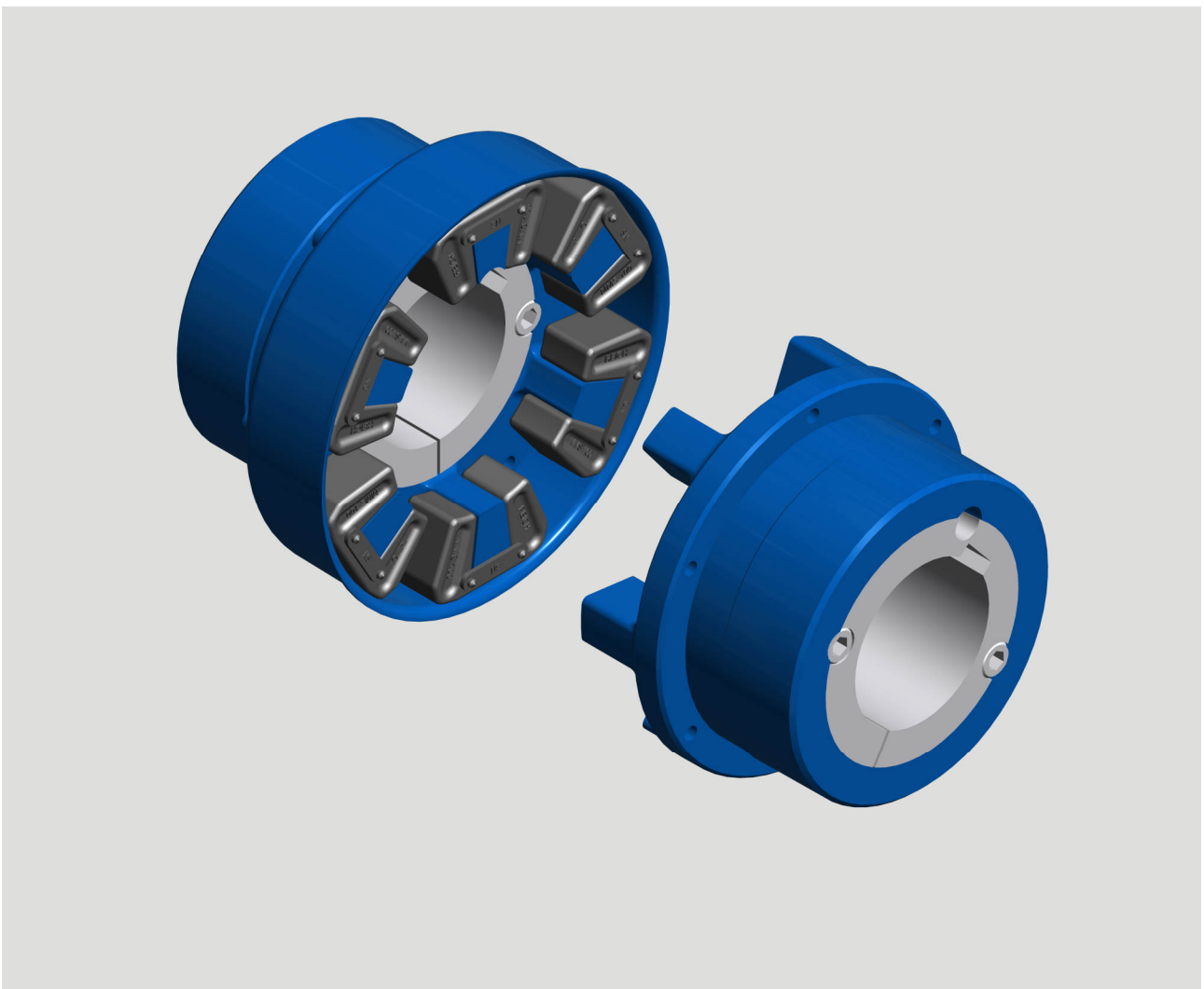


MULTI MONT SELLA

Torsionally flexible claw coupling
MMS-T...W (with taper bush)

Sizes 25 to 1000



English version of the original German operating instructions

06/2016 - en - 15500002060002

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Notes on the supplementary manual and the manufacturer

These operating instructions help you use the coupling properly and safely.

Keeping the instructions available

These operating instructions are an integral part of the coupling. Make sure that these operating instructions are constantly available at the place of use and in legible condition for the user. Add these operating instructions each time you sell this type of coupling or make it otherwise available to any third party.

Target group of these operating instructions

These instructions are addressed to the owner and to all persons who perform the following activities with and on the coupling:

- Transportation
- Storage
- Assembly
- Putting into operation
- Operating
- Servicing
- Maintenance work
- Decommissioning
- Disposal.

These operating instructions are intended for trained specialist personnel and for qualified and authorised operating personnel.

Each of these persons must have read and understood the contents of these operating instructions. Following the instructions contained in this manual helps avoid dangers and increases the reliability and the service life of the coupling.

As well as the instructions in this manual, pay attention to the applicable legal and other regulations that apply to the installation site, such as, e. g.:

- Accident prevention regulations
- Regulations for safe and proper work.

Copyright

These operating instructions and all their annexes contain information which is subject to copyright. They must only be used for the operation of the coupling.

These operating instructions must not be copied, printed or reproduced, processed, duplicated or disseminated in any way or in any form – either in whole or in part – without the prior written approval of Dipl.-Ing. Herwarth Reich GmbH, hereinafter referred to as REICH-Kupplungen.

© Dipl.-Ing. Herwarth Reich GmbH
Vierhausstr. 53
D-44807 Bochum
Germany

Related documents

Related documents are deemed integral parts of these operating instructions. Retain these documents together with these operating instructions. Add these documents each time you sell this type of coupling or make it otherwise available to any third party.

The following types of document are regarded as being applicable documents:

- Dimensioned drawing
- Technical product description
- All documents contained in the scope of supply


Structural features of these operating instructions

Defined structural features are assigned to the various elements within these operating instructions. A distinction can therefore be easily made between the following elements:

Normal text

Cross references

- Lists
- ▶ Action steps

 **Information:** These provide additional information such as special notes regarding the use of the coupling.

Warranty and liability

Our general commercial terms and conditions apply in general. These can be seen in the Internet at <http://www.reich-kupplungen.com>. Warranty and liability claims for personal injury and property damage are denied in all cases in which these are attributable to one or more of the following causes:

- Improper use of the coupling.
- Improper assembly, commissioning and maintenance of the coupling.
- Operation of the coupling with defective protection devices or improperly mounted or non-functional safety and protection devices.
- Failure to observe the notes in the operating instructions regarding transportation, storage, assembly, commissioning, operation, maintenance, cleaning and disassembly of the coupling.
- Unauthorized modifications to the design of the coupling without consulting REICH-KUPPLUNGEN.
- Inadequate monitoring of parts of the machine which are subject to wear.
- Improperly performed repairs.
- Major disasters caused by external influences and force majeure.

Manufacturer's address

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Safety

Proper use

The couplings in the MULTI MONT SELLA series, type MMS-T...W are pluggable claw couplings. These act in transferring torques and rotation speeds between a drive unit and the driven machine. They reduce torsional vibrations and shock loads and are able to compensate for misalignments.

Proper use also includes the observance of and compliance with all details contained in these operating instructions and the related documents. This applies, in particular, to both the safety instructions and the warning notices, and to the adherence to the cleaning and maintenance intervals.

Any other use or any use beyond the limits of proper use is deemed improper use and can lead to property damage or personal injury.

The following types of use, in particular, are deemed improper use:

- Operating the coupling outside its operating limits, and especially at too high rotational speeds and/or torques or continuous fatigue torques.
- Operating the coupling in a substandard condition.
- Having the coupling operated by inadequately trained personnel.
- Operating the coupling with deactivated and/or modified protection devices.
- Operating the coupling with modified add-on parts.
- Improper cleaning with cleaners containing solvents, alkalis or acids.

Improper operation of the coupling results in forfeiture of the liability for material defects and warranty.

Duties of the owner

- The owner of the coupling is bound by laws and regulations to issue instructions which ensure safe operation.
- The owner must define a “responsible person”. Only this person is authorised to issue a work clearance permit for working on and with the coupling. Work on the coupling described herein must not be executed unless the written work clearance permit for the execution of that work is available from the responsible person.
- The owner of the coupling must ensure that only qualified and authorised personnel performs the following activities on and with the coupling:
 - Transportation
 - Storage
 - Assembly
 - Putting into operation
 - Operating
 - Decommissioning
 - Cleaning
 - Servicing
 - Disposal.
- Persons whose ability to react is affected, for example by the use of alcohol, medicines, drugs, etc. must not work on or with the coupling.
- The owner of the coupling must regularly train the personnel working on the coupling in the following areas:
 - Use of the personal protective equipment
 - Safe working practices
 - Applicable accident prevention regulations
 - Hazards arising from the coupling whilst in operation
 - Behaviour in an emergency
 - First aid measures.
- The owner must ensure that the applicable country-specific laws and guidelines including the health protection regulations, the occupational health and safety regulations and the fire prevention regulations, are adhered to.
- The owner must ensure that personnel receiving training, hands-on training, briefings or making an apprenticeship exclusively works on and with the coupling under the constant supervision of an experienced specialist.
- The owner must ensure that the coupling is encased by an amply dimensioned protection device which is capable of withstanding rupturing of the coupling and allows for adequate ventilation of the coupling, see page 37.
- Before commissioning the coupling, the owner or a person authorised by the owner must ensure that the following requirements are met:
 - Proper use of the coupling must be ensured.
 - All protection devices must be properly mounted and functional.
 - All safety regulations must be adhered to.

