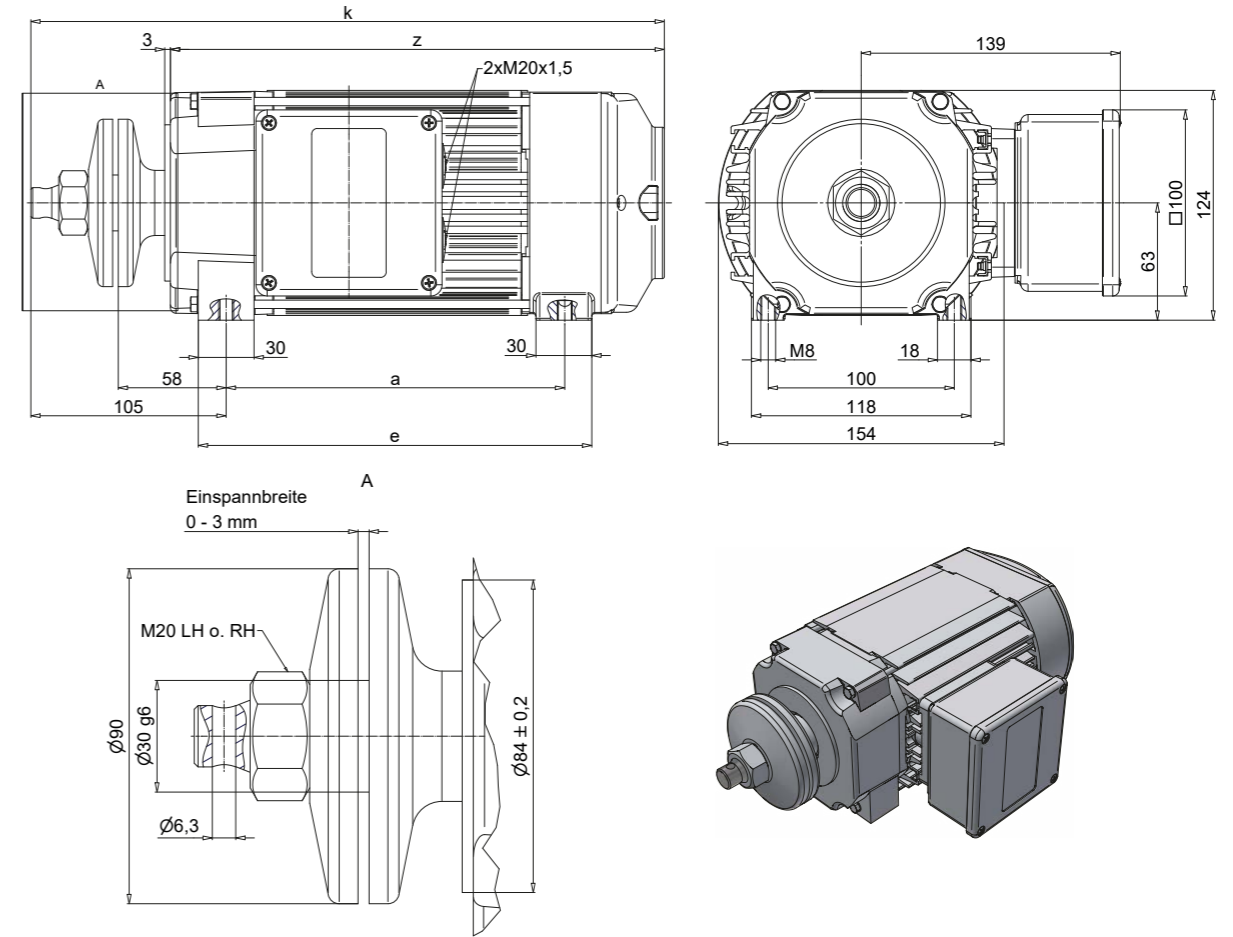


Dimensions [mm]			without brake		with brake G4K		with brake M7K	
Type	a	e	k	z	k	z	k	z
KS62 - S	190	220	314	244	323	253	359	289
KS62 - M	190	242	336	266	345	275	381	311
KS62 - L	190	280	374	304	383	313	419	349
KS62 - XL	270	360	454	384	463	393	499	429

Execution	Dimension sheet
without brake	1NJ100000000096
with brake	

MODEL SERIES K62

K62 flat motor with flange disk

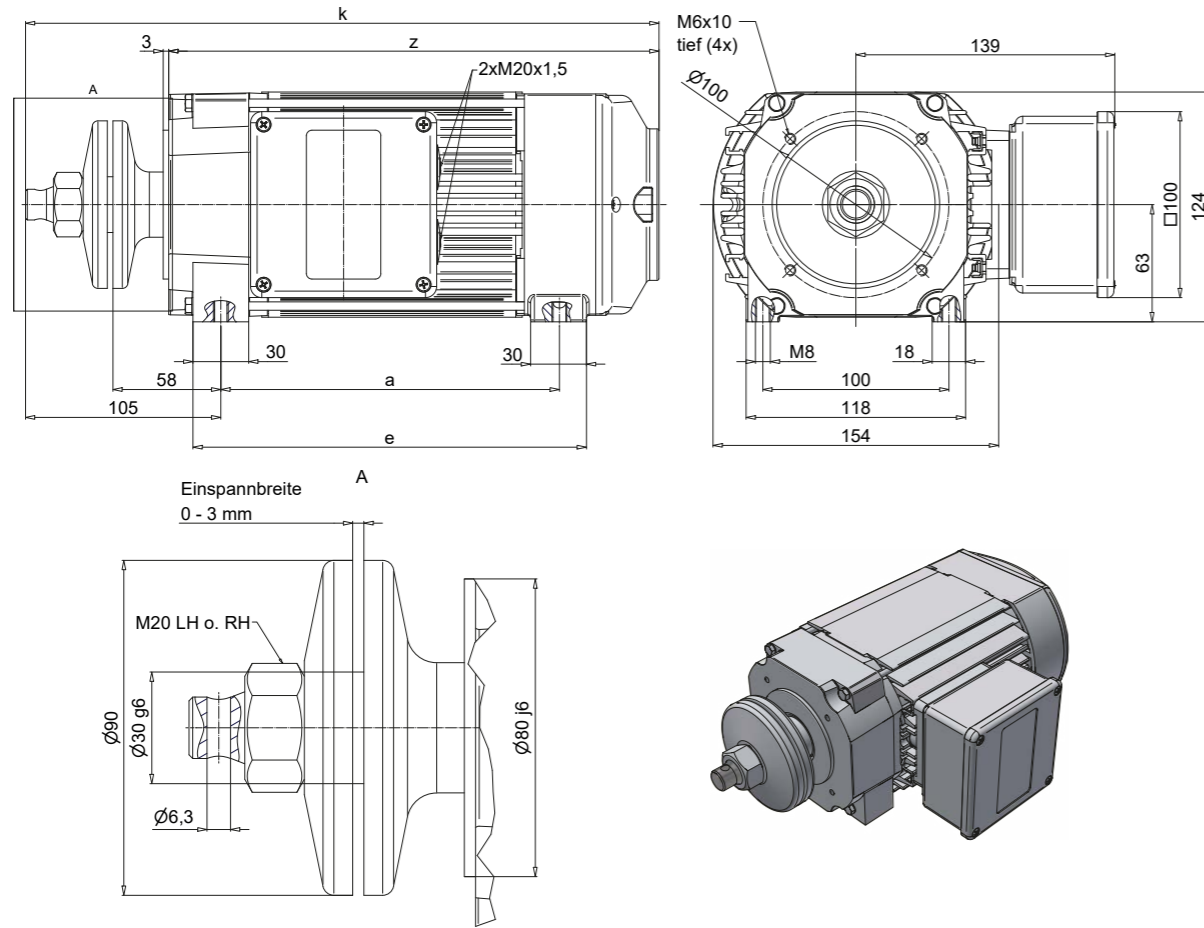


Dimensions [mm]			without brake		with brake G4K		with brake M7K	
Type	a	e	k	z	k	z	k	z
K62 - S	160	190	319	247	328	256	361	289
K62 - M	182	212	341	269	350	278	383	311
K62 - L	220	250	379	307	388	316	421	349
K62 - XL	300	330	459	387	468	396	501	429

Execution	Dimension sheet
without brake	1NJ100000000093
with brake	

MODEL SERIES K62

Flat motor KA62 with flange disk

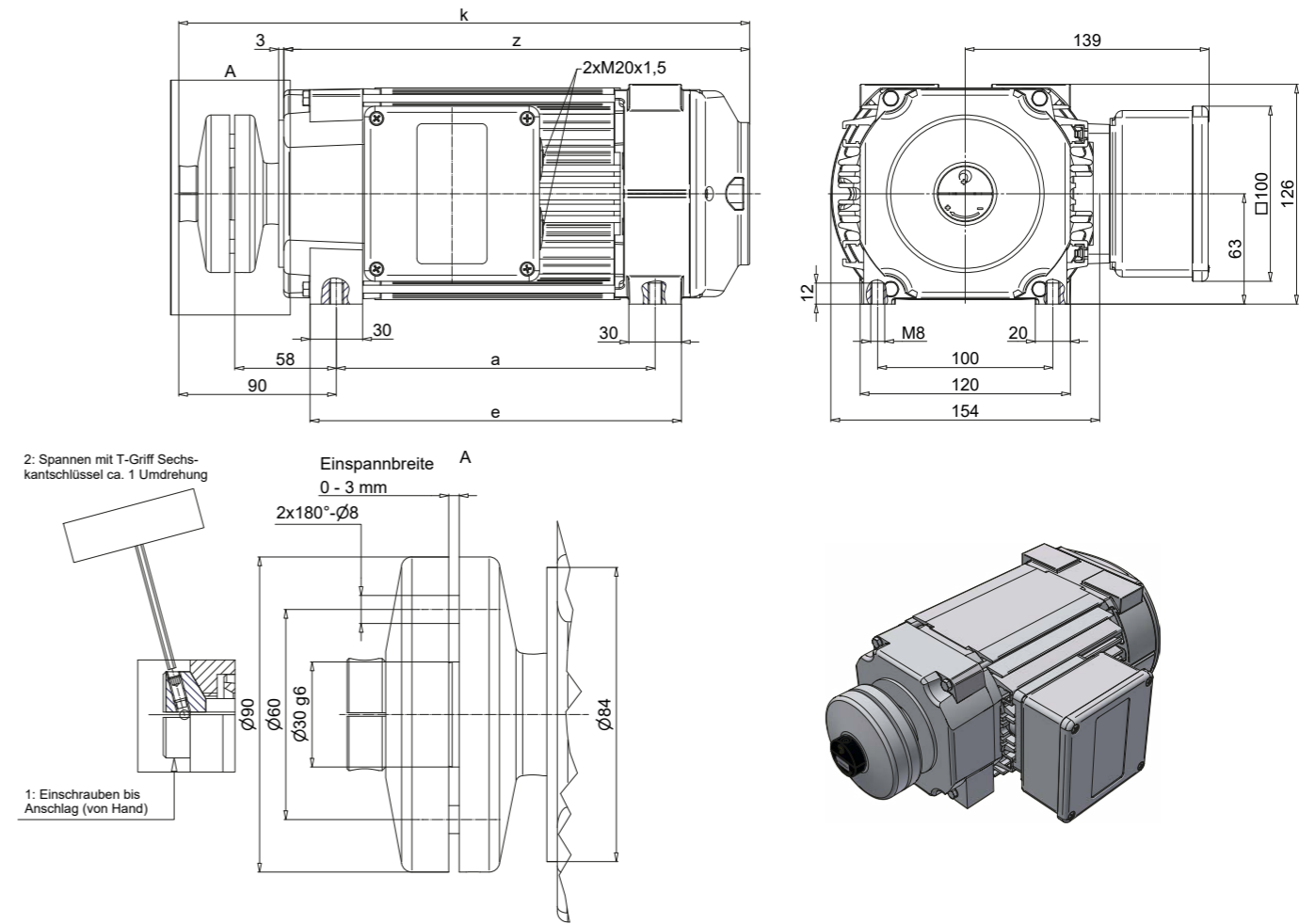


Dimensions [mm]			without brake		with brake G4K		with brake M7K	
Type	a	e	k	z	k	z	k	z
KA62 - S	160	190	319	242	328	251	361	284
KA62 - M	182	212	341	264	350	273	383	306
KA62 - L	220	250	379	302	388	311	421	344
KA62 - XL	300	330	459	382	468	391	501	424

Execution	Dimension sheet
without brake	1NJ100000000094
with brake	

MODEL SERIES K62

K62 flat motor with quick-change clamping system



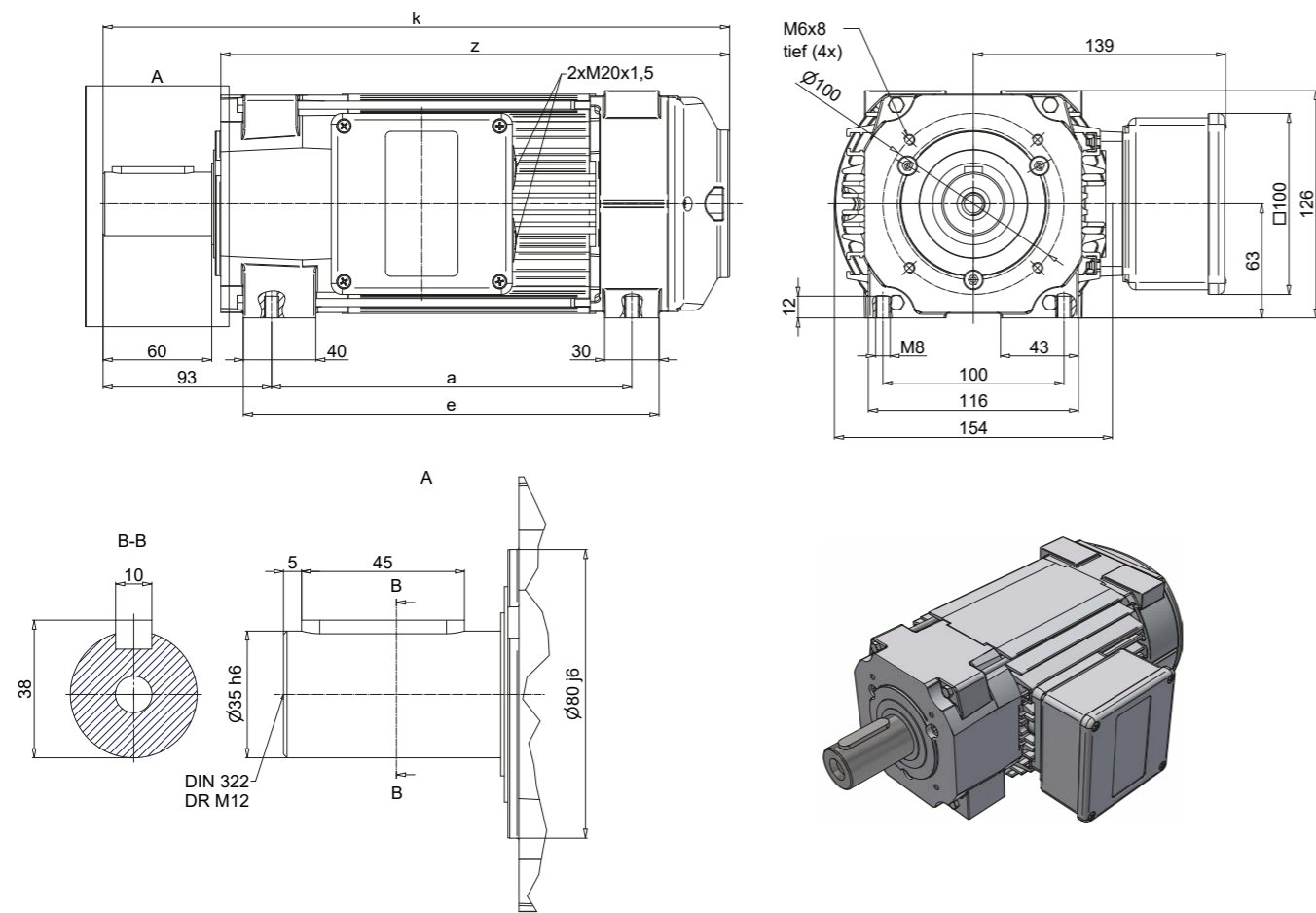
Right-left rotation possible

Dimensions [mm]			without brake		with brake M7K	
Type	a	e	k	z	k	z
K62 - S	160	190	304	247	345	290
K62 - M	182	212	326	269	367	312
K62 - L	220	250	364	307	405	350
K62 - XL	300	330	444	387	485	430

Execution	Dimension sheet
without brake	1NJ0000036
with brake	1NJ100000000902

MODEL SERIES K62

Flat motor KF62 standard shaft, Double bearing

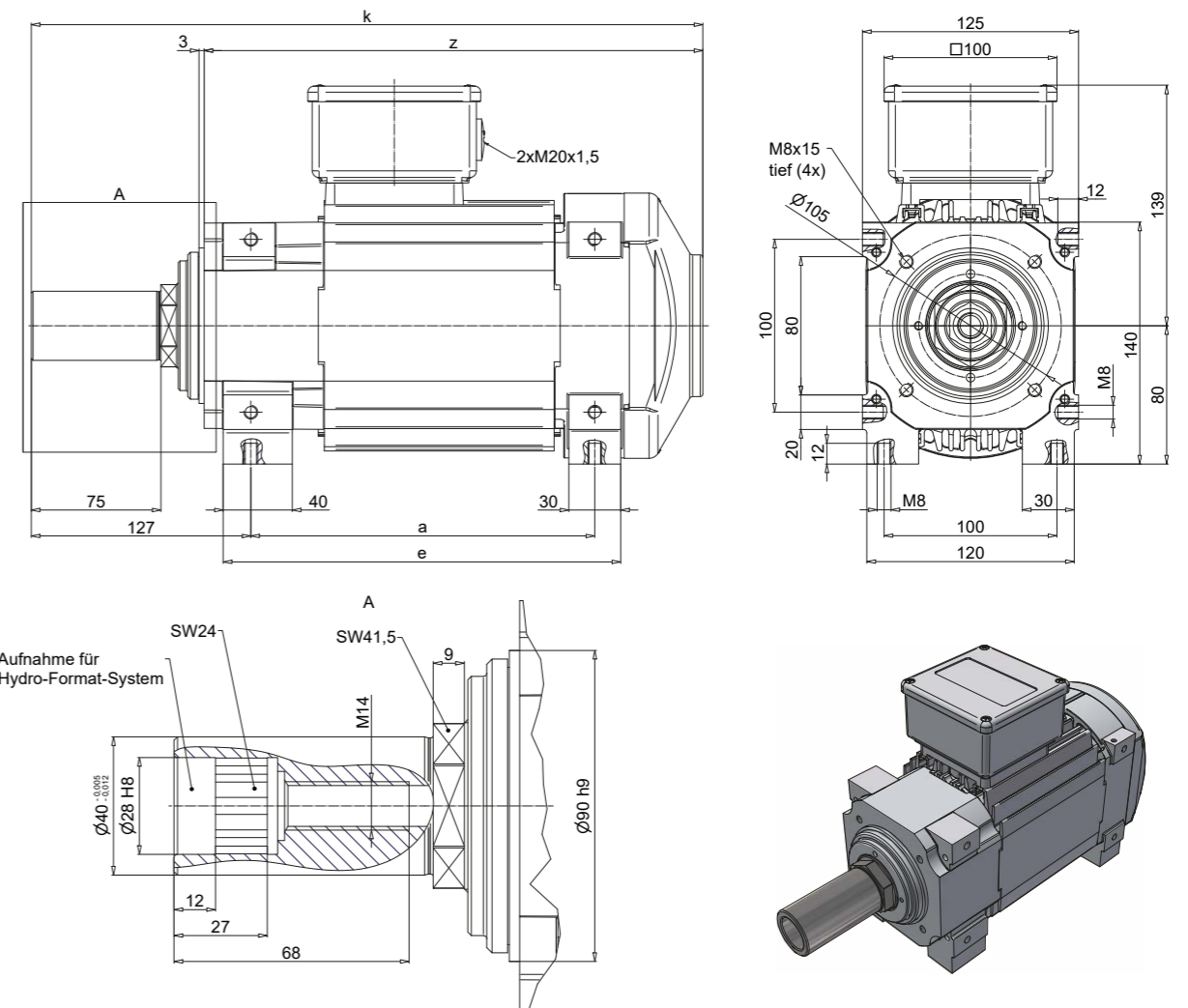


Dimensions [mm]			without brake		with brake G4K		with brake M7K	
Type	a	e	k	z	k	z	k	z
KF62 - S	177	207	324	259	333	268	367	302
KF62 - M	199	229	346	281	355	290	389	324
KF62 - L	237	267	384	319	393	328	427	362
KF62 - XL	317	347	464	399	473	408	507	442

