OPERATING INSTRUCTIONS
TRANSPORT ANCHOR SYSTEM

The operating instructions for the Eurotec transport anchor system, which consists of a transport anchor lifting eye (up to 1.3 t) in combination with the Eurotec transport anchor screw with a diameter of either 11 x 125 mm or 11 x 160 mm.

1. SAFETY INFORMATION:

Before use of these load handling devices, the operating instructions must be studied in detail. The Eurotec transport anchor screw with a diameter of either 11 x 125 mm or 11 x 160 mm may only be used once! Before initial use, users must first be trained to correctly insert the screw. The operating instructions must be accessible to the user for reference purposes during the work processes. Users must check the transport anchor for damage prior to each use and discard it, if necessary. The exact weight of the components to be lifted must be known. Only lifting means listed in Point 4, Table 1, may be used. Helicopter transports are prohibited.

2. INTENDED USE OF THE TRANSPORT ANCHOR SYSTEM/INTENDED APPLICATION:

This manually operated load-handling device made of quality steel is designed for the safe and easy lifting of timber components of all kinds. The Eurotec transport anchor (lifting eyes) from the load group up to 1.3 t may expressly only be used in conjunction with Eurotec transport anchor screws with a diameter of either 11 x 125 mm or 11 x 160 mm. The Eurotec transport anchor screw with a diameter of either 11 x 125 mm or 11 x 160 mm must, without pre-drilling, be screwed into solid timber (softwood), laminated veneer timber, glue-laminated timber, composite laminated board boards and composite laminated beams. The possible or permissible mounting positions can be seen under point 5 and must be observed. Use in hardwood is not permitted.

E.u.r.o.Tec GmbH • Unter dem Hofe 5 • D-58099 Hagen
Tel. +49 2331 62 45-0 • Fax +49 2331 62 45-200 • E-Mail info@eurotec.team

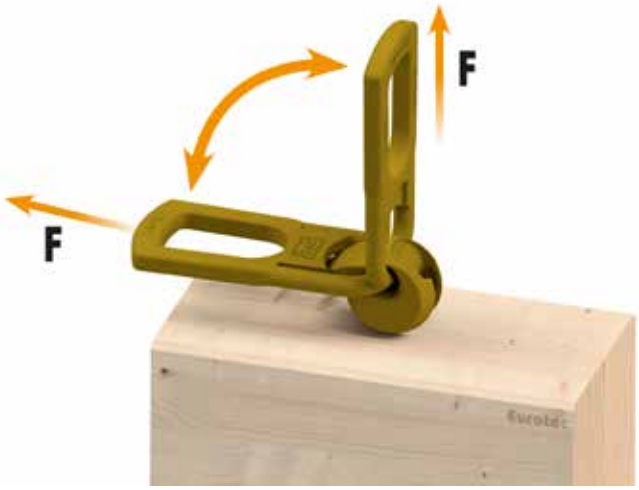
3. HANDLING THE TRANSPORT ANCHOR SYSTEM:

COUPLING THE ANCHOR

· First, slide the ball's opening over the transport anchor screw
· Then turn the ball's lug towards the timber surface

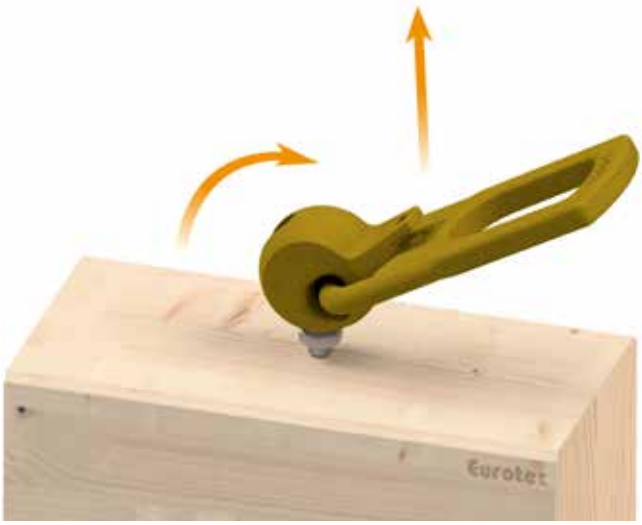
LIFTING THE LOAD

· The load can be lifted as long as the permissible angle of inclination is observed



RELEASING THE ANCHOR

· Turn the ball's lug away from the timber surface and lift the ball upwards



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4. CRANE MEASUREMENT BASES

The Eurotec transport anchor system has been developed for timber components. It consists of the Eurotec transport anchor lifting eye (1.3 t) and the transport anchor screw which has a diameter of 11 x 160 mm. Decisive for the system's load-bearing capacity is weakest of these two components.

