



OX SPREADER BEAMS

Instruction Handbook

Applicable product versions: V0 / V1 / V2

Document edition: 06



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ANNEXES

TECHNICAL SPECIFICATIONS SHEET FOR ALL MODELS SUPPLIED

EU DECLARATION OF CONFORMITY FOR ALL MODELS SUPPLIED

DOCUMENT	INSTRUCTION HANDBOOK
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VALIDATED	C.S.M.

1. PRELIMINARY INFORMATION

The purpose of this manual is to provide the information necessary for the correct and safe use and maintenance of the OX Spreader Beam. This product is modular in design, consisting of several parts that are assembled together using preloaded bolts, forming a specific lifting configuration of variable length and capacity as described in this document.

This Instruction Handbook is an integral part of the equipment supplied and must be kept in perfect condition throughout the useful life of the equipment. It must be kept in an accessible and protected place near the place of use of the equipment, always available for possible consultation. In the event of damage to the Instruction Handbook, the user must request a new one. The manufacturer undertakes to supply one as soon as possible.

In the event of sale or transfer to a third party, this Instruction Handbook must always be handed over together with the equipment and it is recommended that the manufacturer be notified of the name of the new owner.

This Instruction Handbook is supplemented by the technical specification sheets for all accessories included, as well as the EU Declarations of Conformity for each of the parts. Please remember to provide it in its entirety to users or third-party companies who require it for proper and safe use.

This Instruction Handbook is intended for production and maintenance staff, occupational risk prevention technicians and, in general, all operators who will be handling this device. It is mandatory to read this manual carefully before using the device and to strictly follow all the instructions contained in this manual for the correct and safe use and maintenance of the device.

The manufacturer declines all responsibility for damage caused to persons and other equipment in the following cases:

- Incorrect use or negligence.
- Use by staff who have not received training in the use of the equipment.
- Use contrary to and in disagreement with current safety regulations.
- Power supply defects.
- Serious faults in scheduled maintenance.
- Modifications not authorised in writing.
- Intervention by unauthorised personnel.
- Use of non-original spare parts and components.
- Total or partial failure to follow the instructions described in this manual.
- Failure to carry out the necessary maintenance operations in accordance with this manual and to record them in the attached intervention sheet.
- Events, disasters, exceptional circumstances and accidents not attributable to the operation of the machine.

Although the main features of the unit described in the manual do not change, OX & RUD reserves the right to modify, without prior notice, features and accessories that may improve the performance of the unit.

The data indicated in this manual belongs to OX & RUD. Reproduction in whole or in part without the authorization of OX & RUD is strictly prohibited.

2. EU DECLARATION OF CONFORMITY

At the time of writing this Instruction Handbook, standard EN 13155:2020 + A1:2025 is not harmonised with Regulation (EU) 2023/1230 on machinery.

Consequently, compliance with the requirements set out in one of these provisions does not automatically imply compliance with the other. Therefore, in order to allow **CE marking**, the applicable requirements of both must be met simultaneously, as stated in the **EU Declaration of Conformity** attached to this Instruction Handbook.



The manufacturer declares that the lifting accessory complies with:

- **REGULATION (EU) 2023/1230 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 June 2023 on machinery and repealing Directive 2006/42/EC of the European Parliament and of the Council and Council Directive 73/361/EEC**
- **EN 13155:2020+A1:2025 Crane - Safety - Non-fixed load lifting attachments**

(The complete EC/EU Declaration is attached as an annex.)

3. DEFINITIONS

MANUFACTURER:

Responsible for the design and construction of the device according to current regulations, as well as for certifying the characteristics of the device and determining the conditions of use expressed in this manual.

USER:

It is the organization that uses the equipment, whether owned, assigned or rented, and that is responsible for its correct use in accordance with what is specified in this manual, as well as the regulations in force in relation to risk prevention and safety in the work environment in the place and at the time in which they are carried out. To do this, it will designate a person in charge trained in that function.

RESPONSIBLE:

Designated by the user, they must ensure that this manual is available to the device operators and that they have read and fully understood the instructions in this manual. They must also provide training on the correct use of the equipment and carry out training assessments for each type of operation to be performed, including use, assembly, maintenance, repairs, etc.