Duties of the personnel

The personnel working on and with the coupling must:

- have read and understood all operating instructions,
- be familiar with all safety devices and regulations,
- observe and comply with all safety instructions and warning notices applicable to the place of use,
- be familiar with and adhere to the basic occupational health and safety regulations and accident prevention regulations.

Personnel qualifications

The specialist personnel must have knowledge and experience in the following areas:

- All notes in these operating instructions and the related documents
- Legal regulations and occupational health and safety regulations applicable to the place of use
- Explosion protection and fire prevention regulations applicable to the place of use
- Safe lifting and transportation of loads
- Assembly and disassembly of couplings
- Alignment of couplings
- Joining of bolted connections and their tightening to the specified torque
- Maintenance and cleaning work on couplings.

Prohibition of unauthorised conversions

Conversions or modifications are permissible only with the manufacturer's approval.

- Exclusively use accessories which are approved by REICH-KUPPLUNGEN for use with the coupling.
- Exclusively use genuine OEM spare parts. There is no warranty for third-party spare parts that these parts have been designed and manufactured to meet the stress and safety requirements.

Personal protective equipment

Adherence to the following safety measures is required to enable you to work safely on and with the coupling:

- ▶ Do not wear clothing or jewellery which may become entangled with moving parts such as ties, neckerchiefs, rings or chains.
- ▶ Comply with the owner's safety instructions.
- ▶ Wear a hair net or other head covering if you have long hair.
- ▶ Wear safety shoes to avoid injuries to your feet.
- ▶ Wear protective gloves to avoid injuries to your hands.
- ▶ Wear a hard hat to avoid injuries to your head.
- ▶ Wear protective clothing to protect your body against injuries.
- ▶ Wear protective goggles during work when your eyes are at risk.

- ▶ Wear ear protectors in areas in which your hearing may be damaged.
- ▶ Wear a respiratory protector during work when your respiratory system may be damaged.
- ▶ Make sure that the work areas and escape routes are not blocked at the place of use.

The owner must issue instructions for the wearing of personal protective equipment in accordance with the risks existing at the place of use.

Note regarding residual dangers

The coupling has been constructed according to the state-of-the-art and the recognised safety rules and relevant standards. Wherever possible, sources of danger have been eliminated in the design or ruled out through suitable devices. Residual dangers may nevertheless arise when using the coupling.

Dangers to persons or impairment of the coupling and other property can especially occur if the coupling:

- is improperly transported, mounted, commissioned and maintained by non-qualified or untrained personnel,
- is operated improperly,
- is not used properly,
- is not serviced properly,
- is not cleaned properly,
- is not decommissioned properly,
- is not stored properly.

Basic safety instructions

Danger to life due to rupturing of the coupling

A damaged or improperly mounted coupling can rupture during operation. Parts flying around can cause life-threatening injuries.

- ▶ The coupling must be mounted exclusively by specialist personnel qualified for this task.
- ▶ The coupling must be operated exclusively in flawless condition.
- ▶ The maintenance intervals must be adhered to.
- ▶ The owner must mount a protection device which is capable of withstanding rupturing of the coupling.

Danger to life due to improper transportation and handling of the coupling

If the coupling or its components are inadequately supported during transport, assembly or disassembly, there is a risk of crushing injuries in the event of the coupling or its components falling down.

- ▶ Exclusively use undamaged lifting and lashing gear which is suitable for the load.
- ▶ Secure the coupling and its components during transport, assembly or disassembly to prevent them from falling down.
- ▶ Do not stand under suspended loads.
- ▶ Wear the personal protective equipment specified by the owner.

Avoiding risks of injury due to entanglement

- ▶ Perform all work required on the coupling only when the coupling is stationary.
- ▶ Switch off the driving machine prior to all work on the coupling.
- ▶ Secure the driving machine to prevent reactivation.
- ▶ Exclusively operate the coupling with a mounted and functional protection device.
- ▶ Affix a label warning of the hazard of entanglement on the protection device.

Avoiding risks of burns from hot surfaces

The surface of the coupling can become hot during operation.

- ▶ Do not touch hot surfaces.
- ▶ Allow the coupling to cool to hand temperature prior to maintenance work.
- ▶ If necessary, check the surface temperature with an infrared thermometer.
- ▶ Wear the personal protective equipment specified by the owner.

Avoiding risks of poisoning

There is a risk of poisoning when working with solvents or preservatives.

- ▶ Wear the personal protective equipment specified by the owner.
- ▶ Observe and follow the instructions contained in the safety data sheet for the solvent or preservative being used.
- ▶ Make sure that the workplace is adequately ventilated.

Structural features of warning notices



DANGER

Notices containing the word **DANGER** warn of a dangerous situation which causes death or severe injuries.



WARNING

Notices containing the word **WARNING** warn of a dangerous situation which can cause death or severe injuries.



CAUTION

Notices containing the word **CAUTION** warn of a situation which can cause slight or moderate injuries.

The following specific danger symbols can also be used in the warning notices in lieu of the general danger symbol:



Risk of explosion



Risk of burns, risk of scalding



Danger due to heavy loads falling down



Danger due to rupturing components

Structural features of notices referring to property damage

CAUTION!

These notices warn of a situation which can cause property damage.

Warning and instruction labels

- ▶ Observe and comply with the warning and instruction labels which are affixed at the place of use of the coupling.
- ▶ Make sure that none of the warning and instruction signs installed at the coupling's operating location are covered over and that they are all clearly legible at all times.
- ▶ Immediately replace any damaged warning and instruction labels.

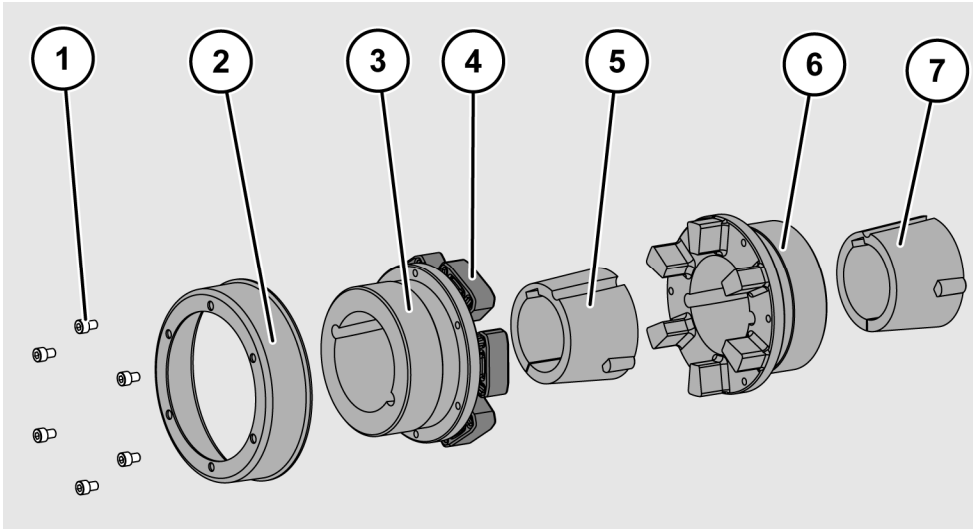
Description

The couplings in the MULTI MONT SELLA series, type MMS-T...W are pluggable claw couplings. These act in transferring torques and rotation speeds between a drive unit and the driven machine. They reduce torsional vibrations and shock loads and are able to compensate for misalignments.

The coupling consists of two coupling halves and the flexible elements. Joining the coupling halves enables the claws with the flexible elements to interlock with each other. This results in a practically backlash-free, positive connection, which allows for transmission of the torque.

Overview of type MMS-T...W (with taper bush)

The type MMS-T...W is a shaft coupling with two coupling hubs (3, 6). The coupling hubs are each attached with a taper bush (5, 7) on the shaft of the relevant machine. The torque is transmitted via flexible elements (4) which are guided and held in place by a retaining cap (2). The flexible elements (4) can be mounted and removed after loosening the bolts (1) and sliding back the retaining cap (2). The coupled machines need not be moved for this purpose.



No.	Designation
1	Bolts
2	Retaining cap
3	Coupling hub
4	Flexible elements: Toothed ring up to and including size 63 Saddle elements from size 100
5	Taper bush
6	Coupling hub
7	Taper bush

Components

Coupling hubs

The coupling has two coupling hubs. The coupling hubs usually consist of cast iron. They are placed on the shaft of the driven/driving machine and fixed in position by a taper bush. The coupling hub is equipped with claws. These claws are the counterpart to the flexible elements.