According to the official approvals, timber screws are only intended for predominantly stationary loads (ETA-11/0024). The weight forces acting on the transport anchor are to be regarded as predominantly dormant since the loads are not frequently repeated. To determine the weight forces, DIN EN 1991-1-1 must be used as a basis.

However, the vibrations that can arise on cranes can create dynamic loads. The latter can be positively influenced by selecting suitable linkages such as steel or synthetic ropes which have a dampening effect. Short chains should be avoided. The recommendations given in Table 1 are to multiply the vibration coefficients f by the forces acting on the transport anchor system.

Table 1: Recommended vibration coefficients f

Lifting apparatus	Lifting speed	Vibration coefficient f
Stationary crane, slewing crane, rail crane	< 90 m/min.	1,0 - 1,1
Stationary crane, slewing crane, rail crane	> 90 m/min.	> 1,3
Lifting and transports on flat terrain		> 1,65
Lifting and transports on uneven terrain		> 2,0

The recommended vibration coefficients can be influenced in a number of ways, depending on the situation and the circumstances prevailing on site. In this case, the corresponding values as per DIN EN 13001-3-1 must be used.

The hanger to be used is defined by the number of anchors. In principle, hangers with more than 3 strands are considered to be statically indeterminate hangers, since no suitable measures, e.g. spreader beams, are used to ensure that the load is evenly distributed to all strands.
In accordance with Accident Prevention Regulation UVV-VBG 9a, statically indeterminate hangers must be designed in such a way that 2 anchor points can absorb the entire load.

The loads acting on the anchor points must be determined by means of a triangle of forces.

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5. DESIGN BASES FOR EUROTEC TRANSPORT ANCHOR SCREW DIAMETER 11 X 160

If the minimum distance between transport anchors that are installed in the direction of the grain and to the end grain itself is 300 mm, then the distance from the end that is not under load which is at a right angle to the direction of the grain can be reduced to 36 mm. This results in a minimum timber width of 72 mm.

When using Douglas fir timber, the minimum distances in the direction of the grain must be increased by 50%.

Each component must always be connected to at least two anchor points. According to DIN EN 1995-1-1, when dealing with axial loads, one screw suffices for each anchor point. However, the screws must not be inserted into shrinkage cracks or the like. Wooden components must have a thickness of at least t ≥ 115 mm and a minimum width of b ≥ 90 mm. The values in Table 3 must be considered minimum distances.

Table 2: Minimum distances between transport anchor screws with a diameter of 11 mm	
Between them in the direction of the grain a1 ≥ 12 x d	140 mm
Between them at right angles to the direction of the grain a2 ≥ 5 x d	60 mm
From the edge that is not under load at a right angle to the direction of the grain $a_{2,c}$ ≥ 4 x d	50 mm
From the edge that is under load at a right angle to the direction of the grain $a_{4,t}$ ≥ 10 x d	115 mm
From the edge that is under load in the direction of the grain $a_{3,t}$ ≥ 15 x d	170 mm

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6. MOUNTING OPTIONS WITH THE RESULTING DIFFERENT LOAD-HANDLING ATTACHMENTS

The Eurotec transport anchor screw can be mounted in 3 possible ways.

