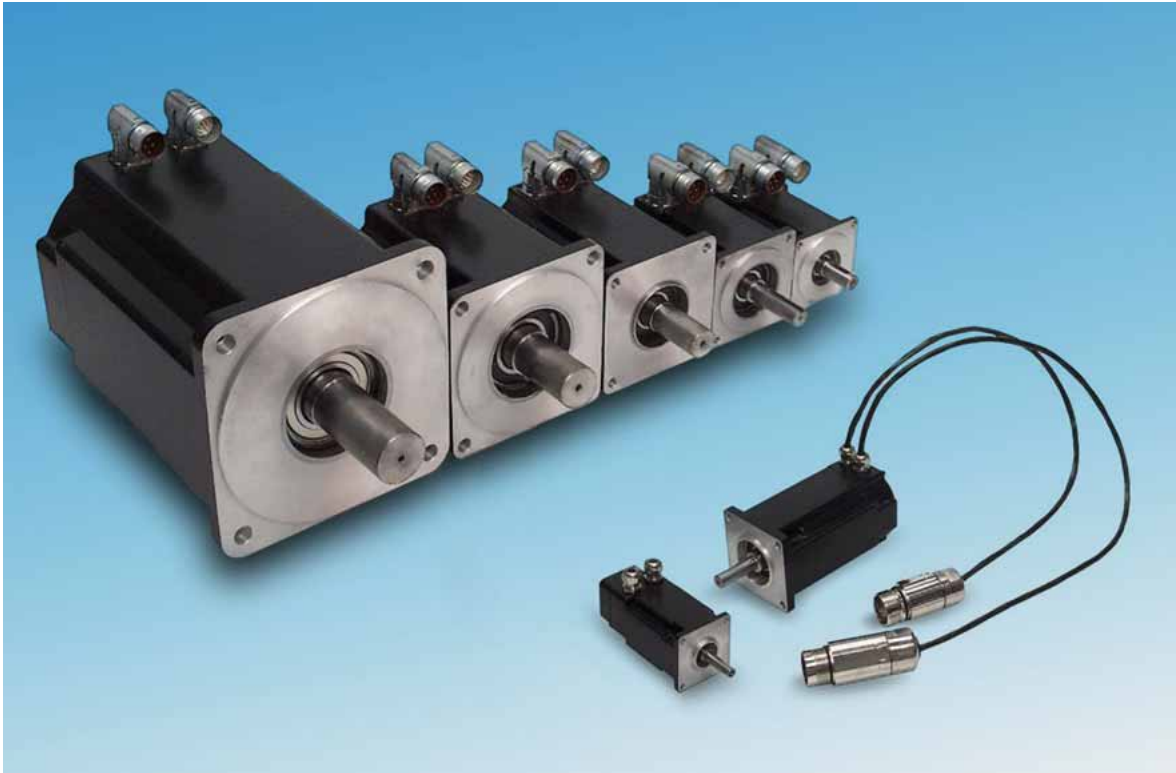


# MR 77 AC SERVO MOTORS

AC Servo Motors with High Power Density



AC servo motors with rated torques between 0.2 and 43 Nm, rated speeds up to 8,000 r.p.m., other speeds on request. All motors MR 772x or higher 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 40 protection, optionally IP 65

## ESR Drive System Packages

MR 77 servo motors are adapted to the digital and analog ESR servo drives. Servo drives and servo motors with or without gearbox, complete with position sensors and, if required, 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
- optical disks production machines
- packaging machines
- textile machines
- plastics processing machines
- coiling machines
- flame cutting machines
- measuring and testing machines
- electronics production machines
- ...

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## Operating Principle of a Servo Drive

### General

A servo drive system consists of servo motor and servo drive. The three-phase winding of the motor is fed by the drive. The position sensor system of the motor guarantees the sinusoidal supply of the windings (sinusoidal commutation) and provides for a smooth motor operation, even at low speeds. Motor, position sensor system, and servo drive form a closed control loop.

### Control loops

For torque control only, the current controller can be driven directly. In case of a difference between target and actual torque, the rate of the pulse width modulation is adjusted so that the current amplitude corresponds to the required torque.

In velocity mode, the speed control loop with underlying current controller is active. In case of a difference between target and actual speed, the frequency of the three-phase current is increased or reduced until the actual speed has reached the rated speed. The current controller regulates the current to the required torque.

A position control is integrated in the ESR digital servo drives. The position control loop is superimposed to the speed and current controller and ensures that the motor moves to a specified position. During that, adjustable acceleration and deceleration ramps are followed.

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## Construction of the Servo Motors

### General

The series MR 77 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 types and equipment** An overview of the different types and the available equipment (holding brake, key, etc.) is given in the type code below.

**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.

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## Type Code

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

Example:

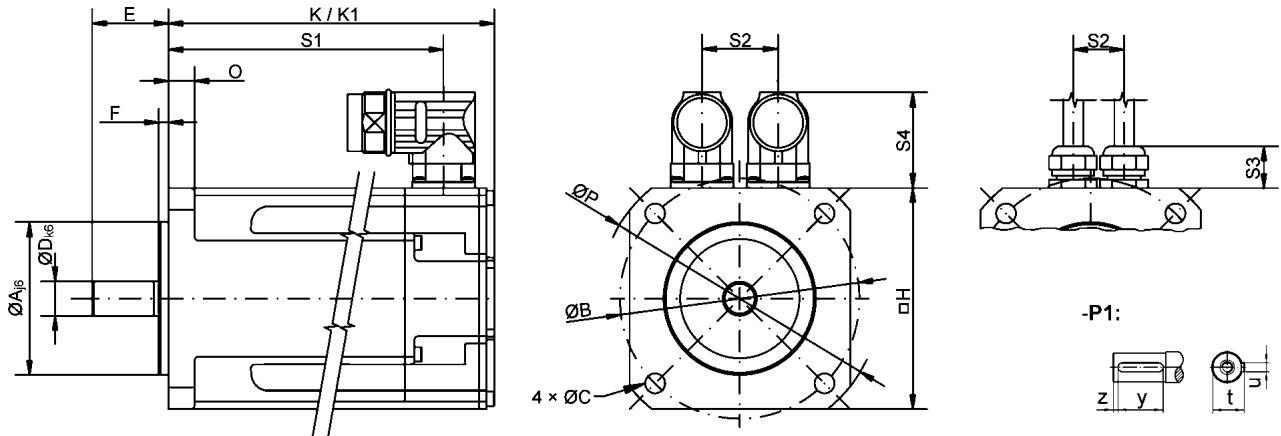
**MR 77** **23** **1234** **U5** **N80** **G01** **AK2** **M0** **P0** **S0**

↓

<b>23</b>	<b>Frame size and rotor length</b> Xx first number: frame size flange dimension 1: 40 mm, 2: 58 mm, 3: 70 mm, 4: 84 mm, 5: 108 mm, 6: 138 mm, 7: 188 mm xX second number: rotor length (1..5)	
<b>1234</b>	<b>Assembly code or other classification</b> 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 7723-U5-N80-G01-AK2" would be sufficient.	
<b>U5</b>	<b>DC-bus voltage</b> 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)	
<b>N80</b>	<b>Rated speed</b> in 100 r.p.m., e. g. N80 = 8000 r.p.m. rated speed	
<b>G01</b>	<b>Motor position sensor *</b> G01 with resolver (1 pole pair) (standard) G11 with EnDat encoder, single-turn	G12 with EnDat encoder, multi-turn (other motor position sensors on request)
<b>AK2</b>	<b>Motor connection</b> motor MR 771x, MR 772x: AK2 cable connection 0.5 m with connector IP65 (standard)	motor MR 773x to MR 777x: A0D angular connector, rotatable (standard)
<b>M0</b>	<b>Holding brake *</b> M0 without holding brake (standard)	MS with holding brake
<b>P0</b>	<b>Shaft, key</b> P0 shaft, flat (standard)	P1 shaft with key
<b>S0</b>	<b>Special design</b> (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

\* MR 771x only with ...G0101...-M0

## Dimensions



	$A_{16}$	B	C	$D_{k6}$	E	F	H	K*	K1*	O	P	R	S1	S2	S3	S4	$u_{N9}$	t	y	z
MR 7711	30 <sub>h7</sub>	46	4.3	8 <sub>h7</sub>	25	2.5	40	69.6		4			56.1	16.5	11		3	9.2	15.5	0
MR 7712								88.6					75.1							
MR 7713								107.6					94.1							
MR 7721	40	63	4.8	9	20	2.5	58	86.2	129.5	7	74	M3	74.6	13	11		3	10.2	12	3
MR 7722								105.2	148.5				93.6							
MR 7723								124.2	167.5				112.6							
MR 7724								143.2	186.5				131.6							
MR 7731	60	75	5.8	14	30	2.5	70	109.8	140.3	6.9	90	M5	87.9	28		39	5	16	20	5
MR 7732								140.8	171.3				118.9							
MR 7733								171.8	202.3				149.9							
MR 7741	80	100	7	19	40	3	84	118.8	152.3	8		M6	96.4	31		39	6	21.5	32	4
MR 7742								147.8	181.3				125.5							
MR 7743								176.8	210.3				154.4							
MR 7744								205.8	239.3				183.4							
MR 7751	110	130	9	24	50	3	108	127.5	172.5	9		M8	105.3	31		39	8	27	40	5
MR 7752								158.5	203.5				136.3							
MR 7753								189.5	234.5				167.3							
MR 7754								220.5	265.5				198.3							
MR 7762	130	165	11	32	58	3.5	138	153.7	200.7	12.1		M12	130.5	31		39	10	35	45	5
MR 7763								178.7	225.7				155.5							
MR 7764								203.7	250.7				180.5							
MR 7765								228.7	275.7				205.5							
MR 7772	180	215	13.5	38	80	4	188	192.5	234.5	14.1		M12	164.5	45		39	10	41	70	5
MR 7773								226.5	268.5				198.5							
MR 7774								260.5	302.5				232.5							

\* K = without brake (-M0), K1 = with brake (-MS) – referring to motor with resolver (-G01), other dimensions see individual drawings

All dimensions in millimeters. CAD files are available on request (DXF/2D).

## Mechanical Data

<b>Mounting standards</b>	Flange motor, flange according to IEC standard, fit j6 (MR 771x: h7); special flange on request
<b>Mounting positions</b>	Any
<b>Construction types</b>	IM B5 acc. to DIN 42 950; special construction types on request
<b>Flange accuracy</b>	Acc. to DIN 42 955
<b>Cooling</b>	Self-cooling
<b>Ball bearings</b>	Service life $\geq 20,000$ operating hours
<b>Varnishing</b>	Matt black (RAL 9005), no solvent resistance
<b>Bearing shield and enclosure</b>	High-quality light-alloy
<b>Vibration intensity</b>	Vibration intensity stage N acc. to DIN ISO 2373
<b>Rotor</b>	Rotor with rare earth permanent magnets
<b>Protection class</b>	IP 40, IP 65 as an option, with shaft sealing ring
<b>Shaft end</b>	Acc. to DIN 748, part 3, fit j6 (MR 771x: h7), threaded on centerline standard shaft without keyway; shaft with keyway as option-P1, special shaft ends or hollow shafts on request.

## Permissible Mechanical Load

<b>Notes</b>	Basis: service life of ball bearings 20,000 h, application of radial force $F_R$ to shaft end, no simultaneous loading with max. $F_R$ and $F_A$ . Axial force $F_A$ must not exceed $F_R/3$ .
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Motor Size		MR 771x	MR 772x	MR 773x	MR 774x	MR 775x	MR 776x	MR 777x
Radial force $F_R$	N	30	145	195	450	450	770	1300
Axial force $F_A$	N	12	60	65	180	180	280	500
at speed	r.p.m.	8,000	5,000	3,000	3,000	3,000	3,000	1,000

## Electrical Data

<b>General</b>	The motors are three-phase synchronous motors with 3 (MR 771x .. MR 772x), 4 (MR 773x), or 5 (MR 774x .. MR 777x) pole pairs. They comply with the DIN VDE 0530 Rules for Electrical Machines.
<b>Voltage</b>	The motors are designed for connection to servo drives with DC-bus voltages of 320 or 560 V, see back of this data sheet. Other voltages on request.
<b>Insulation</b>	Insulation class F according to DIN VDE 0530. Suitable for use in tropical climates.
<b>Performance</b>	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 $\leq 40$ °C, operating mode S1.

**Winding protection**

The servo drive monitors the power consumption of the motor using an  $I^2t$  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. If the permissible winding temperature (155 °C) is exceeded, the servo drive responds to the abrupt rise of the PTC resistance.

