CSS

Safety Screw Cam Clamp

ORIGINAL INSTRUCTION GUIDE

– PLEASE PASS ONTO OPERATOR

Sticker here

CE

www.tigerlifting.com

Instruction Guide Tiger CSS En 202201 v2.0

LEEA Full Member

MUST READ BEFORE USE

1. It is important that this manual is read and fully understood and that all instructions are followed before using the Tiger product.
2. Inspect the product for any damage or wear before use. Do not use the product if it is not in good working order.
3. The product must be operated, inspected, maintained and repaired by a competently trained person in accordance with applicable safety codes and regulations.
4. Do not use the machine to lift, support or transport people in any way.
5. Do not lift loads over or near people.
6. Never work under or near hoisted loads.
7. The product is for manual operation only. Do not attempt to use a motorized mechanical device to operate the product.
8. Do not use the product in explosive environments unless an ATEX version has been supplied.
9. It is the responsibility of the operator to exercise caution, use good practice, common sense and be familiar with proper rigging techniques.
10. Improper use could result in death or serious injury.
11. The supplier takes no responsibility for any form of consequential loss or damage as the result of unauthorised repair or use of spare part other than those issued on behalf of the manufacturer/supplier.

Contents:

For details of the full Tiger product range visit our website: www.tigerlifting.com

Due to our policy of continual product development, dimensions, weights and specifications may change without prior notice.

1. Safety Information

The operating company is responsible for the proper and professional instruction of the operating personnel. The personnel responsible for operation, maintenance or repair of the product must read, understand and follow these operating instructions. These instructions are intended to make the user familiar with the product and enable them to use it to the full extent of its intended capabilities.

The operating instructions must always be available at the place where the product is operated. Apart from the operating instructions and the accident prevention act valid for the respective country and area where the product is used, statutory regulations and procedures along with the commonly accepted regulations for safe and professional work must also be adhered to. The indicated protective measures will only provide the necessary safety if the product is operated correctly and installed and/or maintained according to the instructions. The operating company must be committed to ensure safe and trouble-free operation of the product.

Health and Safety at Work

All equipment must be maintained and tested to meet relevant statutory regulations. It is the responsibility of every company to ensure that their employees have been fully and properly trained in the safe operation of their equipment.

Equipment Labelling

The identification stamping details the product type, model, manufacturer, year of manufacture, maximum working load limit (WLL), serial number and the jaw range. The CE marking indicates compliance with the essential health and safety requirements of the Machinery Directive 2006/42/EC. Other international standards that the unit conforms to may be shown.

Safety Instructions

! WARNING

Always select the correct size clamp for the job, determine the weight of the plate to be lifted. Plate thickness must be within the grip range of the clamp.
Always use slings correctly. Pay special attention to the correlation between the lifting angle and the rated load. Use within specified angles.
Always protect the surfaces of the cam and pad from weld spatters.
Always store and handle clamps correctly.
Always inspect clamps before use and before placing into storage.
Always remove dirt, rust, paint, grease, oil and any other foreign matter from the surface of the steel plate before clamping.
Always use genuine parts when repairing clamps.

Never allow the operator's attention to be diverted when operating clamps and never leave the suspended load unattended.
Never use a steel lifting clamp on material other than steel.
Never weld work pieces being lifted by clamp.
Never modify clamp by gas cutting or welding
Never use clamps for lifting high-tensile steel (over 300 HB) or soft steel (under 80 HB)
Never operate clamps unless the load is properly centred.
Never vertically lift material that tapers down to the edge.
Never exceed working load limit shown on clamp.
Never use defective clamps.
Never use the clamp with stainless steel, lead or copper material.
Never over torque the axle.
Never return damaged clamps to storage.
Never lift a plate/object that is not fully engaged with the clamping jaws.
Never lift loads that are not balanced, and the holding action is not secure.
Never lift more than one plate at a time.
Never Use the clamp in temperatures below -20°C or above 150°C
Never leave load supported by the clamp unattended unless specific precautions have been taken.
Never expose clamps to chemicals, particularly acids, without consulting the supplier.
Never use the clamp in areas containing flammable vapours, liquids, gasses or combustible dust or fibres.
Never expose a clamp directly to the elements, water spray, steam etc without consulting the supplier.
Never use clamps which are unidentified or uncertified for lifting applications.
Never throw or drop clamps or drag them along the ground.
Never allow a load attached to the clamp to swing or spin unintentionally.
Never work under suspended loads.

