Operating Instructions

BA 3320 EN 03.04

Highly elastic ELPEX-B Couplings Types
EBWT, EBWN and EBWZ

EBWT

EBWN

EBWZ
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1. Technical data

1.1 Geometric data of types EBWT and EBWN

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<th>d₂</th>
<th>d₃</th>
<th>l₁</th>
<th>l₂</th>
<th>S</th>
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Table 1.1: Dimensions, weights and mass moments of inertia of Types EBWT and EBWN

1) Part 3: Screw connection of the TAPER clamping bush from the shaft end face side.
   Part 4: Screw connection of the TAPER clamping bush from the machine housing side.

2) Space required for mounting and demounting TAPER clamping bushes or space required for replacing the elastic ring on size 105 to 165.

3) Space required for replacing the elastic rings.

4) Weights and mass moments of inertia apply to one coupling half.
### Geometric data of type EBWZ

**Table 1.2: Dimensions, weights and mass moments of inertia of Type EBWZ**

1) Weights and mass moments of inertia apply to mean bores including the TAPER clamping bush and ring portion.

2) Special tools required for assembly.

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1) Weights and mass moments of inertia apply to mean bores including the TAPER clamping bush and ring portion.

2) Special tools required for assembly.
### 1.3 Performance data

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<th>Maximum torque</th>
<th>Fatigue torque</th>
<th>Speed</th>
<th>Perm. shaft misalignment</th>
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<td>$T_{KN}$ Nm</td>
<td>$T_{Kmax}$ Nm</td>
<td>$T_{KW}$ Nm</td>
<td>$n_{max}$ 1/min</td>
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Relative damping coefficient $\Psi = 0.9$

The indicated torques apply to:
- daily operating cycle of up to 24 h
- during the starting operation or operation torque surges of up to the maximum torque are permitted up to 120 times an hour.
- operation within the specified alignment
- operation in the temperature range -50 °C to +50 °C (ambient temperature or temperature in the immediate vicinity of the coupling).

**Caution!** In the event of a change in operating conditions (e.g. output, speed, starting frequency, changes to the prime mover and driven machine and to the ambient temperature) the design must always be checked.
2. General notes

2.1 Introduction

These Operating Instructions (BA) are an integral part of the coupling delivery and must be kept in its vicinity for reference at all times.

**Caution!** All persons involved in the installation, operation, maintenance and repair of the coupling must have read and understood these Operating Instructions and must comply with them at all times. We accept no responsibility for damage or disruption caused by disregard of these Instructions.

The "Coupling" described in these Operating Instructions (BA) has been developed for stationary use in general engineering applications. The coupling serves to transmit power and torque between two shafts or flanges connected by this coupling.

The coupling is designed only for the application described in section 1, "Technical data". Other operating conditions must be contractually agreed.

The coupling described in these Instructions reflects the state of technical development at the time these Instructions went to print.

In the interest of technical progress we reserve the right to make changes to the individual assemblies and accessories which we regard as necessary to preserve their essential characteristics and improve their efficiency and safety.

2.2 Copyright

The copyright to these Operating Instructions (BA) is held by FLENDER AG.

These Operating Instructions (BA) must not be wholly or partly reproduced for competitive purposes, used in any unauthorised way or made available to third parties without our agreement.

Technical enquiries should be addressed to the following works

FLENDER AG
D 46393 Bocholt
Telefon: 02871/92-2868
Telefax: 02871/92-2579

or to one of our customer-service addresses. A list of our customer-service addresses is given in section 11, "Spare parts, customer-service addresses".
3. **Safety notes**

3.1 **Proper use**

- The coupling has been manufactured in accordance with the state of the art and is delivered in a condition for safe and reliable use. Any changes on the part of the user which may affect safety and reliability are prohibited. This applies equally to safety features designed to prevent accidental contact.

- The coupling must be used and operated strictly in accordance with the conditions laid down in the contract governing performance and supply.

3.2 **Obligations of the user**

- The operator must ensure that all persons involved in installation, operation, maintenance and repair have read and understood these Operating Instructions (BA) and comply with them at all times in order to:
  - avoid injury or damage,
  - ensure the safety and reliability of the coupling, and
  - avoid disruptions and environmental damage through incorrect use.

- During transport, assembly, installation, dismantling, operation and maintenance of the unit, the relevant safety and environmental regulations must be complied with at all times.

