3 Mounting Positions, Mounting Surfaces and Shaft Positions

3.1 Mounting positions

**Definition**

The mounting position defines the spatial orientation of the gear unit housing and is designated M1...M6.

The table below shows the mounting positions.

<table>
<thead>
<tr>
<th></th>
<th>Standard mounting position (shown in gray in the illustration below).</th>
<th>Alternative mounting position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal gear units</td>
<td>M1</td>
<td>M3</td>
</tr>
<tr>
<td>Vertical gear units</td>
<td>M5</td>
<td>M6</td>
</tr>
<tr>
<td>Upright gear units</td>
<td>M4</td>
<td>M2</td>
</tr>
</tbody>
</table>

With alternative mounting positions there might be limitations regarding certain options. Contact SEW-EURODRIVE in this case.
Mounting Positions, Mounting Surfaces and Shaft Positions

Mounting positions

**X.T..**

Gear unit size \(\leq 210\)

Gear unit size \(\geq 220\)
3.2 Mounting surfaces

Definition

The mounting surface is defined as the surface(s) of a gear unit with

- Foot mounting (X.... /B) or
- Flange mounting (X.... /F),

on which the gear unit is mounted.

SEW-EURODRIVE defines 6 different mounting surfaces (designation F1F6).
3.3 **Shaft positions**

The shaft positions and corresponding directions of rotation shown in the following figures apply to solid shafts (LSS) with solid and hollow shaft. There may be restrictions with regard to the possible shaft positions for gear units with backstop and shaft end pump.

### 3.3.1 X.F..

The following shaft positions are possible for gear unit type X.F.:

<table>
<thead>
<tr>
<th>Shaft position X.FS.</th>
<th>Shaft positions X.FH. / X.FA.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="60728AXX" alt="Diagram 1" /></td>
<td><img src="60731AXX" alt="Diagram 2" /></td>
</tr>
</tbody>
</table>

### 3.3.2 X.K..

The following shaft positions are possible for gear unit type X.K.:

<table>
<thead>
<tr>
<th>Shaft position X.KS.</th>
<th>Shaft position X.KH. / X.KA.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="60732AXX" alt="Diagram 3" /></td>
<td><img src="60733AXX" alt="Diagram 4" /></td>
</tr>
</tbody>
</table>

### 3.3.3 X.T..

The following shaft positions are possible for gear unit type X.T.:

<table>
<thead>
<tr>
<th>Shaft position X.TS.</th>
<th>Shaft position X.TH. / X.TA.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="65676AXX" alt="Diagram 5" /></td>
<td><img src="65677AXX" alt="Diagram 6" /></td>
</tr>
</tbody>
</table>
3.4 **Mounting positions and standard mounting surfaces**

A certain standard mounting surface is assigned to each mounting position.

**INFORMATION**
- The mounting position and/or mounting surface must not differ from the order.
- A ± 1° deviation is permitted.

**INFORMATION**
- The gear units marked in gray are standard gear units.
- There might be restrictions regarding accessories and longer delivery times for types other than the standard version.
- Other mounting surfaces are possible in combination with a certain mounting position. Refer to the order-specific dimension drawing.
X.T

Gear unit size ≤ 210

Gear unit size ≥ 220
3.5 **Pivoted mounting positions and variable mounting positions**

Mounting positions differing from standard mounting positions are referred to as pivoted or variable mounting positions.

Gear units with pivoted mounting position have a **fixed** mounting position that differs from the standard.

Gear units with variable mounting position can change the mounting position **variably** within the specified range.

The designation of pivoted and variable mounting positions is set up as follows:

<table>
<thead>
<tr>
<th>M1 - M2/20°/V</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]</td>
</tr>
</tbody>
</table>

- [1] Initial mounting position
- [2] Desired mounting position
- [3] Pivoting angle
- [4] F = Fixed final position; V = Variable final position

The following figure shows two examples:

- M1 - M4/20°/F
- M1 - M2/20°/V

All final positions have to be specified if the mounting position of the gear unit deviates from standard mounting positions in several directions. Combinations of fixed and variable final positions are possible.

