

MR 63 AC SERVO MOTORS

AC Servo Motors with High Power Density



AC servo motors with rated torques between 0.25 and 54 Nm and five different flange sizes, rated speeds up to 6,000 r.p.m., other speeds on request. All motors are available with brakes.

Main Characteristics

- maintenance-free, since brushless
- high dynamics
- compact dimensions due to high-performance neodymium magnet material
- built-in resolver for sinusoidal commutation, other position sensors as options
- IP 64 protection (shaft/flange: IP 54), optional IP 65 or IP 67

ESR Drive System Packages

MR 63 servo motors are adapted to the digital and analog ESR servo drives. Servo drives, servo motors, position sensors, gearboxes, and brakes are available as drive system packages. For further information, see the back of this data sheet.

Applications

Positioning and feed movements with high dynamics and accuracy in

- handling and assembly systems
 - electronics production machinery
 - semiconductor production machinery
 - measuring and testing machinery
 - machine tools and metal working machinery
 - test stands
 - packaging machinery
 - textile machinery
 - plastics processing machinery
 - coiling machinery
- and many other applications

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Construction of the Servo Motors

General

The series MR 63 AC servo motors are permanent-magnet three-phase synchronous motors for applications with high demands to dynamics and positioning accuracy at small construction volume and low weight.

The stator carries a three-phase winding, the rotor is equipped with neodymium iron boron magnets (NdFeB) at the surface. Due to its high remanence and field strength, this magnet material permits high dynamics and compact design of the motor.

Construction Type and Equipment

For an overview of the different types and the available equipment (position sensor, holding brake, key, etc.), please see the type code below.

Motor Selection

With our many years of experience, we will be pleased to be of assistance to you when selecting and configuring the right servo drive system for your application. For our contact data, please see the back of this data sheet.

Special Design

In addition to the stated types and equipment, special designs are possible, e. g. motors with hollow shafts, special flange, adjusted winding, etc. If required, please contact ESR.

Servo Drive System Packages

General

We offer customized drive system packages for your application consisting of our servo drives and the series MR 63 AC servo drives described in this data sheet with or without gearboxes, with position sensors, and, if required, with brakes.

Type Code

The type code clearly identifies a servo motor equipped in a certain way.

Example ⇒ **MR 63**24.1234-U3-N45-G01-A0D-M0-P0-S0



24

Frame size and rotor length

Xx first number: frame size (flange dimensions: 2 = 55 mm, 3 = 86 mm, 4 = 98 mm, 5 = 142 mm, 6 and 7 = 190 mm)
 xX second number: rotor length (2..8) (For the dimensions, see drawing on the following page)

1243

Assembly code or other classification

Internal coding of ESR, given for various feature combinations. Statement of the assembly code is not required if all other features unequal zero are stated and the customer-specific equipment is described. For above-mentioned example "MR 6324-U3-N45-G01-A0D" would be sufficient.

U3

DC-bus voltage

U3 motor for 320 V DC-bus voltage (corresponds to 230 V supply voltage)
 U5 motor for 560 V DC-bus voltage (corresponds to 400 V supply voltage)

N45

Rated speed

in 100 r.p.m., e.g. N45 = 4500 r.p.m. rated speed

G01

Motor position sensor

G01 with resolver (1 pole pair) (standard)
 G06 with high-resolution incremental encoder (2048)
 G09 with Sincos (Hiperface) encoder, single-turn (1024)
 G10 with Sincos (Hiperface) encoder, multi-turn (1024)
 G11 with EnDat encoder, single-turn (2048)
 G12 with EnDat encoder, multi-turn (2048)
 other motor position sensors on request

A0D

Motor connection

A0D connector rotatable
 A0A connector A-side
 A0B connector B-side
 A0G connector straight
 AYD Y-Tec connector, rotatable

M0

Holding brake

M0 without holding brake (standard)
 MS with holding brake

P0

Shaft, key

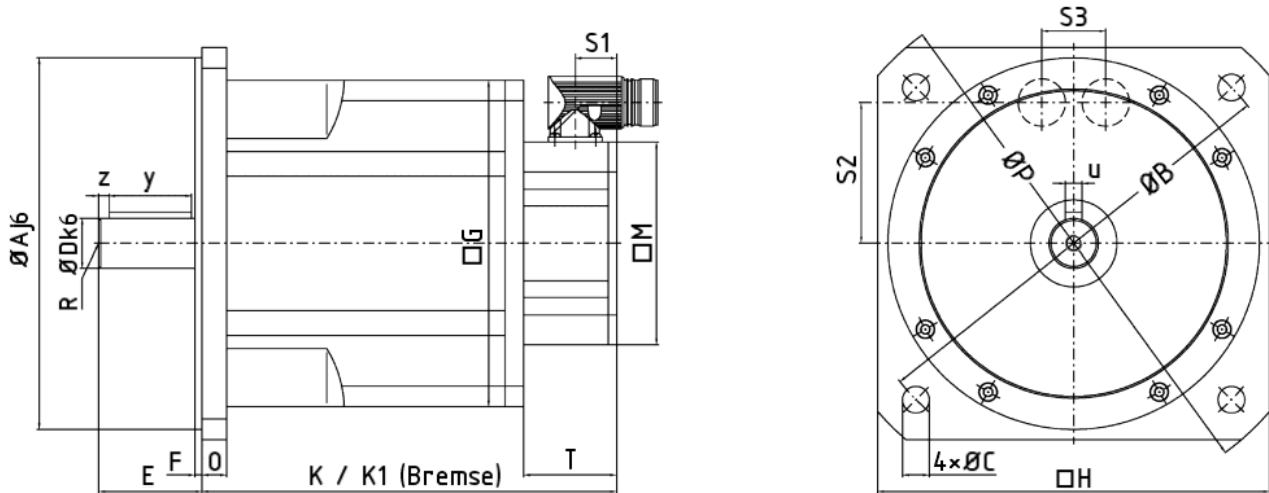
P0 shaft flat (standard)
 P1 shaft with key acc. to DIN 6885

S0

Special design (described by text)

S0 motor in standard design
 S1 motor with special winding
 S2 motor with special shaft
 S3 motor with special flange
 SK other special design

Dimensions



	A _{j6}	B	C	D _{k6}	E	F	G	H	K	K1	M	O	P	R	S1	S2	S3	T	Option -P1		
																			u	y	z
MR 6322	40	63	5.8	9	20	2.5	50	55	67	105	50	6	74	M3×8	16	48.8	26.9				
MR 6324									82	120											
MR 6326									97	135											
MR 6328									112	150											
MR 6332	80	100	7	14	30	3	74	86	82	120	74	11	115	M4×10	18	56.3	31		5	22	4
MR 6334									100	138											
MR 6336									136	174											
MR 6338									172	210											
MR 6342	95	115	9	19	40	3	98	98	113	154	98	14	130	M5×14	19	68.3	31		6	32	4
MR 6344									143	184											
MR 6346									173	214											
MR 6348									203	244											
MR 6352	130	165	12	24	50	3.5	98	142	144	180	98	16	188	M8×20	17	68.3	31		8	40	5
MR 6354									174	210											
MR 6356									204	240											
MR 6358									234	270											
MR 6362	180	215	13	24	50	3.5	158	190	158	222	98	12	250	M8×19	20	68.3	31	45	8	40	5
MR 6363									183	247											
MR 6364									208	272											
MR 6365									233	297											
MR 6366									258	322											
MR 6372	180	215	15	28	58	4	190	190	181	240	98	15	250	M10×22	20	68.3	31	45	8	40	9
MR 6374									211	270											
MR 6376									241	300											
MR 6378									271	330											

All dimensions in millimeters. CAD files (3D/step) are available in the download area of our WWW site.

Mechanical Data

Mounting standards	Flange motor, flange according to DIN 42 677; special flange on request
Mounting position	Any
Construction types	According to DIN IEC 34 special construction types on request
Flange accuracy	Axial and radial runout accuracy according to DIN 42 955 N, optional R
Cooling	Self-cooling
Ball bearing	According to DIN 42 966 Lubrication for 20,000 operating hours
Varnishing	Matt black
Bearing shields and enclosure	High-quality light-alloy
Vibration intensity	Rotor dynamically balanced according to vibration intensity stage R, S according to DIN VDE 0530-14 on request
Rotor	Rotor with rare earth permanent magnets
Protection class	Motor, brake: IP 64 (flange/shaft: IP 54), optional IP 65 or IP 67 with or without shaft seal
Shaft end	According to DIN 748, part 3, with more precise fit k6, threaded on centerline similar to DIN 332 p. 2 Standard shaft without keyway Shaft with keyway as option -P1 Special shaft ends or hollow shafts on request

Motor Shaft

Permissible mechanical load Service life of ball bearings 20,000 h, application of radial force F_R to shaft center at motor speed 3,000 r.p.m, no simultaneous loading with max. F_R and F_A .

Motor Size	MR 632x	MR 633x	MR 634x	MR 635x	MR 636x	MR 637x
Radial force F_R (-M0)*	220 N	335 N	595 N	675 N	700 N	1350 N
Radial force F_R (-MS)*	265 N	440 N	735 N	810 N	800 N	1450 N
Axial force F_A	45 N	65 N	115 N	130 N	140 N	250 N

* -M0 = motor without brake/ -MS = motor with brake

Brake

General

Option -MS

The optional brake is a permanent-magnet brake located behind the A-side bearing shield of the motor. The supply voltage of the brake is 24 V DC $\pm 10\%$.

The brake is designed as holding brake, it usually serves for holding the motor shaft at standstill. Occasional load brakings, e. g. in case of an emergency-stop, are permitted.

Function

The braking force is generated by permanent magnets. There is no air gap in the magnetic circuit. To lift the brake, a magnetic field of opposing polarity to the permanent magnet is built up. A spring element lifts the armature disk in axial direction until there is an air gap between the friction surfaces.

Motor Size	MR 632x	MR 633x	MR 634x	MR 635x	MR 636x	MR 637x
Holding torque	2 Nm	4.5 Nm	9 Nm	18 Nm	36 Nm*	36 Nm*
Rated current	0.46 A _{rms}	0.5 A _{rms}	0.75 A _{rms}	1.0 A _{rms}	1.1 A _{rms}	1.1 A _{rms}
Moment of inertia	0.008 · 10 ⁻³ kg m ²	0.02 · 10 ⁻³ kg m ²	0.06 · 10 ⁻³ kg m ²	0.2 · 10 ⁻³ kg m ²	0.62 · 10 ⁻³ kg m ²	0.62 · 10 ⁻³ kg m ²
Weight	0.2 kg	0.47 kg	0.8 kg	1.8 kg	3.1 kg	3.6 kg

* Reinforced brake with holding torque up to 72 Nm on request

Electrical Data

General

The motors are three-phase synchronous motors with 6 poles (3 pole pairs, MR 632x) or 10 poles (5 pole pairs, MR 633x to MR 637x). They comply with the DIN VDE 0530 Rules for Electrical Machines.