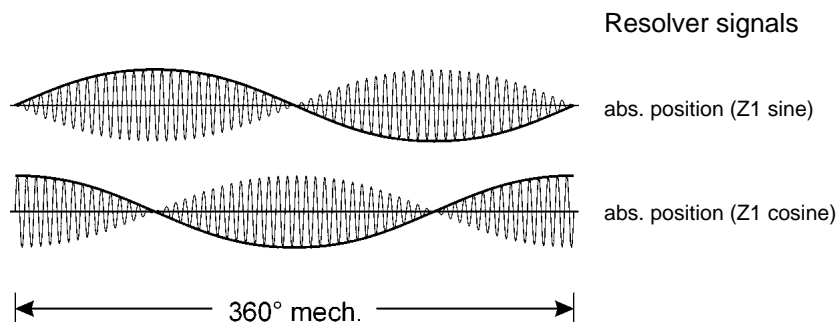
**Motor Position Sensors****General**

For determining position and speed, the servo motors are equipped with a motor position sensor. Two types of position sensors are available: resolvers and EnDat encoders. Usually, resolvers are used. 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**

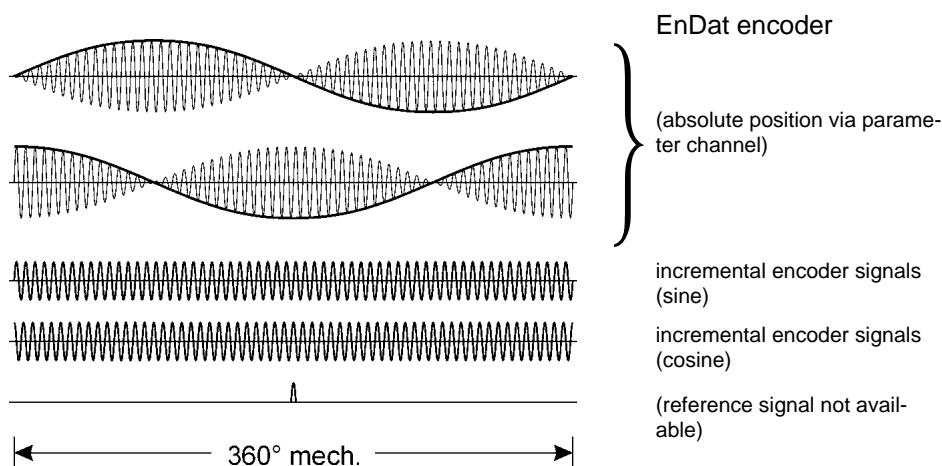
(Option -G01)

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.

**EnDat Encoders**

(Option -G11 and -G12)

In connection with the ESR digital servo drives and the ESR multi-axis servo system, an EnDat encoder (with optical position acquisition) can be used. Via the process data channel, the sinusoidal and cosinusoidal incremental signals are transmitted to the servo drive, the parameter channel (serial RS 485 interface) serves for transmitting the absolute rotor position information. 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.



### Single-turn

With the single-turn types of optical motor position sensors (option -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-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.

## Holding Brake

### General Option -MS

The optional holding brake is a permanent-magnet brake located in front of the B-side endshield 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	772x	773x	774x	775x	776x	777x
Stopping torque (at 120 °C) Nm		1.42	2.5	6.0	14.5	25	53
Rated voltage	V <sub>DC</sub>	24	24	24	24	24	24
Rated output	W	8.4	10.1	12.8	19.5	25.7	35.6
Moment of inertia	10 <sup>-3</sup> kg·m <sup>2</sup>	0.0011	0.0011	0.0068	0.0173	0.061	0.164
Lift delay time	ms	20	25	35	80	105	110
Engage delay time	ms	18	10	15	15	20	35
Weight	kg	0.27	0.35	0.63	1.1	2.0	2.1

## 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 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

in compliance with  
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 the technical specifications

In the tables with the technical specifications of the individual motors, the stated values are generally for continuous duty S1.

### Torque increase

If the servo motor is used in S3 intermittent duty, it can be operated at a higher torque. The following table lists some examples for converting the values of the technical specifications of the motors.

Torque increase related to the rated torque in S1 continuous duty  $M_{N S1}$ :

Increased torque...		...related to rated torque
Increased standstill torque $M_{0 S3}$	S3 25%	$M_{0 S3 25\%} = 1.6 \cdot M_{N S1}$
	S3 40%	$M_{0 S3 40\%} = 1.4 \cdot M_{N S1}$
Increased rated torque $M_{N S3}$	S3 25%	$M_{N S3 25\%} = 1.54 \cdot M_{N S1}$
	S3 40%	$M_{N S3 40\%} = 1.34 \cdot M_{N S1}$



## Selection Criteria for Servo Motors and General Overview

### Selection criteria

Major criteria for selecting a servo motor are:

- standstill torque  $M_{0,200}$
- rated speed  $n_N$
- torque at rated speed  $M_N$
- ratio moment of inertia  $J_{Motor}$  to  $J_{Last}$

On the basis of rated current  $I_N$  the corresponding servo drive or servo power module is selected for the motor.

### General overview

Values for standstill torque and rated torque can be found in the overview below. For an assignment of servo motors to ESR servo drives or servo power modules, see page 10ff (320 V) and page 17ff (560 V).

### General

All other electrical and mechanical specifications of the different motors are listed in table "Technical Specifications":

- motors for 320 V page 11ff, motors for 560 V page 19ff

$M_{0,200}$ [Nm]	$I_{0,200}$ [A <sub>eff</sub> ]	Motors for 320 V		Motors for 560 V	
		Order no.	$n_N$ [r.p.m.]	Order no.	$n_N$ [r.p.m.]
0.2	1.2	MR 7711-U3-N80:	8,000	—	—
0.3	1.5	MR 7712-U3-N80:	8,000	—	—
0.4	1.5	MR 7713-U3-N80:	8,000	—	—
0.5	1.6	MR 7721-U3-N80:	8,000	—	—
0.8	1.4	■MR 7722-U3-N35:	3,500	■MR 7722-U5-N80:	8,000
0.9	2.7	MR 7722-U3-N80:	8,000	—	—
1.1	1.4	MR 7723-U3-N25:	2,500	MR 7723-U5-N55:	5,500
1.2	2.2	■MR 7723-U3-N50:	5,000	—	—
1.4	1.4	MR 7724-U3-N20:	2,000	MR 7724-U5-N45:	4,500
1.4	2.2	■MR 7724-U3-N40:	4,000	■MR 7724-U5-N80:	8,000
1.4	3.9	MR 7724-U3-N80:	8,000	—	—
1.1	1.4	■MR 7731-U3-N25:	2,500	■MR 7731-U5-N50:	5,000
1.2	3.0	MR 7731-U3-N60:	6,000	—	—
2.0	1.4	MR 7732-U3-N15:	1,500	MR 7732-U5-N30:	3,000
2.0	2.2	■MR 7732-U3-N25:	2,500	■MR 7732-U5-N55:	5,500
2.1	5.5	MR 7732-U3-N70:	7,000	—	—
2.7	1.5	—	—	MR 7733-U5-N20:	2,000
2.8	2.6	■MR 7733-U3-N20:	2,000	■MR 7733-U5-N45:	4,500
2.9	5.6	MR 7733-U3-N55:	5,500	—	—
1.9	1.5	MR 7741-U3-N12:	1,200	MR 7741-U5-N30:	3,000
2.0	2.9	■MR 7741-U3-N30:	3,000	■MR 7741-U5-N60:	6,000
2.1	5.6	MR 7741-U3-N60:	6,000	—	—
3.3	1.4	—	—	MR 7742-U5-N15:	1,500
3.4	2.7	■MR 7742-U3-N18:	1,800	■MR 7742-U5-N35:	3,500
3.5	4.8	MR 7742-U3-N35:	3,500	MR 7742-U5-N60:	6,000
3.6	8.4	MR 7742-U3-N60:	6,000	—	—
4.7	2.8	MR 7743-U3-N15:	1,500	MR 7743-U5-N25:	2,500
4.8	4.9	■MR 7743-U3-N25:	2,500	■MR 7743-U5-N50:	5,000
4.9	9.6	MR 7743-U3-N60:	6,000	—	—
5.8	2.9	MR 7744-U3-N12:	1,200	MR 7744-U5-N20:	2,000
5.9	5.0	■MR 7744-U3-N20:	2,000	■MR 7744-U5-N40:	4,000

$M_{0,200}$ [Nm]	$I_{0,200}$ [A <sub>eff</sub> ]	Motors for 320 V		Motors for 560 V	
		Order no.	$n_N$ [r.p.m.]	Order no.	$n_N$ [r.p.m.]
4.7	2.8	MR 7751-U3-N12:	1,200	MR 7751-U5-N25:	2,500
4.7	4.8	■MR 7751-U3-N25:	2,500	■MR 7751-U5-N50:	5,000
8.3	3.0	—	—	MR 7752-U5-N15:	1,500
8.4	4.7	MR 7752-U3-N15:	1,500	MR 7752-U5-N25:	2,500
8.6	9.3	—	—	■MR 7752-U5-N55:	5,500
11.4	4.8	MR 7753-U3-N10:	1,000	MR 7753-U5-N20:	2,000
11.6	9.4	—	—	■MR 7753-U5-N40:	4,000
14.3	5.0	—	—	MR 7754-U5-N15:	1,500
14.4	9.7	—	—	■MR 7754-U5-N35:	3,500
14.1	17.8	—	—	MR 7754-U5-N45:	4,500
11.9	4.9	—	—	MR 7762-U5-N18:	1,800
12.2	9.6	—	—	■MR 7762-U5-N35:	3,500
16.5	4.5	—	—	MR 7763-U5-N12:	1,200
16.8	9.9	—	—	■MR 7763-U5-N30:	3,000
17.0	13.8	—	—	MR 7763-U5-N40:	4,000
20.8	9.2	—	—	MR 7764-U5-N20:	2,000
21.0	12.8	—	—	■MR 7764-U5-N30:	3,000
20.4	18.6	—	—	MR 7764-U5-N45:	4,500
24.8	9.8	—	—	MR 7765-U5-N20:	2,000
25.0	13.6	—	—	MR 7765-U5-N25:	2,500
24.3	17.8	—	—	■MR 7765-U5-N35:	3,500
29.7	9.3	—	—	MR 7772-U5-N15:	1,500
30.0	13.0	—	—	MR 7772-U5-N20:	2,000
29.4	18.7	—	—	■MR 7772-U5-N30:	3,000
42.0	13.6	—	—	MR 7773-U5-N15:	1,500
41.6	19.5	—	—	■MR 7773-U5-N24:	2,400
53.0	12.9	—	—	MR 7774-U5-N12:	1,200
52.5	18.5	—	—	■MR 7774-U5-N18:	1,800

■ = preferred types

## Servomotors for $U_{ZK} = 320 \text{ V}$ : Overview and Assignment

Order Number Motor	Rated Speed $n_N$ [r.p.m.]	Rated Torque $M_N$ [Nm]	Standstill Torque $M_{0.200}$ [Nm]	Standstill Current $I_{0.200}$ [A <sub>eff</sub> ]	Servo Drive or Servo Power Module with Rated Current...
MR 7711-U3-N80...	8,000	0.2	0.2	1.2	2 A
MR 7712-U3-N80...	8,000	0.3	0.3	1.5	
MR 7713-U3-N80...	8,000	0.4	0.4	1.5	
MR 7721-U3-N80...	8,000	0.4	0.5	1.6	
■ MR 7722-U3-N35...	3,500	0.8	0.8	1.4	
MR 7722-U3-N80...	8,000	0.7	0.9	2.7	4 A
MR 7723-U3-N25...	2,500	1.1	1.1	1.4	2 A
■ MR 7723-U3-N50...	5,000	1.0	1.2	2.2	
MR 7724-U3-N20...	2,000	1.3	1.4	1.4	
■ MR 7724-U3-N40...	4,000	1.3	1.4	2.2	4 A
MR 7724-U3-N80...	8,000	1.1	1.4	3.9	
■ MR 7731-U3-N25...	2,500	1.1	1.1	1.4	2 A
MR 7731-U3-N60...	6,000	0.9	1.2	3.0	4 A
MR 7732-U3-N15...	1,500	1.9	2.0	1.4	2 A
■ MR 7732-U3-N25...	2,500	1.9	2.0	2.2	4 A
MR 7732-U3-N70...	7,000	1.4	2.1	5.5	
■ MR 7733-U3-N20...	2,000	2.6	2.8	2.6	
MR 7733-U3-N55...	5,500	2.3	2.9	5.6	6 A
MR 7741-U3-N12...	1,200	1.9	1.9	1.5	2 A
■ MR 7741-U3-N30...	3,000	1.8	2.0	2.9	4 A
MR 7741-U3-N60...	6,000	1.6	2.1	5.6	6 A
■ MR 7742-U3-N18...	1,800	3.1	3.4	2.7	4 A
MR 7742-U3-N35...	3,500	2.9	3.5	4.8	
MR 7742-U3-N60...	6,000	2.4	3.6	8.4	6 A
MR 7743-U3-N15...	1,500	4.2	4.7	2.8	4 A
■ MR 7743-U3-N25...	2,500	4.0	4.8	4.9	
MR 7743-U3-N60...	6,000	2.6	4.9	9.6	6 A
MR 7744-U3-N12...	1,200	5.2	5.8	2.9	4 A
■ MR 7744-U3-N20...	2,000	4.9	5.9	5.0	6 A
MR 7751-U3-N12...	1,200	4.4	4.7	2.8	4 A
■ MR 7751-U3-N25...	2,500	4.0	4.7	4.8	
MR 7752-U3-N15...	1,500	7.7	8.4	4.7	6 A
MR 7753-U3-N10...	1,000	10.7	11.4	4.8	

■ = preferred types

Other speeds on request.