Execution	Dimension sheet
without brake	1NJ100000000097
with brake	

MODEL SERIES K62

K62 flat motor with Hydro-Format-System

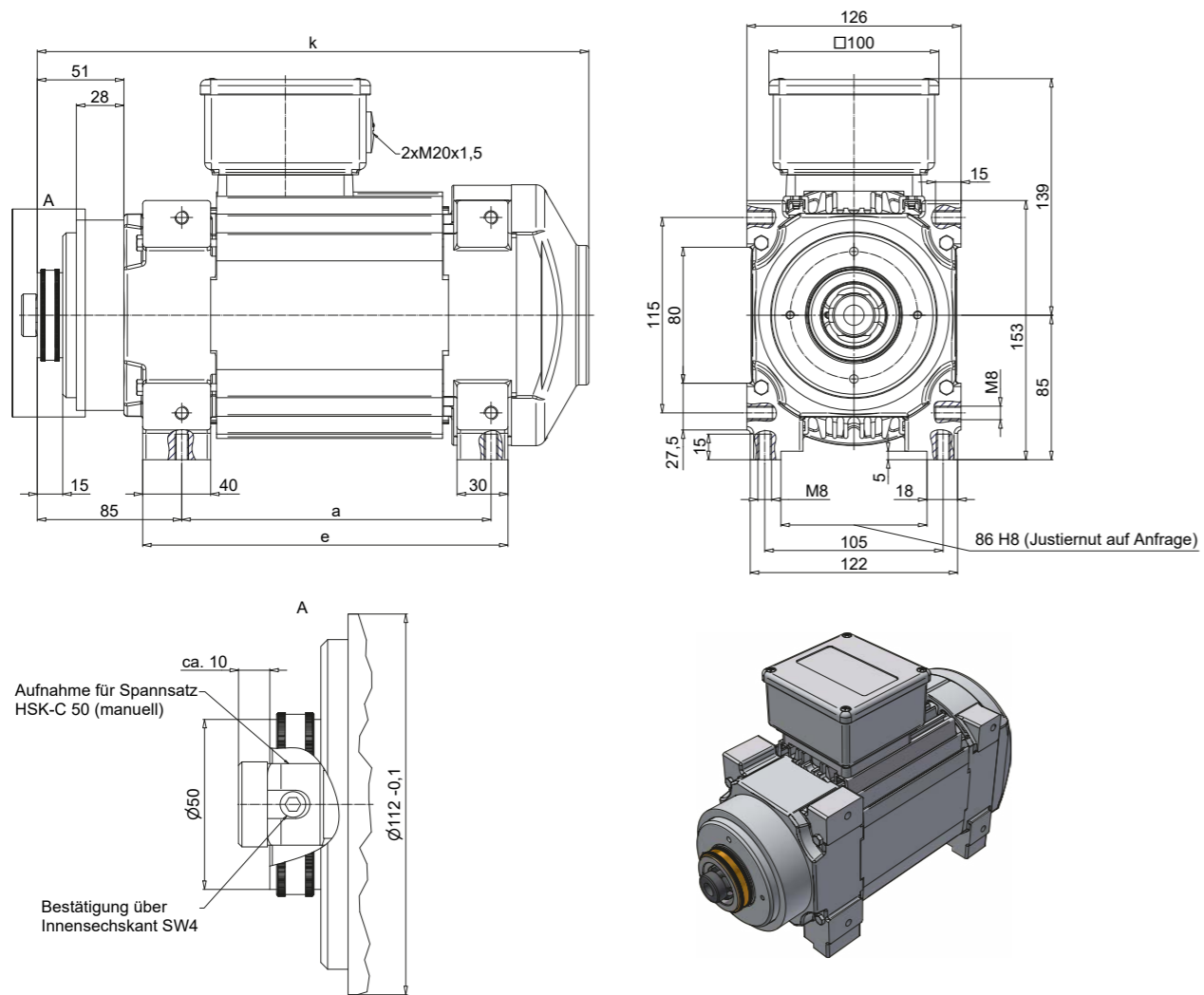


Dimensions [mm]			without brake	
Type	a	e	k	z
KF62 - S	177	208	367	267
KF62 - M	199	230	389	289
KF62 - L	237	268	427	327
KF62 - XL	317	348	507	407

Execution	Dimension sheet
without brake	1NJ001322

MODEL SERIES K62

K62 flat motor with HSK-C 50 adapter

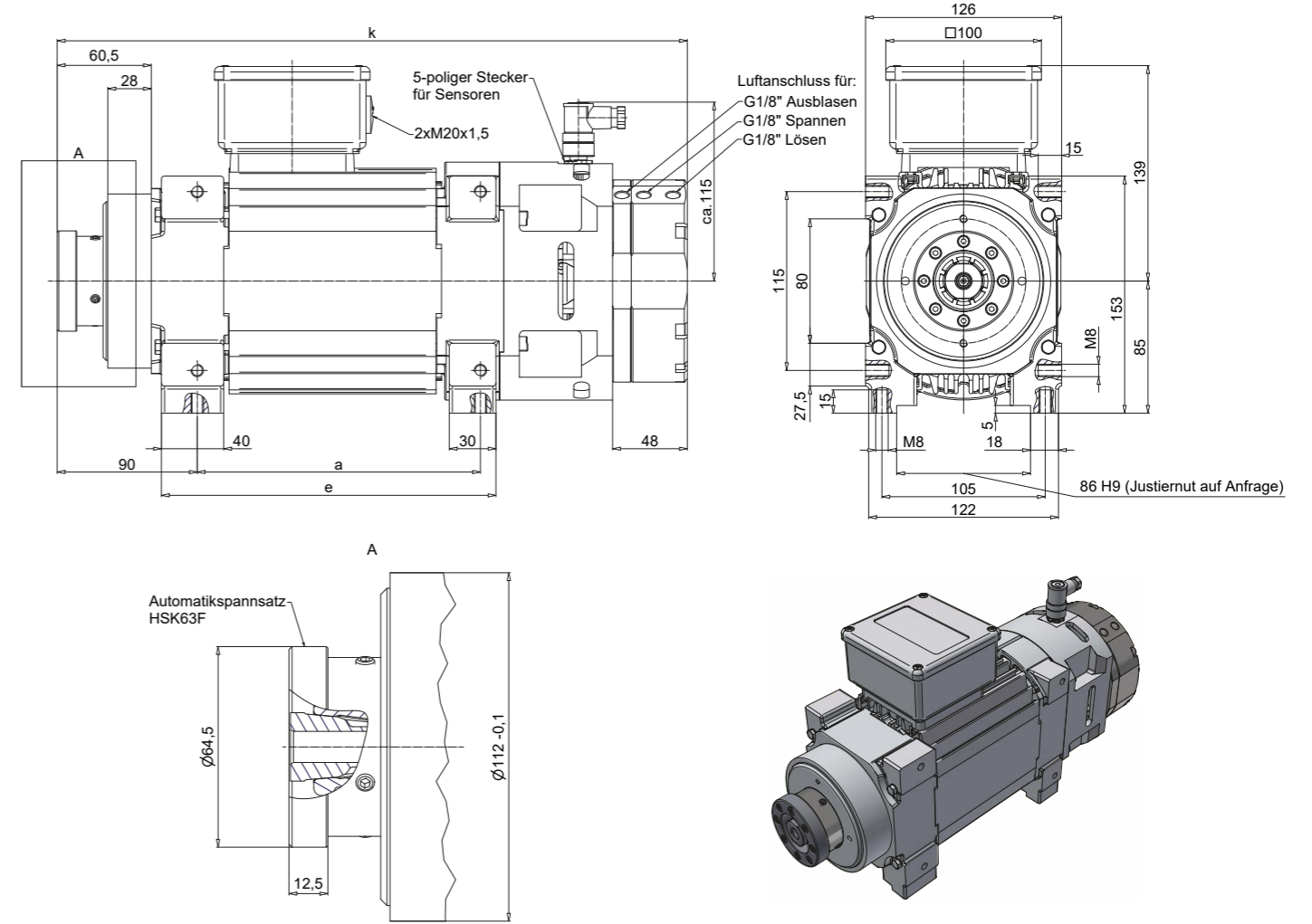


Dimensions [mm]		without brake		with brake M7K	
Type	a	e	k	k	
K62 - S	160	193	303	335	
K62 - M	182	215	325	357	
K62 - L	220	253	363	395	
K62 - XL	300	333	443	475	

Execution	Dimension sheet
without brake	1NJ004648
with brake	1NJ004484

MODEL SERIES K62

K62 flat motor with HSK-F 63 adapter

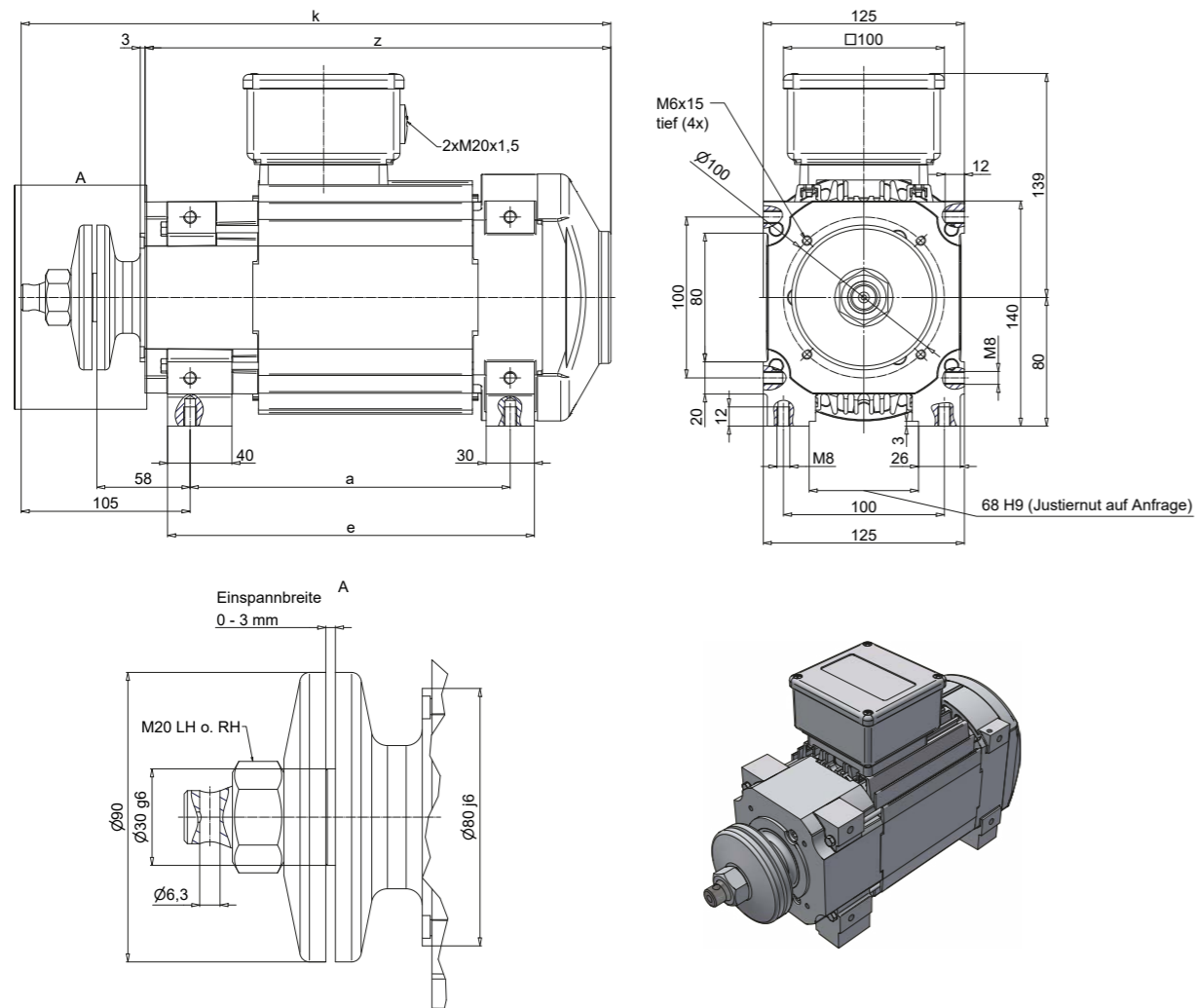


Dimensions [mm]			
Type	a	e	k
K62 - S	160	194,5	383
K62 - M	182	216,5	405
K62 - L	220	254,5	443
K62 - XL	300	334,5	523

Dimension sheet
1NJ004380

MODEL SERIES K62

KM62 flat motor with flange disk, Double bearing

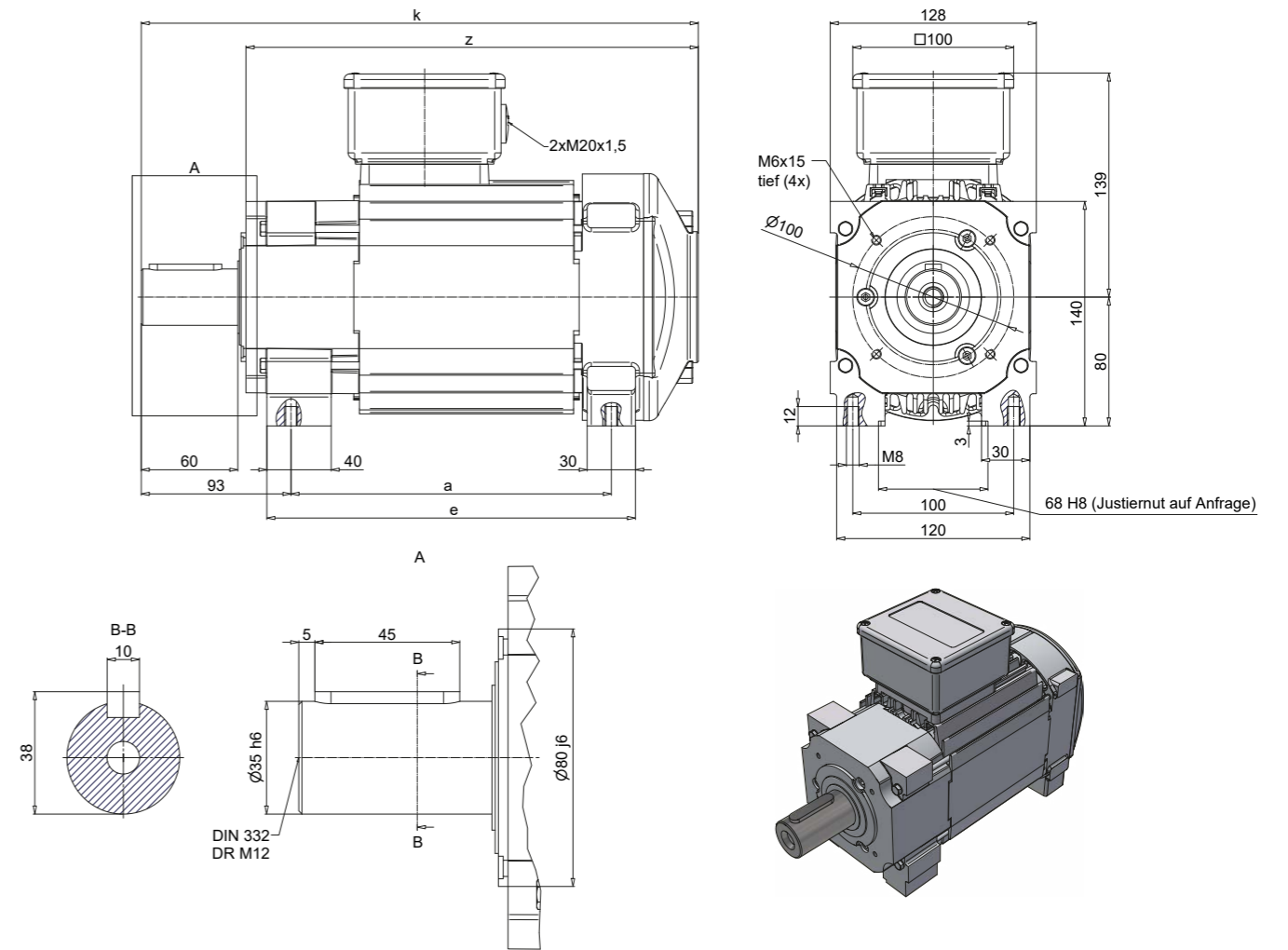


Dimensions [mm]		without brake		with brake M7K		
Type	a	e	k	z	k	z
KM62 - S	177	206	344	268	378	302
KM62 - M	199	228	366	290	400	324
KM62 - L	237	266	404	328	438	362
KM62 - XL	317	346	484	408	518	442

Execution	Dimension sheet
without brake	1NJ100000000590
with brake	1NJ100000000293

MODEL SERIES K62

Flat motor KH62 standard shaft, edgewise, Double bearing

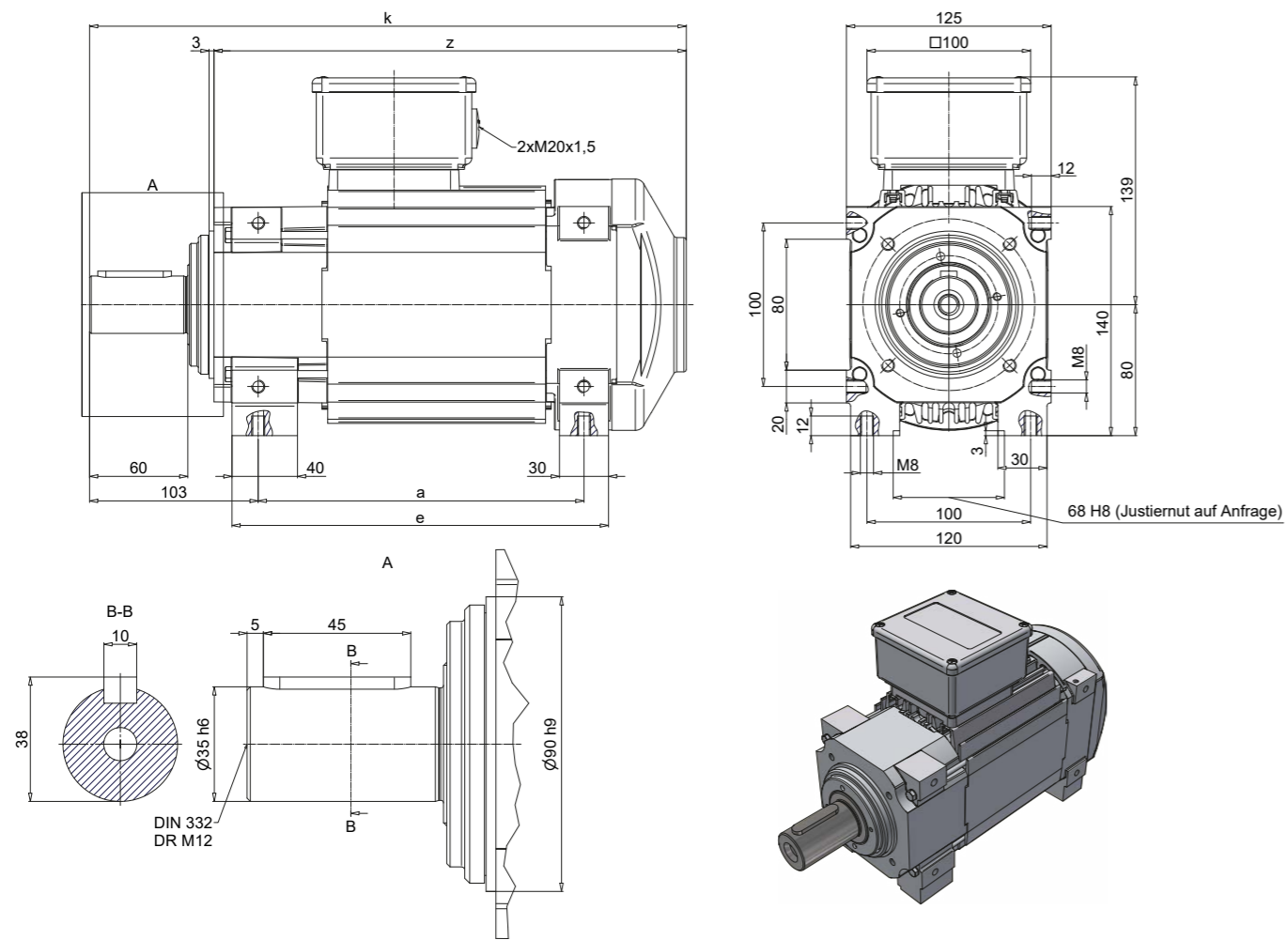


Dimensions [mm]		without brake		with brake G4K		with brake M7K		
Type	a	e	k	z	k	z	k	z
KH62 - S	177	207	324	259	333	268	366	301
KH62 - M	199	229	346	281	355	290	388	323
KH62 - L	237	267	384	319	393	328	426	361
KH62 - XL	317	347	464	399	473	408	506	441

Execution	Dimension sheet
without brake	1NJ100000000098
with brake	

MODEL SERIES K62

Flat motor KD62 Standard shaft, edgewise

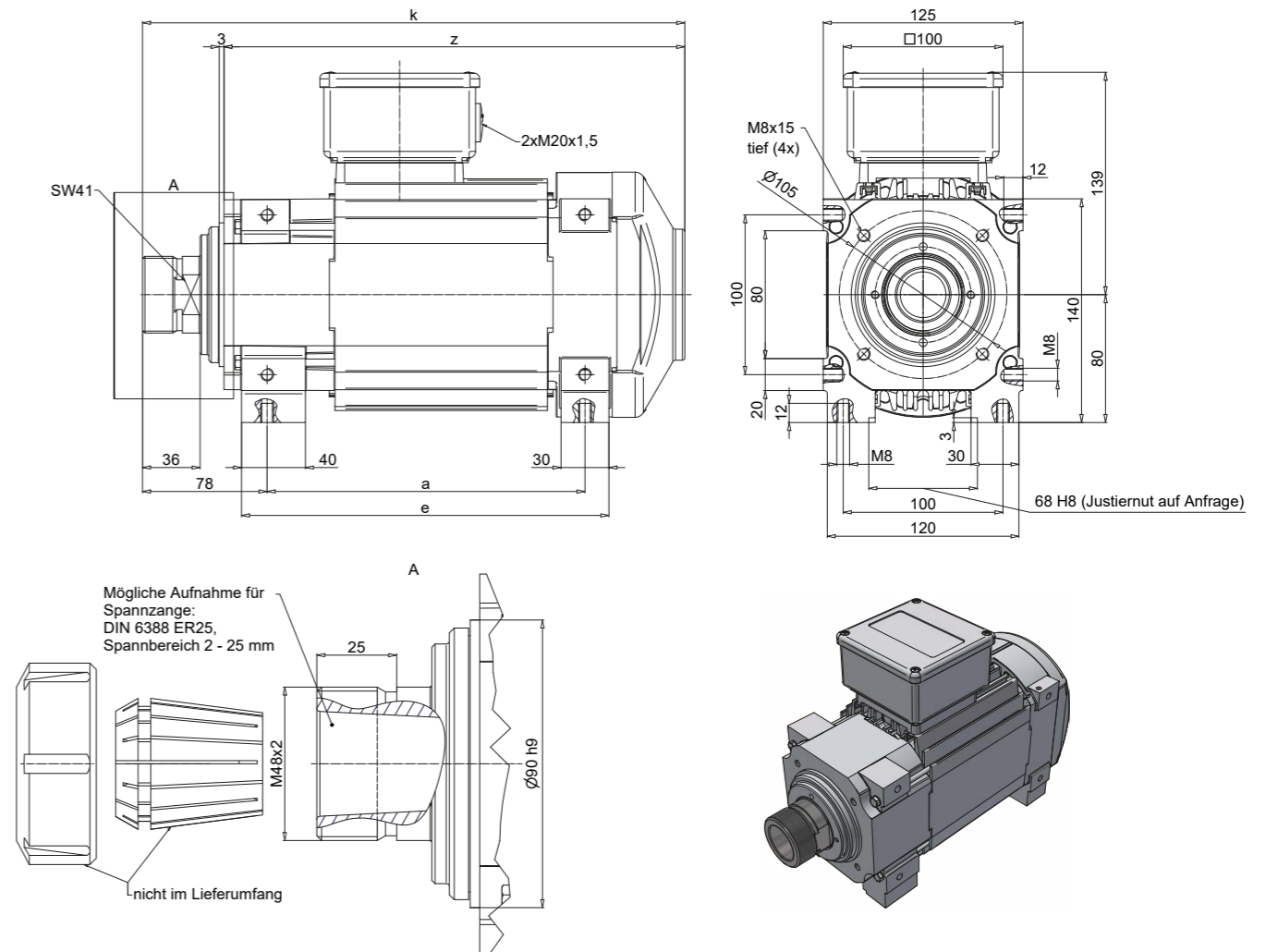


Dimensions [mm]		without brake		with brake M7K		
Type	a	e	k	z	k	z
KD62 - S	177	208	343	267	376	300
KD62 - M	199	230	365	289	398	322
KD62 - L	237	268	403	327	436	360
KD62 - XL	317	348	483	407	516	440

