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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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 43)).
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

<table>
<thead>
<tr>
<th>ISO</th>
<th>ANSI</th>
<th>Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>✋</td>
<td>⚠</td>
<td>Warning - hazardous electrical voltage</td>
</tr>
<tr>
<td>⚠</td>
<td>⚠</td>
<td>Warning - explosive substances</td>
</tr>
<tr>
<td>⚠</td>
<td>⚠</td>
<td>Warning - entanglement hazard</td>
</tr>
<tr>
<td>⚠</td>
<td>⚠</td>
<td>Warning - hot surfaces</td>
</tr>
<tr>
<td>⚠</td>
<td>⚠</td>
<td>Warning - substances that are harmful to health or are irritants</td>
</tr>
</tbody>
</table>
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 43)).

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 17).

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

**Coupling part 1 without electrically insulating flexible elements**

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

- Flender GmbH
  - II 2G Ex h IIC T6 ... T4 Gb X
  - D 46393 Bocholt
  - II 2D Ex h IIIIC T85 °C ... 110 °C Db X
- N-EUPEX
  - <Year of manufacture>
  - I M2 Ex h Mb X
Safety instructions

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

Coupling part 1 with electrically insulating flexible elements
One of the following markings is visible on the outer diameter of coupling part 1:

- Flender GmbH II 2G Ex h IIB T6 ... T4 Gb X
- D 46393 Bocholt II 2D Ex h IIIC T85 °C ... 110 °C Db X
- N-EUPEX <Year of manufacture> I M2 Ex h Mb X

Coupling part 5
Coupling part 5 is stamped with.

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

Note
Undrilled or predrilled coupling 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 flexible elements (12) in accordance with sections N-EUPEX flexible elements (12) (Page 55) and N-EUPEX DS flexible elements (12) (Page 56).

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 flexible elements 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.

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

<table>
<thead>
<tr>
<th>Max. ambient temperature</th>
<th>Temperature class</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 °C</td>
<td>T4</td>
</tr>
<tr>
<td>70 °C</td>
<td>T5</td>
</tr>
<tr>
<td>55 °C</td>
<td>T6</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Max. ambient temperature</th>
<th>Max. surface temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 °C</td>
<td>110 °C</td>
</tr>
</tbody>
</table>

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 $10^6$ 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 80079-36. No build-up of electrostatic charges is to be expected with a paint layer thickness of less than 200 μm.

2.4 General warning notices

⚠️ DANGER

Danger due to bursting of the coupling

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.

- Use the coupling for the purpose for which it is intended.
2.4 General warning notices

**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.
The N-EUPEX or N-EUPEX DS couplings described here are torsionally flexible, damping pin 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.

Type H is fail-safe. Type HDS has no fail-safe device.

Types H and HDS are designs that feature an intermediate sleeve (coupling part 6).

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

Application

N-EUPEX couplings are designed for use in all kinds of machines.

N-EUPEX DS couplings are used for applications which require the input and output to be disconnected from one another in the event of destruction of the flexible elements.

Design

The illustration shows the various types with their constituent parts and their part numbers.

![Diagram of N-EUPEX or N-EUPEX DS couplings]

1. Coupling part 1
2. Coupling part 5
3. Coupling part 6
4. Coupling part 7
5. Flexible element
6. Cylinder-head screw

Figure 3-1 Types H and HDS
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

**WARNING**

Severe personal injury due to improper transport

Severe personal injury due to falling components or due to crushing. Damage to coupling parts possible due to use of unsuitable transport means.

- 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.

![Transport symbols](image)

Figure 4-1 Transport symbols

4.2 Storage of the coupling

**NOTICE**

Property damage due to improper storage

Negative changes to the physical properties of the coupling and/or coupling damage.

- Please observe the information about storing 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.