- The coupling must be operated, maintained or repaired only by authorised, duly trained and qualified personnel.

- All work must be carried out with great care and with due regard to safety.

- All work on the gear unit must be carried out only when it is at a standstill.
  The drive unit must be secured against being switched on accidentally (e.g. by locking the key switch or removing the fuses from the power supply). A notice should be attached to the ON switch stating clearly that work is in progress.

- The coupling must be fitted with suitable safeguards to prevent accidental contact. The operation of the coupling must not be impaired by the safeguard.

- The drive unit must be shut down as soon as changes to the coupling are detected during operation.

- If the coupling is intended for installation in plant or equipment, the manufacturer of such plant or equipment must ensure that the contents of the present Operating Instructions are incorporated in his own instructions.

- All spare parts must be obtained from FLENDER.

3.3 **Warnings and symbols used in these Instructions**

- This symbol indicates safety measures which must be observed to avoid **personal injury**.

- This symbol indicates safety measures which must be observed to avoid **damaging the coupling**.

- **Note:** This symbol indicates general **operating instructions** which are of particular importance.
4. Handling and storage

4.1 Scope of supply

The products supplied are listed in the despatch papers. Check immediately on receipt to ensure that all the products listed have actually been delivered. Parts damaged during transport or missing parts must be reported in writing immediately.

4.2 Handling

When handling FLENDER products, use only lifting and handling equipment of sufficient load-bearing capacity!

Note: The coupling must be transported using suitable transport equipment only.

Different forms of packaging may be used depending on the size of the coupling and method of transport. Unless otherwise agreed, the packaging complies with the HPE Packaging Guidelines.

The symbols marked on the packaging must be observed at all times. These have the following meanings:

- This way up
- Fragile
- Keep dry
- Keep cool
- Centre of gravity
- Use no hand hook
- Attach here

4.3 Storage of the coupling

4.3.1 Storage of the coupling parts

The coupling is delivered in a preserved condition and can be stored in a covered, dry place for up to 3 months. If the coupling is to be stored for a protracted period, it should be treated with a long-term preservative agent (FLENDER must be consulted).

Caution! Before cleaning the coupling parts and applying the long-term preservative agent, the elastic ring must be covered or removed. The elastic ring must not come into contact with oil or cleaning agent.

4.3.2 Storage of the elastic rings

4.3.2.1 General

Correctly stored elastic rings retain their properties unchanged for up to five years. Unfavourable storage conditions and improper treatment will negatively affect the physical properties of the elastic ring. Such negative effects may be caused by e.g. the action of ozone, extreme temperatures, light, moisture, or solvents.

4.3.2.2 Storage area

The storage area must be dry and free from dust. The elastic rings must not be stored with chemicals, solvents, motor fuels, acids, etc. Furthermore, they should be protected against light, in particular direct sunlight and bright artificial light with a high ultraviolet content.

Caution! The storage areas must not contain any ozone-generating equipment, e.g. fluorescent light sources, mercury vapour lamps, high-voltage electrical equipment. Damp storage areas are unsuitable. Ensure that no condensation occurs. The most favourable atmospheric humidity is below 65 %.
5. Technical description

5.1 General description

ELPEX-B couplings are highly-elastic elastic couplings. They are suitable for connecting machines and can compensate for relatively important shaft misalignment of the coupled machines. ELPEX-B couplings dampen torsional vibration, reduce impacts and insulate against structure-borne sound.

The elastic ring is slit at one place on its circumference so that it can be replaced without having to shift the coupled machines. The elastic ring is clamped non-positively by the clamping ring and coupling part (1) or (3) or (4) respectively. The coupling is free of circumferential backlash and therefore also especially suitable for reversing operation.

On type EBWT coupling part (3) or (4) is connected via TAPER clamping bushes to the shafts to be coupled. On the design with coupling part (3) the TAPER clamping bush is bolted on from the shaft end face side. On coupling part (4) the TAPER clamping bush is fitted from the machine housing side.

Type EBWZ is designed with an adapter. Space can thus be created for demounting system components without shifting the coupled machines.
6. **Mounting**

At the customer's request FLENDER also delivers unbored or prebored coupling parts.

The necessary refinishing must be carried out in strict compliance with the following specifications and with particular care!