### Corresponding Servo Drives and Servo Power Modules with 320 V DC-Bus Voltage:

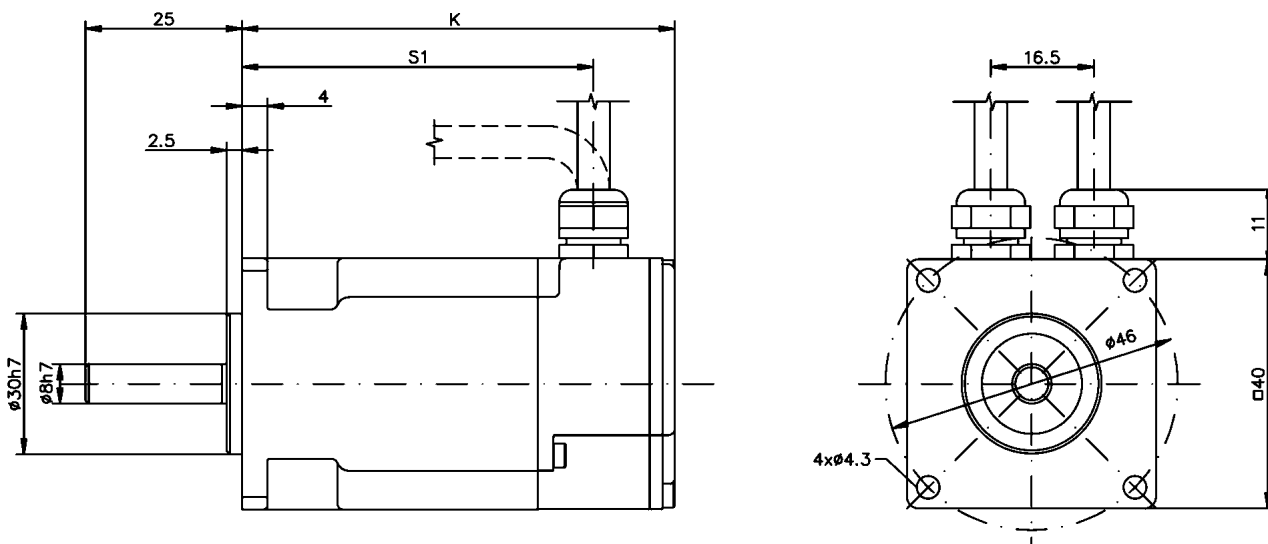
Servo Drive Family	TrioDrive D	TrioDrive D/PS TrioDrive D/CS	TrioDrive A	TrioDrive C
Design	compact	compact	compact	compact
Power supply	direct 230 V~	direct 230 V~	direct 230 V~	direct 230 V~
Technology	digital	digital	analog	multi-axis servo system
Rated current	2 A	BN 6751	BN 6756	BN 6651
	4 A	BN 6752	BN 6757	BN 6652
	6 A	BN 6753	BN 6758	BN 6653

## Servomotors for $U_{ZK} = 320$ V: Technical Specifications (1) – MR 7711 to MR 7722

For the following types: MR 771x..-U3 or MR 772x..-U3 (type code see page 3)

Motors MR 7711 to MR 7722 for $U_{ZK} = 320$ V			MR 7711	MR 7712	MR 7713	MR 7721	MR 7722	MR 7722
			-N80	-N80	-N80	-N80	-N35	-N80
Rated speed	$n_N$	r.p.m.	8,000	8,000	8,000	8,000	3,500	8,000
Rated output	$P_N$	W	140	230	300	320	290	590
Torque at rated speed	$M_N$	Nm	0.2	0.3	0.4	0.4	0.8	0.7
Rated current	$I_N$	$A_{eff}$	1.1	1.3	1.3	1.3	1.3	2.2
Standstill torque	$M_{0.200}$	Nm	0.2	0.3	0.4	0.5	0.8	0.9
Standstill current	$I_{0.200}$	$A_{eff}$	1.2	1.5	1.5	1.6	1.4	2.7
Peak torque	$M_{max}$	Nm	0.6	1.1	1.5	1.5	2.7	2.8
Peak current	$I_{max}$	$A_{eff}$	4.7	6.1	5.9	6.3	5.6	10.9
Torque constant	$K_{T0.200}$	Nm/ $A_{eff}$	0.16	0.21	0.28	0.30	0.61	0.32
Voltage constant	$K_e$	V/1000 r.p.m.	10.2	13.3	17.9	19.5	39.0	20.4
Resistance phase-phase	$R_{U-V}$	$\Omega$	20.2	13.3	17.9	13.0	19.4	5.1
Inductivity phase-phase	$L_{U-V}$	mH	12.5	9.1	10.3	19.0	35.5	9.7
Electr. time constant	$T_{el}$	ms	0.62	0.68	0.58	1.46	1.83	1.90
Therm. time constant	$T_{therm}$	min	4	6	7	8	9	9
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.0017	0.0031	0.0045	0.011	0.016	0.016
Static friction torque	$M_R$	Nm	0.0011	0.0021	0.0031	0.002	0.005	0.005
Number of pole pairs	$n_{pp}$		3	3	3	3	3	3
Weight		kg	0.35	0.49	0.63	0.82	1.10	1.10

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7711	MR 7712	MR 7713	MR 772x
Dimension K	69.6	88.6	107.6	see
Dimension S1	56.1	75.1	94.1	e. g. page 12

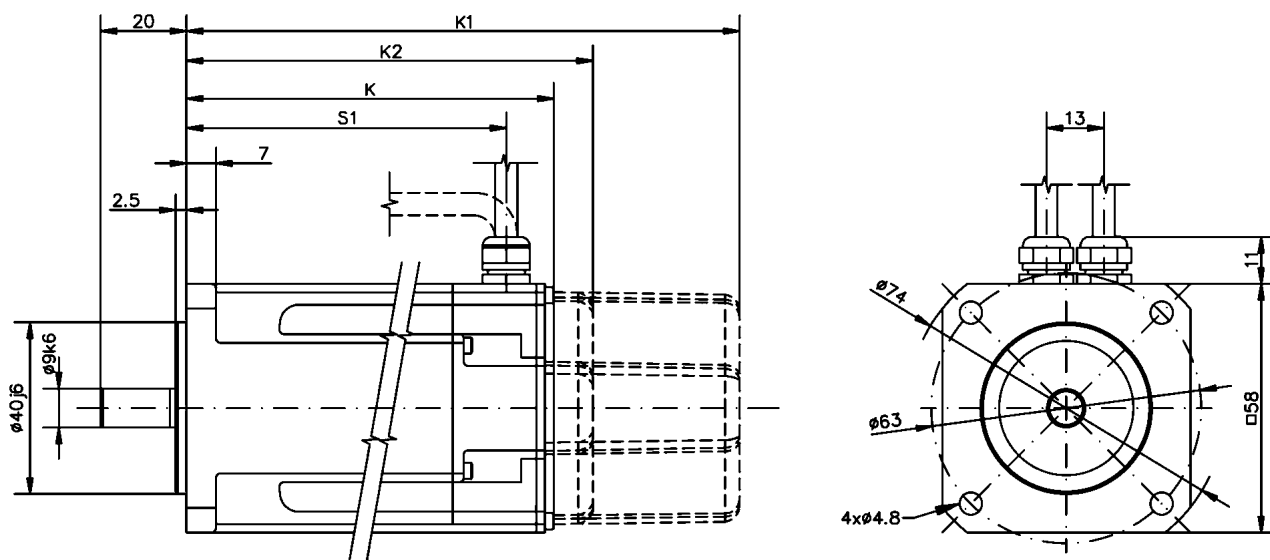
Overview of dimensions see page 4. Assignment to the servo drives see page 10.

## Servomotors for $U_{zK} = 320$ V: Technical Specifications (2) – MR 7723 to MR 7724

For the following types: MR 7723..-U3 or MR 7724..-U3 (type code see page 3)

Motors MR 7723 to MR 7724 for $U_{zK} = 320$ V			MR 7723 -N25	MR 7723 -N50	MR 7724 -N20	MR 7724 -N40	MR 7724 -N80
Rated speed	$n_N$	r.p.m.	2,500	5,000	2,000	4,000	8,000
Rated output	$P_N$	W	280	540	280	540	940
Torque at rated speed	$M_N$	Nm	1.1	1.0	1.3	1.3	1.1
Rated current	$I_N$	$A_{eff}$	1.4	2.0	1.4	2.0	3.1
Standstill torque	$M_{0\ 200}$	Nm	1.1	1.2	1.4	1.4	1.4
Standstill current	$I_{0\ 200}$	$A_{eff}$	1.4	2.2	1.4	2.2	3.9
Peak torque	$M_{max}$	Nm	3.8	3.8	4.7	4.8	4.8
Peak current	$I_{max}$	$A_{eff}$	5.6	8.8	5.7	8.8	15.6
Torque constant	$K_{T0\ 200}$	Nm/ $A_{eff}$	0.80	0.52	0.97	0.63	0.36
Voltage constant	$K_e$	V/1000 r.p.m.	51.8	33.8	62.4	40.8	23.4
Resistance phase-phase	$R_{U-V}$	$\Omega$	20.3	8.4	20.4	8.4	2.8
Inductivity phase-phase	$L_{U-V}$	mH	40.7	17.3	43.8	18.7	6.2
Electr. time constant	$T_{el}$	ms	2.00	2.06	2.15	2.23	2.21
Therm. time constant	$T_{therm}$	min	10	10	11	11	11
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.022	0.022	0.027	0.027	0.027
Static friction torque	$M_R$	Nm	0.007	0.007	0.010	0.010	0.010
Number of pole pairs	$n_{pp}$		3	3	3	3	3
Weight		kg	1.4	1.4	1.7	1.7	1.7

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7721	MR 7722	MR 7723	MR 7724	Option
Dimension K	86.2	105.2	124.2	143.2	(-G01-M0)
Dimension K1	129.5	148.5	167.5	186.5	(-Gxx-MS)
Dimension K2	95.4	114.4	133.4	152.4	(-G11/-G12-M0)
Dimension S1	74.6	93.6	112.6	131.6	

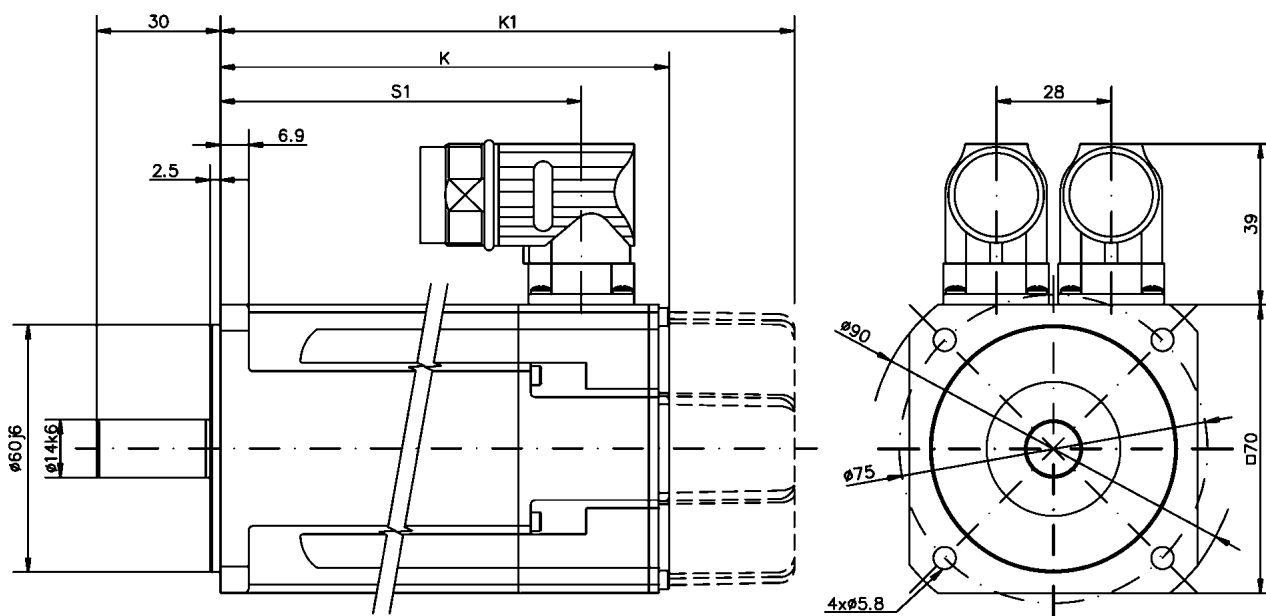
Overview of dimensions see page 4. Assignment to the servo drives see page 10.

## Servomotors for $U_{ZK} = 320$ V: Technical Specifications (3) – MR 7731 to MR 7733

For the following types: MR 7731..-U3, MR 7732..-U3 or MR 7733..-U3 (type code see page 3)

Motors MR 7731 to MR 7733 for $U_{ZK} = 320$ V			MR 7731	MR 7731	MR 7732	MR 7732	MR 7732	MR 7733	MR 7733
			-N25	-N60	-N15	-N25	-N70	-N20	-N55
Rated speed	$n_N$	r.p.m.	2,500	6,000	1,500	2,500	7,000	2,000	5,500
Rated output	$P_N$	W	290	600	310	510	1,060	550	1,310
Torque at rated speed	$M_N$	Nm	1.1	0.9	1.9	1.9	1.4	2.6	2.3
Rated current	$I_N$	$A_{eff}$	1.3	2.3	1.4	2.1	3.7	2.4	4.4
Standstill torque	$M_{0.200}$	Nm	1.1	1.2	2.0	2.0	2.1	2.8	2.9
Standstill current	$I_{0.200}$	$A_{eff}$	1.4	3.0	1.4	2.2	5.5	2.6	5.6
Peak torque	$M_{max}$	Nm	3.9	4.0	6.9	7.0	7.3	10.0	10.2
Peak current	$I_{max}$	$A_{eff}$	5.5	12.0	5.7	8.9	22.0	10.3	22.5
Torque constant	$K_{T0.200}$	Nm/ $A_{eff}$	0.85	0.41	1.40	0.92	0.39	1.10	0.52
Voltage constant	$K_e$	V/1000 r.p.m.	54.5	26.1	89.8	59.0	24.8	70.6	33.4
Resistance phase-phase	$R_{U-V}$	$\Omega$	21.4	4.6	23.0	9.6	1.6	8.4	1.8
Inductivity phase-phase	$L_{U-V}$	mH	37.5	8.6	46.5	20.1	3.6	18.5	4.1
Electr. time constant	$T_{el}$	ms	1.75	1.87	2.02	2.09	2.25	2.20	2.28
Therm. time constant	$T_{therm}$	min	14	14	17	17	17	20	20
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.033	0.033	0.059	0.059	0.059	0.085	0.085
Static friction torque	$M_R$	Nm	0.014	0.014	0.020	0.020	0.020	0.026	0.026
Number of pole pairs	$n_{pp}$		4	4	4	4	4	4	4
Weight		kg	1.6	1.6	2.2	2.2	2.2	2.9	2.9

