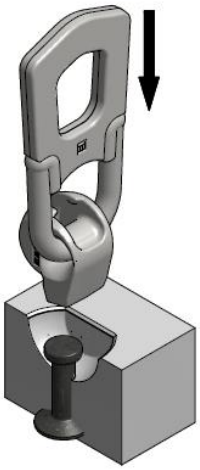
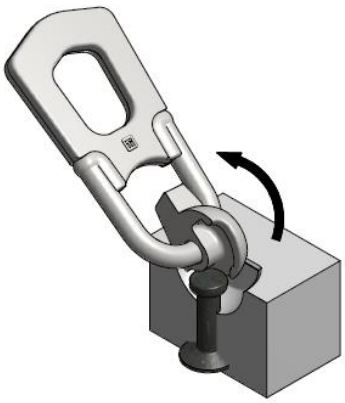
MOUNTING INSTRUCTIONS

3D - LIFTING SYSTEMS | TH2 LIFTING CLUTCH

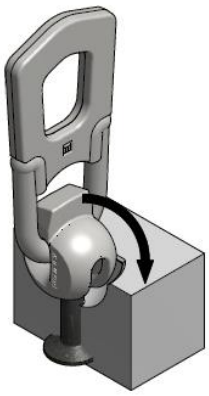
OPERATING INSTRUCTIONS



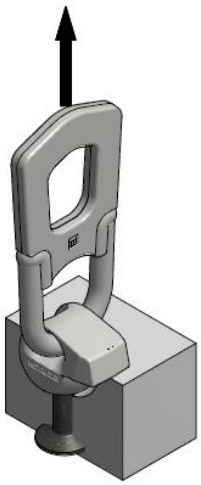
1
The clutch is placed in the right position.



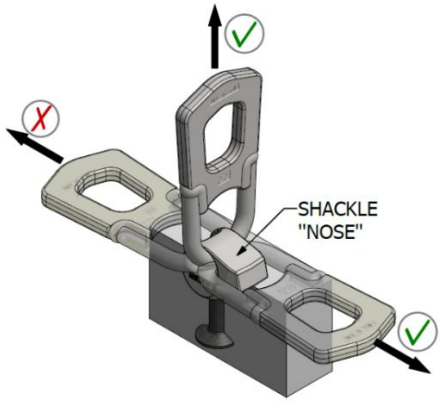
2
Rotate the shackle, until the opening corresponds with the anchor head.



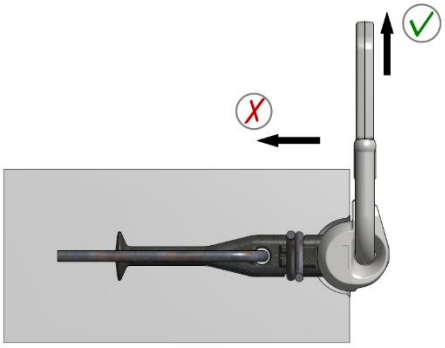
3
The shackle rotates to its locking position.



4
The nose of the shackle is pushed against the concrete element.

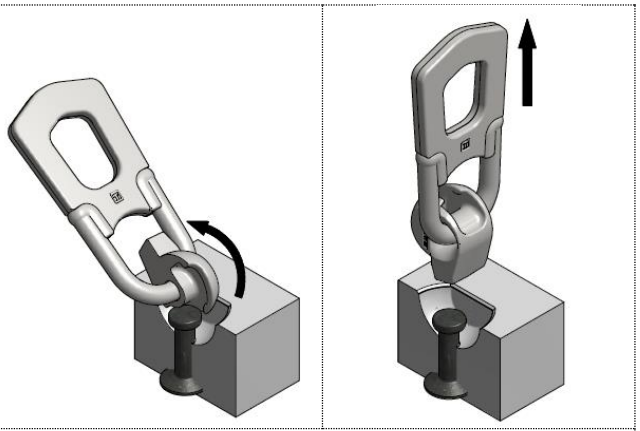


Angled lifting

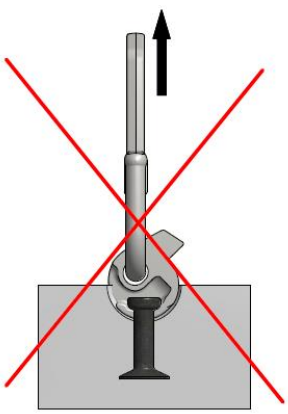


Tilt-up lifting

When tilting the concrete unit with the 3D lifting system, the nose must face the same direction as the load (see illustration above). Due to the counterweight of the nose, the shackle remains connected, even in an unloaded state. To release the 3D lifting system, the load hook is lowered and the shackle is turned up and out. The crane can only be withdrawn after the lifting system is completely detached from the recess and anchor. The 3D lifting system can remain attached to the crane hook until the next use.