Voltage

The motors are designed for connection to servo drives with DC-bus voltages of 320 V or 560 V. Other voltages on request.

Insulation

Insulation class F acc. to DIN VDE 0530. Suitable for use in tropical climates.

Performance

The rated output in the technical specifications applies to operating conditions defined according to DIN VDE 0530: installation location below 1000 m above sea level, cooling air temperature ≤ 40 °C, operating mode S1.

Winding protection

The servo drive monitors the power consumption of the motor using an I²t circuit and protects it against overloading.

In addition to the monitoring by the servo drive, the winding is monitored by PTC resistors installed in the motor, alternatives, e.g. NTC, on request. If the permissible winding temperature (155 °C) is exceeded, the servo drive responds to the abrupt rise of the PTC resistor.

Motor Position Sensors

General

For determining position and speed, the servo motors are equipped with a motor position sensor. Two types of position sensors are available: resolvers and optical position sensors. Usually, resolvers are used. Sincos (Hiperface), high-resolution incremental, and EnDat encoders can be used in connection with digital servo drives. They are intended for applications in which high accuracy and dynamics or low speed ripple are required. The multi-turn types additionally provide an absolute position determination for 4096 revolutions.

Resolvers

(Option -G01)

Resolvers are inexpensive and robust sensors with magnetic position acquisition. A 1-pole-pair brushless hollow-shaft resolver with a transmission ratio of 1 : 0.5 working according to the transmitter principle is used. In the servo drive, the exact rotor position is determined from the analog resolver signals.

Optical position sensors:

In connection with the digital servo drives and the ESR multi-axis servo system, a high-resolution incremental encoder, a Sincos (Hiperface) encoder, or an EnDat encoder (with optical position acquisition) can be used.

High-resolution incremental encoder

(Option -G06).

The high resolution improves control quality and smooth running. Furthermore, by using analog incremental signals a reduction of the band width is achieved compared to the transmission of the actual position value via incremental encoder with rectangular output signals.

Sincos (Hiperface)-encoder

(Option -G09 and -G10) or

The high-resolution incremental encoder passes a reference signal once per revolution (zero pulse). Before the encoder has passed the reference signal for the first time, the position information of the rotor is acquired via a second track (Z1 track) ("rough" commutation). As soon as the reference signal has been passed once, the position is determined from the incremental signals, the position information is highly accurate.

EnDat encoder

(Option -G11 and -G12)

With Sincos (Hiperface) and EnDat encoders, the sinusoidal and cosinusoidal incremental signals are transmitted to the servo drive via the process data channel. The parameter channel (serial RS 485 interface) serves for transmitting the absolute rotor position information.

Single-turn

With the single-turn types of optical motor position sensors (option -G06, -G09, or -G11), the position acquisition for several revolutions is transmitted to a software counter in the servo drive. Therefore, for positioning operating modes, a reference run has to be carried out after each switch-off and switch-on of the control supply voltage in order to determine the absolute position of the axis.

Multi-turn

With the multi-turn types (option -G10 or -G12), the position is determined for 4096 revolutions in the encoder. It is read from the motor position sensor after each switch-off and switch-on of the control supply voltage so that a reference run is not required.

Connection to the Servo Drive

General

For connection to the servo drive, the motor is equipped with two connectors. The motor phases (power) are connected with the servo drive using a shielded cable. The motor position sensor is connected with twisted-pair conductors via a multi-core shielded cable.

The optional brake is connected via the power supply cable. The motor temperature sensor is connected either via the motor position sensor connector (for resolvers) or the power supply cable (for high-resolution incremental encoder, Sincos (Hiperface), or EnDat).

Cables (ready-assembled, as well) and cable sets are available as accessories.

Torque Increase at Intermittent Duty S3

General

The typical working cycle of a servo drive consists of load phases in which the motor runs at high speed or torque interrupted by periods in which it is operated at reduced power or is standing still. Therefore, the design of the drive should not only consider the desired rated speed but the ratio of load and rest phases to specify a drive which meets the requirements optimally.

Operating modes according to VDE 0530

The servo drive technology differs between the following operating modes:

- S1 = continuous duty
- S3 = intermittent duty; in this case, the ratio between load and rest phases is stated. e. g.
 - S3 25% = intermittent duty with a switch-on period of 25%
 - S3 40% = intermittent duty with a switch-on period of 40%

Statement of technical data

In the tables of the technical data of the individual motors, the values are basically stated for S1 operation. They were determined by measurements of the temperature development of the motors in continuous operation. To do so, the motors are mounted to standardized flanges via which they can dissipate the heat.

Torque increase

If the servo motor is used in S3 intermittent duty, it can be operated at a higher torque as long as the rated torque is not exceeded on time average. Thus, at intermittent duty, approx. a 1.6-fold torque can be achieved with 40% switch-on period, with 25% switch-on period even up to double the torque.

Heat dissipation

Prerequisite for that is that the motor can dissipate enough heat, e.g. via the part of the machine it is flange-mounted to or by convection to the air surrounding it. The thermal time constant of the motor must be taken into account for that, see technical specifications.

In case of an insufficient heat dissipation, e.g. because the motor is not flange-mounted directly to the motor but via a gearbox he might have to absorb heat from, or because an exchange with cooler ambient air is not possible, the torques must be reduced correspondingly. This may lead to the fact that in time average, a torque lower than the rated torque is available.

Servo Motors for $U_{DC} = 320$ V: Overview and Assignment

Order Number Servo Motor	Rated Speed n_N [r.p.m.]	Rated Torque M_N [Nm]	Standstill Torque $M_{0.200}$ [Nm]	Peak Torque M_{max} [Nm]	Servo Drive With Rated Current ...
MR 6322-U3-N45	4500	0.25	0.28	1.0 .. 1.1*	2 A
MR 6324-U3-N45	4500	0.48	0.54	1.6 .. 2.2*	
MR 6324-U3-N60	6000	0.43	0.54	1.3 .. 1.9*	
MR 6326-U3-N45	4500	0.68	0.75	1.7 .. 2.6*	
MR 6326-U3-N60	6000	0.64	0.75	1.6 .. 2.3*	
MR 6328-U3-N45	4500	0.85	0.95	1.9 .. 2.8*	
MR 6328-U3-N60	6000	0.75	0.9*	1.7 .. 2.5*	
MR 6332-U3-N30	3000	1.1	1.15	3.1 .. 3.4*	4 A
MR 6332-U3-N60	6000	1.0	1.15	2.0 .. 2.7*	
MR 6334-U3-N30	3000	1.9	2.05	4.2 .. 5.9*	
MR 6334-U3-N50	5000	1.8	2.05	3.7 .. 5.3*	
MR 6334-U3-N60	6000	1.65	2.05	3.9 .. 5.4*	6 A
MR 6336-U3-N30	3000	3.0	3.5	7.1 .. 9.9*	
MR 6336-U3-N45	4500	2.75	3.5	7.0 .. 10*	
MR 6336-U3-N50	5000	2.7	3.4*	6.1 .. 8.7*	
MR 6338-U3-N30	3000	3.7	4.8	10.3 .. 14.4*	

* Note: Technical data of the motors for operation with the stated servo drives

Other speeds on request.

Suitable servo drives with DC-bus voltage 320 V:

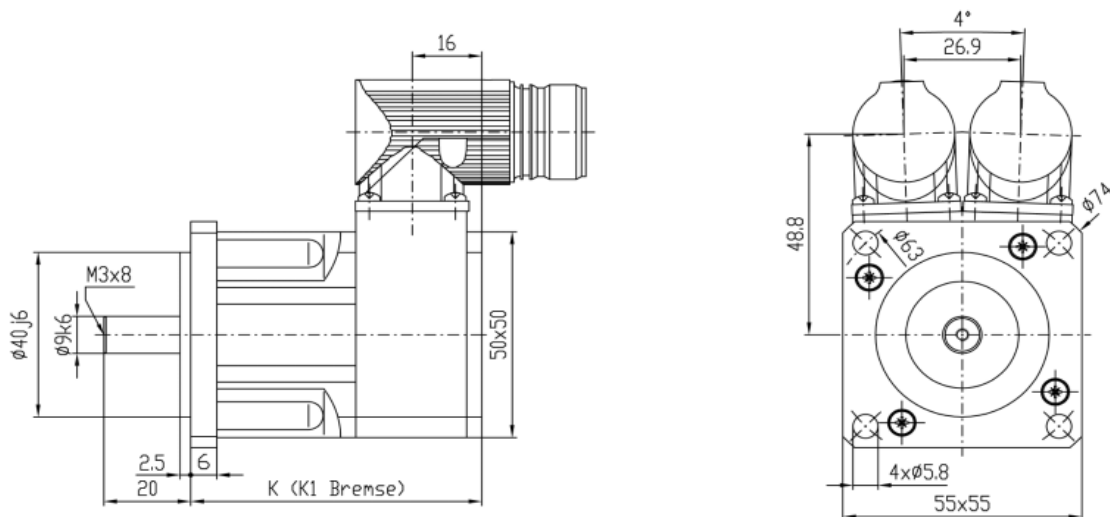
Servo Drive Family	Servo Drives New Generation Size 1	TrioDrive D/xS	TrioDrive A
Power supply	direct 230 V~	direct 230 V~	direct 230 V~
Technology	digital	digital	analog
Rated current	BN 6771: 0.8 A BN 6772: 2 A BN 6773: 4 A BN 6774: 6 A	BN 6755: 0.8 A BN 6756: 2 A BN 6757: 4 A BN 6758: 6 A	BN 6651: 2 A BN 6652: 4 A BN 6653: 6 A

Servo Motors for $U_{DC} = 320$ V: Technical Specifications (1) – MR 6322 and MR 6324

For the following types: MR 6322..-U3 or MR 6324..-U3

Motors MR 6322 and MR 6324 for $U_{DC} = 320$ V			MR 6322 -N45	MR 6324 -N45	MR 6324 -N60
Rated speed	n_N	r.p.m.	4,500	4,500	6,000
Rated output	P_N	W	120	230	280
Torque at rated speed	M_N	Nm	0.25	0.48	0.43
Rated current	I_N	A_{rms}	0.96	1.12	1.3
Standstill torque	$M_{l0\ 200}$	Nm	0.28	0.54	0.54
Standstill current	$I_{l0\ 200}$	A_{rms}	0.97	1.17	1.48
Peak torque	M_{max}	Nm	1.12	2.16	2.16
Peak current	I_{max}	A	4.5	5.4	6.8
Max. speed (mech. perm.)	n_{max}	r.p.m.	12,000	12,000	12,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	0.29	0.46	0.36
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	0.26	0.43	0.33
Voltage constant	K_e	V/1000 r.p.m.	17.5	28.0	22.0
Resistance phase-phase	R_{u-v}	Ω	28.3	25.9	15.8
Inductivity phase-phase	L_{u-v}	mH	18.9	23.8	19.8
Electr. time constant	T_{el}	ms	0.67	0.92	1.25
Thermal time constant	T_{therm}	min	10	12	12
Run-up time	T_H	ms	2.1	1.5	2.0
Number of pole pairs	n_{pp}		3	3	3
Rotor inertia	J_R	10^{-3} kg m ²	0.005	0.007	0.007
Weight		kg	0.76	0.93	0.93