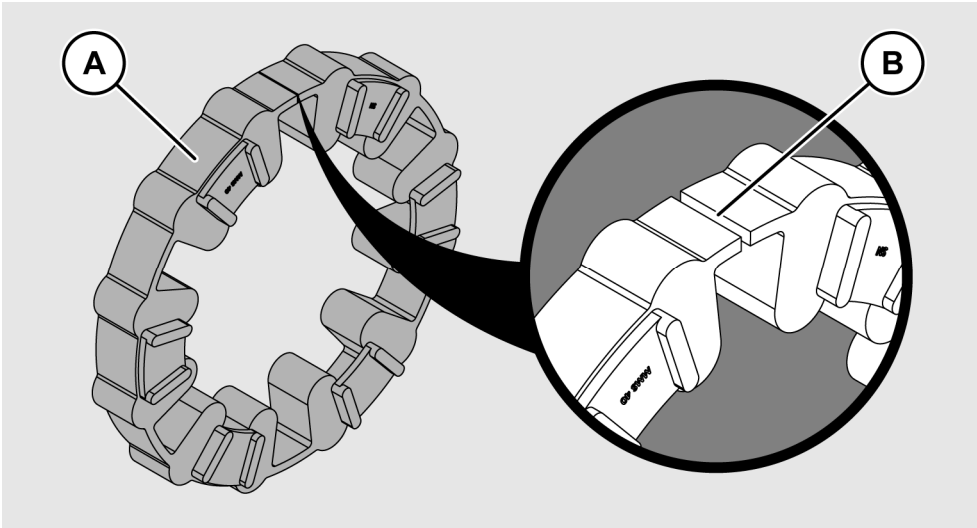
Taper bush

The taper bush is a connection element with a conical basic form and a longitudinal slot. It acts as a form-fitting shaft-hub connection to connect the coupling hub with the shaft of the driven/driving machine. The taper bush is tensioned into the threaded parts by screwing in the bolts supplied. This means the conical surfaces are pressed against each other. The coupling is held on the shaft by means of this press force. Torque transmission occurs via the form-fitting key connection.

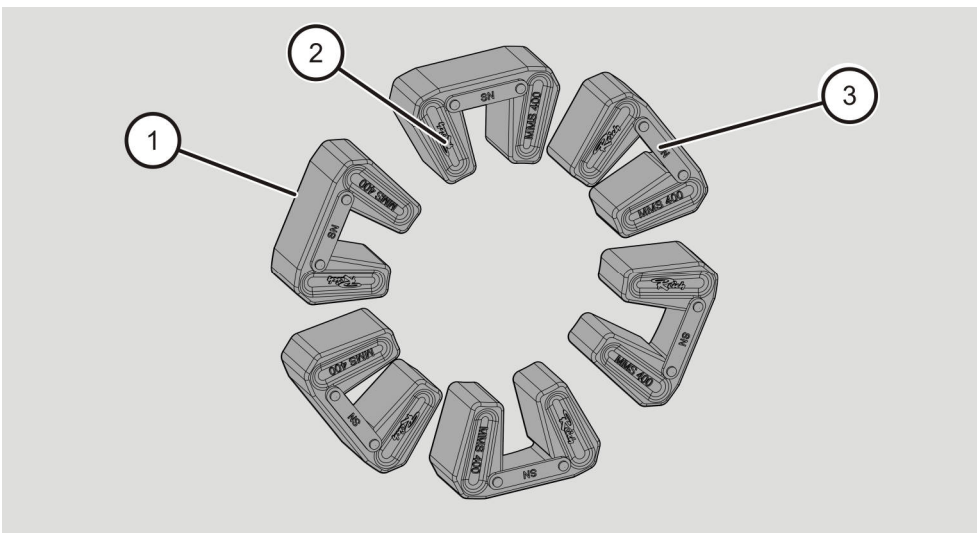
Description

Flexible elements (toothed ring, saddle elements)

The used flexible elements differ depending on the size. A split toothed ring (A) is used for sizes up to and including size 63. The individual rubber buffers are connected to each other via an external belt. The parting line (B) enables the toothed ring to be replaced without moving the coupling halves.



From size MMS 100 on, six saddle elements (1) are used where two rubber buffers (2) each are connected via one external belt (3). The saddle elements are shown in the figures above and below.



The following materials are available for the flexible elements depending on the type of application:

- Natural/synthetic caoutchouc
- Synthetic caoutchouc (NBR)
- Silicone caoutchouc (VMQ)
- Polyurethane (PUR).

Retaining cap

The retaining cap is slipped over the coupling hub and bolted to it. The flexible elements are covered this way and protected against dirt and falling out. The flexible elements can be replaced after loosening the retaining cap bolts and sliding back the retaining cap. Depending on the size, the retaining cap is made of polyamide, sheet steel, or cast iron.

Operating conditions

Observe the following operating conditions depending on the rubber mixture of the flexible elements:

Rubber mixture	Ambienttemperature	Colour	Identifier
Natural/synthetic caoutchouc in standard design	-40 °C to +80 °C	black	SN
Synthetic caoutchouc (NBR)	-40 °C to +100 °C	black	SP
Silicone caoutchouc (VMQ)	-70 °C to +120 °C	blue	SX
Polyurethane (PUR)	-30 °C to +120 °C	black	UD

i Contact the manufacturer in the case of deviating ambient temperatures.

i For the operating conditions which are permissible for your application, refer to the technical product description supplied with the coupling.

Nameplate

The nameplate is an adhesive label and affixed to an appropriate place on the coupling. The nameplate contains the following information:

- Manufacturer's internet address
- Coupling designation
- Article no.
- Order
- Shipping date.

Alternatively, a nameplate according to the customer' specifications can be provided.

Unpacking and checking the scope of delivery

Unpacking

The coupling or its components are delivered in a transport container.

- ▶ Open the transport container.
- ▶ Remove any filler material.
- ▶ Remove the transport protection device.

i To handle the coupling, follow the instructions on page 21.

Checking the supply

- ▶ Check the scope of supply for correctness and completeness against the delivery note.
- ▶ Inform the manufacturer in the event of discrepancies.
- ▶ Check the scope of supply for any damage.

i Use only the rubber quality which is designated for the specific intended use. Check the label for this purpose.

Reporting and documenting transport damage

- ▶ If you discover any damage, record it on the shipping documents.
- ▶ Have the damage confirmed by the supplier's signature.
- ▶ Photograph the damage.
- ▶ Immediately report the damage to the manufacturer.

Disposing of packaging material

- ▶ If the packaging is returnable, return it to the cycle.
- ▶ If not, dispose of the packaging and any filler material as required by the local regulations.

Transporting the coupling



DANGER

Danger to life due to falling or tipping loads.

- ▶ Pay attention to the centre of gravity of the load.
- ▶ Use a crane of adequate load-carrying capacity to lift the load.
- ▶ Use lifting gear of adequate load-carrying capacity to lift the load.
- ▶ Make sure that no persons are under suspended loads.

You are allowed to handle a coupling or coupling components weighing up to 10 kg by yourself.

You are required to involve a second person to handle a coupling or coupling components weighing 10 kg to 25 kg. Alternatively, you may use suitable lifting equipment.

You must handle a coupling or coupling components weighing over 25 kg using suitable lifting equipment and with the support of a second person.

The precise weight as of which support is required depends on your physical capabilities and the local regulations and conditions.

In order to transport the coupling, or a component thereof, above a weight of 25 kg, proceed as follows:

- ▶ Attach the coupling or a coupling component with a suitable sling, see from page 22 (Fig. A).
- ▶ Transport the coupling or coupling component to the designated location.

In order to transport the coupling, or a component thereof, above a weight of 25 kg during assembly or maintenance, proceed as follows:

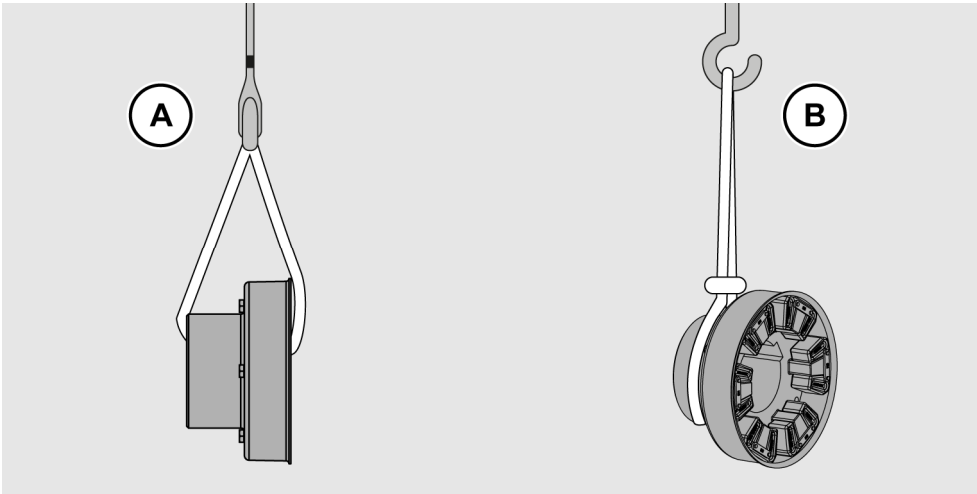
- ▶ Attach the coupling or a coupling component with a suitable sling, see from page 22 (Fig. A).
- ▶ Involve a second person for assistance.
- ▶ With the assistance of the second person, make sure that the components to be handled cannot tip over during lifting and positioning.

i The following figures show examples of how to transport the coupling and its components.