2. Function/Operation

The Tiger CSS Safety Screw Cam Clamp is suitable for many applications. It is particularly useful for lifting and pulling sheet metal, girders, and steel constructions. It is fitted with a moveable Cam on the thread spindle which provides a powerful clamping force on the object being moved.

It can be used for lifting and transporting a large variety of different shaped steel, ranging from steel plates and structured steel to curved and spherical shaped steel. As well as transporting plate, this clamp is well-suited to turning over steel structures and welded constructions. It is also designed to be used in conjunction with a Tiger lever hoist to align steel structures of fabrications and as an anchor point. These clamps are ideally suited for the construction industry.

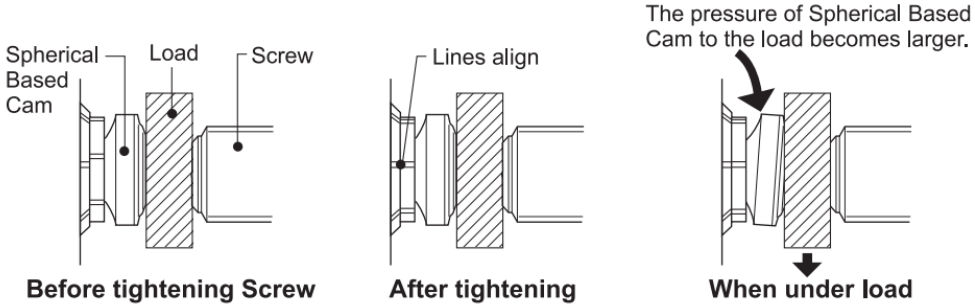
Determine the weight of the object being lifted and make sure that it does not exceed the rated load of the clamp. The object thickness must be within the grip range of the clamp (Chapter 7).

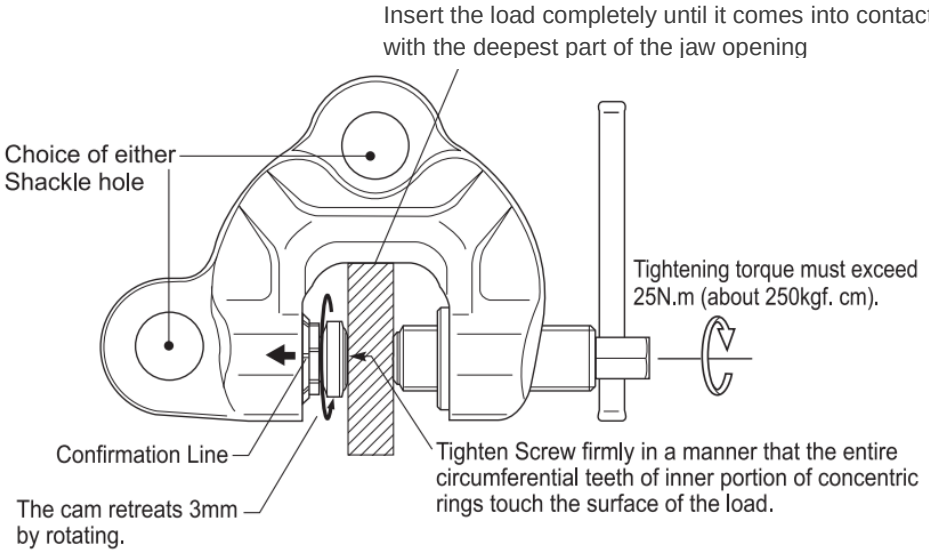
Before lifting the load, confirm that the clamps are in good condition and functioning properly. Inspect the clamp, if cam or pad teeth are worn or if clamps are damaged, do not use! All personal must stand clear of load while it is being lifted or moved.

See Chapter 8 for exploded diagram and part names.

The screw tightens when turned clockwise and loosens when turned counterclockwise).