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6322	MR 6324	MR 6326	MR 6328
Dimension K	67	82	97	112
Dimension K1	105	120	135	150

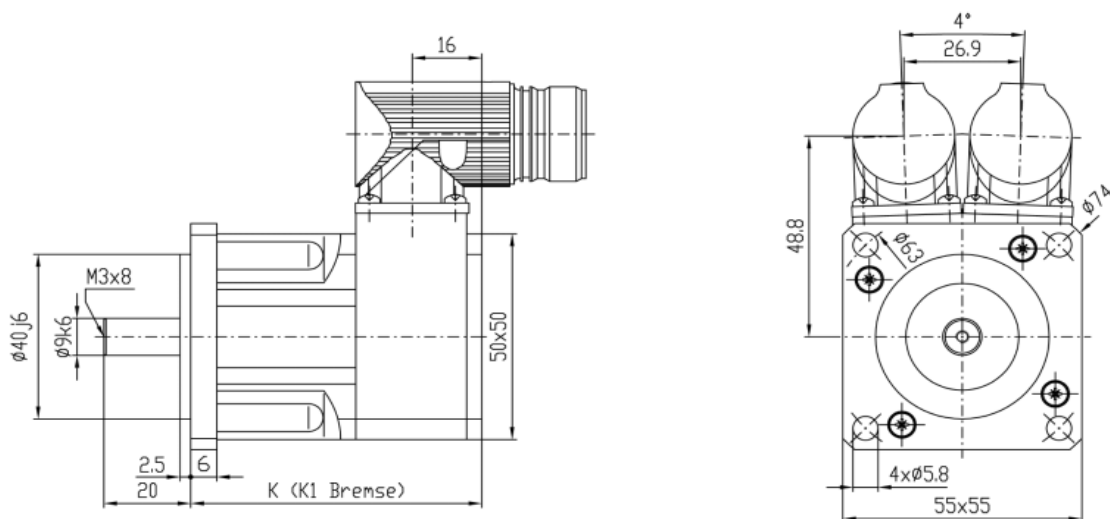
Overview see page 4, assignment to the servo drives see page 9

Servo Motors for $U_{DC} = 320$ V: Technical Specifications (2) – MR 6326 and MR 6328

For the following types: MR 6326..-U3 or MR 6328..-U3

Motors MR 6326 and MR 6328 for $U_{DC} = 320$ V			MR 6326 -N45	MR 6326 -N60	MR 6328 -N45	MR 6328 -N60
Rated speed	n_N	r.p.m.	4,500	6,000	4,500	6,000
Rated output	P_N	W	330	410	410	480
Torque at rated speed	M_N	Nm	0.68	0.64	0.85	0.75
Rated current	I_N	A_{rms}	1.48	1.57	1.7	1.7
Standstill torque	$M_{l0\ 200}$	Nm	0.75	0.75	0.95	0.95
Standstill current	$I_{l0\ 200}$	A_{rms}	1.54	1.71	1.82	2.05
Peak torque	M_{max}	Nm	3.0	3.0	3.8	3.8
Peak current	I_{max}	A	7.1	7.9	8.4	9.4
Max. speed (mech. perm.)	n_{max}	r.p.m.	12,000	12,000	12,000	12,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	0.49	0.44	0.52	0.46
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	0.46	0.41	0.50	0.44
Voltage constant	K_e	V/1000 r.p.m.	29.5	26.5	31.5	28.0
Resistance phase-phase	R_{u-v}	Ω	17.0	13.4	13.1	10.5
Inductivity phase-phase	L_{u-v}	mH	17.8	18.0	14.9	15.3
Electr. time constant	T_{el}	ms	1.05	1.35	1.14	1.45
Thermal time constant	T_{therm}	min	15	12	18	18
Run-up time	T_H	ms	1.4	1.9	1.4	1.8
Number of pole pairs	n_{pp}		3	3	3	3
Rotor inertia	J_R	10^{-3} kg m ²	0.009	0.009	0.011	0.011
Weight		kg	1.1	1.1	1.27	1.27

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6322	MR 6324	MR 6326	MR 6328
Dimension K	67	82	97	112
Dimension K1	105	120	135	150

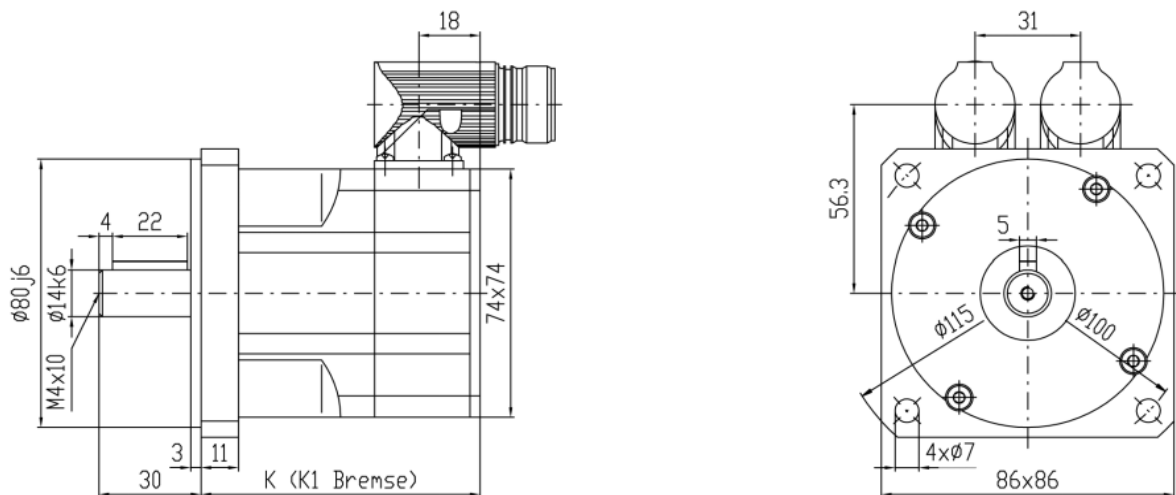
Overview see page 4, assignment to the servo drives see page 9

Servo Motors for $U_{DC} = 320$ V: Technical Specifications (3) – MR 6332 and MR 6334

For the following types: MR 6332..-U3 or MR 6334..-U3

Motors MR 6332 and MR 6334 for $U_{DC} = 320$ V			MR 6332 -N30	MR 6332 -N60	MR 6334 -N30	MR 6334 -N50	MR 6334 -N60
Rated speed	n_N	r.p.m.	3,000	6,000	3,000	5,000	6,000
Rated output	P_N	W	360	640	600	950	1.050
Torque at rated speed	M_N	Nm	1.1	1.0	1.9	1.8	1.65
Rated current	I_N	A_{rms}	2.3	4.0	3.1	4.0	5.5
Standstill torque	$M_{l0\ 200}$	Nm	1.15	1.15	2.05	2.05	2.05
Standstill current	$I_{l0\ 200}$	A_{rms}	2.0	3.6	2.8	3.5	5.1
Peak torque	M_{max}	Nm	3.45	3.45	6.15	6.15	6.2
Peak current	I_{max}	A	9.2	16.3	12.7	14.3	21.0
Max. speed (mech. perm.)	n_{max}	r.p.m.	12,000	12,000	12,000	12,000	12,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	0.58	0.32	0.73	0.58	0.40
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	0.49	0.25	0.61	0.45	0.30
Voltage constant	K_e	V/1000 r.p.m.	34.5	19.5	44.5	35.0	24.5
Resistance phase-phase	R_{u-v}	Ω	8.4	2.7	5.4	3.2	1.7
Inductivity phase-phase	L_{u-v}	mH	18.0	6.0	13.3	8.2	4.1
Electr. time constant	T_{el}	ms	2.14	2.24	2.46	2.53	2.44
Thermal time constant	T_{therm}	min	21	21	23	23	23
Run-up time	T_H	ms	2.9	5.7	2.8	4.7	5.7
Number of pole pairs	n_{pp}		5	5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	0.031	0.031	0.055	0.055	0.055
Weight		kg	1.5	1.5	2.0	2.0	2.0

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6332	MR 6334	MR 6336	MR 6338
Dimension K	82	100	136	172
Dimension K1	120	138	174	210

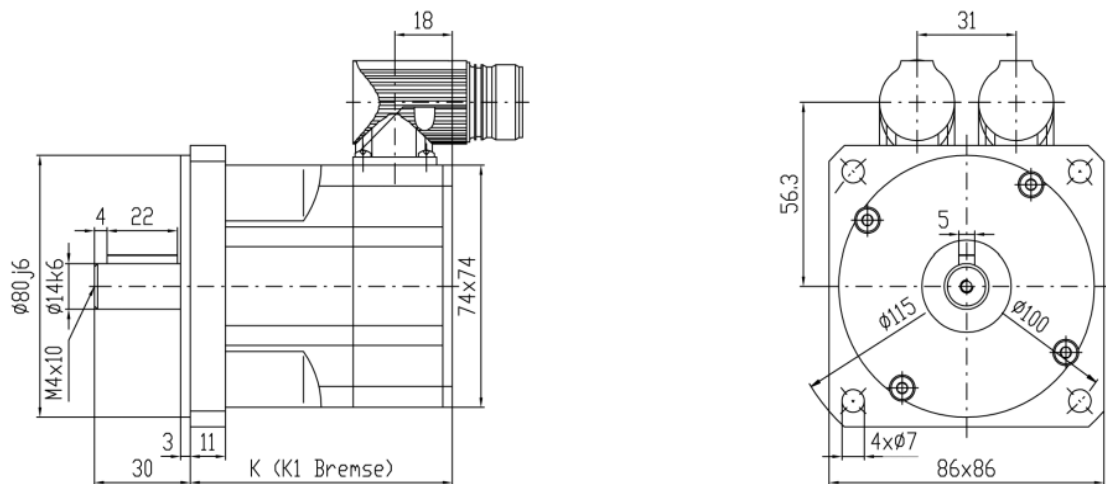
Overview see page 4, assignment to the servo drives see page 9

Servo Motors for $U_{DC} = 320$ V: Technical Specifications (3) – MR 6336 and MR 6338

