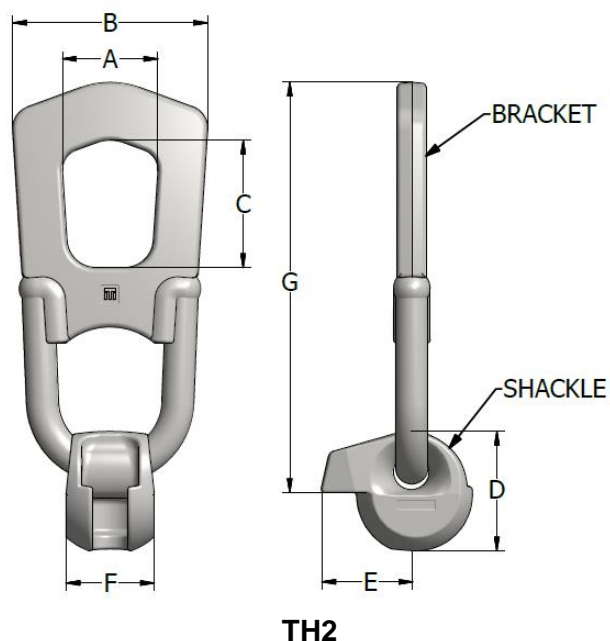


LIFTING CLUTCHES TH2 AND THR2

The 3D lifting systems TH2 and THR2 are made of high-quality steel and are designed with a safety factor of 5. Every system is individually tested for a safety factor 3 times the working load and comes with a unique certificate.

The special design of the clutch ensures a tight, safe connection to the anchor. Of course, the shackle fits the hemispherical cavity created by the recess former perfectly.

The lifting clutch, recess former and anchor are only compatible when they are from the same load group, which is clearly marked on the lifting clutch.



TH2 specifications

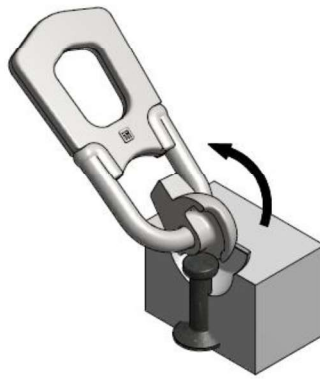
TH2 lifting system		Load group	A	B	C	D	E	F	G
Type	Product no.	[kN]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
TH2 13	43143	13	48	77	60	55	40	33	165
TH2 25	43144	25	50	92	75	68	55	42	205
TH2 40/50	43145	50	68	121	86	88	64	57	240
TH2 75/100	43146	100	84	170	110	108	90	77	346
TH2 150/200	43147	200	124	230	140	146	118	115	520
TH2 320	43148	320	155	303	175	195	160	155	590
TH2 450	44500	450	155	303	175	195	160	155	590

OPERATING INSTRUCTIONS



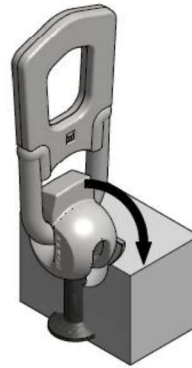
1

The clutch is placed in the right position.



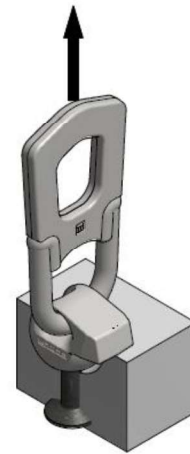
2

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



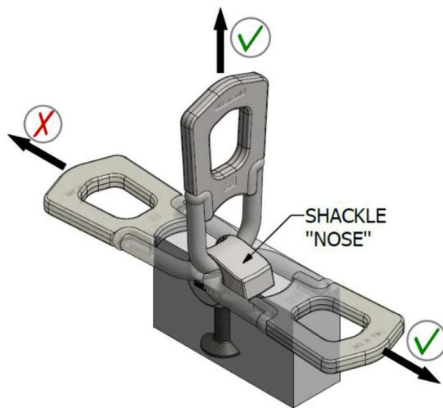
3

The shackle rotates to its locking position.

