Addendum to the
Assembly and Operating Instructions

Explosion-Proof Industrial Gear Units
Helical and Bevel-Helical Gear Units
X.. Series
Oil Expansion Tank

Edition 10/2010

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1 Important Information

INFORMATION

This addendum describes amendments to the "Industrial Gear Units, Helical and Bevel Gear Units" operating instructions. Please use the data specified in this document.

This document does not replace the detailed operating instructions.
2 Oil Expansion Tank

2.1 General information

The oil expansion tank is to compensate for the oil volume variations in the system caused by temperature fluctuations. If the gear unit temperature increases, the expansion tank absorbs some of the increasing oils volume and feeds it back to the gear unit as the temperature goes down, thus the gear unit is always completely filled with oil.

Based on the oil level specified by SEW-EURODRIVE, the oil expansion tank is designed to compensate the oil volume change within the permitted operating temperature range. A temperature decrease below the permitted range causes the expansion tank to be completely emptied and air being sucked into the gear unit. This might result in insufficient lubrication and a malfunction of the gear unit. An increase above the permitted range causes an overfilling of the expansion tank and oil might leak from the gear unit.

During operation, any oil level below or above the level specified by SEW-EURODRIVE is permitted as long as there is oil in the expansion tank and the expansion tank does not overflow.

2.2 Before you start

Observe the following conditions in order to make sure that the gear unit is filled properly:

- The temperature of the oil to be filled in must generally be within 10 °C and 40 °C.
- In addition, the oil viscosity must not exceed 3500 mm²/s during the filling process.

Thus, a higher minimum filling temperature might be required depending on the selected oil type. The following table lists guide values.

<table>
<thead>
<tr>
<th>Viscosity class</th>
<th>Min. oil filling temperature [°C]</th>
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</thead>
<tbody>
<tr>
<td>ISO VG 220</td>
<td>10</td>
</tr>
<tr>
<td>ISO VG 320</td>
<td>10</td>
</tr>
<tr>
<td>ISO VG 460</td>
<td>15</td>
</tr>
<tr>
<td>ISO VG 680</td>
<td>20</td>
</tr>
</tbody>
</table>

**NOTICE**

An oil temperature outside the permitted range during the filling process may cause oil deficiency or oil leakage during operation.

Possible damage to property.

- Observe the oil temperature during the filling process.
2.3 Changing the oil

The following figure illustrates a gear unit with oil expansion tank in M5 mounting position.

1. Remove the oil drain plug(s) or open the oil drain valve [1].
   - **INFORMATION** The oil drains faster if the upper closing elements, i.e. oil stick [2], breather valve [3] or screw plugs [4] are removed and if the oil change is performed when the gear unit is warm.

2. Wait until the oil has drained completely.

3. Close the oil drain plug(s) or the oil drain valve [1].
4. Open the oil fill plugs. Observe the mounting position and the following notes.
   - Mounting positions M1 and M3:
     
     Open at least one of the screw plugs [6] located on the side in the upper fifth (marked gray) of the gear unit housing.
   
   - Mounting positions M2 and M4:
     
     Open at least one of the screw plugs [6] on the top or at least one of the screw plugs [6] located on the side in the upper fifth (marked gray) of the gear unit housing.
Changing the oil

Mounting position M5 and M6:


5. Fill in oil via one of the housing openings [6] or via the oil expansion tank [5]. If oil leaks from one opening, close the opening and keep filling the gear unit until the specified oil level is reached in the oil expansion tank [5].

- **NOTE**
  - Preheat the oil to max. 40 °C to accelerate the filling process.
  - You may as well use a pump to fill the gear unit.
  - During the filling process, the oil level in the expansion tank [5] must never increase to a point that oil leaks from the expansion tank [5] into the breather pipes.

- **NOTICE** Oil leaking from the expansion tank [5] into the breather pipes may result in inadequate venting and an insufficient oil filling which could cause damage to the gear unit.

  Possible damage to property.
  - Wait for at least 15 minutes. Then check the oil level again. Fill in more oil if required. Repeat this procedure until the oil level no longer decreases even after at least 15 minutes.


7. Check the breather valve [3] for proper functioning before you install it.

8. Insert the oil stick [2].

9. Start up the gear unit.

10. Until the gear unit has reached the operating temperature, check the oil level at least every 30 minutes and fill in more oil if required.

11. Allow the gear unit to cool down to a temperature between 10 °C and 40 °C and check the oil level again. Fill in more oil if required.

- **INFORMATION** Usually, trapped air escapes from the gear unit during the initial hours of operation so that you have to fill in more oil.
2.4 Checking the oil level

During operation, any oil level below or above the level specified by SEW-EURODRIVE is permitted as long as there is oil in the expansion tank and the expansion tank does not overflow. However, in order to provide for an adequate lubrication of the gear unit in any operating state, you have to check the oil level accurately on a regular basis. This can only be carried out correctly within a certain temperature range.

1. Switch off the gear unit and allow it to cool down until the temperature is between 10 °C and 40 °C.
2. Use the oil stick to check the oil level in the expansion tank. The level must be within the range specified by SEW-EURODRIVE.
3. Fill in more oil if required.
4. Re-insert the oil stick.