Execution	Dimension sheet
without brake	1NJ100000000346
with brake	1NJ100000000570

MODEL SERIES K62

Flat motor KC62.01 with adapter for collet, edgewise

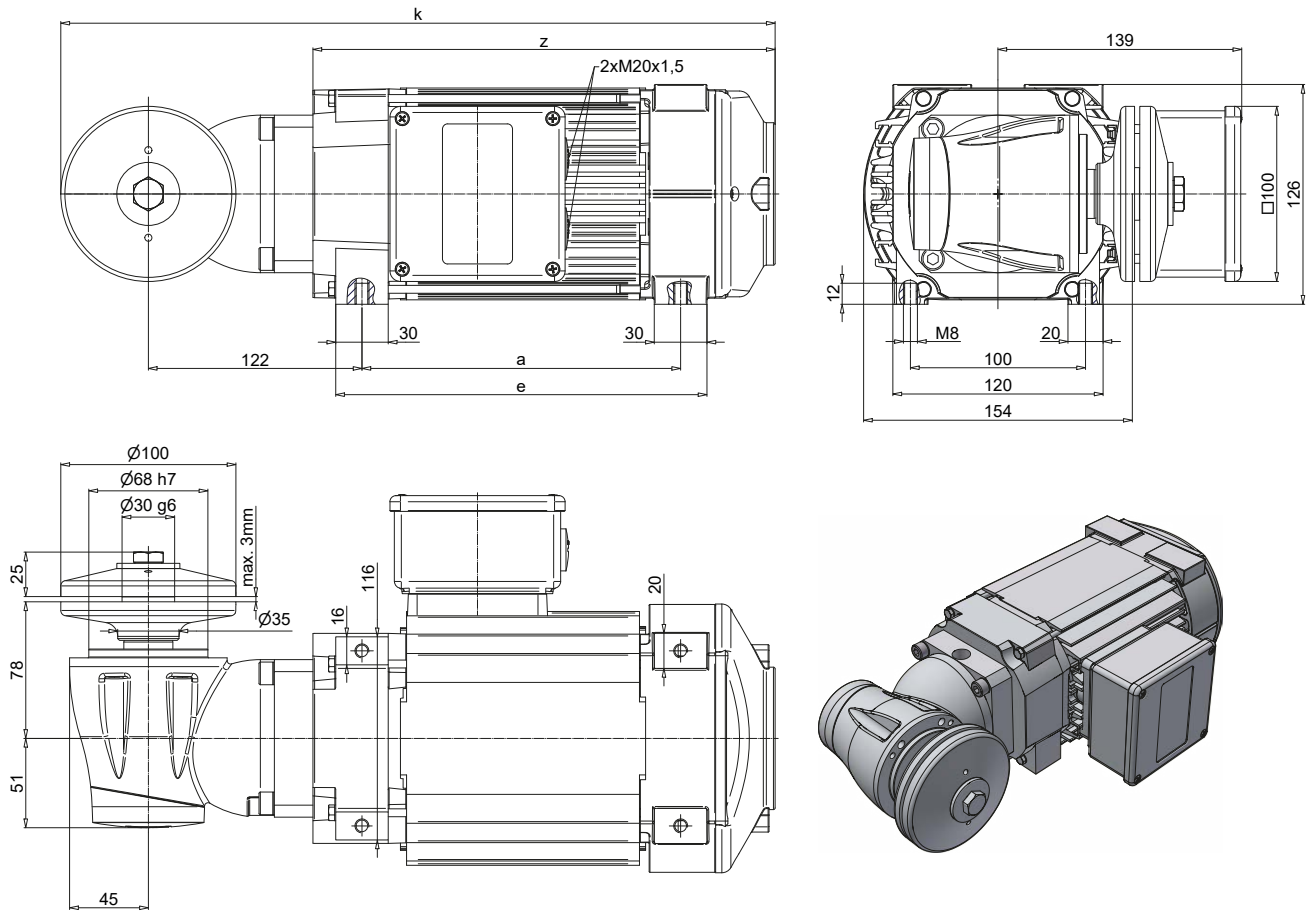


Dimensions [mm]		without brake		with brake M7K		
Type	a	e	k	z	k	z
KC62 - S	177	208	318	267	350	299
KC62 - M	199	230	340	289	372	321
KC62 - L	237	268	378	327	410	359
KC62 - XL	317	348	458	407	490	439

Execution	Dimension sheet
without brake	1NJ100000000375
with brake	1NJ004155

MODEL SERIES K62

K62 flat motor with angular gear, 1:1 ratio

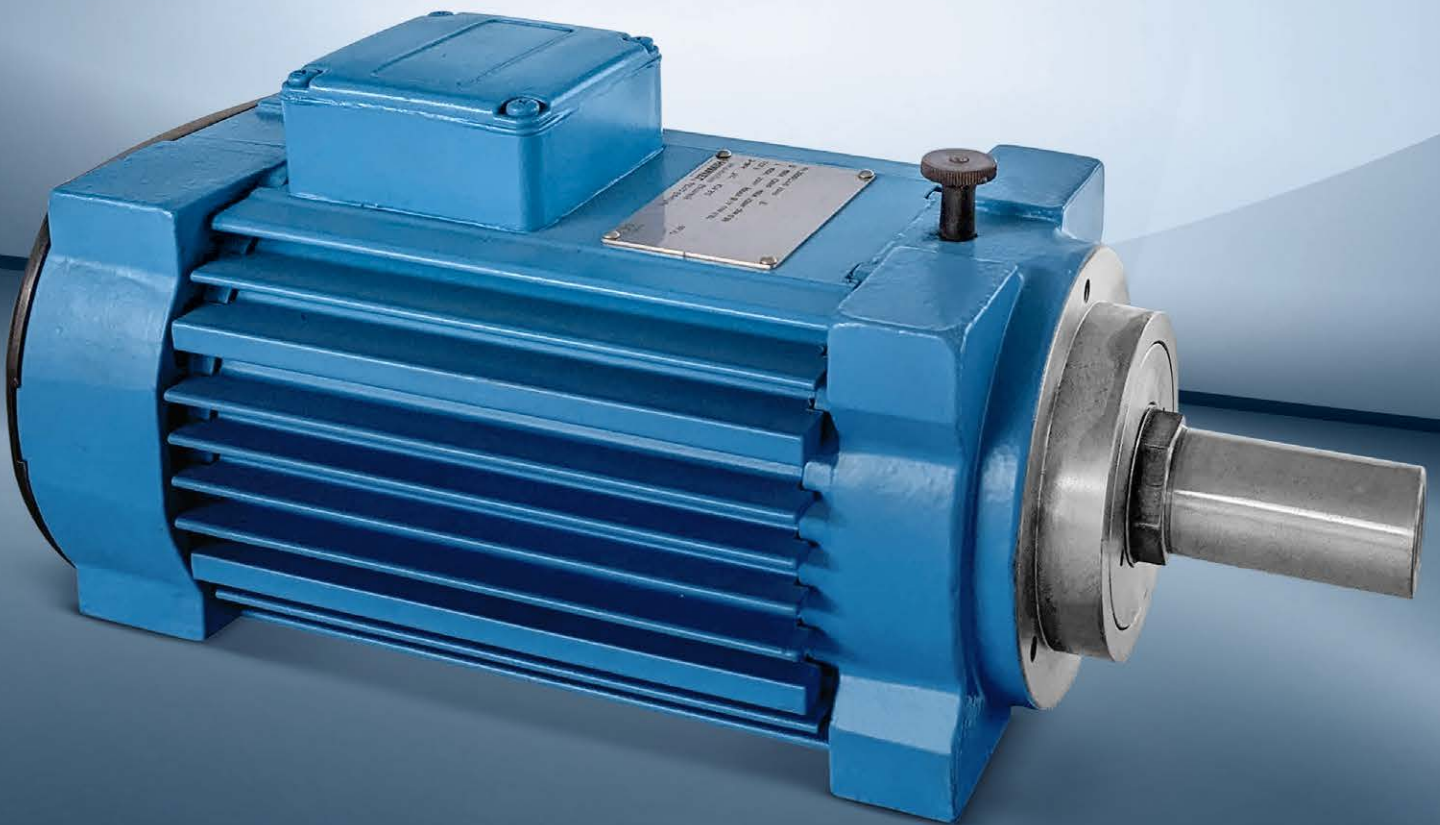


Dimensions [mm]		without brake		with brake G4K		with brake M7K		
Type	a	e	k	z	k	z	k	z
K62 - S	160	190	336	242	345	251	378	285
K62 - M	182	212	358	264	367	273	400	307
K62 - L	220	250	396	302	405	311	438	345
K62 - XL	300	330	476	382	485	391	518	425

Execution	Dimension sheet
without brake	1NJ001324
with brake	1NJ003940

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MODEL SERIES K75

MODEL SERIES K75

Performance overview

Table data refer to: Synchronous rotational speed 3.000 1/min, Motor voltage: 3-Phase 400V / 50Hz

Synchronous rotational speed 1/min	Model series	Nominal power P ₂ [kW]					
		S1*		S6-60 %		S6-40 %	
		P ₂ [kW]	I _n [A]	P ₂ [kW]	I _n [A]	P ₂ [kW]	I _n [A]
3.000	K75 S/2	3,0	6,3	3,7	7,9	4,0	8,4
	K75 SB/2	3,7	7,6	4,4	9,1	5,0	10,5
	K75 SP/2	4,0	8,1	4,7	9,6	5,3	11,1
	K75 M/2	4,5	9,2	5,5	11,0	6,25	13,0
	K75 MB/2	6,0	12,5	7,5	15,2	8,1	16,3
	K75 L/2	7,5	15,2	9,2	18,0	10,0	20,0
	K75 LB/2	8,8	17,1	11,0	21,0	12,0	22,8
	K75 LP/2	10,0	20,0	12,0	22,8	13,5	25,0
	K75 XL/2	14,0	27,5	16,0	32,1	18,5	35,5
1.500	K75 S/4	1,6	3,7	1,9	4,4	2,2	5,2
	K75 SB/4	1,9	4,4	2,3	5,3	2,7	6,3
	K75 SP/4	2,0	4,6	2,4	5,5	2,8	6,5
	K75 M/4	2,6	5,8	3,1	7,0	3,7	8,5
	K75 MB/4	3,5	7,7	4,2	9,3	5,0	11,2
	K75 L/4	4,0	9,7	4,7	11,2	5,5	13,2
	K75 LB/4	4,8	11,5	5,6	13,2	6,6	15,7
	K75 LP/4	5,5	13,0	6,4	15,2	7,5	17,7
	K75 XL/4	7,6	18,0	9,0	21,2	10,5	24,6

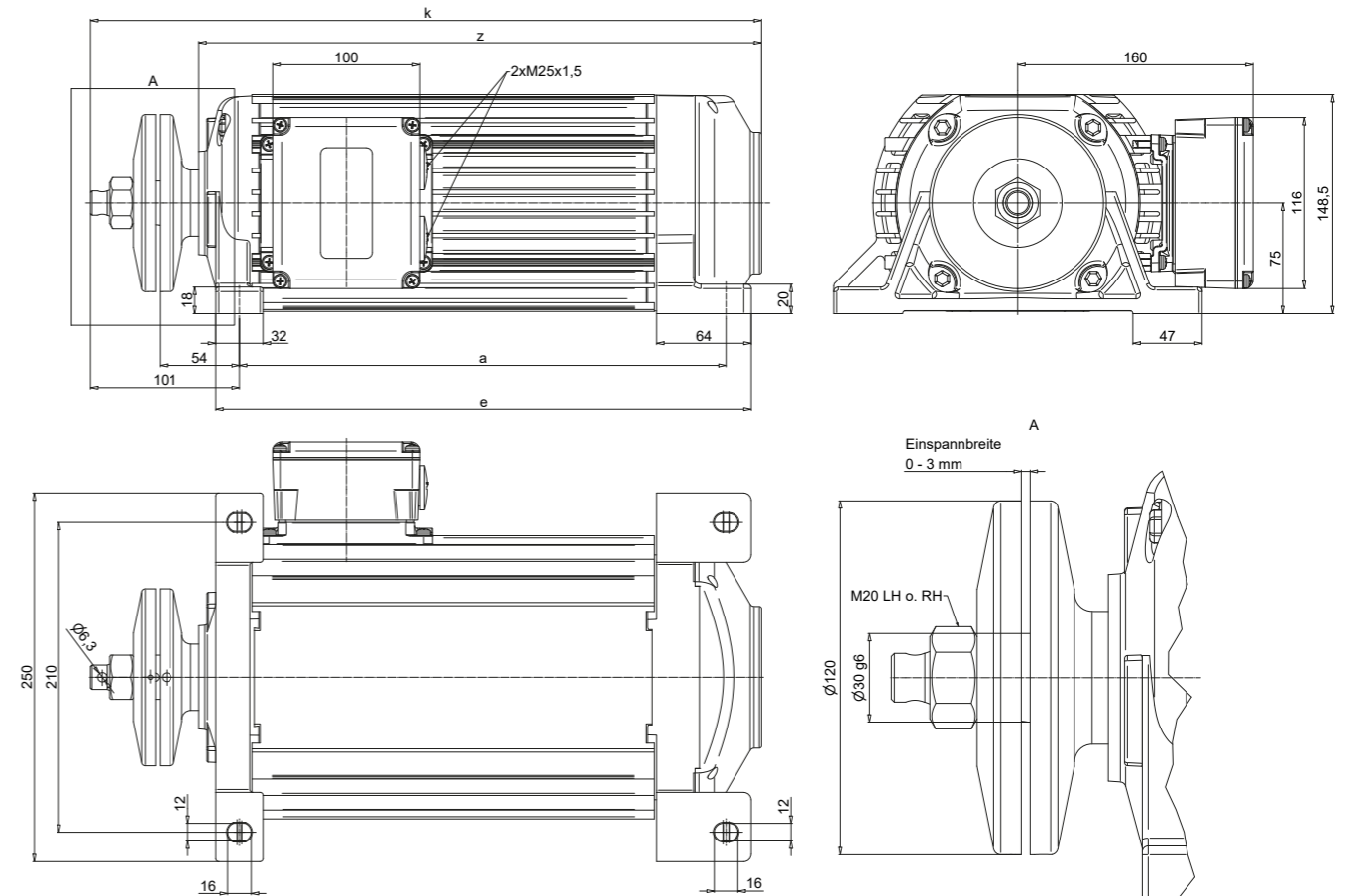
* Power rating for engines that are not subject to mandatory labeling. Others on request.

Performances for higher speeds

Model series	Selection table for higher speeds up to 12.000 1/min Nominal power P ₂ [kW]		
	100 Hz 6.000 1/min	150 Hz 9.000 1/min	200 Hz 12.000 1/min
	S1	S1	S1
	P ₂ [kW]	P ₂ [kW]	P ₂ [kW]
K75 S/ 2	5,0	5,3	5,6
K75 SB/ 2	5,9	6,3	6,7
K75 SP/ 2	6,1	6,6	7,0
K75 M/ 2	8,0	8,5	9,0
K75 MB/ 2	11,0	11,5	12,2
K75 L/ 2	13,0	13,7	14,5
K75 LB/ 2	15,5	-	-
K75 LP/ 2	17,5	-	-
K75 XL/ 2	24,0	-	-

MODEL SERIES K75

Flat motor KL75 with flange disk

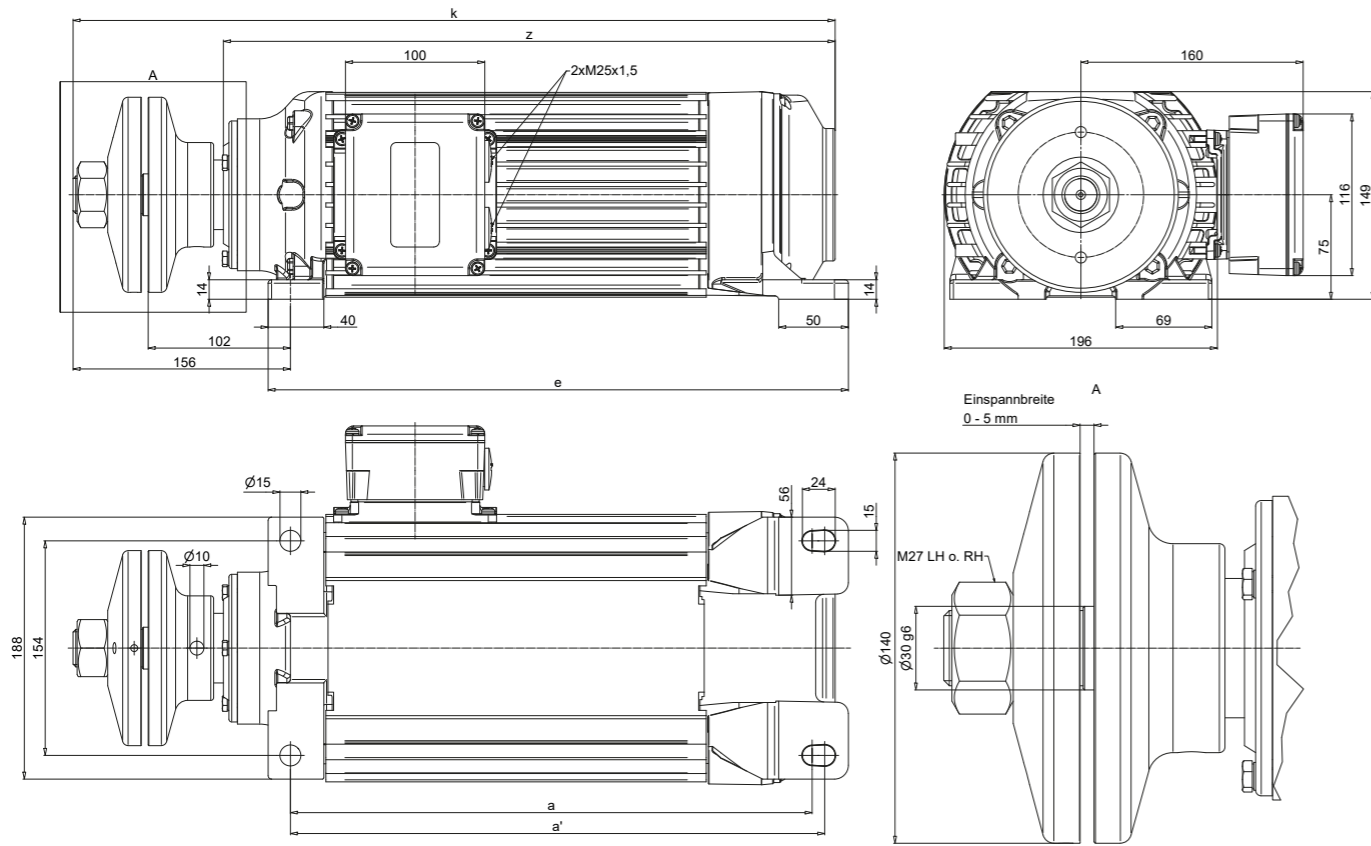


Dimensions [mm]	without brake		with brake M12K	
	a	e	k	z
Type				
KL75 - S	250	282	375	303
KL75 - SB	270	302	395	323
KL75 - SP	270	302	395	323
KL75 - M	330	362	455	383
KL75 - MB	372	404	497	425
KL75 - L	415	447	540	468