OPERATOR:

Responsible for carrying out the assembly and use tasks of the device, as well as the maintenance, cleaning, repair, and transportation of the equipment. In order for them to be developed effectively and safely. His training will be evaluated by the Responsible Person designated by the User, who will be ultimately responsible for any incident.

LIFTING CONFIGURATION (ASSEMBLY):

Set of parameters that determine the specific characteristics of a given lifting process. On the one hand, the maximum capacity is determined by the OX Spreader Beam model. On the other hand, there is a reduction in capacity depending on the length between the lower hooks, as well as the angle formed by the top slings. See **Technical Specification Sheet** (Annex I).

CLASSES OF TOTAL NUMBERS OF WORKING CYCLES (U):

The total number of working cycles is a parameter defined by standard EN 13155:2020 + A1:2025, which establishes the number of load cycles expected during the service life of the lifting accessory and consequently determines the specific requirements associated with fatigue calculation.

Each U class assigns a range of working cycles with an increasing level of severity, and this value must be used for the dimensioning of the corresponding tooling.

Class	Total number of working cycles
U_0	$C \leq 1,60 \times 10^4$
U_1	$1,60 \times 10^4 < C \leq 3,15 \times 10^4$
U_2	$3,15 \times 10^4 < C \leq 6,30 \times 10^4$
U_3	$6,30 \times 10^4 < C \leq 1,25 \times 10^5$
U_4	$1,25 \times 10^5 < C \leq 2,50 \times 10^5$
U_5	$2,50 \times 10^5 < C \leq 5,00 \times 10^5$
U_6	$5,00 \times 10^5 < C \leq 1,00 \times 10^6$
U_7	$1,00 \times 10^6 < C \leq 2,00 \times 10^6$
U_8	$2,00 \times 10^6 < C \leq 4,00 \times 10^6$
U_9	$4,00 \times 10^6 < C \leq 8,00 \times 10^6$

The class of use for which the lifting accessory has been designed is defined in the section on **LIMITS OF USE**.

Note: The total number of working cycles for each item is indicated in the Technical Specifications Sheet for each product.

4. GENERAL CONCEPTS OF LOAD LIFTING

In order to properly handle and lift loads using equipment and accessories such as lifting beams subjected to bending, lifting beams subjected to compression (also known as spreader beams), C-hooks and other non-fixed lifting devices, a number of fundamental principles must be taken into account. These must be understood and rigorously applied to ensure that lifting operations are performed with the required levels of safety.

WORKING LOAD LIMIT (W.L.L.):

The WLL (Working Load Limit) is the maximum load that the load lifting accessory is designed to lift under the conditions specified by the manufacturer. Never exceed this limit.

WEIGHT OF THE LOAD TO BE LIFTED:

Before starting any lifting operation, not only the weight of the load itself must be considered, but also the total weight of the auxiliary elements involved in the manoeuvre (lifting beam and other complementary accessories). Likewise, each component must be evaluated as an independent entity, verifying the load applied to each one:

- **Crane hook:**

The W.L.L. capacity of the crane hook must be greater than the sum of the weights it supports: the upper attachments, the lifting beam, the bottom attachments, and the load.

- **Top lifting accessories:**

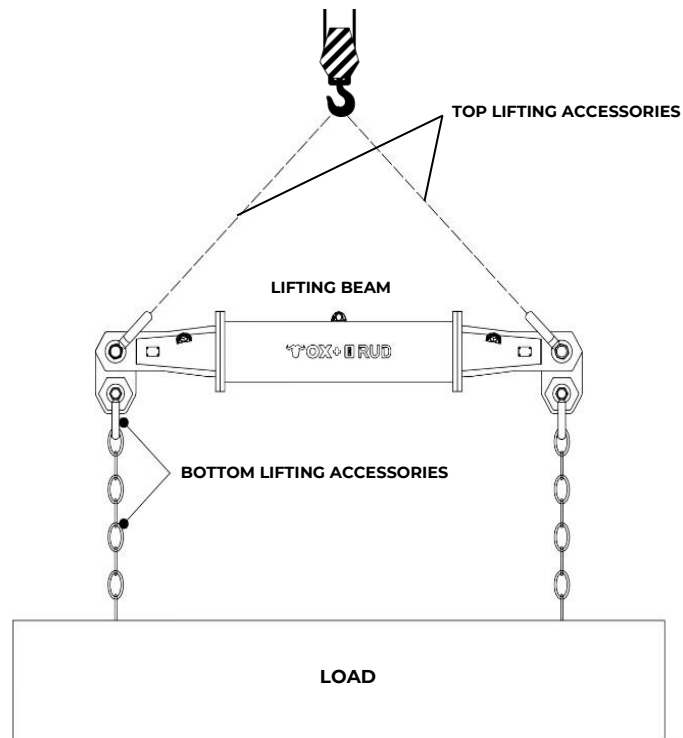
These accessories must be sized taking into account the working angle configuration and the total weight of all the elements they support: the lifting beam, the bottom accessories and the load.