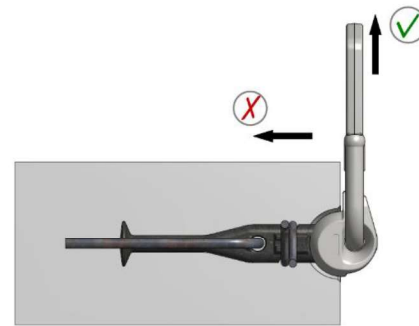


4

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

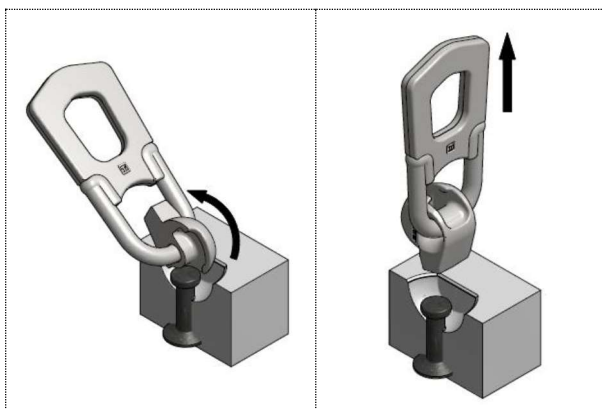


Angled lifting

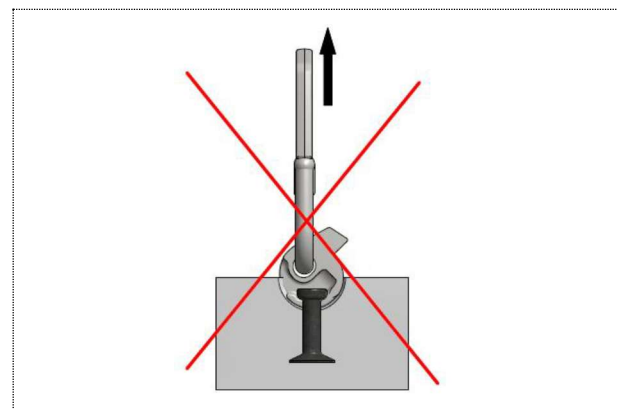


Tilt-up lifting

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






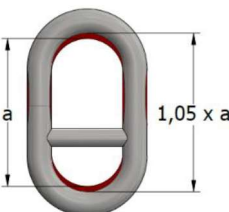


If the shackle remains in the position showed above, the lifting of the concrete unit is not allowed

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 59), 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.**

<p>Shackle dimensions</p>  <p>Checking TH caliber available on request</p> 	<p>TH2 - Damage by severe wear.</p> <p>Important! Do not remove or grind the edges formed by wear</p>  <p>cross section when new</p> <p>cross section after period of use</p>
<p>Important! It is prohibited to repair any element damaged by misuse. Discard if there is any significant bending.</p>  	<p>THR2 - Damage by wear</p> 

Wear limits for the lifting clutches:

TYPE	TH2 NUMBER	H MAXIMUM [mm]	M MINIMUM [mm]	CALIBRE "GO/NO-GO" NUMBER	d _{min} [mm]	C _{min} [mm]
TH2 13	43143	13	5.5	46193	10.8	16
TH2 25	43144	18	7	46194	12.6	20
TH2 50	43145	24	9	46195	18.5	28
TH2 100	43146	33	12	46196	26	40
TH2 200	43147	45	18	46197	36	60
TH2 320	43148	56	25	46198	45	80
TH2 450	44500	56	25	46199	47	85

TYPE	THR2 NUMBER	H MAXIMUM [mm]	M MINIMUM [mm]	CALIBRE "GO/NO-GO" NUMBER	d _{min} [mm]	a _{max} [mm]
THR2 40/50	45281	24	9	46195	18.5	147
THR2 75/100	45279	33	12	46196	26	162

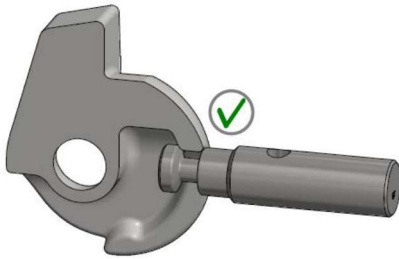
CHECKING THE LIFTING SYSTEM

CHECKING DIMENSION "M"

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

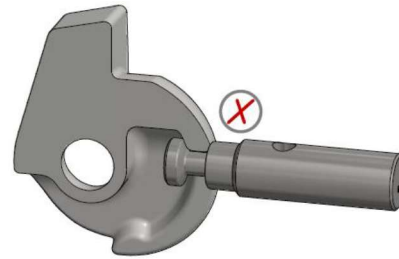
ACCEPTABLE

Dimension "M" is greater than the minimum permitted.



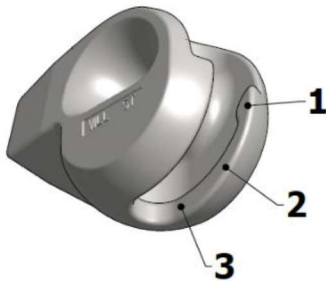
NOT ACCEPTABLE

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.