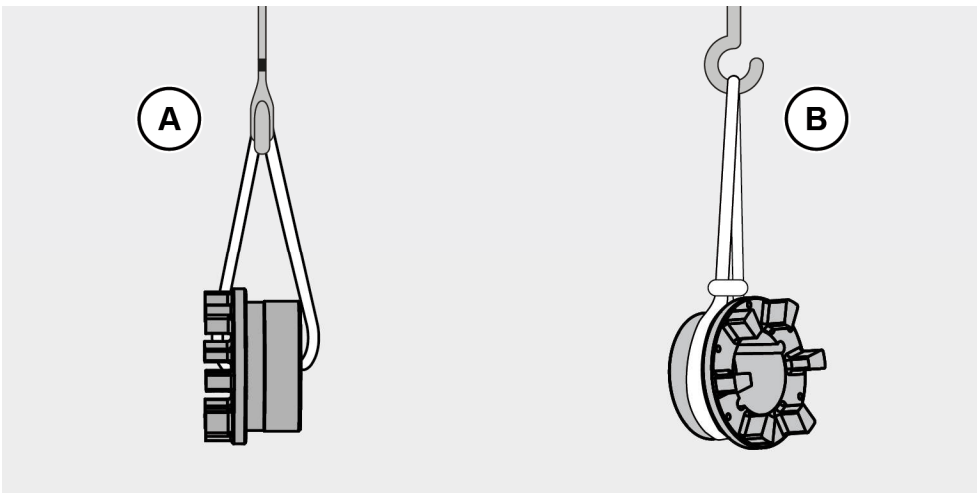
Version A shows a general transport situation.

Version B shows the transport situation during assembly.

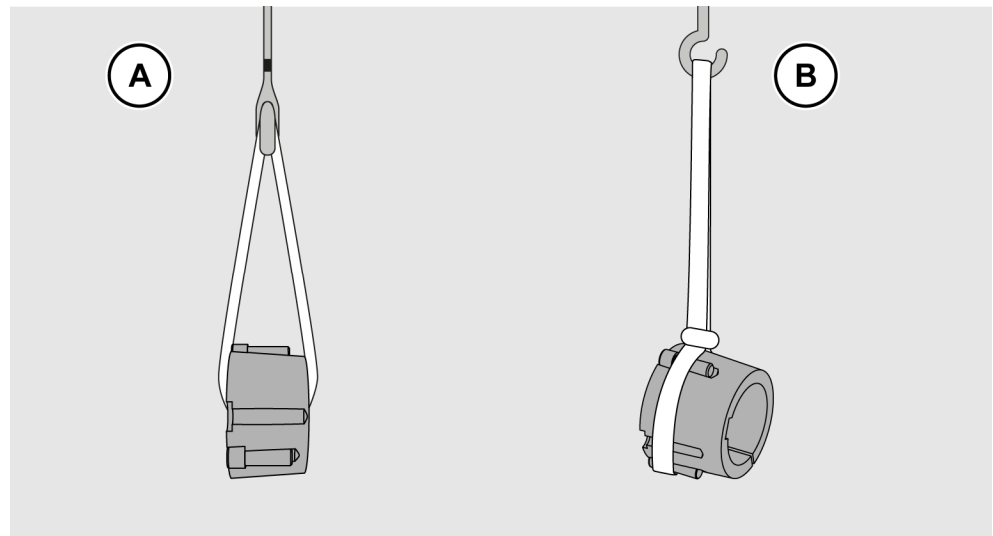
Transporting the coupling hub with flexible elements and retaining cap in the pre-assembled condition



Transportation of coupling hub



Transportation of taper bush



Storing the coupling

- Store coupling parts for a maximum of three years.
- Treat metal components with a suitable corrosion inhibitor.

Make sure during storage that the following conditions are adhered to for flexible elements:

- Exclusively store the coupling or its components in a dry and roofed location.
- Temperature range from +15 °C to +25 °C.
- Maximum relative humidity 65%
- Keep a distance of at least one metre from heat sources
- Protection against light with high proportion of UV rays e. g. the sun, fluorescent tubes
- Protection against draughts
- Protection against ozone caused by e. g. electric motors, mercury vapour lamps
- Avoid component stresses e. g. due to flexible elements piled on top of each other.
- Contact between the flexible elements and the following substances is prohibited:
 - Copper
 - Manganese
 - Saddle elements/toothed rings of different compositions
 - Solvents
 - Solvent vapours
 - Fuels and lubricants
 - Acids, etc.
- Use intermediate layers when stacking flexible elements.
- Ensure that the flexible elements are not subject to any load. This prevents components from being deformed.
- Further information regarding rubber products can be found in DIN 7716.

Mounting the coupling

Lifting loads during assembly



DANGER

Danger to life due to falling or tipping loads.

- ▶ Pay attention to the centre of gravity of the load.
- ▶ Use a crane of adequate load-carrying capacity to lift the load.
- ▶ Use lifting gear of adequate load-carrying capacity to lift the load.
- ▶ Make sure that no persons are under suspended loads.

 To handle the coupling, follow the instructions on page 21.

Preparing for assembly

- ▶ Obtain the work clearance permit from the responsible person prior to all work on and with the coupling.
- ▶ Switch the drive unit off.
- ▶ Secure the drive unit to prevent reactivation.
- ▶ Post up a caution sign indicating that work is in progress.
- ▶ Wear the personal protective equipment specified by the owner.

CAUTION!

Damage to saddle elements or the toothed ring due to contact with solvent.

Contact with solvent leads to changes in the properties of the saddle elements or the toothed ring.

- ▶ Make sure that the flexible elements do not come into contact with solvent.
- ▶ Protect the saddle elements or the toothed ring with a solvent-resistant cover.

Mounting the coupling

- ▶ Make sure that the flexible elements do not come into contact with solvent.
- ▶ Remove any preservative and grease from the connecting surfaces of the coupling with a suitable solvent.
- ▶ Degrease the shaft of the driven machine with a solvent.
- ▶ Degrease contact surfaces on the flywheel of the drive unit with solvent.



WARNING

Danger to life due to rupturing of a damaged coupling.

- ▶ Exclusively operate the coupling in flawless condition.
- ▶ Make sure that the coupling is equipped with a protection device which is capable of withstanding rupturing of the coupling.

- ▶ Make sure that the components to be assembled are in flawless condition.

Basic notes regarding the condition of delivery

The coupling can be delivered in any of the following conditions:

- Pre-assembled but not tightened to the required torque
- Fully assembled and tightened to the required torque.

The bolts are marked in the pre-assembled and fully assembled condition. Refer to the following table for the corresponding condition:

Marking	Condition of the bolts
Red tag/adhesive label	Pre-assembled but not tightened to the required torque
Yellow	Fully assembled and tightened to the required torque
Green	A screw locking compound, for example an adhesive, has been used

i If there is no marking, you must assume that the condition is pre-assembled.

- ▶ Check all bolted connections and tighten them to the specified torque.
- ▶ If in doubt, contact REICH-KUPPLUNGEN.

In the pre-assembled condition, the coupling parts are bolted together but not to the required torque. The pre-assembled condition can be recognised by the red tag or adhesive label attached in the factory.

ACHTUNG!

Die Schraubverbindungen sind lose, nur vormontiert. Schrauben nach der endgültigen Montage mit dem vorgeschriebenen Drehmoment laut Montageanleitung anziehen.

IMPORTANT!

The connecting screws are not fully tightened. These screws must be tightened to the full tightening torque given in our installation instructions during final assembly.

ATTENTION!

Les vis sont uniquement prémontés. Lors du montage veuillez serrer les vis au couple de serrage prescrit. Voir notice de montage et plan correspondant.

All screws must be tightened with the right torque.

CAUTION!

Property damage due to improperly fastened bolts.

When using a screw locking compound, for example an adhesive, the required torque must be adapted under circumstances.

- ▶ Observe the specifications of the screw locking compound manufacturer for any changed tightening torques.

- ▶ Tighten the bolts crosswise with the necessary torque, see page 32.
- ▶ Mark the bolts which have been tightened to the required torque in colour.

In the fully assembled condition, the coupling element and the coupling hub are bolted to the required torque. The fully assembled condition can be recognised by the markings made on each bolt in the factory.

Basic instructions regarding coupling hubs with taper bush

The coupling hub is delivered with a suitable taper bush. The taper bush has a finished bore and spline in accordance with customer specifications.



WARNING

Danger to life due to rupturing of a damaged coupling.

- ▶ Exclusively operate the coupling in flawless condition.
- ▶ Make sure that the coupling is equipped with a protection device which is capable of withstanding rupturing of the coupling.

-
- ① The maximum permissible bore diameters, see technical product description, are designed for adapter connections without tightening according to DIN 6885-1:1968-08. They must not be exceeded under any circumstances. Check the finished bores using suitable measuring equipment.
-

- ▶ Machine the keyways as required in DIN 6885-1:1968-08.
- ▶ It is vital to contact REICH-KUPPLUNGEN in the case of a different design.

Unless otherwise specified, REICH-KUPPLUNGEN supplies ISO tolerance P9 for the width of hub grooves in the case of holes ≤ 75 mm and ISO tolerance JS9 in the case of holes > 75 mm.