THESE ARE:

A) With a screw under an axial pull
B) With a screw under a diagonal pull
C) With a screw under a diagonal pull where the coupling head sits in a precisely milled slot

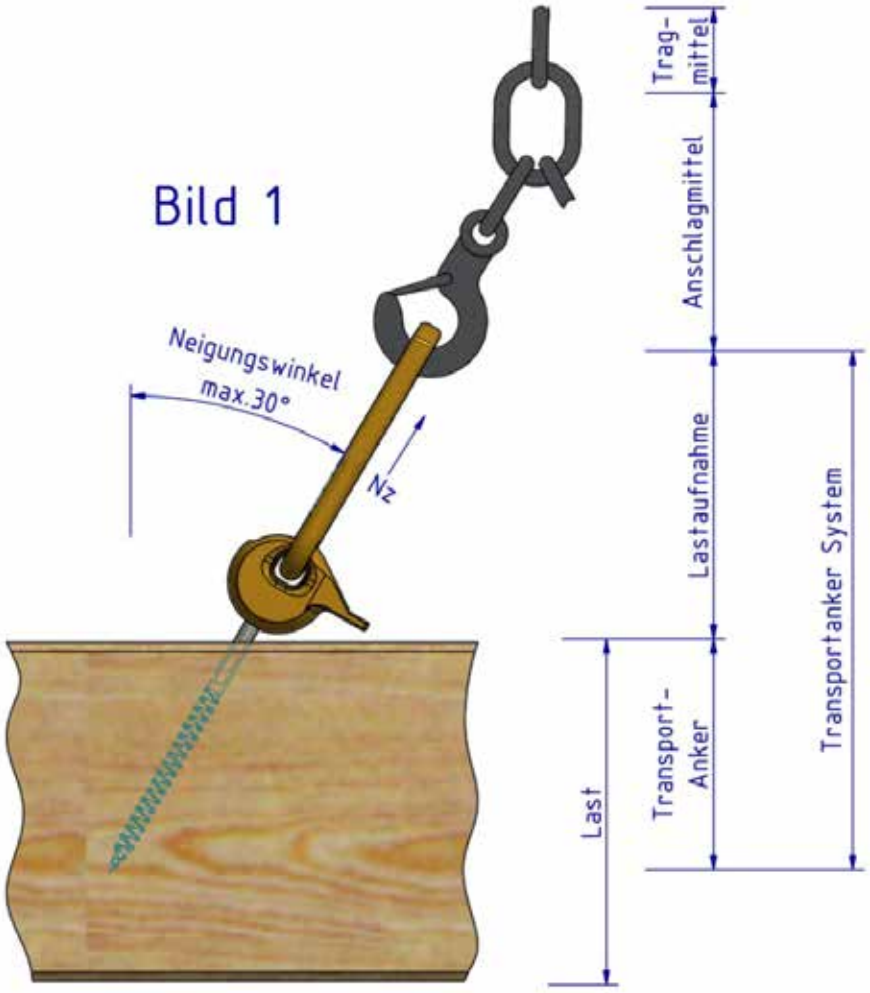
The different load-bearing capacities must be observed, taking into account the exact weight of the timber component to be transported.

A. SCREWS UNDER AN AXIAL PULL

When screws are subjected to loads acting against the screw direction, this is called an axial pull.

(see Figure 1)

The angle of inclination must not exceed 30°.



Screw length L	Thread length b	Permissible lever load
160 mm	130 mm	max. 5915N = 603kg