- 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>
<thead>
<tr>
<th>Preservative agents</th>
<th>Features</th>
<th>Indoor storage</th>
<th>Outdoor storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil spray</td>
<td>Anti-corrosion agent</td>
<td>Up to 12 months</td>
<td>Up to 4 months</td>
</tr>
<tr>
<td>Tectyl 846 or similar</td>
<td>Long-term preservative agent on wax basis</td>
<td>Up to 36 months</td>
<td>Up to 12 months</td>
</tr>
<tr>
<td>Emulsion cleaner + VCI foil</td>
<td>Active system, reusable</td>
<td>Up to 5 years</td>
<td>Up to 5 years</td>
</tr>
</tbody>
</table>
Assembly

Assembly of the coupling comprises the following steps:

- Preparatory work (Page 21)
- Assembling the coupling (Page 27)
- Aligning the coupling (Page 28)

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 22)
- Milling the parallel keyway (Page 23)
- Machining an axial locking mechanism (Page 23)
- Balancing the coupling (Page 26)
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

<table>
<thead>
<tr>
<th>Description</th>
<th>Push fit</th>
<th>Press fit</th>
<th>Interference fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaft tolerance</td>
<td>j6</td>
<td>h6</td>
<td>h6</td>
</tr>
<tr>
<td>Bore tolerance</td>
<td>H7</td>
<td>J7</td>
<td>K7</td>
</tr>
</tbody>
</table>

Procedure

1. Remove the flexible elements (12).
2. Remove the preservation and clean the coupling parts 1 (1) and 5 (5) 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 49).
5.1.2 Milling the parallel keyway

Position of the parallel keyway

The table below states the required position for the parallel keyway in the coupling parts depending on the coupling type.

Table 5-2 Position of the parallel keyway

<table>
<thead>
<tr>
<th>Coupling part</th>
<th>Coupling</th>
<th>Position of the parallel keyway</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N-EUPEX</td>
<td>Centred between the flexible element webs</td>
</tr>
<tr>
<td>1</td>
<td>N-EUPEX DS</td>
<td>Centred between the flexible element pockets</td>
</tr>
<tr>
<td>5</td>
<td>N-EUPEX</td>
<td>Beneath a tapped hole</td>
</tr>
<tr>
<td></td>
<td>N-EUPEX DS</td>
<td></td>
</tr>
</tbody>
</table>

Applicable standards

- If the coupling is intended for use under normal operating conditions, mill the parallel keyway according to DIN 6885/1 ISO JS9.
- If the coupling is intended for reversing operation, mill the parallel keyway according to 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 following diagram shows the axial position of the tapped hole.

![Diagram showing axial position of the tapped hole](image)

1. Coupling part 1; axial position of the tapped hole up to size 125 / 135
2. Coupling part 1; axial position of the tapped hole as of size 140 / 152
3. Coupling part 5

Figure 5-2 Diameter and axial position of the tapped hole in the hub

The following table contains the values for the diameter and axial position of the tapped hole depending on the size of the coupling.

**Table 5-3 Diameter and axial position of the tapped hole, tightening torque**

<table>
<thead>
<tr>
<th>Size</th>
<th>d1</th>
<th>e1</th>
<th>e2</th>
<th>e5</th>
<th>T_A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td></td>
<td>mm</td>
<td>mm</td>
<td>Nm</td>
</tr>
<tr>
<td>80 / 88</td>
<td>M6</td>
<td>11</td>
<td>-</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>95 / 103</td>
<td>M6</td>
<td>15</td>
<td>-</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>110 / 118</td>
<td>M6</td>
<td>18</td>
<td>-</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>125 / 135</td>
<td>M8</td>
<td>20</td>
<td>-</td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>140 / 152</td>
<td>M8</td>
<td>-</td>
<td>13</td>
<td>30</td>
<td>8</td>
</tr>
<tr>
<td>160 / 172</td>
<td>M10</td>
<td>-</td>
<td>13</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>180 / 194</td>
<td>M12</td>
<td>-</td>
<td>16</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>200 / 218</td>
<td>M12</td>
<td>-</td>
<td>20</td>
<td>45</td>
<td>25</td>
</tr>
<tr>
<td>225 / 245</td>
<td>M12</td>
<td>-</td>
<td>22</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>
Position of the tapped hole with respect to the parallel keyway

The tapped hole for the set screw is generally positioned on the parallel keyway. This does not apply to the coupling parts listed in the following table.