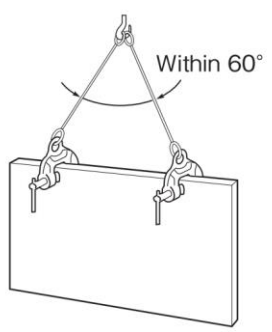
1. Lower the clamp onto plate/object to be lifted., insert the load until it comes into contact with the deepest part of the jaw opening of main body
2. Turn screw clockwise until the centre-ring on the Cam touches the plate. Tighten the screw further with the handle until the clamp is fully tightened; The cam will turn back about 3mm after coming into contact with the steel plate when tightening the forcing screw.
3. Continue to tighten Screw until it stops where the parallel Confirmation Lines align. After confirming the alignment, tighten further until the force exceeds 25N.m (about 250Kgf. cm). Failure to match the parallel Confirmation Lines could result in serious injury to person or damage to equipment.
4. The clamp has two shackle holes. Choose the appropriate hole depending on the application. Never use two holes simultaneously for the same operation.
5. After the load has been lifted a short distance make sure it is well balanced before continuing. Lift slowly and smoothly at all times.
6. During lifting operation, special attention must be given to prevent the Screw from loosening by an unintended contact of the Clamp handle with wire rope or any other objects.
7. When loaded, the Cam swivels in proportion to the load applied and the teeth edges of the cam bite into the plate to increase the clamping force, even when vibrations occur during operation.
8. If guiding a load by hand, place the palm of a gloved hand on top of the load, never grip the load with fingers on the side or the underside.
9. When detaching the load, lower the plate/object to the ground slowly. To loosen load, turn the handle counterclockwise to open the cam jaw.

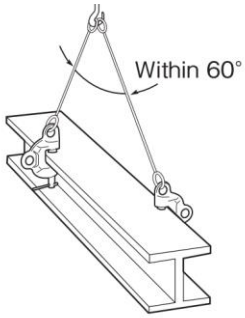




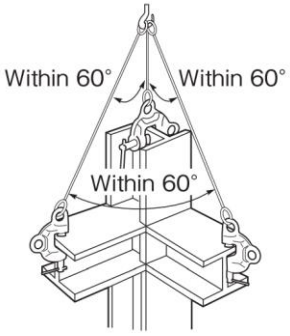
Methods of use

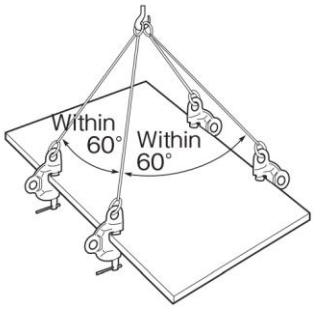
1. When lifting at two points, the lifting angle must be within 60º





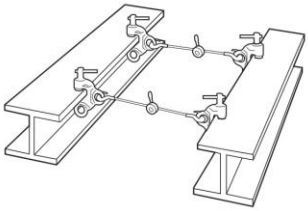
2. Always lift from three points when using the clamps on complex shaped objects.

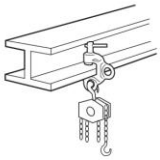




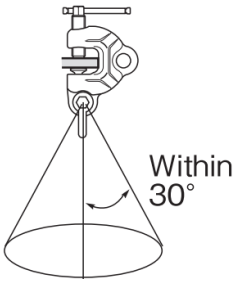
3. Clamps can also be used for positioning steel structure for welding, pulling and/or suspending.

   Note - When clamps are used continuously over long periods of time, check the clamping force regularly and do not overload the clamp.

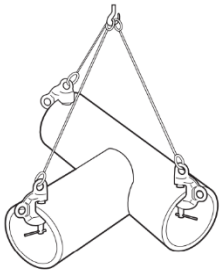




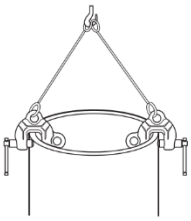
4. Inner angle for loading of lever hoists or chain blocks should be less than 30º.



5. The clamps can be used for lifting pipe shaped objects and for turning over material.

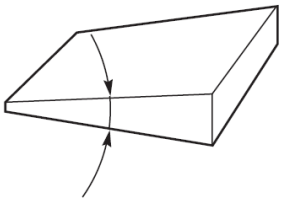


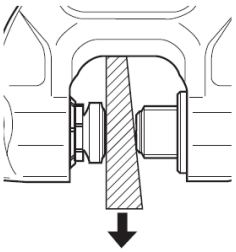
(Cylinder with inner dia. over 600mm)



Clamps should NOT be used on the following structures

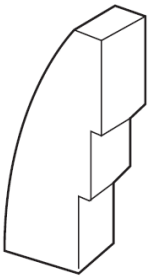
※ Wedge shapes over 8°





※ Even in the case the wedge shapes under 8°, lifting up in tapering down direction is prohibited.

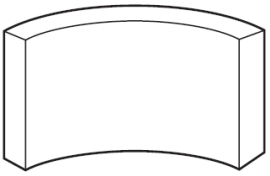
Objects with uneven surface (no flat surfaces) at grips.



