

FLENDER COUPLINGS

RUPEX

Operating Instructions 3602en
Edition 10/2017

RWB, RBS



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Operating Instructions


RWB, RBS


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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.

 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.

 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.


If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Flender products

Note the following:

 WARNING
Flender products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Flender. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Flender GmbH. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Introduction

1.1 About these instructions

These instructions describe the coupling and provide information about its handling - from assembly to maintenance. Please keep these instructions for later use.

Please read these instructions prior to handling the coupling and follow the information in them.

1.2 Text attributes

The warning notice system is explained on the back of the inner cover. Always follow the safety information and notices in these instructions.

In addition to the warning notices, which have to be observed without fail, you will find the following text attributes in these instructions:

1. Procedural instructions are shown as a numbered list. Always perform the steps in the order given.

- Lists are formatted as bulleted lists.
 - The dash is used for lists at the second level.

(1) Numbers in brackets are part numbers.

Note

A note is an important item of information about the product, the handling of the product or the relevant section of the instructions. The note provides you with help or further suggestions/ ideas.

1.3 Copyright

The copyright for these instructions is held by Flender.

These instructions must not be used wholly or in parts without our authorisation or be given to third parties.

If you have any technical queries, please contact our factory or one of our service outlets (refer to Service and support (Page 55)).

Safety instructions

2.1 General information

Instructions

These instructions are part of the delivery. Always keep these instructions close to the coupling.

Please make sure that every person who is commissioned to work on the coupling has read and understood these instructions prior to handling the coupling and observes all of the points.

Only the knowledge of these instructions can avoid faults on the coupling and ensure fault-free and safe operation. Non-adherence to the instructions can cause product or property damage or personal injury. Flender does not accept any liability for damage or operating failures that are due to non-adherence to these instructions.







State of the art

The coupling described here has been designed in consideration of the latest findings for demanding technical requirements. This coupling is state-of-the-art at the time of printing these instructions.





In the interest of further development, Flender reserves the right to make such changes to the individual components and accessories that increase performance and safety whilst maintaining the essential features.

Symbols

Table 2-1 General warnings

ISO	ANSI	Warning
		Warning - hazardous electrical voltage
		Warning - explosive substances
	---	Warning - entanglement hazard
	---	Warning - hot surfaces
	---	Warning - substances that are harmful to health or are irritants

2.1 General information

ISO	ANSI	Warning
	---	Warning - corrosive substances
	---	Warning - suspended load
	---	Warning - hand injuries
		ATEX certification

Explanation regarding Machinery Directive 2006/42/EC

The couplings described here are “components” in accordance with the Machinery Directive and do not require a declaration of incorporation.

ATEX Directive

The term "ATEX Directive" used in these instructions stands for the harmonisation legislation of the European Union in compliance with the declaration of conformance for equipment and protective systems for correct use in hazardous zones.

Protective clothing

In addition to the generally prescribed personal protective equipment (safety shoes, overalls, helmet, etc.), also wear suitable safety gloves and safety goggles when handling the coupling.

Using the coupling

The relevant work safety and environmental protection regulations must be complied with at all times during transport, assembly, installation, dismantling, operation and maintenance of the coupling.

Only qualified personnel may operate, assemble, maintain and repair the coupling. Information about qualified personnel can be found in the legal notes at the beginning of these instructions.

If lifting gear or load suspension devices are used for transporting, these have to be suitable for the weight of the coupling.

If the coupling has visible damage, it may not be assembled or put into operation.

The coupling may only be operated in a suitable housing or with touch protection according to applicable standards. This also applies to test runs and rotational direction checks.

Work on the coupling

Only carry out work on the coupling when it is not in operation and is not under load.

Secure the drive unit against being switched on accidentally. Attach a notice to the switch stating clearly that work is being carried out on the coupling. Ensure that the entire unit is not under load.

2.2 Intended use

Only use the coupling according to the conditions specified in the service and delivery contract and the technical data in the annex. Deviating operating conditions are considered improper use. The user or owner of the machine or plant is solely liable for any resulting damage.

When using the coupling please specifically observe the following:

- Do not make any modifications to the coupling that go beyond the permissible machining described in these instructions. This also applies to touch protection facilities.
- Only use original spare parts from Flender. Flender only accepts liability for original spare parts from Flender.
Other spare parts are not tested and approved by Flender. Non-approved spare parts may possibly change the design characteristics of the coupling and thus impact active and/or passive safety.
Flender will accept no liability or warranty whatsoever for damage occurring as a result of the use of non-approved spare parts. The same applies to any accessories that were not supplied by Flender.

If you have any queries, please contact our customer service (see Service and support (Page 55)).

2.3 Safety instructions for a coupling for use in potentially explosive atmospheres

2.3.1 Marking

You can find a description of the coupling parts in chapter Description (Page 19).

A coupling designed in accordance with the ATEX Directive has a marking on the coupling parts.

Coupling part 1 (1) without electrically insulating buffers

One of the following markings is visible on the outer diameter of coupling part 1:

Version 1:

Flender GmbH

46393 Bocholt - Germany

FLENDER couplings RUPEX



II 2GD c IIC TX




I M2 c X

<Year of manufacture>

2.3 Safety instructions for a coupling for use in potentially explosive atmospheres


Version 2:

Flender GmbH	CE		II 2G c IIC T4/T5/T6 -30 °C ≤ Ta ≤ +80 °C/+70 °C/+55 °C
46393 Bocholt - Germany			II 2D c T 110 °C -30 °C ≤ Ta ≤ +80 °C
FLENDER couplings RUPEX			<Year of manufacture>


Coupling part 1 with buffers for low-temperature use

One of the following markings is visible on the outer diameter of coupling part 1:

Version 1:

Flender GmbH	CE		II 2GD c IIC TX
46393 Bocholt - Germany			I M2 c X
FLENDER couplings RUPEX			<Year of manufacture>

Version 2:

Flender GmbH	CE		II 2G c IIC T6 -50 °C ≤ Ta ≤ +50 °C
46393 Bocholt - Germany			II 2D c T 80 °C -50 °C ≤ Ta ≤ +50 °C
FLENDER couplings RUPEX			<Year of manufacture>


Coupling part 1 with electrically insulating buffers

One of the following markings is visible on the outer diameter of coupling part 1:

Version 1:

Flender GmbH	CE		II 2GD c IIB TX
46393 Bocholt - Germany			I M2 c X
FLENDER couplings RUPEX			<Year of manufacture>

Version 2:

Flender GmbH	CE		II 2G c IIB T4/T5/T6 -30 °C ≤ Ta ≤ +80 °C/+70 °C/+55 °C
46393 Bocholt - Germany			II 2D c T 110 °C -30 °C ≤ Ta ≤ +80 °C
FLENDER couplings RUPEX			<Year of manufacture>

Coupling part 3

Coupling part 3 is not stamped.

Undrilled or predrilled couplings

A coupling part with Ex marking, the letter "U" and the Flender order number has been delivered undrilled or predrilled.

Note

Undrilled or predrilled couplings with Ex marking

Flender only supplies an undrilled or predrilled coupling with Ex marking on the condition that the customer assumes the responsibility and liability for correct finishing work in a declaration of exemption.

2.3.2 Conditions of use

Note

Note also the material-dependent permissible ambient temperature of the buffers (5) in accordance with section RUPEX buffers (5) (Page 75).

A coupling designed in accordance with the ATEX Directive is suitable for the following conditions of use:

- Equipment group I
 - Category M2
- Equipment group II
 - Category 2 and 3
 - Group of substances G, zone 1 and 2
 - Group of substances D, zone 21 and 22
 - Explosion group IIA, IIB and IIC
 - Explosion group IIA and IIB when electrically insulating buffers are used

Conditions of use for products with TX marking

The maximum ambient temperature stated in the following tables applies to the temperature in the direct vicinity of the coupling and the temperature of adjacent components.

2.4 General warning notices

1. Gases, vapours or mists

Check the ambient temperature for use of the coupling in the relevant temperature class.

Table 2-2 Temperature classes (TX) for explosive atmospheres as a result of gases, vapours or mists

Max. ambient temperature	Temperature class
80 °C	T4
70 °C	T5
55 °C	T6

2. Dust/air mixtures

Check the ambient temperature.

Table 2-3 Maximum surface temperature (TX) for an explosive atmosphere as a result of dust/air mixtures

Max. ambient temperature	Max. surface temperature
80 °C	110 °C

Notes concerning operation of the coupling in potentially explosive atmospheres

- Only use the coupling underground in mines in potentially explosive atmospheres together with drive motors that can be switched off in the event of the formation of an explosive atmosphere.
- Earth machines that are connected via the coupling with a leakage resistance of less than 10⁶ Ω.
- If you want to use a coated coupling in potentially explosive atmospheres, please note the requirements concerning the conductivity of the paint and the limitation on the paint layer thickness applied in accordance with EN 13463-1. No build-up of electrostatic charges is to be expected with a paint layer thickness of less than 200 µm.
- The supplier of the assembly is responsible for ensuring that the system and all of its components are designed in accordance with the relevant directive.

2.4 General warning notices



<p>⚠ DANGER</p> <p>Danger due to bursting of the coupling</p> <p>The coupling may burst if it is not used properly. There is a risk of fatal injury from flying fragments. Bursting of the coupling can lead to an explosion in potentially explosive atmospheres.</p> <ul style="list-style-type: none"> • Use the coupling for the purpose for which it is intended.



⚠ DANGER

Risk of explosion when using coupling parts without Ex marking

Coupling parts without Ex marking have not been approved for use in potentially explosive atmospheres. These coupling parts can lead to an explosion during operation.

- Only use couplings with Ex marking in potentially explosive atmospheres.



⚠ DANGER

Danger

Risk of injury due to the use of unsuitable and/or damaged components. The use of unsuitable and/or damaged components can lead to an explosion in potentially explosive atmospheres.

- Observe the information regarding conditions of use.



⚠ DANGER

Danger of explosion

Improper operation of the coupling can lead to an explosion in potentially explosive atmospheres.

- Please observe the notes concerning operation of the coupling in potentially explosive atmospheres.



⚠ DANGER

Danger from hot coupling parts

Risk of injury due to hot surfaces. Hot coupling parts can lead to an explosion in potentially explosive atmospheres.

- Wear suitable protective equipment (gloves, safety goggles).
- Ensure that the area is not at risk of explosion.



⚠ WARNING

Risk of chemical burns due to chemical substances

There is a risk of chemical burns when handling aggressive cleaning agents.

- Please observe the manufacturer's information on how to handle cleaning agents and solvents.
- Wear suitable protective equipment (gloves, safety goggles).

⚠ CAUTION

Physical injury

Risk of injury due to falling coupling parts.

- Secure the coupling parts to prevent them from falling.

Description

The RUPEX couplings described here are torsionally flexible, damping pin and bush couplings and are available in various types and sizes. The couplings can be used in accordance with the ATEX Directive in potentially explosive atmospheres if they have a CE marking.

Types RWB and RBS are designs that feature a brake drum or brake disk (coupling part 3).

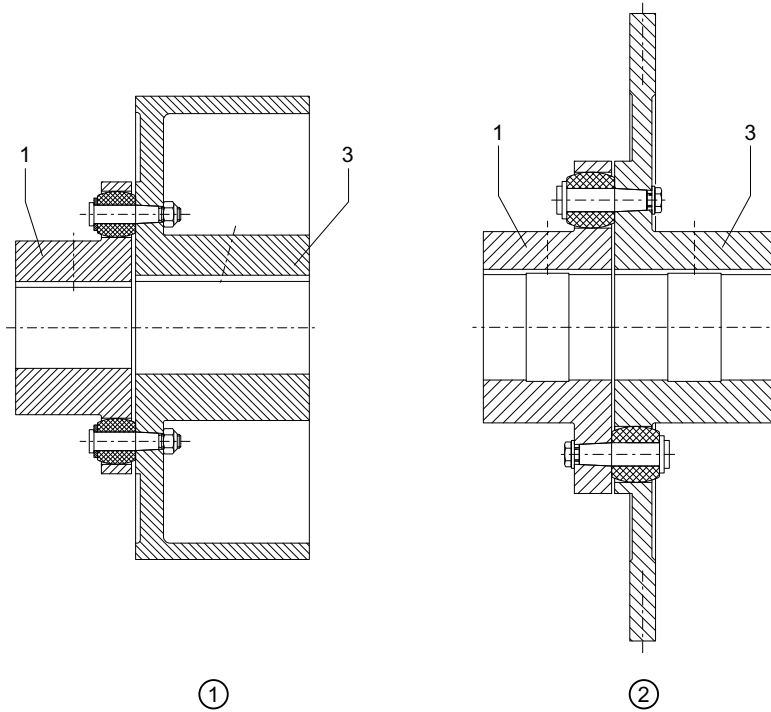
These instructions describe the assembly and operation of a RUPEX coupling arranged horizontally with a shaft-hub connection made by a cylindrical or conical bore with parallel key or by a pressurised oil interference fit. Please consult Flender if you want to use a different type of installation.