![Caution!](image)

**Responsibility for carrying out the refinishing is borne by the orderer.** FLENDER can accept no guarantee claims arising from unsatisfactory refinishing!

6.1 Instructions for machining the finished bore, parallel keyway, axial retaining means, set screws and balancing

6.1.1 Finished bore

- Remove clamp ring (7) and screws.
- Depreserve and, if necessary, clean coupling parts.

![Note manufacturer's instructions for handling solvent.](image)

When machining the finished bore the parts must be carefully aligned. For the permissible radial and axial runout errors and the permissible cylindricity tolerances, refer to DIN ISO 286. The parts must be mounted on the marked faces ( ).

![Caution!](image)

The maximum permissible bore diameters (see section 1.) are designed for drive-type fastenings without taper action to DIN 6885/1 and must not under any circumstances be exceeded. The finish-machined bores must be 100 % checked with suitable measuring equipment.

If other shaft - hub connections (e.g. taper or stepped bore, etc.) are to be used instead of the flanged sleeve connections provided for, FLENDER must be consulted.

Flanged sleeve connections with taper action are not permissible.
For drive by means of parallel keys the following fit pairs are prescribed for the bores:

<table>
<thead>
<tr>
<th>Selection of fit</th>
<th>Selection of fit $D_1$</th>
<th>Shaft tolerances</th>
<th>Bore tolerances</th>
</tr>
</thead>
<tbody>
<tr>
<td>to FLENDER standard</td>
<td>25 k6</td>
<td>H7</td>
<td></td>
</tr>
<tr>
<td>to DIN 748/1</td>
<td>25 100 m6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 n6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System standard shaft</td>
<td>50 k6</td>
<td>H7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 m6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>all h6</td>
<td>M7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.1.1: Fit pairs

**Caution!** The assigned fits must be adhered to in order, on the one hand, to keep the play in the shaft-hub connection as low as possible, depending on utilisation of the tolerance zones, or, on the other, to keep the hub tension arising from the oversize within the permissible load limit. Failure to adhere to the fits may impair the shaft-hub connection.

If the tolerance values of the shafts deviate from those in table 6.1.1 above, FLENDER must be consulted.

Failure to observe these instructions may result in breakage of the coupling. Danger from flying fragments!

6.1.2 Parallel keyway

The parallel keyways must be designed in accordance with DIN 6885/1. If the keyway geometry deviates, FLENDER must be consulted. Taper keys or nose keys (gib headed keys) are not permissible.

The parallel keyways must be designed to suit the available parallel keys. For parallel keyways the tolerance zone of the hub keyway width ISO JS9 must be adhered to.

For more difficult operating conditions of the kind arising e.g. with reversing operation or operation with impulses the hub keyway tolerance zone ISO P9 is specified.

6.1.3 Axial fastening

A set screw or end plate must be provided to secure the coupling parts axially. If end plates are used, FLENDER must be consulted with regard to machining the recesses in the coupling parts.

If the coupling part mounted on the shaft does not lie up against the shaft shoulder, we recommend using grooved spacer rings.
6.1.4 Set screws

Hexagon socket set screws with cup points to DIN 916 must be used for set screws. The following guidelines must be observed!

![Caution!]

The length of the set screw must be selected so that it fills the threaded hole, but does not project from the hub \(L_{\text{min}} = d_1 \times 1.2\).

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>105</th>
<th>135</th>
<th>165</th>
<th>190</th>
<th>210</th>
<th>235</th>
<th>255</th>
<th>280</th>
<th>315</th>
<th>360</th>
<th>630</th>
</tr>
</thead>
<tbody>
<tr>
<td>(d_1)</td>
<td>M6</td>
<td>M8</td>
<td>M8</td>
<td>M12</td>
<td>M12</td>
<td>M12</td>
<td>M12</td>
<td>M12</td>
<td>M16</td>
<td>M16</td>
<td>M24</td>
</tr>
<tr>
<td>(e_1)</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>50</td>
<td>50</td>
<td>55</td>
<td>55</td>
<td>30</td>
</tr>
<tr>
<td>Torque (Nm)</td>
<td>4</td>
<td>8</td>
<td>8</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>70</td>
<td>70</td>
<td>230</td>
</tr>
</tbody>
</table>

Table 6.1.4: Set screw assignment and tightening torques of the set screws

![Caution!]

The set screws must always be positioned on the keyway.