- **Lifting beam:**

The W.L.L. capacity of the lifting beam must be greater than the sum of the weights it supports: the bottom accessories and the load.

- **Bottom lifting accessories:**

These accessories must be sized considering the weight of the load to be lifted.



IMPORTANT NOTES

For modular elements (such as Spreader Beams), it is necessary to assess and verify in each lifting configuration that all components used have the appropriate capacity. The longer the modular lifting beam, the greater its weight and, consequently, the greater the load it will transmit to the upper accessories and the crane hook.

CONDITIONS FOR LOAD STABILITY

According to standard EN 13155:2020 + A1:2025, in order to ensure that a load is lifted safely, the stability of the load to be lifted must be assessed and verified.



NOTE: An object with a narrow base and a high centre of gravity tips over more easily than one with a wide base and a low centre of gravity. When the centre of gravity is too high in relation to the base, the object becomes unstable and requires external support. The same applies to a suspended load: wind, acceleration or braking can cause it to tip over. Therefore, when slinging a load, its stability must be ensured by attaching the sling above the centre of gravity and correctly around the load.

According to EN 13155:2020 + A1:2025, beams and loads with **positive stability height** are stable, while those with **negative stability height** are not stable. For the lifting beam and load assembly to be stable, the following condition must be met:

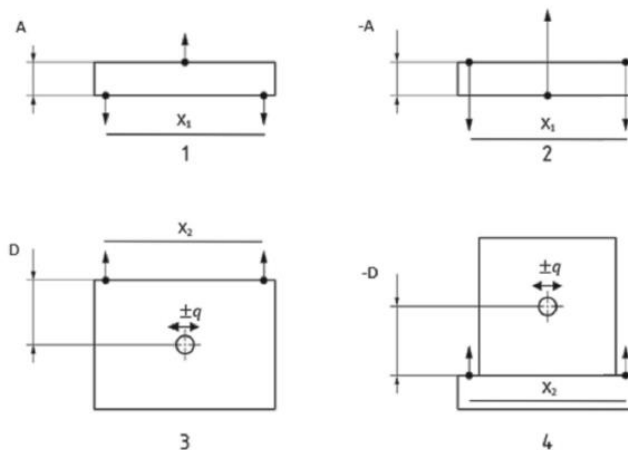
$$\frac{A}{x_1^2} > \frac{-D}{x_2^2} + \frac{q}{x_2^2 \cdot \tan v}$$

If the load is allowed to tilt up to 6 degrees, this condition can be simplified as follows:

$$\frac{A}{x_1^2} > \frac{-D + 10q}{x_2^2}$$

Where:

- *A*: is the stability height of the beam.
- *D*: is the stability height of the load.
- *x₁*: is the width of the beam.
- *x₂*: is the width of the load.
- *q*: is the uncertainty of the position of the centre of gravity.
- *v*: is the maximum permissible angle of inclination of the load.



Key

1	Lifting beam 1	2	Lifting beam 2
3	Load 1	4	Load 2

5. GENERAL FEATURES

DESCRIPTION

The purpose of the OX Spreader Beam is to safely handle and lift loads using modular elements that can be assembled to achieve the desired length. The maximum authorised load depends on the model and the lifting configuration applied, which determines the length and working angle of the top slings; see the **Technical Specifications Sheet** (Annex I).

MATERIAL AND FINISH

The material and finish of the product may vary depending on the model. For specific details, please refer to the **Technical Specifications Sheet** (Annex I).