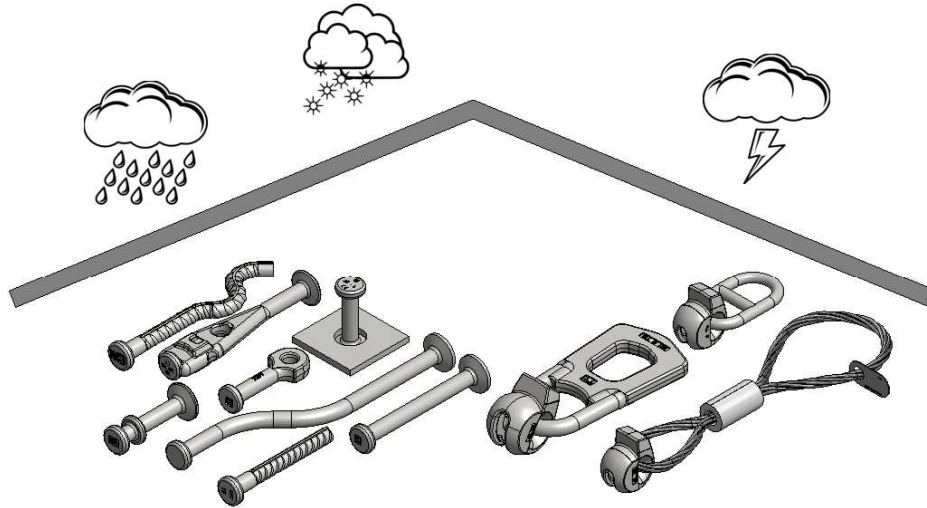


THE THIRD ZONE

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

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 saltwater impact may cause damage to anchor 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.

To:

Customers and users of the TERWA 3D lifting systems

2 February 2024

Terwa 3D lifting clutches in combination with Spherical slot anchors produced by other suppliers

The 3D lifting clutches TH2 and THR2 are made of high-quality steel and are designed with a safety factor = 5.

$$SF = \frac{WLL}{\text{Characteristic Load}}$$

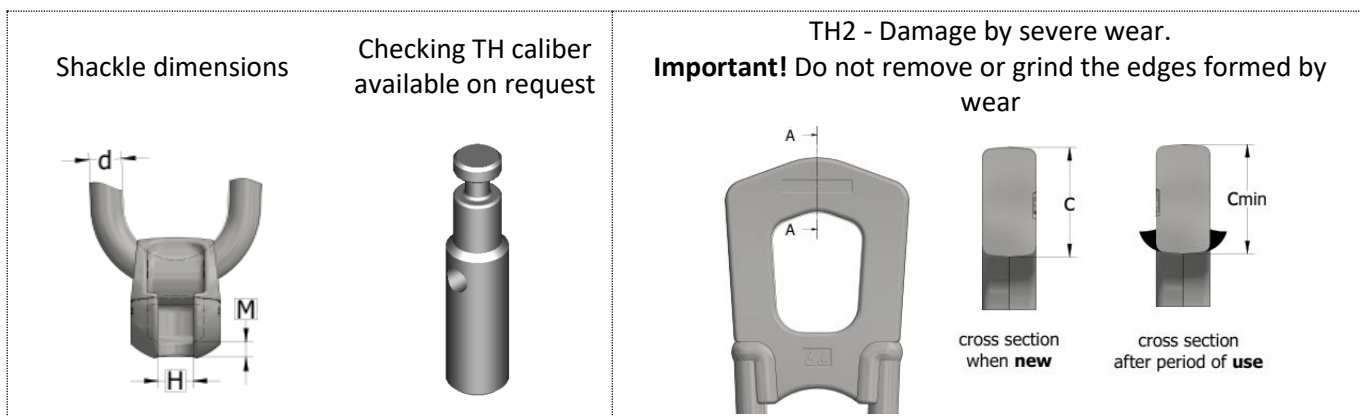
Every clutch is individually tested for a safety factor 3 times the working load and comes with a unique certificate and mounting instructions.

The special design of the clutch ensures a tight, safe connection to the anchor. Of course, the shackle fits the hemispherical cavity created by the recess former perfectly.

The lifting clutch, recess former and anchor are only compatible when they are from the same load group, which is clearly marked on the lifting clutch.

Terwa declares under our sole responsibility that the hoisting products conform to the Machine directive 2006/42/CE. The design and technical instructions comply with the international guideline VDI/BV-BS 6205:2012 "Lifting inserts and lifting insert for precast concrete elements". Based on this guideline, the manufacturer must also ensure that the lifting systems and the concrete have sufficient strength to prevent element failure.

The clutches are designed to be interchangeable with other slot anchors produced by other manufacturers if the dimensions of the anchors and lifting clutches follow the dimensions specified in the below tables.



Terwa B.V.