Application

RUPEX couplings are designed for use in all kinds of machines. They are designed to withstand high torques and harsh operating conditions.

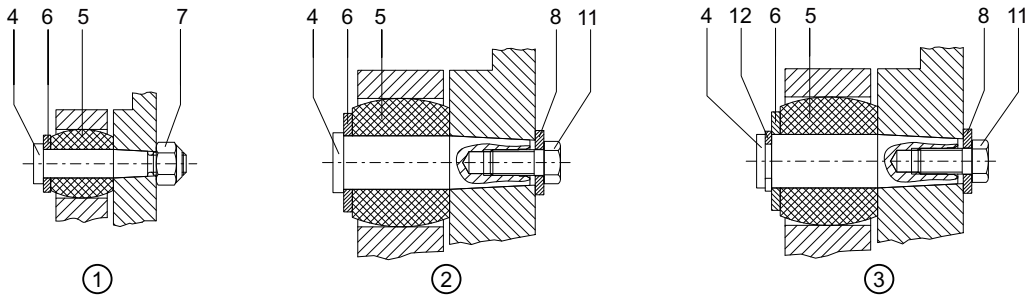
Design

The diagrams show the various types with their constituent parts and their part numbers.



- ① Types RWB and RBS with brake drum
- ② Types RWB and RBS with brake disk
- 1 Coupling part 1
- 3 Coupling part 3 (brake drum or brake disk)

Figure 3-1 Types RWB and RBS



- ① Bolt connection for sizes 144 to 400
- ② Bolt connection for sizes 450 to 630
- ③ Bolt connection for sizes 710 to 1000
- 4 Bolt
- 5 Buffer
- 6 Washer
- 7 Hexagon nut, self-locking
- 8 Washer
- 11 Hexagon head screw
- 12 Locking ring

Figure 3-2 Bolt connection

Application planning

Check the delivery for damage and for completeness. Report any damage and/or missing parts to Flender immediately.

The coupling is delivered in individual parts and preassembled groups. Preassembled groups may not be dismantled.

4.1 Transport of the coupling



	<p>WARNING</p> <p>Severe personal injury due to improper transport</p> <p>Severe personal injury due to falling components or due to crushing. Damage to coupling parts possible due to use of unsuitable transport means.</p> <ul style="list-style-type: none"> • Only use lifting gear and load suspension devices with sufficient load bearing capacity for transport. • Please observe the symbols applied on the packaging.
--	---

If not specifically contractually agreed otherwise, the packaging complies with the HPE Packaging Directive.

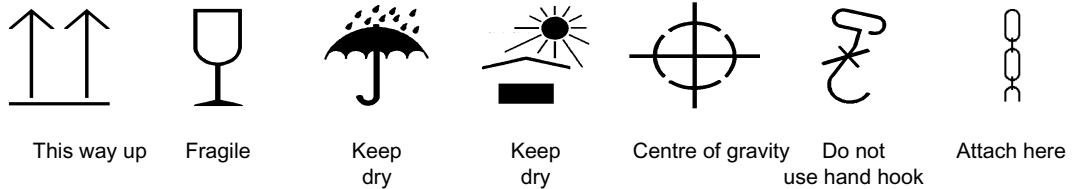


Figure 4-1 Transport symbols

4.2 Storage of the coupling

<p>NOTICE</p> <p>Property damage due to improper storage</p> <p>Negative changes to the physical properties of the coupling and/or coupling damage.</p> <ul style="list-style-type: none"> • Please observe the information about storing the coupling.
--

4.2 Storage of the coupling

The coupling, unless not specifically ordered otherwise, is supplied with preservation and can be stored for up to 3 months.

Note

Information about storing the coupling

- Ensure that the storage room is dry (relative humidity < 65 %) and free of dust.
- Ensure that there is no condensation.
- Do not store the coupling together with corrosive chemicals, acids, caustic solutions, etc.
- If the coupling contains elastomer components, ensure that there are no devices in the storage room that produce ozone, such as fluorescent lights, mercury vapour lamps or high-voltage electrical equipment.
- Store the coupling on suitable supports or in suitable containers.

Long-term storage

NOTICE
Property damage due to improper long-term storage
Negative changes to the physical properties of the coupling and/or coupling damage.
<ul style="list-style-type: none"> • Note the handling instructions for long-term storage.

1. You can find the required type of preservative agent in the following table (types of preservative agents for long-term storage).
2. Remove the elastomer components. These must not come into contact with cleaning agents and long-term preservative agents.
3. Clean the coupling parts.
4. Apply the stipulated preservative agent.
5. Store the coupling parts and the elastomer components separately.

Table 4-1 Types of preservative agents for long-term storage

Preservative agents	Features	Indoor storage	Outdoor storage
Oil spray	Anti-corrosion agent	Up to 12 months	Up to 4 months
Tectyl 846 or similar	Long-term preservative agent on wax basis	Up to 36 months	Up to 12 months
Emulsion cleaner + VCI foil	Active system, reusable	Up to 5 years	Up to 5 years

Assembly

Assembly of the coupling comprises the following steps:

- Preparatory work (Page 25)
- Assembling the coupling (Page 32)
- Aligning the coupling (Page 34)



! DANGER

Danger due to bursting of the coupling

If you do not observe the information stipulated here regarding assembly, this can lead to bursting of the coupling during operation. There is a risk of fatal injury from flying fragments. Bursting of the coupling can lead to an explosion in potentially explosive atmospheres.

- Please observe all the stipulations concerning assembly.

Note

Information about the assembly of the coupling

- Only use undamaged components for the assembly of the coupling.
- Follow the assembly sequence.
- Please ensure that there is sufficient space at the assembly location and that the location is tidy and clean in order to be able to assemble and maintain the coupling without any risk.
- If a dimension drawing has been created for the coupling, please observe the information it contains as a matter of priority.

5.1 Preparatory work

Note

Please consult Flender if you want to machine a conical finished bore.

Carry out the following steps if the coupling does not have a finished bore:

- Milling the parallel keyway (Page 26)
- Milling the parallel keyway (Page 27)
- Machining an axial locking mechanism (Page 28)
- Balancing the coupling (Page 30)

Note

The customer is responsible for execution of the finishing work on the coupling. Flender shall have no liability whatsoever for claims under warranty arising from finishing work that has not been carried out adequately.

5.1.1 Milling the parallel keyway

The diameter of the finished bore depends on the shaft used.


Recommended assigned fits

In the following table you can find the recommended assigned fits for bores with a parallel key connection. The assigned fit m6 / H7 is especially suitable for a host of applications.

Table 5-1 Recommended assigned fits for bores with parallel key connection

Description	Push fit		Press fit		Interference fit		
	Not suitable for reversing operation		Suitable for reversing operation				
Shaft tolerance	j6	h6	h6	k6	m6	n6	h6
Bore tolerance	H7	J7	K7	H7	H7	H7	M7

Procedure

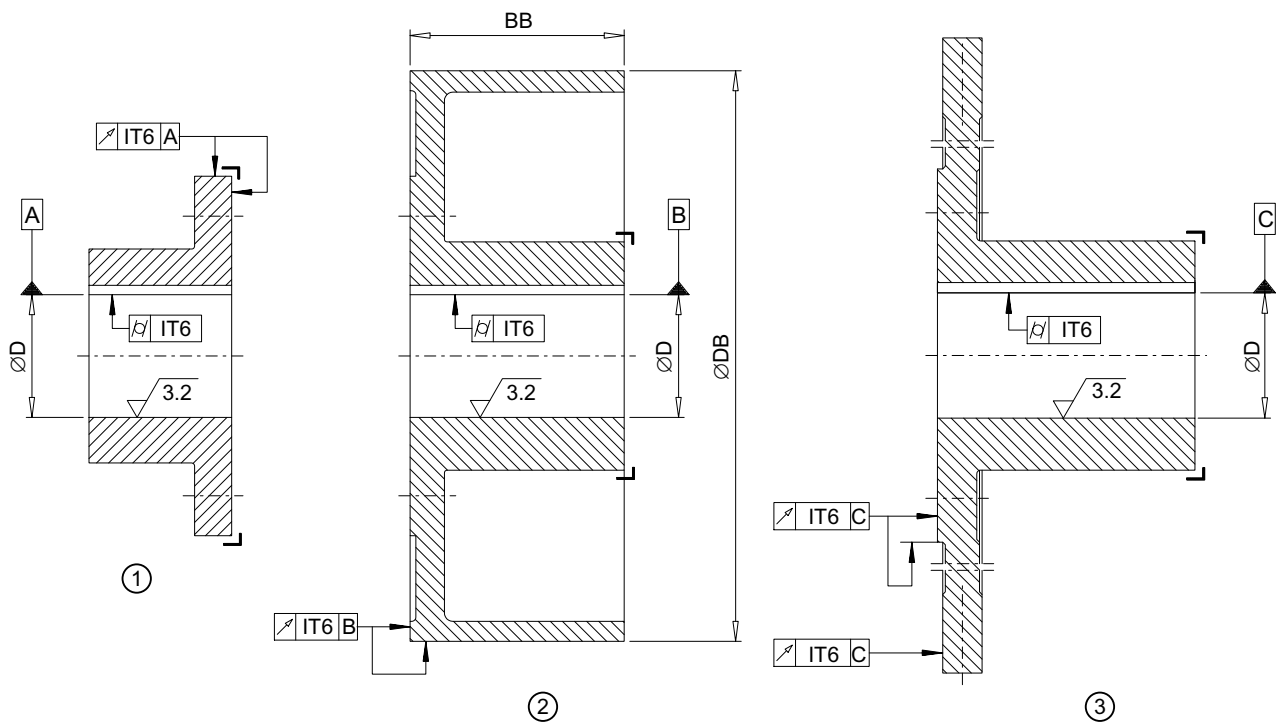
1. Remove the bolts (4) and the buffers (5). For further information, refer to section Replacing wearing parts (Page 46).
2. Remove the preservation and clean the coupling parts 1 (1) and/or 3 (3) to be machined.
3. Clamp the coupling to the areas marked with  in the diagram below.
4. Machine the finished bore in accordance with the diagram below.

Note

Diameter of the finished bore

The diameter of the finished bore may not exceed the specified maximum diameter.

- Please observe the maximum diameters specified in section Speeds, geometry data and weights (Page 65).



- ① Coupling part 1
- ② Coupling part 3 (brake drum)
- ③ Coupling part 3 (brake disk)

Figure 5-1 Tolerances for finished bore

5.1.2 Milling the parallel keyway

Position of the parallel keyway

Arrange the parallel keyway in the centre between two adjacent buffer fitting holes or bolt fitting holes.

Applicable standards

- If the coupling is intended for use under normal operating conditions, mill the parallel keyway according to DIN 6885/1 ISO JS9 in coupling part 1 (1).
- If the coupling is intended for use in reversing operation, mill the parallel keyway according to DIN 6885/1 ISO P9 in coupling part 1 (1).
- Mill the parallel keyway in coupling part 3 (3) in accordance with DIN 6885/1 ISO P9.
- If you want to mill a parallel keyway that does not correspond to DIN 6885/1, please consult Flender.