Cylinders with inner dia under 600mm

Round bars

Curve shapes with radius under 300mm



3. Inspection

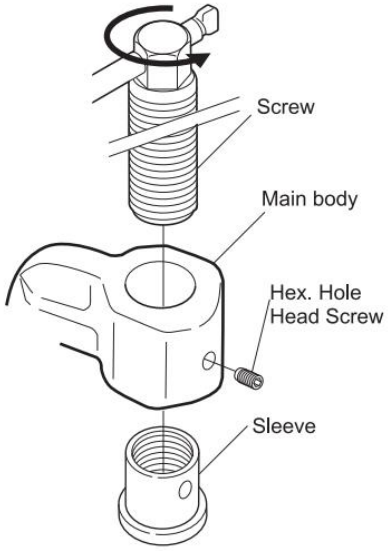
According to national and international accident prevention and safety regulations, lifting equipment must be inspected:

- in accordance with the risk assessment of the operating company
- prior to initial operation
- before the unit is put into service for any subsequent use
- after substantial changes
- however, at least once every 6 months, by a competent person.

The intervals of inspection must be determined by the individual application and are based upon the type of service to which the clamp will be subjected. In the event of any defects refer the clamp to a Competent Person for thorough examination.

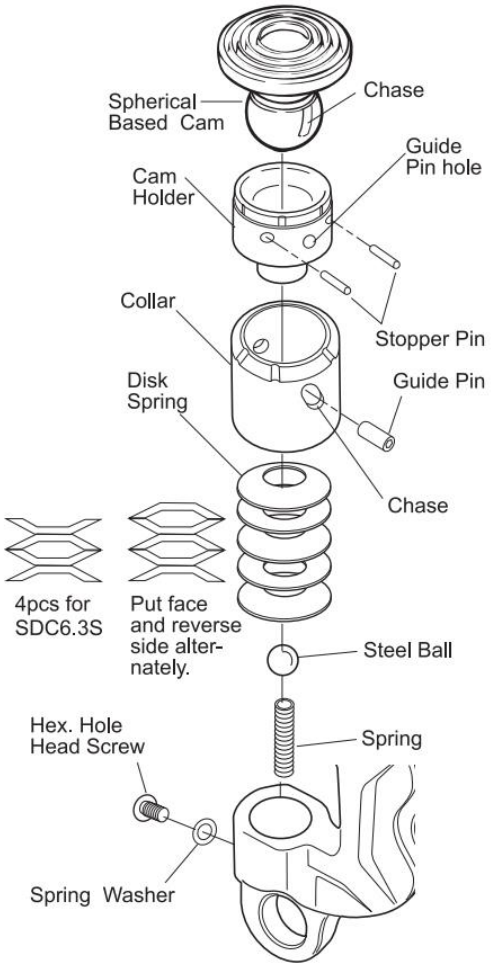
Disassembling the unit

1. Turn the Screw counterclockwise to pull it out of Main Body. (Screw and Handle cannot be disassembled.)
2. Loosen Hex. Hole Head Screw, and pull out and remove Spherical Based Cam, Cam Holder and Collar.
3. Pull out Guide Pins and Collar.
4. Pull out two Stopper Pins from Cam Holder and remove Spherical Based Cam.
5. Remove Hex. Hole Head Screw and pull out Sleeve.



Assembling the unit

1. Fit and match the hole of the Sleeve into the body hole of Hex. Hole Head Screw and fix it.
2. Place the spherical part of Spherical Based Cam in the Cam Holder and fix it with two Stopper Pins.
3. Place the Collar in the Cam Holder, and fit and match the groove (chase) of the spherical part of Spherical Based Cam, the Guide Pin hole of Cam Holder and the groove (chase) of the Collar, and when they are all lined up insert the Guide Pin.
4. As shown in the figure, assemble and attach the five Disc Springs (or four for the 6.3t capacity unit).
5. Put the Steel Ball and Spring in order at the bottom of Cam Holder.
6. Place the assembled Spherical Based Cam, Cam Holder, and Collar in the main body, and fix them with Hex. Hole Head Screw.
7. Insert and turn Screw into the screw part of the main body.

