

MOUNTING INSTRUCTIONS



2D - LIFTING SYSTEMS | **TF2 LIFTING CLUTCHES**

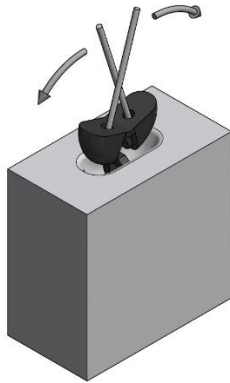


2D LIFTING CLUTCHES – APPLICATION INSTRUCTIONS

1) De-mould

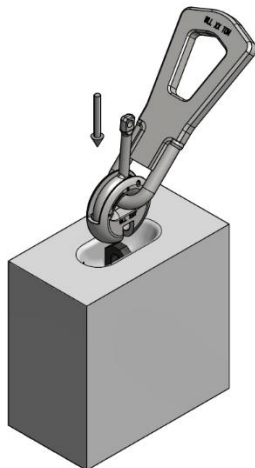
Before lifting the precast concrete element, removing as many parts of the formwork as possible to minimise adhesion to the mould is recommended. In the de-mould process, the forces acting on the lift system are considerably greater than the actual weight of the precast element. In the opposite case, the precast concrete unit may flake.

2) Removing the recess former



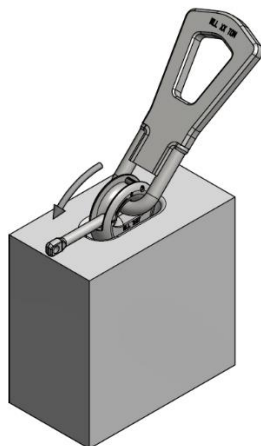
To remove the recess former, two rods are inserted in the holes in the recess former, after which they are levered out by scissoring action. Do not use a hammer to remove the recess former as that may destroy the former.

3) Attaching the lifting system



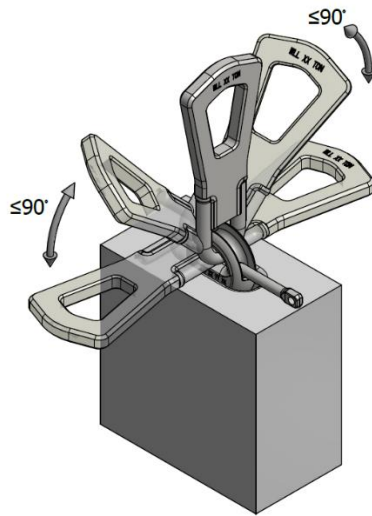
To transport the concrete units, the appropriate lifting system for the load group is inserted above the anchor head. Only matching components will fit together.

4) Locking the lifting system



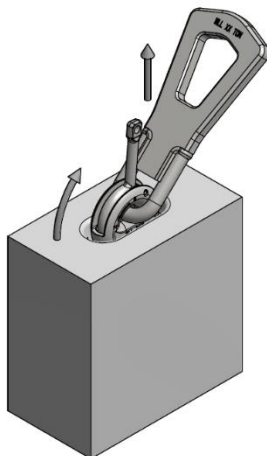
The lifting system is locked using a simple handle on the locker. The lifting system is now free to move in any direction. From this moment, the precast concrete unit can be lifted out of the formwork and transported to the storage site. As a rule, the lifting angle should be 30°, but it can be up to 45°.

5) Handling the system



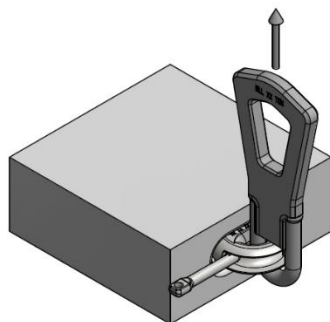
The clutch's 2D lifting bracket can be moved in any direction. Overloading the lifting anchor is not permitted (see the 2D lifting anchors conditions).

