

TNMH

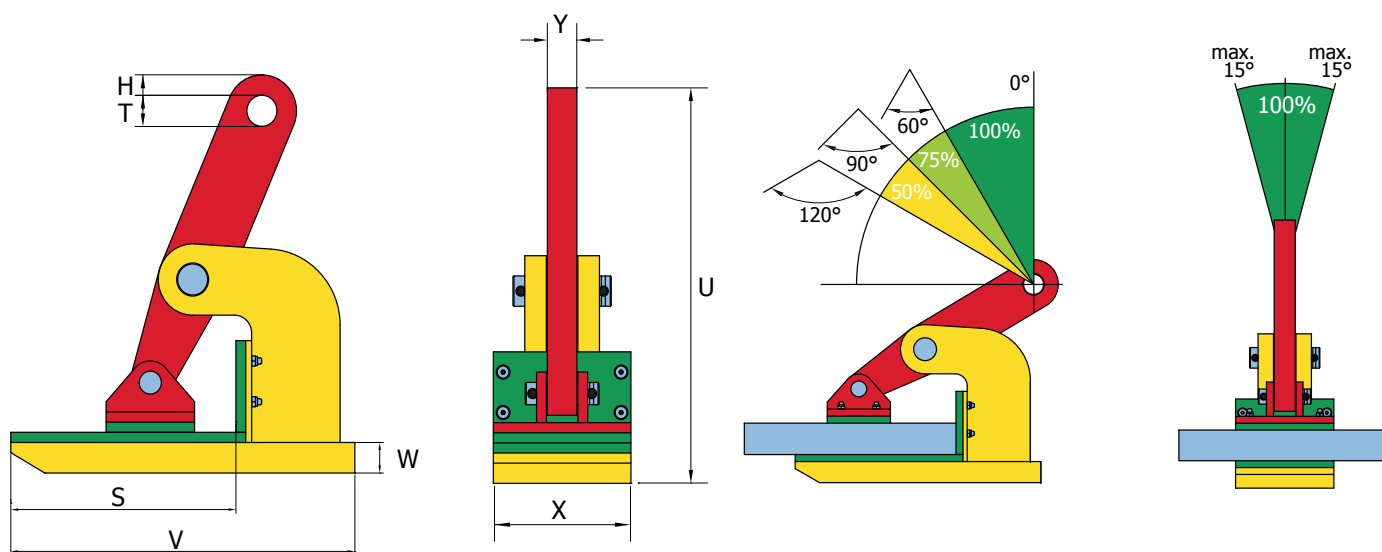
Horizontal lifting without marking, scratching, or damaging the material surface

Application:

- For horizontal lifting and transporting of all non-deflecting plates and structures without marking, scratching, and/or damaging the material surface
- Perfect for lifting materials such as (stainless) steel, aluminum, nature stone, composite, painted materials, wood, glass, plastic, etc.
- Terrier TNMH lifting clamps must always be used in pairs (or multiple pairs)
- Jaw openings available from: 0 to 1.96 in.
- Working load limit (W.L.L.) 2,200 - 13,200 lbs per pair

Features and Benefits:

- Jaw and cam are covered with a special high quality pressure resistant material
- Compact design and high lifting capacity
- Lightweight design for easy handling
- Tough quality heavy-duty welded body
- Maintenance-friendly. Easy to exchange parts are available upon request



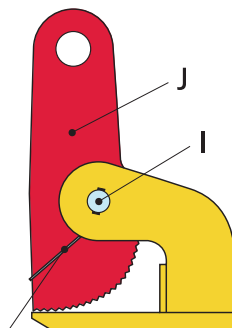
Reference No.	Type	Capacity/W.L.L.		Jaw opening (R) (inches)	Dimensions in inches								Weight (lb/pc)
		(lb/pc)	(lb/pair)		V	S	W	T	H	U	X	Y	
862810	1 TNMH	1,100	2,200	0 - .98	5.51	3.70	.59	.79	.39	6.10	2.56	.59	6
862820	2 TNMH	2,200	4,400	0 - 1.77	8.86	5.94	.59	1.20	.59	10.51	3.54	.59	17
862830	3 TNMH	3,300	6,600	0 - 1.77	8.86	5.94	.79	1.20	.59	10.67	3.54	.59	9
862841	4 TNMH	4,400	8,800	0 - 1.96	9.84	6.34	.79	1.20	.68	11.81	4.53	1.18	19
862861	6 TNMH	6,600	13,200	0 - 1.96	9.84	6.34	.98	1.20	.68	12.05	5.12	1.18	40