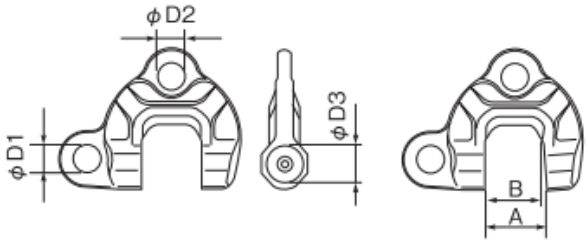


Examinations should include the following:

<table>
<tr><th>Category</th><th>Inspection method</th><th>Limit of use</th><th>Remedy</th></tr>
<tr><td>Body</td><td>Visually check or use colour dyes to find cracks.

Check for wear or deformation of shackle and screw holes.

Measure the jaw opening.</td><td>When found visually.

When the diameter of any one part of circumference of any hole exceeds the size in the table below:
 

<table>
<tr><td>Rated capacity (t)</td><td>0.5</td><td>1.0</td><td>2.0</td><td>3.2</td><td>6.3</td></tr>
<tr><td>D1(mm)</td><td>27.5</td><td>32.5</td><td>36.5</td><td>45.5</td><td>51.0</td></tr>
<tr><td>D2(mm)</td><td>27.5</td><td>32.5</td><td>32.5</td><td>35.5</td><td>41.5</td></tr>
<tr><td>D3(mm)</td><td>34.5</td><td>42.5</td><td>44.5</td><td>46.5</td><td>58.5</td></tr>
</table>
When the difference of “A” and “B” exceeds 5% (5mm or more against 100mm in depth.)

When the displacement of the centre of the screw and cam exceed 2 mm.</td><td>Discard</td></tr>
<tr><td>Screw</td><td>Visually check or use colour dyes to find cracks.

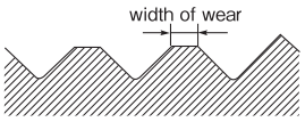
Visually check for bending.

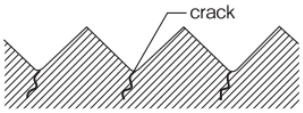
Visually check for wear or damage.

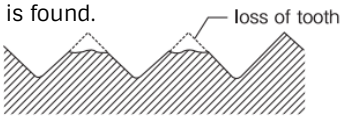
Visually check or measure the degree of wear.

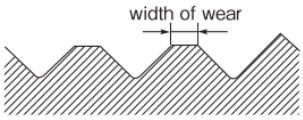
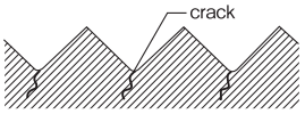
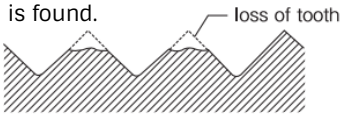
Visually check or use colour dyes to find cracks at the teeth bottom.
Visually check for broken teeth</td><td>When found visually.

When the movement is not smooth, or when the displacement of the Screw centre exceeds 2mm.

When thread part on circumference exceeds the size in the below table.
<table>
<tr><td>Rated capacity (t)</td><td>0.5</td><td>1.0</td><td>2.0</td><td>3.2</td><td>6.3</td></tr>
<tr><td>Diameter (mm)</td><td>23.3</td><td>29.3</td><td>29.3</td><td>34.2</td><td>37.3</td></tr>
</table>
When the degree of wear exceeds 0.5mm.
 

When found visually.
 

When any broken tooth is found.
 
</td><td>Replace</td></tr>
</table>

Category	Inspection method	Limit of use	Remedy
Sleeve	Visually check or use colour dyes to find cracks Measure the screw teeth for wear Visually check the adequacy of installation	When found visually. When rattling exceeds 2 mm between Screw and Sleeve. When the Hex. Hole Head Screw is found to be loose or falls out.	Replace Adjust by tightening
Spherical Based Cam	Visually check and measure the degree of wear. Visually check or use colour dyes to find cracks at the bottom cam teeth. Visually check for broken cam teeth Inspect each section for wear.	When the degree of wear exceeds 0.5mm.  When found visually.  When any broken tooth is found.  When the clearance between Spherical Based Cam and Cam Holder exceeds 0.5mm	Replace
Cam Holder	Measure each section for wear.	When the clearance between the Cam Holder, Collar and Spherical Based Cam exceeds 0.5 mm resulting in rattling.	Replace
Collar	Inspect each section for wear. Visually check for the state of attachment.	When the clearance between Collar, Body, and Cam Holder exceeds 0.3mm resulting in rattling. When extreme low head hexagon bolt with hole disconnects or loosen	Replace Adjust by tightening
Guide pin	Measure each section for wear. Visually check or measure for deformation.	When the clearance in the hole exceeds 0.1mm resulting in rattling. When bending or deformation exceeds 0.1mm.	Replace
Stopper pin	Measure each section for wear. Visually check or measure for deformation.	When the space with the hole of the Cam Holder exceeds 0.2mm resulting in rattling. When deformation exceeds 0.2mm. When the movement of the Spherical Based Cam is not smooth.	Replace

