Application examples

- Securing of screws
  - DELO-ML 2249
    - Friction value similar to that of an oiled screw, removable, especially optimized for securing screws

- Pipe connections
  - DELO-ML 2249, removable

- Shaft-to-hub connections
  - DELO-ML 3317, DELO-ML DB140, DELO-ML DB160, DELO-ML DB160, DELO-ML UB160
    - Difficult to remove, high-strength bonding, long-term stable even at high dynamic stresses

- Grinded and galvanized surfaces
  - DELO-ML DB133, DELO-ML DB140, DELO-ML DB160, DELO-ML DB160, DELO-ML UB160
    - Difficult to remove, high adhesion on surfaces with low surface roughness (Rz < 10 μm), absorption of shear and transverse forces is possible

- Fast fixing of components
  - DELO-ML 2249, DELO-ML DB133, DELO-ML DB140, DELO-ML DB160, DELO-ML UB160
    - Difficult to remove

- Use in gas-operated installations
  - DELO-ML 2249, DIN EN DVGW reg. no. NG-5146BL0234, removable
    - Curing sealants for threaded connections in fittings and gas-operated devices

- Use at high temperatures
  - DELO-ML 3317, suitable for permanent use at temperatures of up to +200 °C

- Flexibilized setting
  - DELO-ML DB133, highly flexible, impact-resistant
    - DELO-ML DB140, DELO-ML DB160, DELO-ML DB160, for bonding components with dissimilar coefficients of expansion due to tension-equalizing nature

The selected adhesives and sealants are technically suitable in many areas of application in the field of automation and robotics, but do not replace a professional consultation. The conditions and the intended use of the products described must be examined before their use. The statements do not constitute any guarantee of product characteristics. Always observe the safety data sheet. The supplier disclaims all liability for damage caused by the use of this product, unless this is caused by our own culpable negligence. Our terms and conditions of sale apply. Copyright © DELO-2022. Further information can be obtained from our representative offices or from our website www.DELO-adhesives.com.
## DELO-ML anaerobic-curing adhesives

### Product description
DELO-ML are one-component, liquid, solvent-free adhesives based on methacrylates.

### Standard temperature range
DELO-ML products are normally used in a temperature range of +40 °C – +100 °C.

Many product properties depend on the temperature and can change permanently at too high or too low temperatures. Therefore, the temperature range of the products must always be observed. In some cases, products are also suitable for the temperatures in the required area of application. Please see the Technical Data Sheet for more information on how our products react to temperatures.

### Precautions
The products are normally delivered ready for use. They are supplied directly from the container or using dispensing units.

Curing
DELO-ML anaerobic curing adhesives cure at room temperature without exclusion of air (anaerobic) with simultaneous metal contact. DELO-ML anaerobic-curing adhesives can either be cured anaerobic or by irradiation with UV light or visible light (365-450 nm).

DELO-ML anaerobic UV-curing adhesives can either be cured anaerobic or by irradiation with UV light (365-400 nm).

Surface pretreatment
To achieve optimum bond strength, the surfaces must be free from dust, oil, grease, separating agents and other contaminations. For clearing, we recommend using cleaning agents from the DELO Engineering Department. After clearing, the adhesive of the adhesive can be further enhanced by sandblasting, grinding or polishing the surfaces.

### Procedurability
After delivery, the unopened original container:
- See Technical Data Sheet of the product.
- The air content is the container prevents premature curing.

### Use
Anaerobic-curing adhesives
- Due to their composition of acrylates, adhesives are sensitive to heat and can change permanently at too high or too low temperatures. Therefore, products are normally delivered ready for use. In some cases, products are also suitable for the temperatures in the required area of application. Please see the Technical Data Sheet for more information on how our products react to temperatures.

Thread connections
Thread connections should always be tightened firmly.
- ISO 10884 recommends a tightening torque of 40 Nm for the selection of screws.
- DELO-ML anaerobic-curing adhesives are suitable for the selection of screws.

For further information, please do not hesitate to contact our Engineering Department.

### Materials
- Non-Vinyl rubbers, such as nitrile, isoprene, butyl rubber,
- Polished, smooth surfaces,
- Free of dust and dirt,
- Free of oil and grease,
- Free of separating agents and other contaminations.
- Metal surfaces, e.g. steel, stainless steel, brass.
- Painted or primed surfaces,
- Free of dust, dirt, oil or grease,
- Free of separating agents and other contaminations.
- Active surfaces,
- Passive surfaces,
- Materials:
  - High-alloy steels, such as stainless steel, aluminum, zinc, chrome, molybdenum, cadmium, silver, silver-plated, plastic, enamelled metals and ceramics.
  - Metallurgical bonding can be achieved by using DELO-QUICK.
  - The adhesive can be accelerated by using DELO-QUICK.

### Curing of photonactivated adhesives
Curing with the visible light or visible light in the specific wavelength range DELUX LED curing lamps are especially suitable as per the chart below.

### Lamp type
- DELOUX BY, DELOUX 50 and 500, DELOUX 20 and 200

### Accelerated curing, pretreatment of passive surfaces

### Passive surfaces

<table>
<thead>
<tr>
<th>Materials</th>
<th>Curing</th>
<th>Instructions for use</th>
<th>Corrosion protection in bonding gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-alloy steels, such as stainless steel, aluminum, zinc, chrome, molybdenum, cadmium, silver, silver-plated, plastic, enamelled metals and ceramics.</td>
<td>Delays or prevents curing. Curing can be accelerated by using DELO-QUICK.</td>
<td>For active surfaces only. Light curing is possible after initial curing with visible light.</td>
<td>Corrosion in bonding gaps is dependent on the use of the adhesive.</td>
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<td>Polished, smooth surfaces, Free of dust and dirt, Free of oil and grease, Free of separating agents and other contaminations.</td>
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<th>5910</th>
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<td>blue</td>
<td>redish</td>
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<tr>
<td>Fluorescence</td>
<td>–</td>
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### Naphtha acetone
- Naphtha acetone is a solvent for a wide range of adhesives.

### Viscosity
- The viscosity of the adhesives can be adjusted by the selection of the solvent.

### Color
- The color of the adhesives can be adjusted by the selection of the solvent.

### Tensile shear strength [MPa]
- The tensile shear strength of the adhesives can be adjusted by the selection of the solvent.

### Adhesives
- The adhesives can be adjusted by the selection of the solvent.

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#### Specified properties of adhesives

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