FHX-V/TNMMH

All spare parts are available either separately or as repair sets. It is recommended when any parts are damaged to replace them straight away and not to take any risk.

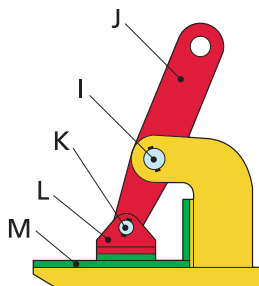
When ordering spare parts always give:

- model
- lifting capacity
- jaw opening and serial number
- the needed spare parts.



Torsion spring

Model	J	I	
	Cam	Cam Pin	Torsion Spring
1 FHX-V	561123	553119	253100
2 FHX-V	561023	551658	253200
3 FHX-V	561223	553129	253600
4 FHX-V	561223	553329	253600
6 FHX-V	561223	553329	253600



Model	J	I	K	L	M
	Cam	Cam Pin	Link Pin	Upper Pushplate	Plate Coverset
1 TNMH	553080	561129	550029	553173	553056
2 TNMH	553085	553029	550129	553178	553066
3 TNMH	553085	553029	550129	553178	553066
4 TNMH	554085	553429	550259	554178	554056
6 TNMH	554085	553429	550259	554178	554066

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1 GENERAL

Congratulations with the acquisition of your Terrier safety plate lifting clamp. The quality systems of management and services of Terrier Lifting Clamps B.V. fully comply with ISO 9001 standards. The many years of vast experience are a guarantee of optimum quality and safety. Terrier Lifting Clamps are made of top quality alloyed steel and fully comply with European standards as laid down in Machine Directive 2006/42/EG.

2 OPERATING PRINCIPLE

The FHX, FHSX, FHSX-V, TNMH and THSK horizontal safety lifting clamps have specifically been designed for the horizontal lifting and transporting of non-bending steel plates. The clamps consist of a body, cam, and cam pin. The cam also functions as a lifting shackle and ensures that the load is held firmly while it is being lifted.

3 PERMITTED APPLICATIONS

FHX, FHSX, FHX-V and TNMH

Terrier FHX, FHSX and TNMH lifting clamps are only suitable for lifting and horizontal movement of non-bending steel plates and structures where it is possible to position the clamp on a flat point of contact. The clamps should always be used in pairs, or multiples thereof. In the latter case, however, preferably with a load spreader beam.

TDH

Terrier TDH lifting clamps are only suitable for lifting and horizontal movement of both bending steel plates and formed steel plates, where it is possible to position the clamp on a flat point of contact. TDH clamps should always be used in pairs, or multiples thereof.

THSK

Terrier THSK clamps are only suitable for horizontal movement of steel plates and packages of steel plates, where it is possible to position the clamp on a flat point of contact.



The clamps should always be used in pairs, or multiples thereof. In the latter case, however, preferably with a load equalizing beam. Provided that the steel plate or plates do not bend (deflect), one or more plates can be hoisted at once per lift. When pairs or multiple clamps are used, each clamp should carry an equal part of the load.

4 SAFETY INSTRUCTIONS

Safety first! Guarantee your personal safety by carefully reading the following safety instructions first.

Ensure your own safety and continue to benefit from our product safety by having the clamp inspected, tested and, if necessary, overhauled at least once a year by Terrier Lifting Clamps B.V. or a recognized mechanical repair and service centre. See also Chapter 8 - Overhauling. Contact Terrier Lifting Clamps B.V. for further information.