<table>
<tr><th>Category</th><th>Inspection method</th><th>Limit of use</th><th>Remedy</th></tr>
<tr><td>Steel ball</td><td>Measure for wear, or deformation.</td><td>When any part of Ball diameter becomes smaller than the size in the table below:
<table><tr><td>Rated capacity (t)</td><td>0.5</td><td>1.0</td><td>2.0</td><td>3.2</td><td>6.3</td></tr><tr><td>Diameter (mm)</td><td>4.8</td><td>6.8</td><td>6.8</td><td>6.8</td><td>7.8</td></tr></table>
When the movement of the spherical based cam is not smooth.</td><td>Replace</td></tr>
<tr><td>Spring</td><td>Visually check if cam returns automatically to original position when moved by hand.

Visually check the clearance of spring coils.</td><td>When the Cam does not return to its original position due to the loss of adequate repulsive power from deformation.

Replace when the spring becomes more than 5% shorter than its original length.</td><td>Replace</td></tr>
<tr><td>Disc spring</td><td>Check for adequate repulsive power when cam pushed</td><td>When normal repulsive power lost from deformation and lack of movement of Spherical Based Cam.</td><td>Replace</td></tr>
</table>

4. Maintenance

The equipment should not be dismantled for cleaning or maintenance, except by an authorised competent person. Clean the clamp. Lubricate any moving parts. Correctly secure all fastenings.

5. Transport, Storage, Decommissioning and Disposal

Transporting the unit:

- Do not drop or throw the unit, always deposit it carefully.
- Use suitable transport means. These depend on the local conditions.

Storing or temporarily taking the unit out of service:

To ensure the continuing integrity of the unit you should store the unit in conditions that do not lead to damage or deterioration. Therefore:

- Inspect clamps and accessories before placing into storage.
- **Never** return damaged clamps to storage.
- The unit should be secured against unauthorised and unwarranted use.
- Store the unit in a clean and dry place.
- Wipe off all dirt and water.
- A light oil film should be applied to moving parts.
- Protect the unit including all accessories against contamination, humidity and damage by means of a suitable cover.
- Protect against corrosion.
- If the unit is to be used again after it has been taken out of service, it must first be inspected again by a competent person.

Disposal

When the product comes to the end of its lifecycle, after taking the unit out of service, recycle or dispose of the parts of the unit respecting local and national environmental regulations.

6. Manufacturer Testing and Verification

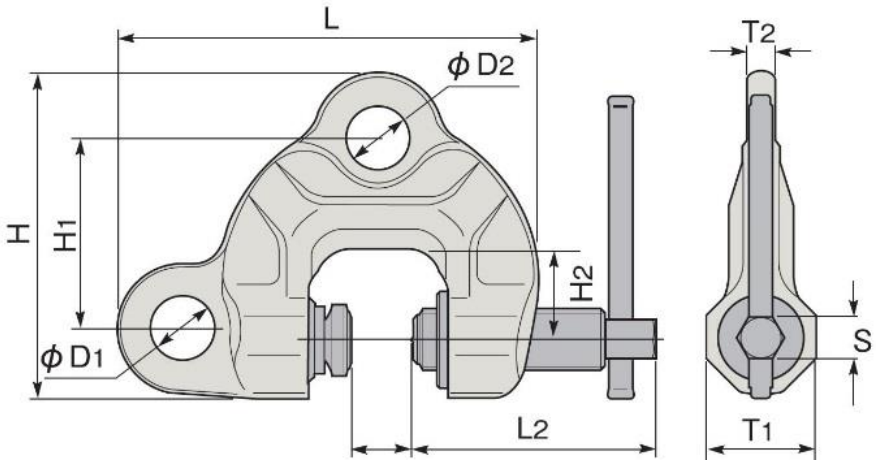
This product was manufactured under our single-unit control of quality and was passed with strict inspection in accordance with our inspection standards.