6) Releasing the lifting system



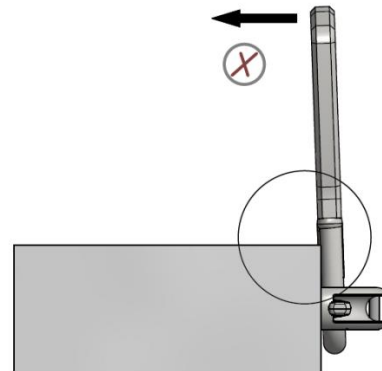
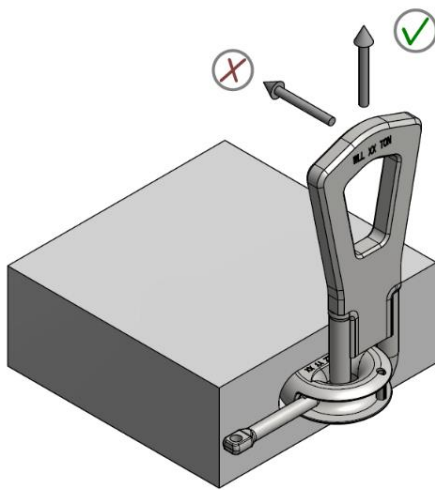
After the lifting/transport of the precast element, the lifting system can be easily released by pushing back the locker after the system is off load. The lifting clutch can remain attached to the crane hook until further use.

7) Moving slabs from the horizontal to vertical position

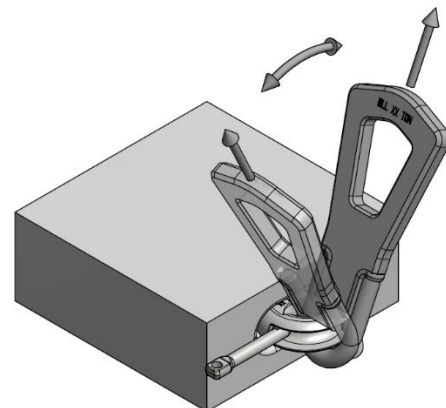
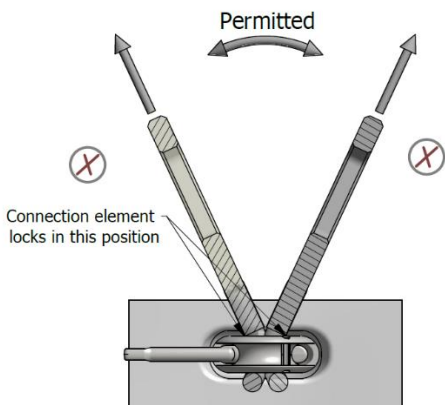


The flat precast concrete units can be moved from the horizontal to vertical position by using TILT UP anchor SA -TU or SA -TTU with additional reinforcement embedded in concrete. The direction of pull is at right angles to the cast-in anchor. Using a crossbeam for lifting to avoid angular and torsion forces is recommended.

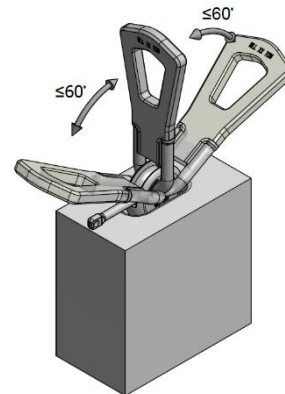
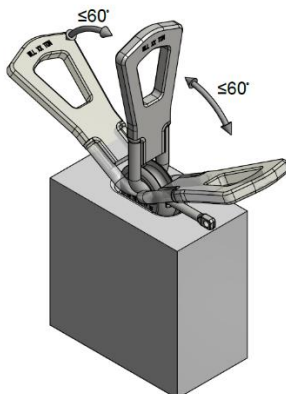
MISUSE OF THE LIFTING SYSTEM



If the lifting direction is not heeded, the precast element or the lifting clutch can suffer major damage. Proper use can prevent damage and extend the service life of the lifting system.



In this position, the connection element may lock inside the shackle. A small angle of the lifting cable angle will determine the bracket to bend. The problem can be overcome by turning the connection element. In this position, the connection element cannot lock.



*Angled pull using cable or chain with $\beta > 45^\circ$ is **not allowed**.*

CHECKING THE LIFTING SYSTEM

Just as with all lifting devices, trained personnel must inspect the TF1, TF2 lifting system at least twice a year. Any deformation of a locker indicates that the permitted load has been exceeded at least three times. A damaged locker can be replaced. No other repairs are permitted.