Release operation after lifting



If the shackle remains in the position showed above, the lifting of the concrete unit is not allowed

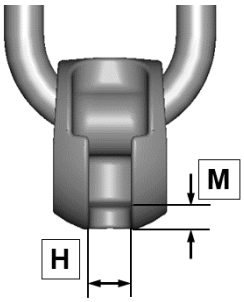
LIFTING CLUTCHES - SYSTEM MAINTENANCE

As with all lifting devices, the lifting systems TH1, TH2 and THR2 must be checked at least twice a year by trained personnel. Any defects found should be corrected before use. It is important to determine the amount of wear. The lettering and identification of the lifting system must be visible. If the shackle is deformed or the mouth opening is enlarged, the 3D lifting system must be taken out of use and cannot be repaired. If the limiting dimensions for H given in the tables below are exceeded or fall short for "M", the lifting system is not safe for further use. Repairs, especially welding operations on the lifting system are strictly forbidden. Do not combine our products with accessories from other manufacturers.

- ***Any deformation to the wire rope (see the type of damages mentioned on page 60), shackle, or metal structural elements causes a weakening of 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.



Shackle dimensions

Checking TH calibre

A checking calibre for each type is available on request.

TYPE	TH2 NUMBER	H MAXIMUM [mm]	M MINIMUM [mm]	CALIBRE "GO/NO-GO" NUMBER
TH2 13	43143	13	5.5	46193
TH2 25	43144	18	7	46194
TH2 50	43145	24	9	46195
TH2 100	43146	33	12	46196
TH2 200	43147	45	18	46197
TH2 320	43148	56	25	46198
TH2 450	44500	56	25	46199

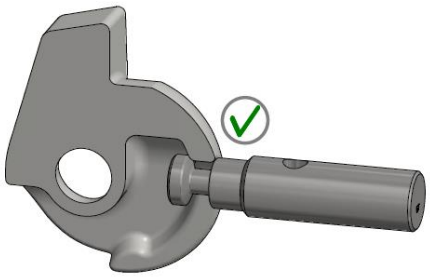
TYPE	THR2 NUMBER	H MAXIMUM [mm]	M MINIMUM [mm]	CALIBRE "GO/NO-GO" NUMBER
THR2 40/50	45281	24	9	46195
THR2 75/100	45279	33	12	46196

CHECKING THE LIFTING SYSTEM

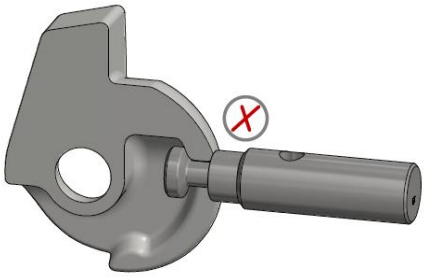
CHECKING DIMENSION “M”

The dimension “M” must be checked in this zone for the risk of fracturing during use.

ACCEPTABLE
Dimension “M” is greater than the minimum permitted.

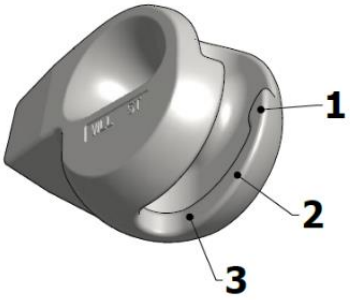


NOT ACCEPTABLE
In this case, dimension “M” is less than permitted.



CHECKING DIMENSION “H”

The “H” dimension must be checked in at least 3 zones for the risk of wearing out during use.



PRIMARY ZONE

ACCEPTABLE Dimension “H” is less than the maximum permitted.	**NOT ACCEPTABLE** In this case, dimension “H” is greater than permitted.
	