Assembling taper bush in coupling hub

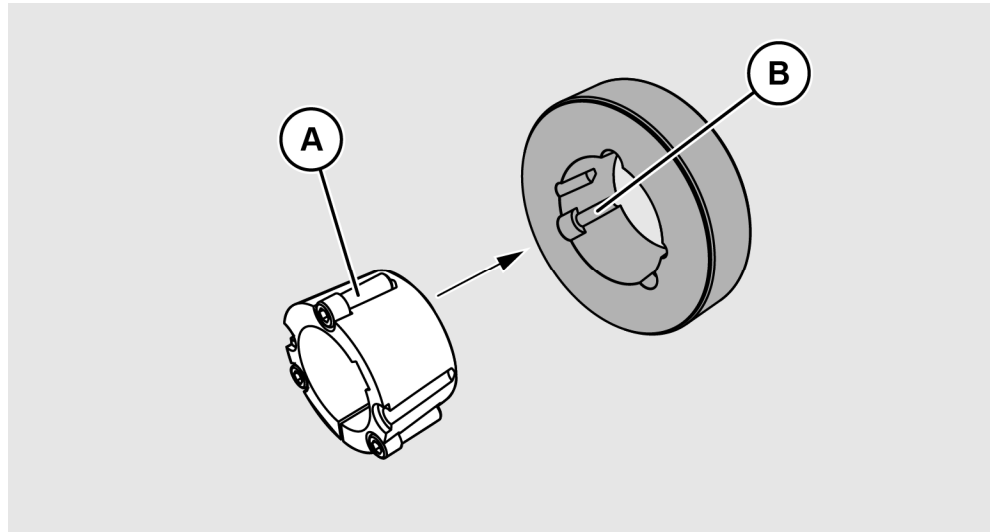
A taper bush is used for the connection between the shaft and the coupling hub.

- ▶ Clean and degrease the following contact surfaces with a solvent before assembly:
 - Bore in the coupling hub
 - Outside of the taper bush
 - Bore in the taper bush
 - Shaft without parallel key

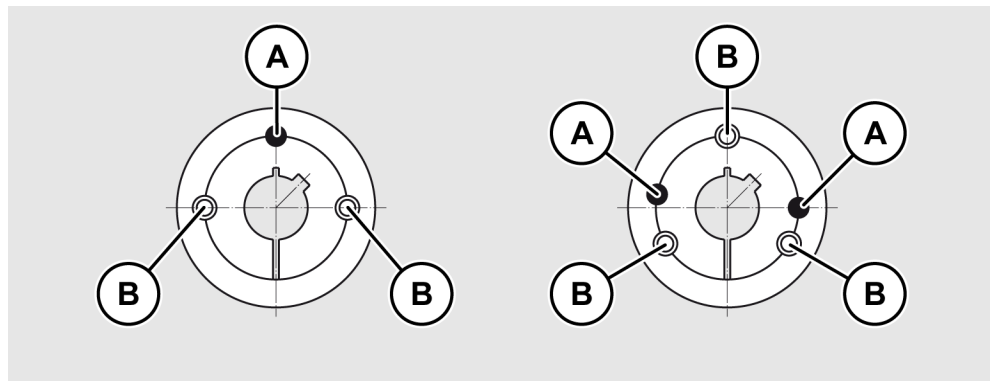
In order to assemble the taper bush, proceed as follows:

- ▶ Insert the taper bush (A) into the bore (B) on the coupling hub.

Schematic diagram



- ▶ Bring the connecting bores to the cover. Half a threaded bore must lie opposite a smooth bore (B) in each case.
Depending on the design, two or three bolts are necessary.
- ▶ Loosely screw in the bolts, which should be lightly oiled or greased.



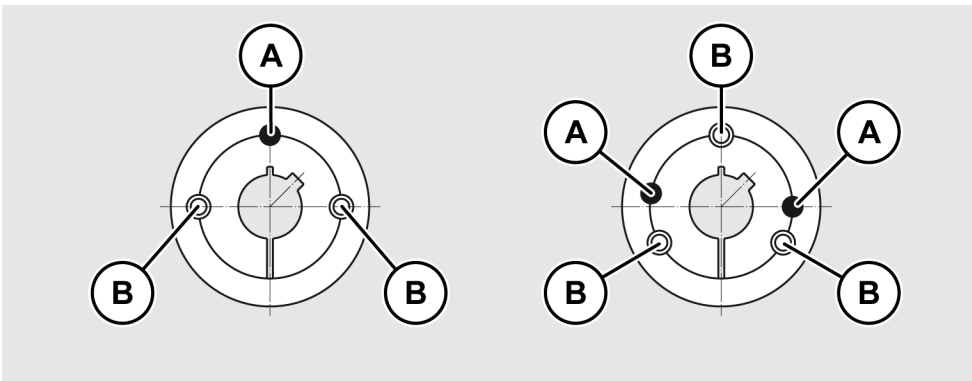
Assemble the taper bush on the shaft

- ▶ Ensure that the parallel key is inserted into the spline on the shaft.
- ▶ Push the hub with the inserted taper bush onto the shaft in the assembly position.
- ▶ Ensure that the bore on the taper bush is fully covered by the shaft.
- ▶ Tighten the bolts with the corresponding torque, see from page 33 onwards.
- ▶ Using a spacer, lightly tap the end face of the taper bush with a hammer.
- ▶ Tighten the bolts once more with the corresponding torque.

Disassemble hub with taper bush

In order to disassemble the hub complete with taper bush from the shaft, proceed as follows:

- ▶ Loosen and remove the bolts (B) on the taper bush.
- ▶ Depending on the design of the taper bush, screw in one or two lightly greased bolts into the threaded pushing thread (A).



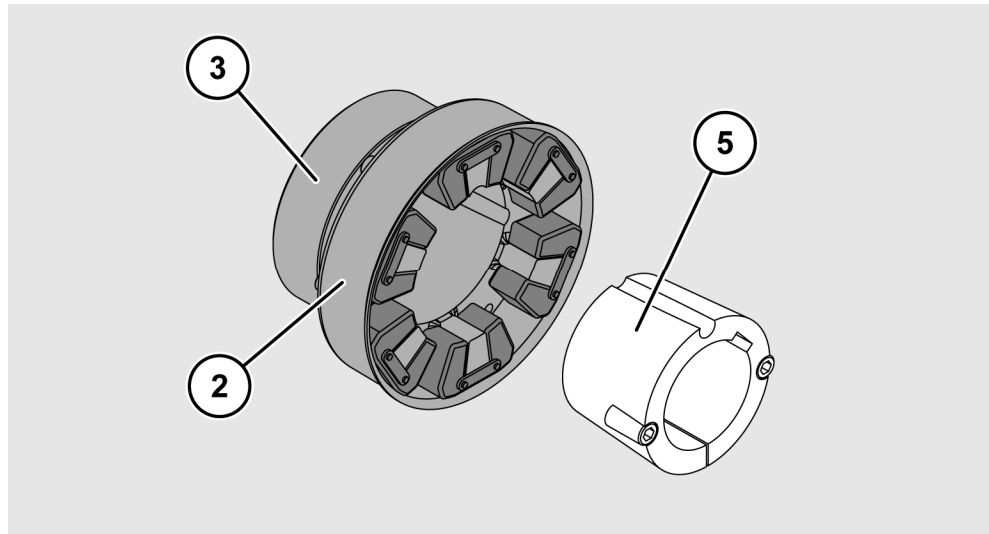
- ▶ Tighten the bolt or bolts evenly until the taper bush comes away from the hub.
- ▶ Pull the hub together with the taper bush from the shaft.

Mounting the coupling

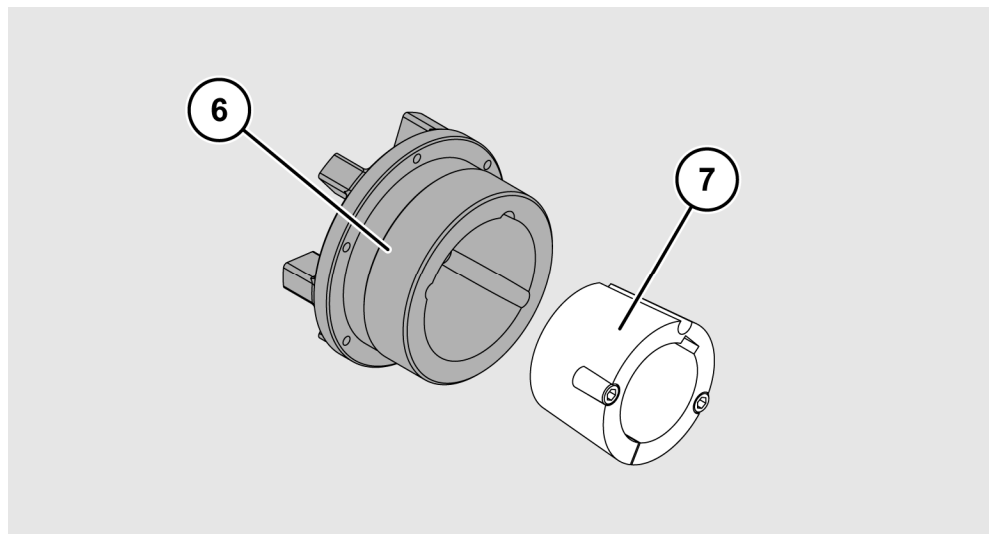
Type MMS-T...W (with taper bush)

In order to assemble the pre-assembled coupling hub (3) including saddle elements, retaining cap (2), and taper bush (5) onto the shaft, proceed as follows:

- ▶ Make sure that the connecting surfaces are free of preservative and grease.
- ▶ Assemble the taper bush (5) into the hub of the pre-assembled coupling half, as described from page 28 onwards.
- ▶ Assemble the taper bush with the pre-assembled coupling half on the shaft, as described on page 30 .