AVOID SITUATIONS DANGEROUS TO LIFE

Prevent dangerous situations by seriously taking care of the following precautions:

- Never work with an untested clamp.
- Keep your distance when lifting and never stand under the load.
- Do not use the clamp if (it has been) damaged; have the clamp immediately repaired by Terrier Lifting Clamps B.V. or a recognized mechanical repair centre. If in doubt consult your supplier.
- Never lift more than one plate or a package of plates at a time.
- Never lift plates heavier than the working load limit (W.L.L.), as indicated on the clamp and in the test certificate.
- Do not lift plates which are thicker or thinner than the jaw opening, as indicated on the clamp and in the test certificate.
- When using a number of lifting clamps at the same time, please provide lifting slings or chains of a sufficient length to ensure that the angle between the slings or chains never exceeds 60°.
- When simultaneously operating a number of lifting clamps side by side, please use a lifting beam (equalizer) and lifting slings or chains of a sufficient length to ensure that the lifting shackles on the clamps are never subjected to lateral load.
- Do not place the clamp on tapered or conical sections of the plate or structure to be lifted.
- Remove all grease, oil, dirt, corrosion and mill scale from the plate at the point where the clamp is to be attached.
- Ensure that the clamp(s) is (are) positioned so as to balance the load when it is being lifted.
- The surface hardness of the plate must not exceed 37 HRC (345 Hb, 1166 N/mm²).
- The clamp is only suitable for use in normal atmospheric conditions.

SAFETY PRECAUTIONS

Ensure that the cam can never be subjected to lateral load.

- A free fall or uncontrolled swaying at the crane hook resulting in objects being struck, may cause impact damage to the clamp. If this happens check whether the clamp is still in good working order before using it.
- Lifting clamps are not suitable for creating permanent joints.
- Maintenance of the clamp should take place on a regular monthly basis, see Chapter 6 - Maintenance.

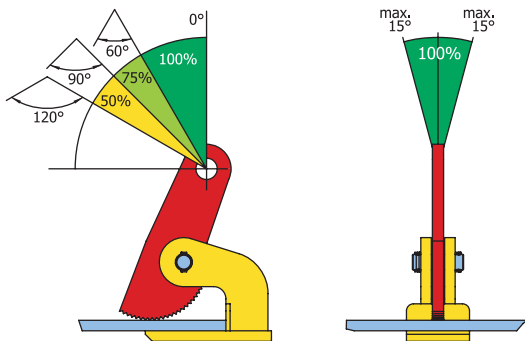
- Do not modify the clamp (by welding, grinding, etc.), as this can adversely affect its operation and safety, thereby nullifying any forms of guarantee and product liability.
- For the very same reason, use only original Terrier components.
- Any improper use of the clamp and/or failure to observe any directions and warnings in these operating instructions concerning the use of this product may endanger the health of the user and/or bystanders.

The following additional safety precautions are applicable to the FHX, FHSX, FHX-V, TNMH TDH and THSK model

The clamps can be loaded laterally at a maximum angle of 15°, only when they are not loaded more than the maximum W.L.L. and the permitted top angle. The capacity of the clamps has been calculated on basis of a maximum top angle of 60°. In case of situations with larger top angles, then the W.L.L. should be reduced proportionally, according the following loading drawing.

With shored up usage, a maximum top angle of 60° is applicable and the W.L.L. is 50% of the maximum permissible working load. The environmental temperature for use of the standard lifting clamps is between minus 40 and 100 °C.

The clamps can be loaded laterally at a maximum angle of 15°



5a LIFTING WITH FHX, FHSX, FHX-V, TDH and TNMH CLAMPS

- Check whether the working load limit (W.L.L.) of the clamp is sufficient for the load created in the lifting situation. Note: The working load limit (W.L.L.) is shown on the lifting clamp.
- Attach the lifting clamp to the hoisting mechanism either by means of a:
 - safety shackle directly to a crane hook,
 - coupling link or D-shackle,
 - sling or chain, if necessary in conjunction with a coupling link or D-shackle.
- Ensure that all attachments have been tested and are of the correct tonnage. Make sure that coupling links and shackles are large enough to allow the clamp to move freely in the hook.
- Check whether the clamp has any visible damage. Check whether the cam opens and closes smoothly.