Table 5-4  Position of the tapped hole with respect to the parallel keyway

<table>
<thead>
<tr>
<th>Coupling part</th>
<th>Size</th>
<th>Finished bore [mm]</th>
<th>Position of the tapped hole</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>80 / 88</td>
<td>≥ 25</td>
<td>Offset 180° relative to parallel keyway</td>
</tr>
<tr>
<td></td>
<td>95 / 103</td>
<td>≥ 38</td>
<td>Offset 180° relative to parallel keyway</td>
</tr>
</tbody>
</table>

Selection of the set screw

⚠️ CAUTION

Physical injury
Danger of injury from protruding set screw.

- 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

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Damage to coupling part 1 (1)</strong></td>
</tr>
<tr>
<td>If you completely drill through the base on coupling part 1 (1), then coupling part 1 (1) is no longer allowed to be used for operation.</td>
</tr>
<tr>
<td>● Please observe the stipulations about machining the balancing hole.</td>
</tr>
</tbody>
</table>

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 flexible element webs / pockets and to the cams and the outer circumference.

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

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

**Note**
A better balancing result can be achieved by balancing the coupling parts (5, 6 and 7) when they are bolted together as an assembly. When balancing all parts together, mark the position of the components relative to one another.

**5.2 Assembling the coupling**

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property damage</strong></td>
</tr>
<tr>
<td>Damage to the elastomer components from cleaning agents.</td>
</tr>
<tr>
<td>● Ensure that the elastomer components do not come into contact with cleaning agents.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property damage</strong></td>
</tr>
<tr>
<td>Damage to the shaft end, the coupling parts and/or the parallel key.</td>
</tr>
<tr>
<td>● Note the following handling instruction.</td>
</tr>
</tbody>
</table>

**Procedure**

1. Unscrew the set screw out of coupling parts 1 (1) and 5 (5) 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 5 (5) and the shafts with MoS₂ assembly paste (e.g. Microgfeit LP 405).
4. Mount the coupling parts 1 (1) and 5 (5) on the shaft.

**Note**

**Coupling parts with conical bore**

Mount the coupling parts 1 (1) and 5 (5) 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 5 (5) with cylindrical bore up to a maximum of 150 °C if required. Note when doing this the temperature range of the flexible elements (12) (see sections N-EUPEX flexible elements (12) (Page 55) and N-EUPEX DS flexible elements (12) (Page 56)). Remove the flexible elements (12) if necessary. Protect adjacent components against damage and heating to temperatures above 80 °C.

5. Secure the coupling parts 1 (1) and 5 (5) 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 23)).

7. If you have removed the flexible elements (12), reinstall them.

8. Bolt the coupling part 5 (5) to the "zero face" of the coupling part 6 (6) and tighten the bolts to the specified torque $T_A$ (see section Tightening torques and widths A/F (Page 53)). The "zero face" of the coupling part 6 (6) is marked by a 0.2 mm deep groove around the circumference of the flange. If the individual radial and axial runout deviations of the coupling parts 5 (5), 6 (6) and 7 (7) add up unfavourably, the radial runout deviation can increase further. You can reduce this by changing the bolting position of the coupling parts 5 (5) and 6 (6).

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
5.3 Aligning the coupling

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 53).

5.3.2 Possible misalignment

The following types of misalignment can occur:

1. Axial misalignment ($\Delta Ka$)
2. Angular misalignment ($\Delta Kw$)
3. Radial misalignment ($\Delta Kr$)

Figure 5-5 Possible misalignment

5.3.2.1 Axial misalignment

Set the axial misalignment $\Delta Ka$ to a value within the permissible tolerance range of dimension $S2$.

You can find the values for dimension $S2$ in section Speeds, geometry data and weights (Page 49).

5.3.2.2 Angular misalignment

Determine the value $\Delta S2$ ($\Delta S2 = S2_{\text{max}} - S2_{\text{min}}$). The determined value $\Delta S2$ may not exceed the value $\Delta S2_{\text{perm}}$.

You can find the values for $\Delta S2_{\text{perm}}$ in section Shaft misalignment values during operation (Page 53).