For the following types: MR 6336..-U3 or MR 6338..-U3

Motors MR 6336 and MR 6338 for $U_{DC} = 320$ V			MR 6336 -N30	MR 6336 -N45	MR 6336 -N50	MR 6338 -N30
Rated speed	n_N	r.p.m.	3,000	4,500	5,000	3,000
Rated output	P_N	W	950	1.300	1.450	1.200
Torque at rated speed	M_N	Nm	3.0	2.75	2.7	3.7
Rated current	I_N	A_{rms}	4.3	5.25	6.0	4.5
Standstill torque	$M_{l0\ 200}$	Nm	3.5	3.5	3.5	4.8
Standstill current	$I_{l0\ 200}$	A_{rms}	4.2	5.2	6.1	4.8
Peak torque	M_{max}	Nm	10.5	10.5	10.5	14.4
Peak current	I_{max}	A	19.4	18.9	22.0	17.3
Max. speed (mech. perm.)	n_{max}	r.p.m.	12,000	12,000	12,000	12,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	0.83	0.67	0.57	1.00
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	0.70	0.52	0.45	0.82
Voltage constant	K_e	V/1000 r.p.m.	50	40.5	35	60
Resistance phase-phase	R_{u-v}	Ω	2.8	1.8	1.4	2.5
Inductivity phase-phase	L_{u-v}	mH	8.1	5.2	3.9	7.5
Electr. time constant	T_{el}	ms	2.9	2.9	2.9	3.0
Thermal time constant	T_{therm}	min	27	27	27	30
Run-up time	T_H	ms	3.1	4.7	5.2	3.3
Number of pole pairs	n_{pp}		5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	0.104	0.104	0.104	0.152
Weight		kg	2.9	2.9	2.9	3.8

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6332	MR 6334	MR 6336	MR 6338
Dimension K	82	100	136	172
Dimension K1	120	138	174	210

Overview see page 4, assignment to the servo drives see page 9

Servo Motors for $U_{DC} = 560$ V: Overview and Assignment (1)

Order Number Servo Motor	Rated Speed n_N [r.p.m.]	Rated Torque M_N [Nm]	Standstill Torque $M_{0.200}$ [Nm]	Peak Torque M_{max} [Nm]	Servo Drive with Rated Current ...
MR 6322-U5-N45	4500	0.25	0.28	1.0*	2 A
MR 6324-U5-N45	4500	0.48	0.54	2.0*	
MR 6326-U5-N45	4500	0.68	0.75	3.0	
MR 6328-U5-N45	4500	0.85	0.95	2.9*	
MR 6332-U5-N30	3000	1.1	1.15	2.9*	
MR 6332-U5-N45	4500	1.1	1.15	2.3*	
MR 6332-U5-N60	6000	1.0	1.15	2.0*	
MR 6334-U5-N30	3000	1.9	2.05	3.8*	
MR 6334-U5-N45	4500	1.85	2.05	5.5*	4 A
MR 6334-U5-N60	6000	1.65	2.05	3.8*	
MR 6336-U5-N30	3000	3.0	3.5	8.1*	
MR 6336-U5-N60	6000	2.5	3.5	10.5	8 A
MR 6338-U5-N30	3000	3.7	4.8	11.8*	4 A
MR 6338-U5-N50	5000	2.9	4.5*	8.0*	
MR 6342-U5-N30	3000	4.2	5.1	8.3*	
MR 6342-U5-N45	4500	3.9	5.1	10.6*	8 A
MR 6342-U5-N60	6000	3.4	5.1	8.2*	
MR 6344-U5-N30	3000	6.1	7.5	16.2*	
MR 6344-U5-N45	4500	5.5	7.5	12.9*	
MR 6344-U5-N60	6000	4.8	7.5	13.9 .. 17.6*	12 A / 16 A
MR 6346-U5-N30	3000	7.7	9.6	18.6*	8 A
MR 6346-U5-N45	4500	6.3	9.0*	15.8*	
MR 6348-U5-N30	3000	8.8	11.3	21.7*	

* Note: Technical data of the motors for operation with the stated servo drives

Other speeds on request.

Suitable servo drives with DC-bus voltage 560 V:

Servo Drive Family	Servo Drive New Generation Size 2 and 3	MidiDrive D/xS	MidiDrive A
Power Supply	direct 3 x 400/480 V	direct 3 x 400/480 V	direct 3 x 400/480 V
Technology	digital	digital	analog
Rated Current	BN 6781: 2 A BN 6782: 4 A BN 6783: 8 A BN 6785: 16 A BN 6787: 32 A	BN 6745: 2 A BN 6746: 4 A BN 6747: 8 A BN 6748: 16 A BN 6749: 32 A	BN 6681: 2 A BN 6682: 4 A BN 6683: 8 A BN 6684: 12 A BN 6685: 20 A

Servo Motors for $U_{DC} = 560$ V: Overview and Assignment (2)

Order Number Servo Motor	Rated Speed n_N [r.p.m.]	Rated Torque M_N [Nm]	Standstill Torque $M_{0.200}$ [Nm]	Peak Torque M_{max} [Nm]	Servo Drive with Rated Current ...
MR 6352-U5-N20	2000	11.2	12	28.3*	8 A
MR 6352-U5-N30	3000	10.5	12	30 .. 36*	12 A / 16 A
MR 6352-U5-N45	4500	9.4	12	22 .. 28*	
MR 6354-U5-N30	3000	13.8	16	33 .. 43*	
MR 6354-U5-N40	4000	11.9	15 .. 16*	27 .. 36*	
MR 6356-U5-N20	2000	17.5	20	51 .. 60*	
MR 6356-U5-N25	2500	17	20	46 .. 60*	
MR 6356-U5-N30	3000	16	20	37 .. 49*	
MR 6358-U5-N20	2000	22	24	50.8 .. 66*	
MR 6358-U5-N30	3000	20	21 .. 24*	39 .. 50*	
MR 6362-U5-N20	2000	14.8	18	37 .. 49*	12 A / 16 A
MR 6362-U5-N30	3000	13	18	27 .. 36*	
MR 6363-U5-N20	2000	20	24	41 .. 55*	
MR 6363-U5-N30	3000	17	24	38 .. 48*	16 A / 20 A
MR 6364-U5-N20	2000	25.3	30	63 .. 78*	
MR 6364-U5-N30	3000	21	30	56 .. 90*	20 A / 32 A
MR 6365-U5-N20	2000	29	36 .. 38*	57 .. 71*	16 A / 20 A
MR 6365-U5-N30	3000	25	32 .. 38*	49 .. 78*	20 A / 32 A
MR 6366-U5-N20	2000	36.5	44	83 .. 132*	
MR 6366-U5-N30	3000	30	44	83*	32 A
MR 6372-U5-N20	2000	26.1	30	59 .. 74*	16 A / 20 A
MR 6372-U5-N30	3000	23	29 .. 30*	47 .. 59*	
MR 6374-U5-N20	2000	32.8	38 .. 40*	65 .. 81*	
MR 6374-U5-N30	3000	25	40	85*	32 A
MR 6376-U5-N20	2000	40.4	50	122*	
MR 6376-U5-N30	3000	30	50	88*	
MR 6378-U5-N15	1500	54	60	113 .. 141*	16 A / 20 A
MR 6378-U5-N25	2500	36.2	60	113*	32 A

* Note: Technical data of the motors for operation with the stated servo drives

Other speeds on request.

Suitable servo drives with DC-bus voltage 560 V:

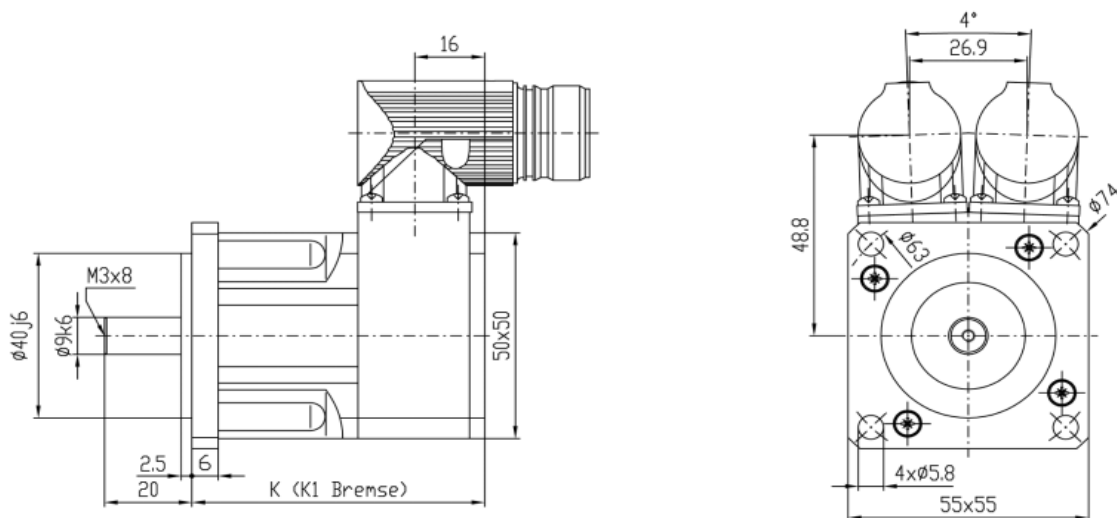
Servo Drive Family	Servo Drive New Generation Size 2 and 3	MidiDrive D/xS	MidiDrive A
Power Supply	direct 3 x 400/480 V	direct 3 x 400/480 V	direct 3 x 400/480 V
Technology	digital	digital	analog
Rated Current	BN 6781: 2 A BN 6782: 4 A BN 6783: 8 A BN 6785: 16 A BN 6787: 32 A	BN 6745: 2 A BN 6746: 4 A BN 6747: 8 A BN 6748: 16 A BN 6749: 32 A	BN 6681: 2 A BN 6682: 4 A BN 6683: 8 A BN 6684: 12 A BN 6685: 20 A

Servo Motors for $U_{DC} = 560$ V: Technical Specifications (1) – MR 6322 to MR 6328

For the following types: MR 632x..-U5

Motors MR 6322 to MR 6328 for $U_{DC} = 560$ V			MR 6322 -N45	MR 6324 -N45	MR 6326 -N45	MR 6328 -N45
Rated speed	n_N	r.p.m.	4,500	4,500	4,500	4,500
Rated output	P_N	W	120	230	330	410
Torque at rated speed	M_N	Nm	0.25	0.48	0.68	0.85
Rated current	I_N	A_{rms}	0.96	0.90	0.83	1.1
Standstill torque	$M_{l0\ 200}$	Nm	0.28	0.54	0.75	0.95
Standstill current	$I_{l0\ 200}$	A_{rms}	0.97	0.93	0.86	1.15
Peak torque	M_{max}	Nm	1.1	2.2	3.0	3.8
Peak current	I_{max}	A	4.5	4.3	3.9	5.3
Max. speed (mech. perm.)	n_{max}	r.p.m.	12,000	12,000	12,000	12,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	0.29	0.58	0.87	0.83
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	0.26	0.53	0.82	0.79
Voltage constant	K_e	V/1000 r.p.m.	17.5	35	53	50
Resistance phase-phase	R_{u-v}	Ω	28.3	41.1	54.0	33.6
Inductivity phase-phase	L_{u-v}	mH	18.9	37.7	57.0	38.2
Electr. time constant	T_{el}	ms	0.67	0.92	1.06	1.14
Thermal time constant	T_{therm}	min	10	12	15	18
Run-up time	T_H	ms	2.1	1.5	1.4	1.4
Number of pole pairs	n_{pp}		3	3	3	3
Rotor inertia	J_R	10^{-3} kg m ²	0.005	0.007	0.009	0.011
Weight		kg	0.76	0.93	1.1	1.27