- Check whether the teeth of the cam are free from dirt, and if necessary clean with a wire brush.
- Remove any grease, dirt and mill scale from the plate at the site of the lifting clamp.
- Open the clamp.
- Place the jaws as far as they will go over the plate, making sure that the clamp is positioned so as to balance the load when it is being lifted.
- Lift gently so that the lifting force can be applied; check whether the clamp is rotating or tilting.
- If the clamp is rotating or tilting read the fore mentioned remarks on lifting again.
- Ensure that the load is in a stable position.

5b LIFTING WITH THSK CLAMPS

- Place the clamp onto the plate (cable or chain already attached to the tooth segment; and take care that the chain if cable is not twisted);
- Tighten the clamps firmly by hand;
- Tension the cables or chains with the crane hook, while the inside of the jaws presses firmly against the edge of the plate (note: due to the fact that the clamp does not have a constant pre-tension available on the tooth segment, it will be necessary to watch the position of the clamps until the cables are tensioned: make sure the clamps stay in the correct position).
- The load can now be lifted carefully.
- During the transport of the load, take care that a constant tension is maintained on chains or slings.
- To unhook, the crane hook should be lowered so far that the clamp is completely free of any load (note: make sure that when the load is lowered, there are no obstacles - underneath where the load could rest on during lowering and whereby the clamps will become unloaded too early by accident).
- The clamps can now be removed from the load.

6 MAINTENANCE

- Check the general condition of the clamp at least once a month, see Chapter 7 - Disassembling/Assembling.
- Do not use the clamp if:
 - the body is split or deformed, in particular in way of the jaw corners,
 - the cam has been visibly deformed,
 - the cam teeth are no longer sharp,
 - the shackle pins have visibly been deformed,
 - any retaining pins are missing,
 - the marking on the clamp is no longer legible.

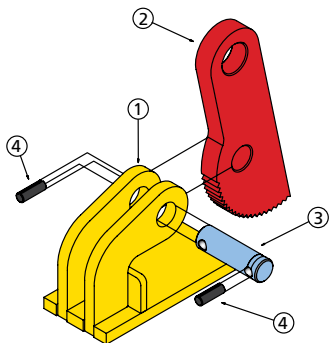
Depending on the defects noted:

disassemble and clean the clamp (see Chapter 7 - Disassembling/Assembling) or have the clamp overhauled by Terrier Lifting Clamps B.V. or another recognized mechanical repair center (see Chapter 8 - Overhauling).

7a DISASSEMBLING/ASSEMBLING FHX, FHSX, FHX-V, TDH CLAMPS

The clamps can be easily disassembled for cleaning and inspection purposes. Please make use of the following procedure.

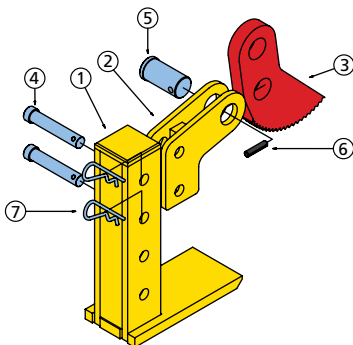
- Remove the retaining pin (4) and the cam pin (3).
- Remove the cam (2).
- Clean all parts with a standard degreasant.
- Grease the cam pin (3) with bearing grease.
- Assembling the clamp is in reverse order.
- Always insert new retaining pins (4) with the aid of a hammer, combination pliers and pin punch.
- Always use original Terrier components when replacing parts.
- Remove any burr with a file.



7b DISASSEMBLING/ASSEMBLING THSK CLAMPS

The THSK clamp can be easily disassembled for cleaning and inspection. Please make use of the following procedure.