IDENTIFICATION

Each of the individual elements that make up an OX spreader beam has an identification plate describing the Spreader Beam model, the Logo and the OX brand, as well as a characteristics plate specifying model, serial number, the working load limit*, tare and year of manufacture.



*The identification plate indicates **SEE TABLE** in the WLL (Working Load Limit) section, as, due to the modular nature of the product, the maximum capacity is restricted depending on the load configuration applied, length and angle of the top slings for any configuration such as a Spreader Beam. The table referred to is attached to this manual as **Annex I**, under the heading **Technical Specifications Sheet**.

Additionally, **each End Unit, positioned next to the identification plate, includes a Capacity Table** that is valid as long as a lifting configuration included in it is applied.



Download Manual
& Technical Data



WORKING LOAD LIMITS/
CAPACITY TABLE

WLL [t] EN13155:2020 + A1:2025 vs. working angle relative to the vertical [°] and effective length [m]

ANGLE (°) \ LENGTH (m)	-	-	-	-	-	-	-	-	-	-
45° WLL (t)	-	-	-	-	-	-	-	-	-	-
30° WLL (t)	-	-	-	-	-	-	-	-	-	-
20° WLL (t)	-	-	-	-	-	-	-	-	-	-

The QR code included in the table directs you to a web link where you can access the generic documentation for the OX Spreader Beam product, including this Instruction Manual, the Technical Specifications Sheet for the family of modular accessories for the specific size of the OX-SB Spreader Beam, and the EU Declarations of Conformity.

IMPORTANT NOTE:



The End Unit Capacity Table is NOT VALID if a lifting configuration is assembled outside the range of lengths, angles, or capacity indicated on it.



The End Unit Capacity Table IS NOT VALID if it is used accessories that modify the shape of the Spreader Beam, such as incorporating OX CORNER UNITS to form a Rectangular Spreader configuration or incorporating OX CONE ADAPTORS to form an OX LEAN SPREADER BEAM. In such cases, refer to the specific Capacity Table included with these accessories or use the QR code to access their Technical Specifications Sheet.

When fitting additional accessories:

- **OX CORNER UNIT:** You must use the Rectangular Spreader configuration Instruction Manual.
- **OX CONE ADAPTOR:** You must use the OX LEAN SPREADER BEAM Instruction Manual.
- **DTML (DOUBLE TRUNNION MULTILUG) :** You should use this same manual, as these terminals do not alter the lifting configurations.

In addition, some of the elements, especially the most significant ones, long sections or terminals, have adhesive vinyl stickers identifying the model, brand and OX-RUD logo, as well as the CE mark. The vinyl stickers are usually black. Other colours are available on special request.

6. SAFETY

The device has been designed to be used in safe conditions to prevent or minimize possible risks, through correct use and regular maintenance.

The device must be used and maintained only by qualified personnel by the Person Responsible designated by the company that uses the product.

The operating space around and especially under the device and the load to be handled must be free of obstacles and properly illuminated, as well as the entire perimeter of access to said area delimited for people.

If the safety conditions are not met, the operation must be interrupted immediately, the load safely placed on the ground as soon as possible and the pertinent corrections made, or the manoeuvre cancelled if it is not available.

	Mandatory use of safety helmet. Fall from a height of loose parts such as crane screws, accessories, tools or even the load itself or its packaging.		Danger suspended load. Never stand under the load or around the operation.
	Mandatory use of safety footwear. Entrapment of feet or falling loose parts.		Danger of entrapment with mechanical elements. Do not get between moving or adjustable elements.
	Mandatory use of safety gloves. Possibility of cuts or abrasions when handling parts and accessories		Crushing hazard. Do not get between the load or tools and the floor, ceiling or sides.
	Obligation to read manual before handling equipment. Possibility of putting oneself in danger due to lack of knowledge of the equipment.		Undetermined danger. Pay special attention to the indications preceded by this symbol in this manual