Product code	Capacity (tonne)	WLL (kg)	Test Load (kg)
CSS-005	0.5	500	1,000
CSS-010	1.0	1,000	2,000
CSS-020	2.0	2,000	4,000
CSS-032	3.2	3,200	6,400
CSS-063	6.3	6,300	12,600

Declaration of Conformity

Tiger CSS Clamps have a 4:1 factor of safety. They are tested in line with the requirements within applicable EN13155:2003+A1:2009. All items comply with the essential health and safety requirements of the Machinery Directive 2006/42/EC.

7. Technical Data

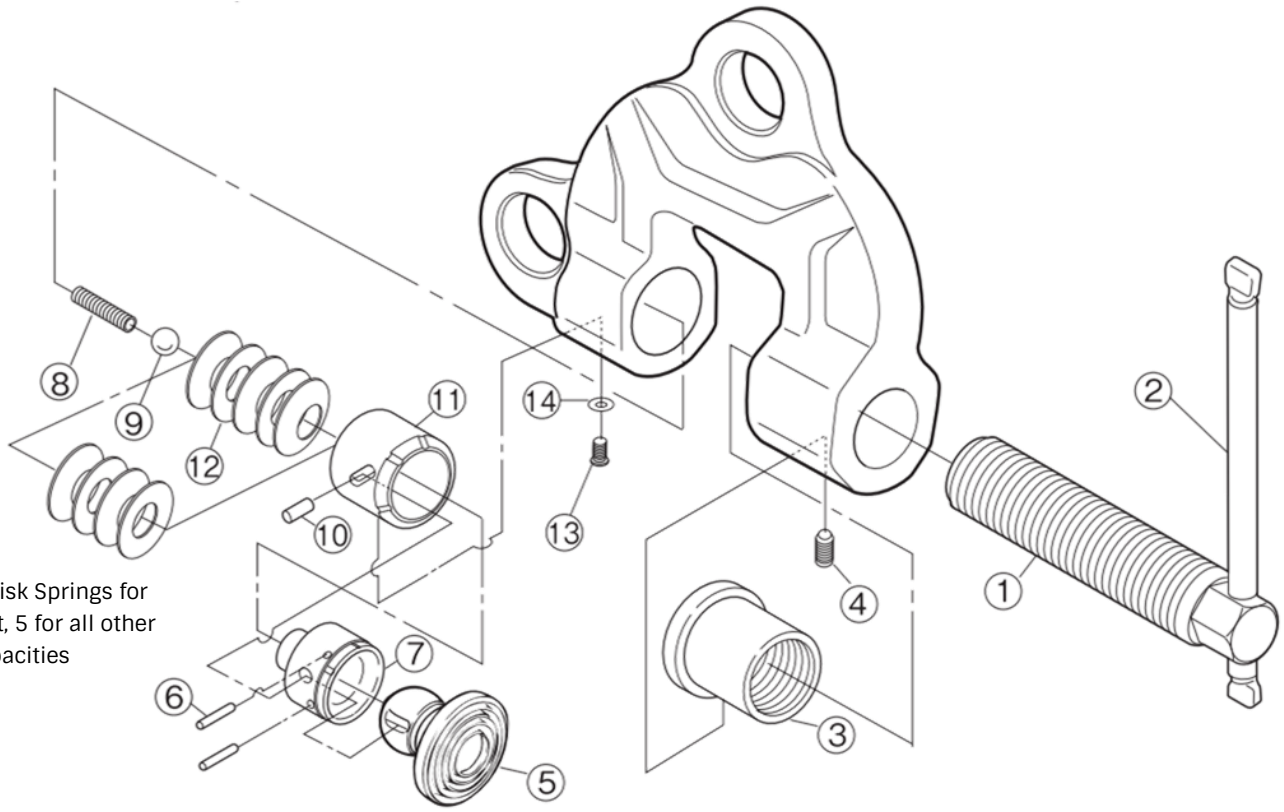


Product code	Capacity (t)	Clamping Range (mm)	L	L2	H	H1	H2	D1	D2	T1	T2	S	Weight (kg)
			(mm)										
CSS-005	0.5	0-25	158	89	121	72	30	27	27	46	13	17	1.9
CSS-010	1.0	0-40	208	121	161	94	45	32	32	54	14	21	3.6
CSS-020	2.0	0-40	227	121	177	105	45	36	32	60	18	21	4.8
CSS-032	3.2	0-40	252	136	196	119	50	45	35	64	20	21	7.0
CSS-063	6.3	0-50	291	151	225	132	55	50	41	90	43	21	17.0

The minimum WLL. is 10 % of the maximum WLL.