5.1.3 Machining an axial locking mechanism

The coupling part is secured by a set screw or an end plate to prevent axial movements.

Please consult Flender if you want to use an end plate.

Note the following when using a set screw:

- Diameter and axial position of the tapped hole in the hub
- Position of the tapped hole with respect to the parallel keyway
- Selection of the set screw

Diameter and axial position of the tapped hole in the hub

The axial position of the tapped hole is in the centre of the hub.

For types RWB and RBS with brake drum, machine the tapped hole in coupling part 3 (3) as shown in the following diagram.

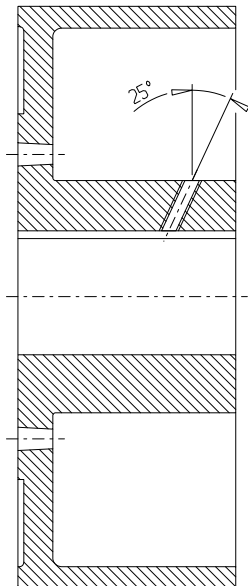


Figure 5-2 Angular position of the set screw hole in coupling part 3 (brake drum)

The following tables contain the values for the diameter of the tapped hole depending on the finished bore.

Table 5-2 Tapped hole, tightening torque and width A/F for type RWB

Finished bore		Tapped hole d_1	Tightening torque T_A Nm	Width across flats Hexagon socket wrench mm
over mm	up to mm			
8	30	M6	4	3
30	38	M8	8	4

Finished bore		Tapped hole d_1	Tightening torque T_A Nm	Width across flats Hexagon socket wrench mm
over mm	up to mm			
38	65	M10	15	5
65	95	M12	25	6
95	110	M16	70	8
110	150	M20	130	10
150	230	M24	230	12
230	600	M30	470	14

Apply the recommended tightening torques in accordance with the stipulations in section Tightening procedure (Page 74).

Table 5-3 Tapped hole, tightening torque and width A/F for type RBS


Finished bore		Tapped hole d_1	Tightening torque T_A Nm	Width across flats Hexagon socket wrench mm
over mm	up to mm			
8	30	M6	4	3
30	75	M8	8	4
75	95	M12	25	6
95	110	M16	70	8
110	150	M20	130	10
150	230	M24	230	12
230	640	M30	470	14

Apply the recommended tightening torques in accordance with the stipulations in section Tightening procedure (Page 74).

Position of the tapped hole with respect to the parallel keyway

The tapped hole for the set screw is positioned on the parallel keyway.

Selection of the set screw

	<p>CAUTION</p> <p>Physical injury</p> <p>Danger of injury from protruding set screw.</p> <ul style="list-style-type: none"> • Please observe the information about selecting the set screw.
---	--

As set screws use threaded studs in accordance with ISO 4029 with a toothed cup point. The size of the set screw is determined by the bore made. The set screw should fill out the tapped hole as much as possible and must not protrude beyond the hub.

5.1.4 Balancing the coupling

Notes on balancing the coupling

NOTICE
Damage to coupling part 1 (1) or coupling part 3 (3)
If you completely drill through the flange on coupling part 1 (1), then coupling part 1 (1) is no longer allowed to be used for operation. If you damage the braking surface on coupling part 3 (3), then coupling part 3 (3) is no longer allowed to be used for operation.
<ul style="list-style-type: none">• Please observe the stipulations about machining the balancing hole.

Please note the following when balancing the coupling:

- Select the balancing quality according to the application (but at least G16 in accordance with DIN ISO 21940).
- Observe the balancing specification according to DIN ISO 21940-32.
- Machine the balancing bore on a large radius with adequate clearance to the buffer fitting holes, the bolt fitting holes and the outer circumference.

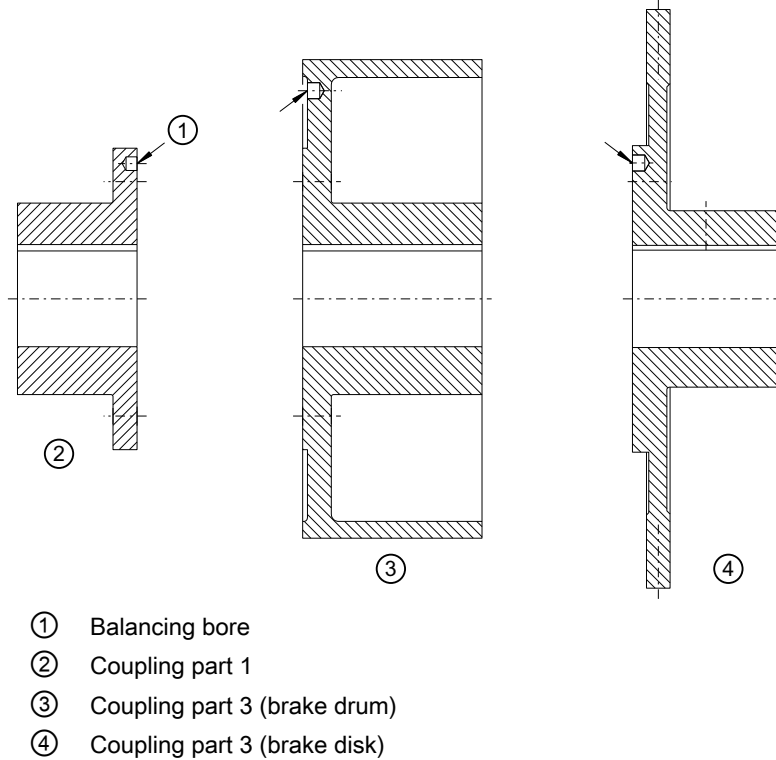


Figure 5-3 Position of the balancing bore for single-plane balancing

5.2 Assembling the coupling

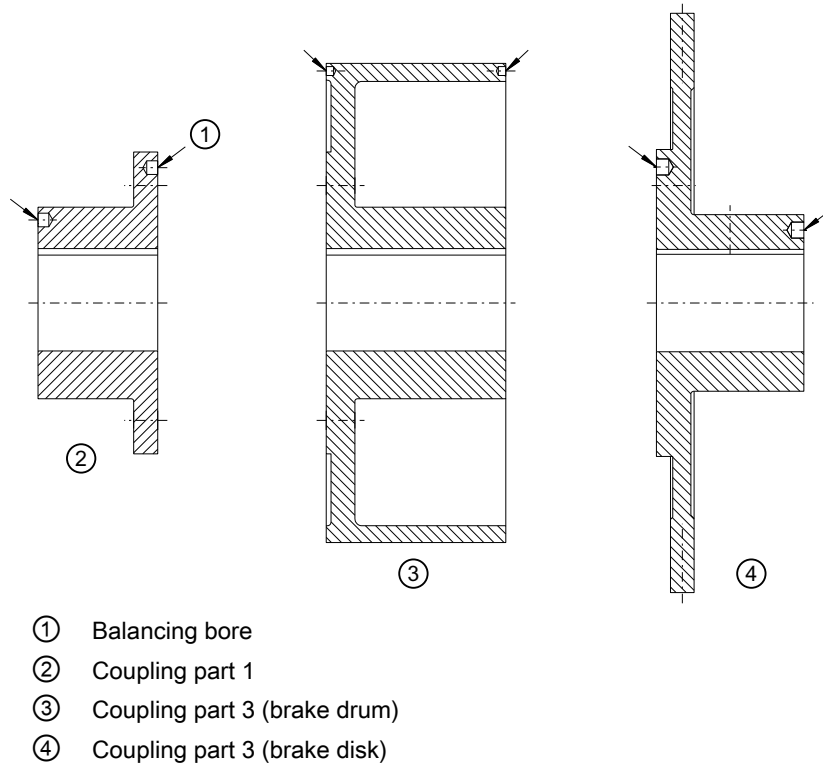


Figure 5-4 Position of the balancing bore for two-plane balancing

Note

A better balancing result can be achieved by balancing with bolt (4) fitted. When balancing all parts together, mark the bolt (4) and the bolt fitting hole.

5.2 Assembling the coupling

NOTICE
Property damage Damage to the elastomer components from cleaning agents. <ul style="list-style-type: none">• Ensure that the elastomer components do not come into contact with cleaning agents.
NOTICE
Property damage Damage to the shaft end, the coupling parts and/or the parallel key. <ul style="list-style-type: none">• Note the handling instructions regarding assembly of the coupling parts.

The procedure for assembling the coupling parts varies depending on the selected shaft-hub connection.

- Assembling coupling parts with shaft and hub connected by a parallel key (Page 33)
- Assembling coupling parts with shaft and hub connected by a pressurised oil interference fit (Page 34)

5.2.1 Assembling coupling parts with shaft and hub connected by a parallel key

Procedure

1. Unscrew the set screw until it is no longer possible for there to be a collision with the parallel key or the shaft.
2. Clean the bores and shaft ends.
3. Coat the bores of coupling parts 1 (1) and/or 3 (3) and the shafts with MoS₂ assembly paste (e.g. Microgleit LP 405).
4. Mount the coupling parts 1 (1) and/or 3 (3) on the shaft.

Note

Coupling parts with conical bore

Mount the coupling parts 1 (1) and/or 3 (3) with conical bore and parallel keyway on the shaft in cold condition. Secure the coupling parts with suitable end plates without pulling the coupling parts further onto the cone (fitting dimension = 0).

Note

Coupling parts with cylindrical bore

To make assembly easier, you can heat coupling parts 1 (1) and/or 3 (3) with cylindrical bore up to a maximum of 150 °C if required. Note when doing this the temperature range of the buffers (5) (see section RUPLEX buffers (5) (Page 75)). Remove the buffers (5) if necessary. For further information, refer to section Replacing wearing parts (Page 46). Protect adjacent components against damage and heating to temperatures above 80 °C.

5. Secure the coupling parts 1 (1) and/or 3 (3) with a set screw or an end plate. When securing with a set screw, the shaft must not protrude or be set back from the inner side of the hub.
6. Tighten up the set screw or the screw to attach the end plate to the specified tightening torque T_A (for the set screw please see section Machining an axial locking mechanism (Page 28)).
7. If you have removed the buffers (5), reinstall them. For further information, refer to section Replacing wearing parts (Page 46).

5.2.2 Assembling coupling parts with shaft and hub connected by a pressurised oil interference fit

Procedure

1. Remove the buffers (5). For further information, refer to section Replacing wearing parts (Page 46).
2. Remove the screw plugs (101) and/or (301) from the coupling parts 1 (1) and/or 3 (3).
3. Clean, degrease, de-oil and dry the hub bores and shaft ends.
4. Clean and dry the oil channels and the oil circulation grooves.
5. Protect adjacent components against damage and heating to temperatures above 80 °C.
6. Heat up the coupling parts 1 (1) and/or 3 (3) to the temperature specified in the dimension drawing.
Make sure that no dirt or contaminants can soil the bores again during the heating process.
7. Mount the coupling parts 1 (1) and/or 3 (3) quickly on the shaft according to the instructions in the dimension drawing.
8. Secure the coupling parts to stop them from moving until they have cooled down.
9. Allow the coupling parts to cool down to the ambient temperature.
10. Use an end plate to secure the coupling parts that have a non-self-locking, tapered pressurised oil interference fit.
11. In order to protect the oil channels of the coupling parts 1 (1) and/or 3 (3) against corrosion, fill them with a suitable pressurised oil and seal the oil channels with the screw plugs (101) and/or (301).
12. Assemble the buffers (5). For further information, refer to section Replacing wearing parts (Page 46).

5.3 Aligning the coupling

5.3.1 Purpose of alignment

The shafts that are joined by the coupling are never on an ideal precise axis but have a certain amount of misalignment.

Misalignment in the coupling leads to restoring forces that can stress adjacent machine parts (e.g. the bearings) to an unacceptable extent.