6.1.5 Balancing

Prebored couplings or prebored coupling parts are delivered unbalanced. It is recommended that these parts are balanced to suit the application after finish-boring (see DIN ISO 1940 and DIN 740/2), but to min. balancing quality G16.

Balancing is normally done by drilling material away.

![Caution!]

The balancing holes must not be made in the elastic ring clamping area.

Finish-bored couplings or coupling parts are half-wedge-balanced according to DIN ISO 8821. The balancing quality conforms to G16 at speed \(n = 1500\ \text{1/min}\) and maximum speed to DIN ISO 1940.

Different balancing settings must be expressly requested by the customer.

6.2 General information on mounting

During mounting, the "Safety Instructions" in Section 3 must be observed.

Mounting work must be done with great care by trained and qualified personnel.

As early as during the planning phase it must be ensured that sufficient space is available for installation and subsequent care and maintenance work.

Adequate lifting equipment must be available before beginning the mounting work.
6.3 Mounting and demounting the TAPER clamping bush

6.3.1 Mounting the TAPER clamping bush

Before mounting begins, the shaft ends and the outer and inner taper of the TAPER clamping bush must be carefully cleaned and degreased. When cleaning the metal parts the elastic ring must not come into contact with the cleaning agent.

⚠️ Note manufacturer’s instructions for handling solvent.

Up to size 3030 = 2 and from size 3535 = 3 up the TAPER clamping bushes have axially parallel, cylindrical and smooth blind holes in the large end face, only half of which are in the material of the bush. The other half, which is in the hub, have threads.

Insert coupling part (3) or (4) and the TAPER clamping bush one inside the other, align holes and slightly tighten bolts.

Place coupling part (3) or (4) with the TAPER clamping bush on the cleaned shaft and then align, noting dimension S₁, and tighten the clamping bush bolts alternately (for tightening torques, see item 6.5.4.2).

During the screwing-on operation the hub is drawn onto the tapered clamping bush and the bush thus pressed onto the shaft.

If the TAPER clamping bushes are to be used without parallel keys, the sliding torques and tightening torques (see item 6.5.4.2) must be observed. All TAPER clamping bushes are designed with a keyway for parallel keys with parallel sides (no wedges).

Fill the unused holes in the TAPER clamping bushes with grease to prevent the ingress of dirt.

6.3.2 Demounting the TAPER clamping bush

The TAPER clamping bush is released by removing the bolts. One of the bolts is then screwed into the bush thread as a forcing-off screw and tightened.

From TAPER clamping bush no. 3535 up two forcing-off screws are provided.

The coupling part thus released can be pulled off by hand with the TAPER clamping bush without tools.

6.4 Alignment

6.4.1 General alignment

Misalignments of the coupling parts in relation to each other can be caused by inaccurate alignment during mounting, but also by actual operation of the equipment (expansion due to heat, shaft deflection, too elastic machine frames, etc.).

The couplings pick up positional errors in the shaft ends to be connected up to the data shown in table 1.1. During alignment radial and angular misalignment should be kept as small as possible to prolong the service life of the elastic ring.

After pulling on the coupling parts (1, 3, 4 or 5) and before fitting the elastic ring the coupled machines must be aligned.

Alignment has to be done in two axial planes arranged perpendicular to each other. This can be done by means of a ruler (radial misalignment) and calliper gauge (angular misalignment).
6.4.2 Permissible shaft misalignment values

**Caution!** The maximum permissible misalignments specified in item 1.3 must under no circumstances be exceeded during operation.

**Caution!** The specified permissible axial, radial and angular misalignments must not occur at the same time.

If axial, radial and angular misalignments occur at the same time, reduced permissible misalignment values must be adhered to.

With an axial misalignment of $\Delta K_a / 2$ and radial misalignment of $\Delta K_r / 2$ an angular misalignment of $\Delta K_w \leq 2^\circ$ may be permitted.

6.4.3 Radial misalignment

For maximum values, see item 1.3.

6.4.4 Angular misalignment

To simplify matters, the angular misalignment $\Delta K_w$ is obtained as the difference between the dimensions $S_{\text{max}}$ and $S_{\text{min}}$. For maximum values, see item 1.3.

6.4.5 Axial misalignment

The permitted axial misalignment $\Delta K_a$ is shown in item 1.3. For the nominal gap dimension $S$, see the tables in item 1.1 or 1.2.