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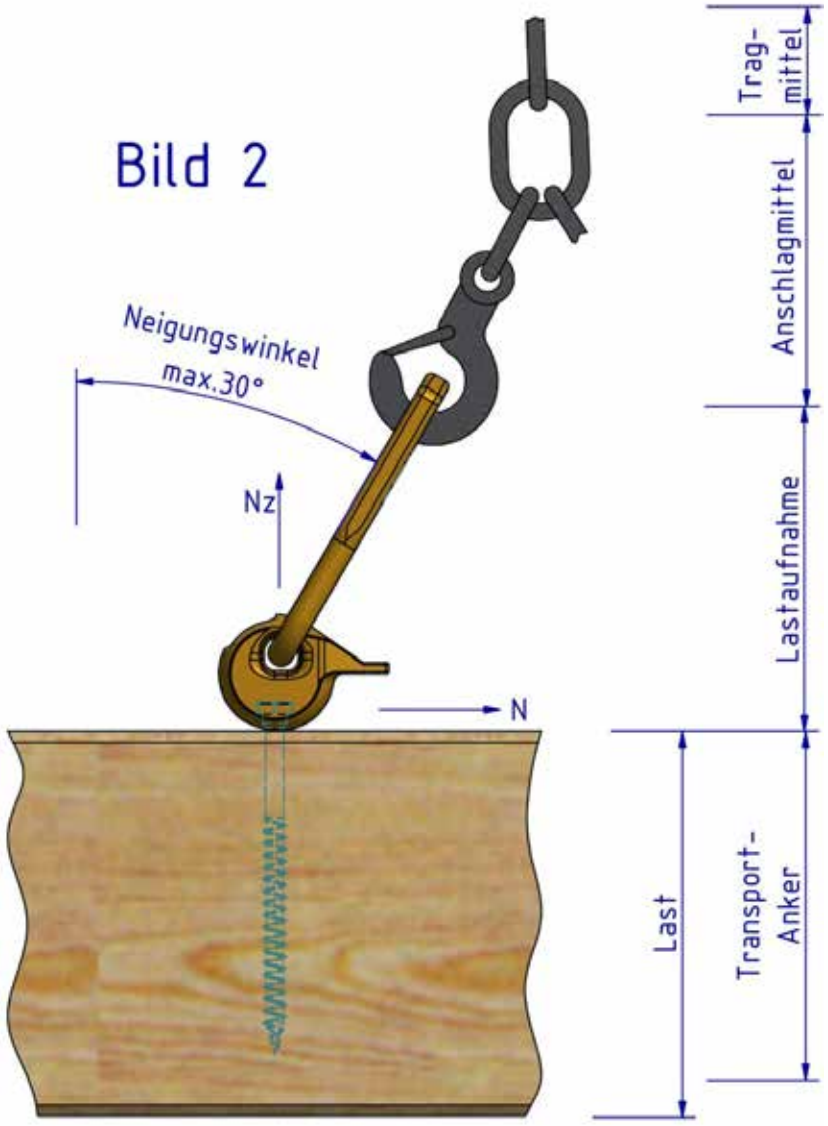
B. SCREWS UNDER A DIAGONAL PULL

If the screws are simultaneously subjected to pulling and shearing stresses, this is called a diagonal pull.

(see Figure 2)

The angle of inclination must not exceed 30°.



Screw length L	Thread length b	Permissible lever load
160 mm	130 mm	max. 5121N = 522kg

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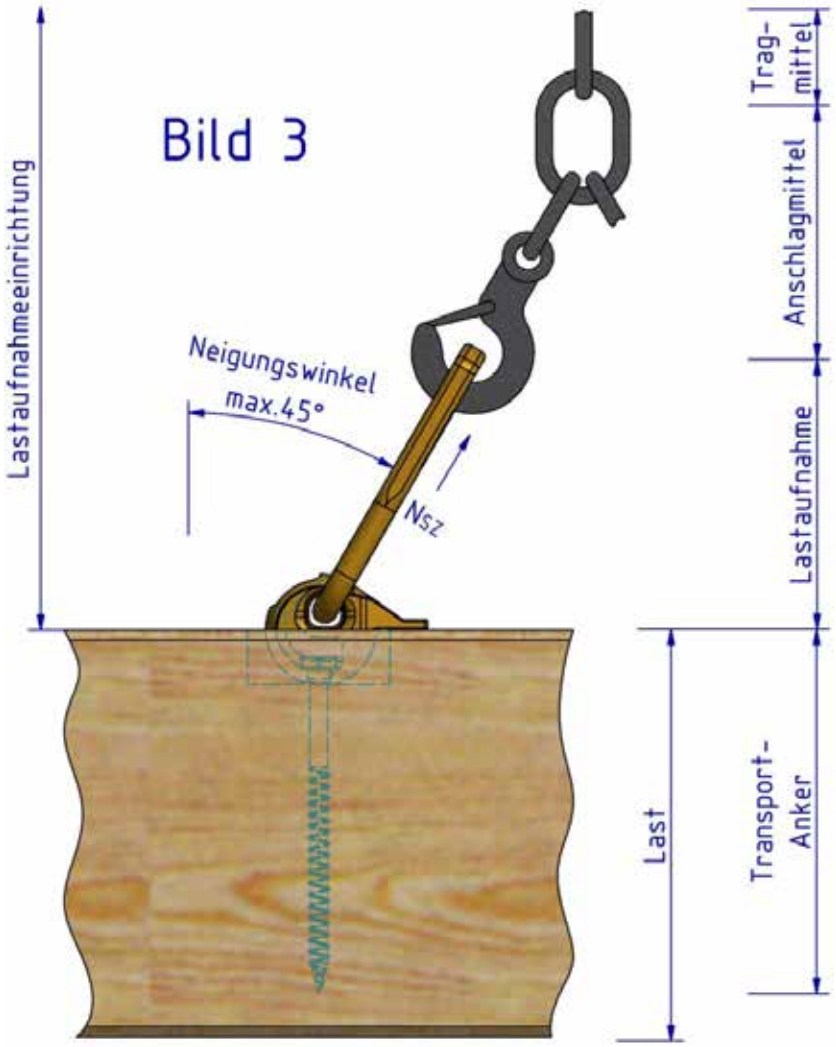
C. SCREWS UNDER A DIAGONAL PULL WITH A PRECISELY MILLED SLOT FOR THE COUPLING HEAD