If required, you can calculate the angular misalignment $\Delta Kw$ as follows:

$$\Delta Kw \ [\text{rad}] = \frac{\Delta S2}{DA}$$
\[ \Delta K_w [\text{deg}] = \left( \frac{\Delta S_2}{D_A} \right) \cdot \left( \frac{180}{\pi} \right) \]

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

\[ \Delta K_{w,\text{perm}} [\text{rad}] = \frac{\Delta S_{2,\text{perm}}}{D_A} \]

\[ \Delta K_{w,\text{perm}} [\text{deg}] = \left( \frac{\Delta S_{2,\text{perm}}}{D_A} \right) \cdot \left( \frac{180}{\pi} \right) \]

\( D_A \) in mm see section Speeds, geometry data and weights (Page 49)

\( \Delta S_{2,\text{perm}} \) see section Shaft misalignment values during operation (Page 53)

5.3.2.3 Radial misalignment

Determine the value \( \Delta K_r \). The determined value \( \Delta K_r \) 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 53).
Commissioning

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 53).
2. Check the tightening torques of the foundation bolts of the coupled machines.
3. Check whether suitable enclosures (ignition protection, 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.
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.

⚠️ WARNING

Physical injury
Injury from rotating parts.
- 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>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Rectification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudden changes in the noise level and/or sudden occurrences of shocks</td>
<td>Wear of wearing parts</td>
<td>Follow the instructions given in section Replacing wearing parts (Page 36).</td>
</tr>
<tr>
<td>Changed alignment</td>
<td></td>
<td>Follow the instructions given in section Correcting the changed alignment (Page 37).</td>
</tr>
<tr>
<td>Coupling not suitable for the operating conditions. Check the possible causes given in section Unsuitable coupling (Page 35).</td>
<td></td>
<td>Use a coupling that is suitable for the operating conditions.</td>
</tr>
<tr>
<td>Incorrect assembly of the coupling. Check the possible causes given in sections Assembly-related causes (Page 35) and Specific installation-related and maintenance-related causes (Page 36).</td>
<td></td>
<td>Reassemble the coupling in accordance with these instructions. Please observe all the stipulations and requirements given in chapter Assembly (Page 21).</td>
</tr>
<tr>
<td>Incorrect maintenance of the coupling. Check the possible causes given in sections Maintenance-related causes (Page 36) and Specific installation-related and maintenance-related causes (Page 36).</td>
<td></td>
<td>Please observe all the stipulations and requirements given in chapter Servicing (Page 39).</td>
</tr>
</tbody>
</table>
### 7.2 Faults - causes and rectification

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Rectification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of vibration</td>
<td>Coupling not suitable for the operating conditions.</td>
<td>Use a coupling that is suitable for the operating conditions.</td>
</tr>
<tr>
<td></td>
<td>Check the possible causes given in section Unsuitable coupling (Page 35).</td>
<td></td>
</tr>
<tr>
<td>Incorrect assembly of the coupling.</td>
<td>Check the possible causes given in sections Assembly-related causes (Page 35) and Specific installation-related and maintenance-related causes (Page 36).</td>
<td>Reassemble the coupling in accordance with these instructions. Please observe all the stipulations and requirements given in chapter Assembly (Page 21).</td>
</tr>
<tr>
<td>Incorrect maintenance of the coupling.</td>
<td>Check the possible causes given in sections Maintenance-related causes (Page 36) and Specific installation-related and maintenance-related causes (Page 36).</td>
<td>Please observe all the stipulations and requirements given in chapter Servicing (Page 39).</td>
</tr>
</tbody>
</table>

#### 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.
7.2 Faults - causes and rectification

- 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

- Flexible elements (12) not fitted.
- Fitted flexible elements (12) heated up excessively when applying heat to the coupling parts.
- Flexible elements (12) of different types or age are used.
- Flexible elements (12) not replaced as sets.

7.2.3 Correcting faults

7.2.3.1 Replacing wearing parts

Flexible elements (12) are subject to wear and this wear can result in torsional backlash.
Procedure

1. Check the wear on the flexible elements (12) (see section Maximum permissible torsional backlash (Page 40)).
2. Replace the flexible elements (12) if necessary (see section Replacing wearing parts (Page 41)).

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.
Operation

7.2 Faults - causes and rectification
8.1 Maintenance intervals

**DANGER**

**Danger due to bursting of the coupling**

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.

- Please observe all the stipulations concerning maintenance of the coupling in this section.

**DANGER**

**Danger due to bursting of the coupling**

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.

- Note also the actual wear of the elastomer components.