Kamerlingh Onneslaan 1-3
3401 MZ IJsselstein
The Netherlands
T +31-30 699 1329
E info@terwa.com
W www.terwa.com

Terwa Construction Systems Srl

Strada Sănzieni
507075 Ghimbav
Romania
T +40-372611575
E info@terwa.com
W www.terwa.com

Terwa CCE Srl

Strada Sănzieni
507075 Ghimbav
Romania
T +40-372 611 576
E info@terwa.com
W www.terwa.com

Terwa Construction Systems Sp. Z o.o.

ul. Cicha 5 lok.4
00-353 Warszawa
Poland
T +31-629 211 366
E info@terwa.com
W www.terwa.com

Terwa India, Asia & Middle East

India
T +91-89 687 000 41
E info@terwa.com
W www.terwa.com

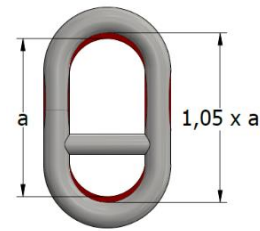
Terwa Shanghai China

B05, 5F, No.107, 2nd of the
South Zhongshan Road
200032 Shanghai
China
E info@terwa.com
W www.terwa.com

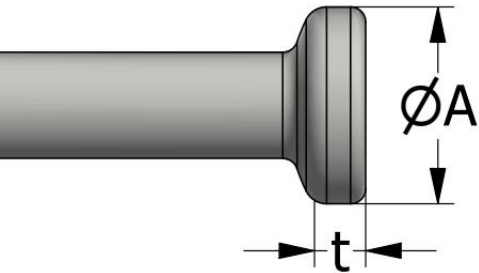
Important! It is prohibited to repair any element damaged by misuse. Discard if there is any significant bending.



THR2 - Damage by wear



TYPE	TH2 NUMBER	H MAXIMUM [mm]	M MINIMUM [mm]	CALIBRE “GO/NO-GO” NUMBER	d _{min} [mm]	C _{min} [mm]
TH2 13 kN	43143	13	5.5	46193	10.8	16
TH2 25 kN	43144	18	7	46194	12.6	20
TH2 50 kN	43145	24	9	46195	18.5	28
TH2 100 kN	43146	33	12	46196	26	40
TH2 200 kN	43147	47	18	46197	36	60
TH2 320 kN	43148	56	25	46198	45	80
THR2 40/50 kN	45281	24	9	46195	18.5	147
THR2 75/100 kN	45279	33	12	46196	26	162

Load group	t	ØA	
kN	mm	mm	
13	6.0	19.0	
25	7.0	26.0	
40	8.7	36.0	
50	9.0	36.0	
75	12.7	46.0	
100	13.3	46.0	
150	17.3	70.0	
200	17.5	70	
320	28.8	88	

Note: The dimension "t" is given from the middle of the radius to the end of the T-slot head end.

Terwa B.V.

Kamerlingh Onneslaan 1-3
3401 MZ IJsselstein
The Netherlands
T +31-30 699 1329
E info@terwa.com
W www.terwa.com

Terwa Construction Systems Srl

Strada Sânzieni
507075 Ghimbav
Romania
T +40-372611575
E info@terwa.com
W www.terwa.com

Terwa CCE Srl

Strada Sânzieni
507075 Ghimbav
Romania
T +40-372 611 576
E info@terwa.com
W www.terwa.com

Terwa Construction Systems Sp. z o.o.

ul. Cicha 5 lok.4
00-353 Warszawa
Poland
T +31-629 211 366
E info@terwa.com
W www.terwa.com

Terwa India, Asia & Middle East

India
T +91-89 687 000 41
E info@terwa.com
W www.terwa.com

Terwa Shanghai China

B05, 5F, No.107, 2nd of the
South Zhongshan Road
200032 Shanghai
China
E info@terwa.com
W www.terwa.com

As with all lifting devices, the lifting systems 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 above 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.

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.

Before using the Terwa lifting Systems (clutches, anchors, and accessories) we highly recommend consulting and respecting the technical documentation and instructions available on www.terwa.com.

Kind regards,

Razvan Gabriel DRAGAN

Technical Director



Terwa B.V.

Kamerlingh Onneslaan 1-3
3401 MZ IJsselstein
The Netherlands
T +31-30 699 1329
E info@terwa.com
W www.terwa.com

Terwa Construction Systems Srl

Strada Sănzieni
507075 Ghimbav
Romania
T +40-372 611 576
E info@terwa.com
W www.terwa.com

Terwa CCE Srl

Strada Sănzieni
507075 Ghimbav
Romania
T +40-372 611 576
E info@terwa.com
W www.terwa.com

Terwa Construction Systems Sp. Z o.o.

ul. Cicha 5 lok.4
00-353 Warszawa
Poland
T +31-629 211 366
E info@terwa.com
W www.terwa.com

Terwa India, Asia & Middle East

India
T +91-89 687 000 41
E info@terwa.com
W www.terwa.com

Terwa Shanghai China

B05, 5F, No.107, 2nd of the
South Zhongshan Road
200032 Shanghai
China
E info@terwa.com
W www.terwa.com