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7731	MR 7732	MR 7733	Option
Dimension K	109.8	140.8	171.8	(-Gxx-M0)
Dimension K1	140.3	171.3	202.3	(-Gxx-MS)
Dimension S1	87.9	118.9	149.9	

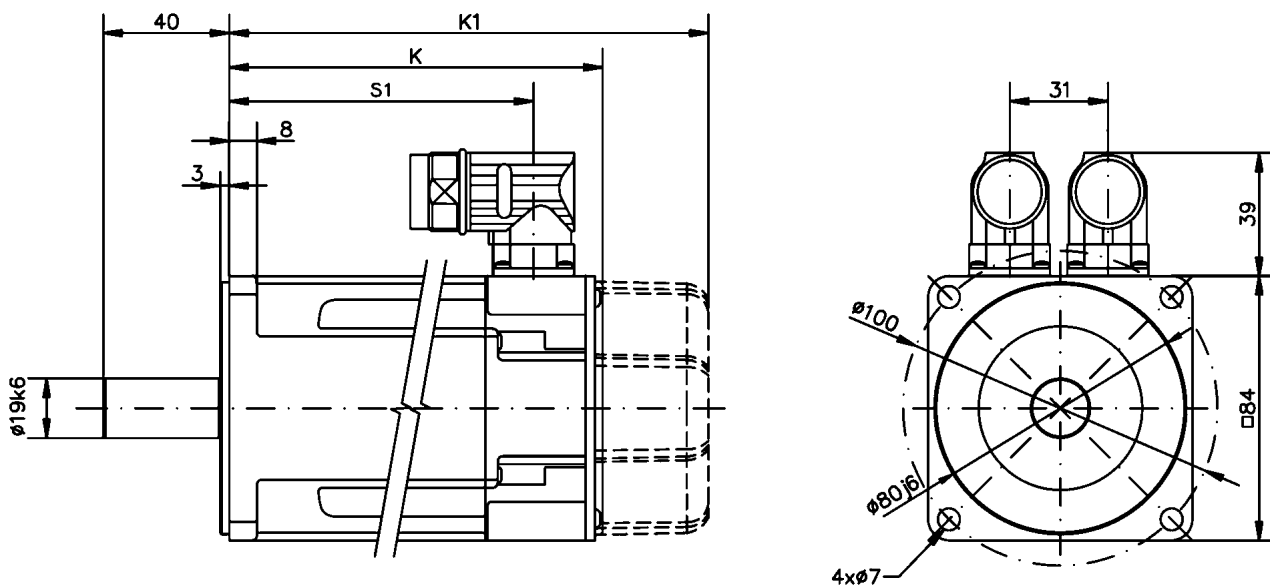
Overview of dimensions see page 4. Assignment to the servo drives see page 10.

## Servomotors for $U_{ZK} = 320$ V: Technical Specifications (4) – MR 7741 to MR 7742

For the following types: MR 7741..-U3 or MR 7742..-U3 (type code see page 3)

Motors MR 7741 to MR 7742 for $U_{ZK} = 320$ V			MR 7741 -N12	MR 7741 -N30	MR 7741 -N60	MR 7742 -N18	MR 7742 -N35	MR 7742 -N60
Rated speed	$n_N$	r.p.m.	1,200	3,000	6,000	1,800	3,500	6,000
Rated output	$P_N$	W	240	570	1,020	590	1,060	1,500
Torque at rated speed	$M_N$	Nm	1.9	1.8	1.6	3.1	2.9	2.4
Rated current	$I_N$	$A_{eff}$	1.4	2.6	4.4	2.5	3.9	5.5
Standstill torque	$M_{0,200}$	Nm	1.9	2.0	2.1	3.4	3.5	3.6
Standstill current	$I_{0,200}$	$A_{eff}$	1.5	2.9	5.6	2.7	4.8	8.4
Peak torque	$M_{max}$	Nm	6.1	6.3	6.4	11.3	11.5	11.6
Peak current	$I_{max}$	$A_{eff}$	5.8	11.4	22.4	11.0	19.2	33.7
Torque constant	$K_{T0,200}$	Nm/ $A_{eff}$	1.34	0.71	0.37	1.26	0.74	0.43
Voltage constant	$K_e$	V/1000 r.p.m.	86.3	45.6	23.7	80.9	47.5	27.5
Resistance phase-phase	$R_{u-v}$	$\Omega$	21.7	5.7	1.5	7.2	2.4	0.8
Inductivity phase-phase	$L_{u-v}$	mH	66.1	18.4	5.0	26.8	9.2	3.1
Electr. time constant	$T_{el}$	ms	3.05	3.23	3.33	3.72	3.83	3.88
Therm. time constant	$T_{therm}$	min	13	13	13	17	17	17
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.081	0.081	0.081	0.150	0.150	0.150
Static friction torque	$M_R$	Nm	0.014	0.014	0.014	0.026	0.026	0.026
Number of pole pairs	$n_{pp}$		5	5	5	5	5	5
Weight		kg	2.4	2.4	2.4	3.4	3.4	3.4

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7741	MR 7742	MR 7743	MR 7744	Option
Dimension K	118.8	147.8	176.8	205.8	(-Gxx-M0)
Dimension K1	152.3	181.3	210.3	239.3	(-Gxx-MS)
Dimension S1	96.4	125.5	154.4	183.4	

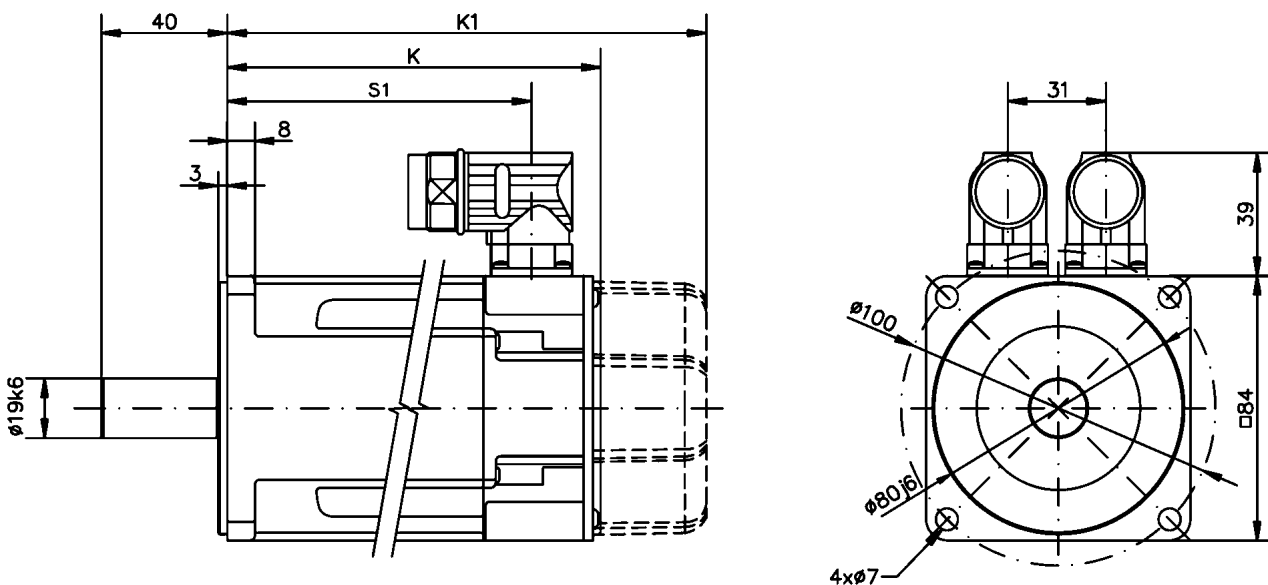
Overview of dimensions see page 4. Assignment to the servo drives see page 10.

## Servomotors for $U_{ZK} = 320$ V: Technical Specifications (5) – MR 7743 to MR 7744

For the following types: MR 7743..-U3 or MR 7744..-U3 (type code see page 3)

Motors MR 7743 to MR 7744 for $U_{ZK} = 320$ V			MR 7743 -N15	MR 7743 -N25	MR 7743 -N60	MR 7744 -N12	MR 7744 -N20
Rated speed	$n_N$	r.p.m.	1,500	2,500	6,000	1,200	2,000
Rated output	$P_N$	W	670	1,050	1,650	660	1,030
Torque at rated speed	$M_N$	Nm	4.2	4.0	2.6	5.2	4.9
Rated current	$I_N$	$A_{eff}$	2.5	4.0	5.0	2.6	4.1
Standstill torque	$M_{0.200}$	Nm	4.7	4.8	4.9	5.8	5.9
Standstill current	$I_{0.200}$	$A_{eff}$	2.8	4.9	9.6	2.9	5.0
Peak torque	$M_{max}$	Nm	15.9	16.1	16.3	19.9	20.2
Peak current	$I_{max}$	$A_{eff}$	11.0	19.5	38.3	11.4	20.0
Torque constant	$K_{T0.200}$	Nm/ $A_{eff}$	1.72	0.99	0.52	2.04	1.19
Voltage constant	$K_e$	V/1000 r.p.m.	111.0	63.9	33.2	132.0	76.6
Resistance phase-phase	$R_{u-v}$	$\Omega$	8.0	2.6	0.7	8.1	2.6
Inductivity phase-phase	$L_{u-v}$	mH	32.6	10.8	2.9	33.9	11.5
Electr. time constant	$T_{el}$	ms	4.08	4.15	4.14	4.19	4.42
Therm. time constant	$T_{therm}$	min	20	20	20	24	24
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.21	0.21	0.21	0.27	0.27
Static friction torque	$M_R$	Nm	0.038	0.038	0.038	0.050	0.050
Number of pole pairs	$n_{pp}$		5	5	5	5	5
Weight		kg	4.4	4.4	4.4	5.3	5.3

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7741	MR 7742	MR 7743	MR 7744	Option
Dimension K	118.8	147.8	176.8	205.8	(-Gxx-M0)
Dimension K1	152.3	181.3	210.3	239.3	(-Gxx-MS)
Dimension S1	96.4	125.5	154.4	183.4	

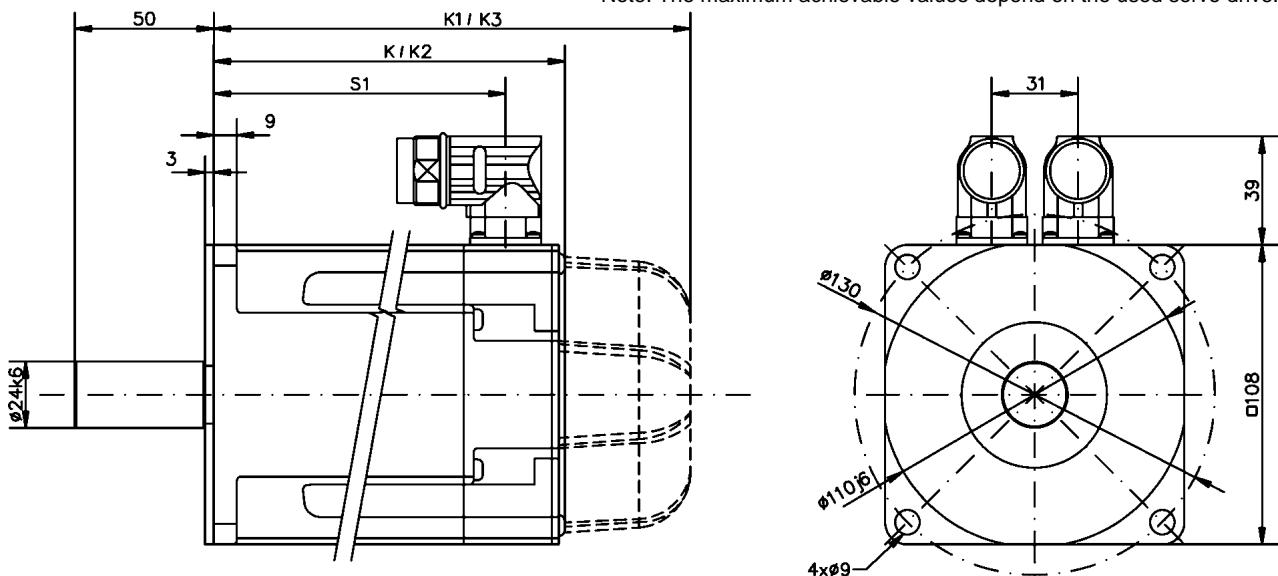
Overview of dimensions see page 4. Assignment to the servo drives see page 10.

## Servomotors for $U_{ZK} = 320$ V: Technical Specifications (6) – MR 7751 to MR 7753

For the following types: MR 7751..-U3, MR 7752..-U3 or MR 7753..-U3 (type code see page 3)

Motors MR 7751 to MR 7753 for $U_{ZK} = 320$ V			MR 7751 -N12	MR 7751 -N25	MR 7751 -N55	MR 7752 -N15	MR 7753 -N10
Rated speed	$n_N$	r.p.m.	1,200	2,500	5,500	1,500	1,000
Rated output	$P_N$	W	550	1,050	1,350	1,210	1,120
Torque at rated speed	$M_N$	Nm	4.4	4.0	2.3	7.7	10.7
Rated current	$I_N$	$A_{eff}$	2.6	4.1	4.5	4.3	4.5
Standstill torque	$M_{0\ 200}$	Nm	4.7	4.7	4.9	8.4	11.4
Standstill current	$I_{0\ 200}$	$A_{eff}$	2.8	4.8	9.4	4.7	4.8
Peak torque	$M_{max}$	Nm	11.6	11.7	12.0	21.5	29.7
Peak current	$I_{max}$	$A_{eff}$	8.2	14.5	28.3	14.2	14.3
Torque constant	$K_{T0\ 200}$	Nm/ $A_{eff}$	1.72	0.99	0.52	1.79	2.39
Voltage constant	$K_e$	V/1000 r.p.m.	110.0	63.6	33.5	115.0	154.0
Resistance phase-phase	$R_{U-V}$	$\Omega$	8.5	2.8	0.8	3.5	3.8
Inductivity phase-phase	$L_{U-V}$	mH	36.6	12.1	3.4	18.5	21.3
Electr. time constant	$T_{el}$	ms	4.31	4.32	4.25	5.29	5.61
Therm. time constant	$T_{therm}$	min	20	20	20	24	28
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.34	0.34	0.34	0.62	0.91
Static friction torque	$M_R$	Nm	0.022	0.022	0.022	0.040	0.058
Number of pole pairs	$n_{pp}$		5	5	5	5	5
Weight		kg	4.2	4.2	4.2	5.8	7.4

Note: The maximum achievable values depend on the used servo drive.