- **Any deformation to the wire rope (see the type of damages mentioned on page 50), shackle, or metal structural elements weakens the lifting device with the risk of the precast element falling. Do not perform any repair work. The lifting device must be discarded. Lifting loops with broken strands or other signs of damage, kinking, bird caging, corrosion that require discarding according EN 13414-1 must not be used for further lifting.**
- **Damage, distortions, cracks and extensive corrosion can reduce the load-carrying capacity and lead to failure. This causes a hazard to life and limb. If necessary, any affected parts must be taken out of service immediately.**

Cables must not come into contact with acids, caustic solutions or other aggressive substances.

Combining products from different companies is not recommended.


• The locker

A lifting system with a worn or bent locker must be taken out of use. The wear on the locker must be less than the limits shown in the following table.

	Load group	Nominal dimension d	Minimum dimension d
	[kN]	[mm]	[mm]
	12.5– 15	Ø 8 +0.3/0	7.5
	25	Ø 13 +0.5/0	12
	50	Ø 17 +0.5/0	16
	100	Ø 22 +0.5/0	21
	260	Ø 32 +0.5/0	31

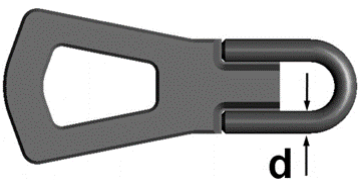
• The shackle

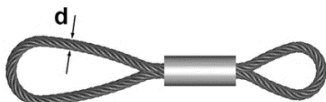
If the shackle is deformed or the opening “e” is enlarged, the lifting system must be taken out of use and cannot be repaired. The wear on the locker must be less than the limits shown in the following table.

	Load group	Nominal dimension e	Maximum dimension e
	[kN]	[mm]	[mm]
	12.5– 15	7 +0.5/0	8
	25	13 +0.5/0	14
	50	20 +0.5/0	21
	100	22 +0.5/0	23
	260	33 +1.0/0	35

• The connection element

Connection elements (bracket) to the crane hook which have visible signs of damage or excessive wear must be immediately taken out of use. The wear on the bracket must be less than the limits shown in the following tables.







	Load group	Nominal dimension d	Minimum dimension d
	[kN]	[mm]	[mm]
	25	14	13
	50	20	19
	100	26	25
	260	40	38,5

	Cable type	Number of visible broken wires over a length of		
		3d	6d	30d
	Stranded rope	4	6	16

d = cable diameter

Wire cables should be inspected and discarded according EN 13414-1 when the following flaws occur:

- Kinking
- One strand is broken
- Separation of the outer layer of braids
- Crushed strands
- Crushing at the shackle contact point with more than 4 ruptured wires on braided cables or more than 10 ruptured wires on cable-laid rope
- Signs of corrosion
- Damage to or severe wear of the closing bush.
- Signs of slipping between the cable and the closing bush
- A cable with several broken wires mentioned in the table above must be taken out of use

Wire rope dimensions		
		
Kinking	Severe wear	Bird caging
		
Broken wire	Corrosion	Closing bush damage

CONTACT



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TERWA CONSTRUCTION GROUP

Terwa Construction Netherlands (HQ)

Global Sales & Distribution

Kamerlingh Onneslaan 1-3
3401 MZ IJsselstein
The Netherlands

T +31-(0)30 699 13 29

F +31-(0)30 220 10 77

E info@terwa.com

Terwa Construction Central East Europe

Sales & Distribution

Strada Sânzieni
507075 Ghimbav
Romania

T +40 372 611 576

E info@terwa.com

Terwa Construction Poland

Sales & Distribution

Ul. Cicha 5 lok. 4
00-353 Warszawa
Poland

E info@terwa.com

Terwa Construction India & Middle East

Sales & Distribution

India

T +91 89 687 000 41

E info@terwa.com

Terwa Construction China

Sales & distribution

5F 504, No. 101 Chuanchang road
PRC, 200032, Shanghai
China

E info@terwa.com

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