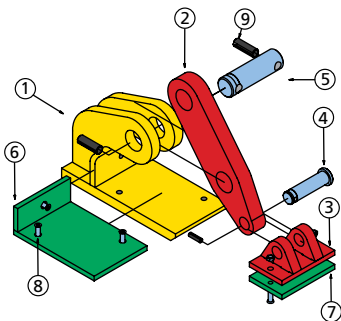
- Remove the tension pin (6) with the use of a pin driver from the tooth segment shaft (5).
- The tooth segment shaft can now be pushed out of the frame and the tooth segment (3) can be removed.
- Remove the hairpin pegs (7) and the pins (4), and the two side plates (2) can be taken from the clamp.
- Clean all the parts with a standard degreasant.
- Assembling of the clamp is in reverse order.
- Always use original Terrier components when replacing parts.
- Remove any burr with a file.



7c DISASSEMBLING/ASSEMBLING TNMH CLAMPS

The TNMH clamp can be easily disassembled for cleaning and inspection. Please make use of the following procedure.

- Remove the retaining pin (9) and the cam pin (5).
- Remove the cam (2).
- Remove the small retaining pin (9) and the cam pin (4).
- Clean all parts with a standard degreasant.
- If necessary you can remove the fabric pads (6 & 7) by removing the bolts (8)
- Grease the cam pin (4 & 5) with bearing grease.
- Assembling the clamp is in reverse order.
- Always insert new retaining pins (9) with the aid of a hammer, combination pliers and pin punch.
- Always use original Terrier components when replacing parts.
- Remove any burr with a file.



8 OVERHAULING

At least once a year or in case of any damage to the clamp, the clamp should be inspected, tested and if necessary overhauled by Terrier Lifting Clamps BV or a recognized mechanical repair centre.

9 DISPOSAL

Once it has reached the end of its useful life the clamp can be treated as scrap iron, provided that the clamp is rendered unfit for further use.

10 TROUBLESHOOTER'S CHECKLIST

Failure/malfunction	Possible Cause	Action
Load slipping	Load dirty Cam dirty Cam blunt Jaws bent open	Clean load Clean clamp Overhaul clamp Reject clamp
Cam pivoting badly	Cam overloaded	Reject clamp
Body bent	Clamp overloaded	Reject clamp
Cam shackle oval	Clamp overloaded	Reject clamp
Cam pin bent	Clamp overloaded	Renew cam pin
Adjustable pins bent	Clamp overloaded	Reject clamp
Retaining pins missing	Incorrectly assembled	Fit new retaining pins
Clamp difficult to open/close	Clamp worn out Clamp contaminated	Reject clamp Clean clamp

11 WARRANTY

Terrier Lifting Clamps provides a 5 year warranty on its lifting clamps. This warranty is applicable to the original end user of the lifting clamps. Only if the clamp has been inspected, checked and maintained by these instructions and by an official dealer. This warranty period of 5 years is valid from the day of purchase, and is liable to all conditions and measurements stated in this document.

11a CONDITIONS

This warranty only covers failures in the lifting tools which is the consequence of production errors which occur during normal use. The warranty covers no wear to components such as pivots, cam assemblies, lock springs etc. Should there be any kind of failure within this guarantee period, the lifting tool will be replaced or repaired to insight of the producer.

No warranty is given to clamps due to the following failures:

- Regular wear
- Overload.
- Wrong and/or careless use
- Damages
- Not following procedures and measures
- Hoisting differing material other than indicated on clamp or stated in the user-manual
- Adapting and/or modifying of the Terrier clamp.
- The injudicious use of the clamp, and not succeeding all indications which are stated in the users manual.
- When maintenance and/or revision has not been carried out by an authorized Terrier distributor.

The producer is not responsible for incidental damage or damage due to use of the lifting tools as well as from violation of this manual.

11b PROCEDURE SAFETY INSPECTION

All inspections and repairings must be written down in the maintenance diagram. This counts not only for your own inspections but also for inspections which are carried out by your authorized Terrier distributor. When the clamp is handed in for maintenance and inspection you always must provide the maintenance diagram.

Defective Lifting Clamps

When a form of wear or damage is indicated, you must take the following measures.