**WARNING**

**Physical injury**

Injury from rotating parts.

- 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 parts 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 40).

<table>
<thead>
<tr>
<th>Type</th>
<th>Initial maintenance</th>
<th>Follow-up maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>3 months after commissioning</td>
<td>Every 12 months</td>
</tr>
<tr>
<td>HDS</td>
<td>3 months after commissioning ¹)</td>
<td>Every 12 months ¹)</td>
</tr>
</tbody>
</table>

¹) According to the ATEX Directive, need only be inspected if a failure of the flexible elements (12) and shutdown of the drive as a result of this failure could give rise to a risk of explosion. We recommend that the torsional backlash is checked regularly.
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.

![Diagram showing markings for calculating the torsional backlash]

Table 8-2 Maximum permissible torsional backlash for the type H (sizes 80 to 200)

<table>
<thead>
<tr>
<th>Size</th>
<th>80</th>
<th>95</th>
<th>110</th>
<th>125</th>
<th>140</th>
<th>160</th>
<th>180</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>∆S_V [mm]</td>
<td>5.0</td>
<td>6.0</td>
<td>7.0</td>
<td>8.0</td>
<td>8.0</td>
<td>8.0</td>
<td>8.0</td>
<td>8.5</td>
</tr>
</tbody>
</table>

Table 8-3 Maximum permissible torsional backlash for the type H (sizes 225 to 440)

<table>
<thead>
<tr>
<th>Size</th>
<th>225</th>
<th>250</th>
<th>280</th>
<th>315</th>
<th>350</th>
<th>400</th>
<th>440</th>
</tr>
</thead>
<tbody>
<tr>
<td>∆S_V [mm]</td>
<td>9.0</td>
<td>10.0</td>
<td>11.5</td>
<td>10.5</td>
<td>11.5</td>
<td>13.0</td>
<td>14.0</td>
</tr>
</tbody>
</table>

Table 8-4 Maximum permissible torsional backlash for the type HDS (sizes 88 to 218)

<table>
<thead>
<tr>
<th>Size</th>
<th>88</th>
<th>103</th>
<th>118</th>
<th>135</th>
<th>152</th>
<th>172</th>
<th>194</th>
<th>218</th>
</tr>
</thead>
<tbody>
<tr>
<td>∆S_V [mm]</td>
<td>5.0</td>
<td>7.0</td>
<td>9.0</td>
<td>10.5</td>
<td>11.5</td>
<td>9.0</td>
<td>8.0</td>
<td>7.0</td>
</tr>
</tbody>
</table>
### 8.3 Replacing wearing parts

#### DANGER

**Danger due to bursting of the coupling**

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.

- Please observe all the stipulations concerning the replacement of wearing parts.

Replace the flexible elements (12) if the maximum permissible torsional backlash has been reached. It is not necessary to move the coupled machines apart.

### Procedure

1. Secure the coupling part 6 (6) in position to prevent it from falling.
2. Loosen the screws (22) between the coupling parts 5 (5) and 6 (6), and between the coupling parts 6 (6) and 7 (7).
3. Press the coupling parts 5 (5) and 7 (7) out of the centring devices using the tapped jacking holes in coupling part 6 (6).
4. Push the coupling part 7 (7) as far as possible into coupling part 1 (1).
5. Remove the coupling part 6 (6) radially.
6. Pull the coupling part 7 (7) out of the coupling part 1 (1).
   - The flexible elements (12) are now freely accessible.
7. Remove the flexible elements (12).
8. Install the new flexible elements (12).
   - Please observe the information in section Use and storage of flexible elements (12) (Page 55).

When reinstalling the coupling parts please observe the information in chapters Assembly (Page 21) and Commissioning (Page 31).
# 8.4 Removing the coupling