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6322	MR 6324	MR 6326	MR 6328
Dimension K	67	82	97	112
Dimension K1	105	120	135	150

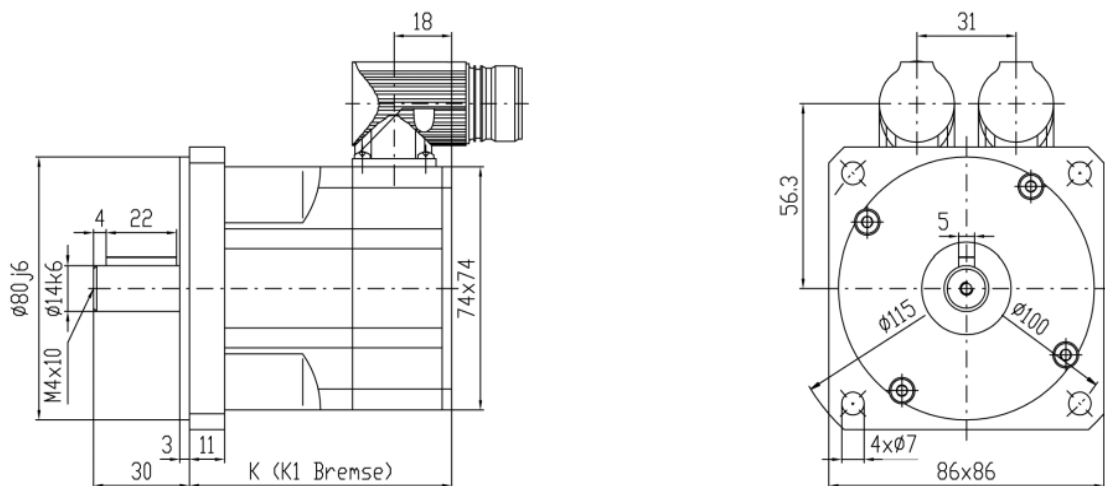
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Servo Motors for $U_{DC} = 560$ V: Technical Specifications (2) – MR 6332 and MR 6334

For the following types: MR 6332..-U5 or MR 6334..-U5

Motors MR 6332 and MR 6334 for $U_{DC} = 560$ V			MR 6332 -N30	MR 6332 -N45	MR 6332 -N60	MR 6334 -N30	MR 6334 -N45	MR 6334 -N60
Rated speed	n_N	r.p.m.	3,000	4,500	6,000	3,000	4,500	6,000
Rated output	P_N	W	360	520	640	600	900	1,050
Torque at rated speed	M_N	Nm	1.1	1.1	1.0	1.9	1.85	1.65
Rated current	I_N	A_{rms}	1.3	1.8	2.0	1.7	2.6	3.5
Standstill torque	$M_{l0\ 200}$	Nm	1.15	1.15	1.15	2.05	2.05	2.05
Standstill current	$I_{l0\ 200}$	A_{rms}	1.1	1.5	1.8	1.6	2.25	3.2
Peak torque	M_{max}	Nm	3.45	3.45	3.45	6.15	6.15	6.15
Peak current	I_{max}	A	5.0	6.7	7.8	7.2	9.1	14.5
Max. speed (mech. perm.)	n_{max}	r.p.m.	12,000	12,000	12,000	12,000	12,000	12,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	1.05	0.76	0.65	1.28	0.91	0.64
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	0.87	0.63	0.51	1.12	0.72	0.48
Voltage constant	K_e	V/1000 r.p.m.	63	46	39	79	55	39
Resistance phase-phase	R_{u-v}	Ω	27.8	14.3	10.7	17.3	8.4	4.15
Inductivity phase-phase	L_{u-v}	mH	59.3	31.8	23.0	42.4	20.6	10.2
Electr. time constant	T_{el}	ms	2.1	2.2	2.1	2.5	2.5	2.5
Thermal time constant	T_{therm}	min	21	21	21	23	23	23
Run-up time	T_H	ms	2.9	4.3	5.7	2.8	4.3	5.7
Number of pole pairs	n_{pp}		5	5	5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	0.031	0.031	0.031	0.055	0.055	0.055
Weight		kg	1.5	1.5	1.5	2.0	2.0	2.0

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6332	MR 6334	MR 6336	MR 6338
Dimension K	82	100	136	172
Dimension K1	120	138	174	210

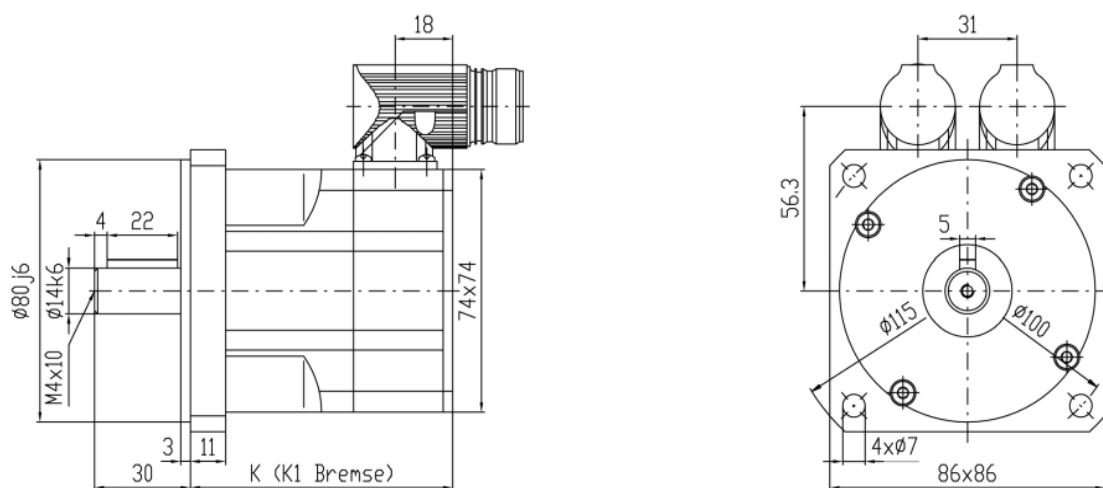
Overview see page 4, assignment to the servo drives see page 14

Servo Motors for $U_{DC} = 560$ V: Technical Specifications (3) – MR 6336 and MR 6338

For the following types: MR 6336..-U5 or MR 6338..-U5

Motors MR 6336 and MR 6338 for $U_{DC} = 560$ V			MR 6336 -N30	MR 6336 -N60	MR 6338 -N30	MR 6338 -N50
Rated speed	n_N	r.p.m.	3,000	6,000	3,000	5,000
Rated output	P_N	W	950	1.600	1.200	1.550
Torque at rated speed	M_N	Nm	3.0	2.5	3.7	2.9
Rated current	I_N	A_{rms}	2.4	4.2	2.6	3.5
Standstill torque	$M_{l0\ 200}$	Nm	3.5	3.5	4.8	4.8
Standstill current	$I_{l0\ 200}$	A_{rms}	2.4	4.2	2.8	4.3
Peak torque	M_{max}	Nm	10.5	10.5	14.4	14.4
Peak current	I_{max}	A	10.9	15.3	9.9	15.5
Max. speed (mech. perm.)	n_{max}	r.p.m.	12,000	12,000	12,000	12,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	1.46	0.83	1.71	1.12
Torque constant (rated)	K_{IN}	Nm/ A_{rms}	1.25	0.60	1.42	0.83
Voltage constant	K_e	V/1000 r.p.m.	89	50	105	67
Resistance phase-phase	R_{u-v}	Ω	8.9	2.8	7.7	3.1
Inductivity phase-phase	L_{u-v}	mH	25.5	8.1	23.5	9.5
Electr. time constant	T_{el}	ms	2.9	2.9	3.0	3.1
Thermal time constant	T_{therm}	min	27	27	30	30
Run-up time	T_H	ms	3.1	6.3	3.3	5.6
Number of pole pairs	n_{pp}		5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	0.104	0.104	0.152	0.152
Weight		kg	2.9	2.9	3.8	3.8

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6332	MR 6334	MR 6336	MR 6338
Dimension K	82	100	136	172
Dimension K1	120	138	174	210

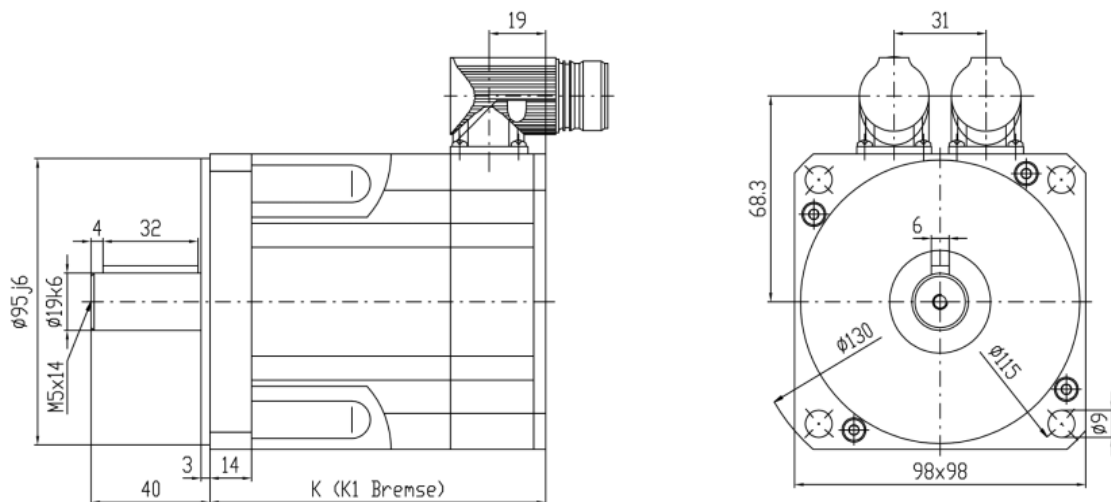
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Servo Motors for $U_{DC} = 560$ V: Technical Specifications (4) – MR 6342

For the following types: MR 6342..-U5

Motors MR 6342 for $U_{DC} = 560$ V			MR 6342 -N30	MR 6342 -N45	MR 6342 -N60
Rated speed	n_N	r.p.m.	3,000	4,500	6,000
Rated output	P_N	W	1,350	1,850	2,150
Torque at rated speed	M_N	Nm	4.2	3.9	3.4
Rated current	I_N	A_{rms}	3.9	5.5	7.3
Standstill torque	$M_{0\ 200}$	Nm	5.1	5.1	5.1
Standstill current	$I_{0\ 200}$	A_{rms}	3.8	5.4	7.7
Peak torque	M_{max}	Nm	15.3	15.3	15.3
Peak current	I_{max}	A	17.4	25	35
Max. speed (mech. perm.)	n_{max}	r.p.m.	9,000	9,000	9,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	1.34	0.94	0.66
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	1.08	0.71	0.47
Voltage constant	K_e	V/1000 r.p.m.	81	57	40
Resistance phase-phase	R_{u-v}	Ω	4.0	1.92	0.97
Inductivity phase-phase	L_{u-v}	mH	21.7	10.5	5.3
Electr. time constant	T_{el}	ms	5.4	5.5	5.5
Thermal time constant	T_{therm}	min	25	25	25
Run-up time	T_H	ms	4.3	6.4	8.5
Number of pole pairs	n_{pp}		5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	0.204	0.204	0.204
Weight		kg	3.8	3.8	3.8