The measured gap dimension must be between the values $S_{\text{max}}$ and $S_{\text{min}}$, taking into consideration the above mentioned restrictions. Here applies the formula:

$$
S_{\text{max}} = S + \Delta K_a \\
S_{\text{min}} = S - \Delta K_a
$$

6.5 Mounting and demounting the elastic ring

6.5.1 General

The elastic ring is slit at the circumference to enable demounting and fitting without shifting the coupled machines.

Before the elastic ring is fitted, it must be ensured that the clamping points on parts (1, 3, 4, 5 and 7) are free of all impurities.

**Caution!** The elastic ring must not come into contact with cleaning agent.
6.5.2 Mounting the elastic ring

The elastic ring must be pulled apart at the slit and slipped over coupling parts (1) or (3 or 4). Place the elastic ring in the clamping place between part (7) and part (1) or part (3, 4). After the elastic ring has been inserted, there should be a gap at the parting point on the ring.

Screw the bolts, part (8), in by hand as far as possible, then tighten them one after the other (not diagonally) with the wrench.

**Caution!** Note tightening torques. Do not further tighten the individual bolts by more than one turn.

6.5.3 Demounting the elastic ring

Undo bolts, part (8), one after the other (not diagonally).

6.5.4 Screw tightening torques

6.5.4.1 TAPER clamping bush

<table>
<thead>
<tr>
<th>TAPER clamping bush No.</th>
<th>Bush bore D₁ mm</th>
<th>Sliding torque 1) T_R Nm</th>
<th>Tightening torque T_A Nm</th>
<th>Wrench width S_W DIN 911 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1008</td>
<td>12 19 24</td>
<td>29 51 66</td>
<td>5.6 3</td>
<td></td>
</tr>
<tr>
<td>1210</td>
<td>16 24 32</td>
<td>82 142 210</td>
<td>20 5</td>
<td></td>
</tr>
<tr>
<td>1610</td>
<td>19 24 42</td>
<td>98 135 265</td>
<td>20 5</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>24 42 50</td>
<td>165 340 420</td>
<td>31 6</td>
<td></td>
</tr>
<tr>
<td>2517</td>
<td>24 48 60</td>
<td>220 510 670</td>
<td>48 6</td>
<td></td>
</tr>
<tr>
<td>3020</td>
<td>38 55 75</td>
<td>520 890 1300</td>
<td>90 8</td>
<td></td>
</tr>
<tr>
<td>3525</td>
<td>42 75 90</td>
<td>1000 2150 2600</td>
<td>113 10</td>
<td></td>
</tr>
<tr>
<td>4030</td>
<td>48 75 100</td>
<td>1700 3150 4400</td>
<td>170 12</td>
<td></td>
</tr>
<tr>
<td>4535</td>
<td>55 75 110</td>
<td>2500 3900 6300</td>
<td>192 14</td>
<td></td>
</tr>
<tr>
<td>5040</td>
<td>75 100 125</td>
<td>3950 5650 7370</td>
<td>271 14</td>
<td></td>
</tr>
</tbody>
</table>

1) The specified sliding torques T_R apply to the use of TAPER clamping bushes without a parallel key, taking into consideration the specified tightening torques T_A. These sliding torques apply to the service factor f₁ = 1. Sliding torques for holes which are not specified in the table can be obtained by interpolation.

The precondition for achieving the specified sliding torques is always a clean, greasefree surface of the parts to be fitted one inside the other and thorough greasing of the tightening bolts.

A parallel key is necessary, if the operating torque of the coupling is greater than the sliding torque of the bush.
### 6.5.4.2 Screw connection (8) and screw connection (22)