## DANGER

**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.

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

### Procedure

1. Secure the coupling parts to prevent them from falling.
2. Loosen the screws (22) between the coupling parts 5 (5) and 6 (6), and between the coupling parts 6 (6) and 7 (7).
3. Press the coupling parts 5 (5) and 7 (7) out of the centring devices using the tapped jacking holes in coupling part 6 (6).
4. Push the coupling part 7 (7) as far as possible into coupling part 1 (1).
5. Remove the coupling part 6 (6) radially.
6. Pull the coupling part 7 (7) out of the coupling part 1 (1).
7. Remove the axial locking elements (set screw, end plate).
8. Use a suitable pulling fixture.
9. Heat up the coupling part 1 (1) and 5 (5) using a burner above the parallel keyway along its length to maximum 80 °C.
   - Note when doing this the temperature range of the flexible elements (12) (see sections N-EUPEX flexible elements (12) (Page 55) and N-EUPEX DS flexible elements (12) (Page 56)). Remove the flexible elements (12) if necessary.
10. Pull off the coupling part. Use suitable lifting gear when doing this.
11. Check the hub bore and the shaft for damage and protect them against corrosion.
12. Replace any damaged parts.

When reinstalling the coupling parts please observe the information in chapters Assembly (Page 21) and Commissioning (Page 31).
Service and support

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
Flender GmbH (http://www.flender.com)
Disposal

Disposal of the coupling

Dispose of the coupling parts according to applicable national regulations or recycle them.
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 48).

You will find our contact data for ordering spare parts in Service and support (Page 43).

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 48))
- Dimensions of the pare 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

Table 11-1  Spare parts list for types H and HDS

<table>
<thead>
<tr>
<th>Part number</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coupling part 1</td>
</tr>
<tr>
<td>5</td>
<td>Coupling part 5</td>
</tr>
<tr>
<td>6</td>
<td>Coupling part 6</td>
</tr>
<tr>
<td>7</td>
<td>Coupling part 7</td>
</tr>
<tr>
<td>12</td>
<td>Flexible element</td>
</tr>
<tr>
<td>22</td>
<td>Cylinder-head screw</td>
</tr>
</tbody>
</table>

Figure 11-1  Spare parts drawing for types H and HDS
A.1 Speeds, geometry data and weights

In this section you can find dimension drawings and technical data for N-EUPEX and N-EUPEX DS couplings of the following types:

- Type H (Page 49)
- Type HDS (Page 51)

A.1.1 Type H

<table>
<thead>
<tr>
<th>Size</th>
<th>Speed $n_{\text{max}}$ (rpm)</th>
<th>Maximum bore</th>
<th>Weight $m$ (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D1</td>
<td>D2</td>
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</tr>
<tr>
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</table>

Figure A-1 Type H

Table A-1 Speeds, geometry data and weights of type H
## Technical data

### A.1 Speeds, geometry data and weights

<table>
<thead>
<tr>
<th>Size</th>
<th>Speed $n_{\text{max}}$</th>
<th>Maximum bore</th>
<th></th>
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</tbody>
</table>
## A.1 Speeds, geometry data and weights

**Table A-2  Speeds, geometry data and weights of type HDS**

<table>
<thead>
<tr>
<th>Size</th>
<th>Speed (n_{\text{max.}}) rpm</th>
<th>Maximum bore</th>
<th>Weight m kg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D1</td>
<td>D2</td>
<td>DA</td>
</tr>
<tr>
<td>400</td>
<td>1 700</td>
<td>120</td>
<td>150</td>
</tr>
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<td></td>
<td>150</td>
<td>250</td>
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<td></td>
<td>160</td>
<td>265</td>
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</tr>
</tbody>
</table>

1) Maximum bore for parallel keyway in accordance with DIN 6885/1.
2) Weight applies to one coupling with maximum bore.

### A.1.2 Type HDS

![Diagram of Type HDS](image)