- ▶ Assemble the coupling hub (6) including taper bush (7) on the shaft on the opposite side as described previously.



Torques for tightening bolted connections

- ⓘ A cordless screwdriver may be used to screw the bolts in hand-tight. The required torque must only be applied by hand using a torque wrench.

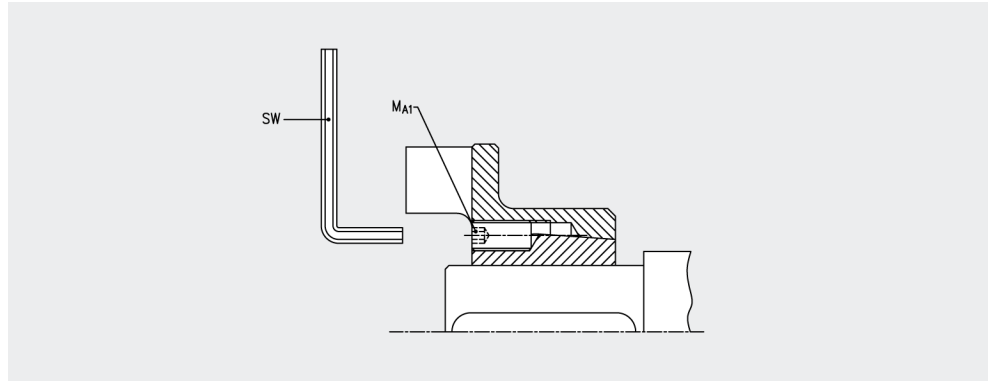
To ensure reliable torque transmission, all bolts must be tightened to the required torque during assembly. For tightening, use a calibrated torque wrench which is suitable for the required torque.

- ⓘ The following torques apply as standard unless otherwise specified in the relevant design drawing.

The following values apply to slotted headless bolts with metric thread and head contact in accordance with (ISO 4762, ISO 4014, DIN 6912) and a total friction factor $\mu=0.14$.

Bolt size	Torque [Nm]	
	Strength grade	
	8.8	10.9
M6	10	14
M8	25	35
M10	49	69
M12	86	120
M14	135	190
M16	210	295
M18	290	405
M20	410	580
M22	550	780
M24	710	1,000
M27	1,056	1,500
M30	1,450	2,000

Torques for taper bushes



Coupling size MMS	25	40	63	100/160	250	400/630	1,000
Bush no.	1610	2012	2517	3030	3535	4040	4545
Bolt size BSW *)	$\frac{3}{8} \times 16$	$\frac{7}{16} \times 22$	$\frac{1}{2} \times 25$	$\frac{5}{8} \times 32$	$\frac{1}{2} \times 38$	$\frac{5}{8} \times 45$	$\frac{3}{4} \times 50$
Torque M_{A1} [Nm]	20	31	49	92	115	172	195
Key width [mm]	5	6	6	8	10	12	14

*) Taper bush no. 1610/2012/2517/3030 set screw
Taper bush no. 3535/4040/4545/5040 cap screw

Engaging the coupling halves

CAUTION!

Increased rate of wear due to abrasion as a result of too large a distance between the coupling halves.

- ▶ Make sure that the gap dimension between the two coupling halves is observed.
- ▶ Ensure that alignment of the coupling is carried out by qualified specialist personnel. These include, e. g., machine fitters.
- ▶ Consult a supervisor if uncertain as to the correct gap dimension.

CAUTION!

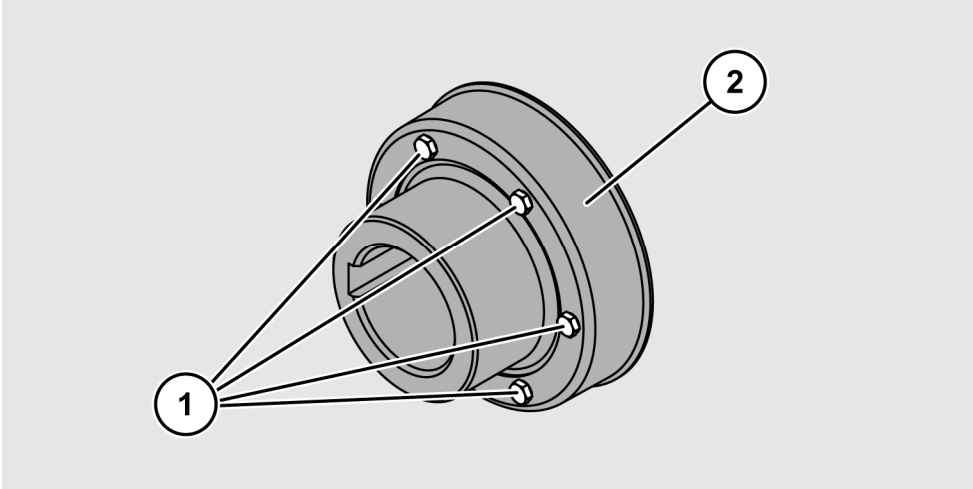
Property damage due to collision with other parts.

- ▶ Make sure that the coupling has been mounted without distortion.
- ▶ Make sure that the coupling has full freedom of movement.

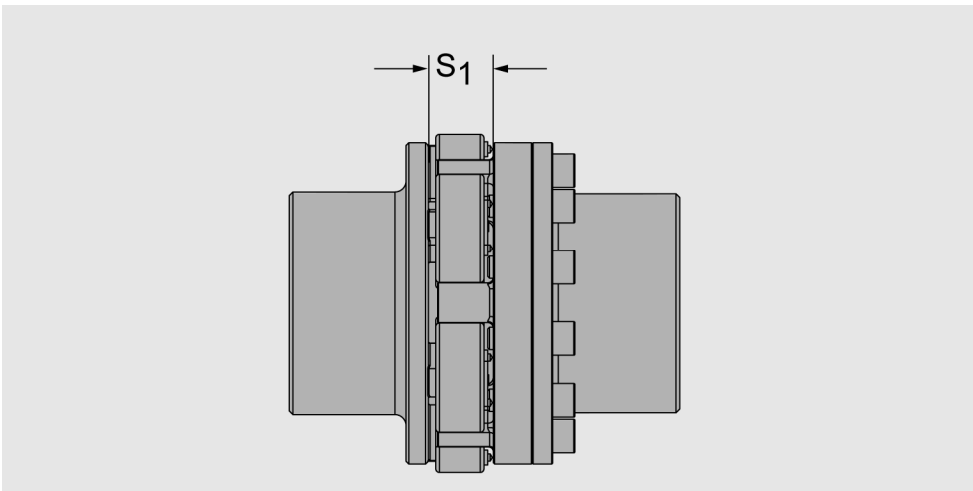
Mounting the coupling

Proceed as follows to engage the coupling halves with each other:

- ▶ Loosen and remove the bolts (1) from the retaining cap (2).
- ▶ Slide back the retaining cap.



- ▶ Move the driven machine or the drive unit until the claws of the two coupling halves are in engagement.
- ▶ Ensure that gap S_1 is observed, see page 36.
- ▶ If necessary, correct the distance by moving the units.



- ▶ Securely fasten the driven machine and the drive unit in this position.
- ▶ Make sure that all saddle elements are available and mounted or that the toothed ring is available and mounted.
- ▶ Slip the retaining cap over the coupling hub.
- ▶ Fix the retaining cap into position with the bolts.
- ▶ Tighten the bolts crosswise with the necessary torque, see page 32.
- ▶ Mark the bolts which have been tightened to the required torque in colour.

Aligning the coupling

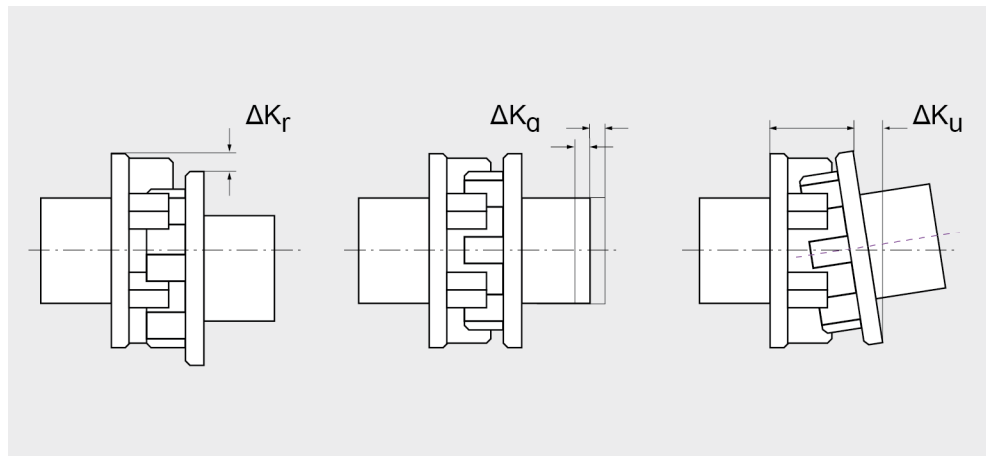
CAUTION!