<table>
<thead>
<tr>
<th>Size</th>
<th>Tightening torques $T_A$ and wrench widths $S_W$ for Part no. 8</th>
<th>Tightening torques $T_A$ and wrench widths $S_W$ for Part no. 22</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$T_A$ DIN 912 $S_W$ DIN 931 / 933 $S_W$</td>
<td>$T_A$ DIN 912 $S_W$</td>
</tr>
<tr>
<td></td>
<td>Nm</td>
<td>mm</td>
</tr>
<tr>
<td>105</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>135</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>165</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>190</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>210</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>235</td>
<td>40</td>
<td>17</td>
</tr>
<tr>
<td>255</td>
<td>40</td>
<td>17</td>
</tr>
<tr>
<td>280</td>
<td>40</td>
<td>17</td>
</tr>
<tr>
<td>315</td>
<td>50</td>
<td>19</td>
</tr>
<tr>
<td>360</td>
<td>55</td>
<td>19</td>
</tr>
<tr>
<td>400</td>
<td>80</td>
<td>24</td>
</tr>
<tr>
<td>470</td>
<td>105</td>
<td>24</td>
</tr>
<tr>
<td>510</td>
<td>120</td>
<td>24</td>
</tr>
<tr>
<td>560</td>
<td>165</td>
<td>30</td>
</tr>
<tr>
<td>630</td>
<td>165</td>
<td>30</td>
</tr>
</tbody>
</table>

### 7. Start-up

#### 7.1 Procedure before start-up

Before start-up, check all the screw connections for the prescribed tightening torques and ensure that the coupling is correctly aligned (see Section 6). The elastic ring must be checked to ensure correct clamping.

**Caution!** Then fit the coupling guard to prevent unintentional contact.

### 8. Operation

#### 8.1 General operating data

During operation of the coupling watch for:
- changes in running noise
- sudden vibrations

**Caution!** If any irregularities are noticed during operation, switch the drive assembly off at once. The cause of the fault must be ascertained. If the cause cannot be identified or the unit repaired with the facilities available, you are advised to contact one of our customer-service offices for specialist assistance (see section 11).
9. Faults, causes and remedy

9.1 General

The coupling must run with little noise and without vibration in all operating phases. Irregular behaviour must be treated as a fault requiring immediate remedy.

⚠️ Before carrying out maintenance work, repairs or other work the operator must ensure that the entire drive train remains stationary. In particular the drive motors must be prevented from being started up unintentionally. We also refer to the relevant accident prevention regulations at the place of installation.

10. Maintenance and repair

10.1 General

Inspections are limited to a visual assessment of the condition of the coupling. As far as can be determined, screws should be checked for tightness and damage caused by force. In all cases inspection of the coupling should be carried out simultaneously with inspection of the whole system.

10.2 Replacement of wearing parts

Only original ELPEX-B elastic rings must be used for replacement in order to guarantee troublefree torque transmission and faultfree operation.

Small cracks or spalling may occur on the elastic ring after long periods of operation. These signs of ageing must be watched, although they do not mean that the elastic ring needs to be replaced immediately.

11. Spare parts, customer-service addresses

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

When ordering spare parts, always state the following:

- Part no. (see section 5.)
- Description / size
- Quantity

We guarantee only the original spare parts supplied by us.

⚠️ Please note that spare parts and accessories not supplied by us have not been tested or approved by us. The installation or use of such products may therefore impair essential characteristics of the coupling under certain circumstances and so pose an active or passive hazard. FLENDER will assume no liability or guarantee for damage caused by spare parts and accessories not supplied by FLENDER.

Please note that certain components often have special production and supply specifications and that we supply you with spare parts which comply fully with the current state of technical development as well as current legislation.
11.1 Spare parts list

<table>
<thead>
<tr>
<th>Part no.</th>
<th>Description</th>
<th>Part no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Part 1</td>
<td>8</td>
<td>Screws</td>
</tr>
<tr>
<td>3</td>
<td>Part 3</td>
<td>22</td>
<td>Screws</td>
</tr>
<tr>
<td>4</td>
<td>Part 4</td>
<td>50</td>
<td>Elastic ring</td>
</tr>
<tr>
<td>5</td>
<td>Part 5</td>
<td>61</td>
<td>Parallel key</td>
</tr>
<tr>
<td>6</td>
<td>Adapter</td>
<td>101</td>
<td>TAPER clamping bush</td>
</tr>
<tr>
<td>7</td>
<td>Clamp ring</td>
<td>102</td>
<td>TAPER clamping bush</td>
</tr>
</tbody>
</table>

Table 11.1: Spare parts list, Types EBWT, EBWN, EBWZ
11.2 Spare-part and customer service addresses

When ordering spare parts or requesting the services of our specialist engineers, please apply first to FLENDER AG.