The misalignment values in operation result from the following:

- Misalignment due to assembly
Incorrect position due to a lack of precision when aligning
- Misalignment due to operation
Example: Load-related deformation, thermal expansion

You can minimise misalignment by aligning after assembly. A lower misalignment in the coupling has the following advantages:

- Reduced wear of the elastomer components
- Reduced restoring forces
- Misalignment reserves for operation of the coupling

You can find the maximum permitted shaft misalignment values during operation in section Shaft misalignment values during operation (Page 72).

5.3.2 Possible misalignment

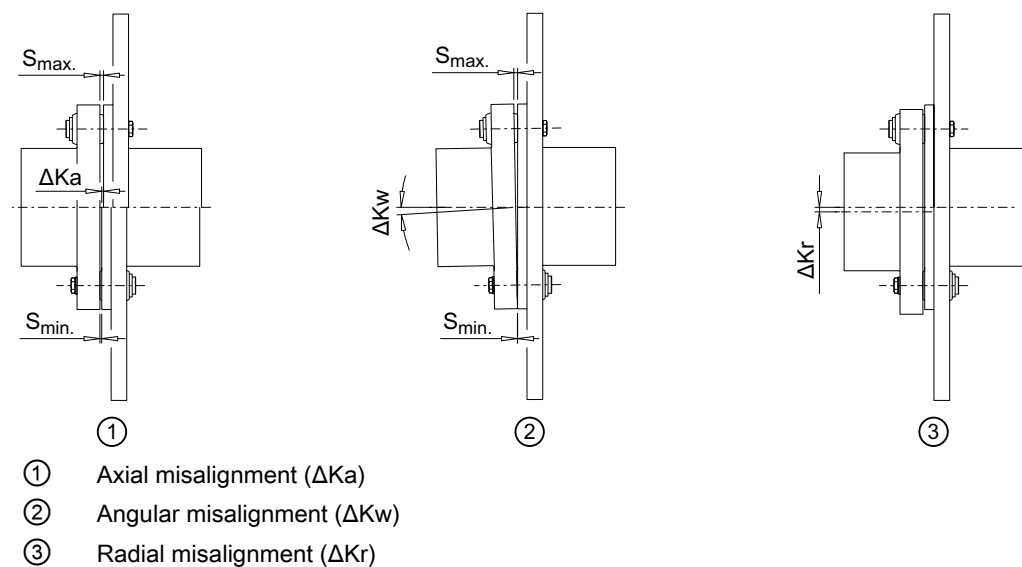


Figure 5-5 Possible misalignment

5.3.2.1 Axial misalignment

Set the axial misalignment ΔK_a to a value within the permissible tolerance range of dimension S .

You can find the values for dimension S in section Speeds, geometry data and weights (Page 65).

5.3.2.2 Angular misalignment

Determine the value ΔS ($\Delta S = S_{\max} - S_{\min}$). The determined value ΔS may not exceed the value ΔS_{perm} .

You can find the values for ΔS_{perm} in section Shaft misalignment values during operation (Page 72).

If required, you can calculate the angular misalignment ΔK_w as follows:

5.3 Aligning the coupling

$$\Delta K_w [\text{rad}] = \Delta S / DA$$

$$\Delta K_w [\text{deg}] = (\Delta S / DA) \cdot (180 / \pi)$$

If required, you can calculate the permissible angular misalignment $\Delta K_{w_{\text{perm}}}$ as follows:

$$\Delta K_{w_{\text{perm}}} [\text{rad}] = \Delta S_{\text{perm}} / DA$$

$$\Delta K_{w_{\text{perm}}} [\text{deg}] = (\Delta S_{\text{perm}} / DA) \cdot (180 / \pi)$$

DA in mm see section Speeds, geometry data and weights (Page 65)

ΔS_{perm} see section Shaft misalignment values during operation (Page 72)

5.3.2.3 Radial misalignment

Determine the value ΔK_r . The determined value ΔK_r may not exceed the value $\Delta K_{r_{\text{perm}}}$.

You can find the permissible radial misalignment $\Delta K_{r_{\text{perm}}}$ in section Shaft misalignment values during operation (Page 72).



! DANGER

Danger due to igniting deposits

During use in potentially explosive atmospheres deposits from heavy metal oxides (rust) can ignite due to friction, impact or friction sparks and lead to an explosion.

- Ensure through the use of an enclosure or other suitable measures that the deposition of heavy metal oxides (rust) on the coupling is not possible.

In order to ensure safe commissioning, carry out various tests prior to commissioning.

Testing before commissioning



! DANGER

Danger

Overload conditions can occur during the commissioning of the coupling. The coupling can burst and metal parts can be flung out. There is a risk of fatal injury from flying fragments. Bursting of the coupling can lead to an explosion in potentially explosive atmospheres.

- Carry out the tests prior to commissioning.
- Do not touch the rotating coupling.

1. Check the tightening torques of the screws of the coupling in accordance with section Tightening torques and widths A/F (Page 73).
2. Check the tightening torques of the foundation bolts of the coupled machines.
3. Check whether the enclosures (coupling guard, touch protection) have been installed and that the function of the coupling has not been adversely affected by the enclosure. This also applies to test runs and rotational direction checks.

Operation

7.1 Normal operation of the coupling

The coupling runs quietly and shock-free during normal operation.

7.2 Faults - causes and rectification

A form of behaviour which is different to normal operation is classed as a fault and has to be rectified immediately.

Look out specifically for the following faults during coupling operation:

- Unusual coupling noise
- Sudden occurrence of shocks

7.2.1 Procedure in the event of malfunctions



DANGER

Danger due to bursting of the coupling

There is a risk of fatal injury from flying fragments. Bursting of the coupling can lead to an explosion in potentially explosive atmospheres.

- Switch off the unit at once if any malfunctions occur.
- Note during the maintenance work the possible causes of faults and the notes on rectifying them.

Proceed as described below if there is a malfunction of the coupling during operation:

1. De-energise the drive immediately.
2. Initiate the required action for repair, taking into consideration the applicable safety regulations.

If you cannot determine the cause or if you cannot carry out repair work with your own means, request one of our customer service technicians.

7.2.2 Identifying the fault cause

Faults occur frequently due to application errors or they occur due to operational circumstances such as wear of wearing parts or changes to the system.

The faults and fault causes listed below only serve as an indication for troubleshooting. In the case of a complex system be sure to include all the system components in the search for the fault.



<p>! WARNING</p> <p>Physical injury</p> <p>Injury from rotating parts.</p> <ul style="list-style-type: none"> • Only carry out work on the coupling when it is not moving. • Secure the drive unit against being operated accidentally. • Attach a notice to the switch stating clearly that work is being carried out on the coupling. • Before starting any work, make sure that the unit is free from loads.

Intended use

The coupling is only approved for the applications specified in these instructions. Please observe all the stipulations in section Intended use (Page 13).

7.2.2.1 Possible faults

Table 7-1 Table of faults

Fault	Cause	Rectification
Sudden changes in the noise level and/or sudden occurrences of shocks	Wear of wearing parts	Follow the instructions given in section Replacing wearing parts (Page 42).
	Changed alignment	Follow the instructions given in section Correcting the changed alignment (Page 43).
	Coupling not suitable for the operating conditions. Check the possible causes given in section Unsuitable coupling (Page 41).	Use a coupling that is suitable for the operating conditions.
	Incorrect assembly of the coupling. Check the possible causes given in sections Assembly-related causes (Page 41) and Specific installation-related and maintenance-related causes (Page 42).	Reassemble the coupling in accordance with these instructions. Please observe all the stipulations and requirements given in chapter Assembly (Page 25).
	Incorrect maintenance of the coupling. Check the possible causes given in sections Maintenance-related causes (Page 42) and Specific installation-related and maintenance-related causes (Page 42).	Please observe all the stipulations and requirements given in chapter Servicing (Page 45).

Fault	Cause	Rectification
Presence of vibration	Coupling not suitable for the operating conditions. Check the possible causes given in section Unsuitable coupling (Page 41).	Use a coupling that is suitable for the operating conditions.
	Incorrect assembly of the coupling. Check the possible causes given in sections Assembly-related causes (Page 41) and Specific installation-related and maintenance-related causes (Page 42).	Reassemble the coupling in accordance with these instructions. Please observe all the stipulations and requirements given in chapter Assembly (Page 25).
	Incorrect maintenance of the coupling. Check the possible causes given in sections Maintenance-related causes (Page 42) and Specific installation-related and maintenance-related causes (Page 42).	Please observe all the stipulations and requirements given in chapter Servicing (Page 45).

7.2.2.2 Possible causes

Unsuitable coupling

- Important information on the description of the drive unit and the environment were not available when the coupling was chosen.
- System torque too high and/or torque dynamics not permissible.
- System speed too high.
- Application factor not selected correctly.
- Chemically aggressive environment not taken into consideration.
- Coupling not suitable for the ambient temperature.
- Diameter and/or assigned fit of the finished bore not permissible.
- Width across corners of the parallel keyways greater than the width across corners of the parallel keyways in accordance with DIN 6885/1 for the maximum permissible bore.
- Shaft-hub connection incorrectly sized.
- Maximum permissible load conditions not taken into consideration.
- Maximum permissible overload conditions not taken into consideration.
- Dynamic load conditions not taken into consideration.
- Coupling and the machine and/or drive train form a critical torsional, axial or bending vibration system.

Assembly-related causes

- Damaged parts installed.
- Shaft diameter outside the stipulated tolerance range.

- Coupling parts interchanged and hence not assigned to the specified shaft.
- Stipulated locking elements to prevent axial movements not installed.
- Stipulated tightening torques not adhered to.
- Bolts inserted dry or greased.
- Flange surfaces of screwed connections not cleaned.
- Alignment and/or shaft misalignment values not set in accordance with the instructions.
- Coupled machines were not correctly connected to the foundation so that a shifting of the machines leads to an impermissible displacement of the coupling parts.
- Coupled machines not earthed adequately.
- Coupling guard used is not suitable.

Maintenance-related causes

- Stipulated maintenance intervals not adhered to.
- Spare parts that were used were not original spare parts from Flender.
- Flender spare parts that were used were old or damaged.
- Leak in the area of the coupling not detected so that chemically aggressive substances damage the coupling.
- Indications of faults, such as noise or vibration, were not heeded.
- Stipulated tightening torques not adhered to.
- Alignment and/or shaft misalignment values not set in accordance with the instructions.

Specific installation-related and maintenance-related causes

- Buffers (5) not fitted.
- Fitted buffers (5) heated up excessively when applying heat to the coupling parts.
- Buffers (5) are of different types or age.
- Buffers (5) not replaced as sets.

7.2.3 Correcting faults

7.2.3.1 Replacing wearing parts

Buffers (5) are subject to wear and this wear can result in torsional backlash.

Procedure

1. Check the wear on the buffers (5) (see section Maximum permissible torsional backlash (Page 46)).
2. Replace the buffers (5) where appropriate (see section Replacing wearing parts (Page 46)).

7.2.3.2 Correcting the changed alignment


A changed alignment of the coupling during operation often occurs when the coupled machines shift towards one another. A cause of this can be loose foundation bolts.

Procedure


1. Correct the cause for the change in alignment.
2. Check the wearing parts for wear and replace them as required.
3. Check the locking elements that prevent axial movements and correct these as required.
4. Realign the coupling.

8.1 Maintenance intervals




 DANGER
<p>Danger due to bursting of the coupling</p> <p>The coupling can burst if the maintenance intervals are not adhered to. There is a risk of fatal injury from flying fragments. Bursting of the coupling can lead to an explosion in potentially explosive atmospheres.</p> <ul style="list-style-type: none"> • Please observe all the stipulations concerning maintenance of the coupling in this section.



 DANGER
<p>Danger due to bursting of the coupling</p> <p>The coupling can burst if the maximum permitted torsional backlash is exceeded. There is a risk of fatal injury from flying fragments. Bursting of the coupling can lead to an explosion in potentially explosive atmospheres.</p> <ul style="list-style-type: none"> • Note also the actual wear of the elastomer components.