- 1 Take the lifting clamp out of use. (Note the date of failure of the lifting clamp)
- 2 Try to recover the cause of the failure, for example (complete list is available in chapter 1):
 - Overload
 - Wrong and/or careless use
 - etc

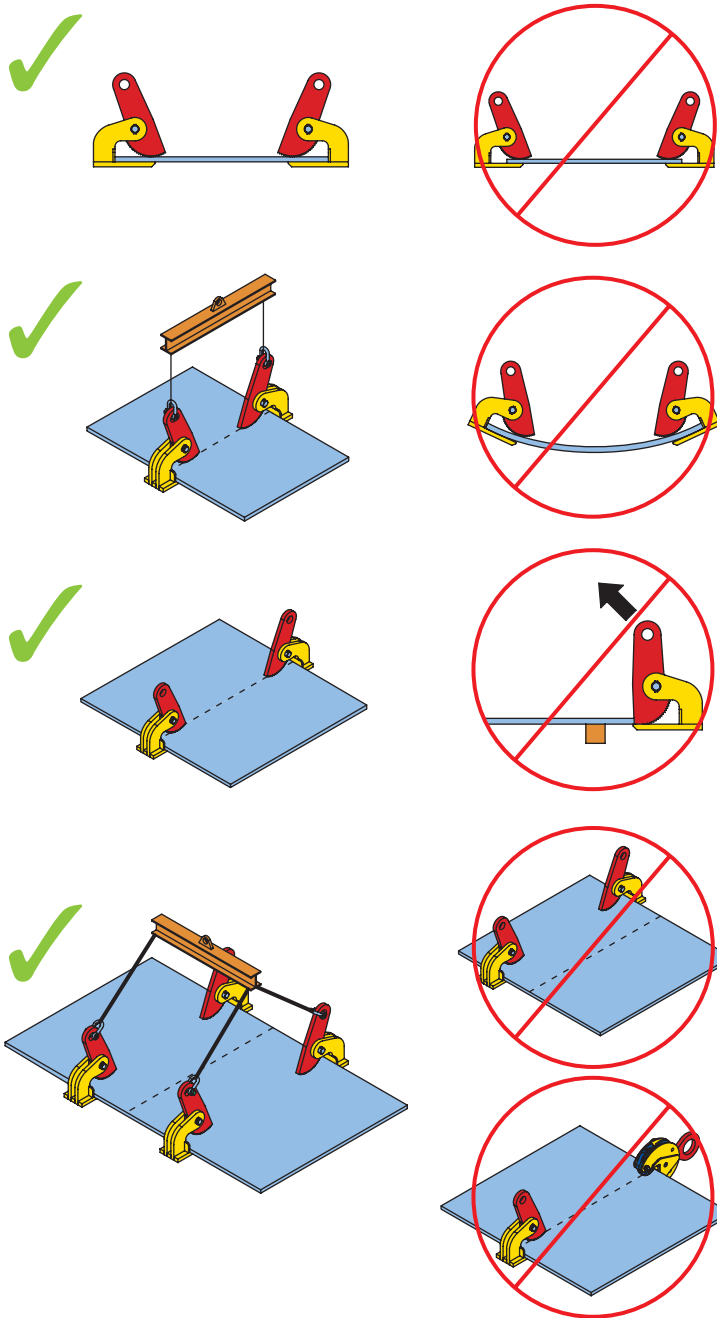
These claims stated in no.2 do not fall under the guarantee! To guarantee the security of you and your colleagues you are obliged to follow up this procedure.

- 3 Return your lifting clamp (with the maintenance history) to your authorized Terrier distributor.
- 4 If the lifting clamp has been revised / repaired by your distributor, you can safely use your clamp again. Note down the date of re-commissioning in the maintenance table.



11c INSPECTION SCHEDULE

Months	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
Years	1			2			3			4			5		
Safety inspections by your own inspector															
Maintenance by a official Terrier distributor															
Revision by a official Terrier distributor															



Safe Horizontal Lifting