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6342	MR 6344	MR 6346	MR 6348
Dimension K	113	143	173	203
Dimension K1	154	184	214	244

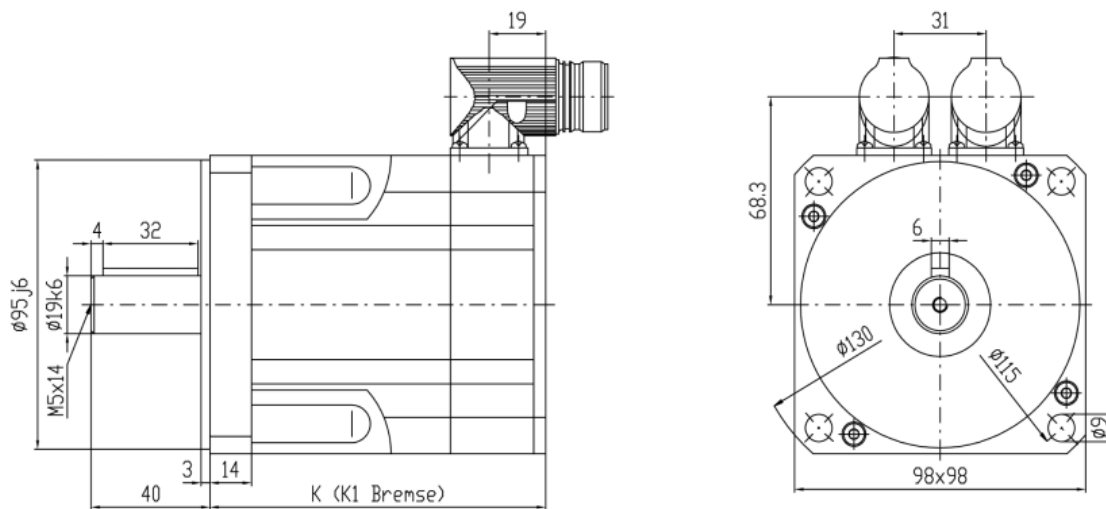
Overview see page 4, assignment to the servo drives see page 14

Servo Motors for $U_{DC} = 560$ V: Technical Specifications (5) – MR 6344

For the following types: MR 6344..-U5

Motors MR 6342 for $U_{DC} = 560$ V			MR 6344 -N30	MR 6344 -N45	MR 6344 -N60
Rated speed	n_N	r.p.m.	3,000	4,500	6,000
Rated output	P_N	W	1,950	2,600	3,100
Torque at rated speed	M_N	Nm	6.1	5.5	4.8
Rated current	I_N	A_{rms}	5.1	6.9	8.8
Standstill torque	$M_{0\ 200}$	Nm	7.5	7.5	7.5
Standstill current	$I_{0\ 200}$	A_{rms}	5.2	7.3	10.0
Peak torque	M_{max}	Nm	22.5	22.5	22.5
Peak current	I_{max}	A	23.8	31.4	42.7
Max. speed (mech. perm.)	n_{max}	r.p.m.	9,000	9,000	9,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	1.44	1.03	0.75
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	1.20	0.80	0.55
Voltage constant	K_e	V/1000 r.p.m.	87	62	45.5
Resistance phase-phase	R_{u-v}	Ω	2.29	1.15	0.63
Inductivity phase-phase	L_{u-v}	mH	14.2	7.1	3.66
Electr. time constant	T_{el}	ms	6.2	6.2	5.8
Thermal time constant	T_{therm}	min	30	30	30
Run-up time	T_H	ms	4.6	6.9	9.2
Number of pole pairs	n_{pp}		5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	0.326	0.326	0.326
Weight		kg	5.1	5.1	5.1

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6342	MR 6344	MR 6346	MR 6348
Dimension K	113	143	173	203
Dimension K1	154	184	214	244

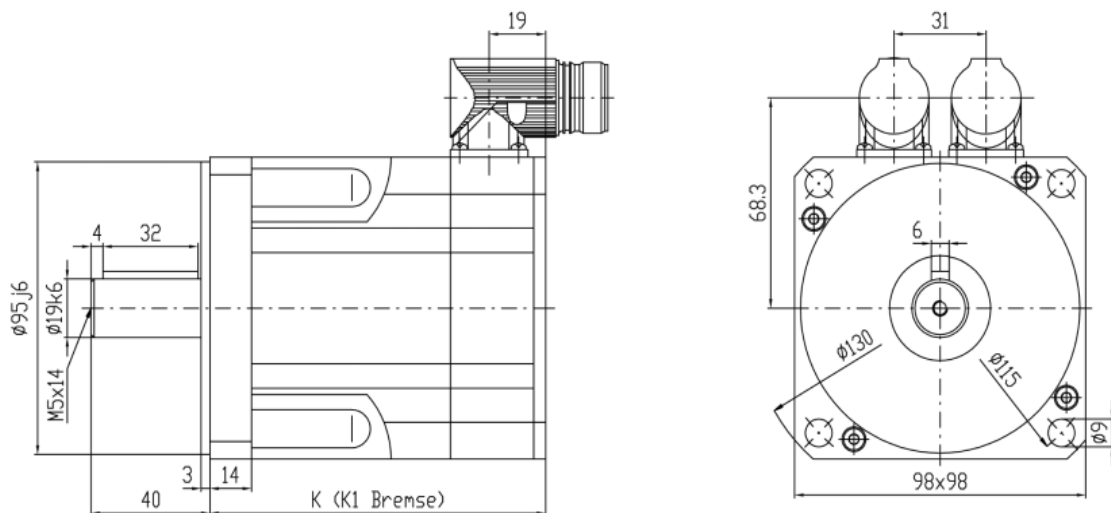
Overview see page 4, assignment to the servo drives see page 14

Servo Motors for $U_{DC} = 560$ V: Technical Specifications (6) – MR 6346 and MR 6348

For the following types: MR 6346..-U5 or MR 6348..-U5

Motors MR 6346 and MR 6348 for $U_{DC} = 560$ V			MR 6346 -N30	MR 6346 -N45	MR 6346 -N60	MR 6348 -N30
Rated speed	n_N	r.p.m.	3,000	4,500	6,000	3,000
Rated output	P_N	W	2,450	3,000	3,200	2,800
Torque at rated speed	M_N	Nm	7.7	6.3	5.0	8.8
Rated current	I_N	A_{rms}	6.0	7.8	8.7	7.41
Standstill torque	$M_{0\ 200}$	Nm	9.6	9.6	9.6	11.3
Standstill current	$I_{0\ 200}$	A_{rms}	6.0	8.5	10.7	7.1
Peak torque	M_{max}	Nm	28.8	28.8	28.8	33.9
Peak current	I_{max}	A	27.4	31.8	40.0	26.5
Max. speed (mech. perm.)	n_{max}	r.p.m.	9,000	9,000	9,000	9,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	1.60	1.13	0.90	1.59
Torque constant (rated)	K_{IN}	Nm/ A_{rms}	1.28	0.81	0.57	1.28
Voltage constant	K_e	V/1000 r.p.m.	97	68	54	96
Resistance phase-phase	R_{u-v}	Ω	2.0	0.97	0.62	1.49
Inductivity phase-phase	L_{u-v}	mH	11.9	5.8	3.6	9.1
Electr. time constant	T_{el}	ms	5.9	6.0	5.8	6.1
Thermal time constant	T_{therm}	min	35	35	35	40
Run-up time	T_H	ms	4.9	7.4	9.9	5.3
Number of pole pairs	n_{pp}		5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	0.449	0.449	0.449	0.570
Weight		kg	6.4	6.4	6.4	7.7

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6342	MR 6344	MR 6346	MR 6348
Dimension K	113	143	173	203
Dimension K1	154	184	214	244

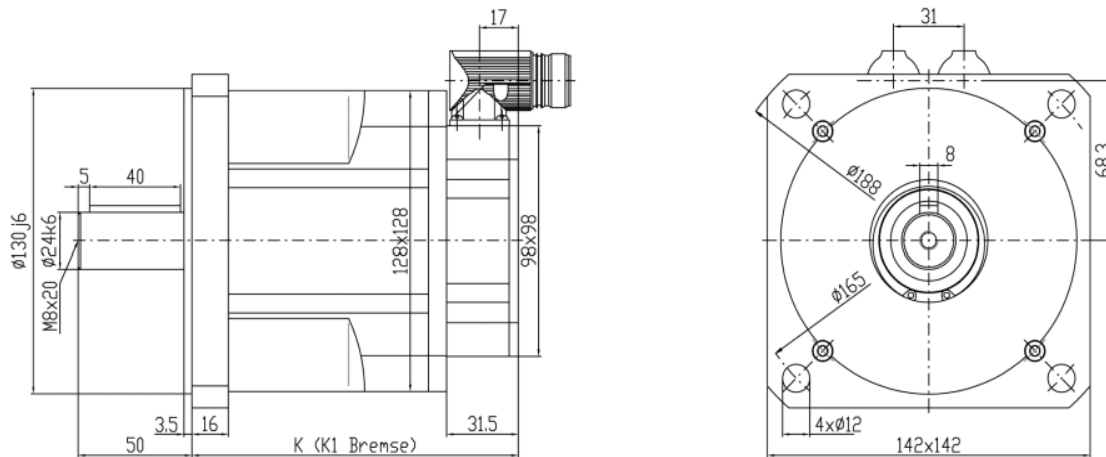
Overview see page 4, assignment to the servo drives see page 14

Servo Motors for $U_{DC} = 560$ V: Technical Specifications (7) – MR 6352 and MR 6354

For the following types: MR 6352..-U5 or MR 6354..-U5

Motors MR 6352 and MR 6354 for $U_{DC} = 560$ V			MR 6352 -N20	MR 6352 -N30	MR 6352 -N45	MR 6354 -N30	MR 6354 -N40
Rated speed	n_N	r.p.m.	2,000	3,000	4,500	3,000	4,000
Rated output	P_N	W	2,350	3,300	4,500	4,400	5,000
Torque at rated speed	M_N	Nm	11.2	10.5	9.4	13.8	11.9
Rated current	I_N	A_{rms}	6.0	8.3	11.4	9.9	11.1
Standstill torque	$M_{l0\ 200}$	Nm	12	12	12	16	16
Standstill current	$I_{l0\ 200}$	A_{rms}	5.7	8.0	11.5	10.1	12.6
Peak torque	M_{max}	Nm	36	36	36	48	48
Peak current	I_{max}	A	20.9	29.0	42.5	36.0	44.3
Max. speed (mech. perm.)	n_{max}	r.p.m.	9,000	9,000	9,000	9,000	9,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	2.11	1.50	1.04	1.58	1.27
Torque constant (rated)	K_{IN}	Nm/ A_{rms}	1.87	1.27	0.82	1.39	1.07
Voltage constant	K_e	V/1000 r.p.m.	128	91	63	96	77
Resistance phase-phase	R_{u-v}	Ω	2.66	1.33	0.65	0.88	0.57
Inductivity phase-phase	L_{u-v}	mH	21.4	10.9	5.3	7.5	4.9
Electr. time constant	T_{el}	ms	8.0	8.2	8.1	8.5	8.6
Thermal time constant	T_{therm}	min	45	45	45	55	55
Run-up time	T_H	ms	5.6	8.4	12.7	8.8	11.7
Number of pole pairs	n_{pp}		5	5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	0.96	0.96	0.96	1.33	1.33
Weight		kg	7.5	7.5	7.5	9.5	9.5