 WARNING
<p>Physical injury</p> <p>Injury from rotating parts.</p> <ul style="list-style-type: none"> • Only carry out work on the coupling when it is not moving. • Secure the drive unit against being operated accidentally. • Attach a notice to the switch stating clearly that work is being carried out on the coupling. • Before starting any work, make sure that the unit is free from loads.

Check the torsional backlash between the coupling halves at the specified maintenance intervals. The maximum permissible torsional backlash for the various coupling sizes can be found in section Maximum permissible torsional backlash (Page 46).

Table 8-1 Maintenance intervals

Type	Initial maintenance	Follow-up maintenance
RWB	3 months after commissioning	Every 12 months
RBS		

Note

Shorter maintenance intervals

If necessary, set shorter maintenance intervals depending on actual wear.

8.2 Maximum permissible torsional backlash

In order to calculate the torsional backlash, rotate one coupling part without applying torque up to the stop. Mark both of the coupling halves in the way shown in the diagram below. Turn the coupling part in the opposite direction up to the stop. The markings on both halves will then move apart. The distance between the markings corresponds to the torsional backlash.

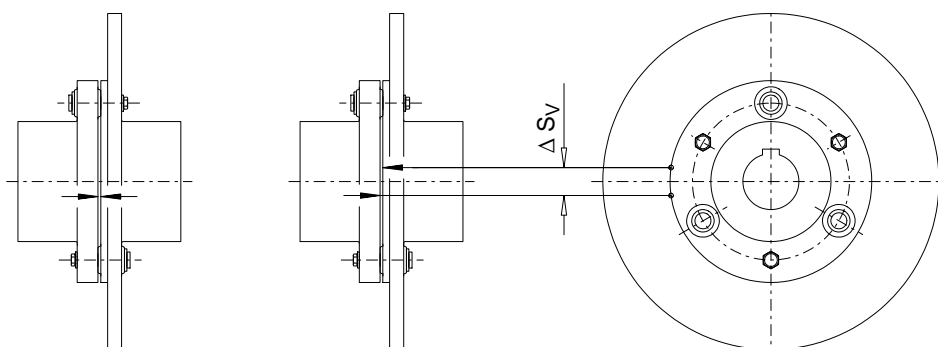


Figure 8-1 Markings for calculating the torsional backlash

Table 8-2 Maximum permissible torsional backlash for the types RWB and RBS

Size	144	162 198	228 252	285 320	360 400	450 500	560 630	710 800	900 1 000
Maximum permissible torsional backlash ΔS_v [mm]	3.5	4.0	4.5	6.0	7.0	8.5	10.0	12.0	13.5

8.3 Replacing wearing parts



<p>⚠ DANGER</p> <p>Danger due to bursting of the coupling</p> <p>If you do not observe the information stipulated here regarding replacement of wearing parts, this can lead to bursting of the coupling during operation. There is a risk of fatal injury from flying fragments. Bursting of the coupling can lead to an explosion in potentially explosive atmospheres.</p> <ul style="list-style-type: none"> • Please observe all the stipulations concerning the replacement of wearing parts.
--

Replace the buffers (5) if the maximum permissible torsional backlash has been reached. The method used to replace the buffers (5) and remove the bolts (4) varies according to the coupling size.

- Up to coupling size 400
Replacing buffers (5) up to coupling size 400 (Page 47)
- From coupling size 450 to 630
Replacing buffers (5) as of coupling size 450 to 630 (Page 47)
- From coupling size 710
Replacing buffers (5) as of coupling size 710 (Page 48)

8.3.1 Replacing buffers (5) up to coupling size 400

Procedure

1. Remove the hexagon nuts (7).
2. Remove the bolts (4) with the washers (6) and the buffers (5) through the buffer fitting holes.
3. Pull the buffers (5) off the bolts (4).
4. Clean the bolts (4), the washers (6), the buffer fitting holes and the bolt fitting holes in the coupling parts 1 (1) and/or 3 (3).
5. Mount new buffers (5) on the bolts (4).
Please observe the information in section Use and storage of the buffers (5) (Page 74) when replacing the buffers (5).
6. Insert the bolts (4) with the washers (6) and the buffers (5) through the buffer fitting holes into the bolt fitting holes. Observe any markings that might be provided.
7. Secure the bolts (4) with new hexagon nuts (7) of the same quality.
8. Tighten the hexagon nuts (7) to the specified tightening torque T_A (see section Tightening torques and widths A/F (Page 73)).

8.3.2 Replacing buffers (5) as of coupling size 450 to 630

NOTICE
<p>Blockage of cross bore of bolts (4)</p> <p>The liquid screw locking agent can seal the cross bore of the bolts (4). Pressing out the bolts (4) with grease then becomes difficult or completely impossible.</p> <ul style="list-style-type: none"> • Apply only a small quantity of the liquid screw locking agent to the screws (11).

When removing the bolts (4), please observe the information in section Pressing out bolts (Page 49).

Procedure

1. Remove the hexagon head screws (11) and the washers (8).
2. Remove the bolts (4) with the buffers (5) through the buffer fitting holes.
3. Pull the buffers (5) off the bolts (4).
4. Clean the bolts (4), the washers (6), the buffer fitting holes and the bolt fitting holes in the coupling parts 1 (1) and/or 3 (3).
5. Mount new buffers (5) on the bolts (4). Please observe the information in section Use and storage of the buffers (5) (Page 74) when replacing the buffers (5).
6. Insert the bolts (4) with the washers (6) and the buffers (5) through the buffer fitting holes into the bolt fitting holes. Observe any markings that might be provided.
7. Push the washers (8) onto the screws (11).
8. Apply a small quantity of liquid screw locking agent (e.g. Loctite 243 medium strength) to the screws (11).
9. Secure the bolts (4) with the screws (11) and washers (8).
10. Tighten the screws (11) to the specified tightening torque T_A (see section Tightening torques and widths A/F (Page 73)).

8.3.3 Replacing buffers (5) as of coupling size 710

You can use the following methods to replace the buffers (5) on couplings of size 710 or larger.

- Replacing buffers (5) without removing the bolts (4) (Page 48)
- Replacing buffers (5) with removal of the bolts (4) (Page 49)

8.3.3.1 Replacing buffers (5) without removing the bolts (4)

Procedure

1. Remove the locking rings (12) and the washers (6).
2. Pull out the buffers (5) through the buffer fitting holes.
3. Clean the bolts (4) and the buffer fitting holes in the coupling parts 1 (1) and/or 3 (3).
4. Mount new buffers (5) on the bolts (4). Please observe the information in section Use and storage of the buffers (5) (Page 74) when replacing the buffers (5).
5. Secure the buffers (5) with the washers (6) and the locking rings (12).

8.3.3.2 Replacing buffers (5) with removal of the bolts (4)

NOTICE**Blockage of cross bore of bolts (4)**

The liquid screw locking agent can seal the cross bore of the bolts (4). Pressing out the bolts (4) with grease then becomes difficult or completely impossible.

- Apply only a small quantity of the liquid screw locking agent to the screws (11).

Procedure

1. Remove the bolts (4). Please observe the relevant information in section Pressing out bolts (Page 49).
2. Remove the locking rings (12) and the washers (6).
3. Pull the buffers (5) off the bolts (4).
4. Clean the bolts (4), the washers (6), the locking rings (12), the buffer fitting holes and the bolt fitting holes in the coupling parts 1 (1) and/or 3 (3).
If old bolts (4) are to be reused, the tapped holes and cross bores must be completely free of any residues of grease or liquid screw locking agent.
5. Mount new buffers (5) on the bolts (4). Please observe the information in section Use and storage of the buffers (5) (Page 74) when replacing the buffers (5).
6. Secure the buffers (5) with the washers (6) and the locking rings (12).
7. Insert the bolts (4) with the buffers (5) into the bolt fitting holes. Observe any markings that might be provided.
8. Push the washers (8) onto the screws (11).
9. Apply a small quantity of liquid screw locking agent (e.g. Loctite 243 medium strength) to the screws (11).
10. Secure the bolts (4) with the screws (11) and washers (8).
11. Tighten the screws (11) to the specified tightening torque T_A (see section Tightening torques and widths A/F (Page 73)).

8.3.4 Pressing out bolts

The bolts (4) for coupling sizes 450 to 1 000 have cross bores that make it easier to press out the bolts (4).

8.3.4.1 Pressing out bolts (4) with the "demounting box"


Flender can supply a "demounting box" which is a hydraulic press-out fixture for removing bolts. Flender can supply the demounting box on request.

Note


Separate operating instructions


If you use the "demounting box" to remove the bolts (4), please observe the operating instructions BA 3600.1, "Demounting box for extraction of RUPEX bolts".

8.3.4.2 Pressing out bolts (4) with grease

 WARNING
Risk of injury from flying bolts (4) Loose bolts (4) can become detached from the coupling and fly through the air like a projectile. <ul style="list-style-type: none">• Secure the bolt axially by placing the washer (8) over screw (11) before you insert the screw (11) into the tapped hole of the bolt.



 WARNING
Risk of crush injuries as a result of bolt (4) suddenly working loose If bolt (4) suddenly works loose, the screw (11) and the washer (8) can be abruptly set in motion. <ul style="list-style-type: none">• While you are pressing out bolts, do not place your hands in the area around bolt (4), screw (11) or washer (8).

 WARNING
Risk of injury When you are pressing out the bolts (4), grease can escape under high pressure. If bolt (4) suddenly works loose, fragments can become detached and fly through the air at high speed. <ul style="list-style-type: none">• Wear safety goggles.

Procedure

1. Remove the hexagon head screws (11) and the washers (8).
2. Clean the tapped holes of the bolts (4) until they are free of all residues.
3. Fill the tapped hole of a bolt (4) to 90 % with commercially available machine grease (e.g. Fuchs Renolit H443-HD-88).
4. Wrap screw (11) in Teflon tape or Teflon sealing cord.
5. Place a washer (8) as an axial locking element over screw (11).

6. Insert the screw (11) with the washer (8) into the bolt (4) and tighten manually by two to three turns.
7. Using a spanner, continue turning the screw (11) slowly into the thread so that the grease is pressed evenly through the cross bore between the bolt (4) and the bolt fitting hole of the coupling part 1 (1) and/or 3 (3).
The bolt (4) is released suddenly and makes a loud noise.
8. Repeat the process in the order specified for all the installed bolts (4).

8.3.4.3 Potential problems when pressing out bolts (4) with grease

Problem	Cause	Possible solutions
Bolt (4) is not released despite the fact that the screw is fully inserted.	Pressure is too low to release the bolt (4).	<ul style="list-style-type: none"> • Use a longer screw (11) (minimum strength class 8.8). • Fill more grease into the tapped hole of the bolt (4).
Bolts (4) are difficult or impossible to release.	Liquid locking agent for screws (11) has sealed the cross bore.	Clean the tapped hole and the cross bore of the bolt (4).
Grease is escaping. The bolt (4) is not released.	The tapped hole is not sufficiently sealed.	<ol style="list-style-type: none"> 1. Remove the screw (11). 2. Seal the screw (11) again in Teflon tape or Teflon sealing cord. 3. Press out the bolt (4) again with grease.


8.4 Removing coupling part 1 (1) or 3 (3)

The procedure to be followed depends on the existing shaft-hub connection:

- Removing coupling part 1 (1) or 3 (3) with shaft and hub connected by a parallel key (Page 52)
- Removing coupling part 1 (1) or 3 (3) with shaft and hub connected by a pressurised oil interference fit (Page 52)

8.4.1 Removing coupling part 1 (1) or 3 (3) with shaft and hub connected by a parallel key



 WARNING
Danger from burners and hot coupling parts
Risk of injury due to burners and hot surfaces. Burners or hot coupling parts can lead to an explosion in potentially explosive atmospheres.
<ul style="list-style-type: none">• Wear suitable protective equipment (gloves, safety goggles).• Ensure that the area is not at risk of explosion.