### Dimensions:

Motor Type	MR 7751	MR 7752	MR 7753	MR 7754	Option
Dimension K	127.5	158.5	189.5	220.5	(-G01-M0)
Dimension K1	172.5	203.5	234.5	265.5	(-G01-MS)
Dimension K2	146.0	177.0	208.0	239.0	(-G11/G12-M0)
Dimension K3	189.0	220.0	251.0	282.0	(-G11/G12-MS)
Dimension S1	105.3	136.3	167.3	198.3	

Overview of dimensions see page 4. Assignment to the servo drives see page 10.



## Servomotors for $U_{ZK} = 560 \text{ V}$ : Overview and Assignment (1)

Order Number Motor	Rated Speed $n_N$ [r.p.m.]	Rated Torque $M_N$ [Nm]	Standstill Torque $M_{0.200}$ [Nm]	Standstill Current $I_{0.200}$ [ $A_{\text{eff}}$ ]	Servo Drive or Servo Power Module with Rated Current...
■ MR 7722-U5-N80...	8,000	0.7	0.8	1.4	2 A
MR 7723-U5-N55...	5,500	1.0	1.1	1.4	
MR 7724-U5-N45...	4,500	1.2	1.4	1.4	
■ MR 7724-U5-N80...	8,000	1.1	1.4	2.2	
■ MR 7731-U5-N50...	5,000	1.0	1.1	1.4	
MR 7732-U5-N30...	3,000	1.9	2.0	1.4	
■ MR 7732-U5-N55...	5,500	1.6	2.0	2.2	
MR 7733-U5-N20...	2,000	2.5	2.7	1.5	
■ MR 7733-U5-N45...	4,500	2.3	2.8	2.6	4 A
MR 7741-U5-N30...	3,000	1.8	1.9	1.5	2 A
■ MR 7741-U5-N60...	6,000	1.6	2.0	2.9	4 A
MR 7742-U5-N15...	1,500	3.1	3.3	1.4	2 A
■ MR 7742-U5-N35...	3,500	2.8	3.4	2.7	4 A
MR 7742-U5-N60...	6,000	2.3	3.5	4.8	
MR 7743-U5-N25...	2,500	3.9	4.7	2.8	
■ MR 7743-U5-N50...	5,000	3.0	4.8	4.9	
MR 7744-U5-N20...	2,000	4.8	5.8	2.9	
■ MR 7744-U5-N40...	4,000	3.8	5.9	5.0	
MR 7751-U5-N25...	2,500	4.0	4.7	2.8	
■ MR 7751-U5-N50...	5,000	2.6	4.7	4.8	
MR 7752-U5-N15...	1,500	7.6	8.3	3.0	
MR 7752-U5-N25...	2,500	7.1	8.4	4.7	
■ MR 7752-U5-N55...	5,500	3.9	8.6	9.3	8 A
MR 7753-U5-N20...	2,000	9.8	11.4	4.8	
■ MR 7753-U5-N40...	4,000	7.6	11.6	9.4	
MR 7754-U5-N15...	1,500	12.9	14.3	5.0	
■ MR 7754-U5-N35...	3,500	10.0	14.4	9.7	
MR 7754-U5-N45...	4,500	8.1	14.1	17.8	

■ = preferred types

Other speeds on request.

### Corresponding Servo Drives and Servo Power Modules with 560 V DC-Bus Voltage:

Servo Drive Family	MidiDrive D	MidiDrive D/PS MidiDrive D/CS	MaxiDrive	MidiDrive A	MidiDrive C	
Design	compact	compact	compact	compact	compact	
Power supply	direct 3 × 400 V	direct 3 × 400/480 V	direct 3 × 400 V	direct 3 × 400/480 V	direct 3 × 400/480 V	
Technology	digital	digital	digital	analog	multi-axis servo system	
Rated current	2 A	BN 6741	BN 6745	BN 6721	BN 6681	BN 6626
	4 A	BN 6742	BN 6746	BN 6722	BN 6682	BN 6627
	8 A	BN 6743	BN 6747	BN 6723	BN 6683	BN 6628
	12 A			BN 6724	BN 6684	BN 6629
	20 A			BN 6725	BN 6685	BN 6630

## Servomotors for $U_{ZK} = 560 \text{ V}$ : Overview and Assignment (2)

Order Number Motor	Rated Speed $n_N$ [r.p.m.]	Rated Torque $M_N$ [Nm]	Standstill Torque $M_{0.200}$ [Nm]	Standstill Current $I_{0.200}$ [ $A_{\text{eff}}$ ]	Servo Drive or Servo Power Module with Rated Current...
MR 7762-U5-N18...	1,800	10.4	11.9	4.9	8 A
■ MR 7762-U5-N35...	3,500	9.0	12.2	9.6	
MR 7763-U5-N12...	1,200	14.9	16.5	4.5	4 A
■ MR 7763-U5-N30...	3,000	12.9	16.8	9.9	8 A
MR 7763-U5-N40...	4,000	11.3	17.0	13.8	12 A
MR 7764-U5-N20...	2,000	17.2	20.8	9.2	8 A
■ MR 7764-U5-N30...	3,000	15.6	21.0	12.8	12 A
MR 7764-U5-N45...	4,500	11.9	20.4	18.6	
MR 7765-U5-N20...	2,000	20.2	24.8	9.8	8 A
MR 7765-U5-N25...	2,500	19.2	25.0	13.6	12 A
■ MR 7765-U5-N35...	3,500	16.0	24.3	17.8	
MR 7772-U5-N15...	1,500	25.1	29.7	9.3	8 A
MR 7772-U5-N20...	2,000	23.6	30.0	13.0	12 A
■ MR 7772-U5-N30...	3,000	20.1	29.4	18.7	20 A
MR 7773-U5-N15...	1,500	33.8	42.0	13.6	12 A
■ MR 7773-U5-N24...	2,400	28.5	41.6	19.5	20 A
MR 7774-U5-N12...	1,200	43.5	53.0	12.9	12 A
MR 7774-U5-N18...	1,800	39.6	52.5	18.5	20 A

■ = Preferred types

Other speeds on request.

### Corresponding Servo Drives and Servo Power Modules with 560 V DC-Bus Voltage:

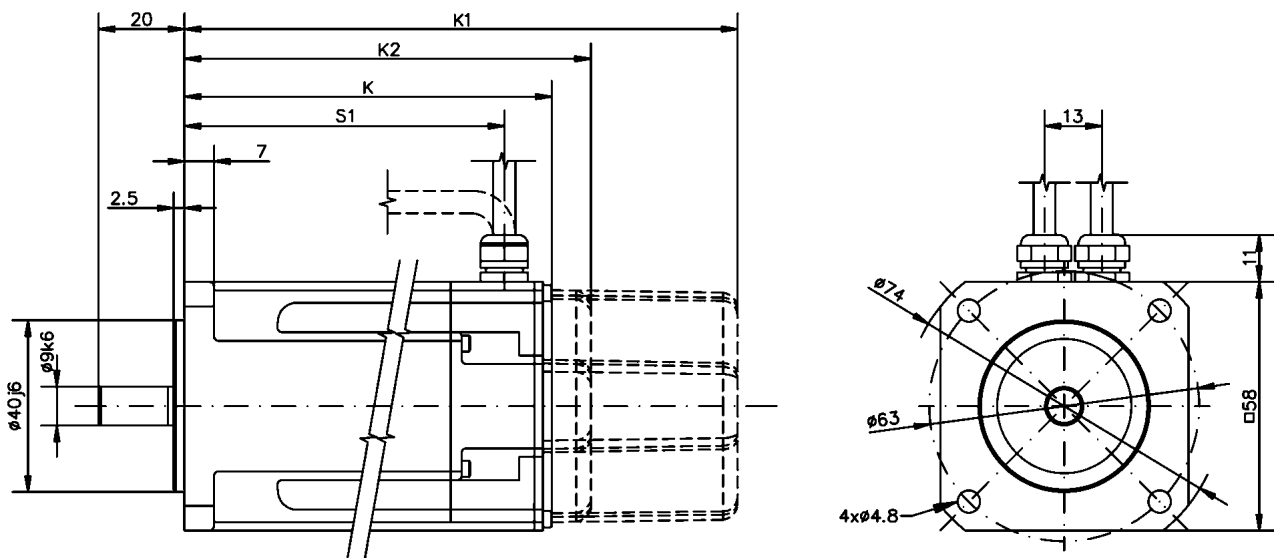
Servo Drive Family	MidiDrive D		MidiDrive D/PS MidiDrive D/CS	MaxiDrive	MidiDrive A	MidiDrive C
Design	compact		compact	compact	compact	compact
Power supply	direct 3 × 400 V		direct 3 × 400/480 V	direct 3 × 400 V	direct 3 × 400/480 V	direct 3 × 400/480 V
Technology	digital		digital	digital	analog	multi-axis servo sytem
Rated current	2 A	BN 6741	BN 6745	BN 6721	BN 6681	BN 6626
	4 A	BN 6742	BN 6746	BN 6722	BN 6682	BN 6627
	8 A	BN 6743	BN 6747	BN 6723	BN 6683	BN 6628
	12 A			BN 6724	BN 6684	BN 6629
	20 A			BN 6725	BN 6685	BN 6630

## Servomotors for $U_{zK} = 560$ V: Technical Specifications (1) – MR 7722 to MR 7724

For the following types: MR 7722..-U5, MR 7723..-U5 or MR 7724..-U5 (type code see page 3)

Motors MR 7722 to MR 7724 for $U_{zK} = 560$ V			MR 7722	MR 7723	MR 7724	MR 7724
			-N80	-N55	-N45	-N80
Rated speed	$n_N$	r.p.m.	8,000	5,500	4,500	8,000
Rated output	$P_N$	W	570	570	590	930
Torque at rated speed	$M_N$	Nm	0.7	1.0	1.2	1.1
Rated current	$I_N$	$A_{eff}$	1.1	1.2	1.3	1.8
Standstill torque	$M_{0\ 200}$	Nm	0.8	1.1	1.4	1.4
Standstill current	$I_{0\ 200}$	$A_{eff}$	1.4	1.4	1.4	2.2
Peak torque	$M_{max}$	Nm	2.7	3.8	4.7	4.8
Peak current	$I_{max}$	$A_{eff}$	5.6	5.6	5.7	8.8
Torque constant	$K_{T0\ 200}$	Nm/ $A_{eff}$	0.61	0.80	0.97	0.63
Voltage constant	$K_e$	V/1000 r.p.m.	39.0	51.8	62.4	40.8
Resistance phase-phase	$R_{U-V}$	$\Omega$	19.4	20.3	20.4	8.4
Inductivity phase-phase	$L_{U-V}$	mH	35.5	40.7	43.8	18.7
Electr. time constant	$T_{el}$	ms	1.83	2.00	2.15	2.23
Therm. time constant	$T_{therm}$	min	9	10	11	11
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.016	0.022	0.027	0.027
Static friction torque	$M_R$	Nm	0.005	0.007	0.010	0.010
Number of pole pairs	$n_{pp}$		3	3	3	3
Weight		kg	1.1	1.4	1.7	1.7

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7721	MR 7722	MR 7723	MR 7724	Option
Dimension K	86.2	105.2	124.2	143.2	(-G01-M0)
Dimension K1	129.5	148.5	167.5	186.5	(-Gxx-MS)
Dimension K2	95.4	114.4	133.4	152.4	(-G11/-G12-M0)
Dimension S1	74.6	93.6	112.6	131.6	

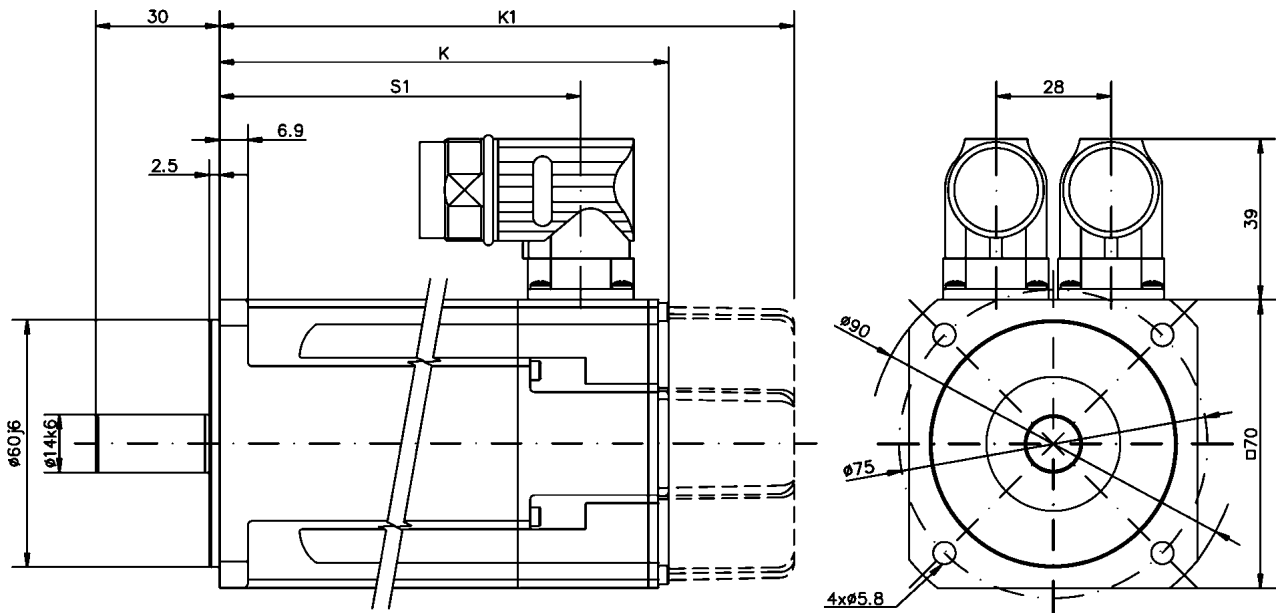
Overview of dimensions see page 4. Assignment to the servo drives see page 17.