RESPONSIBLE STAFF

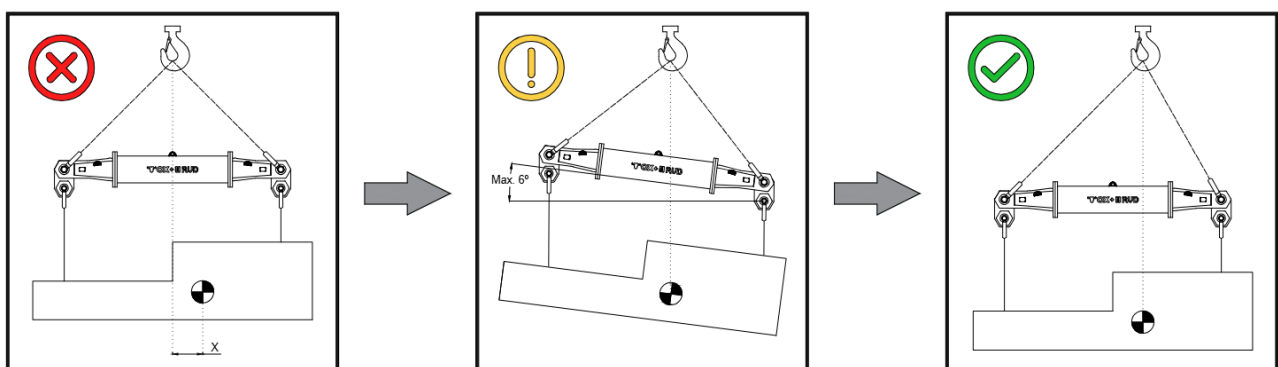
The device must be used only by qualified staff (operators). The maintenance and responsibility should entrust only to these qualified staff or persons with roles of responsibility.

The buyer of the device must provide the training and the necessary information for the correct use of the equipment, to the staff that is going to be in charge of the machine, only as users or as operators, repairing and maintaining the equipment, in a way that each person reads and understands perfectly the instructions of this manual.

7. INTENDED USE

The lifting beam has been designed and manufactured as a non-fixed lifting accessory intended for use in combination with suitable lifting equipment (such as cranes, hoists or similar handling equipment) to lift, move and position non-fixed loads within the limits specified by the manufacturer. The intended use comprises the following applications:

- Used between the suspension element of the lifting equipment and the load, allowing the connection of one or more compatible lifting accessories (slings, shackles, hooks or other certified tools).
- Vertical handling of loads within the nominal capacity of the equipment (W.L.L.) and its accessories.
- Distribution of the load between several anchor points, ensuring the stability of the assembly and preventing specific overloads or deformations in the load.
- Controlled movement of suspended loads in industrial, logistics and construction environments.
- Use in lifting operations in conditions of limited height.
- Lifting of rigid or palletised loads, properly balanced and secured.
- Use with compatible accessories (slings, shackles, spreader beams, spreader bars, etc.) that are certified and correctly sized.
- Static applications or those with limited dynamics, without sudden stresses or impacts not anticipated in the design.
- Operation under normal environmental conditions, unless the equipment has been specifically designed for extreme environments (high/low temperatures, corrosion, weathering, etc.).
- Use by trained personnel, following the operating procedures established by the manufacturer and applicable regulations.
- The load's centre of gravity must always be centred with the crane hook. The load must be completely horizontal: the maximum permissible angle of inclination is 6° from the horizontal axis after lifting the load. If the angle is greater, the lifting configuration must be changed.



8. UNINTENDED USE AND REASONABLY FORESEEABLE MISUSE

In accordance with Regulation (EU) 2023/1230 and standard EN 13155, the following cases are considered improper use - not covered by the manufacturer's design:

Overloading of equipment or accessories	Unintended use: Lifting loads whose weight exceeds the nominal capacity of the equipment (W.L.L.) or any accessory.
	Foreseeable misuse: - Do not consider the weight of the lifting beam, shackles, slings or other accessories. - Incorrectly estimating the weight of the load.
Lifting of persons	Unintended use: Use lifting equipment exclusively for loads, not for transporting and/or lifting people.
	Foreseeable misuse: - Lift the load as if it were a platform.
Lifting with incompatible or non-certified accessories	Unintended use: Using slings or shackles that are uncertified, damaged, or incompatible with the equipment.
	Foreseeable misuse: - Mixing accessories of different capacities or qualities. - Using deformed, corroded or unidentified items.
Lifting with dangerous or unauthorised working angles	Unintended use: Performing lifts at excessive angles that exceed the permissible limits of the rigging.
	Foreseeable misuse: - