

ROTARY INDEXING RING NR0750Z / NR1100Z / NR1500Z / NR2200Z

MOUNTING INSTRUCTIONS

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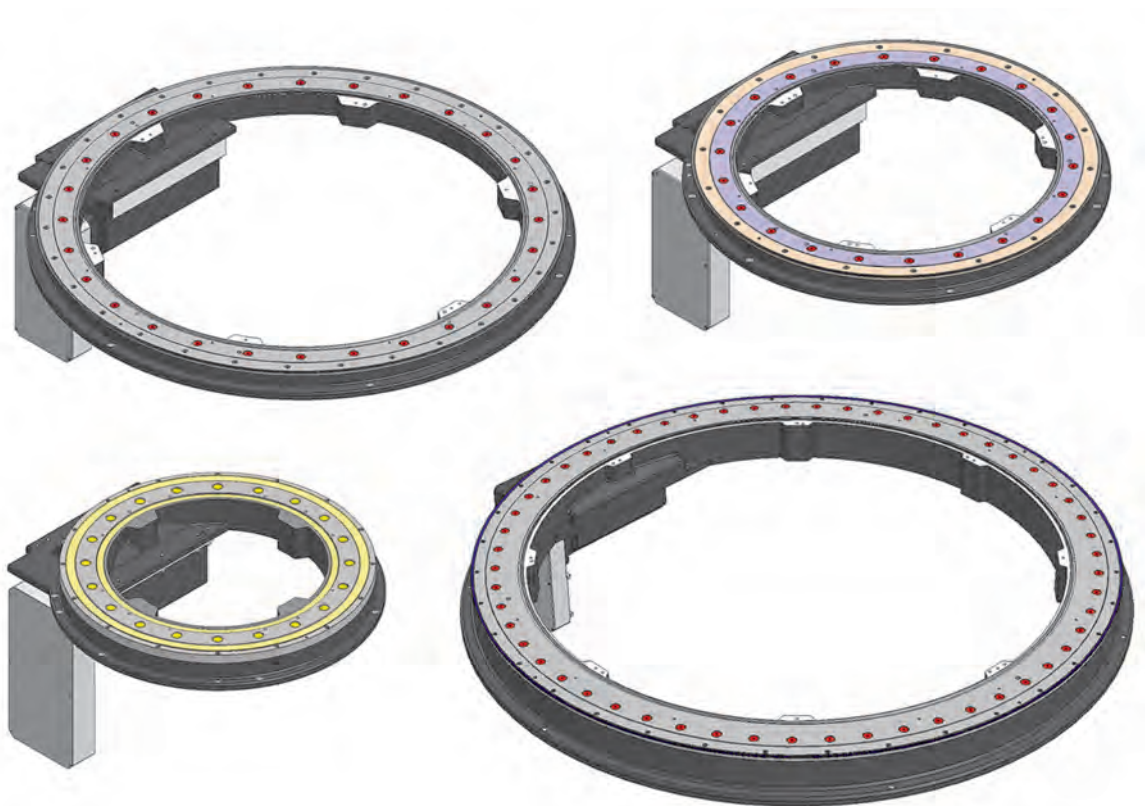


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1 Introduction

1.1 About these mounting instructions

These mounting instructions describe the product "Rotary indexing ring NR0750Z / NR1100Z / NR1500Z / NR2200Z" (also referred to as "product" in this document).

These mounting instructions are part of the product.

- You may only use the product if you have fully read and understood these mounting instructions.
- Verify that these mounting instructions are always accessible for any type of work performed on or with the product.
- Pass these mounting instructions as well as all other product-related documents on to all owners of the product.
- If you feel that these mounting instructions contain errors, inconsistencies, ambiguities or other issues, contact the manufacturer prior to using the product.

These mounting instructions are protected by copyright and may only be used as provided for by the corresponding copyright legislation. We reserve the right to modifications.

The manufacturer shall not be liable in any form whatsoever for direct or consequential damage resulting from failure to observe these mounting instructions or from failure to comply with directives, regulations and standards and any other statutory requirements applicable at the installation site of the product.

1.2 Intended use

The product is a partly complete machine pursuant to Directive 2006/42/EU, articles 1g and 2g. The product is only intended to be incorporated into or assembled with other machinery or other partly completed machinery or equipment, thereby forming machinery to which Directive 2006/42/EU applies.

The product may only be used within the limits specified in these mounting instructions and in the applicable documents. The applicable documents are also part of the product.

The machinery must not be put into service until the machinery into which the product has been incorporated has been determined and declared in conformity with the provisions of Directive 2006/42/EU and with all other applicable directives and regulations.

In addition, perform a risk assessment in view of the planned application, according to an approved risk assessment method, and implement the appropriate safety measures, based on the results of the risk assessment. Take into account the consequences of installing or integrating the product into a system or a plant.

When using the product, perform all work and all other activities in conjunction with the product in compliance with the conditions specified in the mounting instructions, in the applicable documents, and on the nameplate, as well as with all directives, standards, and safety regulations applicable at the installation site of the product.

1.3 Predictable incorrect application

Any use of the product beyond the explicitly indicated intended use is an impermissible, incorrect application of the product.

The product must never be used in the following cases, under the following conditions, and for the following purposes:

- Operation in residential environments
- Operation in life-supporting systems
- Operation in potentially explosive atmospheres/hazardous areas
- Operation on ships, in rail vehicles, land craft or in aircraft
- Operation in military facilities
- Operation outside of the specified order data
- Applications involving transportation of persons (fairground rides)

1.4 Applicable documents

In addition to these mounting instructions, the following documents are binding for and apply to any type of use of the product:

- Order data (including, but not limited to, design data, load data, performance data, transportation and storage instructions, information attached to the product and the package, as well as other specifications).
- Documentations of the manufacturers of all products belonging to the scope of delivery (for example, motor, accessories, attachment parts). This includes, among other things:

Type of manual	Type	Manufacturer	Delivery	
			Paper format	Electronic
User manual	Motor Threephase synchronous motors 8LS...-3	B&R Industrial Automation GmbH	-	X
Product catalog	Motor	B&R Industrial Automation GmbH	-	X
Safety data sheet	Lubricant Shell Omala S2 G 680	Shell Deutschland Oil GmbH	-	X
Safety data sheet	Lubricant Shell Gadus S2 V220AD 2	Shell Deutschland Oil GmbH	-	X

In the case of delivery with WEISS GmbH controller/software package:			Delivery	
			Paper format	Electronic
User manual	"W.A.S. 2 SCALABLE" TD0081A-XX00-0000-00	WEISS GmbH	-	X
Electrical documentation	List of applicable documents, per product (see documents on the CD delivered with the product)	WEISS GmbH	-	X



1.5 Warranty

See our website for our General Terms and Conditions at www.weiss-international.com or your purchase order.

2 Safety

2.1 Safety messages and hazard categories

These mounting instructions contain safety messages to alert you to potential hazards and risks. Safety messages in these mounting instructions are highlighted with warning symbols and warning words.

The signal word describes the source of the hazard. The text contains instructions on how to avoid the hazard as well as the consequence resulting from failure to follow the instructions given in the safety message.

Depending on the severity of a hazard, the safety messages are classified according to different hazard categories.



DANGER

DANGER indicates an immediately hazardous situation, which, if not avoided, will result in death or serious injury.



WARNING

WARNING indicates a hazardous situation, which, if not avoided, can result in death or serious injury or equipment damage.



CAUTION

CAUTION indicates a hazardous situation, which, if not avoided, can result in injury or equipment damage.

NOTICE

NOTICE indicates a hazardous situation, which, if not avoided, can result in equipment damage.

In addition to the instructions and safety messages provided in these mounting instructions, you must comply with all directives, standards, and safety regulations applicable at the installation site of the product.

2.2 Hazard symbols

The following symbols are used in these mounting instructions:



This is the general safety alert symbol. It alerts to injury hazards or equipment damage. Comply with all safety instructions in conjunction with this symbol to help avoid possible death, injury, or equipment damage.



This symbol alerts to hazardous electrical voltage. If this symbol is used in a safety message, there is a hazard of electric shock.

Hazard symbols may also be attached to the product.



Hazard of hot surface



Hazard of magnetic field



No access for persons with heart pacemakers or other medical implants

2.3 Responsibilities of the system integrator and/or operator

The system integrator (the person who incorporates the product in a machine pursuant to Directive 2006/42/EU, i.e., for example, the machine builder) and/or the operator must ensure the following:

- The application and use of the product must be limited to the specified intended use.
- In the integration of the product, all functional safety requirements must be met.
- All directives, standards, and safety regulations, including all regulations concerning workplace safety and prevention of accidents, applicable at the installation site of the product must be complied with.
- Any type of work whatsoever on and with the product may only be performed by qualified personnel.
- The product may only be operated when it is in flawless, fully functional condition.
- All safety equipment must operate as required and planned.
- The personal protective equipment for the personnel/operator must be available and must be used.
- The mounting instructions and all applicable documents must always be accessible in their entirety to the personnel at the installation site of the product.
- Safety instructions, labels, and any other information attached to the product must not be removed.
- A complete manual must be available for the machine into which the product is incorporated; this manual must describe all types of work on and with the machine and contain all information relevant with regard to the product.

If the system integrator himself is not in the position to comply with any of these obligations, the system integrator must impose compliance with these obligations on the operator.

2.4 Qualification of personnel

Only trained personnel who have fully read and understood the mounting instructions and all applicable documents for the product may perform work on and with the product.

This trained personnel must have sufficient technical training, knowledge, and experience, and be able to foresee and detect potential hazards that may be caused by using the product.

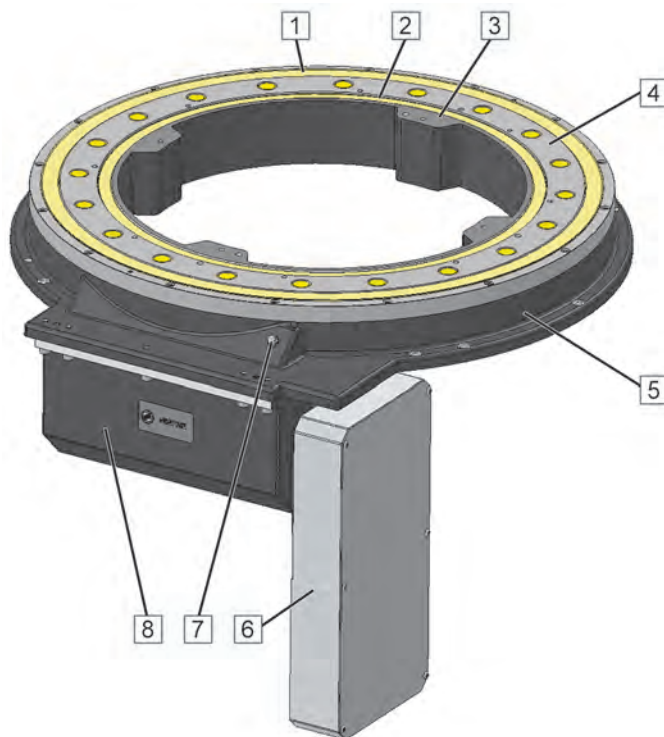
All trained personnel working on and with the product must be fully familiar with all directives, standards, and safety regulations that must be observed for performing such work.

3 Product description

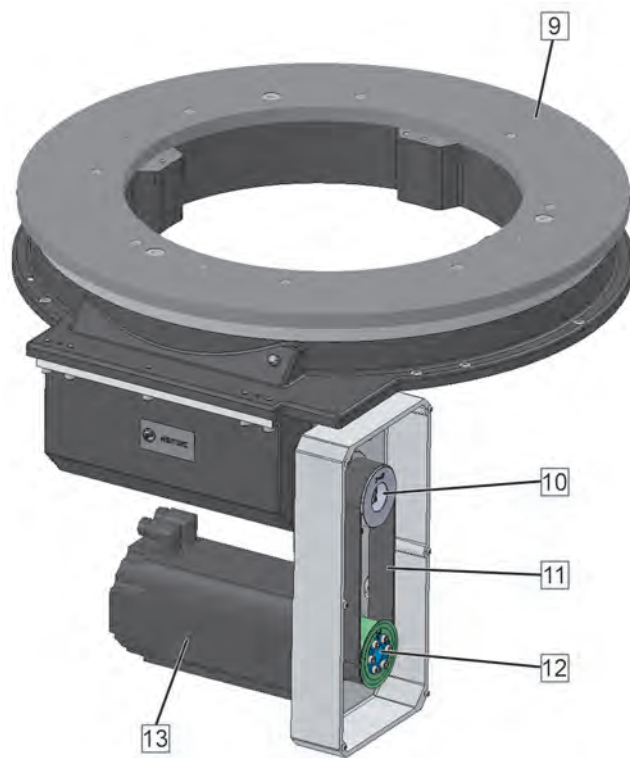
3.1 Overview

Product type: NR0750Z

The product consists of the following components:



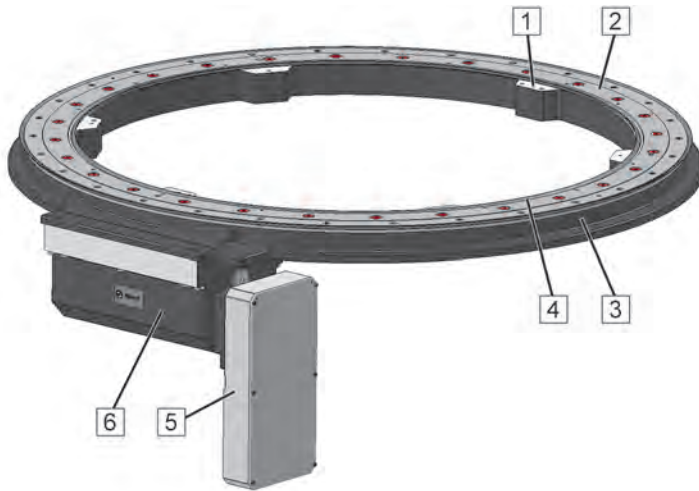
- | | | | |
|---|----------------------------------|---|----------------|
| 1 | Shaft sealing ring | 5 | Housing |
| 2 | Shaft sealing ring | 6 | Driving flange |
| 3 | Mounting surface for raised ring | 7 | Vent screw |
| 4 | Output flange | 8 | Cam housing |



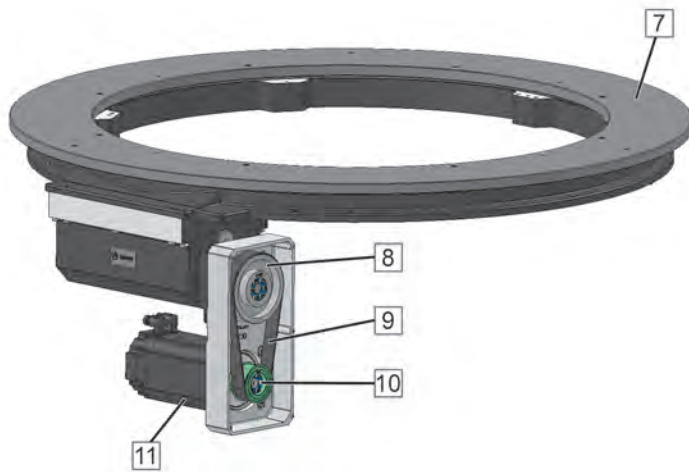
- 9** Rotating ring (customer-specific)
- 10** Toothed belt pulley (gear)
- 11** Toothed belt

- 12** Toothed belt pulley (motor)
- 13** Motor

Product type: NR1100Z/NR1500Z/NR2200Z



- | | | | |
|---|----------------------------------|---|---------------|
| 1 | Mounting surface for raised ring | 4 | Profile seal |
| 2 | Output flange | 5 | Drive housing |
| 3 | Housing | 6 | Cam housing |



- | | | | |
|---|-----------------------------------|----|-----------------------------|
| 7 | Rotating ring (customer-specific) | 10 | Toothed belt pulley (motor) |
| 8 | Toothed belt pulley (gear) | 11 | Motor |
| 9 | Toothed belt | | |

3.2 Function description

The motion profile of the product is freely programmable. The distance from one stop position to the next is measured by an absolute encoder.

The motor is controlled by the servo drive according to a programmed motion profile and rotates, accelerates or decelerates the output flange of the product. The output flange can be operated with the following directions of movement: left, right, or alternating.

The motor drives a toothed belt stage and a single-stage or dual-stage gear and the driving cam of the gear.

The gear is free from backlash and offers high precision; in conjunction with the motor encoder, this allows for high-accuracy positioning of the output flange.

3.3 Nameplate

The nameplate is attached to the housing of the product; it contains the following information:



Figure 1: Example of nameplate

- | | | | |
|---|-------------------------|---|---------------------------|
| 1 | Type | 6 | Year of manufacture |
| 2 | Serial number | 7 | Weight |
| 3 | Gear ratio | 8 | QR code (company website) |
| 4 | Input speed of rotation | 9 | DM code (serial number) |
| 5 | Input torque of motor | | |

The scope of delivery contains a second nameplate. If the factory-mounted nameplate is covered by attachments, the second nameplate can be attached at a readily visible position of the product or machine for identification of the product.

3.4 Type code

Structure of the type code:

Type	Size	Version	-	Gear
NR	0750 1100 1500 2200	Z	A = Standard	G = 180:1 (NR0750Z) G = 176:1 (NR1100Z) G = 224:1 (NR1500Z) G = 440:1 (NR2200Z) K = 90:1 (NR0750Z) K = 88:1 (NR1100Z) K = 112:1 (NR1500Z) K = 220:1 (NR2200Z)

3.5 Mounting positions

NOTICE

OIL LOSS OR DRY RUN DUE TO INCORRECT MOUNTING POSITION

Failure to follow these instructions can result in equipment damage.

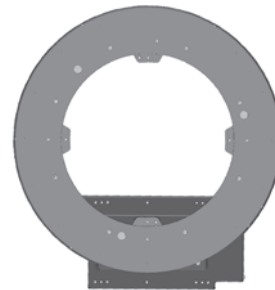
- Verify that you only use the standard mounting positions approved in these mounting instructions.

Permissible standard mounting positions

The product may only be mounted as shown below.



Axis of rotation vertical



Axis of rotation horizontal (only product type NR0750Z)

3.6 Drive positions

The product is delivered with the drive position specified in the order.



Standard version with motor at the bottom



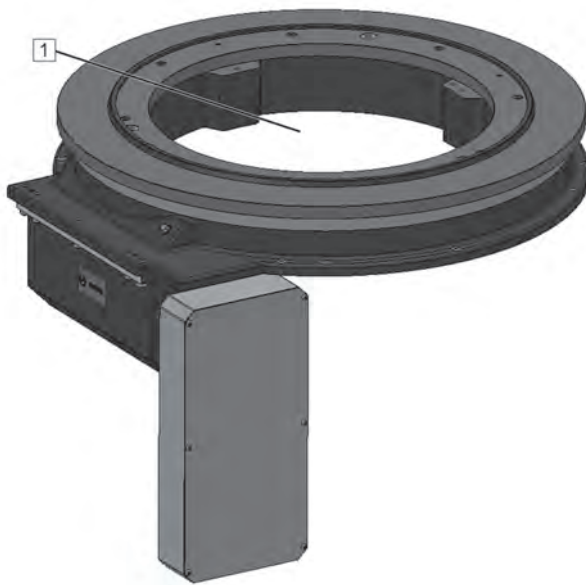
Drive housing inside by 90°



Drive housing outside by 90°

The position of the motor can be modified by changing the position of the drive housing.

3.7 Passage of media



The inner opening [1] can be used for the passage of media.

4 Technical data

4.1 General

Characteristic	Unit	Value			
		NR0750Z	NR1100Z	NR1500Z	NR2200Z
Direction of rotation	-	Left, right, or alternating			
Maximum inside diameter ring	mm	490	800	1135	1750
Minimum outside diameter ring	mm	750	1100	1500	2200
Surface of rotary ring	-	Anodized			
Switching frequency	-	Up to approx. 120 cycles/minute, depending on moment of inertia and angle of rotation			
Unidirectional positioning accuracy A+ as per ISO 230-2	arcsec	36"	36"	30"	24"
Maximum axial runout of ring	mm	(at Ø 750) * 0.05	(at Ø 1100) * 0.06	(at Ø 1500) * 0.08	(at Ø 2200) * 0.08
Maximum radial runout	mm	* 0.03	* 0.04	* 0.04	* 0.05
Maximum plane parallelism of ring surface and housing surface	mm	(at Ø 750) * 0.05	(at Ø 1100) * 0.06	(at Ø 1500) * 0.08	(at Ø 2200) * 0.08
Maximum recommended outside diameter of rotary ring	mm	1500	2200	3000	4400
Weight (without rotary ring)	kg	230	310	400	950
Weight with packaging	kg	See bill of delivery			
Sound pressure	dB(A)	< 70			
Lubricant	-	Shell Omala S2 G 680			
Lubricant volume	l	2	2.8	3	5.2

* The specified axial and radial runout tolerances are only reached with precise support surfaces.

4.2 Motor

Refer to the documentation of the manufacturer for the technical data of the motor; see applicable documents.

Product type	Type	Manufacturer
NR0750Z	8LSA56.D1022D200-3	B&R Industrial Automation GmbH
NR1100Z	8LSA74.D1022D200-3	B&R Industrial Automation GmbH
NR1500Z	8LSA75.D1022D200-0	B&R Industrial Automation GmbH
NR2200Z	8LSA75.D1022D200-0	B&R Industrial Automation GmbH

4.3 Climatic environmental conditions "Operation"

Characteristic	Unit	Value
Ambient temperature	°C	+10 ... +40
Relative humidity, non-condensing	%	+5 ... +95
Maximum surface temperature	°C	+100
Maximum installation altitude above mean sea level without derating motor and drive/frequency inverter	m	1000

4.4 Climatic environmental conditions "Transportation and Storage"

Characteristic	Unit	Value
Ambient temperature	°C	+5 ... +60
Relative humidity, non-condensing	%	+5 ... +95
Maximum storage duration of the mechanical components	-	see chapter 7

4.5 Dimensions

Product type: NR0750Z

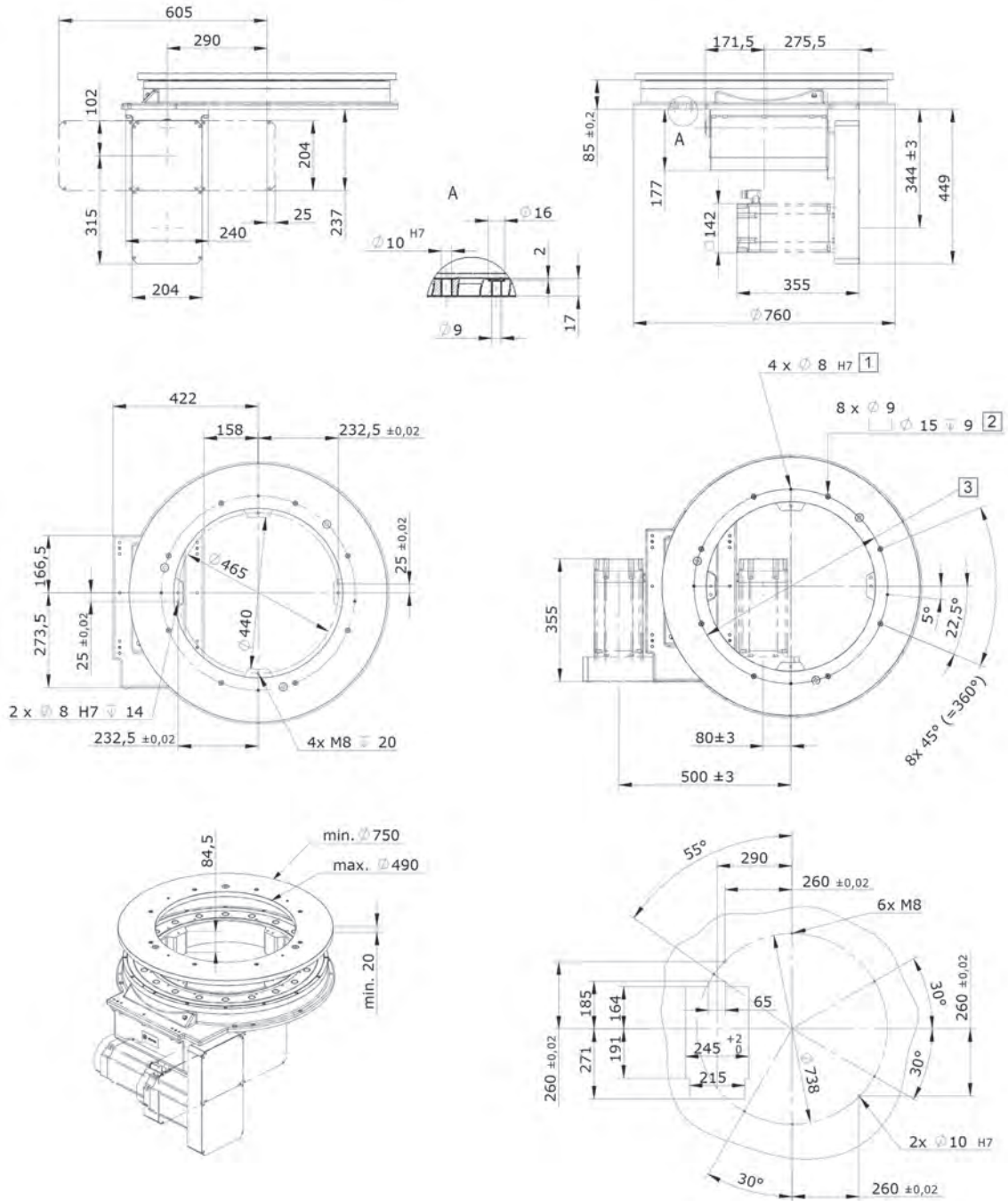


Figure 2: Lengths and diameters in mm

- 1 Through hole
- 2 Through hole
- 3 $\varnothing 563 \pm 0.1; \pm 0.02$ at $\varnothing 8$ H7

Product type: NR1100Z

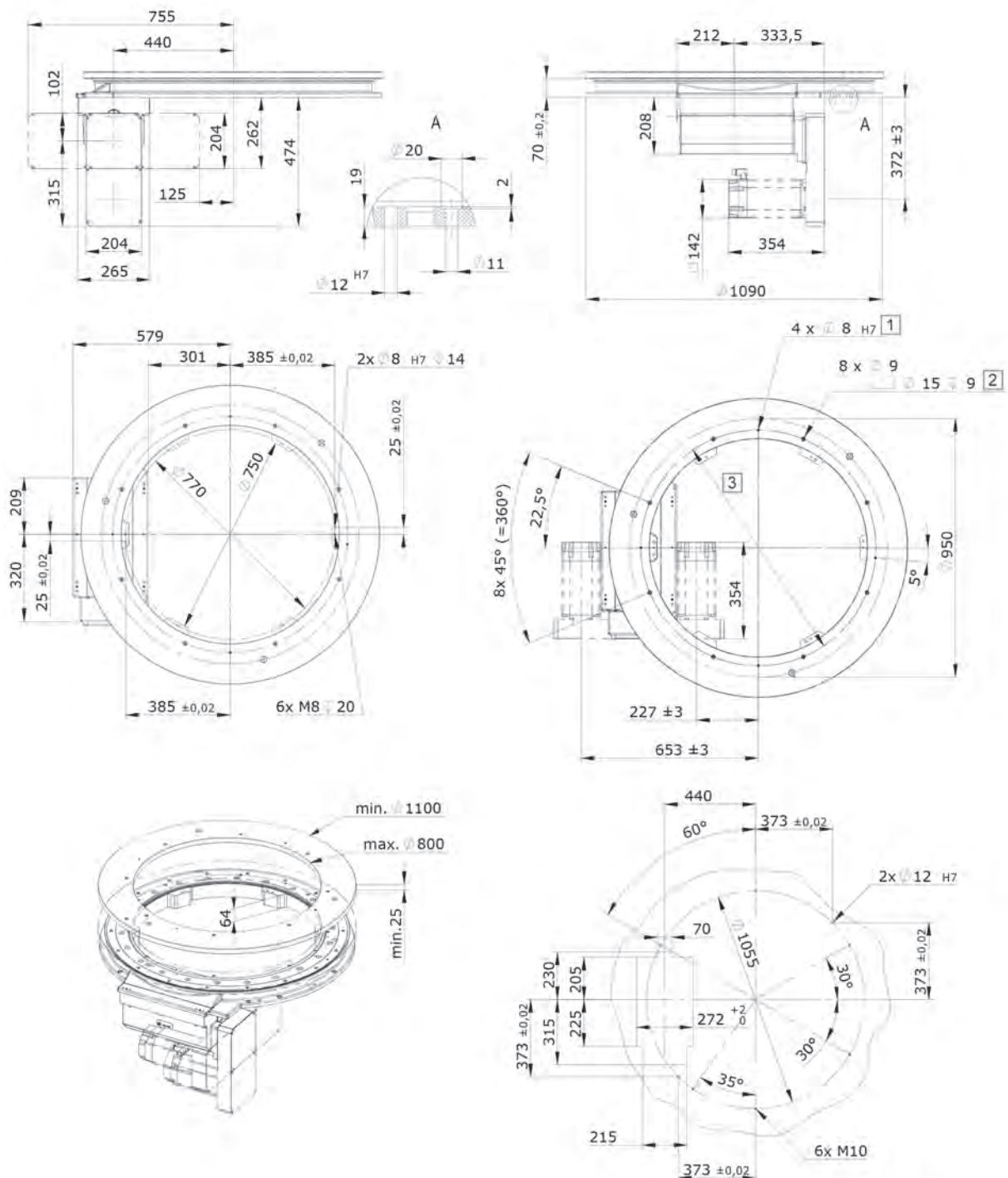


Figure 3: Lengths and diameters in mm

- 1 Through hole
- 2 Through hole

- 3 $\varnothing 865.5 \pm 0.1; \pm 0.02$ at $\varnothing 8 H7$

Product type: NR1500Z

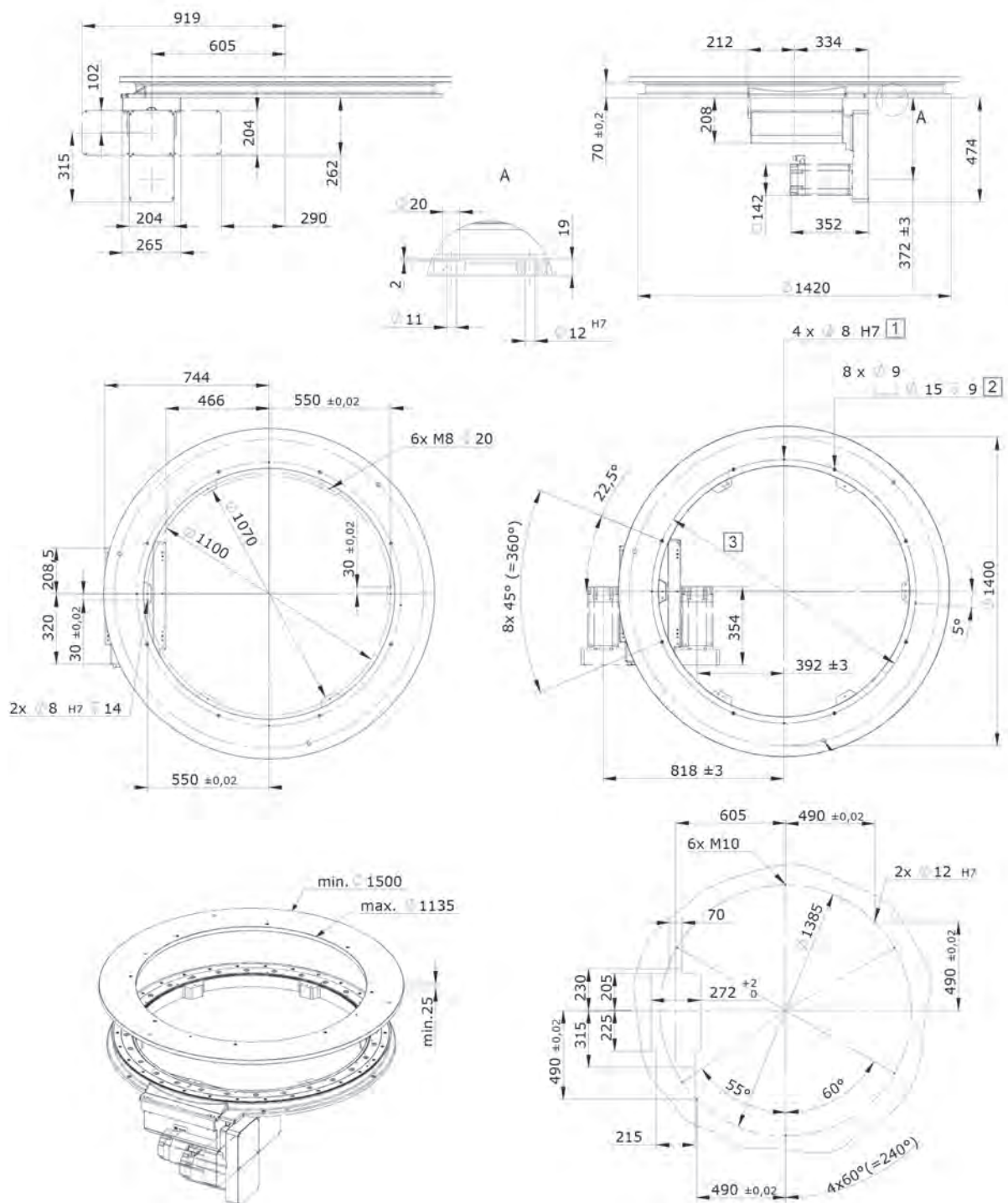


Figure 4: Lengths and diameters in mm

- 1 Through hole
- 2 Through hole

3 $\varnothing 1195.5 \pm 0.1; \pm 0.02$ at $\varnothing 8$ H7

Product type: NR2200Z

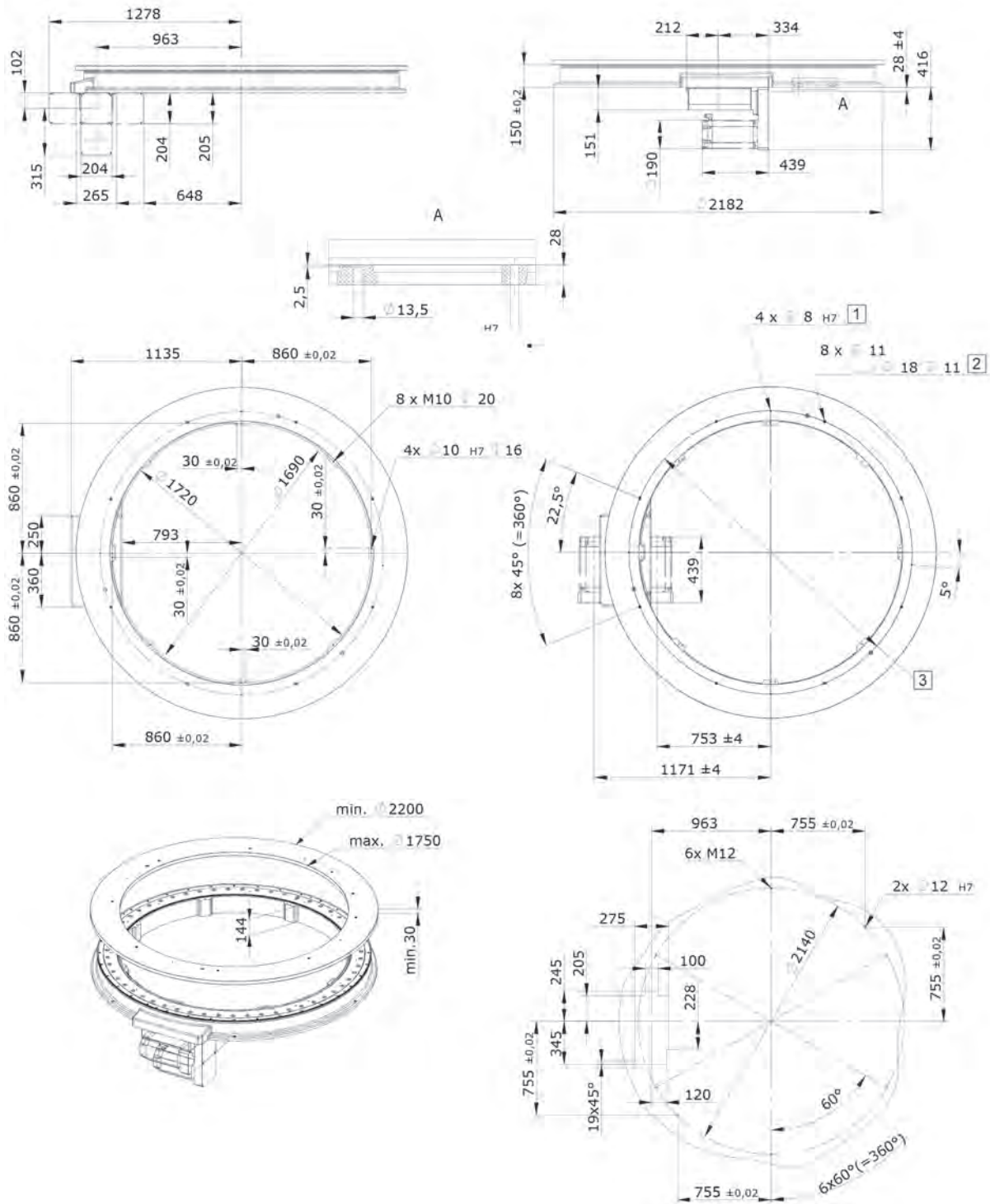


Figure 5: Lengths and diameters in mm

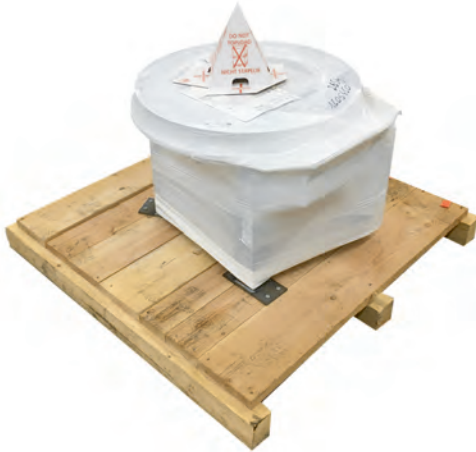
- 1 Through hole
- 2 Through hole
- 3 $\text{Ø}1880 \pm 0.1; \pm 0.02$ at $\text{Ø} 8$ H7

4.6 Load data

Characteristic	Unit	Value			
		NR0750Z	NR1100Z	NR1500Z	NR2200Z
Permissible axial force during movement	N	3500	6000	8000	15000
Permissible moment of tilt during movement	Nm	750	2500	3200	4500
Permissible radial force during movement	N	7000	12000	16000	30000
Maximum acceleration torque at output flange	Nm	1800	3400	5000	13000
Total gear ratio	-	90/180	88	112	220
Maximum output speed of rotation	1/min	22.5	22.5	18	9
Friction torque drive side at 10 °C	Nm	4	5	5	6

5 Packaging

5.1 Types of packaging



Packaging in Europe

The product is factory-treated with anti-corrosion agent, packaged in film and screwed onto a pallet.



Packaging for air and sea freight

The product is factory-treated with anti-corrosion agent, packaged in Corpac-coex-VCI film, screwed onto a pallet, and then packed into a wooden box with foam plastic material.

5.2 Unpacking the product

1. Do not remove the packaging until immediately prior to mounting.
2. Dispose of the packaging material in compliance with all directives, standards, and safety regulations applicable at the installation site.

5.3 Verification of the delivery

- Check the delivery for completeness and transportation damage upon reception.
- In the case of damage, reject the delivery or accept it only conditionally.
- Document the damage in the transportation documents/bill of delivery (any damage detected must be immediately reported to the forwarding agent and confirmed by the forwarding agent).
- Take photographs of the damage.
- Report the damage to WEISS GmbH.

6 Transportation



▲ WARNING

FALLING, TOPPLING, OR LOWERING LOADS

Insufficiently rated load lifting and handling equipment may break. Transportation vehicles, lifting gear, chains, belts, and other equipment not rated for the product may fail or tilt.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Only use transportation vehicles, lifting gear, chains, belts, and other lifting and handling equipment that comply with all applicable regulations and that are rated for the weight of the product including packaging.
- Verify that there are no persons in the danger zone.
- Verify that the product is properly secured against falling and toppling.

6.1 Transporting the product

Packages fastened to a pallet can be transported with a fork lift truck, a pallet jack or similar transportation means. Verify that the transportation means used is suitable and approved for the weight and the dimensions of the package.



1. Place the forks below the pallet.
2. Verify that the pallet with the package fully rests on the forks.
3. Fasten the pallet with the package using additional straps if the center of gravity is not in the center of the pallet.

6.2 Load lifting and handling equipment



Use properly rated load lifting and handling equipment and hoisting belts/hoisting equipment for transporting the product. Eyebolts must not be used as load lifting and handling equipment.

6.3 Fastening the load lifting and handling equipment



⚠ WARNING

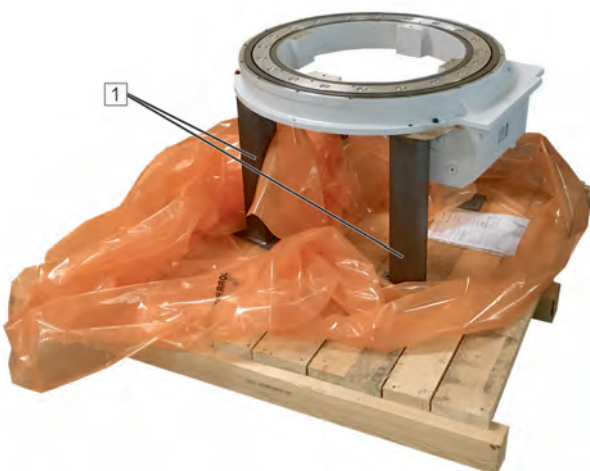
FALLING, TOPPLING, OR LOWERING LOADS

Insufficiently rated load lifting and handling equipment may break. Transportation vehicles, lifting gear, chains, belts, and other equipment not rated for the product may fail or tilt.

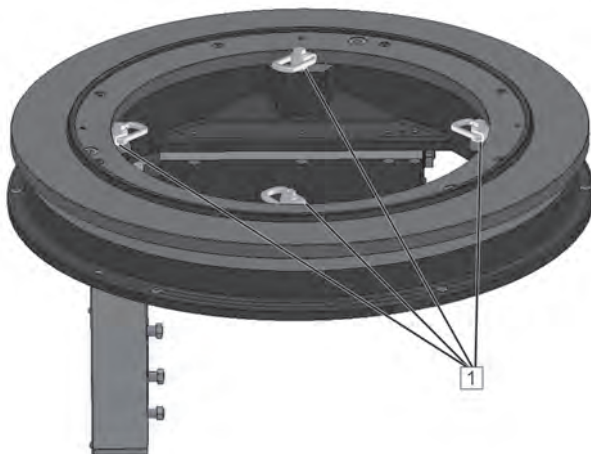
Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Only use transportation vehicles, lifting gear, chains, belts, and other lifting and handling equipment that comply with all applicable regulations and that are rated for the weight of the product including packaging.
- Verify that there are no persons in the danger zone.
- Verify that the product is properly secured against falling and toppling.

Observe the maximum engagement thread for the load lifting and handling equipment, [see chapter 4.5](#).



1. Remove the screw connections between the product and the transportation feet [1] before lifting the product.



2. Use properly rated load lifting and handling equipment and hoisting belts/hoisting equipment for transporting the product.
3. Screw the load lifting and handling equipment into the threads [1] (see table) at the positions shown in the drawing.
4. Fasten the hoisting belts or the hoisting equipment to the eyelets of the load lifting or load handling equipment.

Product type	Number of pieces of load lifting and handling equipment	Thread
NR0750Z	4	M8
NR1100Z, NR1500Z	3	M8
NR2200Z	4	M10

If the threads for the load lifting and handling equipment mentioned above are covered, it is also possible to lift the product via the output flange/rotary ring.

7 Storage

7.1 Storing the product

NOTICE

INCORRECT STORAGE

Failure to follow these instructions can result in equipment damage.

- Verify compliance with all conditions specified in these mounting instructions and all applicable documents when storing the product.

The mechanical components of the product can be stored for a period of up to two years.

Conditions for the specified maximum storage duration:

- Storage in original packaging
- Compliance with all specified storage conditions
- Storage in suitable closed, dry, dust-free room, protected against direct sunlight
- No contact with corrosive media
- Corrosion protection intact

The electrical components have a different maximum storage duration (see documentations of the manufacturers).

If the maximum storage duration has been exceeded, you must contact the manufacturer prior to commissioning the product. This also applies if the machine in which the product has been incorporated has not been operated for a period of time exceeding the maximum storage durations specified for the mechanical and electrical components.

If you plan to store the product for a period of time exceeding the maximum permissible storage duration specified for the mechanical components, you must uninstall the electrical components prior to storing the product. The electrical components must be stored according to the specifications of the manufacturers (see documentations of the manufacturers).

If the product is to be stored for a period of more than three months, the product must first be preserved. If the factory-applied anti-corrosion agent is no longer intact, you must request preservation instructions from the manufacturer.

8 Mounting

8.1 Prerequisites for mounting

The motor must remain accessible for service and maintenance work.

Prior to mounting, the anti-corrosion and any pollution must be removed with a standard solvent.

NOTICE

DAMAGE TO SHAFT SEALING RINGS

Failure to follow these instructions can result in equipment damage.

- Avoid any contact of the sealing lips of the shaft sealing rings with the solvent.

Prior to mounting, verify that the dimensions of the installation site and construction conditions meet the requirements and the dimensions specified in these mounting instructions and the applicable documents.

- Verify that the supporting base is level and rigid.

Product type	Maximum permissible flatness error	Maximum permissible surface roughness
NR0750Z	0.090 mm	Rz 6.3 ... Rz 16
NR1100Z	0.105 mm	
NR1500Z	0.125 mm	
NR2200Z	0.175 mm	

- Verify that the supporting structure at the installation site has a sufficient structural strength to carry the weight of the product and of all loads.
- Verify that the motor is easily accessible for service and maintenance work.
- Verify that there is a minimum distance of 100 mm between the motor fan and other assemblies.
- Verify that free convection for removing the hot air is not obstructed.

8.2 Equipment and tools

The following is required for mounting:

- Set of hex keys
- Set of wrenches
- Set of screwdrivers
- Torque wrench
- Ball pane hammer
- Plastic hammer
- Cotter pin punch (for mounting the parallel pins)

8.3 Tightening torques and property classes

For fastening the product, only use screws with the property class shown in the following table unless a different property class is explicitly specified for a screw connection.

Use the tightening torque shown in the following table unless a different tightening torque is explicitly specified for a screw connection.

Property class of screws	10.9 (coefficient of friction μ_{tot} 0.12)			
Product type	NR0750Z	NR1100Z	NR1500Z	NR2200Z
Thread	M8	M10		M12
Tightening torque	34 Nm	68 Nm		117 Nm
Nominal dimensions for pin holes	10 mm	12 mm		12 mm

8.4 Bolting down the product



⚠ WARNING

FALLING, TOPPLING, OR LOWERING LOADS

Insufficiently rated load lifting and handling equipment may break. Transportation vehicles, lifting gear, chains, belts, and other equipment not rated for the product may fail or tilt.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Only use transportation vehicles, lifting gear, chains, belts, and other lifting and handling equipment that comply with all applicable regulations and that are rated for the weight of the product including packaging.
- Verify that there are no persons in the danger zone.
- Verify that the product is properly secured against falling and toppling.



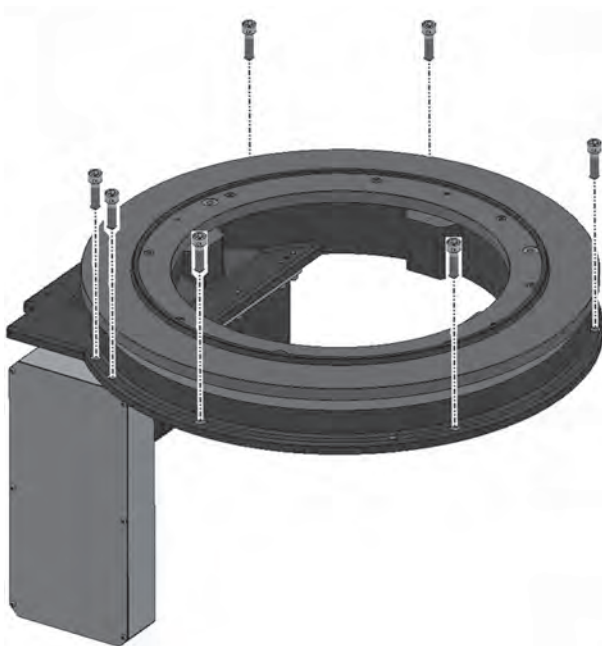
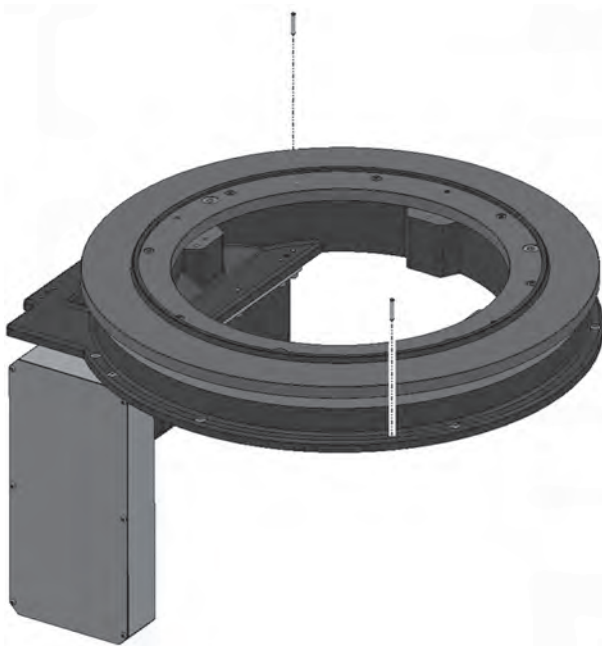
⚠ WARNING

IMPROPERLY FASTENED PARTS

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Verify that the supporting structure and/or the frame and/or the mounting surface for fastening the product are sufficiently rated to withstand all static and dynamic loads and forces during operation.
- Verify that the fastening parts comply with the specifications indicated and that they are sufficiently rated for all load conditions during operation.

Mounting



Use screws with the property class specified to mount the product. When determining the length of the screws, take into account the loads and forces acting in your application as well as the characteristics of the supporting structure to which the product is mounted.

1. Place the product at the mounting site in compliance with the transportation instructions and align it according to the holes and the pin holes.
2. Center the product with the two parallel pins and then drive in the first parallel pin by one third.
3. Screw in all screws and tighten them.
4. Drive in all parallel pins (positive fit, the parallel pin must be in contact with the housing and the mounting plate/mounting surface).
5. Tighten all screws cross-wise with the specified tightening torque.

8.5 Displacing the drive housing



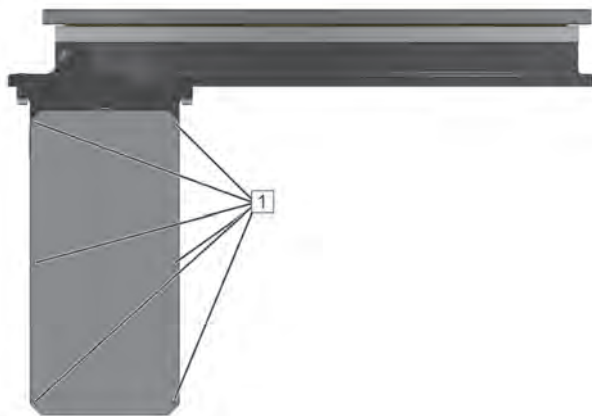
⚠ WARNING

FALLING PARTS

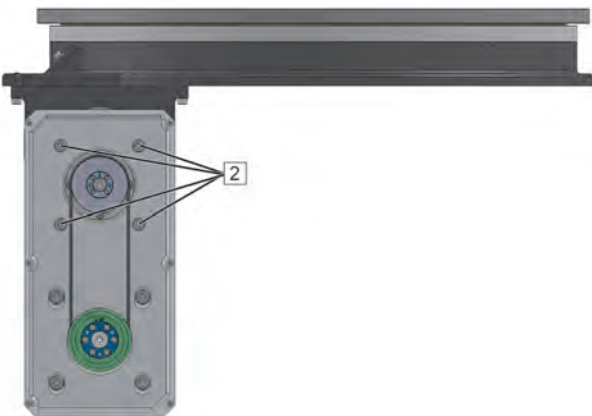
Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Secure the motor so it cannot fall down before loosening the screws.

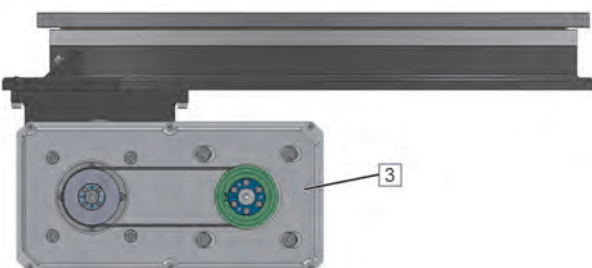
The drive housing is factory-mounted according to the drive position you specify in your order. The drive housing can be moved to the permissible drive positions, [see chapter 3.6](#).



1. Remove the cover [1] by removing the screws.



2. Remove the four screws [2].

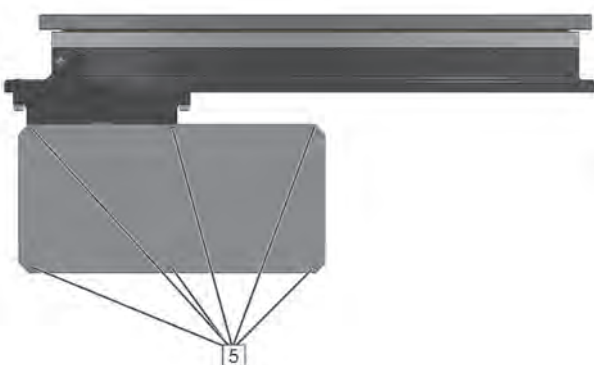


3. Turn the drive housing [3] to the required position (the illustration shows the drive housing turned by 90° to the inside).

Mounting



- 4. Fit the four screws [4] of the drive housing and tighten them cross-wise.
- ✓ The toothed belt is correctly tensioned if it can be manually twisted by - depending on the length of the toothed belt - 45° to 90° along the longitudinal axis in the center between the two pulleys.
- ✓ Contact WEISS GmbH if you need the frequency for adjusting the toothed belt with a belt tension meter.



- 5. Mount the cover by means of the screws [5].
- 6. Remove all tools and equipment.
- 7. Perform a test run.

8.6 Mounting additional components



⚠ WARNING

IMPROPERLY FASTENED PARTS

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Verify that the supporting structure and/or the frame and/or the mounting surface for fastening the product are sufficiently rated to withstand all static and dynamic loads and forces during operation.
- Verify that the fastening parts comply with the specifications indicated and that they are sufficiently rated for all load conditions during operation.



⚠ CAUTION

INCORRECT MOUNTING OF ADDITIONAL COMPONENTS

Failure to follow these instructions can result in injury or equipment damage.

- Only mount components to the rotary ring/stationary plate that are approved by the manufacturer.
- Only use existing holes for mounting additional components to the rotary ring/stationary plate.
- After mounting, do not drill holes into the rotary ring/stationary plate.
- Do not perform welding work at the rotary ring/stationary plate.

NOTICE

BLOCKING OF THE PRODUCT DUE TO EXTRANEIOUS OBJECTS

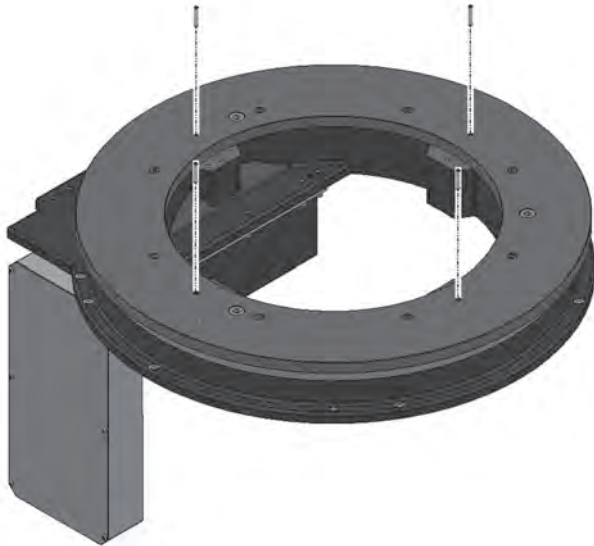
Mounting an additional indexing plate or an attachment plate creates a gap through which extraneous objects can get into the product.

Failure to follow these instructions can result in equipment damage.

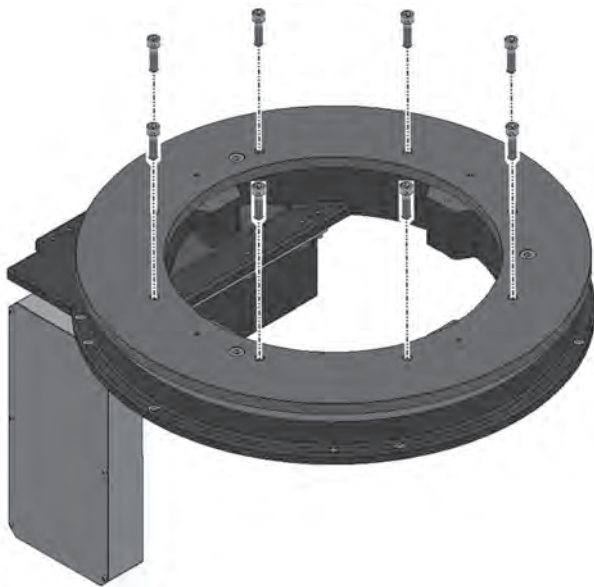
- Mount a suitable lip seal between the rotating plate and the stationary plate.
- Verify that the lip seal does not collide with the existing holes.

Mounting a rotary ring

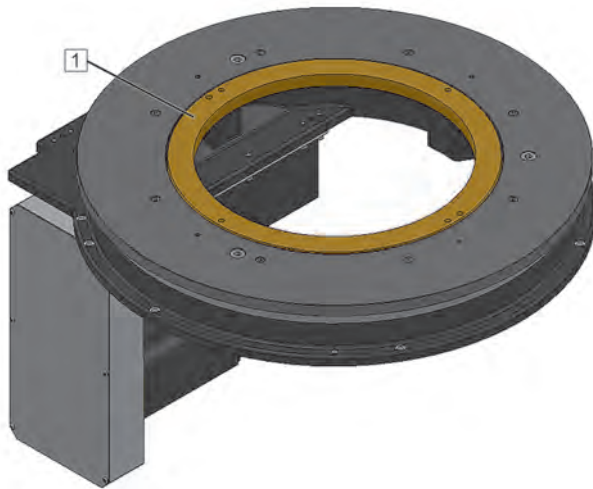
A rotary ring may only be mounted via the fit holes or with centering fits and threads.



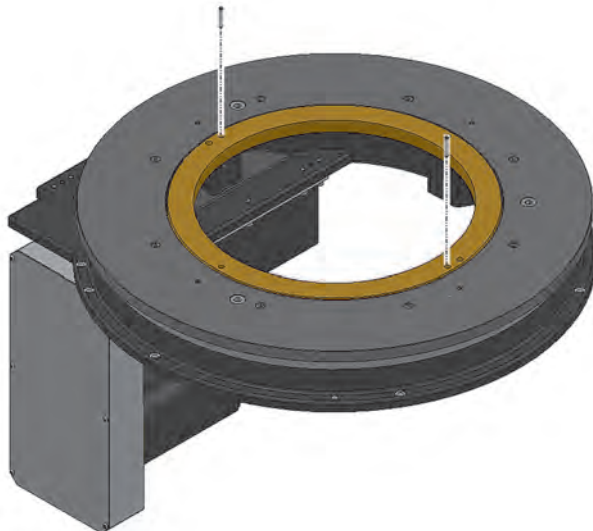
1. Place the rotary ring onto the output flange.
2. Center the four parallel pins [1] and then drive in the first parallel pin by one third of the way.
3. Screw in the screws and tighten them.
4. Fully drive in all parallel pins.
5. Tighten the screws cross-wise with a torque wrench, [see chapter 8.2](#).



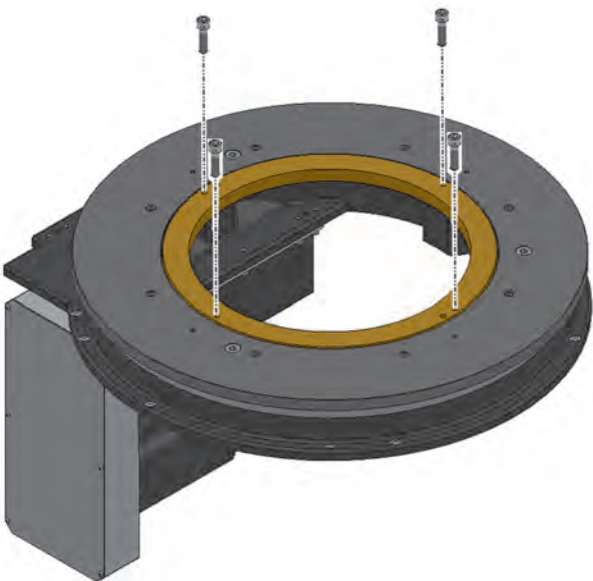
Mounting a raised ring

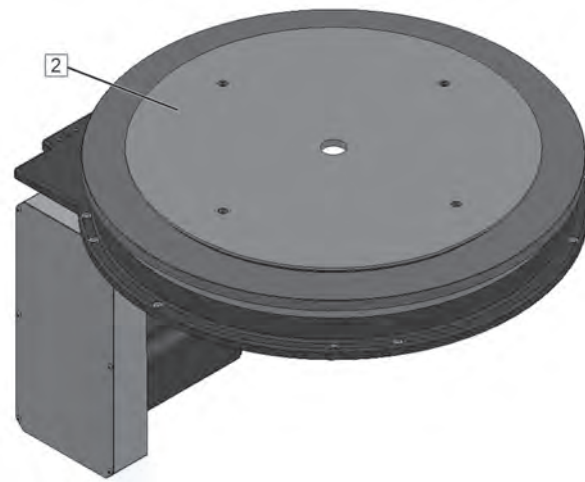


1. Place the raised ring [1] on the mounting surface.
2. Center the two parallel pins and then drive in the first parallel pin by one third of the way.

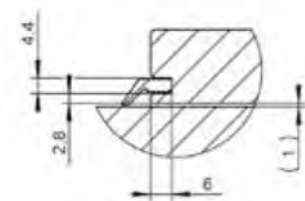


3. Screw in the screws and tighten them.
4. Fully drive in all parallel pins.
5. Tighten the screws cross-wise with a torque wrench, [see chapter 8.2](#).

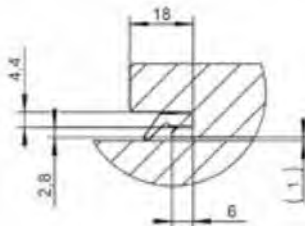




6. Now you can mount a stationary plate onto the raised ring.



Lip seal outside



Lip seal inside

7. Mount a suitable lip seal between the rotary ring and the stationary plate to help avoid the ingress of extraneous objects.

8.7 Mounting safety equipment

The product is a partly complete machine pursuant to Directive 2006/42/EU and intended to be incorporated into or assembled with other machinery. The requirements concerning functional safety and the corresponding safety equipment result from the risk analysis and the risk assessment for the final machine or plant.

Selection, mounting, installation, commissioning, operation and maintenance of the safety equipment must be performed by the system integrator (the person who incorporates the product in a machine pursuant to Directive 2006/42/EU, i.e., for example, the machine builder) and/or the operator.

The product requires at least the following safety equipment:

- Emergency Stop system as per IEC 60204-1 / ISO 13850
- Lockable main switch to interrupt the complete power supply to all electrical components of the product

9 Electrical connection



⚠ DANGER

ELECTRIC SHOCK CAUSED BY LIVE PARTS

Failure to follow these instructions will result in death or serious injury.

- Disconnect the mains supply voltage before performing the work and ensure that it cannot be switched on.
- Verify that no hazards can be caused by electrically conductive objects.
- Verify that all cables for the power supply are disconnected from power.



⚠ DANGER

ELECTRIC SHOCK DUE TO MISSING COVERS

Failure to follow these instructions will result in death or serious injury.

- Verify that all removed covers are re-installed, and all terminal boxes are closed after you have performed work.



⚠ WARNING

UNANTICIPATED MOVEMENT

Interchanging the motor connections inverts the direction of rotation of the motor.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Verify correct wiring and connection of all electrical connections.



⚠ CAUTION

IMPROPERLY INSTALLED CABLES

Failure to follow these instructions can result in injury or equipment damage.

- Verify that the cables are correctly routed.
- Verify compliance with the bend radius specifications for the electrical lines.
- Only use cables with the correct cross sections.
- Verify that the electrical cables are correctly connected to the terminals.

The following components must be connected for the motor:

- Lockable main switch
- Suitable Emergency Stop equipment (as per IEC 60204-1 / EN ISO 13850)
- Motor contactor (refer to documentation of the manufacturer for additional information; see applicable documents)
- Brake contactor (refer to documentation of the manufacturer for additional information; see applicable documents)

10 Controller

10.1 Basic information on control



▲ WARNING

LOSS OF CONTROL

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Consider all potential failure modes of all control paths in your control concept.
- Implement means and measures for all critical functions to achieve a safe state if a control path fails (for example, emergency stop, overtravel of positions, power outage, and restart).
- Implement separate or redundant control paths for all critical functions.
- If the control system of the machine comprises communication links, consider the consequences of unanticipated transmission delays or failures of the link and implement appropriate measures.
- Subject each machine in which the product described in these mounting instructions is used to a comprehensive and thorough commissioning test before operating the machine.

10.2 WEISS GmbH controller/software package (optional)

WEISS GmbH offers a controller/software package for controlling the product.

If this option is used, you must follow all instructions in the corresponding documentations. The documentations can be found on the CD shipped with the product in the controller/software package.

11 Commissioning

11.1 Prerequisites for commissioning

The following requirements must be met before the product may be commissioned:

- The product is properly mounted.
- The electrical equipment for the power supply of the motor and the brake is mounted correctly.
- All cables are properly routed and connected.
- All electrical connections have been made properly.
- All parts of the system are properly grounded in compliance with all applicable directives, regulations, and standards.
- All safety equipment and EMERGENCY-STOP circuits are operational.
- The drive is not damaged and not blocked.
- All environmental conditions are respected.
- All protective covers are properly mounted.
- The toothed belt has the correct tension.
- All tools, equipment, and other objects have been removed from the zone of operation of the product.
- All hazards are excluded.

Prior to commissioning, perform a test for each prerequisite mentioned and verify compliance with all information and specifications contained in these mounting instructions, in all applicable documents, and in all applicable directives, regulations, and standards.

11.2 Performing commissioning



WARNING

UNANTICIPATED MOVEMENT

Incorrect connections or external influences on electrical equipment can cause unanticipated movements.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Verify correct wiring.
- Verify that there are no persons or obstacles in the danger zone of the product before starting the product.
- Perform initial test movements without loads and without other processing units.
- Verify that all safety equipment and EMERGENCY STOP circuits are activated prior to commissioning.



⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Incorrect or unsuitable parameter values or settings can cause unintended movements, trigger signals, and compromise functional safety.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Verify that parameter values and settings can only be modified by authorized personnel who fully understand each and every effect of such a modification.
- Verify that all parameter values and settings are correct by performing a test run.



⚠ WARNING

ELECTROMAGNETIC RADIATION

Failure to follow these instructions can result in death, serious injury, and equipment damage.



- Verify compliance with all international, national, and local directives, standards, and safety regulations, including all regulations concerning workplace safety and prevention of accidents, with regard to electromagnetic radiation.
- Take all necessary measures to ensure that persons with active medical implants (such as heart pacemakers or insulin pumps), metal implants, and magnetically or electrically conductive objects are not exposed to the electromagnetic fields generated by the motor.

Power on the power supply to the product via the main switch.

Check the following points during commissioning:

- Operating state, potential error conditions, and protective equipment
 - During commissioning, perform tests for all operating states and error conditions. In doing so, verify that all protective equipment operates as planned and required.
- Correct operation of the motor
 - There are no overloads.
 - There are no unusual fluctuations in the speed of rotation. Immediately stop the product in the case of overloads or unusual fluctuations in the speed of rotation and verify correct mounting.
- Noise emission
 - Excessive noise emission can be an indication of incorrect mounting, for example, an uneven ground that causes mechanical stress at the rotary ring. Immediately stop the product in the case of high noise emission and verify correct mounting.
- Heat
 - Verify that the heat dissipation is sufficient and that the specified climatic environmental conditions are respected by performing a test run under maximum load conditions.

If the product and/or the machine into which the product is incorporated is temporarily decommissioned, it must be recommissioned. For recommissioning, the same prerequisites must be met as for initial commissioning.

Perform the same tests for each recommissioning of the product as for initial commissioning.

12 Operation

12.1 Basic information on operation



⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Incorrect or unsuitable parameter values or settings can cause unintended movements, trigger signals, and compromise functional safety.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Verify that parameter values and settings can only be modified by authorized personnel who fully understand each and every effect of such a modification.
- Verify that all parameter values and settings are correct by performing a test run.



⚠ WARNING

UNANTICIPATED MOVEMENT OF THE ROTARY RING

Even when the motor is at a standstill, the rotary ring can move.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Block or safeguard the rotary ring in such a way that a movement of the rotary ring is safely prevented before starting work on the rotary ring.



⚠ WARNING

ELECTROMAGNETIC RADIATION

Failure to follow these instructions can result in death, serious injury, and equipment damage.



- Verify compliance with all international, national, and local directives, standards, and safety regulations, including all regulations concerning workplace safety and prevention of accidents, with regard to electromagnetic radiation.
- Take all necessary measures to ensure that persons with active medical implants (such as heart pacemakers or insulin pumps), metal implants, and magnetically or electrically conductive objects are not exposed to the electromagnetic fields generated by the motor.

The product is a partly complete machine pursuant to Directive 2006/42/EU and intended to be incorporated into or assembled with other machinery. The information required for operation results from the functionality of the machine or system into which the product is incorporated and from the application implemented with it.

The instructions for the safe operation of the final machine or system must be provided by the system integrator (the person who incorporates the product in a machine pursuant to Directive 2006/42/EU) and/or the operator in the form of a manual with operating instructions, [see chapter 2.3](#).

These operating instructions must be a complete manual which describes all work on and with the product and which contains all information relevant to the product. The system integrator and/or operator must ensure compliance of the operating instructions with all applicable directives, regulations, and standards.

13 Troubleshooting

13.1 Issue, cause and remedy



⚠ DANGER

ELECTRIC SHOCK CAUSED BY LIVE PARTS

Failure to follow these instructions will result in death or serious injury.

- Disconnect the mains supply voltage before performing the work and ensure that it cannot be switched on.
- Verify that no hazards can be caused by electrically conductive objects.
- Verify that all cables for the power supply are disconnected from power.



⚠ WARNING

MOVING PARTS

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Verify that the zone of operation of the moving parts of the product/machine is safeguarded.



⚠ WARNING

HOT SURFACES

The temperature of the motor and the holding brake can exceed 100 °C during operation.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Avoid unprotected contact with hot surfaces.
- Do not allow flammable or heat-sensitive objects in the vicinity of hot surfaces.
- Before performing work on the motor or the holding brake, verify that you wait for a sufficient period of time to allow such parts to cool down to a temperature that allows for safe contact.

Issue	Cause	Remedy
Output flange/rotary ring do not rotate	Toothed belt between motor and gear is torn	<ul style="list-style-type: none"> ▪ Replace the toothed belt, see chapter 15.5
	No motor supply voltage	<ul style="list-style-type: none"> ▪ Measure the voltage ▪ Check all fuses ▪ Check the motor protection switch
	Motor is inoperable	<ul style="list-style-type: none"> ▪ Replace the motor, see chapter 15.3



Issue	Cause	Remedy
	Output flange/rotary ring are mechanically blocked	<ul style="list-style-type: none"> ▪ Verify that the output flange/ rotary ring is not mechanically blocked at the top or the underside ▪ Remove the cause of the block
	Pollution between rotary ring and stationary plate	<ul style="list-style-type: none"> ▪ Check the gap between the rotary ring and stationary plate for extraneous objects ▪ Remove extraneous objects
	During initial commissioning: The output flange/rotary ring is subject to mechanical tension	<ul style="list-style-type: none"> ▪ Dismount the stationary plate and the rotary ring and clean the plate and the ring ▪ Perform a test run without rotary ring and stationary plate
Output flange overtravels a position	<ul style="list-style-type: none"> ▪ The rotary switch (controller board) is set to an excessively high stop delay time ▪ Holding brake is worn ▪ If the position is overtraveled from time to time (but at an increasing frequency), this may be caused by contact erosion or wear of the holding brake ▪ Contact erosion at motor contactor 	<ul style="list-style-type: none"> ▪ Set a correct stop delay time with the rotary switch Modifications to the time setting remedy this condition only for a short period of time ▪ Replace the holding brake ▪ Replace the motor contactor (use a semiconductor relay, if required)

14 Cleaning

14.1 Performing cleaning



⚠ DANGER

ELECTRIC SHOCK CAUSED BY LIVE PARTS

Failure to follow these instructions will result in death or serious injury.

- Disconnect the mains supply voltage before performing the work and ensure that it cannot be switched on.
- Verify that no hazards can be caused by electrically conductive objects.
- Verify that all cables for the power supply are disconnected from power.



⚠ WARNING

UNANTICIPATED MOVEMENT OF THE ROTARY RING/THE ROTARY RING

The gear is not self-locking. When the drive and the output flange/rotary ring are decoupled, the output flange/rotary ring can move.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Block or safeguard the output flange/rotary ring in such a way that a movement of the output flange/rotary ring is safely prevented before releasing the holding brake or decoupling the drive and the output flange/rotary ring.



⚠ WARNING

MISSING PROTECTIVE EQUIPMENT

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Immediately reinstall protective equipment that you may have removed to perform maintenance work after having completed the maintenance work and verify the effectiveness of the protective equipment.



⚠ WARNING

MOVING PARTS

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Verify that the zone of operation of the moving parts of the product/machine is safeguarded.



⚠ WARNING

HOT SURFACES

The temperature of the motor and the holding brake can exceed 100 °C during operation.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Avoid unprotected contact with hot surfaces.
- Do not allow flammable or heat-sensitive objects in the vicinity of hot surfaces.
- Before performing work on the motor or the holding brake, verify that you wait for a sufficient period of time to allow such parts to cool down to a temperature that allows for safe contact.

For cleaning of electrical components and additional components, respect the instructions in the documentations of the manufacturer; see applicable documents.

Use the following cleaning agents for cleaning the product:

Component	Cleaning agents
Housing	Neutral, mildly alkaline
Rotary ring	
Raised ring	
Stationary plate	
Motor	Dry cleaning

1. Remove fine impurities and dust with a dry, lint-free cloth.
2. Use a wet cloth and a neutral, mildly alkaline cleaning agent to remove stains on the housing, the rotary ring, the raised ring and/or the stationary plate.
3. Dry the cleaned areas.
4. Remove all equipment from the product.
5. Restore the readiness for operation of the product.

15 Maintenance

15.1 Maintenance plan

When	Activity
At least once per year	<ul style="list-style-type: none"> ▪ Clean all surfaces of the product, see chapter 14.1
	<ul style="list-style-type: none"> ▪ Verify all screw connections of the product for correct tightening torque
	<ul style="list-style-type: none"> ▪ Verify correct connection of all plug connections
At least every 2 million cycles or once per year	<ul style="list-style-type: none"> ▪ Inspect the toothed belt, see chapter 15.4
If required	<ul style="list-style-type: none"> ▪ Replace the toothed belt, see chapter 15.5
	<ul style="list-style-type: none"> ▪ Replace the motor, see chapter 15.3

15.2 Lubricant

The product features lifetime lubrication.

Refer to the documentation of the manufacturer for information on the lubricants used; see applicable documents.

15.3 Replacing the motor



⚠ DANGER

ELECTRIC SHOCK CAUSED BY LIVE PARTS

Failure to follow these instructions will result in death or serious injury.

- Disconnect the mains supply voltage before performing the work and ensure that it cannot be switched on.
- Verify that no hazards can be caused by electrically conductive objects.
- Verify that all cables for the power supply are disconnected from power.



⚠ WARNING

UNANTICIPATED MOVEMENT OF THE ROTARY RING/THE ROTARY RING

The gear is not self-locking. When the drive and the output flange/rotary ring are decoupled, the output flange/rotary ring can move.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Block or safeguard the output flange/rotary ring in such a way that a movement of the output flange/rotary ring is safely prevented before releasing the holding brake or decoupling the drive and the output flange/rotary ring.

**⚠ WARNING****MISSING PROTECTIVE EQUIPMENT**

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Immediately reinstall protective equipment that you may have removed to perform maintenance work after having completed the maintenance work and verify the effectiveness of the protective equipment.

**⚠ WARNING****MOVING PARTS**

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Verify that the zone of operation of the moving parts of the product/machine is safeguarded.

**⚠ WARNING****HOT SURFACES**

The temperature of the motor and the holding brake can exceed 100 °C during operation.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

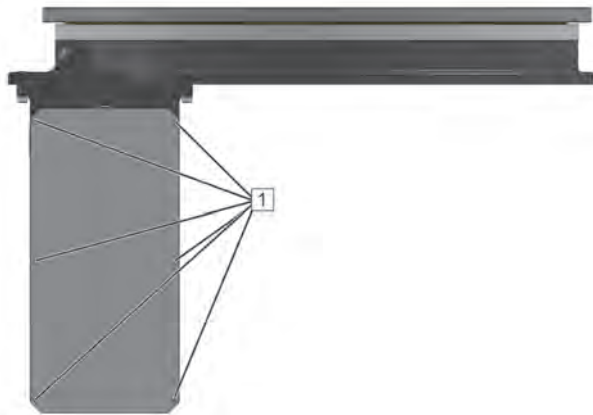
- Avoid unprotected contact with hot surfaces.
- Do not allow flammable or heat-sensitive objects in the vicinity of hot surfaces.
- Before performing work on the motor or the holding brake, verify that you wait for a sufficient period of time to allow such parts to cool down to a temperature that allows for safe contact.

**⚠ WARNING****FALLING PARTS**

Failure to follow these instructions can result in death, serious injury, and equipment damage.

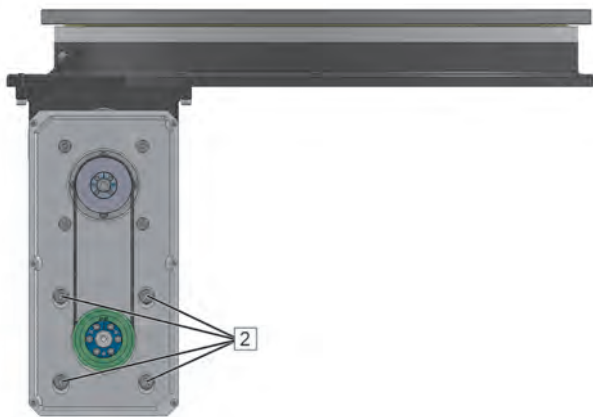
- Secure the motor so it cannot fall down before loosening the screws.

Dismounting the motor

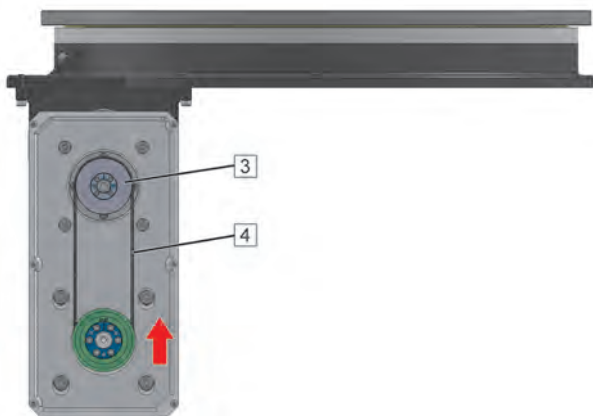


The product must be in a locked position before the motor is replaced.

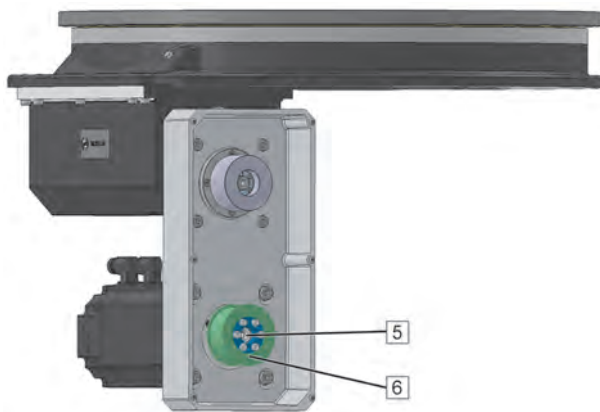
1. Remove the two electrical connections from the motor.
2. Remove the cover [1] by removing the screws.



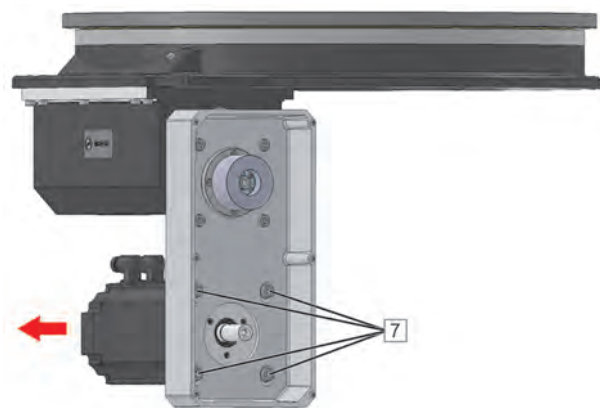
3. Loosen the four screws [2] of the motor flange.



4. Slacken the toothed belt [4] by moving the motor in the motor in the elongated holes.
5. To remove the toothed belt [4], start by pulling the toothed belt off of the toothed belt pulley (gear) [3].

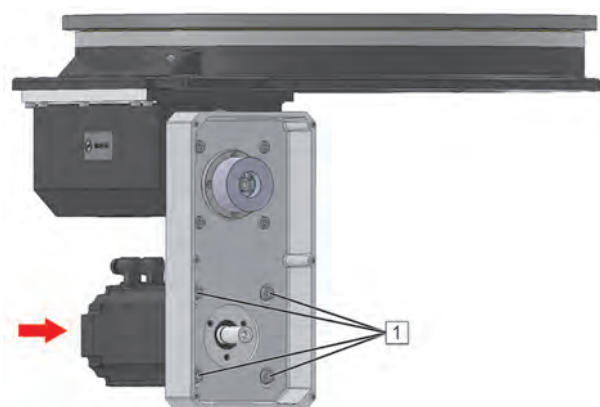


6. Remove the screw [5] of the pulley.
7. Pull the toothed belt pulley (motor) [6] off of the motor shaft.

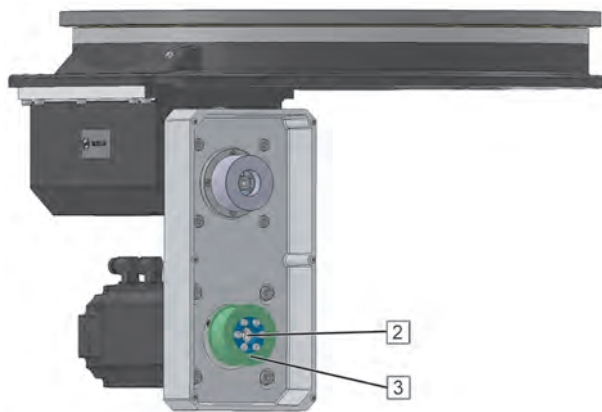


8. Remove the four screws [7] of the motor flange and remove the motor.

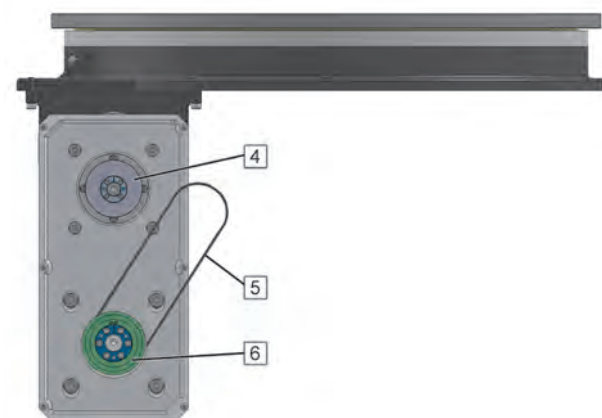
Mounting the motor



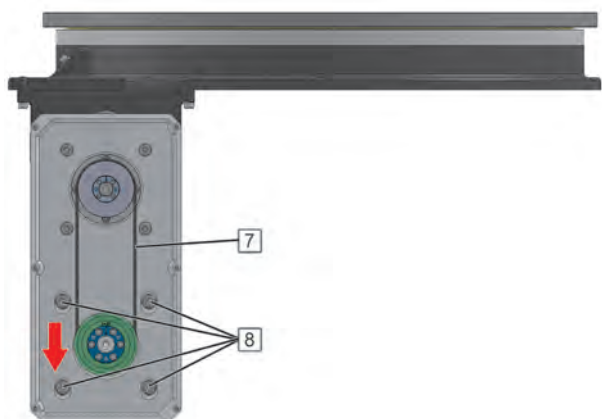
1. Fit the motor with the required position of the electrical connections.
2. Slightly tighten the four screws [1] of the motor flange.
3. Grease the motor shaft.



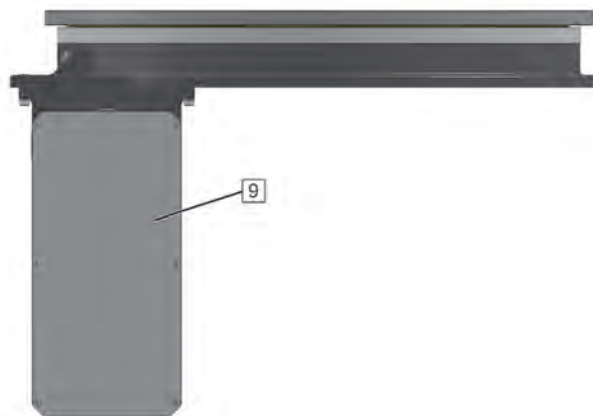
4. Push the toothed belt pulley (motor) [3] onto the motor shaft all the way to the stop. If you encounter resistance, use a plastic hammer.
5. Fit the disk onto the toothed belt pulley (motor) [3] and fasten it with the screw [2].



6. First, fit the toothed belt [5] around the toothed belt pulley (motor) [6].
7. Then, fit the toothed belt [5] around the toothed belt pulley (gear) [4].



8. Tension the toothed belt [7] to the correct belt tension by moving the motor in the elongated holes and tighten the four screws [8] of the motor flange.
9. Verify correct tension of the toothed belt; if necessary, readjust the tension of the toothed belt.
 - ✓ The toothed belt is correctly tensioned if it can be manually twisted by - depending on the length of the toothed belt - 45° to 90° along the longitudinal axis in the center between the two pulleys.
 - ✓ Contact WEISS GmbH if you need the frequency for adjusting the toothed belt with a belt tension meter.



10. Mount the cover [9] by means of the screws.
11. Connect the two electrical connections of the motor.
12. Remove all tools and equipment.
13. Perform a test run.

15.4 Inspecting the toothed belt



⚠ DANGER

ELECTRIC SHOCK CAUSED BY LIVE PARTS

Failure to follow these instructions will result in death or serious injury.

- Disconnect the mains supply voltage before performing the work and ensure that it cannot be switched on.
- Verify that no hazards can be caused by electrically conductive objects.
- Verify that all cables for the power supply are disconnected from power.



⚠ WARNING

MISSING PROTECTIVE EQUIPMENT

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Immediately reinstall protective equipment that you may have removed to perform maintenance work after having completed the maintenance work and verify the effectiveness of the protective equipment.



⚠ WARNING

MOVING PARTS

Failure to follow these instructions can result in death, serious injury, and equipment damage.

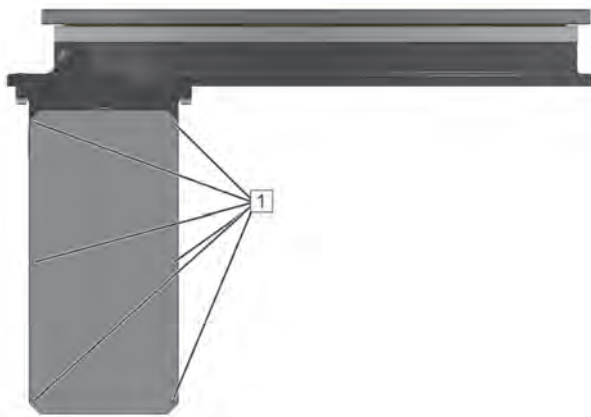
- Verify that the zone of operation of the moving parts of the product/machine is safeguarded.


▲ WARNING
HOT SURFACES

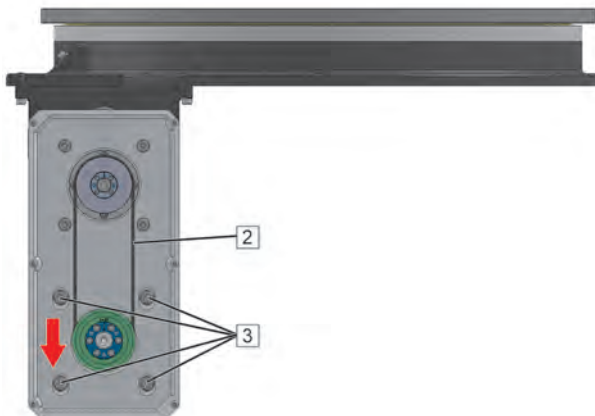
The temperature of the motor and the holding brake can exceed 100 °C during operation.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

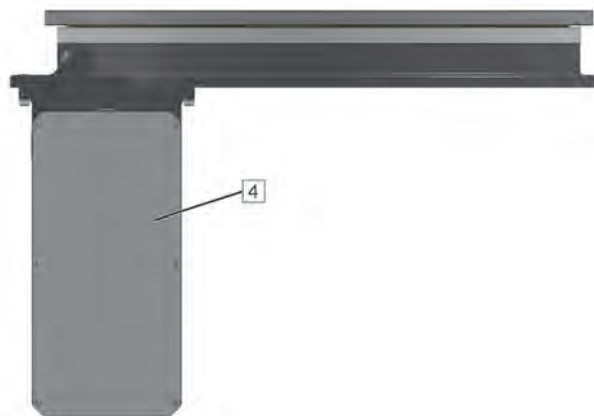
- Avoid unprotected contact with hot surfaces.
- Do not allow flammable or heat-sensitive objects in the vicinity of hot surfaces.
- Before performing work on the motor or the holding brake, verify that you wait for a sufficient period of time to allow such parts to cool down to a temperature that allows for safe contact.



1. Remove the cover [1] by removing the screws.



2. Verify correct tension of the toothed belt; if necessary, readjust the tension of the toothed belt.
 - ✓ The toothed belt is correctly tensioned if it can be manually twisted by - depending on the length of the toothed belt - 45° to 90° along the longitudinal axis in the center between the two pulleys.
 - ✓ Contact WEISS GmbH if you need the frequency for adjusting the toothed belt with a belt tension meter.
3. Tension the toothed belt [2] to the correct belt tension by moving the motor in the elongated holes and tighten the four screws [3] of the motor flange.



4. Mount the cover [4] by means of the screws.
5. Remove all tools and equipment.
6. Perform a test run.

15.5 Replacing the toothed belt



⚠ DANGER

ELECTRIC SHOCK CAUSED BY LIVE PARTS

Failure to follow these instructions will result in death or serious injury.

- Disconnect the mains supply voltage before performing the work and ensure that it cannot be switched on.
- Verify that no hazards can be caused by electrically conductive objects.
- Verify that all cables for the power supply are disconnected from power.



⚠ WARNING

UNANTICIPATED MOVEMENT OF THE ROTARY RING/THE ROTARY RING

The gear is not self-locking. When the drive and the output flange/rotary ring are decoupled, the output flange/rotary ring can move.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Block or safeguard the output flange/rotary ring in such a way that a movement of the output flange/rotary ring is safely prevented before releasing the holding brake or decoupling the drive and the output flange/rotary ring.



⚠ WARNING

MISSING PROTECTIVE EQUIPMENT

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Immediately reinstall protective equipment that you may have removed to perform maintenance work after having completed the maintenance work and verify the effectiveness of the protective equipment.

**⚠ WARNING****MOVING PARTS**

Failure to follow these instructions can result in death, serious injury, and equipment damage.

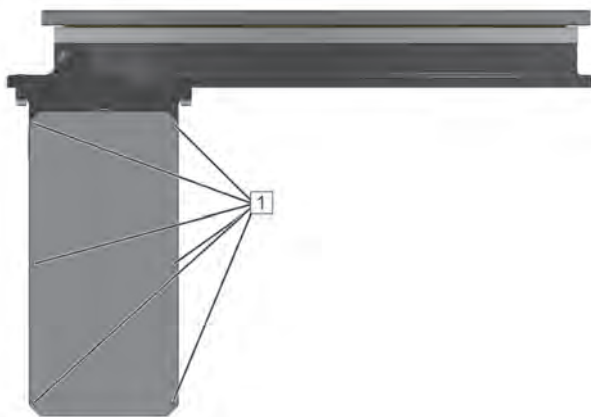
- Verify that the zone of operation of the moving parts of the product/machine is safeguarded.

**⚠ WARNING****HOT SURFACES**

The temperature of the motor and the holding brake can exceed 100 °C during operation.

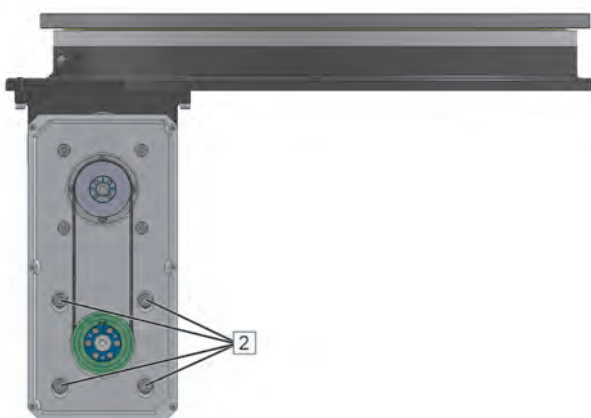
Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Avoid unprotected contact with hot surfaces.
- Do not allow flammable or heat-sensitive objects in the vicinity of hot surfaces.
- Before performing work on the motor or the holding brake, verify that you wait for a sufficient period of time to allow such parts to cool down to a temperature that allows for safe contact.

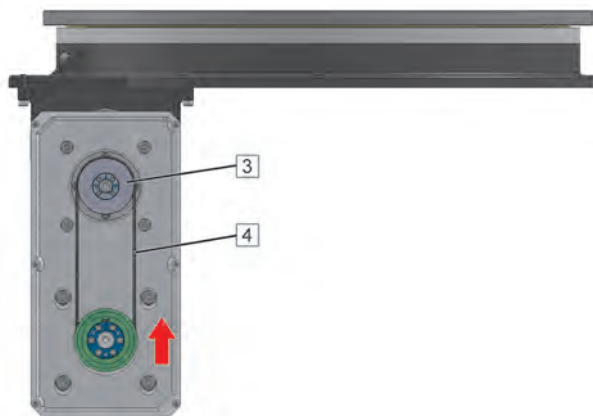
Dismounting the toothed belt

The product must be in a locked position before the toothed belt is replaced.

1. Remove the cover [1] by removing the screws.

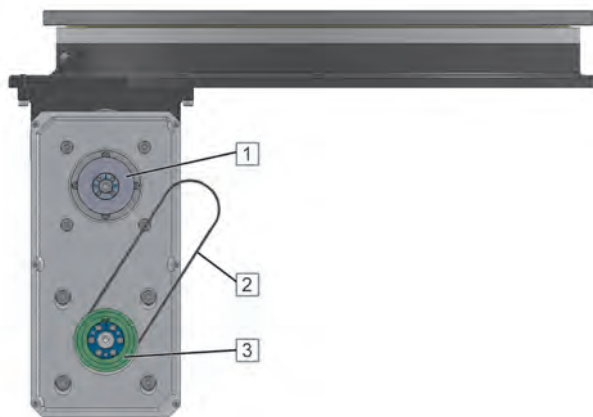


2. Loosen the four screws [2] of the motor flange.

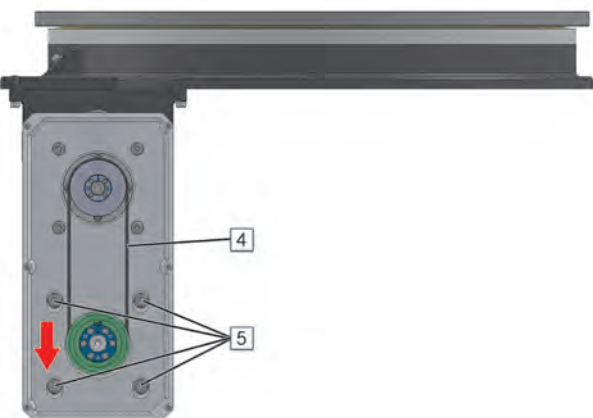


3. Slacken the toothed belt [4] by moving the motor in the elongated holes.
4. To remove the toothed belt [4], start by pulling the toothed belt off of the toothed belt pulley (gear) [3].

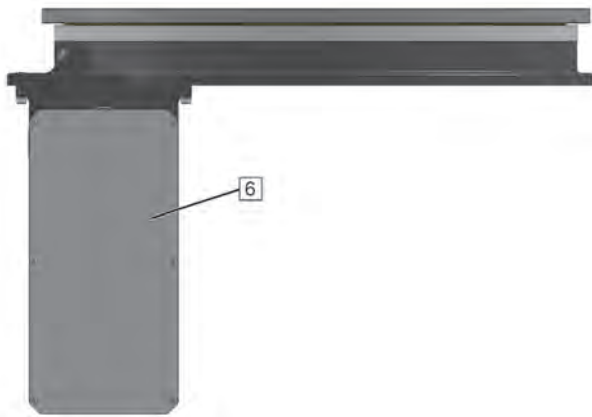
Mounting the toothed belt



1. First, fit the new toothed belt [2] around the toothed belt pulley (motor) [3].
2. Then, fit the toothed belt [2] around the toothed belt pulley (gear) [1].



3. Tension the toothed belt [4] to the correct belt tension by moving the motor in the elongated holes and tighten the four screws [5] of the motor flange.
 4. Verify correct tension of the toothed belt; if necessary, readjust the tension of the toothed belt.
- ✓ The toothed belt is correctly tensioned if it can be manually twisted by - depending on the length of the toothed belt - 45° to 90° along the longitudinal axis in the center between the two pulleys.
 - ✓ Contact WEISS GmbH if you need the frequency for adjusting the toothed belt with a belt tension meter.



5. Mount the cover [6] by means of the screws.
6. Remove all tools and equipment.
7. Perform a test run.

16 Decommissioning

16.1 Decommissioning the product

1. Switch off the product and secure it against unintended switching on.
2. Remove all workpieces and all other objects not belonging to the product from the product.
3. In the case of recommissioning, follow the instructions described, [see chapter 11](#).

17 Dismounting

17.1 Dismounting the product



⚠ WARNING

FALLING, TOPPLING, OR LOWERING LOADS

Insufficiently rated load lifting and handling equipment may break. Transportation vehicles, lifting gear, chains, belts, and other equipment not rated for the product may fail or tilt.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Only use transportation vehicles, lifting gear, chains, belts, and other lifting and handling equipment that comply with all applicable regulations and that are rated for the weight of the product including packaging.
- Verify that there are no persons in the danger zone.
- Verify that the product is properly secured against falling and toppling.

1. Switch off the supply voltage.
2. Dismount the product, [see chapter 8](#) reverse sequence of steps.

18 Disposal

18.1 Disposing of the product

Dispose of the product in compliance with all applicable directives, standards, and safety regulations.

Environmental protection

Dispose of lubricants, greases, residue of cleaning agents and other non-recyclable materials according to the applicable directives, standards, and safety regulations.

19 Service and spare parts

19.1 Worldwide service

If you need the assistance of our service departments, please provide the following information:

- Serial number of the product (see nameplate)
- Description of the problem
- Time of occurrence and circumstances of the problem
- Suspected cause

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19.2 Ordering spare parts



▲ WARNING

UNSUITABLE SPARE PARTS AND ACCESSORIES

Failure to follow these instructions can result in death, serious injury, and equipment damage.

- Only use spare parts and accessories which are approved by the manufacturer.

Please provide the following information when ordering spare parts:

- Serial number of the product (see nameplate)
- Part number of the spare part according to spare parts list
- Quantity of spare parts required



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GREAT SOLUTIONS**

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