FLENDER Germany

A. FRIEDR. FLENDER AG
46393 Bocholt - Tel.: (0 28 71) 92-0 - Fax: (0 28 71) 92 25 96
E-mail: contact@flender.com • www.flender.com
Shipping address: Alfred - Flender - Strasse 77 - 46395 Bocholt

A. FRIEDR. FLENDER AG - Kupplungswerk Mussum
Industriepark Bocholt - Schlavenhorst 100 - 46395 Bocholt - Tel.: (0 28 71) 92 28 68 - Fax: (0 28 71) 92 25 79
E-mail: couplings@flender.com • www.flender.com

A. FRIEDR. FLENDER AG - Werk Friedrichsfeld
Am Industriepark 2 - 46562 Voerde - Tel.: (0 28 71) 92-0 - Fax: (0 28 71) 92 25 96
E-mail: contact@flender.com • www.flender.com

Winergy AG
Am Industriepark 2 - 46562 Voerde - Tel.: (0 28 71) 92-0 - Fax: (0 28 71) 92 24 87
E-mail: info@winergy-ag.com • www.winergy-ag.com

A. FRIEDR. FLENDER AG - Getriebewerk Penig
Thierbacher Strasse 24 - 09322 Penig - Tel.: (03 73 81) 60 - Fax: (03 73 81) 8 02 86
E-mail: ute.tappert@flender.com • www.flender.com

FLENDER - TÜBINGEN GMBH
72007 Tübingen - Tel.: (0 70 71) 7 07-0 - Fax: (0 70 71) 70 74 00
E-mail: sales-motox@flender-motox.com • www.flender.com
Shipping address: Bahnhofstrasse 40 - 72072 Tübingen

LOHER GMBH
94095 Ruhstorf - Tel.: (0 85 31) 3 90 - Fax: (0 85 31) 3 94 37
E-mail: info@loher.de • www.loher.de
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FLENDER SERVICE GMBH
44607 Herne - Tel.: (0 23 23) 940-0 - Fax: (0 23 23) 940 333
E-mail: infos@flender-service.com • www.flender-service.com
24h Service Hotline: +49 (0) 17 22 81 01 00
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A. FRIEDR. FLENDER AG - FLENDER GUSS
Obere Hauptstrasse 228-230 - 09228 Chemnitz / Wittgensdorf - Tel.: (0 37 22) 64 - 0 - Fax: (0 37 22) 94 - 138
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Winergy AG
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72007 Tübingen - Tel.: (0 70 71) 7 07-0 - Fax: (0 70 71) 70 74 00
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24h Service Hotline +49 (0) 17 22 81 01 00
Shipping address: Südstrasse 111 - 44625 Herne

A. FRIEDR. FLENDER AG - FLENDER GUSS
Obere Hauptstrasse 228-230 - 08228 Chemnitz / Wittgensdorf - Tel.: (0 37 22) 64 - 0 - Fax: (0 37 22) 94 - 138
E-mail: flender.guss@flender-guss.com • www.flender-guss.de
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A. FRIEDR. FLENDER AG
46393 BOCHOLT - TEL.: (0 28 71) 92 - 0 - FAX: (0 28 71) 92 25 96
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46393 Bocholt
Alfred-Flender-Strasse 77, 46395 Bocholt
Tel.: (0 28 71) 92 - 0
Fax: (0 28 71) 92 - 14 35
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70472 Stuttgart
Friolzheimer Strasse 3, 70499 Stuttgart
Tel.: (07 11) 7 80 54 - 51
Fax: (07 11) 7 80 54 - 50
E-mail: vz.stuttgart@flender.com

VERTRIEBSZENTRUM MÜNCHEN
85750 Karlsfeld
Liebigstrasse 14, 85757 Karlsfeld
Tel.: (0 81 31) 90 03 - 0
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BA 3320 EN 03.04
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12. Declaration by the manufacturer

**Declaration by the manufacturer**

in accordance with EC Engineering Guideline 98/37/EC, Appendix II B

We hereby declare that the

Highly elastic **ELPEX-B Couplings Types EBWT, EBWN and EBWZ**

described in these Operating Instructions are intended for incorporation in a machine, and that it is prohibited to put them into service before verifying that the machine into which they are incorporated complies with the EC Guidelines (original edition 98/37/EC including any subsequent amendments thereto).

This Manufacturer’s Declaration takes into account all the unified standards (inasmuch as they apply to our products) published by the European Commission in the Official Journal of the European Community.

Bocholt, 2004-03-16

Signature (person responsible for products)