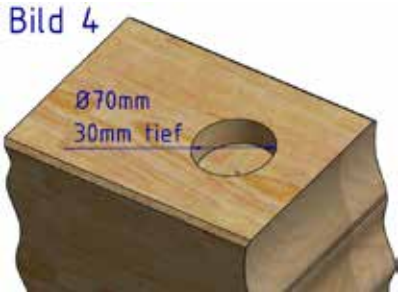
If the coupling head is inserted into a precisely milled slot, the coupling head transmits the horizontal force that occurs due to the diagonal pull directly into the wood. The screw is thus subjected to an axial pull.

(see image 3)



Screw length L	Thread length b	Permissible lever load
160 mm	130 mm	max. 5915N = 603kg

The milled slot for the coupling head must be created to the dimensions shown in Figure 4 using a Forstner bit or chain mortiser.



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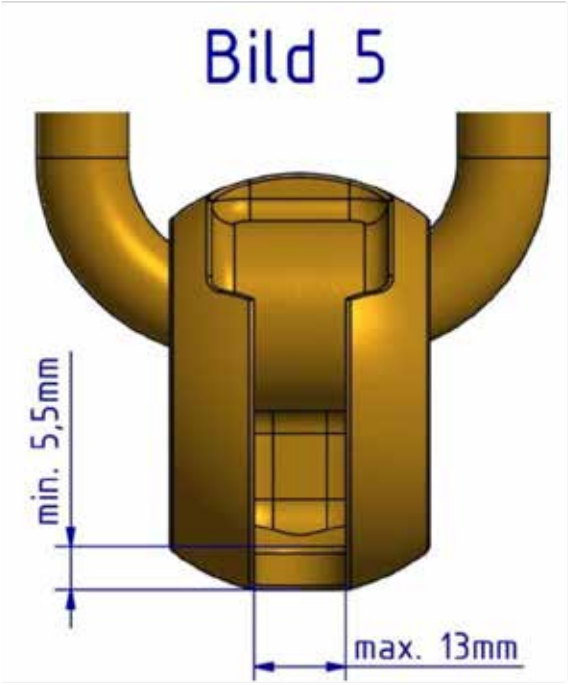
7. SAFETY INSTRUCTIONS

A) EUROTEC TRANSPORT ANCHOR LIFTING EYE UP TO 1.3 T

The transport anchor lifting eyes must be checked annually by competent persons or by a safety officer. On this occasion, their degree of wear and tear as well as any damage must be assessed. If the limit dimensions specified in Figure 5 are exceeded or undercut, further use of the lifting eye is prohibited. Changes and repairs, in particular by welding, are likewise prohibited.



B) EUROTEC TRANSPORT ANCHOR SCREW DIAMETER 11 X 160

When used with the Eurotec transport anchor lifting eye, the transport anchor screws may only be used once.

Used screws must be disposed of. Repeated use may cause the screws to fail!