Execution	Dimension sheet
without brake	1NJ10000000143
with brake	

MODEL SERIES K75

K75 flat motor with flange disk, Single bearing

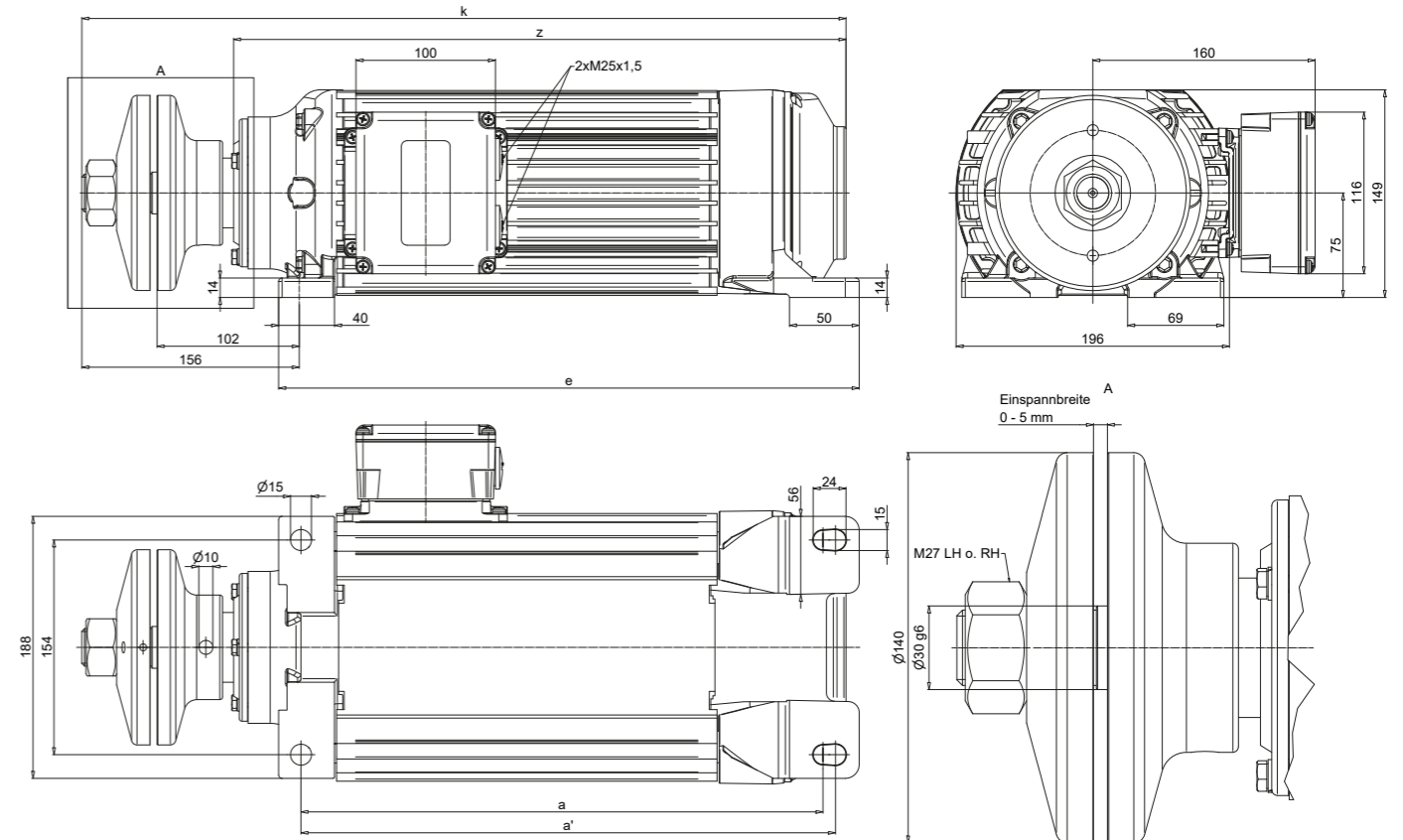


Dimensions [mm] for type K75-S to K75-L with single bearing arrangement					
Type	a	a'	e	k	z
K75 - S	295	303	336	467	359
K75 - SB	315	323	356	487	379
K75 - SP	315	323	356	487	379
K75 - M	375	383	416	547	439
K75 - MB	417	425	458	589	481
K75 - L	460	468	501	632	524

Execution	Dimension sheet
without brake	1NJ10000000154
with brake	

MODEL SERIES K75

K75 flat motor with flange disk, Double bearing

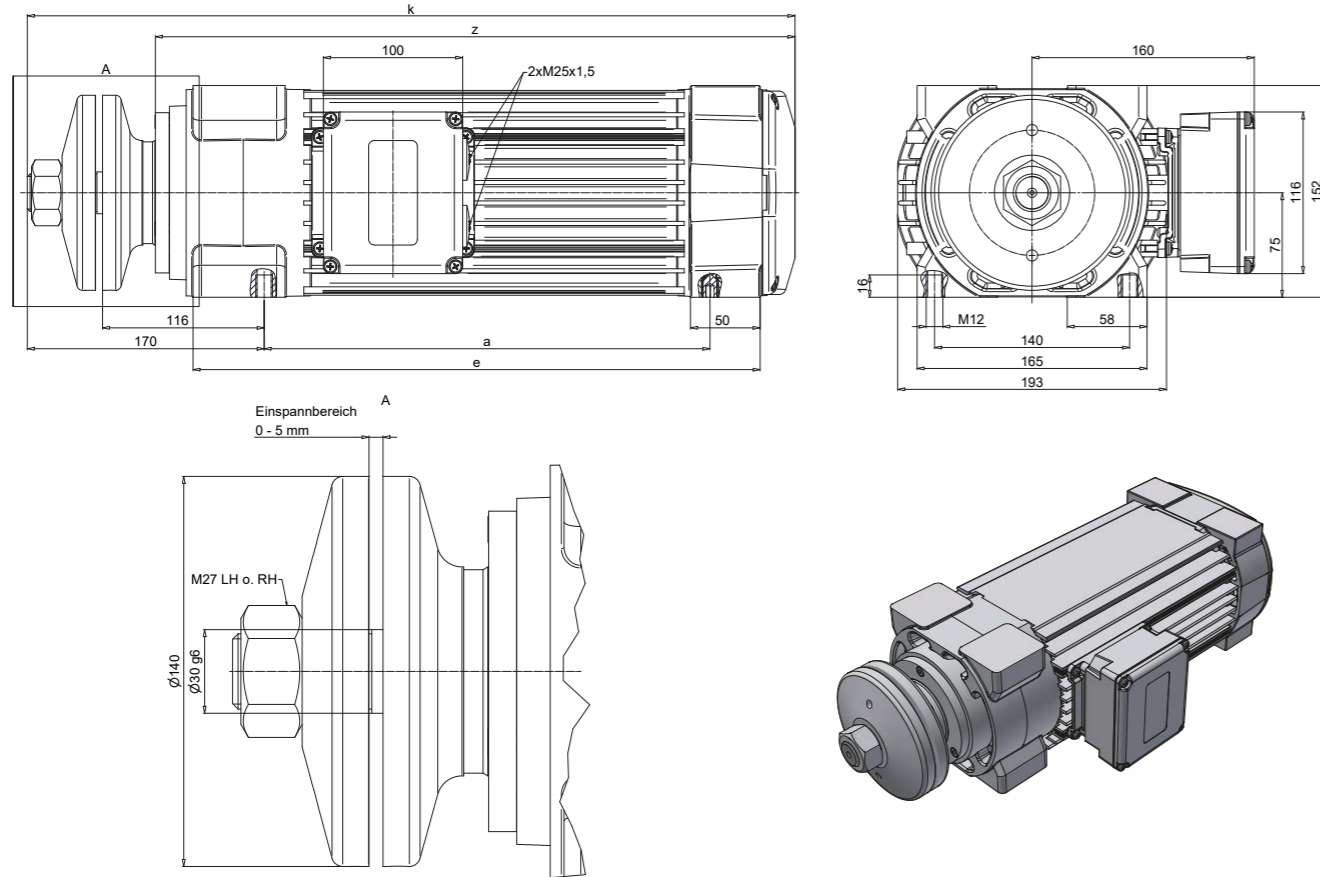


Dimensions [mm]					
Type	a	a'	e	k	z
K75 - S	295	303	336	468	359
K75 - SB	315	323	356	488	379
K75 - SP	315	323	356	488	379
K75 - M	375	383	416	548	439
K75 - MB	417	425	458	590	481
K75 - L	460	468	501	633	524
K75 - LB	510	518	551	683	574
K75 - LP	553	561	594	726	617
K75 - XL	690	698	731	863	754

Execution	Dimension sheet
without brake	1NJ10000000186
with brake	

MODEL SERIES K75

KG75 flat motor with flange disk, Double bearing

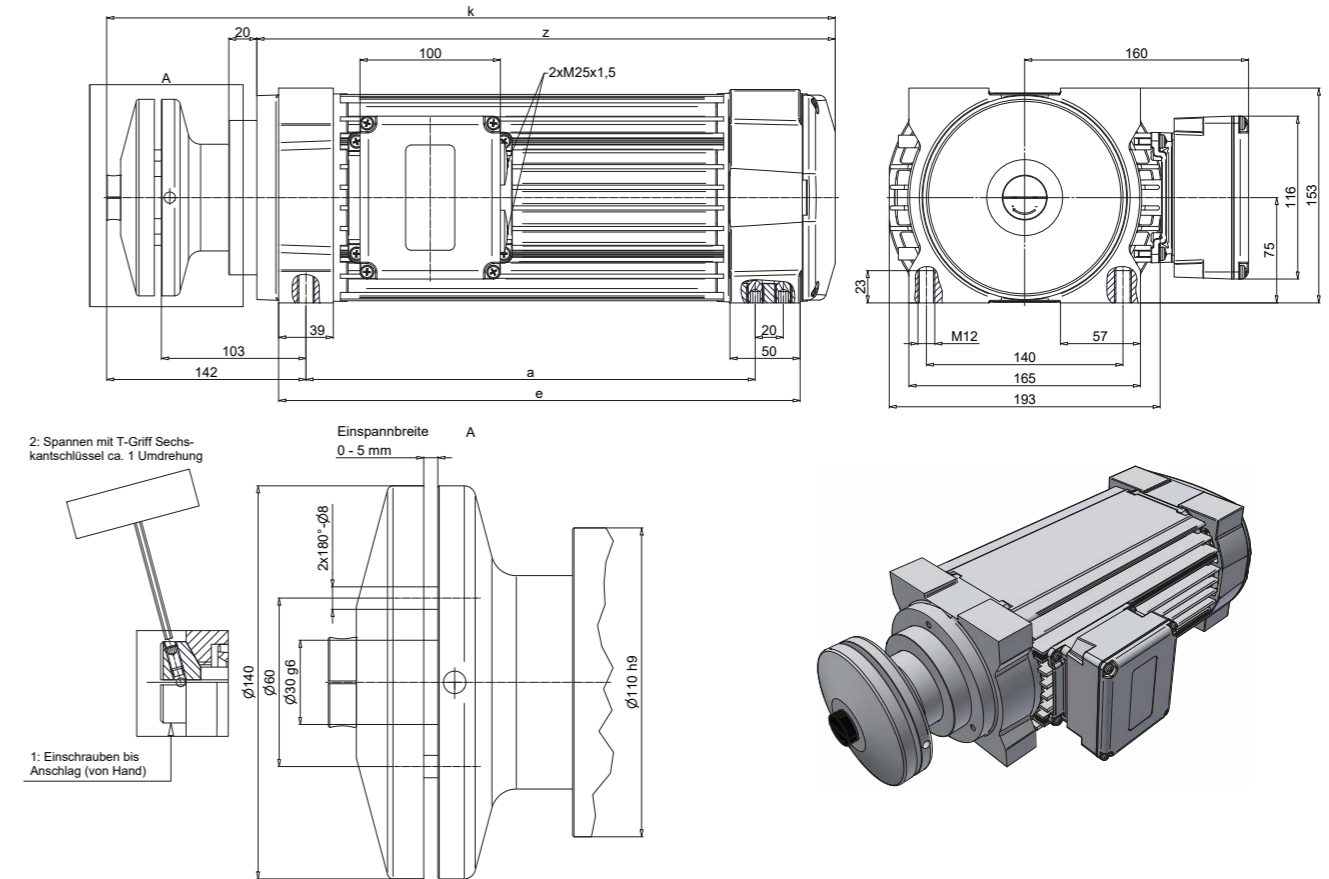


Dimensions [mm]		without brake			with brake M12K or M16K		
Type	a	e	k	z	e	k	z
KG75 - S	240	327	471	379	381	550	458
KG75 - SB	260	347	491	399	401	570	478
KG75 - SP	260	347	491	399	401	570	478
KG75 - M	320	407	551	459	461	630	538
KG75 - MB	362	449	593	501	503	672	580
KG75 - L	405	492	636	544	546	715	623
KG75 - LB	455	542	686	594	596	765	673
KG75 - LP	498	585	729	637	639	808	716
KG75 - XL	635	722	866	774	776	945	853

Execution	Dimension sheet
without brake	1NJ1012641
with brake	1NJ10000000146

MODEL SERIES K75

K75 flat motor with quick-change clamping system



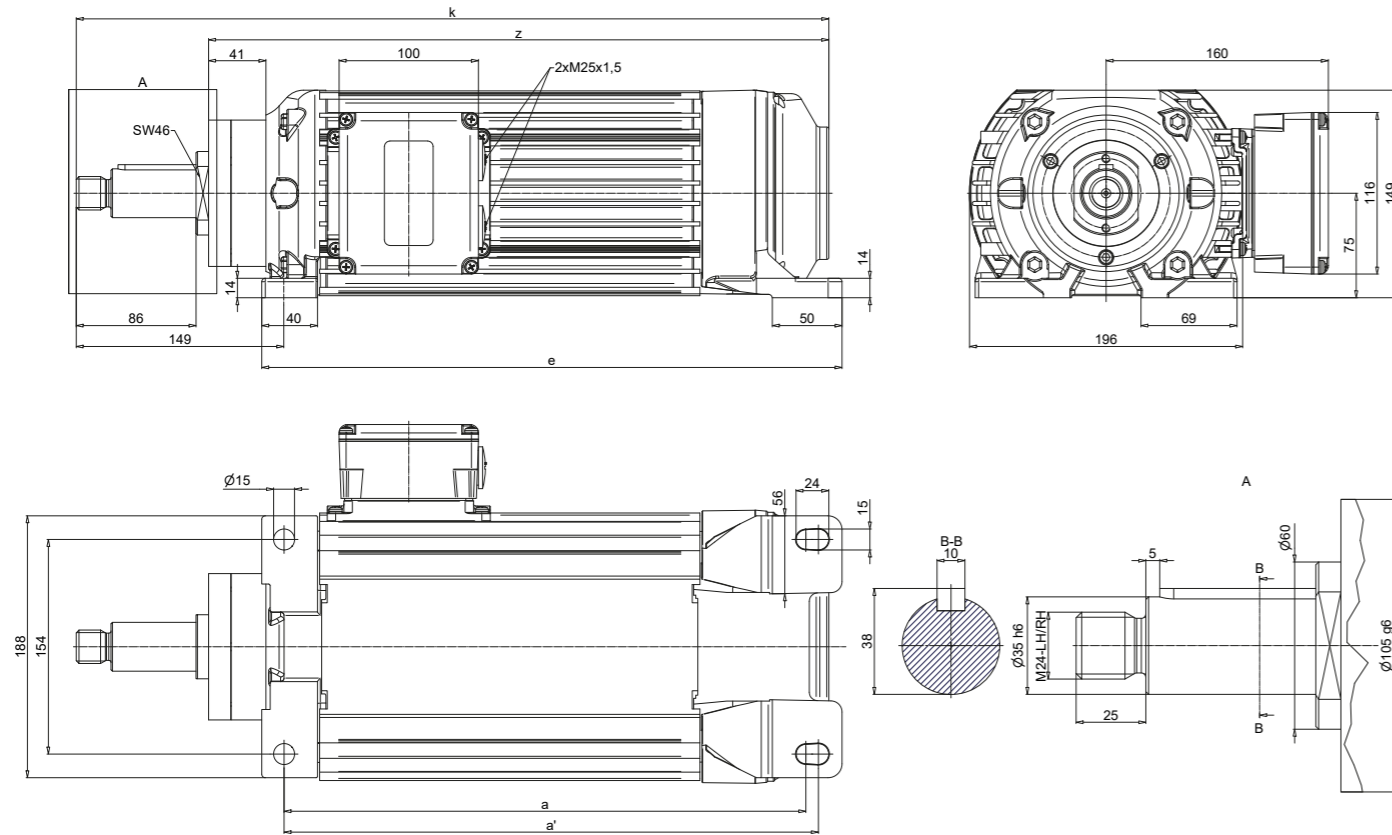
Right-left rotation possible

Dimensions [mm] without brake					with brake M12K or M16K			
Type	a	e	k	z	a	e	k	z
K75 - S	240	292	439	332	236	346	518	411
K75 - SB	260	312	459	352	256	366	538	431
K75 - SP	260	312	459	352	256	366	538	431
K75 - M	320	372	519	412	316	426	598	491
K75 - MB	362	414	561	454	358	468	640	533
K75 - L	405	457	604	497	401	511	683	576
K75 - LB	455	507	654	547	451	561	733	626
K75 - LP	498	550	697	590	494	604	776	669
K75 - XL	635	687	834	727	631	741	913	806

Execution	Dimension sheet
without brake	1NJ002962
with brake	1NJ004488

MODEL SERIES K75

Flat motor KF75 standard shaft with thread,
Double bearing

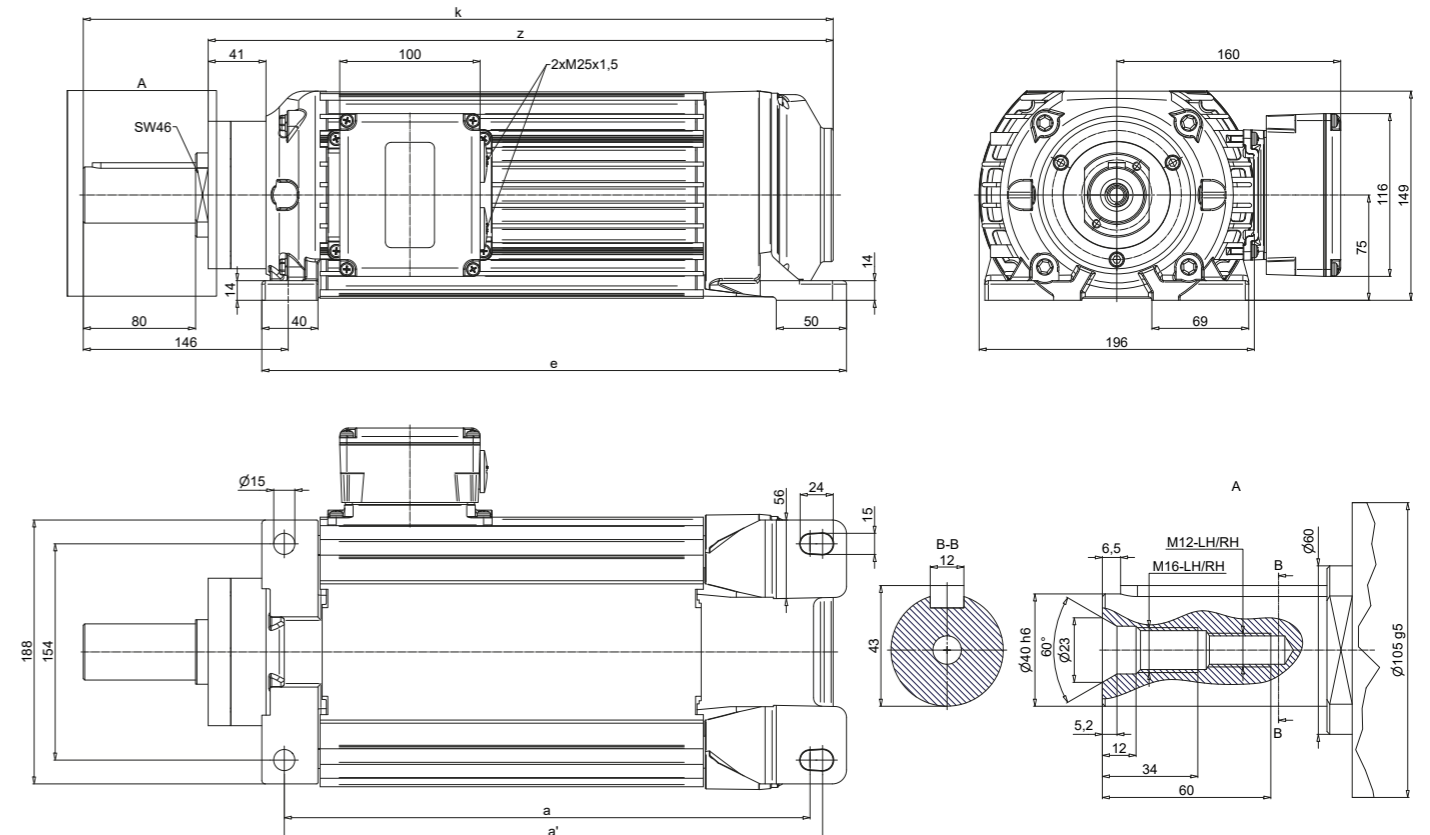


Dimensions [mm]					
Type	a	a'	e	k	z
KF75 - S	295	303	336	460	365
KF75 - SB	315	323	356	480	385
KF75 - SP	315	323	356	480	385
KF75 - M	375	383	416	540	445
KF75 - MB	417	425	458	582	487
KF75 - L	460	468	501	625	530
KF75 - LB	510	518	551	675	580
KF75 - LP	553	561	594	718	623
KF75 - XL	690	698	731	855	760