## Servomotors for $U_{ZK} = 560$ V: Technical Specifications (2) – MR 7731 to MR 7733

For the following types: MR 7731..-U5, MR 7732..-U5 or MR 7733..-U5 (type code see page 3)

Motors MR 7731 to MR 7733 for $U_{ZK} = 560$ V			MR 7731	MR 7732	MR 7732	MR 7733	MR 7733
			-N50	-N30	-N55	-N20	-N45
Rated speed	$n_N$	r.p.m.	5,000	3,000	5,500	2,000	4,500
Rated output	$P_N$	W	520	580	950	530	1,100
Torque at rated speed	$M_N$	Nm	1.0	1.9	1.6	2.5	2.3
Rated current	$I_N$	$A_{eff}$	1.2	1.3	1.8	1.4	2.1
Standstill torque	$M_{0\ 200}$	Nm	1.1	2.0	2.0	2.7	2.8
Standstill current	$I_{0\ 200}$	$A_{eff}$	1.4	1.4	2.2	1.5	2.6
Peak torque	$M_{max}$	Nm	3.9	6.9	7.0	9.8	10.0
Peak current	$I_{max}$	$A_{eff}$	5.5	5.7	8.9	5.9	10.3
Torque constant	$K_{T0\ 200}$	Nm/ $A_{eff}$	0.85	1.40	0.92	1.86	1.10
Voltage constant	$K_e$	V/1000 r.p.m.	54.5	89.8	59.0	120.0	70.6
Resistance phase-phase	$R_{U-V}$	$\Omega$	21.4	23.0	9.6	25.4	8.4
Inductivity phase-phase	$L_{U-V}$	mH	37.5	46.5	20.1	53.6	18.5
Electr. time constant	$T_{el}$	ms	1.75	2.02	2.09	2.11	2.20
Therm. time constant	$T_{therm}$	min	14	17	17	20	20
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.033	0.059	0.059	0.085	0.085
Static friction torque	$M_R$	Nm	0.014	0.020	0.020	0.026	0.026
Number of pole pairs	$n_{pp}$		4	4	4	4	4
Weight		kg	1.6	2.2	2.2	2.9	2.9

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7731	MR 7732	MR 7733	Option
Dimension K	109.8	140.8	171.8	(-Gxx-M0)
Dimension K1	140.3	171.3	202.3	(-Gxx-MS)
Dimension S1	87.9	118.9	149.9	

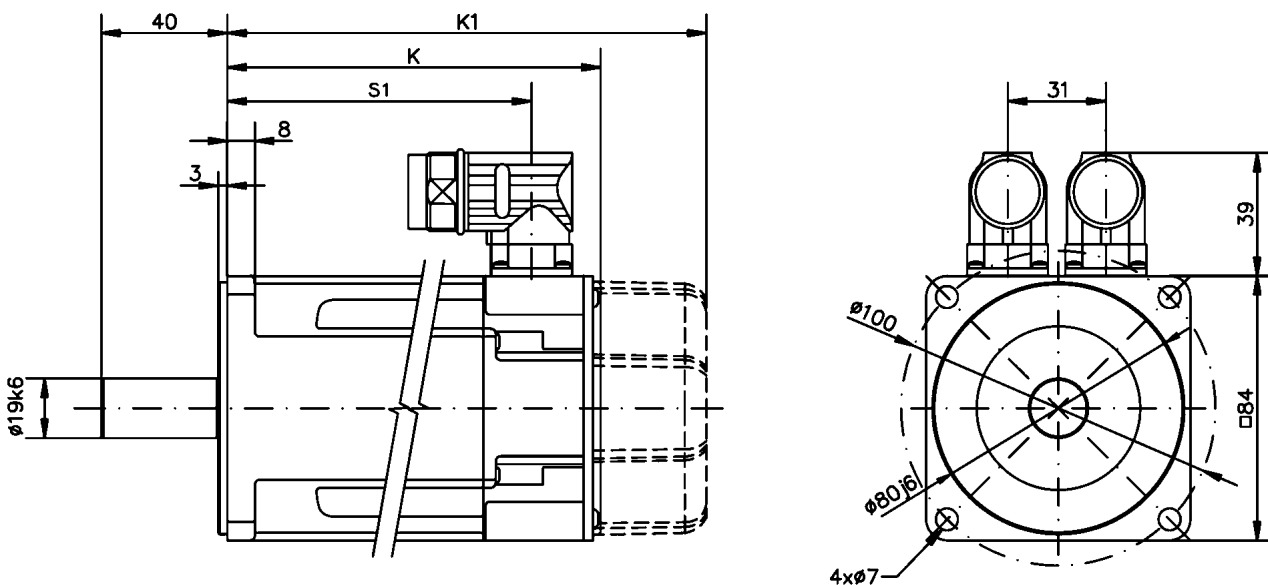
Overview of dimensions see page 4. Assignment to the servo drives see page 17.

## Servomotors for $U_{ZK} = 560$ V: Technical Specifications (3) – MR 7741 to MR 7742

For the following types: MR 7741..-U5 or MR 7742..-U5 (type code see page 3)

Motors MR 7741 to MR 7742 for $U_{ZK} = 560$ V			MR 7741 -N30	MR 7741 -N60	MR 7742 -N15	MR 7742 -N35	MR 7742 -N60
Rated speed	$n_N$	r.p.m.	3,000	6,000	1,500	3,500	6,000
Rated output	$P_N$	W	560	990	490	1,030	1,480
Torque at rated speed	$M_N$	Nm	1.8	1.6	3.1	2.8	2.3
Rated current	$I_N$	$A_{eff}$	1.3	2.2	1.3	2.2	3.2
Standstill torque	$M_{0\ 200}$	Nm	1.9	2.0	3.3	3.4	3.5
Standstill current	$I_{0\ 200}$	$A_{eff}$	1.5	2.9	1.4	2.7	4.8
Peak torque	$M_{max}$	Nm	6.1	6.3	11.1	11.3	11.5
Peak current	$I_{max}$	$A_{eff}$	5.8	11.4	5.6	11.0	19.2
Torque constant	$K_{T0\ 200}$	Nm/ $A_{eff}$	1.34	0.71	2.40	1.26	0.74
Voltage constant	$K_e$	V/1000 r.p.m.	86.3	45.6	154.0	80.9	47.5
Resistance phase-phase	$R_{U-V}$	$\Omega$	21.7	5.7	27.5	7.2	2.4
Inductivity phase-phase	$L_{U-V}$	mH	66.1	18.4	97.4	26.8	9.2
Electr. time constant	$T_{el}$	ms	3.05	3.23	3.54	3.72	3.83
Therm. time constant	$T_{therm}$	min	13	13	17	17	17
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.081	0.081	0.150	0.150	0.150
Static friction torque	$M_R$	Nm	0.014	0.014	0.026	0.026	0.026
Number of pole pairs	$n_{pp}$		5	5	5	5	5
Weight		kg	2.4	2.4	3.4	3.4	3.4

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7741	MR 7742	MR 7743	MR 7744	Option
Dimension K	118.8	147.8	176.8	205.8	(-Gxx-M0)
Dimension K1	152.3	181.3	210.3	239.3	(-Gxx-MS)
Dimension S1	96.4	125.5	154.4	183.4	

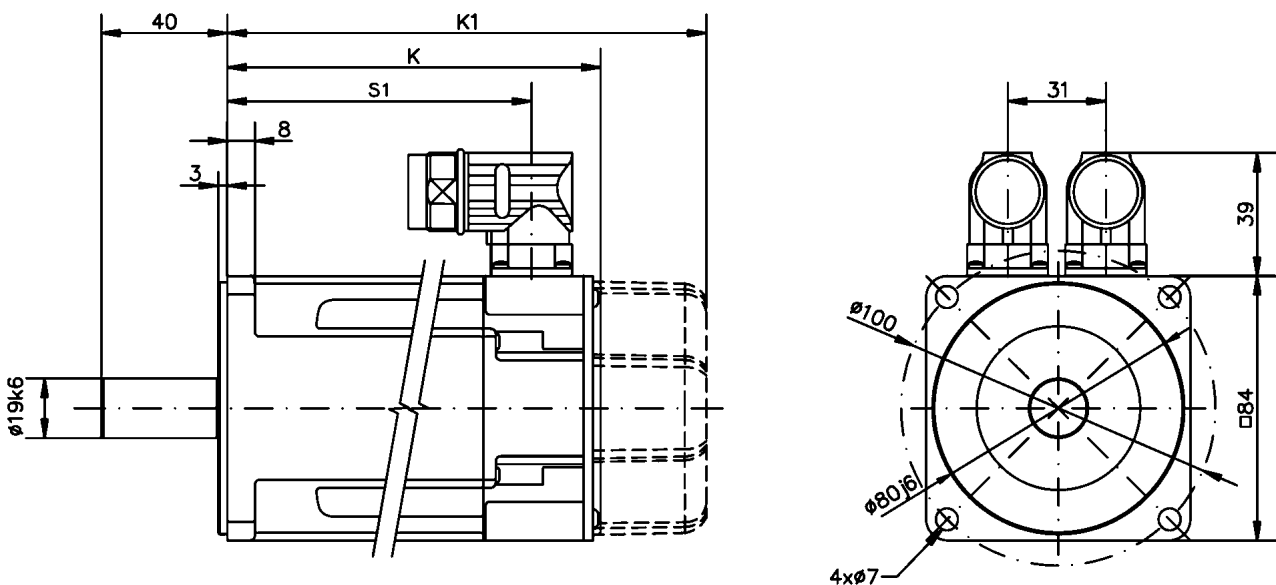
Overview of dimensions see page 4. Assignment to the servo drives see page 17.

## Servomotors for $U_{ZK} = 560$ V: Technical Specifications (4) – MR 7743 to MR 7744

For the following types: MR 7743..-U5 or MR 7744..-U5 (type code see page 3)

Motors MR 7743 to MR 7744 for $U_{ZK} = 560$ V			MR 7743 -N25	MR 7743 -N50	MR 7744 -N20	MR 7744 -N40
Rated speed	$n_N$	r.p.m.	2,500	5,000	2,000	4,000
Rated output	$P_N$	W	1,030	1,580	1,010	1,570
Torque at rated speed	$M_N$	Nm	3.9	3.0	4.8	3.8
Rated current	$I_N$	$A_{eff}$	2.3	3.0	2.4	3.2
Standstill torque	$M_{0.200}$	Nm	4.7	4.8	5.8	5.9
Standstill current	$I_{0.200}$	$A_{eff}$	2.8	4.9	2.9	5.0
Peak torque	$M_{max}$	Nm	15.9	16.1	19.9	20.2
Peak current	$I_{max}$	$A_{eff}$	11.0	19.5	11.4	20.0
Torque constant	$K_{T0.200}$	Nm/ $A_{eff}$	1.72	0.99	2.04	1.19
Voltage constant	$K_e$	V/1000 r.p.m.	111.0	63.9	132.0	76.6
Resistance phase-phase	$R_{u-v}$	$\Omega$	8.0	2.6	8.1	2.6
Inductivity phase-phase	$L_{u-v}$	mH	32.6	10.8	33.9	11.5
Electr. time constant	$T_{el}$	ms	4.08	4.15	4.19	4.42
Therm. time constant	$T_{therm}$	min	20	20	24	24
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.21	0.21	0.27	0.27
Static friction torque	$M_R$	Nm	0.038	0.038	0.050	0.050
Number of pole pairs	$n_{pp}$		5	5	5	5
Weight		kg	4.3	4.3	5.3	5.3

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7741	MR 7742	MR 7743	MR 7744	Option
Dimension K	118.8	147.8	176.8	205.8	(-Gxx-M0)
Dimension K1	152.3	181.3	210.3	239.3	(-Gxx-MS)
Dimension S1	96.4	125.5	154.4	183.4	

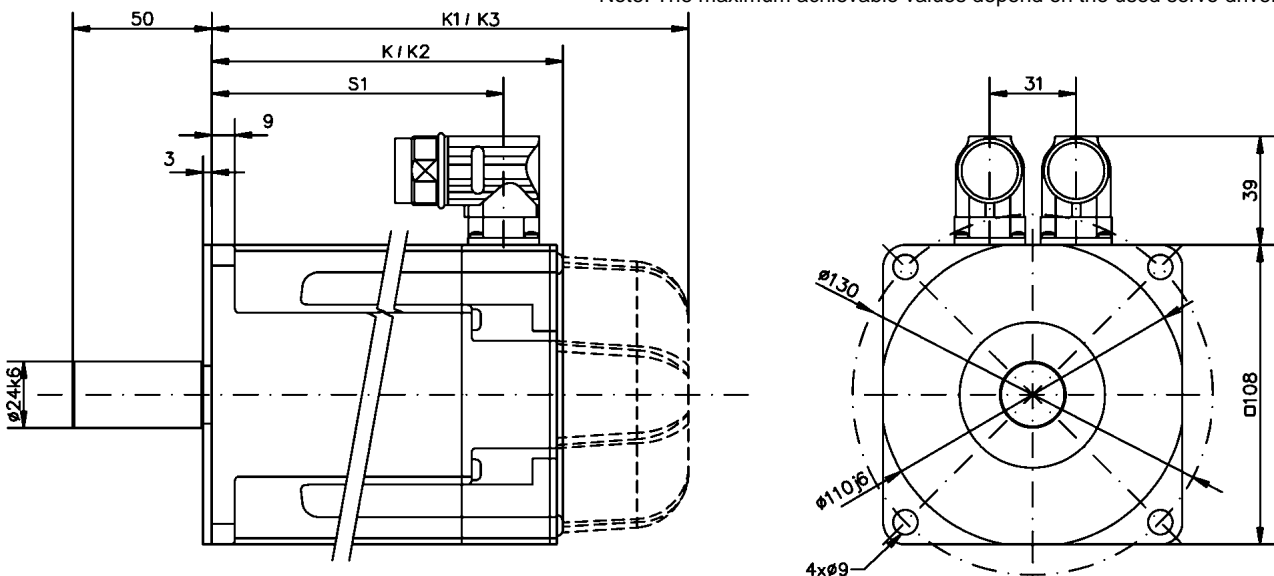
Overview of dimensions see page 4. Assignment to the servo drives see page 17.