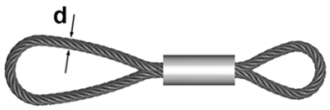
SECONDARY ZONE

ACCEPTABLE Dimension “H” is less than the maximum permitted.	**NOT ACCEPTABLE** In this case, dimension “H” is greater than permitted.
	

THE THIRD ZONE

ACCEPTABLE Dimension “H” is less than the maximum permitted.	**NOT ACCEPTABLE** In this case, dimension “H” is greater than permitted.
	

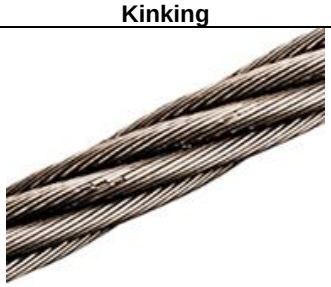
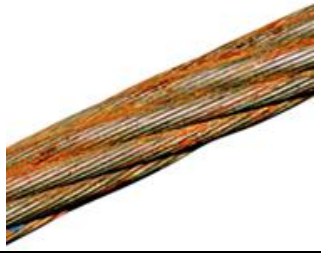
CHECKING WIRE CABLE

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

d = cable diameter

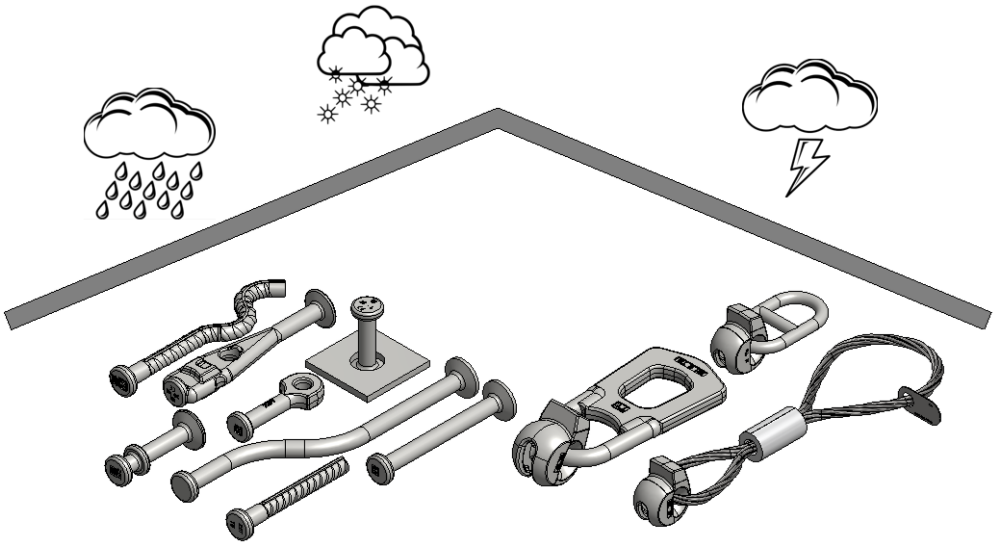
Wire cables should be inspected and discarded according EN 13414-1 when the following flaws occur:

- 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**

STORAGE REQUIREMENTS

Lifting systems and anchors must be stored and protected in dry conditions, under a roof. Large temperature variations, snow, ice, humidity, or salt and salt water impact may cause damage to anchors and shorten the service life.



SAFETY INSTRUCTIONS

Warning: Use only trained personnel. Use the anchor and the lifting device by untrained personnel poses the risk of incorrect use or falling, which may cause injury or death. The lifting systems must be used only for lifting and moving precast concrete elements.

Obligatory instructions for safe working:

- All lifting anchors and lifting devices must be operated manually
- Visually inspect lifting anchors before use; check and clean all lifting anchor prior to use
- Hook in all lifting systems separately, without using force. Never use a hammer to close the lifting device.

Respect local regulations for safe lifting and hoisting at all times.

Incorrect use may result in safety hazards and reduced load-carrying capacity. This may cause the lifted object to fall and pose a hazard to life and limb. Lifting anchor systems must be used only by suitable trained personnel.

CONTACT

TERWA is the global supplier for precast and construction solutions with multiple offices around the world. With all our staff, partners and agents, we are happy to provide all construction and precast companies who work in the building industry with full service and 100% support.

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