Execution	Dimension sheet
without brake	1NJ10000000005
with brake	

MODEL SERIES K75

Flat motor KN75 standard shaft,
Double bearing

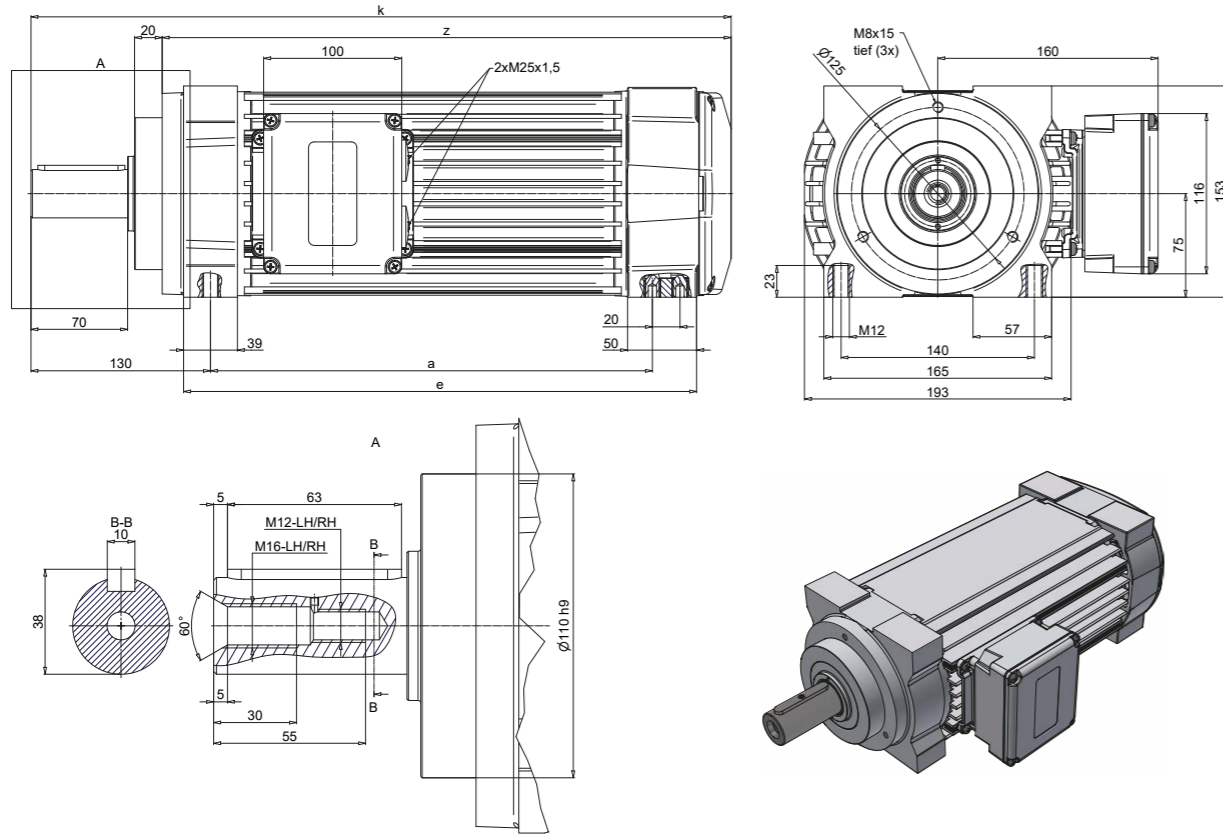


Dimensions [mm]					
Type	a	a'	e	k	z
KN75 - S	295	303	336	454	365
KN75 - SB	315	323	356	474	385
KN75 - SP	315	323	356	474	385
KN75 - M	375	383	416	534	445
KN75 - MB	417	425	458	576	487
KN75 - L	460	468	501	619	530
KN75 - LB	510	518	551	669	580
KN75 - LP	553	561	594	712	623
KN75 - XL	690	698	731	849	760

Execution	Dimension sheet
without brake	1NJ100000000351
with brake	

MODEL SERIES K75

Flat motor KP75 standard shaft

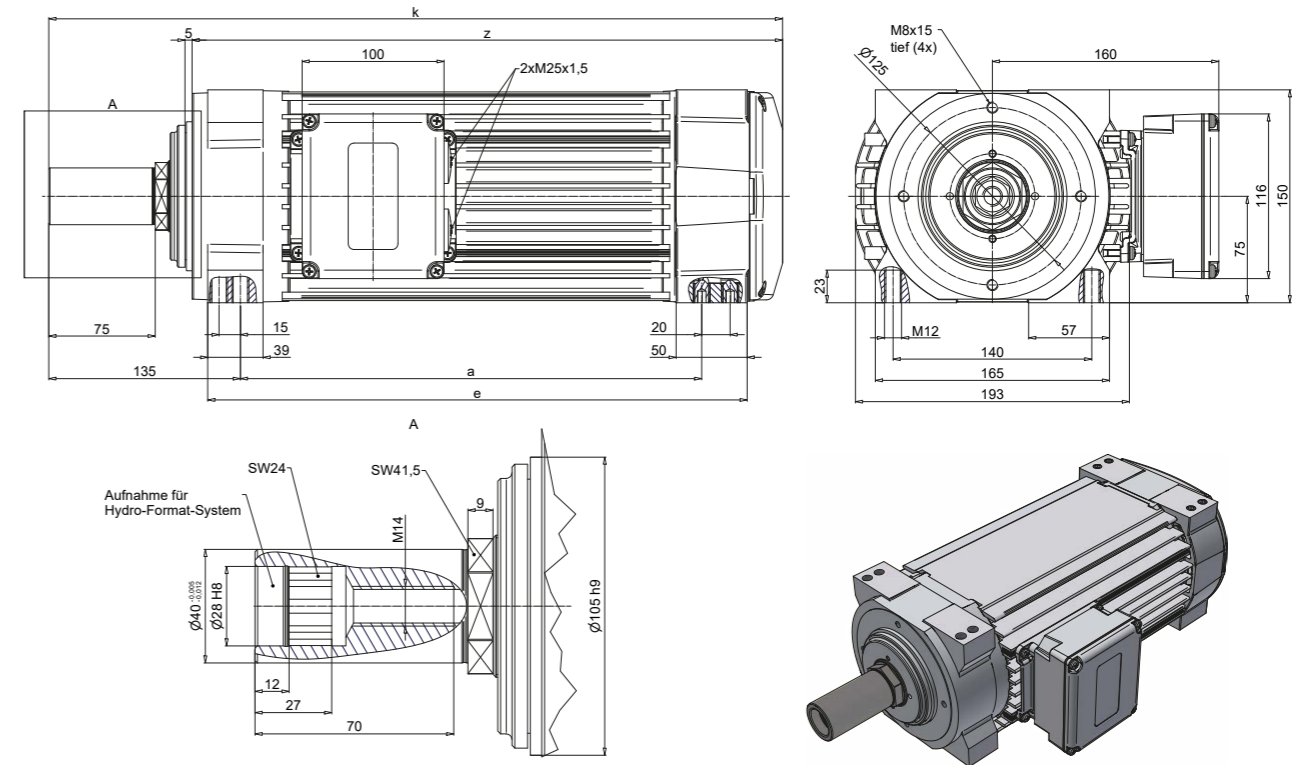


Dimensions [mm]	without brake				with brake M12K or M16K			
	a	e	k	z	a	e	k	z
Type								
KP75 - S	240	292	427	332	236	346	506	411
KP75 - SB	260	312	447	352	256	366	526	431
KP75 - SP	260	312	447	352	256	366	526	431
KP75 - M	320	372	507	412	316	426	586	491
KP75 - MB	362	414	549	454	358	468	628	533
KP75 - L	405	457	592	497	401	511	671	576
KP75 - LB	455	507	642	547	451	561	721	626
KP75 - LP	498	550	685	590	494	604	764	669
KP75 - XL	635	687	822	727	631	741	901	806

Execution	Dimension sheet
without brake	1NJ004635
with brake	1NJ004636

MODEL SERIES K75

KD75 flat motor with adapter for Hydro-Format-System

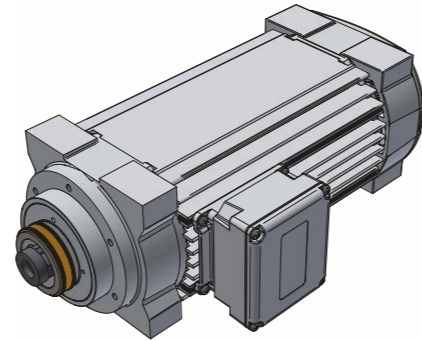
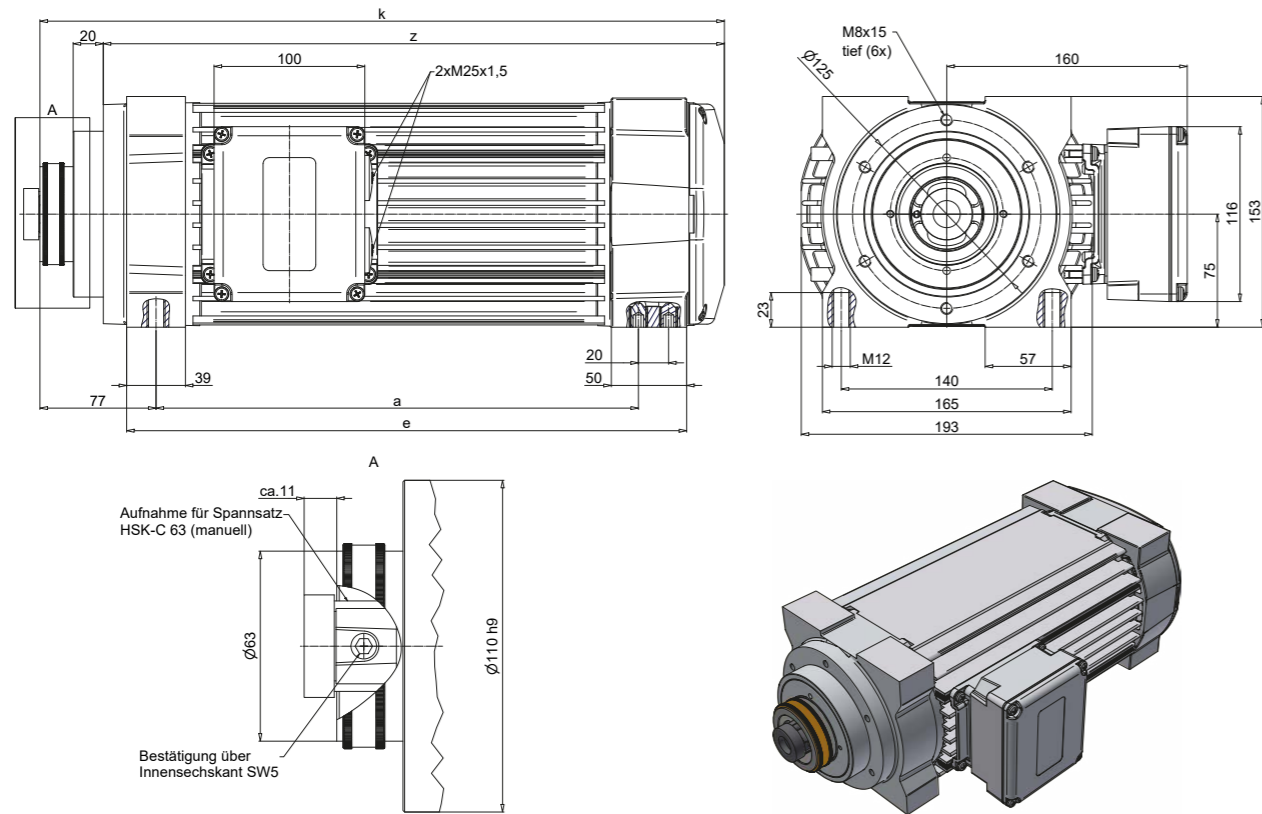


Dimensions [mm]	without brake				with brake M12K or M16K			
	a	e	k	z	a	e	k	z
Type								
KD75 - S	245	300	437	336	245	354	520	419
KD75 - SB	265	320	457	356	265	374	540	439
KD75 - SP	265	320	457	356	265	374	540	439
KD75 - M	325	380	517	416	325	434	600	499
KD75 - MB	367	422	559	458	367	476	642	541
KD75 - L	410	515	602	501	410	519	685	584
KD75 - LB	460	515	652	551	460	569	735	634
KD75 - LP	503	558	695	594	503	612	778	677
KD75 - XL	640	695	832	731	640	749	915	814

Execution	Dimension sheet
without brake	1NJ008591
with brake	1NJ011770

MODEL SERIES K75

K75 flat motor with HSK-C 63 adapter



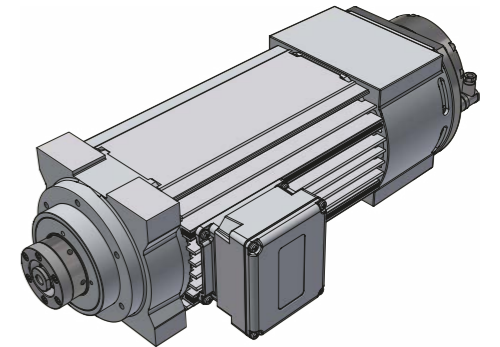
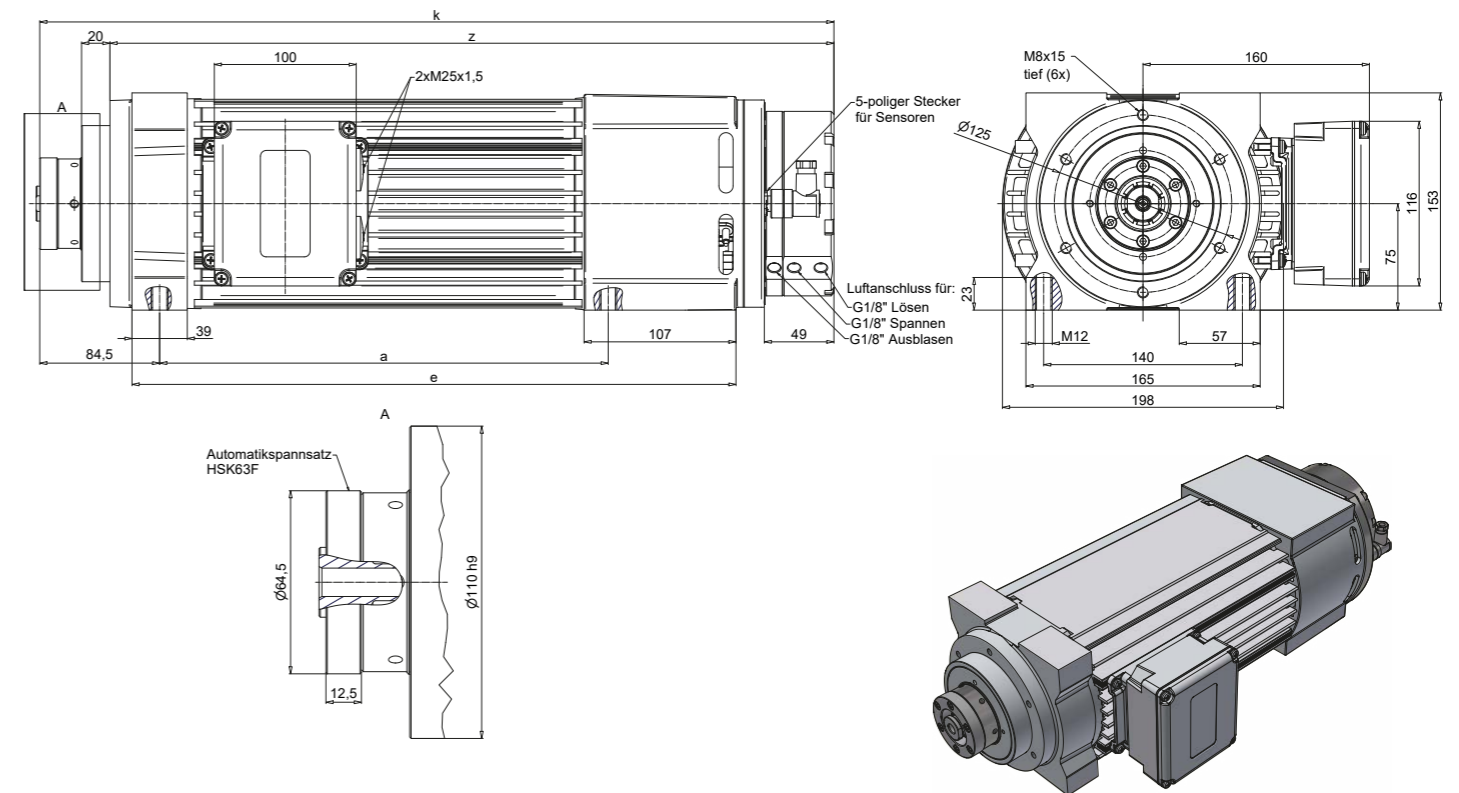
Dimensions [mm]				
Type	a	e	k	z
K75 - S	240	292	374	332
K75 - SB	260	312	394	352
K75 - SP	260	312	394	352
K75 - M	320	372	454	412
K75 - MB	362	414	496	454
K75 - L	405	457	539	497
K75 - LB	455	507	589	547
K75 - LP	498	550	632	590
K75 - XL	635	687	769	727

Dimension sheet

1NJ000953

MODEL SERIES K75

K75 flat motor with HSK-F 63 adapter



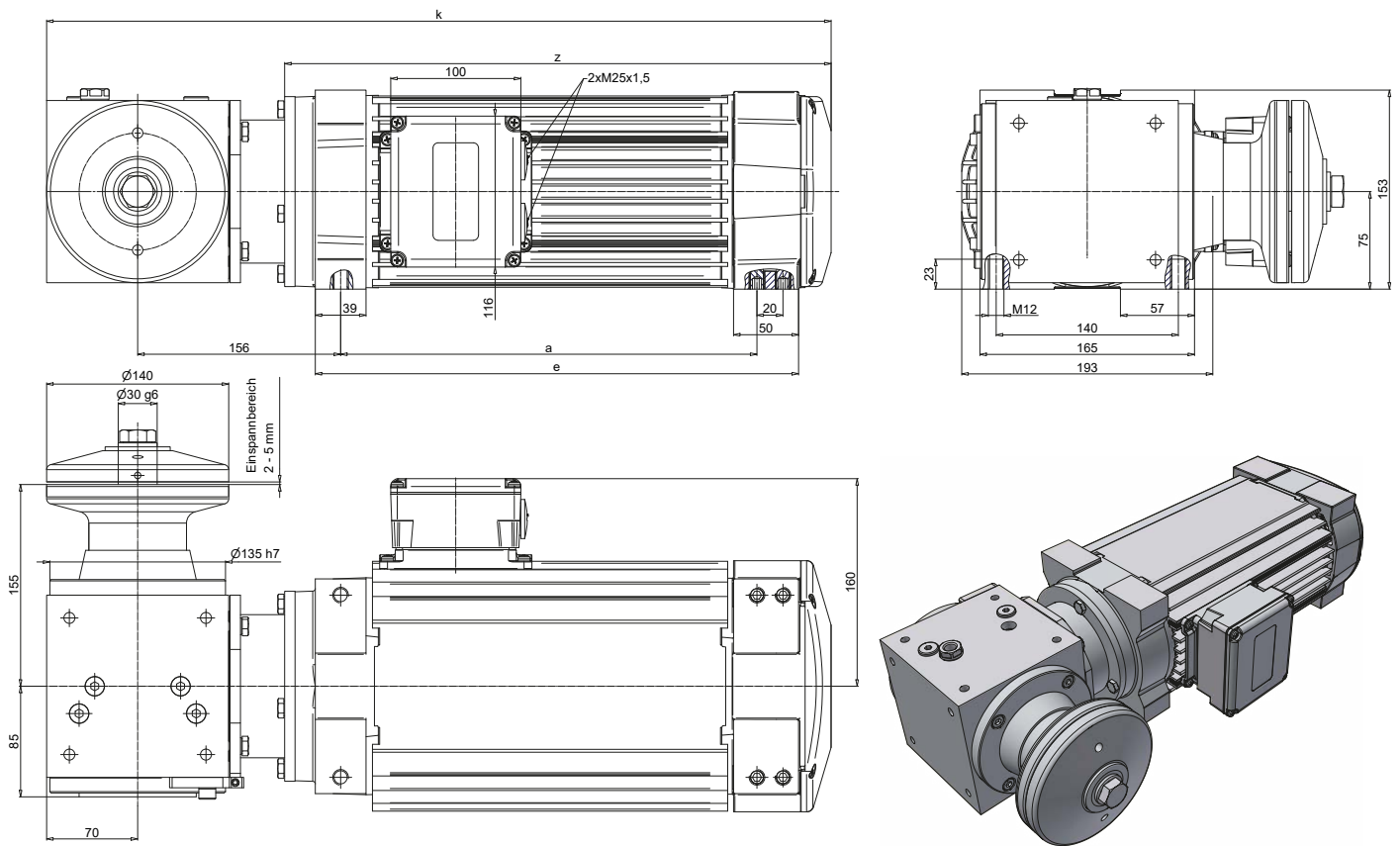
Dimensions [mm]				
Type	a	e	k	z
K75 - S	236	346	480	430
K75 - SB	256	366	500	450
K75 - SP	256	366	500	450
K75 - M	316	426	560	510
K75 - MB	358	468	602	552
K75 - L	401	511	645	595
K75 - LB	451	561	695	645
K75 - LP	494	604	738	688
K75 - XL	631	741	875	825

Dimension sheet

1NJ015985

MODEL SERIES K75

K75 flat motor with angular gear, ratio 1:1 or 1:2



Dimensions [mm]	without brake				with brake M12K or M16K			
	a	e	k	z	a	e	k	z
K75 - S	240	292	453	340	236	346	532	419
K75 - SB	260	312	473	360	256	366	552	439
K75 - SP	260	312	473	360	256	366	552	439
K75 - M	320	372	533	420	316	426	612	499
K75 - MB	362	414	575	462	358	468	654	541
K75 - L	405	457	618	505	401	511	697	584

Execution	Dimension sheet
without brake	1NJ004179
with brake	1NJ004178

MODEL SERIES K90

Performance overview

Table data refer to: Synchronous rotational speed 3.000 / 1.500 1/min, Motor voltage: 3-Phase 400V / 50Hz

Synchronous rotational speed 1/min	Model series	Nominal power P ₂ [kW]					
		S1*		S6-60 %		S6-40 %	
		P ₂ [kW]	I _n [A]	P ₂ [kW]	I _n [A]	P ₂ [kW]	I _n [A]
3.000	K90 S/2	7,0	12,6	9,0	16,3	10,5	19,3
	K90 M/2	10,0	17,7	13,0	23,2	15,5	27,9
	K90 MB/2	12,0	21,2	15,0	26,5	18,5	33
	K90 L/2	15,0	26,1	19,0	33,3	23,0	40,6
	K90 XL/2	18,0	30,9	23,0	40,1	27,5	48,2
1.500	K90 S/4	5,5	12,1	7,0	14,7	8,0	16,8
	K90 M/4	8,0	17,4	10,5	21,7	12,0	25,1
	K90 MB/4	10,0	21,6	12,5	25,9	15,0	31,2
	K90 L/4	12,0	25,6	15,0	31,1	17,5	36,2
	K90 XL/4	15,0	32,6	19,0	39,5	22,5	46,1