Example of a gear unit based on M1 that is tilted by ±20° around the drive shaft during operation and is mounted in a fixed angle of 30° around the longitudinal axis:

M1 – M2/20°/V – M4/20°/V – M5/30°/F

**INFORMATION**

Pivoted and variable mounting positions might involve restrictions concerning accessories and technical data. Also, delivery times might be longer. Consult SEW-EURODRIVE.
3.6 Mounting position sheets

The following mounting position sheet provides an overview of the positions of oil filling plug, oil drain plug, oil dipstick, breather plug, etc. on the gear unit.

3.6.1 Key to the mounting position sheet

The following symbols are used in the mounting position sheet:

- = Oil filling plug
- = Oil drainage
- = Oil level glass
- = Oil dipstick
- = Breather plug
- = Inspection opening
- = Air outlet screw

- = Oil inflow
- = Oil return
- = Water inflow
- = Water return
- = Flat grease nipple
- = Taper grease nipple
- = Grease outlet (only applies to variant with Drywell)

3.6.2 Dimension sheet information

INFORMATION

More mounting dimension sheets are available from SEW-EURODRIVE on request.
3.6.3 Gear units: Mounting positions M1 and M3 / splash or pressure lubrication

M1
XF.. / XK.. / X.T..

M3
XF.. / XK.. / X.T..
### 3.7 Corresponding directions of rotation, position of backstop

#### INFORMATION

The gear unit can be operated in both directions of rotation. Gear unit types with backstop are an exception.

The following tables show the direction of rotation dependencies between the input and output shaft. The gear units as well as the exact position of the backstop are schematically depicted as solid shaft version (see X.F on page 443, X.K on page 446, X.T on page 449).

#### 3.7.1 X.F..

<table>
<thead>
<tr>
<th>Shaft position</th>
<th>End gear position</th>
<th>14</th>
<th>23</th>
<th>13&lt;sup&gt;1)&lt;/sup&gt;</th>
<th>24&lt;sup&gt;1)&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

* = Position of the backstop  
<sup>1)</sup> = Alternative backstop position (depending on size and gear ratio)  
* = Consult SEW-EURODRIVE when using a backstop  
1) Note the restrictions regarding external forces on the output shaft (LSS)
### 3.7.2 X.K..

#### Standard

<table>
<thead>
<tr>
<th>Shaft position</th>
<th>03</th>
<th>04</th>
<th>03 1)</th>
<th>04 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>End gear position</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

- **X2K...**
- **X3K...**
- **X4K...**

#### Direction of rotation reversal

<table>
<thead>
<tr>
<th>Shaft position</th>
<th>03 1)</th>
<th>04 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>End gear position</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

- **X2K...**
- **X3K...**
- **X4K...**

---

- = Position of the backstop
- = Alternative backstop position (depending on size and gear ratio)
* = Consult SEW-EURODRIVE when using a backstop
1) Note the restrictions regarding external forces on the output shaft (LSS)
### 3.7.3 X.T..

#### Standard

<table>
<thead>
<tr>
<th>Shaft position</th>
<th>End gear position</th>
<th>63</th>
<th>64</th>
<th>634</th>
<th>643</th>
</tr>
</thead>
<tbody>
<tr>
<td>X3T...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X4T...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shaft position</th>
<th>End gear position</th>
<th>53</th>
<th>54</th>
<th>534</th>
<th>543</th>
</tr>
</thead>
<tbody>
<tr>
<td>X3T...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X4T...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Direction of rotation reversal

<table>
<thead>
<tr>
<th>Shaft position</th>
<th>53</th>
<th>54</th>
</tr>
</thead>
<tbody>
<tr>
<td>End gear position</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

- = Position of the backstop
- = Alternative backstop position (depending on size and gear ratio)
* = Consult SEW-EURODRIVE when using a backstop
1) Note the restrictions regarding external forces on the output shaft (LSS)