REOFLEX Multiuse-Frame
Support-frame system NTT TK U/D
The REOFLEX Multiuse frame support frame system is a fixing system for transformers, reactors and braking resistors.

This standardized support frame from REO enables fast and rather variable assembly of train components. To ensure safe absorption and suspension shock absorbers may be integrated into the device as needed.

The assembly is made under the roof construction (REOFLEX NTT TK D) or underfloor (REOFLEX NTT TK U) of trains. The support frame offers a variety of use: for example with mining trucks. The compact unity offers a stable device which withstands even extreme stress conditions.

**Benefits:**
- Compact solution
- Available as roof or underfloor construction
- One frame for almost all components

**Range 15/25/30 kVA**

**Water-cooled resistors BWD 330 mounted in support frame**

**Air choke-fan-combination**
Typical applications

- Trains
- Mining trucks
- Ship building
- Busses
- Industry

Example of assembly of a transformer underneath the roof construction of a high-speed train

Support frame with fan and connection box for extreme mechanical stresses

Support frame underfloor assembly with reactor/transformer application

Support frame underfloor application with reactor
Technical Data - Other sizes upon request

<table>
<thead>
<tr>
<th>Type</th>
<th>L [mm]</th>
<th>B [mm]</th>
<th>H [mm]</th>
<th>N1 [mm]</th>
<th>N2 [mm]</th>
<th>N3 [mm]</th>
<th>Weight [kg]</th>
<th>Load [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>REOFLEX NTT TK 850 D</td>
<td>850</td>
<td>636</td>
<td>120</td>
<td>767</td>
<td>398</td>
<td>65</td>
<td>40</td>
<td>&gt;196</td>
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<tr>
<td>REOFLEX NTT TK 1800 D</td>
<td>1800</td>
<td>581</td>
<td>136</td>
<td>1717</td>
<td>363</td>
<td>65</td>
<td>72</td>
<td>196</td>
</tr>
<tr>
<td>REOFLEX NTT TK 1066 U</td>
<td>1066</td>
<td>518</td>
<td>77</td>
<td>970</td>
<td>430</td>
<td>–</td>
<td>27</td>
<td>325*</td>
</tr>
<tr>
<td>REOFLEX NTT TK 1085 U</td>
<td>1085</td>
<td>796</td>
<td>55</td>
<td>1020</td>
<td>715</td>
<td>–</td>
<td>27</td>
<td>330*</td>
</tr>
</tbody>
</table>

* Designed according to EN12663 Pi
Modular construction

- Easy and flexible assembly of components
- Standardized system: One frame, suitable for use with many different components

Inspection methods/Quality

Extensive checks by incoming goods department, production with its individual divisions up to final inspection ensure the optimum quality of the product. The DIN EN 15085 standards and the IRIS are decisive. A documented final inspection (Routine check test report) which includes dimensional accuracy, welding quality, material test certificates as well as inspection of electrical equipment (reactor/transformer/resistor).
Simulated strength with stress values higher than defined 12663 standard in the EN.

Static loading conditions
Lastfall LF 01: \( a_x = +5.75g \), \( a_y = +5.75g \), \( a_z = +5.75g \)  
Lastfall LF 02: \( a_x = +5.75g \), \( a_y = +5.75g \), \( a_z = -5.75g \)  
Lastfall LF 03: \( a_x = +5.75g \), \( a_y = -5.75g \), \( a_z = -5.75g \)  
Lastfall LF 04: \( a_x = -5.75g \), \( a_y = -5.75g \), \( a_z = -5.75g \)  
Lastfall LF 05: \( a_x = -5.75g \), \( a_y = +5.75g \), \( a_z = +5.75g \)  
Lastfall LF 06: \( a_x = -5.75g \), \( a_y = -5.75g \), \( a_z = +5.75g \)  
Lastfall LF 07: \( a_x = +5.75g \), \( a_y = -5.75g \), \( a_z = +5.75g \)  
Lastfall LF 08: \( a_x = -5.75g \), \( a_y = +5.75g \), \( a_z = -5.75g \)

Dynamic loading conditions
Lastfall LF 01: \( a_x = +0.255g \), \( a_y = +0.2g \), \( a_z = (1+0.25)g \)  
Lastfall LF 02: \( a_x = +0.255g \), \( a_y = +0.2g \), \( a_z = (1-0.25)g \)  
Lastfall LF 03: \( a_x = +0.255g \), \( a_y = -0.2g \), \( a_z = (1-0.25)g \)  
Lastfall LF 04: \( a_x = -0.255g \), \( a_y = -0.2g \), \( a_z = (1-0.25)g \)  
Lastfall LF 05: \( a_x = -0.255g \), \( a_y = +0.2g \), \( a_z = (1+0.25)g \)  
Lastfall LF 06: \( a_x = -0.255g \), \( a_y = -0.2g \), \( a_z = (1+0.25)g \)  
Lastfall LF 07: \( a_x = +0.255g \), \( a_y = -0.2g \), \( a_z = (1+0.25)g \)  
Lastfall LF 08: \( a_x = -0.255g \), \( a_y = +0.2g \), \( a_z = (1+0.25)g \)

Welding
- Classification of manufacturer according to DIN EN...
- Quality requirement related to welding performance
- Welding construction inspection by Railway federal office (STBD) – Part 1: DB AG, TTZ34
The REO support frame is treated with a multilayer wet coating in order to provide corrosion resistance. In addition to the FEM simulations, the mechanical stresses according to EN 61737 Cat. 1 Class B are approved by an accredited lab. The use of fine-grained steel ensures sufficient notch impact strength even with temperature below -50 °C.

The underfloor frames are designed in stainless steel in order to ensure durable corrosion protection independent of varnish.

<table>
<thead>
<tr>
<th>Shock and vibration stress</th>
<th>Shock resistance: EN 61373 with 5g in all directions</th>
<th>Vibration resistance: EN 61373 Categorie 1 – Class B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental influence</td>
<td>Anforderung</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature with normal operation</td>
<td>min -50°C</td>
<td></td>
</tr>
<tr>
<td>Classification according to EN 60721-3-5</td>
<td>5K2</td>
<td>5B2</td>
</tr>
<tr>
<td>Climatic class</td>
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<tr>
<td>Biologically active ingredients</td>
<td>5C2</td>
<td></td>
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<tr>
<td>Chemically active ingredients</td>
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<tr>
<td>Contamination means</td>
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<td></td>
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<tr>
<td>Mechanically active ingredients</td>
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<td>Pollution according to EN 50124</td>
<td>PD 4</td>
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<td>Air temperature class EN 50125-1</td>
<td>T1</td>
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</tr>
<tr>
<td>Class height range</td>
<td></td>
<td>AX up to 1500 m</td>
</tr>
</tbody>
</table>
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