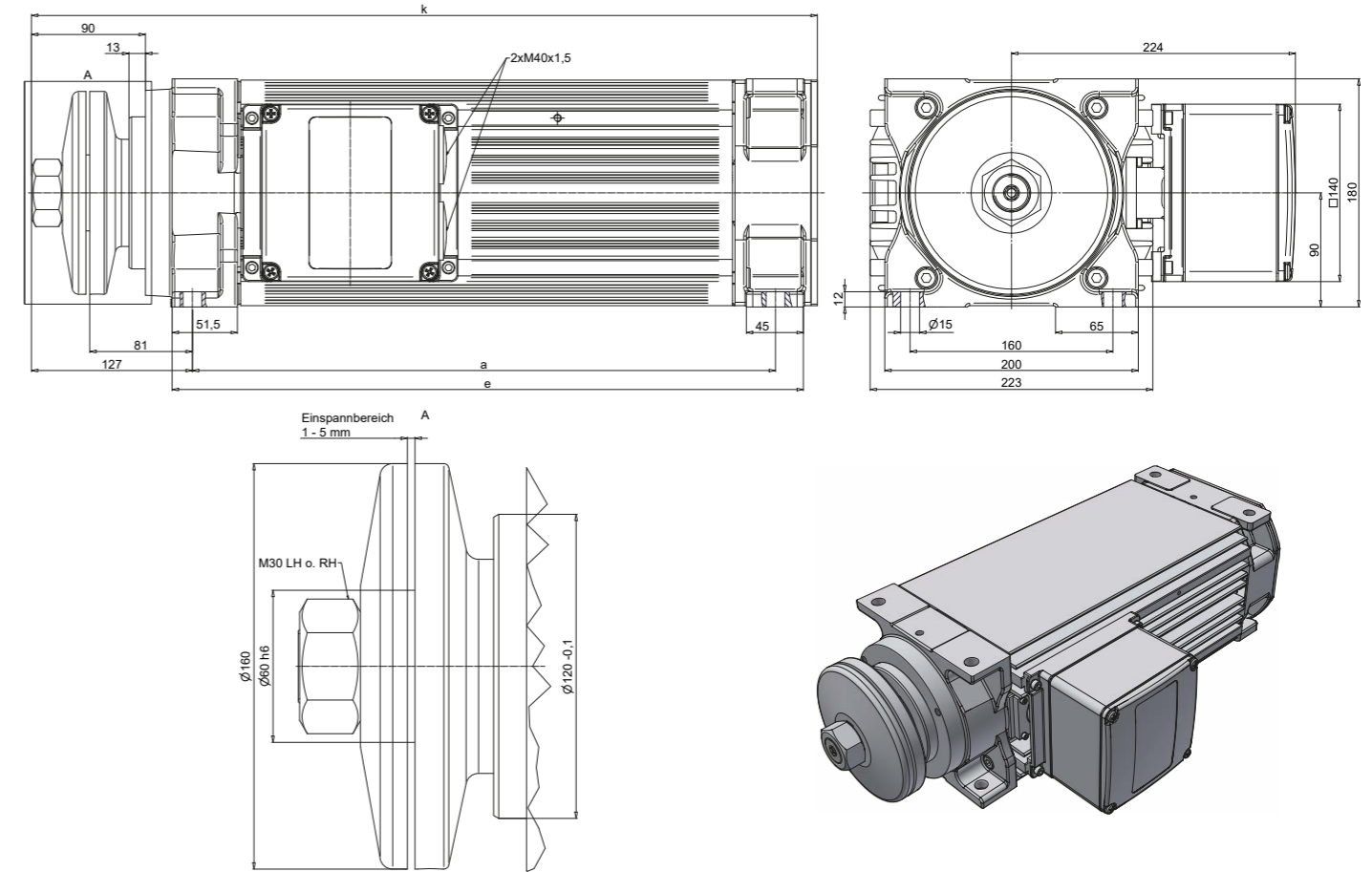
* Power rating for engines that are not subject to mandatory labeling. Others on request.

Performances for higher speeds

Model series	Selection table for higher speeds up to 9.000 1/min Nominal power P ₂ [kW]	
	100 Hz 6.000 1/min	150 Hz 9.000 1/min
	S1	S1
	P ₂ [kW]	P ₂ [kW]
K90 S/ 2	14,0	19,0
K90 M/ 2	20,0	27,0
K90 MB/ 2	24,0	31,0
K90 L/ 2	30,0	
K90 XL/ 2	36,0	

MODEL SERIES K90

K90 flat motor with flange disk

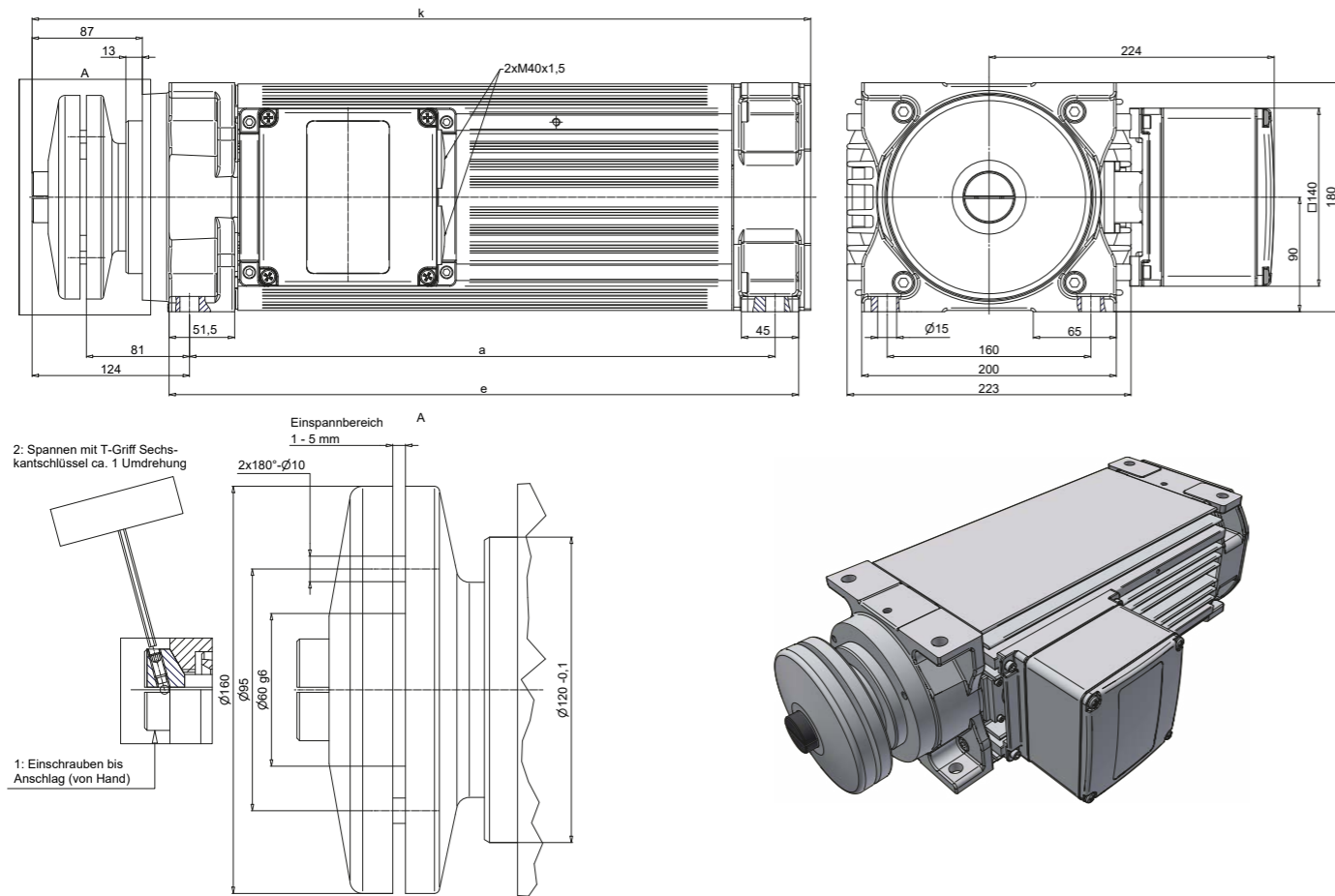


Dimensions [mm]	without brake		with brake	
Type	a	e	k	k
K90 - S	380	418	540	587
K90 - M	460	498	620	667
K90 - MB	510	548	670	717
K90 - L	570	608	730	777
K90 - XL	660	698	820	867

Execution	Dimension sheet
without brake	1NJ002776
with brake	1NJ002670

MODEL SERIES K90

K90 flat motor with quick-change clamping system



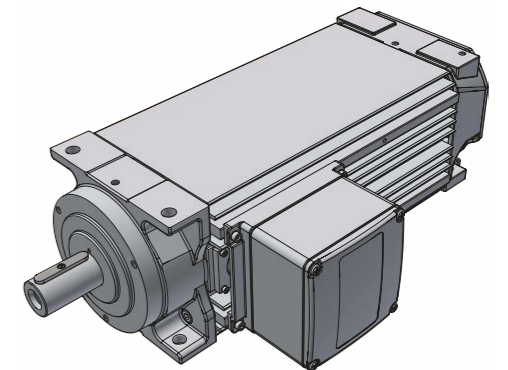
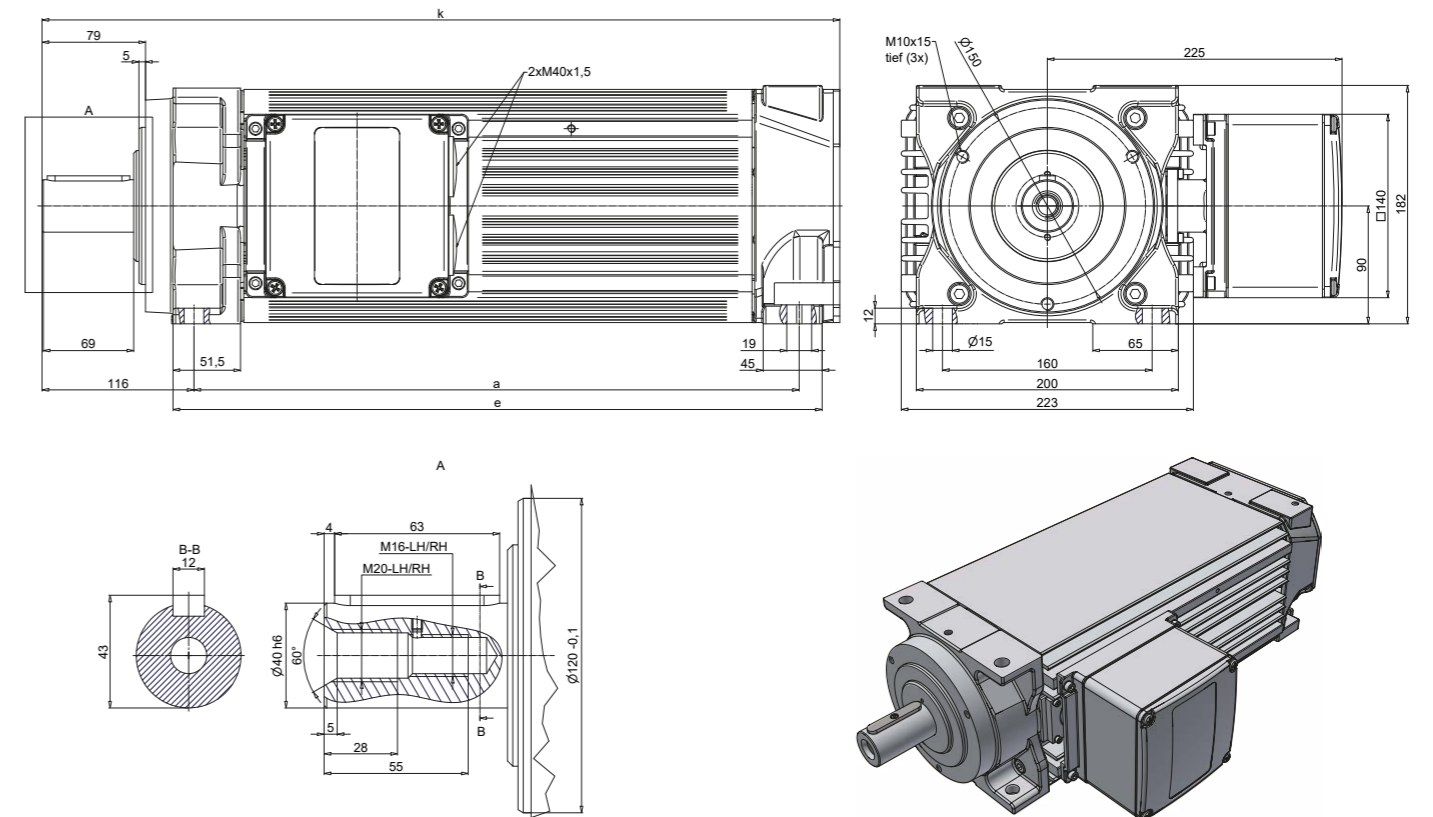
Right-left rotation possible

Dimensions [mm]	without brake		with brake	
Type	a	e	k	k
K90 - S	380	418	531	584
K90 - M	460	498	611	664
K90 - MB	510	548	661	714
K90 - L	570	608	721	774
K90 - XL	660	698	811	864

Execution	Dimension sheet
without brake	1NJ004583
with brake	1NJ006283

MODEL SERIES K90

Flat motor KF90 standard

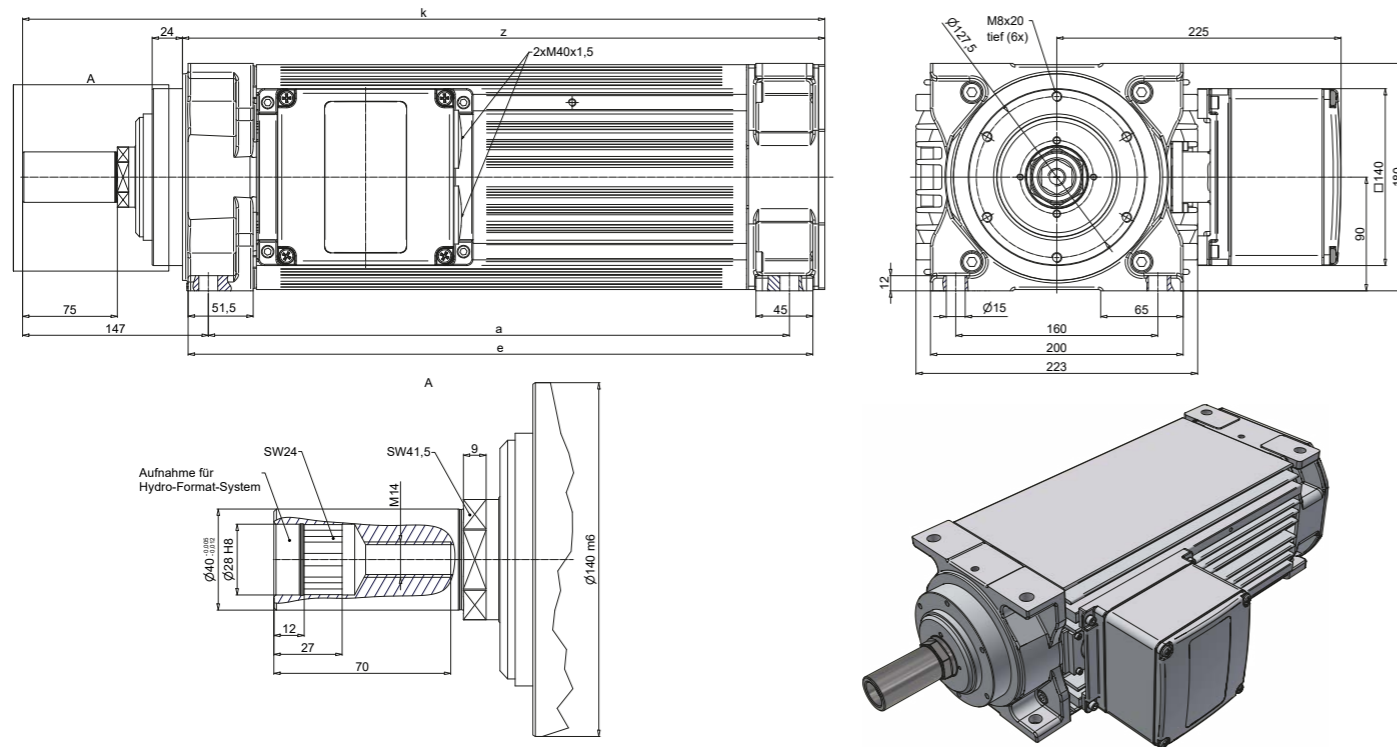


Dimensions [mm]	without brake		with brake	
Type	a	e	k	k
KF90 - S	380	418	529	576
KF90 - M	460	498	609	656
KF90 - MB	510	548	659	706
KF90 - L	570	608	719	766
KF90 - XL	660	698	809	856

Execution	Dimension sheet
without brake	1NJ013694
with brake	1NJ006280

MODEL SERIES K90

KD90 flat motor with adapter for Hydro-Format-System

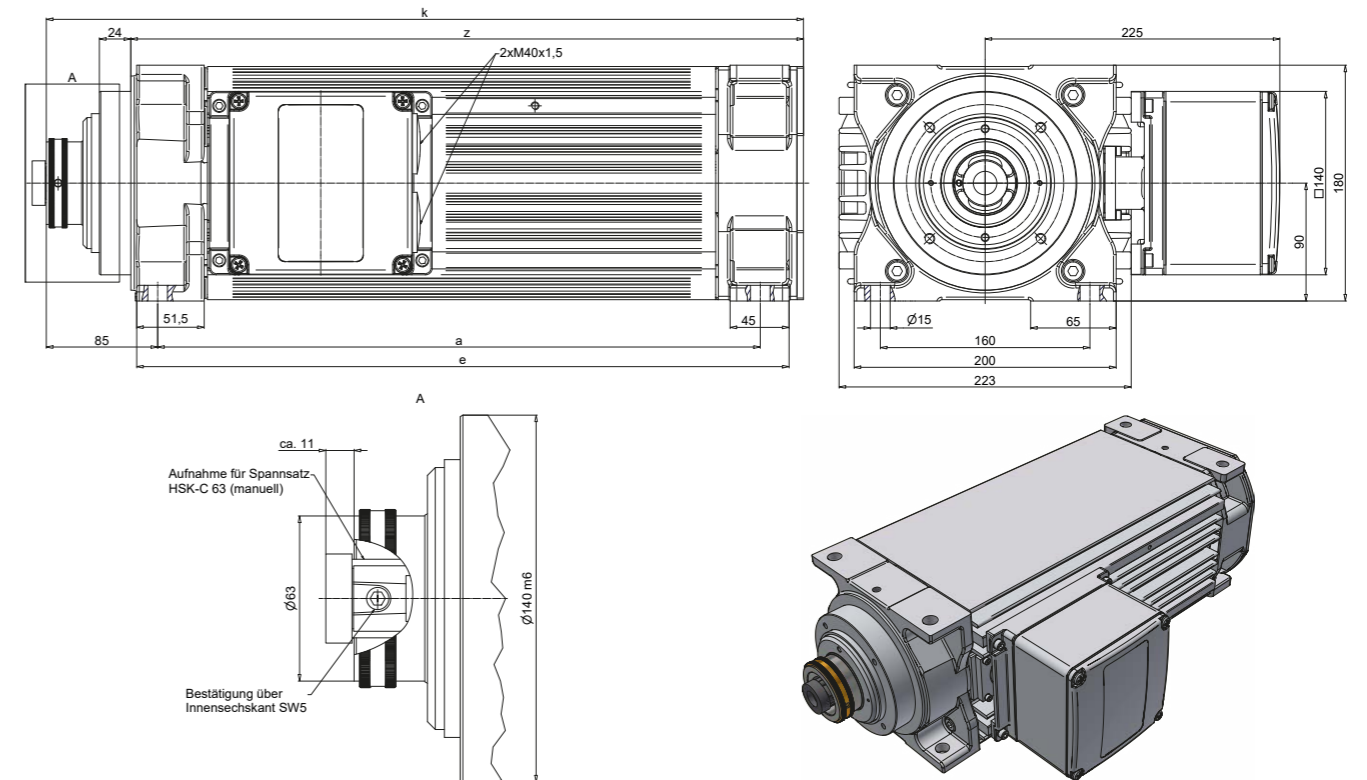


Dimensions [mm]	without brake		with brake	
	a	e	k	z
Type				
KD90 - S	380	415	555	428
KD90 - M	460	495	635	508
KD90 - MB	510	545	685	558
KD90 - L	570	605	745	618
KD90 - XL	660	695	835	708