Procedure

1. Move the coupled machines apart.
2. Secure the coupling parts to prevent them from falling.
3. Remove the axial locking element (set screw, end plate).
4. Use a suitable pulling fixture.
5. Heat up the coupling part 1 (1) and/or 3 (3) using a burner above the parallel keyway along its length to maximum 80 °C.
Note when doing this the permissible temperature range of the buffers (5) (refer to section RUPLEX buffers (5) (Page 75)). Remove the buffers (5) if necessary.
6. Pull off the coupling part 1 (1) and/or 3 (3). Use suitable lifting gear when doing this.
7. Check the hub bore and the shaft for damage and protect them against corrosion.
8. Replace any damaged parts.

When reinstalling the coupling parts please observe the information in chapters Assembly (Page 25) and Commissioning (Page 37).

8.4.2 Removing coupling part 1 (1) or 3 (3) with shaft and hub connected by a pressurised oil interference fit



 DANGER
Oil pressure in excess of maximum permissible value
The coupling can burst. There is a risk of fatal injury from flying fragments. Bursting of the coupling can lead to an explosion in potentially explosive atmospheres.
<ul style="list-style-type: none">• Do not exceed the maximum oil pressure specified in the dimension drawing.• Keep the oil pressure constant in all oil channels during the entire procedure.



! DANGER

Danger as a result of improper handling of fixtures and pumps

Failure to handle fixtures and pumps properly can result in injuries and cause the coupling to burst. There is a risk of fatal injury from flying fragments. Bursting of the coupling can lead to an explosion in potentially explosive atmospheres.

- Please observe the manufacturer's information on handling the following tools:
 - Pulling fixtures
 - Pumps

! WARNING

Risk of injury as a result of coupling components or the pulling fixture working loose

Coupling components or pulling fixtures can work loose and fall when dismantling work is in progress.

- Use suitable hoisting gear to hold the coupling part 1 (1) or 3 (3) and the pulling fixture in position.
- Attach an axial locking element if the pressurised oil interference fit is tapered.

Note

Leaking oil

1. When dismantling the coupling part, catch any oil which escapes.
2. Dispose of the oil according to the valid regulations.

Tools required

- One oil pump with pressure gauge (at least 2500 bar) per oil channel.
Or:
One motor-driven oil pump. One connection that can be closed independently is required for each oil channel.

Refer to the dimension drawing for the number of oil channels.

- With a stepped bore:
A motor-driven pump at the oil channel located at the point of transition from the smaller to the larger bore. A large quantity of oil per unit of time is needed here.
- Suitable connections and pipes.
- Suitable pulling fixture.
Or:
Retaining plate with retaining screws or threaded spindles with nuts. Material of the screws or spindles at least strength class 10.9, material of the nuts depending on the material of the screws or spindles.
- Hydraulic cylinder with oil pump. Note displacement and pressure of the hydraulic cylinder. Refer to the dimension drawing for the required axial force.

Procedure

1. Move the coupled machines apart.
2. Remove the buffers (5). For further information, refer to section Replacing wearing parts (Page 46).
3. Use a suitable pulling fixture.
4. Secure the coupling part 1 (1) or 3 (3) and the pulling fixture in position to prevent them from falling.
5. Remove the screw plugs (101) or (301) from the oil channels.
6. Deaerate an oil pump and connect it to the oil channel in the centre.
7. Pressurise the oil pump to the pressure specified in the dimension drawing until oil starts to escape from the adjacent connections or the front faces. Keep the pressure constant.
8. Deaerate the next oil pump and connect it to the adjacent oil channel.
9. Repeat steps 7 and 8 on the remaining oil channels.
10. If so much oil escapes when pressure is applied that the pump cannot maintain the pressure, use a higher-viscosity oil.
11. Pressurise the hydraulic cylinder if oil escapes from both front faces as a closed oil ring. Make sure that the coupling part 1 (1) or 3 (3) is pulled immediately off the shaft in a swift, smooth movement.

Note

Removal in several strokes

If several strokes of the hydraulic cylinder are required to remove the part, make sure that the shaft end is positioned between two oil channels after each individual stroke.

12. Dismantle the oil pumps and the pulling fixture from the coupling part 1 (1) or 3 (3).
13. Check the hub bore and the shaft for damage and protect them against corrosion.
14. Replace any damaged parts.

When reinstalling the coupling parts please observe the information in chapters Assembly (Page 25) and Commissioning (Page 37).

Service and support

9.1 Contact

Contact

When ordering spare parts, requesting a customer service technician or in the case of technical queries, please contact our factory or one of our customer service addresses:

Flender GmbH

Schlavenhorst 100

46395 Bocholt

Germany

Tel.: +49 (0)2871/92-0

Fax.: +49 (0)2871/92-2596

Disposal

Disposal of the coupling

Dispose of the coupling parts according to applicable national regulations or recycle them.

Spare parts

11.1 Ordering spare parts

By stocking the most important spare parts at the installation site you can ensure that the coupling is ready for use at any time.

Note**Original spare parts**

Only use original spare parts from Flender. Flender only accepts liability for original spare parts from Flender.

Other spare parts are not tested and approved by Flender. Non-approved spare parts may possibly change the design characteristics of the coupling and thus impact active and/or passive safety.

Flender will accept no liability or warranty whatsoever for damage occurring as a result of the use of non-approved spare parts. The same applies to any accessories that were not supplied by Flender.

You can find the available spare parts for the coupling described here at Spare parts drawing and spare parts list (Page 60).

You will find our contact data for ordering spare parts in Service and support (Page 55).

Information required when ordering spare parts

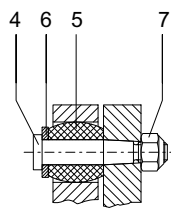
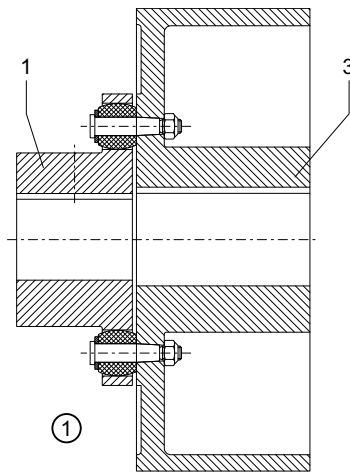
- Flender order number with item
- Flender drawing number
- Coupling type and size
- Part number (refer to Spare parts drawing and spare parts list (Page 60))
- Dimensions of the spare part, for example:
 - Bore
 - Bore tolerance
 - Parallel keyway and balancing
- Special dimensions, for example, flange connection dimensions, intermediate sleeve length or brake drum dimensions

11.2 Spare parts drawing and spare parts list

- Any special properties of the spare part, such as, for example:
 - Temperature resistance
 - Electrical insulation
 - Operating fluid
 - Use in potentially explosive atmospheres
- Quantity

11.2 Spare parts drawing and spare parts list

11.2.1 Types RWB and RBS with brake drum in accordance with DIN 15431



- ②
- ① Types RWB and RBS with brake drum
- ② Bolt connection

Figure 11-1 Spare parts drawing for types RWB and RBS with brake drum

Note**Arrangement of the buffers**

The buffers (5) are arranged on one side in the coupling part 1 (1).

Table 11-1 Spare parts list for types RWB and RBS with brake drum

Part number	Designation
1	Coupling part 1
3	Coupling part 3
4	Bolt
5	Buffer
6	Washer
7	Hexagon nut, self-locking
101	Screw plug ¹⁾
301	Screw plug ¹⁾

¹⁾ Screw plugs (101, 301) are only used in combination with a pressurised oil interference fit.

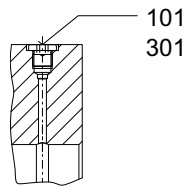


Figure 11-2 Screw plug

11.2.2 Types RWB and RBS with brake disk

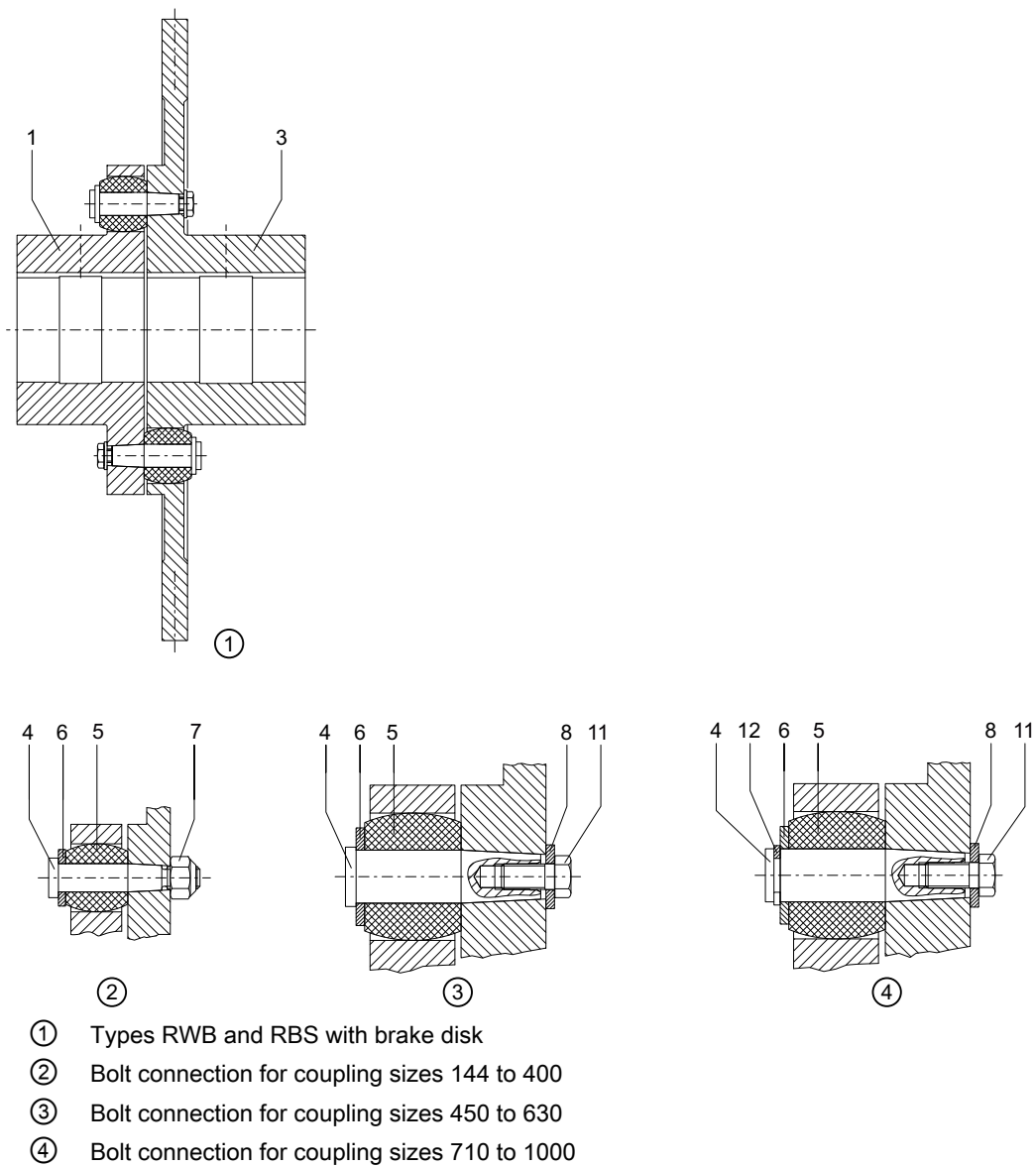


Figure 11-3 Spare parts drawing for types RWB and RBS with brake disk

Note

Arrangement of the buffers

The buffers (5) are arranged on one side in the coupling part 1 (1) up to coupling size 360. With coupling size 400 or larger, the buffers (5) are arranged alternately in coupling part 1 (1) and coupling part 3 (3).

Table 11-2 Spare parts list for types RWB and RBS with brake disk

Part number	Designation
1	Coupling part 1
3	Coupling part 3
4	Bolt
5	Buffer
6	Washer
7	Hexagon nut, self-locking
8	Washer
11	Hexagon head screw
12	Locking ring
101	Screw plug ¹⁾
301	Screw plug ¹⁾

¹⁾ Screw plugs (101, 301) are only used in combination with a pressurised oil interference fit.