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6352	MR 6354	MR 6356	MR 6358
Dimension K	144	173	203	243
Dimension K1	180	210	240	270

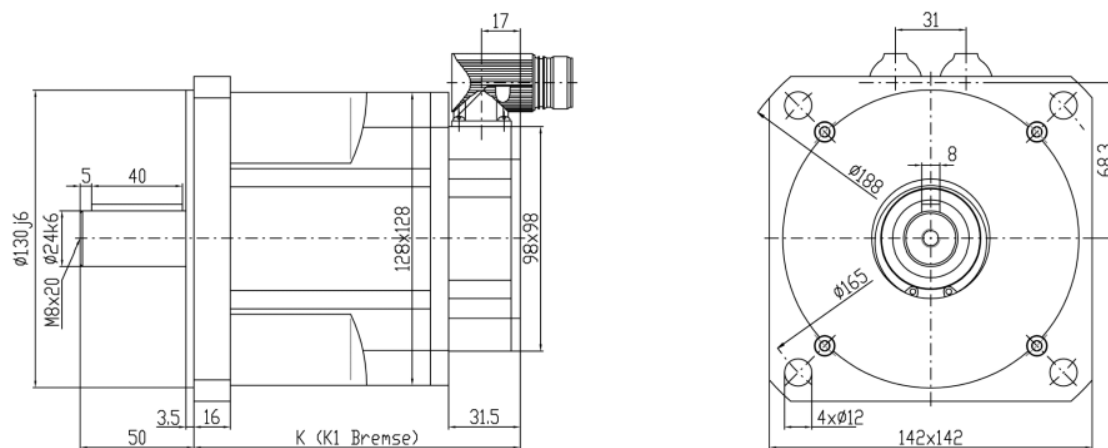
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Servo Motors for $U_{DC} = 560$ V: Technical Specifications (8) – MR 6356 and MR 6358

For the following types: MR 6356..-U5 or MR 6358..-U5

Motors MR 6356 and MR 6358 for $U_{DC} = 560$ V			MR 6356 -N20	MR 6356 -N25	MR 6356 -N30	MR 6358 -N20	MR 6358 -N30
Rated speed	n_N	r.p.m.	2,000	2,500	3,000	2,000	3,000
Rated output	P_N	W	3,700	4,500	5,100	4,700	6,300
Torque at rated speed	M_N	Nm	17.5	17	16	22	20
Rated current	I_N	A_{rms}	8.4	9.5	11.5	10.7	11.5
Standstill torque	$M_{0\ 200}$	Nm	20	20	20	24	24
Standstill current	$I_{0\ 200}$	A_{rms}	8.3	9.3	11.6	10.1	13.8
Peak torque	M_{max}	Nm	60	60	60	72	72
Peak current	I_{max}	A	28.3	31.8	40	35	47
Max. speed (mech. perm.)	n_{max}	r.p.m.	9,000	9,000	9,000	9,000	9,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	2.41	2.15	1.72	2.38	1.74
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	2.08	1.80	1.39	2.06	1.74
Voltage constant	K_e	V/1000 r.p.m.	146	130	104	144	105
Resistance phase-phase	R_{u-v}	Ω	1.39	1.10	0.72	1.07	0.56
Inductivity phase-phase	L_{u-v}	mH	12.4	9.7	6.3	9.5	4.9
Electr. time constant	T_{el}	ms	8.9	8.8	8.7	8.9	8.7
Thermal time constant	T_{therm}	min	65	65	65	75	75
Run-up time	T_H	ms	6.0	7.5	9.0	6.1	9.1
Number of pole pairs	n_{pp}		5	5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	1.71	1.71	1.71	2.08	2.08
Weight		kg	11.5	11.5	11.5	13.5	13.5

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6352	MR 6354	MR 6356	MR 6358
Dimension K	144	173	203	243
Dimension K1	180	210	240	270

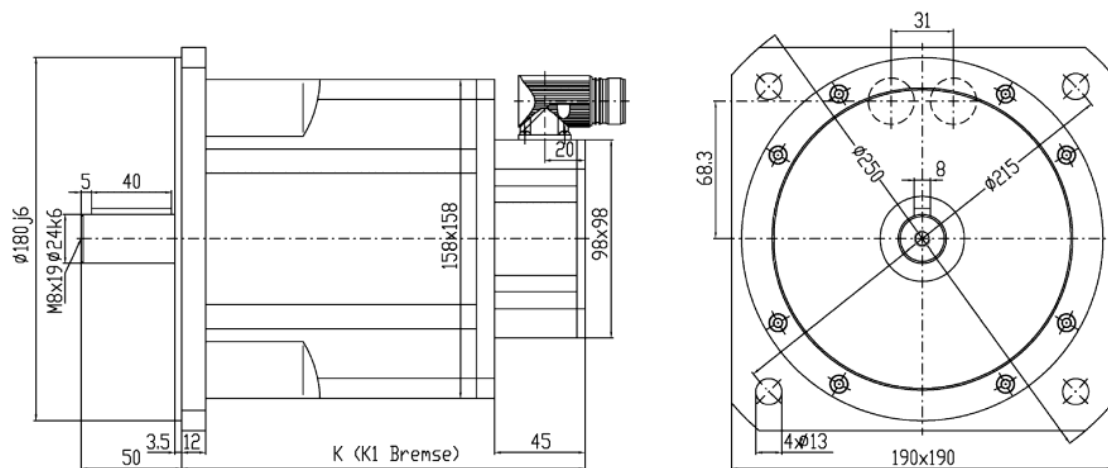
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Servo Motors for $U_{DC} = 560$ V: Technical Specifications (9) – MR 6362 to MR 6364

For the following types: MR 6362..-U5, MR 6363..-U5, or MR 6364..-U5

Motors MR 6362 to MR 6364 for $U_{DC} = 560$ V			MR 6362 -N20	MR 6362 -N30	MR 6363 -N20	MR 6363 -N30	MR 6364 -N20	MR 6364 -N30
Rated speed	n_N	r.p.m.	2,000	3,000	2,000	3,000	2,000	3,000
Rated output	P_N	W	3,100	4,100	4,200	5,400	5,300	6,600
Torque at rated speed	M_N	Nm	14.8	13.0	20.0	17.0	25.3	21.0
Rated current	I_N	A_{rms}	8.6	11.0	10.7	13.8	12.9	16.2
Standstill torque	$M_{l0\ 200}$	Nm	18	18	24	24	30	30
Standstill current	$I_{l0\ 200}$	A_{rms}	8.9	12.2	10.8	15.3	12.8	17.8
Peak torque	M_{max}	Nm	51	51	72	72	90	90
Peak current	I_{max}	A	33	45	42	60	46	64
Max. speed (mech. perm.)	n_{max}	r.p.m.	6,000	6,000	6,000	6,000	6,000	6,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	2.02	1.48	2.22	1.57	2.34	1.69
Torque constant (rated)	K_{TN}	Nm/ A_{rms}	1.72	1.18	1.87	1.23	1.96	1.30
Voltage constant	K_e	V/1000 r.p.m.	123	89	134	95	142	102
Resistance phase-phase	R_{u-v}	Ω	1.19	0.62	0.81	0.41	0.63	0.33
Inductivity phase-phase	L_{u-v}	mH	13.7	7.2	10.8	5.5	9.2	14.2
Electr. time constant	T_{el}	ms	11.5	11.6	13.3	13.4	14.6	43.0
Thermal time constant	T_{therm}	min	42	42	47	47	52	52
Run-up time	T_H	ms	15.2	22.8	14.9	22.3	15.2	22.8
Number of pole pairs	n_{pp}		5	5	5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	1.85	1.85	2.56	2.56	3.27	3.27
Weight		kg	10.1	10.1	12.8	12.8	15.5	15.5

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6362	MR 6363	MR 6364	MR 6365	MR 6366
Dimension K	158	183	208	233	258
Dimension K1	222	247	272	297	322

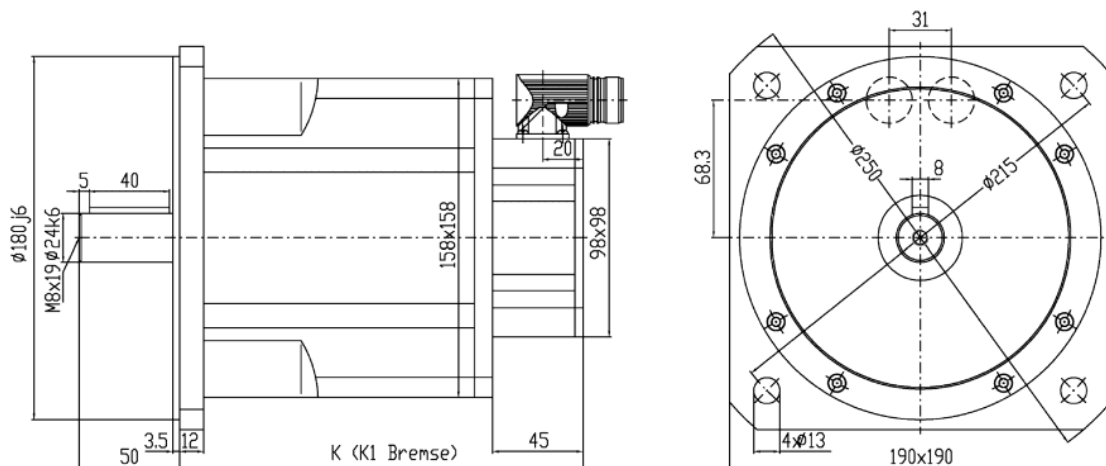
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Servo Motors for $U_{DC} = 560$ V: Technical Specifications (10) – MR 6365 and MR 6366