Execution	Dimension sheet
without brake	1NJ011696
with brake	1NJ006281

MODEL SERIES K90

K90 flat motor with HSK-C 63 adapter

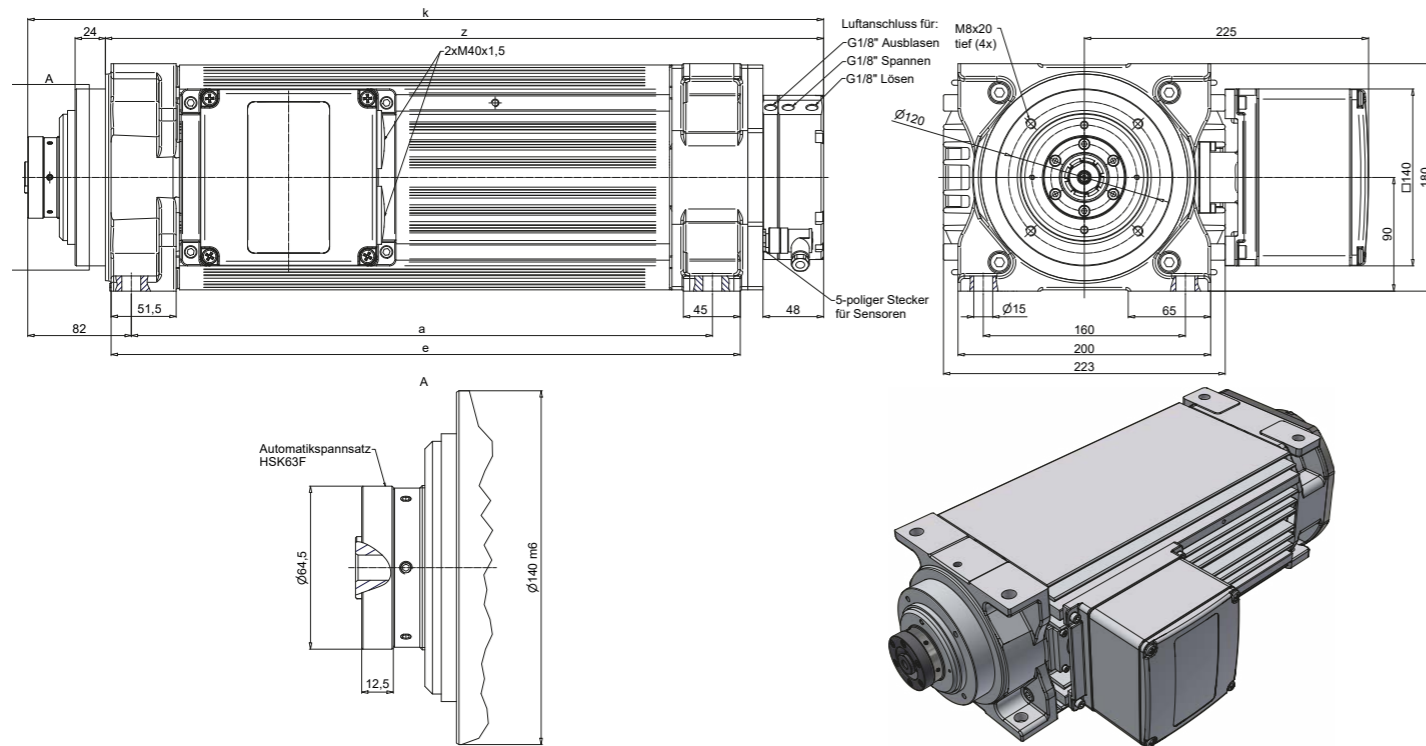


Dimensions [mm]	without brake		with brake	
	a	e	k	z
Type				
K90 - S	380	420	498	434
K90 - M	460	500	578	514
K90 - MB	510	550	628	564
K90 - L	570	610	688	624
K90 - XL	660	700	778	714

Execution	Dimension sheet
without brake	1NJ003906
with brake	1NJ006282

MODEL SERIES K90

K90 flat motor with HSK-F 63 adapter

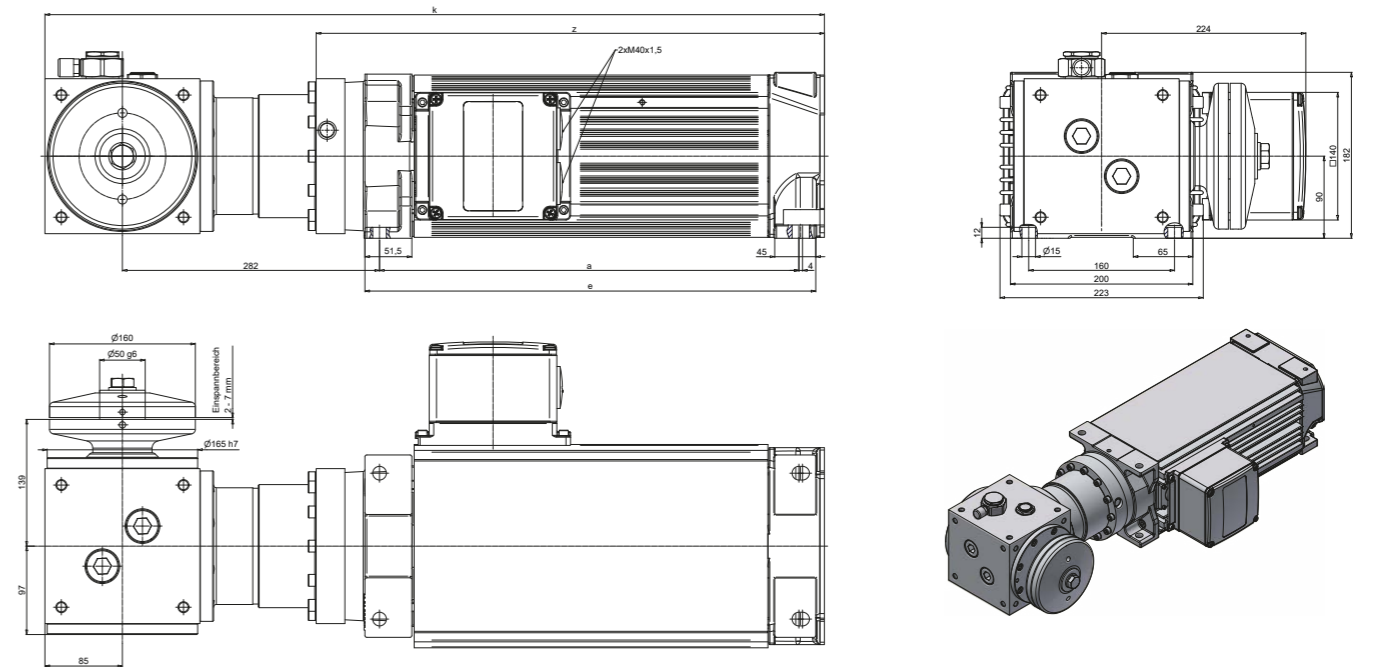


Dimensions [mm]				
Type	a	e	z	k
K90 - S	380	418	441	551
K90 - M	460	498	521	631
K90 - MB	510	548	571	681
K90 - L	570	608	631	741
K90 - XL	660	698	721	831

Dimension sheet
1NJ004687

MODEL SERIES K90

K90 flat motor with angular gear, ratio 1:1



Dimensions [mm]	without brake		with brake			
	a	e	k	z		
Type			k	z		
K90 - S	380	420	775	477,5	829	531
K90 - M	460	500	855	557,5	909	611
K90 - MB	510	550	905	607,5	959	661
K90 - L	570	610	965	667,5	1019	721

Execution	Dimension sheet
without brake	1NJ015994
with brake	1NJ013560

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| MODEL SERIES K112

MODEL SERIES K112

Performance overview

Table data refer to: Synchronous rotational speed 3.000 1/min, motor voltage: 3-phase 400V / 50Hz

Synchronous rotational speed 1/min	Model series	Nominal power P_2 [kW]					
		S1*		S6-60 %		S6-40 %	
		P_2 [kW]	I_n [A]	P_2 [kW]	I_n [A]	P_2 [kW]	I_n [A]
3.000	K112 S/2	12,5	23,1	15,0	27,5	16,5	29,8
	K112 SB/2	18,5	33,8	22,0	39,6	25,0	44,3
	K112 M/2	22,0	39,9	26,0	46,6	30,0	52,9
	K112 L/2	30,0	54,0	36,0	64,0	40,0	69,7
	K112 XL/2	37,0	66,3	45,0	79,9	50,0	87,0
1.500	K112 S/4	7,5	16,2	9,0	18,4	10,0	20,8
	K112 SB/4	11,0	23,2	13,0	26,7	15,0	30,5
	K112 M/4	13,0	26,9	15,5	31,6	17,5	35,3
	K112 L/4	18,5	38,1	22,0	44,4	25,0	49,8
	K112 XL/4	22,0	44,9	26,5	52,7	30,0	59,5
1.000	K112 S/6	5,5	12,5	6,5	14,4	7,5	16,7
	K112 SB/6	7,5	16,8	9,0	16,6	10,0	21,8
	K112 M/6	9,0	20,1	11,0	24,0	12,0	26,0
	K112 L/6	12,5	27,7	15,0	32,3	17,0	36,6
	K112 XL/6	16,0	35,5	19,0	40,8	21,5	46,1

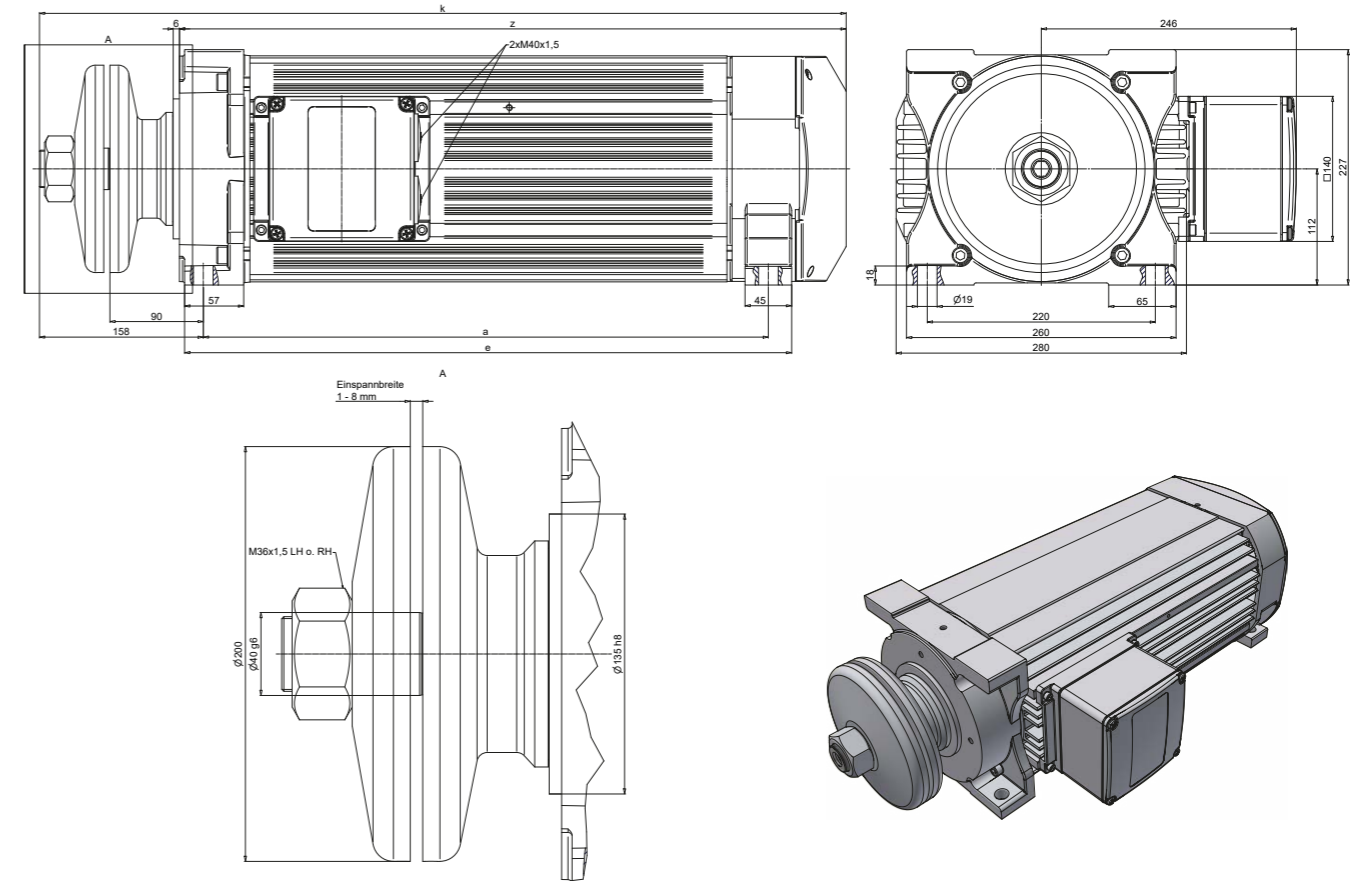
* Power rating for engines that are not subject to mandatory labeling. Others on request.

Performances for higher speeds

Model series	Selection table for higher speeds up to 6.000 1/min	
	Nominal power P_2 [kW]	
	100 Hz 6.000 1/min	
	S1	
	P_2 [kW]	
K112 S/ 2		20,0
K112 SB/ 2		30,0
K112 M/ 2		37,0
K112 L/ 2		50,0
K112 XL/ 2		60,0

MODEL SERIES K112

Flat motor K112.01 with flange disk

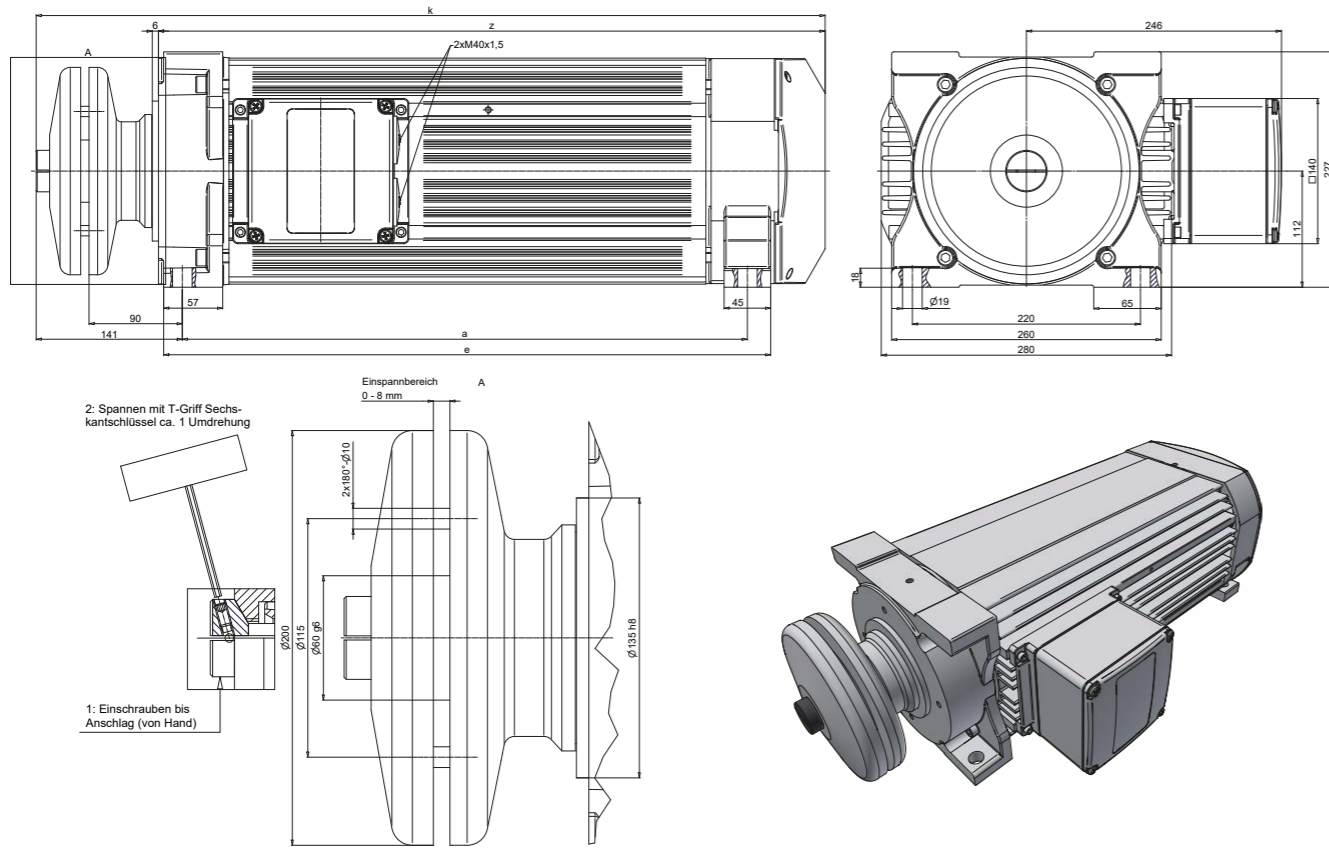


Dimensions [mm]	without brake				with brake M60K or M100K	
	a	e	k	z	k	z
Type						
K112 - S	415	456	648	513	690	555
K112 - SB	495	536	728	593	770	635
K112 - M	545	586	778	643	820	685
K112 - L	655	696	888	753	930	795
K112 - XL	755	796	988	853	1030	895

Execution	Dimension sheet
without brake	2NJ000104
with brake	2NJ000105

MODEL SERIES K112

K112 flat motor with quick-change clamping system



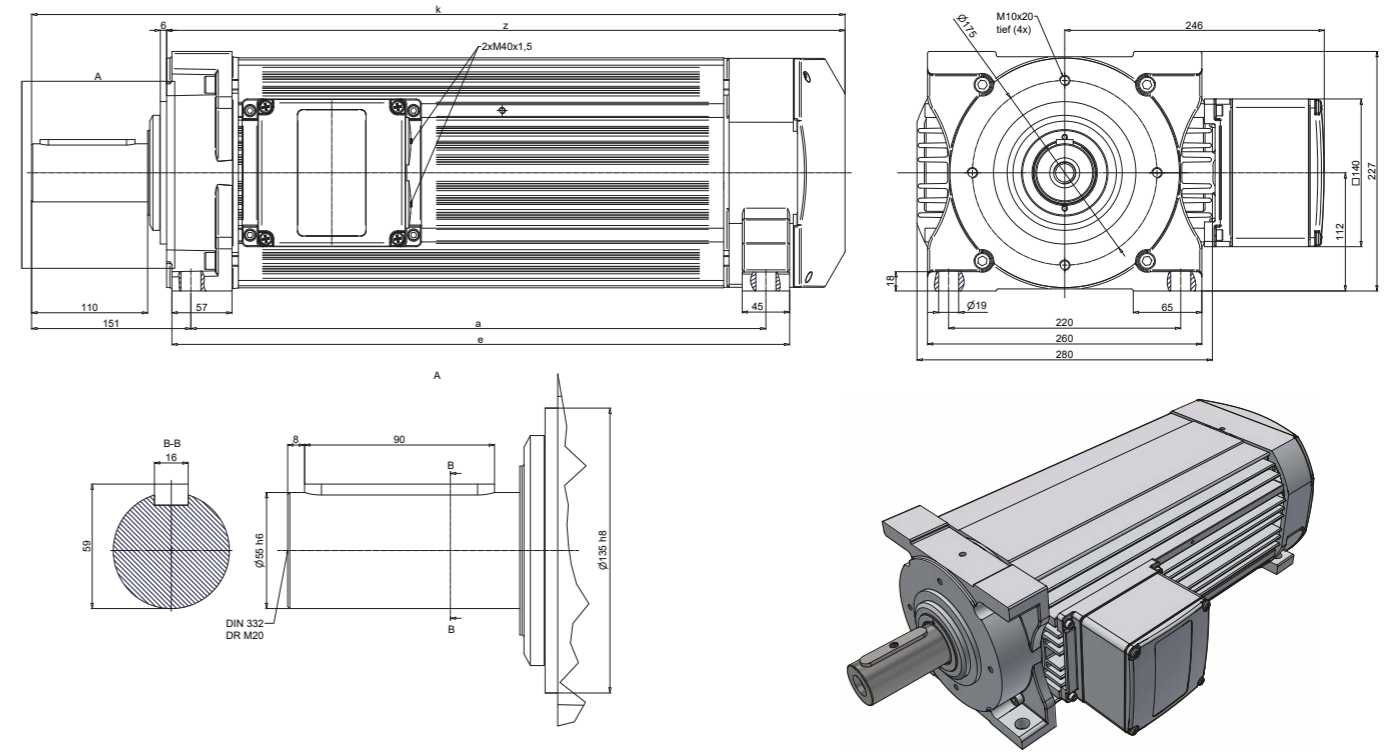
Right-left rotation possible

Dimensions [mm]	without brake				with brake M60K or M100K	
	a	e	k	z	k	z
Type						
K112 - S	415	456	628	513	670	555
K112 - SB	495	536	708	593	750	635
K112 - M	545	586	758	643	800	685
K112 - L	655	696	868	753	910	795
K112 - XL	755	796	968	853	1010	895