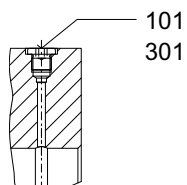


Figure 11-4 Screw plug

Spare parts

11.2 Spare parts drawing and spare parts list

Technical data

A.1 Speeds, geometry data and weights

In this section you can find dimension drawings and technical data for RUPEX couplings of the following types:

- Types RWB and RBS with brake drum in accordance with DIN 15431 (Page 65)
- Types RWB and RBS with brake disk 12.7 mm wide (Page 67)
- Types RWB and RBS with brake disk 30 mm wide, in accordance with DIN 15432 (Page 69)

A.1.1 Types RWB and RBS with brake drum in accordance with DIN 15431

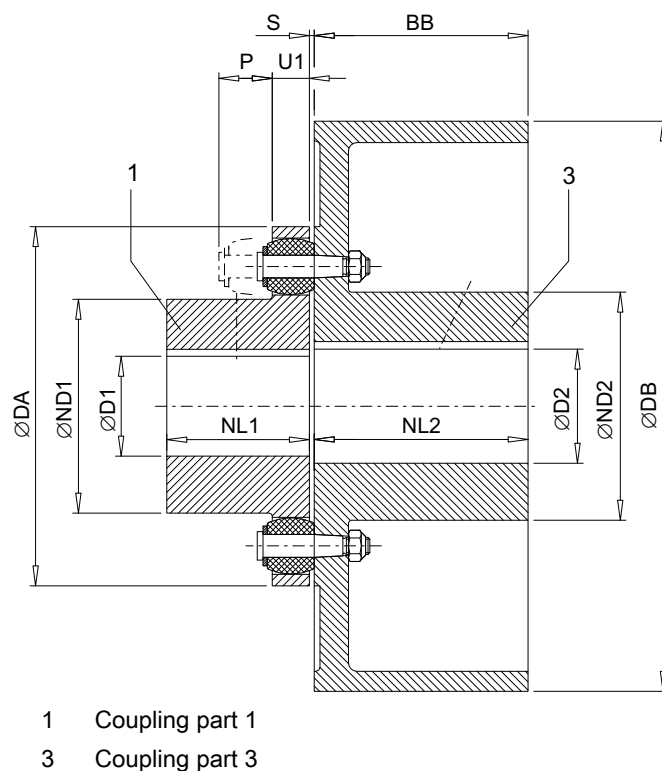


Figure A-1 Types RWB and RBS

Technical data

A.1 Speeds, geometry data and weights

Table A-1 Speeds, geometry data and weights of type RWB with brake drum in accordance with DIN 15431

Size	Speed n_{max} rpm	Maximum bore ¹⁾											Weight ²⁾ m kg
		D1	D2	DA	ND1	ND2	NL1	P	S	U1	DB	BB	
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
144	3 400	45	55	144	76	84	55	35	2 ... 4	16	200	75	9.5
162	2 750	50	60	162	85	92	60	40	2 ... 5	20	250	95	17
178	2 750	60	70	178	102	108	70	40	2 ... 5	20	250	95	20
	2 150										315	118	28
198	2 750	70	80	198	120	128	80	40	2 ... 5	20	250	95	24
	2 150										315	118	32
228	1 700	80	90	228	129	140	90	50	2 ... 5	26	400	150	54
252	1 700	90	100	252	150	160	100	50	2 ... 5	26	400	150	63
	1 400										500	190	93
285	1 400	100	110	285	164	175	110	60	3 ... 6	32	500	190	104
	1 100										630	236	157
320	1 100	110	120	320	180	192	125	60	3 ... 6	32	630	236	172
	950										710	265	217
360	1 100	120	130	360	200	210	140	75	3 ... 6	42	630	236	191
	950										710	265	236

¹⁾ Maximum bore for parallel keyway in accordance with DIN 6885/1.

²⁾ Weight applies to one coupling with maximum bore.

Table A-2 Speeds, geometry data and weights of type RBS with brake drum in accordance with DIN 15431

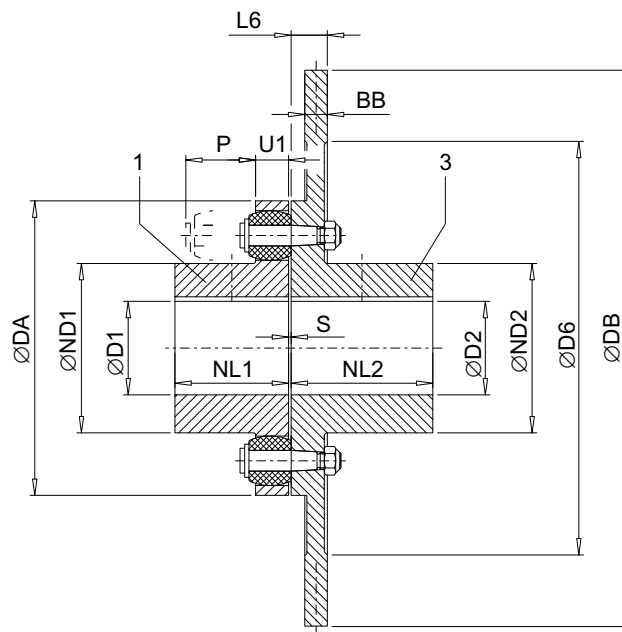
Size	Speed n_{max} rpm	Maximum bore ¹⁾											Weight ²⁾ m kg
		D1	D2	DA	ND1	ND2	NL1	P	S	U1	DB	BB	
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
144	5 000	50	60	144	76	84	55	35	2 ... 4	16	200	75	10
162	5 000	55	65	162	85	92	60	40	2 ... 5	20	250	95	18
178	4 900	70	75	178	102	108	70	40	2 ... 5	20	250	95	22
	4 350										315	118	30
198	4 600	80	85	198	120	128	80	40	2 ... 5	20	250	95	26
	4 350										315	118	35
228	3 400	85	95	228	129	140	90	50	2 ... 5	26	400	150	60
252	3 400	100	110	252	150	160	100	50	2 ... 5	26	400	150	68
	2 750		100								500	190	103
285	2 750	110	110	285	164	175	110	60	3 ... 6	32	500	190	115
	2 150										630	236	171

Size	Speed n_{max} rpm	Maximum bore ¹⁾											Weight ²⁾ m kg
		D1	D2	DA	ND1	ND2	NL1	P	S	U1	DB	BB	
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	NL2 mm	
320	2 150	125	125	320	180	192	125	60	3 ... 6	32	630	236	185
	1 900										710	265	230
360	2 150	135	135	360	200	210	140	75	3 ... 6	42	630	236	210
	1 900										710	265	255

1) Maximum bore for parallel keyway in accordance with DIN 6885/1.

2) Weight applies to one coupling with maximum bore.

A.1.2 Types RWB and RBS with brake disk 12.7 mm wide



- 1 Coupling part 1
- 3 Coupling part 3

Figure A-2 Types RWB and RBS with brake disk 12.7 mm wide

Technical data

A.1 Speeds, geometry data and weights

Table A-3 Speeds, geometry data and weights of type RWB with brake disk 12.7 mm wide

Size	Speed ¹⁾ n _{max.} rpm	Maximum bore ²⁾														Weight ³⁾ m kg	
		D1	D2	DA	ND1	ND2	NL1	NL2	P	S	U1	DB		D6	BB		L6
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	min.	max.	mm		mm
144	3 600	45	55	144	76	84	55	85	35	2 ... 4	16	280	315	175	12.7	17.35	11
162	2 850	50	60	162	85	92	60	102	40	2 ... 5	20	315	400	175	12.7	17.35	17.5
178	2 850	60	70	178	102	108	70	102	40	2 ... 5	20	315	400	200	12.7	17.35	20.5
198	2 550	70	80	198	120	128	80	108	40	2 ... 5	20	355	450	200	12.7	17.35	26.5
228	2 550	80	90	228	129	140	90	115	50	2 ... 5	26	355	450	250	12.7	18.35	31.5
252	2 300	90	100	252	150	160	100	120	50	2 ... 5	26	400	500	280	12.7	19.35	42
285	1 800	100	110	285	164	175	110	135	60	3 ... 6	32	450	630	310	12.7	19.35	72
320	1 600	110	120	320	180	192	125	145	60	3 ... 6	32	450	710	350	12.7	21.35	93
360	1 600	120	130	360	200	210	140	150	75	3 ... 6	42	500	710	390	12.7	20.35	120

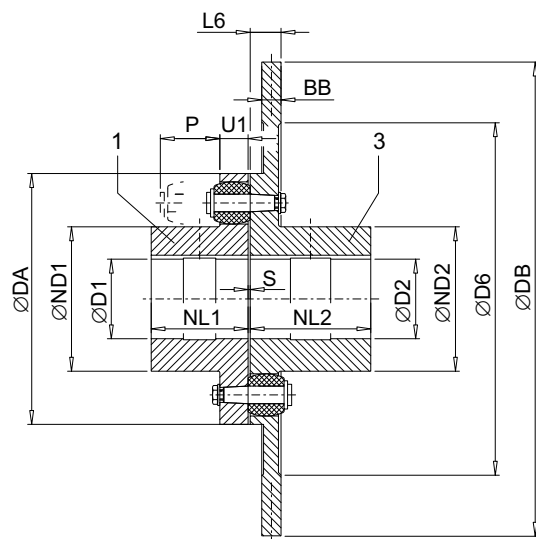
- 1) Maximum speed for brake disk diameter DB_{max.}
The following applies to smaller brake diametersDB: n_{max.} = 1146 / DB (DB in m).
- 2) Maximum bore for parallel keyway in accordance with DIN 6885/1.
- 3) Weight applies to one coupling with maximum bore and maximum brake disk diameter DB.

Table A-4 Speeds, geometry data and weights of type RBS with brake disk 12.7 mm wide

Size	Speed ¹⁾ n _{max.} rpm	Maximum bore ²⁾														Weight ³⁾ m kg	
		D1	D2	DA	ND1	ND2	NL1	NL2	P	S	U1	DB		D6	BB		L6
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	min.	max.	mm		mm
144	4 800	50	60	144	76	84	55	85	35	2 ... 4	16	280	315	175	12.7	17.35	11.5
162	3 800	55	65	162	85	92	60	102	40	2 ... 5	20	315	400	175	12.7	17.35	18.5
178	3 800	70	75	178	102	108	70	102	40	2 ... 5	20	315	400	200	12.7	17.35	21
198	3 400	80	85	198	120	128	80	108	40	2 ... 5	20	355	450	200	12.7	17.35	27.5
228	3 400	85	95	228	129	140	90	115	50	2 ... 5	26	355	450	250	12.7	18.35	32
252	3 050	100	110	252	150	160	100	120	50	2 ... 5	26	400	500	280	12.7	19.35	43
285	2 400	110	120	285	164	175	110	135	60	3 ... 6	32	450	630	320	12.7	19.35	68
320	2 150	125	130	320	180	192	125	145	60	3 ... 6	32	500	710	360	12.7	21.35	91
360	2 150	135	140	360	200	210	140	150	75	3 ... 6	42	560	710	400	12.7	20.35	122

- 1) Maximum speed for brake disk diameter DB_{max.}
The following applies to smaller brake diametersDB: n_{max.} = 1528 / DB (DB in m).
- 2) Maximum bore for parallel keyway in accordance with DIN 6885/1.
- 3) Weight applies to one coupling with maximum bore and maximum brake disk diameter DB.