## Servomotors for $U_{ZK} = 560$ V: Technical Specifications (5) – MR 7751 to MR 7752

For the following types: MR 7751..-U5 or MR 7752..-U5 (type code see page 3)

Motors MR 7751 to MR 7752 for $U_{ZK} = 560$ V			MR 7751 -N25	MR 7751 -N50	MR 7752 -N15	MR 7752 -N25	MR 7752 -N55
Rated speed	$n_N$	r.p.m.	2,500	5,000	1,500	2,500	5,500
Rated output	$P_N$	W	1,040	1,370	1,200	1,850	2,250
Torque at rated speed	$M_N$	Nm	4.0	2.6	7.6	7.1	3.9
Rated current	$I_N$	$A_{eff}$	2.3	2.6	2.7	3.9	4.2
Standstill torque	$M_{0\ 200}$	Nm	4.7	4.7	8.3	8.4	8.6
Standstill current	$I_{0\ 200}$	$A_{eff}$	2.8	4.8	3.0	4.7	9.3
Peak torque	$M_{max}$	Nm	11.6	11.7	21.3	21.5	21.9
Peak current	$I_{max}$	$A_{eff}$	8.2	14.5	9.0	14.2	27.8
Torque constant	$K_{T0\ 200}$	Nm/ $A_{eff}$	1.72	0.99	2.79	1.79	0.93
Voltage constant	$K_e$	V/1000 r.p.m.	110.0	63.6	179.0	115.0	60.1
Resistance phase-phase	$R_{U-V}$	$\Omega$	8.5	2.8	8.6	3.5	0.9
Inductivity phase-phase	$L_{U-V}$	mH	36.6	12.1	44.7	18.5	5.0
Electr. time constant	$T_{el}$	ms	4.31	4.32	5.20	5.29	5.56
Therm. time constant	$T_{therm}$	min	20	20	24	24	24
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.34	0.34	0.62	0.62	0.62
Static friction torque	$M_R$	Nm	0.022	0.022	0.040	0.040	0.040
Number of pole pairs	$n_{pp}$		5	5	5	5	5
Weight		kg	4.2	4.2	5.8	5.8	5.8

Note: The maximum achievable values depend on the used servo drive.



### Dimensions:

Motor Type	MR 7751	MR 7752	MR 7753	MR 7754	Option
Dimension K	127.5	158.5	189.5	220.5	(-G01-M0)
Dimension K1	172.5	203.5	234.5	265.5	(-G01-MS)
Dimension K2	146.0	177.0	208.0	239.0	(-G11/G12-M0)
Dimension K3	189.0	220.0	251.0	282.0	(-G11/G12-MS)
Dimension S1	105.3	136.3	167.3	198.3	

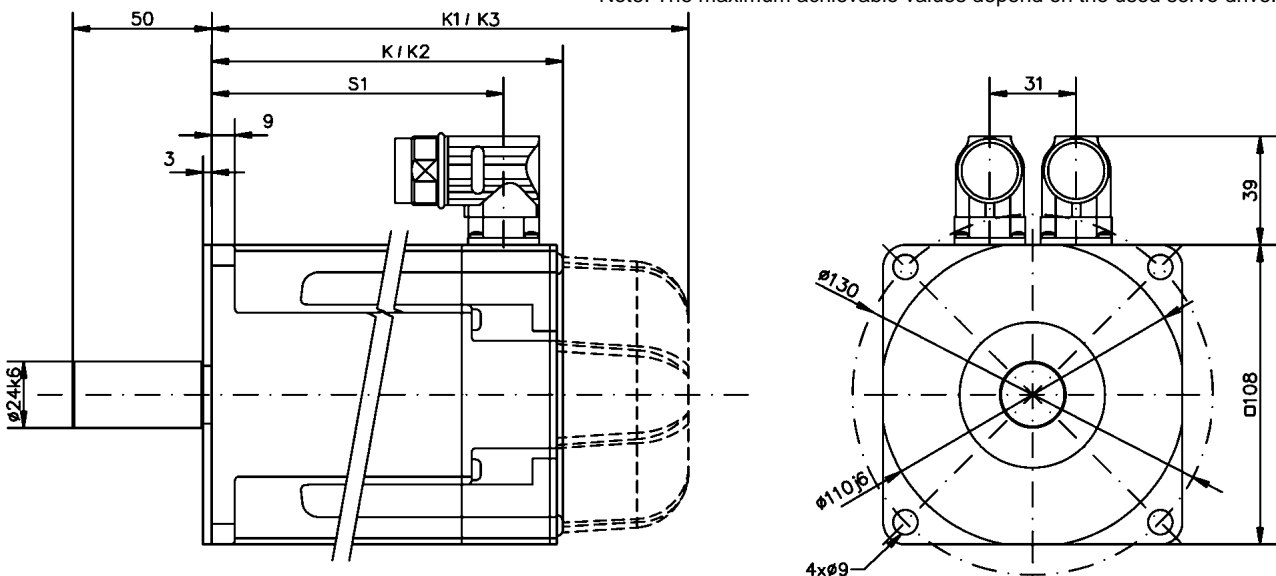
Overview of dimensions see page 4. Assignment to the servo drives see page 17.

## Servomotors for $U_{ZK} = 560$ V: Technical Specifications (6) – MR 7753 to MR 7754

For the following types: MR 7753..-U5 or MR 7754..-U5 (type code see page 3)

Motors MR 7753 to MR 7754 for $U_{ZK} = 560$ V			MR 7753 -N20	MR 7753 -N40	MR 7754 -N15	MR 7754 -N35	MR 7754 -N45
Rated speed	$n_N$	r.p.m.	2,000	4,000	1,500	3,500	4,500
Rated output	$P_N$	W	2,060	3,200	2,030	3,680	3,830
Torque at rated speed	$M_N$	Nm	<b>9.8</b>	<b>7.6</b>	<b>12.9</b>	<b>10.0</b>	<b>8.1</b>
Rated current	$I_N$	$A_{eff}$	4.1	6.2	4.5	6.7	7.2
Standstill torque	$M_{0\ 200}$	Nm	<b>11.4</b>	<b>11.6</b>	<b>14.3</b>	<b>14.4</b>	<b>14.1</b>
Standstill current	$I_{0\ 200}$	$A_{eff}$	4.8	9.4	5.0	9.7	12.5
Peak torque	$M_{max}$	Nm	<b>29.7</b>	<b>30.1</b>	<b>37.8</b>	<b>38.4</b>	<b>37.5</b>
Peak current	$I_{max}$	$A_{eff}$	14.3	28.1	14.9	29.2	37.5
Torque constant	$K_{T0\ 200}$	Nm/ $A_{eff}$	2.39	1.24	2.88	1.50	1.13
Voltage constant	$K_e$	V/1000 r.p.m.	154.0	79.8	185.0	96.9	72.9
Resistance phase-phase	$R_{U-V}$	$\Omega$	3.8	1.0	3.8	1.0	0.6
Inductivity phase-phase	$L_{U-V}$	mH	21.3	5.7	22.9	6.2	3.5
Electr. time constant	$T_{el}$	ms	5.61	5.70	6.03	6.20	5.83
Therm. time constant	$T_{therm}$	min	28	28	31	31	31
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	0.91	0.91	1.20	1.20	1.20
Static friction torque	$M_R$	Nm	0.058	0.058	0.077	0.077	0.077
Number of pole pairs	$n_{pp}$		5	5	5	5	5
Weight		kg	7.4	7.4	9.0	9.0	9.0

Note: The maximum achievable values depend on the used servo drive.



### Dimensions:

Motor Type	MR 7751	MR 7752	MR 7753	MR 7754	Option
Dimension K	127.5	158.5	189.5	220.5	(-G01-M0)
Dimension K1	172.5	203.5	234.5	265.5	(-G01-MS)
Dimension K2	146.0	177.0	208.0	239.0	(-G11/G12-M0)
Dimension K3	189.0	220.0	251.0	282.0	(-G11/G12-MS)
Dimension S1	105.3	136.3	167.3	198.3	

Overview of dimensions see page 4. Assignment to the servo drives see page 17.

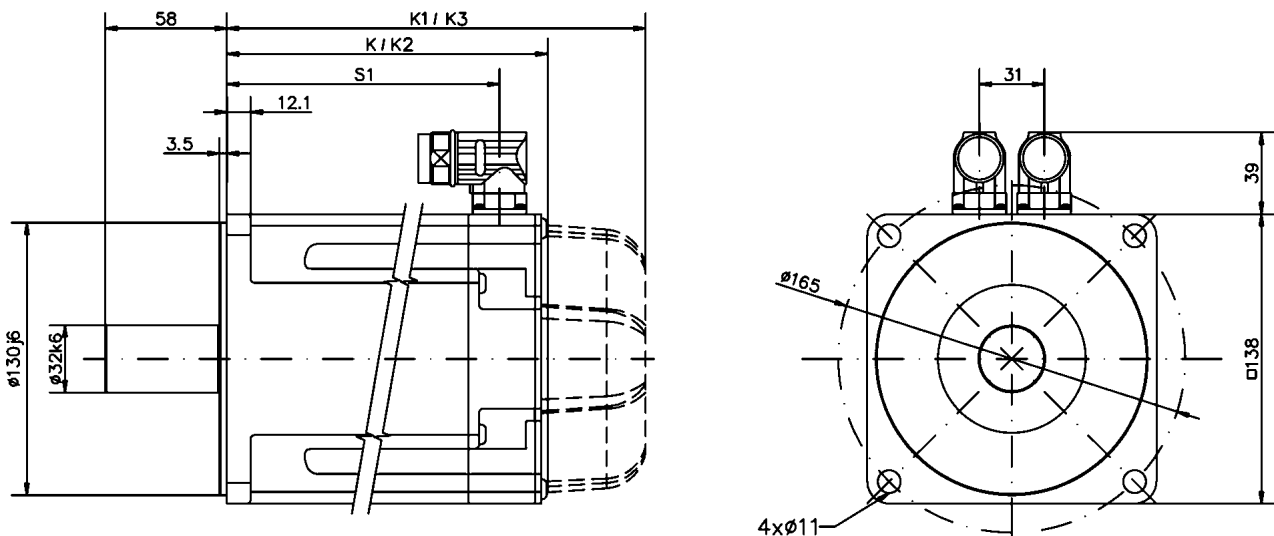


## Servomotors for $U_{ZK} = 560 \text{ V}$ : Technical Specifications (7) – MR 7762 to MR 7763

For the following types: MR 7762..-U5 or MR 7763..-U5 (type code see page 3)

Motors MR 7762 to MR 7763 for $U_{ZK} = 560 \text{ V}$			MR 7762 -N18	MR 7762 -N35	MR 7763 -N12	MR 7763 -N30	MR 7763 -N40
Rated speed	$n_N$	r.p.m.	1,800	3,500	1,200	3,000	4,000
Rated output	$P_N$	W	1,960	3,300	1,870	4,050	4,730
Torque at rated speed	$M_N$	Nm	10.4	9.0	14.9	12.9	11.3
Rated current	$I_N$	$A_{\text{eff}}$	4.2	7.0	4.0	7.5	9.1
Standstill torque	$M_{0\ 200}$	Nm	11.9	12.2	16.5	16.8	17.0
Standstill current	$I_{0\ 200}$	$A_{\text{eff}}$	4.9	9.6	4.5	9.9	13.8
Peak torque	$M_{\text{max}}$	Nm	29.8	30.1	41.8	42.6	43.0
Peak current	$I_{\text{max}}$	$A_{\text{eff}}$	14.6	28.7	13.4	29.7	41.4
Torque constant	$K_{T0\ 200}$	Nm/ $A_{\text{eff}}$	2.47	1.28	3.70	1.71	1.24
Voltage constant	$K_e$	V/1000 r.p.m.	159.0	82.1	238.0	110.0	79.9
Resistance phase-phase	$R_{U-V}$	$\Omega$	3.9	1.0	5.2	1.1	0.6
Inductivity phase-phase	$L_{U-V}$	mH	31.7	8.5	43.5	9.3	4.9
Electr. time constant	$T_{\text{el}}$	ms	8.13	8.50	8.37	8.45	8.17
Therm. time constant	$T_{\text{therm}}$	min	20	20	25	25	25
Rotor inertia	$J_R$	$10^{-3} \text{ kg m}^2$	1.70	1.70	2.40	2.40	2.40
Static friction torque	$M_R$	Nm	0.05	0.05	0.10	0.10	0.10
Number of pole pairs	$n_{pp}$		5	5	5	5	5
Weight		kg	8.9	8.9	11.1	11.1	11.1

Note: The maximum achievable values depend on the used servo drive.