1. Coupling part 1
2. Coupling part 5
3. Coupling part 6
4. Coupling part 7

Figure A-2  Type HDS
## Technical data

### A.1 Speeds, geometry data and weights

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>Speed (rpm)</th>
<th>Maximum bore</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>135</td>
<td>5 100</td>
<td>135 60 50 50 100 36 7.6</td>
<td>65 140 6.1</td>
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<td>4 900</td>
<td>152 108 55 65 5 100 36 11.2</td>
<td>65 140 11.7</td>
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<td>172 118 60 70 6 100 41 14.3</td>
<td>70 140 15.9</td>
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<td>194</td>
<td>3 800</td>
<td>194 135 70 80 6 140 44 21</td>
<td>180 22</td>
</tr>
<tr>
<td>218</td>
<td>3 400</td>
<td>218 150 80 90 6 140 47 30</td>
<td>200 23</td>
</tr>
<tr>
<td>245</td>
<td>3 000</td>
<td>245 150 90 100 6 140 52 35</td>
<td>250 33</td>
</tr>
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<td>272</td>
<td>2 750</td>
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<td>200 52</td>
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<td>305</td>
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<tr>
<td>380</td>
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<td>250 78 205</td>
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<tr>
<td>430</td>
<td>1 700</td>
<td>430 250 150 150 8 160 78 205</td>
<td>250 86 235</td>
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<tr>
<td>472</td>
<td>1 550</td>
<td>472 265 160 160 10 180 86 235</td>
<td>180 10</td>
</tr>
</tbody>
</table>

---

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

2) Weight applies to one coupling with maximum bore.
A.2 Shaft misalignment values during operation

The following table shows the maximum permissible shaft misalignment values $\Delta S_{2\, \text{perm}}$ and $\Delta K_{r\, \text{perm}}$. The values are rounded and specified in mm.

### Table A-3 Maximum permissible shaft misalignment values during operation

<table>
<thead>
<tr>
<th>Type / size</th>
<th>Coupling speed [rpm]</th>
<th>H</th>
<th>HDS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>250</td>
<td>500</td>
<td>750</td>
</tr>
<tr>
<td>80</td>
<td>88</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>95</td>
<td>103</td>
<td>0.5</td>
<td>0.35</td>
</tr>
<tr>
<td>110</td>
<td>118</td>
<td>0.5</td>
<td>0.35</td>
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<td>125</td>
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<td>0.5</td>
</tr>
<tr>
<td>180</td>
<td>194</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>200</td>
<td>218</td>
<td>0.8</td>
<td>0.55</td>
</tr>
<tr>
<td>225</td>
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<td>1</td>
<td>0.7</td>
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<td>380</td>
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<td>400</td>
<td>430</td>
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<tr>
<td>440</td>
<td>472</td>
<td>1.3</td>
<td>1</td>
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</tbody>
</table>

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

$$\Delta K_{r\, \text{perm}} = \Delta S_{2\, \text{perm}} = \left(0.1 + \frac{DA}{1000}\right) \cdot \frac{40}{\sqrt{n}} \quad \text{Coupling speed } n \text{ in rpm}$$

- $DA$ in mm (see Speeds, geometry data and weights (Page 49))
- Radial misalignment $\Delta K_{r\, \text{perm}}$ 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

### Table A-4 Tightening torques for part 22 of types H and HDS

<table>
<thead>
<tr>
<th>N-EUPEX-Coupling</th>
<th>N-EUPEX DS-Coupling</th>
<th>Tightening torque $T_A$ and width A/F SW for Hexagon socket-head screws according to DIN EN ISO 4762</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Size</td>
<td>$T_A$ in Nm</td>
</tr>
<tr>
<td>80</td>
<td>88</td>
<td>13</td>
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<td>110</td>
<td>118</td>
<td>14</td>
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</tbody>
</table>
A.4 Tightening procedure

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

Table A-5  Tightening procedure

<table>
<thead>
<tr>
<th>Scatter of the torque applied at the tool</th>
<th>Tightening procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>±5 %</td>
<td>• Hydraulic tightening with mechanical screwdriver</td>
</tr>
<tr>
<td></td>
<td>• Torque-controlled tightening with a torque wrench or</td>
</tr>
<tr>
<td></td>
<td>a torque wrench that gives a signal</td>
</tr>
<tr>
<td></td>
<td>• Tightening with a precision mechanical screwdriver</td>
</tr>
<tr>
<td></td>
<td>with dynamic torque measurement</td>
</tr>
</tbody>
</table>

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.

Apply the recommended tightening torques in accordance with the stipulations in section Tightening procedure (Page 54).