Increased rate of wear to the flexible elements due to inadequate alignment of the drive unit and the driven machine.

- ▶ When aligning the drive unit and the driven machine, adhere to the values specified for the angular-, radial and axial displacement.

i A larger shaft displacement, for example when switching a drive unit on and off, is permissible for a short time. The maximum permissible angular, radial and axial displacements must not occur all at the same time.

Guide values for the shaft displacement



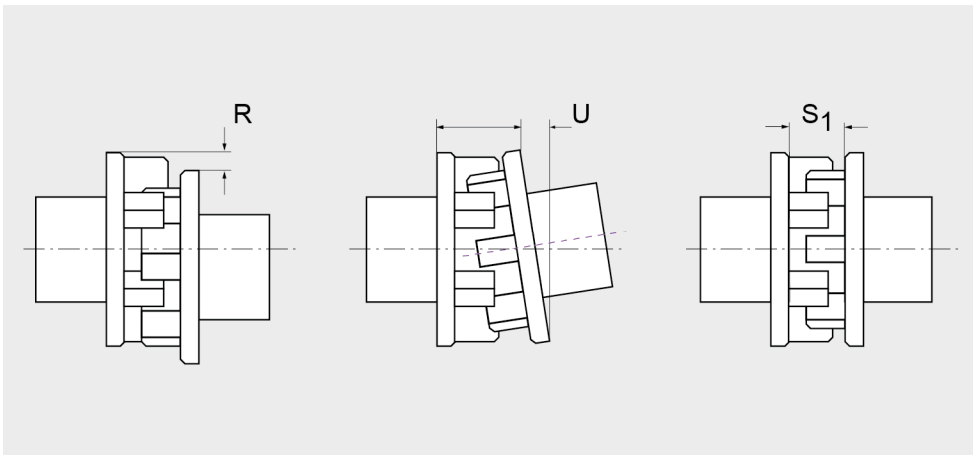
The maximum permissible displacement values listed in the table below are guide values as the compensating capability of the coupling primarily depends on the rotational speed and the coupling load. Precise alignment of the coupling has a positive effect on the service life of the flexible elements.

Coupling size	Max. permissible radial displacement ΔK_r [mm]	Max. permissible axial displacement ΔK_a [mm]	Max. permissible angular displacement ΔK_u [mm]
25	0.7	1.0	1.4
40	0.7	1.2	1.5
63	0.8	1.2	1.6
100	0.9	1.2	1.7
160	1.0	1.5	1.8
250	1.2	1.5	2.0
400	1.4	1.5	2.2

Mounting the coupling

Coupling size	Max. permissible radial displacement ΔKr [mm]	Max. permissible axial displacement ΔKa [mm]	Max. permissible angular displacement ΔKu [mm]
630	1.5	1.5	2.4
1000	1.6	2.0	2.6

Alignment tolerances



The alignment tolerances listed in the table below should only be considered as guide values in order to keep the assembly work within reasonable limits and in view of the fact that the compensating capability of the coupling largely depends on the rotational speed and the load. Precise alignment of the coupling halves has a positive effect on the service life of the flexible elements.

Coupling size	Max. permissible radial deviation R [mm]	Max. permissible angular deviation U [mm]	Max. permissible gap dimension $S1$ [mm]
25	0.3	0.4	22±1
40	0.4	0.4	26±1
63	0.4	0.5	30±1
100	0.4	0.6	35±1
160	0.4	0.7	41 +1.2/-1
250	0.5	0.8	47 +1.5/-1
400	0.5	0.9	56 +1.5/-1
630	0.6	1.0	64 +1.5/-1
1000	0.7	1.1	75 +2/-1

Mounting the protection device

The owner must equip the coupling with a protection device prior to commissioning. The coupling must be operated exclusively with the protection device mounted.

The protection device must satisfy the following minimum requirements and ensure:

- Protection against contact with rotating parts
- Protection against parts flying around after any rupture of the coupling
- Adequate ventilation of the coupling, for example through integrated cooling slots.

Putting the coupling into operation



WARNING

Danger to life due to rupturing of a damaged coupling.

- ▶ Exclusively operate the coupling in flawless condition.
- ▶ Make sure that the coupling is equipped with a protection device which is capable of withstanding rupturing of the coupling.

- ▶ Wear the personal protective equipment specified by the owner.

Perform the following work prior to commissioning:

- ▶ Make sure that all bolted connections are tightened to the required torque.
- ▶ Check the alignment of the coupling.
- ▶ Correct the alignment if necessary.
- ▶ Make sure that a protection device is mounted and functional.

Proceed as follows to commission the coupling:

- ▶ Start the drive unit as specified by the owner.
- ▶ Check the coupling for low-noise and vibration-free running.
- ▶ If this is not the case, shut the drive unit off as specified by the owner.
- ▶ Search for the cause of the malfunction.
- ▶ Eliminate the malfunction.
- ▶ Repeat commissioning.

Operation



WARNING

Danger to life due to rupturing of a damaged coupling.

- ▶ Exclusively operate the coupling in flawless condition.
 - ▶ Make sure that the coupling is equipped with a protection device which is capable of withstanding rupturing of the coupling.
-
- ▶ During operation, regularly check the coupling for changed running noises and suddenly occurring vibrations.
 - ▶ If a malfunction occurs, shut the drive unit off as specified by the owner.
 - ▶ Search for the cause of the malfunction.
 - ▶ Eliminate the malfunction.
 - ▶ Do not commission a damaged coupling.

Eliminating malfunctions

The malfunctions and causes of malfunctions described in this section can only serve as a starting point for your checks. Malfunctions are related to the type of use and the respective operating situation. For this reason always incorporate all components of the entire system in your fault finding and elimination process. Pertinent information can be found in the overall documentation for your system.

Detecting malfunctions

The coupling must show a low-noise and vibration-free running behaviour in all phases of operation. Anomalies in the operating behaviour are always indications of the presence of a malfunction.

- ▶ Make sure that the cause of the malfunction is located and immediately eliminated by qualified, specialist personnel.

Table of malfunctions

Malfunction	Cause	Remedy
Sudden change in the noise level Sudden occurrence of vibrations	The alignment of the coupling has been changed.	<ul style="list-style-type: none"> ▶ Decommission the system. ▶ Identify the reason for this change, for example loosened foundation bolts. ▶ Make sure that the alignment of the coupling is corrected properly.
	The flexible elements are worn.	<ul style="list-style-type: none"> ▶ Decommission the system. Information regarding this can be found from page 48. ▶ Make sure that the flexible elements are replaced properly. ▶ Make sure that the coupling is mounted and aligned properly. Information regarding this can be found from page 25.

Procedure for eliminating malfunctions

Proceed as follows when eliminating malfunctions:

- ▶ Shut off the drive units.
- ▶ Secure the drive units to prevent unintentional reactivation.
- ▶ Secure the work area using a suitable cordon facility, e.g. barrier tape. Additionally display a notice sign.

Maintaining the coupling



CAUTION

Risk of burns from hot surfaces

- ▶ Shut the system off before servicing, maintaining or repairing the coupling.
- ▶ Allow the components to cool.
- ▶ Wear protective gloves when working on the coupling.

Preparing for maintenance work

- ▶ Obtain the work clearance permit from the responsible person prior to all work on and with the coupling.
- ▶ Switch the drive unit off.
- ▶ Secure the drive unit to prevent reactivation.
- ▶ Post up a caution sign indicating that work is in progress.

 To handle the coupling, follow the instructions on page 21.

- ▶ Wear the personal protective equipment specified by the owner.

Performing inspections

The owner has the duty to inspect the coupling at the intervals defined for the specific operation. The inspection must be performed by qualified, specialist personnel and documented thereafter.

- ▶ Visually inspect the coupling on a regular basis, but at least once a year.
- ▶ During the inspection, check for damage of all kinds and particularly for:
 - Cracks
 - Correct seating of the bolts
 - Corrosion
 - Wear
 - Ageing of the saddle elements or of the toothed ring
 - Embrittlement of the saddle elements or of the toothed ring.
- ▶ Make sure that damaged couplings or saddle elements are replaced immediately.
- ▶ Exclusively use the properly designed genuine OEM couplings and flexible elements from REICH-KUPPLUNGEN.
- ▶ Check for loose bolts with the aid of the coloured markings on the bolts.
- ▶ Tighten loose bolts to the required torque.
- ▶ If necessary, re-mark the bolt positions.
- ▶ Document the test.

If in doubt, contact REICH-KUPPLUNGEN for damage and wear assessment.

-
- ❗ If you discover wear and damage to the saddle elements or the toothed ring during system and maintenance work involving the separation of the units, we recommend to replace the saddle elements or the toothed ring.
-

Replacing the flexible elements

CAUTION!

Damage to the coupling and the drive shafts due to improper replacement of the saddle elements or of the toothed ring.

- ▶ Ensure that the saddle elements or the toothed ring are replaced by qualified specialist personnel. These include, e. g.: machine fitters.

CAUTION!

Damage to the drive shafts due to blows when replacing the saddle elements or the toothed ring.