Due to our policy of continual product development, dimensions, weights and specifications may change without prior notice.

8. Exploded Diagram



4 Disk Springs for 6.3t, 5 for all other capacities

Part Number	Name	Assembly Name	Quantity
1	Screw	Screw	1
2	Handle		1
3	Sleeve	Sleeve	1
4	Hex. Hole Head Screw		1
5	Spherical Based Cam	Cam	1
6	Stopper Pin		2
7	Cam Holder		1
8	Pin		1
9	Steel Ball		1
10	Guide Pin		1
11	Collar		1
12	Disk Spring		5 (4 for 6.3t)
13	Hex. Hole Head Bolt		1
14	Spring Washer		1

9. Product Warranty and Warnings

Definitions

'Customer' means the individual, firm, company or other party with whom the Company contracts;
'Company' means Tiger Lifting UK Limited or Woo Sing Industrial Co., Ltd;
'Contract' the contract between the Company and the Customer for the sale and purchase of this product;
'Defective Goods' goods, parts or materials, which by reason of fault or incorrect design or workmanship, are found to be defective or fail or are unable to perform in accordance with a Contract;

One Year Limited Warranty

The Company makes every effort to assure that its products meet high quality and durability standards and extends the following warranty to the Customer of new products manufactured by the Company:

1. The Company warrants that this product, when shipped, shall be free from defects in materials and workmanship under normal use and service and the Company shall, at its election, repair or replace free of charge any Defective Goods, provided that all claims for defects under this warranty shall be made in writing immediately upon discovery and, in any event, within one (1) year from the date of purchase of this product by the Customer and provided, further, that Defective Goods shall be kept for examination by the Company or its authorised agents or returned to the Company or an authorised service centre upon request by the Company.
2. The Company does not warrant components of products provided by other manufacturers. However to the extent possible, the Company will assign to the "Purchaser" applicable warranties of such other manufacturers.
3. Except for the repair or replacement mentioned in (1.) above, which is the Company's sole liability and Customer's exclusive remedy under this warranty, the Company shall not be responsible for any other claims arising out of the purchase and use of this product, regardless of whether the Customer's claims are based on breach of contract, tort (including negligence), breach of statutory duty, or otherwise, including claims for any loss of profit, goodwill or business opportunity or any indirect or consequential loss arising under or in connection with the Contract.
4. This one year limited warranty is conditional upon the installation, maintenance and use of this product pursuant to the product manuals prepared in accordance with content instructions by the Company. The warranty on this product does not apply to defects due directly or indirectly to misuse, abuse, negligence or accidents. This warranty does not apply if the product has been subjected to improper fittings, alignment or maintenance.
5. The Company shall not be responsible for any loss or damage caused by transportation, prolonged or improper storage or normal wear and tear of this product or for loss of operating time.
6. This warranty shall not apply to this product if it has been fitted with or repaired with parts, components or items not supplied or approved by the Company or which have been modified or altered.
7. The Company limits all implied warranties to the period specified above from the date the product was purchased by the Customer.
8. Except as stated herein, any implied warranties or merchantability and fitness are excluded.

If our inspection discloses a defect, the Company will repair, replace the product or refund the purchase price, if we cannot readily or quickly provide a repair or replacement and if you are willing to accept such refund. The Company will return repaired or replacement products at The Company's expense, but if it is determined there is no defect, or that the defect resulted from causes not within the scope of Tiger Lifting's warranty, then the Customer must bear the cost of storing and retrieving the product.

! WARNING

The use of this product is beyond the control of Tiger Lifting. The warranty of this product is limited to the replacement cost of this product should it be found to be defective in material and/or workmanship. The warranty is void if the product is damaged, worn or used improperly. Normal wear and tear is not considered grounds for replacement. The Tiger Lifting product warranty does not apply where there has been excessive overloading of the product.

Disclaimer

We believe that the information in this document, including technical information and any advice, is reliable although we give no guarantee as to its accuracy or completeness. The user of our products must determine if the product, either used alone or conjunction with other products, is suitable for their purpose and assumes all risk and liability in connection with those decisions. We have made every effort to make sure this document is accurate. The information contained in this document does not form part of any contract.

Please also refer to our terms and conditions which can be found at: **www.tigerlifting.com/terms-conditions/**

Owner's Notes

Owner's Notes

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