<table>
<thead>
<tr>
<th>N-EUPEX-D Coupling</th>
<th>N-EUPEX DS-Coupling</th>
<th>Tightening torque $T_A$ and width A/F SW for Hexagon socket-head screws according to DIN EN ISO 4762</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>T&lt;sub&gt;A&lt;/sub&gt;</td>
<td>SW</td>
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<td>------</td>
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<tr>
<td>125</td>
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<tr>
<td>140</td>
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</table>
A.5 Flexible elements (12)

A.5.1 Use and storage of flexible elements (12)

Note the following concerning the use and storage of the flexible elements (12):

- 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 flexible elements of the same type and age

A.5.2 N-EUPEX flexible elements (12)

Table A-6 N-EUPEX flexible elements

<table>
<thead>
<tr>
<th>Material</th>
<th>Hardness</th>
<th>Comment</th>
<th>Marking</th>
<th>Ambient temperature</th>
<th>Approved for explosion group</th>
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<tr>
<td>NBR</td>
<td>80 Shore A</td>
<td>Standard</td>
<td>Black flexible elements with blue stripe</td>
<td>-30 °C to +80 °C</td>
<td>IIA, IIB, IIC</td>
</tr>
<tr>
<td>NBR</td>
<td>65 Shore A</td>
<td>Special, soft, shifting of the resonant speed, rated torque reduced</td>
<td>Black flexible elements with green stripe</td>
<td>-30 °C to +80 °C</td>
<td>IIA, IIB, IIC</td>
</tr>
<tr>
<td>NBR</td>
<td>90 Shore A</td>
<td>Special, hard, shifting of the resonant speed</td>
<td>Black flexible elements with magenta stripe</td>
<td>-30 °C to +80 °C</td>
<td>IIA, IIB, IIC</td>
</tr>
<tr>
<td>NBR</td>
<td>80 Shore A</td>
<td>Special, increased (low-backlash)</td>
<td>Black flexible elements with yellow stripe</td>
<td>-30 °C to +80 °C</td>
<td>IIA, IIB, IIC</td>
</tr>
<tr>
<td>NBR</td>
<td>65 Shore A</td>
<td>Special, increased (low-backlash) shifting of the resonant speed, rated torque reduced</td>
<td>Black flexible elements with white stripe</td>
<td>-30 °C to +80 °C</td>
<td>IIA, IIB, IIC</td>
</tr>
<tr>
<td>NR</td>
<td>80 Shore A</td>
<td>Special, low-temperature use</td>
<td>Black flexible elements with orange stripe</td>
<td>-50 °C to +50 °C</td>
<td>IIA, IIB, IIC</td>
</tr>
</tbody>
</table>
### Technical data

#### A.5 Flexible elements (12)

<table>
<thead>
<tr>
<th>Material</th>
<th>Hardness</th>
<th>Comment</th>
<th>Marking</th>
<th>Ambient temperature</th>
<th>Approved for explosion group</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNBR</td>
<td>80 Shore A</td>
<td>Special, high-temperature use</td>
<td>Black flexible elements with red stripe</td>
<td>-10 °C to +100 °C</td>
<td>Not approved</td>
</tr>
<tr>
<td>NBR</td>
<td>80 Shore A</td>
<td>Special, electrically insulating</td>
<td>Green flexible elements</td>
<td>-30 °C to +80 °C</td>
<td>IIA, IIB</td>
</tr>
</tbody>
</table>

#### A.5.3 N-EUPEX DS flexible elements (12)

Table A-7  N-EUPEX DS flexible elements

<table>
<thead>
<tr>
<th>Material</th>
<th>Hardness</th>
<th>Comment</th>
<th>Marking</th>
<th>Ambient temperature</th>
<th>Approved for explosion group</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBR</td>
<td>90 Shore A</td>
<td>Standard</td>
<td>Black flexible elements</td>
<td>-30 °C to +80 °C</td>
<td>IIA, IIB, IIC</td>
</tr>
</tbody>
</table>
B.1 EU declaration of conformity

EU declaration of conformity

Product:
FLENDER N-EUPEX® and
FLENDER N-EUPEX-DS®
Couplings
Types H and HDS

Name and address of the manufacturer:
Flelnder GmbH
Schlavenhorst 100
46395 Bocholt
Deutschland – Germany

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

This declaration refers to the product mentioned above.

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

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

EN 1127-1 : 2011
EN ISO 80079-38 : 2017

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

Signed for and on behalf of:
Flelnder GmbH

Bocholt, 2019-01-01

Dr. Tim Sadek, Vice President, Applications Couplings
Quality documents

B.1 EU declaration of conformity