Execution	Dimension sheet
without brake	2NJ000428
with brake	2NJ000432

MODEL SERIES K112

Flat motor KF112.01 Standard

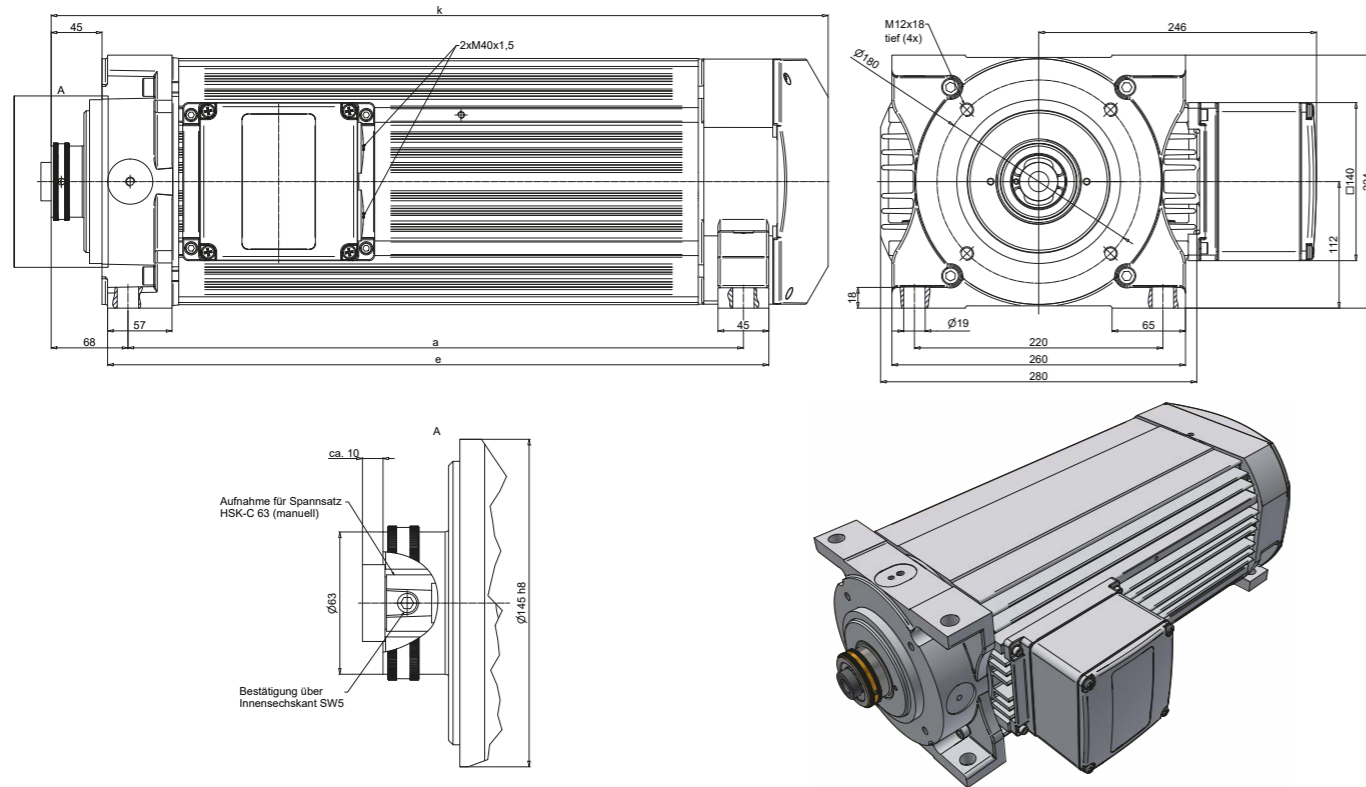


Dimensions [mm]	without brake				with brake M60K or M100K	
	a	e	k	z	k	z
Type						
K112 - S	415	456	641	513	683	555
K112 - SB	495	536	721	593	763	635
K112 - M	545	586	771	643	813	685
K112 - L	655	696	881	753	923	795
K112 - XL	755	796	981	853	1023	895

Execution	Dimension sheet
without brake	2NJ000114
with brake	2NJ000120

MODEL SERIES K112

K112 flat motor with HSK-C 63 adapter

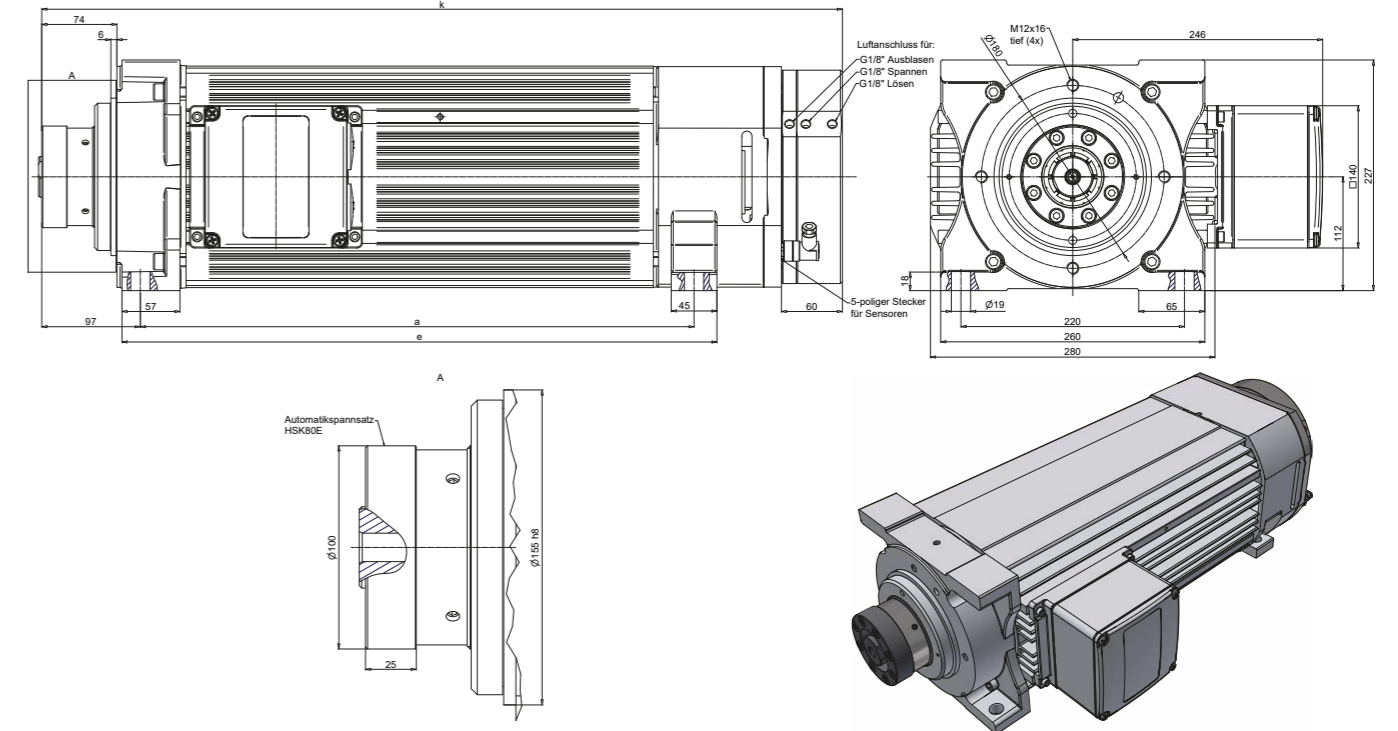


Dimensions [mm]			without brake	with brake M60K or M100K
Type	a	e	k	k
K112 - S	415	456	558	600
K112 - SB	495	536	638	680
K112 - M	545	586	688	730
K112 - L	655	696	798	840
K112 - XL	755	796	898	940

Execution	Dimension sheet
without brake	2NJ000411
with brake	2NJ000423

MODEL SERIES K112

K112 flat motor with automatic clamping system



Dimensions [mm]			
Type	a	e	k
K112 - S	415	456	599
K112 - SB	495	536	679
K112 - M	545	586	729
K112 - L	655	696	839
K112 - XL	755	796	939

Dimension sheet
2NJ000466

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| MODEL SERIES K160

MODEL SERIES K160

Performance overview

Table data refer to: Synchronous rotational speed
3,000 1/min, motor voltage: 3-phase 400V / 50Hz

Synchronous rotational speed 1/min	Model series	Nominal power P_2 [kW]					
		S1*		S6-60 %		S6-40 %	
		P_2 [kW]	I_n [A]	P_2 [kW]	I_n [A]	P_2 [kW]	I_n [A]
3.000	K160 S/2	45,0	78,0	60,0	101,0	70,0	117,0
	K160 M/2	55,0	93,9	70,0	117,0	85,0	140,0
	K160 L/2	65,0	113,0	85,0	143,0	100,0	165,0
	K160 XL/2	75,0	132,0	95,0	131,0	115,0	191,0

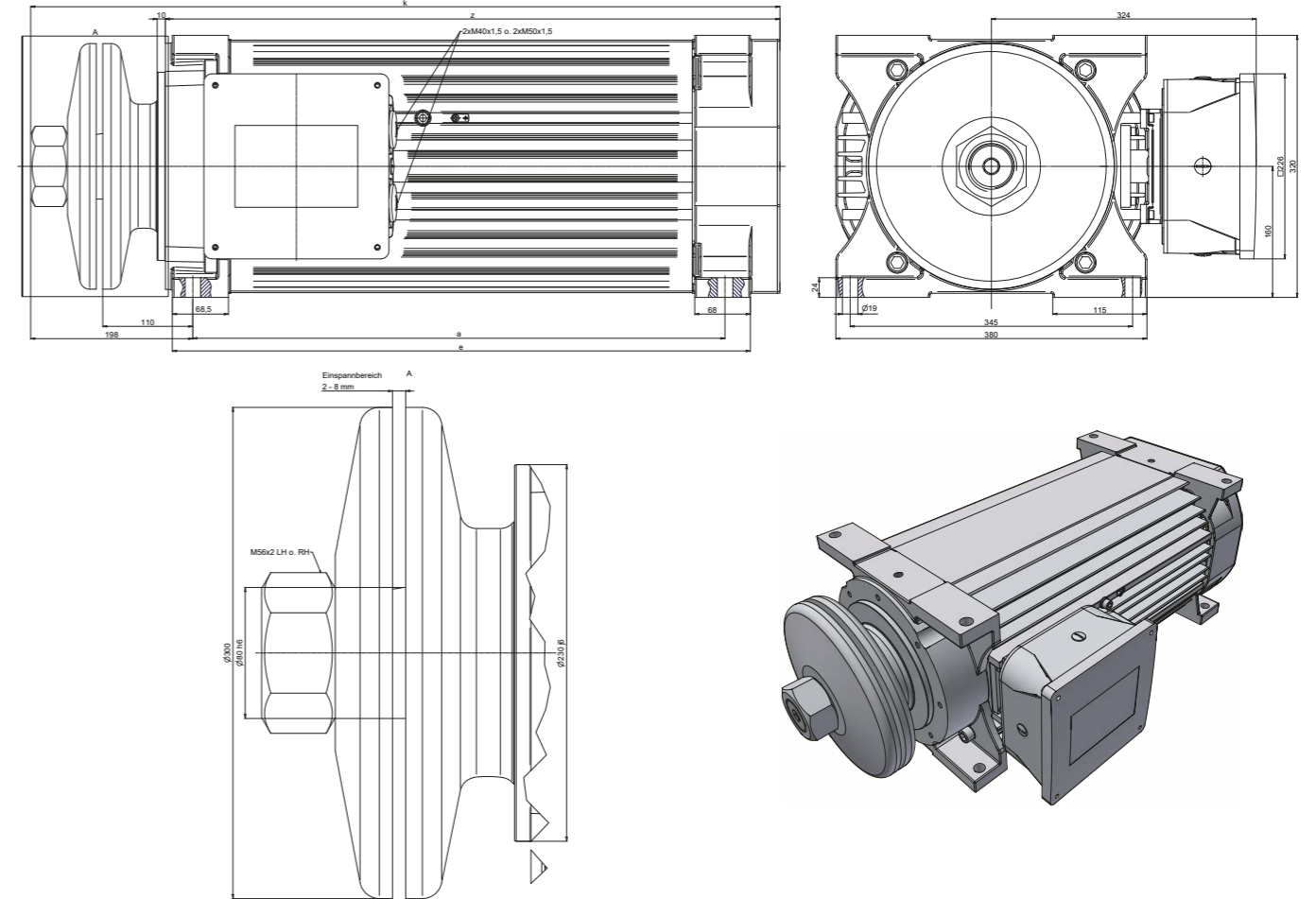
* Power rating for engines that are not subject to mandatory labeling. Others on request.

Performances for higher speeds

Model series	Selection table for higher speeds up to 6.000 1/min Nominal power P_2 [kW]	
	100 Hz 6.000 1/min	S1
	P_2 [kW]	
K160 S/ 2	74,0	
K160 M/ 2	90,0	
K160 L/ 2	107,0	
K160 XL/ 2	123,0	

MODEL SERIES K160

K160 flat motor with flange disk

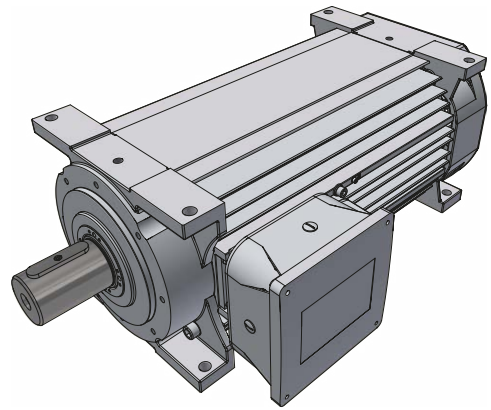
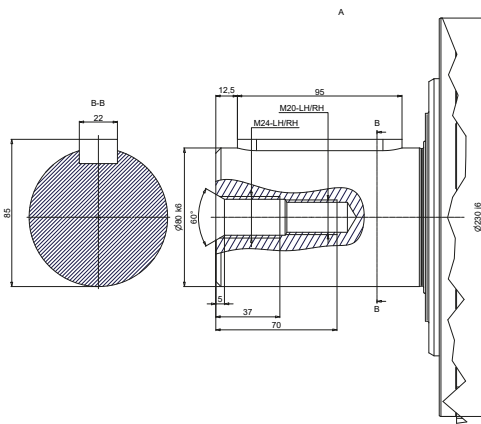
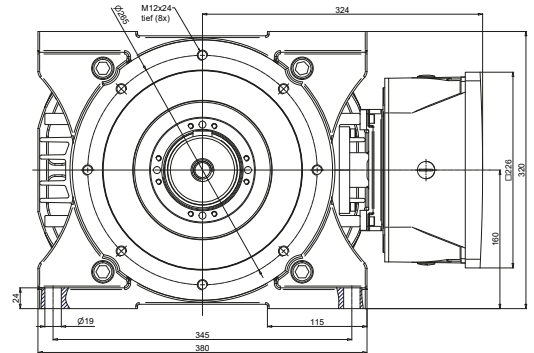
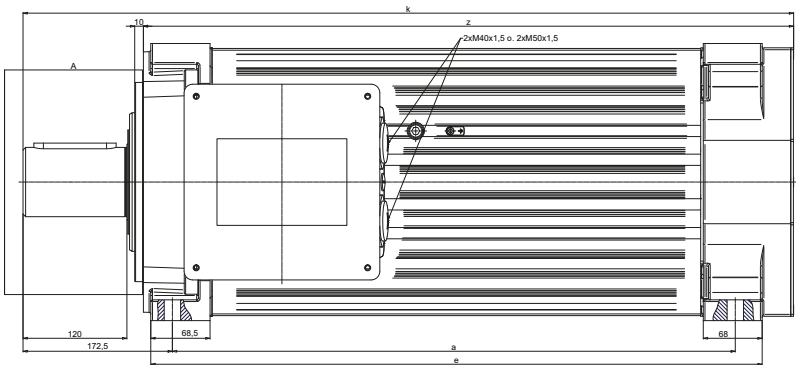


Dimensions [mm]	without brake				for terminal box position 2... / 2...K
	a	e	k	z	a; e; z; k
Type					
K160 - S	585	641	850	686	
K160 - M	650	706	915	751	+40mm
K160 - L	760	816	1025	861	
K160 - XL	825	881	1090	926	-

Double bearing Dimension sheet
1NJ005277

MODEL SERIES K160

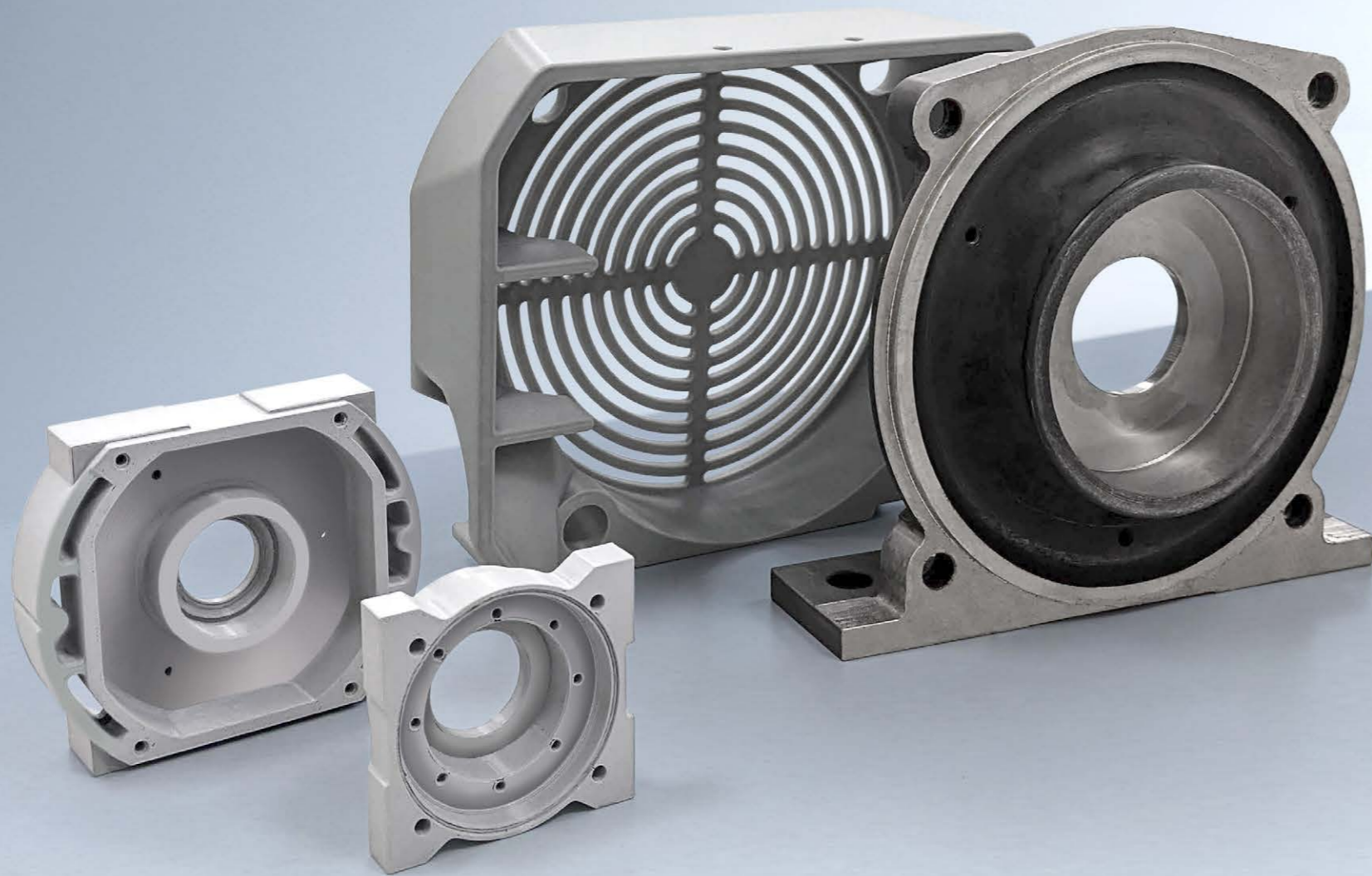
Flat motor KF160.01 Shaft with feather key



Dimensions [mm]		without brake		for terminal box position 2... / 2...K	
Type	a	e	k	z	a; e; z; k
K160 - S	585	641	825	686	+40mm
K160 - M	650	706	890	751	
K160 - L	760	816	1000	861	-
K160 - XL	825	881	1065	926	

Doppellagerung
Dimension sheet

1NJ013011



RAPID PROTOTYPEING

State-of-the-art 3D printing processes are used in the continuous further development of our HIMMEL®-flat motors. This significantly speeds up the development of proto-types of individual components and turns our development team's ideas into reality for you as quickly as possible.

The layer-by-layer additive manufacturing process can produce a physical component or assembly directly from the CAD design data, so that possible optimizations or adjustments can already be implemented in the development phase. This significantly eliminates the need for time-consuming and costly manufacturing processes.

Rapid ProtoTypeing has already been used successfully in a large number of applications, so that, for example, new ventilation concepts have been developed with regard to optimal cooling air routing.

The effectiveness of the design measures for optimizing our HIMMEL®-flat motors is verified by means of a wide variety of test procedures. The tests required for this are carried out in-house.

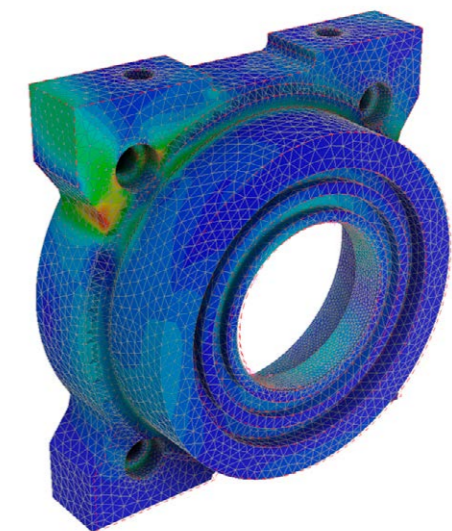


| SIMULATION

Especially with the highest demands on our motors, an optimal winding design and the structural-mechanical evaluation of the components are of decisive importance. All electrical data are calculated by our experts. New winding designs are checked and adjusted by numerical simulation using the latest standards. This ensures that the optimum is always achieved under the given conditions.

Mechanical design is also supported by modern software solutions that help us with a wide range of issues. For example, the calculation of bearing service life can be carried out taking into account a wide range of factors.

In addition, we use numerical methods such as the finite element method (FEM). This enables us to detect weak points at an early stage in the development process and to carry out contour optimizations if necessary.





| TEST BENCH

The factory's own test facility comprises three test benches for HIMMEL®-flat motors alone. In addition to a dynamometer, there are two run-in test benches available. Our dynamometer can accommodate a wide range of HIMMEL®-flat motors with various generators and measuring equipment.

HIMMEL®-flat motors. High-modern measuring technology records up to eight sensor channels in real time. Thus, various test sequences can be precisely realized and recorded. In post-processing, the recorded data is analyzed and graphically processed.

Two fully automated run-in test stands ensure a run-in process suitable for series production according to special specifications. Thus, grease distribution run-in and run-in phases according to time or temperature can be realized in parallel. All HIMMEL®-flat motors are fully operational when delivered. A time-consuming and expensive run-in phase in the customer's plant is thus no longer necessary.

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HIMMEL Antriebstechnik GmbH & Co. KG

Venneweg 28 | 48712 Gescher

Germany

Phone: +49 (0) 2542 / 910-0

Fax: +49 (0) 2542 / 910-290

E-Mail: info@himmelinfo.de

Web: www.himmelinfo.de



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