A.1.3 Types RWB and RBS with brake disk 30 mm wide, in accordance with DIN 15432



- 1 Coupling part 1
- 3 Coupling part 3

Figure A-3 Types RWB and RBS with brake disk 30 mm wide

Table A-5 Speeds, geometry data and weights of type RWB with brake disk 30 mm wide

Size	Speed ¹⁾ n _{max.} rpm	Maximum bore ²⁾		DA	ND1	ND2	NL1	NL2	P	S	U1	DB		D6	BB	L6	Weight ³⁾ m kg
		D1	D2									min.	max.				
144	2 300	45	45	144	76	84	55	219	35	2 ... 4	16	315	500	175	30	34	48
162	2 050	50	50	162	85	92	60	219	40	2 ... 5	20	315	560	175	30	34	61
178	2 050	60	60	178	102	108	70	219	40	2 ... 5	20	355	560	200	30	34	65
198	2 050	70	70	198	120	128	80	219	40	2 ... 5	20	355	560	200	30	34	69
228	1 400	80	80	228	129	140	90	219	50	2 ... 5	26	450	800	250	30	34	130
252	1 400	90	100	252	150	160	100	219	50	2 ... 5	26	500	800	280	30	34	135
285	1 400	100	110	285	164	175	110	219	60	3 ... 6	32	560	800	310	30	34	145
320	1 150	110	120	320	180	192	125	219	60	3 ... 6	32	630	1 000	350	30	34	220
360	1 150	120	130	360	200	210	140	221	75	3 ... 6	42	710	1 000	390	30	36	240
400	1 150	140	140	400	230	230	160	225	75	3 ... 6	42	630	1 000	440	30	40	260
450	1 150	160	160	450	260	260	180	225	90	4 ... 7	52	630	1 000	500	30	40	300
500	1 150	180	180	500	290	290	200	225	90	4 ... 7	52	710	1 000	500	30	40	340
560	1 150	140	200	560	250	320	220	225	120	4 ... 8	68	800	1 000	560	30	40	410
		180			300												410
		200			320												410

Technical data

A.1 Speeds, geometry data and weights

Size	Speed ¹⁾ n _{max.} rpm	Maximum bore ²⁾		DA	ND1	ND2	NL1	NL2	P	S	U1	DB		D6 min.	BB	L6	Weight ³⁾ m kg	
		D1	D2									min.	max.					
630	900	140	220	630	250	355	240	240	120	4 ... 8	68	900	1 250	630	30	55	570	
		180			300													580
		220			355													
710	800	160	240	710	290	385	260	260	140	5 ... 9	80	1 000	1 400	710	30	75	770	
		200			330													780
		240			385													
800	700	180	260	800	320	420	290	290	140	5 ... 9	80	1 250	1 600	800	30	75	1 030	
		220			360													1 040
		260			420													
900	700	220	290	900	360	465	320	320	160	5 ... 10	90	1 250	1 600	900	30	75	1 280	
		260			425													1 300
		290			465													
1 000	700	240	320	1 000	395	515	350	350	160	5 ... 10	90	1 250	1 600	1 000	30	75	1 520	
		280			460													1 550
		320			515													

- 1) Maximum speed for brake disk diameter DB_{max.}
The following applies to smaller brake diameters DB: n_{max.} = 1146 / DB (DB in m).
- 2) Maximum bore for parallel keyway in accordance with DIN 6885/1.
- 3) Weight applies to one coupling with maximum bore and maximum brake disk diameter DB.

Table A-6 Speeds, geometry data and weights of type RBS with brake disk 30 mm wide

Size	Speed ¹⁾ n _{max.} rpm	Maximum bore ²⁾		DA	ND1	ND2	NL1	NL2	P	S	U1	DB		D6 min.	BB	L6	Weight ³⁾ m kg
		D1	D2									min.	max.				
144	3 050	50	45	144	76	84	55	219	35	2 ... 4	16	315	500	175	30	34	52
162	2 750	55	50	162	85	92	60	219	40	2 ... 5	20	315	560	175	30	34	66
178	2 750	70	60	178	102	108	70	219	40	2 ... 5	20	355	560	200	30	34	69
198	2 750	80	70	198	120	128	80	219	40	2 ... 5	20	355	560	200	30	34	74
228	1 900	85	80	228	129	140	90	219	50	2 ... 5	26	450	800	250	30	34	140
252	1 900	100	100	252	150	160	100	219	50	2 ... 5	26	500	800	280	30	34	145
285	1 900	110	120	285	164	175	110	219	60	3 ... 6	32	560	800	310	30	34	155

A.1 Speeds, geometry data and weights

Size	Speed ¹⁾ n _{max.} rpm	Maximum bore ²⁾		DA	ND1	ND2	NL1	NL2 max.	P	S	U1	DB		D6 min.	BB	L6	Weight ³⁾ m kg
		D1	D2									min.	max.				
320	1 550	125	130	320	180	192	125	219	60	3 ... 6	32	630	1 000	350	30	34	230
360	1 550	135	140	360	200	210	140	221	75	3 ... 6	42	710	1 000	390	30	36	250
400	1 550	150	150	400	230	230	160	225	75	3 ... 6	42	560	1 000	440	30	40	280
450	1 550	170	170	450	260	260	180	225	90	4 ... 7	52	630	1 000	500	30	40	320
500	1 550	190	190	500	290	290	200	225	90	4 ... 7	52	710	1 000	500	30	40	360
560	1 550	165	210	560	250	320	220	225	120	4 ... 8	68	800	1 000	600	30	40	420
		200			300												430
		210			320												430
630	1 200	165	235	630	250	355	240	240	120	4 ... 8	68	900	1 250	670	30	55	590
		200			300												600
		235			355												620
710	1 100	190	250	710	290	385	260	260	140	5 ... 9	80	1 000	1 400	760	30	75	800
		220			330												810
		250			385												830
800	950	210	280	800	320	420	290	290	140	5 ... 9	80	1 250	1 600	840	30	75	1 080
		240			360												1 090
		280			420												1 120
900	950	210	310	900	320	465	320	320	160	5 ... 10	90	1 250	1 600	950	30	75	1 280
		240			360												1 310
		280			425												1 290
		310			465												1 320
1 000	950	230	340	1000	355	515	350	350	160	5 ... 10	90	1 250	1 600	1 050	30	75	1 450
		260			395												1 520
		300			460												1 540
		340			515												1 580

- 1) Maximum speed for brake disk diameter DB_{max}.
The following applies to smaller brake diameters DB: n_{max} = 1528 / DB (DB in m).
- 2) Maximum bore for parallel keyway in accordance with DIN 6885/1.
- 3) Weight applies to one coupling with maximum bore and maximum brake disk diameter DB.

A.2 Shaft misalignment values during operation

A.2 Shaft misalignment values during operation

The following table shows the maximum permissible shaft misalignment values ΔS_{perm} and $\Delta K r_{perm}$. The values are rounded and specified in mm.

Table A-7 Maximum permissible shaft misalignment values during operation

Size	Coupling speed [rpm]								
	250	500	750	1 000	1 500	2 000	3 000	4 000	5 000
144	0.6	0.4	0.35	0.3	0.25	0.2	0.15	0.15	0.1
162	0.65	0.45	0.35	0.3	0.25	0.2	0.15	0.15	0.15
178	0.7	0.5	0.4	0.35	0.25	0.25	0.2	0.15	
198	0.75	0.5	0.4	0.35	0.3	0.25	0.2	0.15	
228	0.8	0.55	0.45	0.4	0.3	0.25	0.2	0.2	
252	0.85	0.6	0.5	0.45	0.35	0.3	0.25	0.2	
285	0.95	0.65	0.55	0.45	0.4	0.3	0.25		
320	1.05	0.75	0.6	0.5	0.4	0.35	0.3		
360	1.15	0.8	0.65	0.55	0.45	0.4	0.3		
400	1.25	0.85	0.7	0.6	0.5	0.45			
450	1.35	0.95	0.8	0.7	0.55	0.45			
500	1.5	1.05	0.85	0.75	0.6	0.5			
560	1.65	1.15	0.95	0.8	0.65	0.55			
630	1.85	1.3	1.05	0.9	0.75				
710	2.05	1.45	1.15	1	0.8				
800	2.25	1.6	1.3	1.1					
900	2.5	1.75	1.45	1.25					
1 000	2.75	1.95	1.6	1.35					

You can calculate the numerical values in the table and their intermediate values as follows:

$$\Delta K r_{perm} = \Delta S_{perm} = (0.1 + DA / 1000) \cdot 40 / \sqrt{n}$$

Coupling speed n in rpm
DA in mm (see Speeds, geometry data and weights (Page 65))

Radial misalignment $\Delta K r_{perm}$ in mm

The values in column "250 rpm" of the table above apply for speeds of < 250 rpm.

A.3 Tightening torques and widths A/F

Use bolts of strength class 8.8

Table A-8 Tightening torques and widths A/F of bolt connection

Size	Tightening torque	Width A/F external hexagon
	T _A Nm	SW mm
144	15	13
162	30	17
178	30	17
198	30	17
228	55	19
252	55	19
285	100	24
320	100	24
360	170	27
400	170	27
450	180	24
500	180	24
560	340	30
630	340	30
710	580	36
800	580	36
900	600	36
1 000	600	36

Apply the recommended tightening torques in accordance with the stipulations in section Tightening procedure (Page 74).

A.4 Tightening procedure

Tighten fastening screws to the specified tightening torque in accordance with the following table:

Table A-9 Tightening procedure

Scatter of the torque applied at the tool	Tightening procedure (As a rule, the tightening procedures listed are within the specified tool torque scatter)
±5 %	<ul style="list-style-type: none">• Hydraulic tightening with mechanical screwdriver• Torque-controlled tightening with a torque wrench or a torque wrench that gives a signal• Tightening with a precision mechanical screwdriver with dynamic torque measurement

The tightening torques apply to screws/bolts with untreated surfaces that are not oiled or are only lightly oiled, and for screws/bolts that are used with a liquid screw locking agent in accordance with these instructions. Use with lubricant paint or lubricant is not permitted.

A.5 Buffers (5)

A.5.1 Use and storage of the buffers (5)

Note the following concerning the use and storage of the buffers (5):

- Storage possible for up to 5 years
- Protect against direct sunlight, artificial light with a high UV-content and extreme temperatures
- Avoid contact with aggressive media
- Only replace complete sets
- Only use buffers (5) of the same type and age

A.5.2 RUPEX buffers (5)

Table A-10 RUPEX buffers

Material	Hardness	Comment	Marking	Ambient temperature	Approved for explosion group
NBR	80 Shore A	Standard	Black buffer	-30 °C to +80 °C	IIA, IIB, IIC
NBR	65 Shore A	Special, soft, shifting of the resonant speed, rated torque reduced	Black buffer with green dot on front face	-30 °C to +80 °C	IIA, IIB, IIC
NBR	90 Shore A	Special, hard, shifting of the resonant speed	Black buffer with magenta dot on front face	-30 °C to +80 °C	IIA, IIB, IIC
NBR 639	80 Shore A	Special, electrically insulating	Green buffer	-30 °C to +80 °C	IIA, IIB
NR	80 Shore A	Special, low-temperature use	Black buffer with white dot on front face	-50 °C to +50 °C	IIA, IIB, IIC
HNBR	80 Shore A	Special, high-temperature use	Black buffer with red dot on front face	-10 °C to +100 °C	Not approved

B

Quality documents

B.1 Declaration of Conformity

EU declaration of conformity

Product:

FLENDER RUPEX® couplings
Types RWB and RBS

Name and address of the manufacturer:

Flender GmbH
Schlavenhorst 100
46395 Bocholt
Deutschland – Germany

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Object of the declaration is the product specified above.

The object of the declaration described above is in conformity with the relevant harmonisation legislation of the Union:

– Directive 2014/34/EU Official Journal L 96, 29.3.2014, pages 309-356

Harmonised standards or other technical specifications, on which the declaration of conformity is based:

EN 1127-1 : 2011
EN 1710 : 2008
EN 13463-1 : 2009
EN 13463-5 : 2011

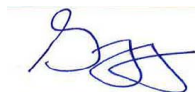
The notified body, DEKRA EXAM GmbH, code number 0158, has received the technical documentation.

Signed for and on behalf of:
Flender GmbH



Bocholt, 2017-10-01

i.V. _____
Felix Henseler, Head of PD MD AP



Bocholt, 2017-10-01

i.V. _____
Thomas Tebrügge, Head of PD MD AP COU BA

FLENDER COUPLINGS

RUPEX

Operating Instructions 3602en

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