For the following types: MR 6365..-U5 or MR 6366..-U5

Motors MR 6365 and MR 6366 for $U_{DC} = 560$ V			MR 6365 -N20	MR 6365 -N30	MR 6366 -N20	MR 6366 -N30
Rated speed	n_N	r.p.m.	2,000	3,000	2,000	3,000
Rated output	P_N	W	6,100	7,900	7,700	9,500
Torque at rated speed	M_N	Nm	29	25	36.5	30
Rated current	I_N	A_{rms}	15.0	19.7	17.3	24.4
Standstill torque	$M_{l0\ 200}$	Nm	38	38	44	44
Standstill current	$I_{l0\ 200}$	A_{rms}	16.7	23.9	17.7	28.3
Peak torque	M_{max}	Nm	114	114	132	132
Peak current	I_{max}	A	64	93	64	102
Max. speed (mech. perm.)	n_{max}	r.p.m.	6,000	6,000	6,000	6,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	2.28	1.59	2.49	1.55
Torque constant (rated)	K_{IN}	Nm/ A_{rms}	1.93	1.27	2.11	1.23
Voltage constant	K_e	V/1000 r.p.m.	138	96	150	94
Resistance phase-phase	R_{u-v}	Ω	0.52	0.25	0.49	0.19
Inductivity phase-phase	L_{u-v}	mH	7.2	3.5	7.0	2.8
Electr. time constant	T_{el}	ms	13.8	14.0	14.3	14.7
Thermal time constant	T_{therm}	min	57	57	62	62
Run-up time	T_H	ms	14.7	22.0	14.9	22.4
Number of pole pairs	n_{pp}		5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	3.99	3.99	4.70	4.70
Weight		kg	18.3	18.3	21.0	21.0

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6362	MR 6363	MR 6364	MR 6365	MR 6366
Dimension K	158	183	208	233	258
Dimension K1	222	247	272	297	322

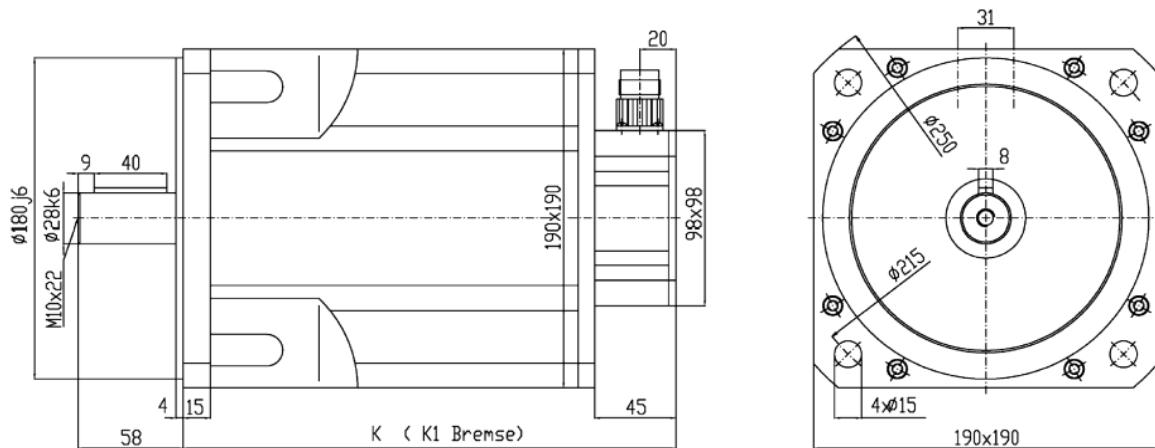
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Servo Motors for $U_{DC} = 560$ V: Technical Specifications (11) – MR 6372 and MR 6374

For the following types: MR 6372..-U5 or MR 6374..-U5

Motors MR 6372 and MR 6374 for $U_{DC} = 560$ V			MR 6372 -N20	MR 6372 -N30	MR 6374 -N20	MR 6374 -N30
Rated speed	n_N	r.p.m.	2,000	3,000	2,000	3,000
Rated output	P_N	W	5,500	7,300	6,900	7,900
Torque at rated speed	M_N	Nm	26.1	23.0	32.8	25.0
Rated current	I_N	A_{rms}	13.2	15.5	15.4	20.1
Standstill torque	$M_{l0\ 200}$	Nm	30	30	40	40
Standstill current	$I_{l0\ 200}$	A_{rms}	13.0	16.3	16.7	26.3
Peak torque	M_{max}	Nm	85	85	120	120
Peak current	I_{max}	A	46	58	59	90
Max. speed (mech. perm.)	n_{max}	r.p.m.	6,000	6,000	6,000	6,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	2.31	1.84	2.40	1.52
Torque constant (rated)	K_{IN}	Nm/ A_{rms}	1.98	1.48	2.13	1.24
Voltage constant	K_e	V/1000 r.p.m.	139	111	145	92
Resistance phase-phase	R_{u-v}	Ω	0.64	0.41	0.43	0.17
Inductivity phase-phase	L_{u-v}	mH	10.1	6.4	7.8	3.1
Electr. time constant	T_{el}	ms	15.8	15.6	18.1	18.2
Thermal time constant	T_{therm}	min	80	80	90	90
Run-up time	T_H	ms	24.4	36.6	24.1	36.1
Number of pole pairs	n_{pp}		5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	4.95	4.95	6.90	6.90
Weight		kg	16.5	16.5	21.5	21.5

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6372	MR 6374	MR 6376	MR 6378
Dimension K	181	211	241	271
Dimension K1	240	270	300	330

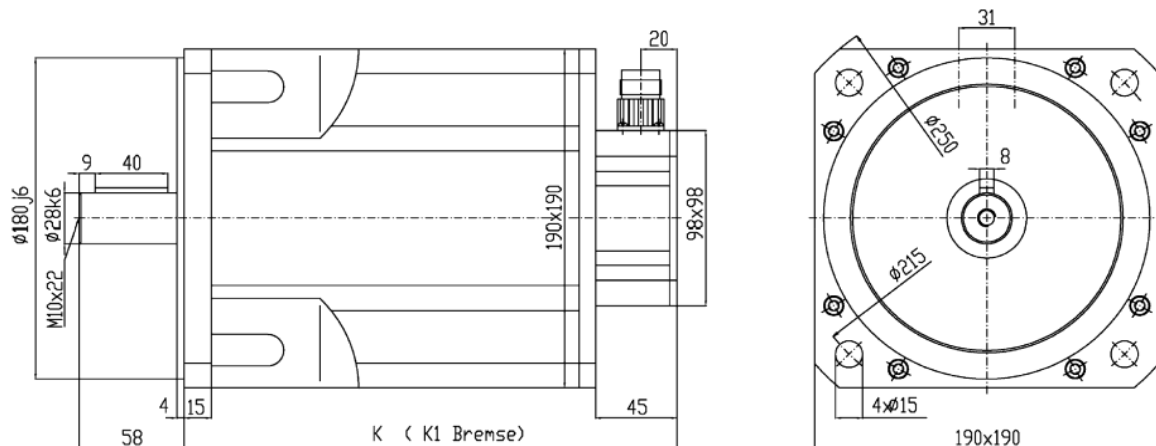
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Servo Motors for $U_{DC} = 560$ V: Technical Specifications (12) – MR 6376 and MR 6378

For the following types: MR 6376..-U5 or MR 6378..-U5

Motors MR 6376 and MR 6378 for $U_{DC} = 560$ V			MR 6376 -N20	MR 6376 -N30	MR 6378 -N10	MR 6378 -N25
Rated speed	n_N	r.p.m.	2,000	3,000	1,000	2,500
Rated output	P_N	W	8,500	9,500	5,700	9,500
Torque at rated speed	M_N	Nm	40.4	30	54	36.2
Rated current	I_N	A_{rms}	21.8	24.4	14.6	20.7
Standstill torque	$M_{l0\ 200}$	Nm	50	50	60	60
Standstill current	$I_{l0\ 200}$	A_{rms}	22.7	31.5	15.8	30
Peak torque	M_{max}	Nm	150	150	180	180
Peak current	I_{max}	A	79	109	51	102
Max. speed (mech. perm.)	n_{max}	r.p.m.	6,000	6,000	6,000	6,000
Torque constant (standstill)	$K_{T0\ 200}$	Nm/ A_{rms}	2.20	1.59	3.80	2.00
Torque constant (rated)	K_{IN}	Nm/ A_{rms}	1.85	1.23	3.70	1.75
Voltage constant	K_e	V/1000 r.p.m.	133	96	241	121
Resistance phase-phase	R_{u-v}	Ω	0.25	0.13	0.62	0.16
Inductivity phase-phase	L_{u-v}	mH	4.9	2.6	13.0	3.3
Electr. time constant	T_{el}	ms	19.6	20.0	21.0	20.6
Thermal time constant	T_{therm}	min	100	100	108	108
Run-up time	T_H	ms	24.6	36.9	12.4	31.1
Number of pole pairs	n_{pp}		5	5	5	5
Rotor inertia	J_R	10^{-3} kg m ²	8.8	8.8	10.7	10.7
Weight		kg	26.5	26.5	31.5	31.5

Note: The maximum achievable values depend on the servo drive used, see assignment table



Dimensions:

Motor Type	MR 6372	MR 6374	MR 6376	MR 6378
Dimension K	181	211	241	271
Dimension K1	240	270	300	330

Overview see page 4, assignment to the servo drives see page 14

Drive System Packages by ESR Pollmeier GmbH

ESR – the complete servo drive system from a single source

General

The series MR 63 AC servo motors described in this data sheet are components of the ESR drive system packages. These consist of servo drives and servo motors, position sensors, gearboxes, and brakes. They are supplemented by power supplies, connectors, and connection cables (ready-assembled on request). All parts of the packages are matching and have been tested as combinations. This delivery from one single source guarantees trouble-free commissioning, reliable operation, and a definite system responsibility on the part of only one supplier.

System design

Our services include an individual drive system configuration. With many years of experience, we will be pleased to assist you at choosing the appropriate servo drive system for your application.

Drive system packages

The following drive system packages are available on the basis of the series MR 63 AC servo motors:

Digital servo drives

Servo Drive Family	Servo Drives New Generation Size 1 / TrioDrive D/xS	Servo Drives New Generation Size 2 and 3 / MidiDrive D/xS
Design	compact	compact
Power supply	230 V~	3 × 400/480 V
DC-bus voltage	320 V	560 V
Rated current (rms)	0.8 .. 6 A	2 .. 32 A
Peak current (crest value)	3.4 .. 25.5 A	5.5 .. 90 A
Rated torque	0.2 .. 3.7 Nm	0.2 .. 54 Nm
Shaft power	0.1 .. 1.45 kW	0.1 .. 9.5 kW
Positioning control	optional	optional
Field bus	optional	optional
Data sheet	6770.150 / 6755.150	6770.150 / 6755.150

Analog servo drives

Servo Drive Family	TrioDrive A	MidiDrive A
Design	compact	compact
Power supply	230 V~	3 × 400/480 V
DC-bus voltage	320 V	560 V
Rated current (rms)	2 .. 6 A	2 .. 20 A
Peak current (crest value)	5.5 .. 17 A	5.5 .. 55 A
Rated torque	0.2 .. 3.7 Nm	0.2 .. 54 Nm
Shaft power	0.1 .. 1.45 kW	0.1 .. 7.9 kW
Data sheet	6650.150	6680.150

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