### Dimensions:

Motor Type	MR 7762	MR 7763	MR 7764	MR 7765	Option
Dimension K	153.7	178.7	203.7	228.7	(-G01-M0)
Dimension K1	200.7	225.7	250.7	275.7	(-G01-MS)
Dimension K2	172.2	197.2	222.2	247.2	(-G11/G12-M0)
Dimension K3	218.7	224.7	268.7	294.7	(-G11/G12-MS)
Dimension S1	130.5	155.5	180.5	205.5	

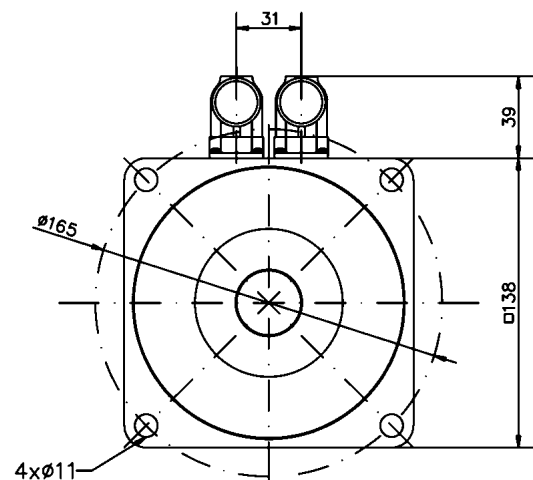
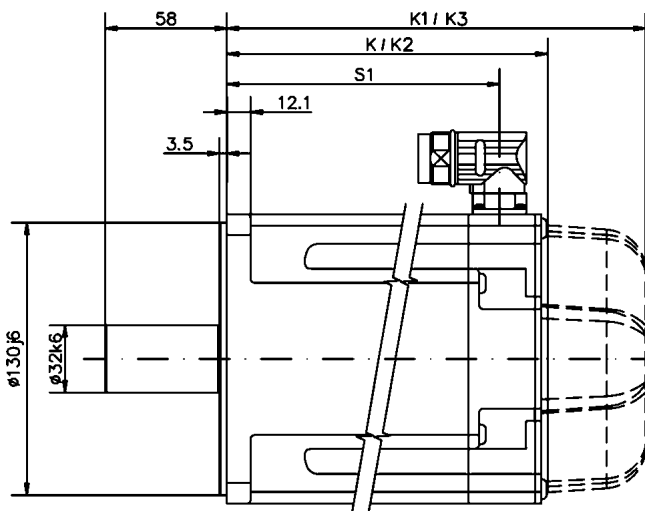
Overview of dimensions see page 4. Assignment to the servo drives see page 17.

## Servomotors for $U_{ZK} = 560$ V: Technical Specifications (8) – MR 7764 to MR 7765

For the following types: MR 7764..-U5 or MR 7765..-U5 (type code see page 3)

Motors MR 7764 to MR 7765 for $U_{ZK} = 560$ V			MR 7764 -N20	MR 7764 -N30	MR 7764 -N45	MR 7765 -N20	MR 7765 -N25	MR 7765 -N35
Rated speed	$n_N$	r.p.m.	2,000	3,000	4,500	2,000	2,500	3,500
Rated output	$P_N$	W	3,600	4,900	5,610	4,230	5,030	5,860
Torque at rated speed	$M_N$	Nm	17.2	15.6	11.9	20.2	19.2	16.0
Rated current	$I_N$	$A_{eff}$	7.5	9.4	10.8	8.0	10.4	11.6
Standstill torque	$M_{0.200}$	Nm	20.8	21.0	20.4	24.8	25.0	24.3
Standstill current	$I_{0.200}$	$A_{eff}$	9.2	12.8	18.6	9.8	13.6	17.8
Peak torque	$M_{max}$	Nm	53.5	54.1	52.9	64.5	65.2	63.7
Peak current	$I_{max}$	$A_{eff}$	27.5	38.4	55.9	29.4	40.9	53.3
Torque constant	$K_{T0.200}$	Nm/ $A_{eff}$	2.28	1.66	1.10	2.54	1.85	1.38
Voltage constant	$K_e$	V/1000 r.p.m.	147.0	107.0	71.0	164.0	119.0	88.8
Resistance phase-phase	$R_{U-V}$	$\Omega$	1.3	0.7	0.4	1.3	0.7	0.4
Inductivity phase-phase	$L_{U-V}$	mH	11.8	6.2	2.8	11.4	6.1	3.4
Electr. time constant	$T_{el}$	ms	9.08	8.86	7.00	8.77	8.71	8.50
Therm. time constant	$T_{therm}$	min	30	30	30	35	35	35
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	3.20	3.20	3.20	4.00	4.00	4.00
Static friction torque	$M_R$	Nm	0.15	0.15	0.15	0.20	0.20	0.20
Number of pole pairs	$n_{pp}$		5	5	5	5	5	5
Weight		kg	13.3	13.3	13.3	15.4	15.4	15.4

Note: The maximum achievable values depend on the used servo drive.



### Dimensions:

Motor Type	MR 7762	MR 7763	MR 7764	MR 7765	Option
Dimension K	153.7	178.7	203.7	228.7	(-G01-M0)
Dimension K1	200.7	225.7	250.7	275.7	(-G01-MS)
Dimension K2	172.2	197.2	222.2	247.2	(-G11/G12-M0)
Dimension K3	218.7	224.7	268.7	294.7	(-G11/G12-MS)
Dimension S1	130.5	155.5	180.5	205.5	

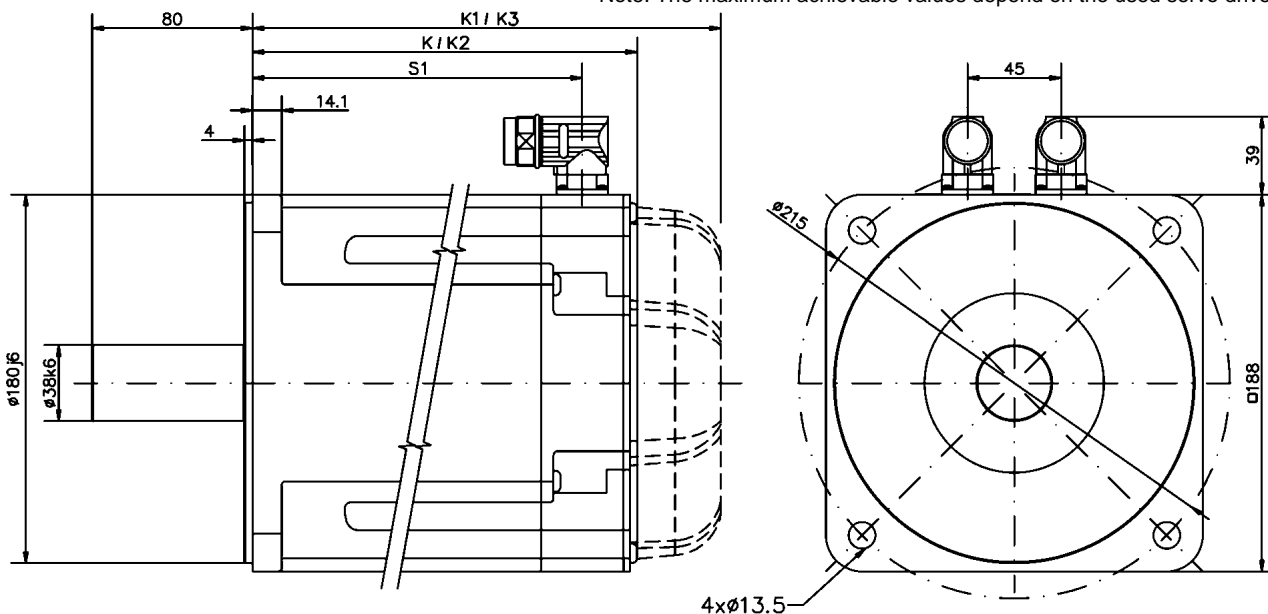
Overview of dimensions see page 4. Assignment to the servo drives see page 17.

## Servomotors for $U_{ZK} = 560$ V: Technical Specifications (9) – MR 7772 to MR 7774

For the following types: MR 7772..-U5, MR 7773..-U5 or MR 7774..-U5 (type code see page 3)

Motors MR 7772 to MR 7774 for $U_{ZK} = 560$ V			MR 7772	MR 7772	MR 7772	MR 7773	MR 7773	MR 7774	MR 7774
			-N15	-N20	-N30	-N15	-N24	-N12	-N18
Rated speed	$n_N$	r.p.m.	1,500	2,000	3,000	1,500	2,400	1,200	1,800
Rated output	$P_N$	W	3,940	4,940	6,310	5,310	7,160	5,470	7,460
Torque at rated speed	$M_N$	Nm	25.1	23.6	20.1	33.8	28.5	43.5	39.6
Rated current	$I_N$	$A_{eff}$	7.8	10.1	12.7	10.9	13.4	10.5	13.9
Standstill torque	$M_{0\ 200}$	Nm	29.7	30.0	29.4	42.0	41.6	53.0	52.5
Standstill current	$I_{0\ 200}$	$A_{eff}$	9.3	13.0	18.7	13.6	19.5	12.9	18.5
Peak torque	$M_{max}$	Nm	79.2	79.7	78.5	113.0	111.0	143.0	142.0
Peak current	$I_{max}$	$A_{eff}$	27.8	38.9	56.1	40.8	58.6	38.7	55.5
Torque constant	$K_{T0\ 200}$	Nm/ $A_{eff}$	3.23	2.33	1.58	3.10	2.13	4.14	2.84
Voltage constant	$K_e$	V/1000 r.p.m.	208	150	102	200	137	266	183
Resistance phase-phase	$R_{U-V}$	$\Omega$	1.2	0.6	0.3	0.7	0.4	0.8	0.4
Inductivity phase-phase	$L_{U-V}$	mH	20.7	10.8	5.0	12.4	5.9	16.4	7.7
Electr. time constant	$T_{el}$	ms	17.25	18.00	16.67	17.71	14.75	20.50	19.25
Therm. time constant	$T_{therm}$	min	46	46	46	53	53	60	60
Rotor inertia	$J_R$	$10^{-3}$ kg m <sup>2</sup>	6.5	6.5	6.5	9.2	9.2	12.0	12.0
Static friction torque	$M_R$	Nm	0.16	0.16	0.16	0.24	0.24	0.33	0.33
Number of pole pairs	$n_{pp}$		5	5	5	5	5	5	5
Weight		kg	19.7	19.7	19.7	26.7	26.7	33.6	33.6

Note: The maximum achievable values depend on the used servo drive.



Dimensions:

Motor Type	MR 7772	MR 7773	MR 7774	Option
Dimension K	192.5	226.5	260.5	(-G01-M0)
Dimension K1	234.5	268.5	302.5	(-G01-MS)
Dimension K2	201.7	235.7	269.7	(-G11/G12-M0)
Dimension K3	253.3	287.3	321.3	(-G11/G12-MS)
Dimension S1	164.5	198.5	232.5	

Overview of dimensions see page 4. Assignment to the servo drives see page 17.

## Servo Drive System Packages by ESR Pollmeier GmbH

### ESR – the complete servo drive system from a single source

#### General

The series MR 77 AC servo motors described in this data sheet are components of the ESR drive system packages. These consist of servo drives and servo motors with or without gearboxes, completely with position sensors and, if required, brakes. They are supplemented by software and accessories. 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 77 AC servo motors:

### Digital Servo Drive Systems

Servo Drive Family	TrioDrive D	TrioDrive D/PS TrioDrive D/CS	MidiDrive D	MidiDrive D/PS MidiDrive D/CS	MaxiDrive
Power supply	230 V~	230 V~ *	3 x 400 V	3 x 400/480 V *	3 x 400 V
DC-bus voltage	320 V	320 V	560 V	560/680 V	560 V
Rated current	2 .. 6 A	2 .. 6 A	2 .. 8 A	2 .. 8 A	2 .. 20 A
Peak current	5.5 .. 17 A	8.5 .. 25.5 A	5.5 .. 22 A	5.5 .. 22 A	5.5 .. 56 A
Rated torque	0.3 .. 5.0 Nm	0.3 .. 5.0 Nm	0.3 .. 17 Nm	0.3 .. 17 Nm	0.3 .. 48 Nm
Shaft power	0.5 .. 1.5 kW	0.5 .. 1.5 kW	0.5 .. 4.2 kW	0.5 .. 4.2 kW	0.5 .. 10 kW
Positioning control	option	option	option	option	yes
Field bus	option	Profibus DP or CANopen	option	Profibus DP or CANopen	option
Data sheet	6750.250	6755.255 or 6755.252	6730.250	6755.255 or 6755.252	6710.250

\* wide-range inputs

### Analog Servo Drive Systems, Multi-Axis Servo Systems

Servo Drive Family	TrioDrive A	MidiDrive A	TrioDrive C	MidiDrive C
Power supply	230 V~ *	3 x 400/480 V *	230 V~ *	3 x 400/480 V *
DC-bus voltage	320 V	560/680 V	320 V	560/680 V
Rated current	2 .. 6 A	2 .. 20 A	2 .. 6 A	2 .. 20 A
Peak current	5.5 .. 17 A	5.5 .. 55 A	5.5 .. 17 A	5.5 .. 55 A
Rated torque	0.3 .. 5.0 Nm	0.3 .. 48 Nm	0.3 .. 5.0 Nm	0.3 .. 48 Nm
Shaft power	0.5 .. 1.5 kW	0.5 .. 10 kW	0.5 .. 1.8 kW	0.5 .. 11 kW
Data sheet	6650.250	6680.250	6620.250	6620.250

\* wide-range inputs

The statements in this data sheet are for information, only. They do not guarantee properties. We reserve the right to make changes without notice.

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