- ▶ Support the shaft in a suitable manner before replacing the saddle elements or the toothed ring.

Replacing the saddle elements

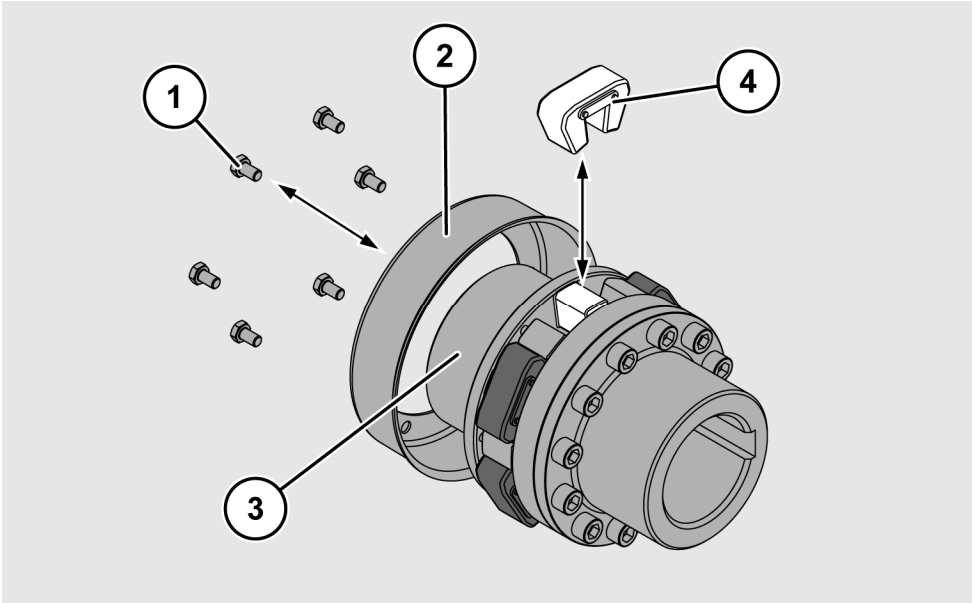
- ❗ Exclusively replace the saddle elements as a complete set. Combining old with new saddle elements is prohibited.
-

Proceed as follows to disassemble the saddle elements:

- ▶ Disassemble the retaining cap (2) from the hub body (3).
- ▶ Loosen the bolts (1) for this purpose.
- ▶ Put the bolts (1) aside for later use.
- ▶ Slip the retaining cap (2) from the hub body (3) onto the shaft.
- ▶ Remove the first saddle element (4) by pulling or levering it out from the coupling claws.

Maintaining the coupling

- ▶ Where necessary, use suitable tools for this purpose.
- ▶ Retain the saddle elements (4) in a suitable container for subsequent disposal.
- ▶ Repeat these steps until all saddle elements are removed.



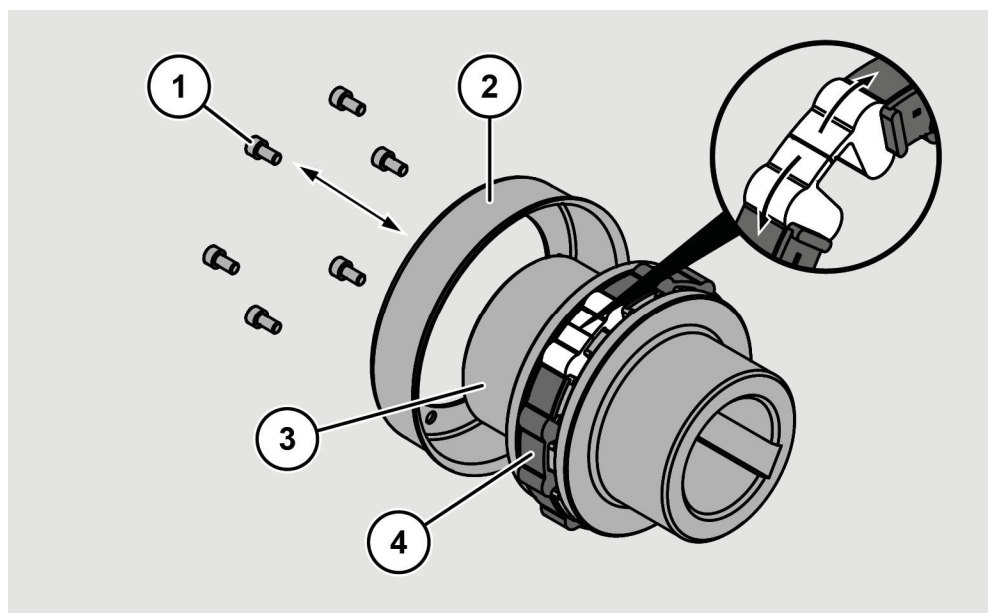
Proceed as follows to mount the new saddle elements (4):

- ▶ Place a saddle element (4) on top of a coupling claw so that its belt points to the hub body on the opposite side. It may be necessary to place the saddle element on top at an angle.
- ▶ Firmly press the saddle element (4) onto the coupling claw.
- ▶ Where necessary, use suitable tools such as a rubber mallet.
- ▶ Repeat these steps until all saddle elements are mounted.
- ▶ Slip the retaining cap (2) onto the hub body (3).
- ▶ Fasten the retaining cap (2) using the bolts (1).
- ▶ Tighten the bolts crosswise with the necessary torque, see page 32.
- ▶ Mark the bolts which have been tightened to the required torque in colour.

Replacing the toothed ring

Proceed as follows to disassemble the toothed ring:

- ▶ Disassemble the retaining cap (2) from the hub body (3).
- ▶ Loosen the bolts (1) for this purpose.
- ▶ Put the bolts (1) aside for later use.
- ▶ Slip the retaining cap (2) from the hub body (3) onto the shaft.
- ▶ Start at the parting line of the split toothed ring and lever the toothed ring out from the coupling claws.
- ▶ Where necessary, use suitable tools for this purpose.
- ▶ Retain the toothed ring (4) in a suitable container for subsequent disposal.



Proceed as follows to mount the new toothed ring (4):

- ▶ Place a rubber buffer on top of a coupling claw so that its belt points to the hub body on the opposite side. It may be necessary to place the rubber buffer on top at an angle.
- ▶ Firmly press the rubber buffer onto the coupling claw.
- ▶ Where necessary, use suitable tools such as a rubber mallet.
- ▶ Repeat these steps until all rubber buffers of the toothed ring are mounted.
- ▶ Slip the retaining cap (2) onto the hub body (3).
- ▶ Fasten the retaining cap (2) using the bolts (1).
- ▶ Tighten the bolts crosswise with the necessary torque, see page 32.
- ▶ Mark the bolts which have been tightened to the required torque in colour.

Completing the maintenance work

- ▶ Install the protection devices removed for the maintenance work, such as e.g. the guard on the coupling.
- ▶ Remove the tools and aids required for the maintenance work.

Proceed as follows to commission the coupling:

- ▶ Start the drive unit as specified by the owner.
- ▶ Check the coupling for low-noise and vibration-free running.
- ▶ If this is not the case, shut the drive unit off as specified by the owner.
- ▶ Search for the cause of the malfunction.
- ▶ Eliminate the malfunction.
- ▶ Repeat commissioning.

Cleaning the coupling

CAUTION!

Damage to the coupling due to improper cleaning.

- ▶ Make sure that the flexible elements do not come into contact with acids, alkalis or cleaners containing organic solvents.

The flexible elements can be damaged when using unsuitable cleaners. As a result, the surface can become so hot that a risk of explosion can occur.

- ▶ Make sure that the saddle elements do not come into contact with acids, alkalis, organic solvents, greases, oils or their vapours.
- ▶ Never clean the flexible elements with acids, alkalis or cleaners containing organic solvents
- ▶ Use a hand brush or cloth when cleaning the coupling.

Dismantling the coupling



DANGER

Danger to life due to falling or tipping loads.

- ▶ Pay attention to the centre of gravity of the load.
- ▶ Use a crane of adequate load-carrying capacity to lift the load.
- ▶ Use lifting gear of adequate load-carrying capacity to lift the load.
- ▶ Make sure that no persons are under suspended loads.

 To handle the coupling, follow the instructions on page 21.

- ▶ Obtain the work clearance permit from the responsible person prior to all work on and with the coupling.
- ▶ Switch the drive unit off.
- ▶ Secure the drive unit to prevent reactivation.
- ▶ Post up a caution sign indicating that work is in progress.
- ▶ Wear the personal protective equipment specified by the owner.
- ▶ Pull the drive unit and the driven machine so far apart that there is sufficient space for disassembly.
- ▶ Secure the components in a suitable manner to prevent them from falling down.
- ▶ Follow all instructions regarding the handling of individual coupling parts.
Pertinent information can be found in the *sections entitled Transporting the coupling* on page 21, *Storing the coupling* on page 24, *Mounting the coupling* on page 25 and *Replacing the flexible elements* on page 43.
- ▶ Put the components carefully down on the designated surface.

Disposing of the coupling

Dispose of the coupling through a certified specialist disposal company. Observe and comply with the country-specific regulations applicable to the place of use. If in doubt, contact your municipal or local administration.

Sort the coupling components according to their materials:

- Steel
 - Light alloy
 - Rubber
- ▶ Send the materials for recycling.