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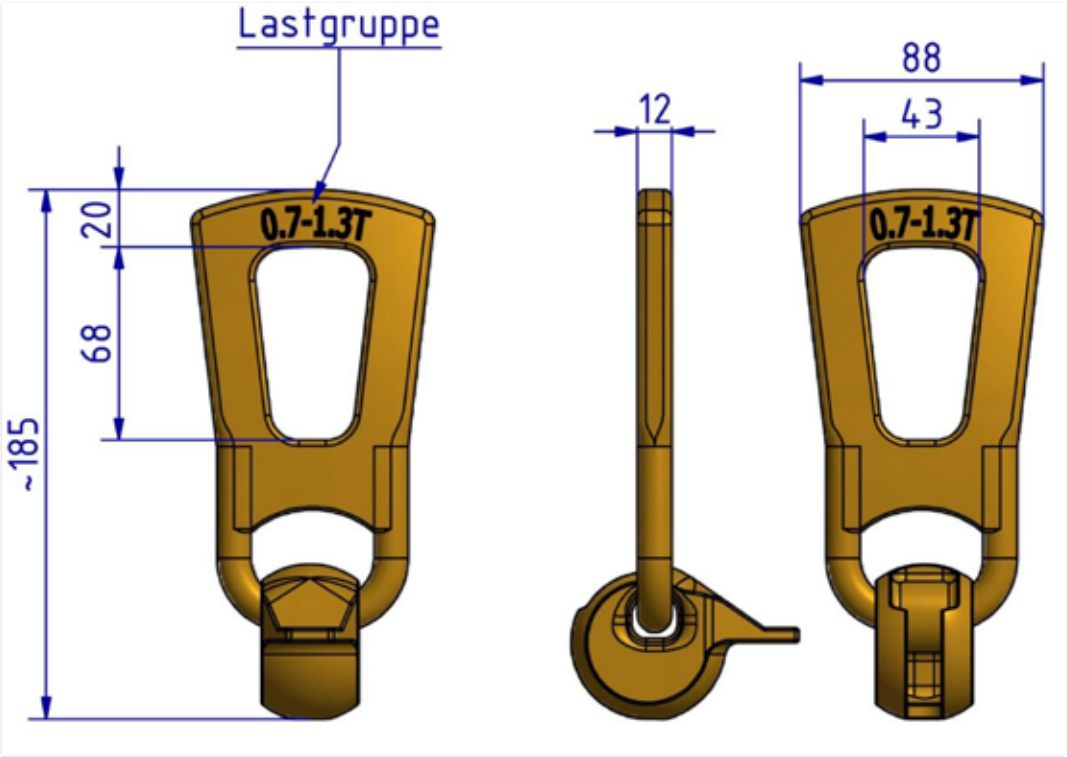
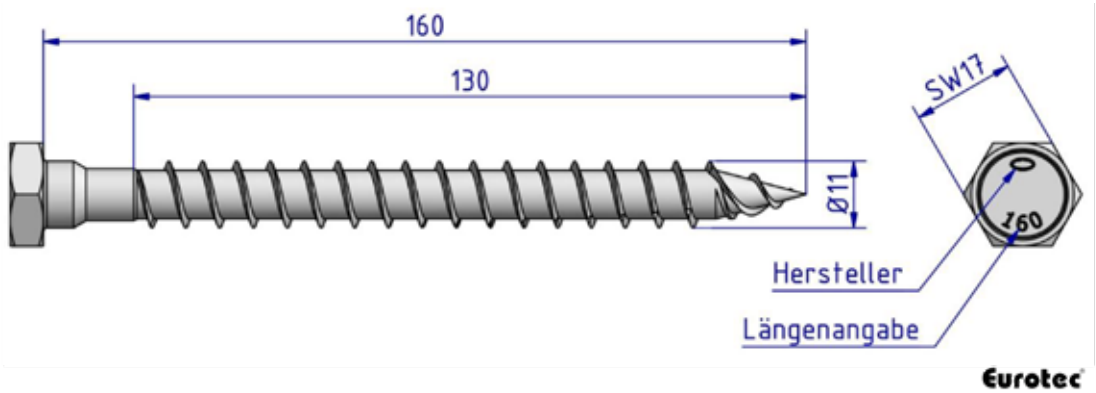
8. MARKINGS AND DIMENSIONS OF THE EUROTEC TRANSPORT ANCHOR SYSTEM

A) EUROTEC TRANSPORT ANCHOR LIFTING EYE UP TO 1.3 T



B) EUROTEC TRANSPORT ANCHOR SCREW Ø 11 X 160 MM



If you are not familiar with how this product is used, and particularly with the product's intended use, please contact our Application Technology department (Technik@eurotec.team).

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Tel. +49 2331 62 45-0 • Fax +49 2331 62 45-200 • E-Mail info@eurotec.team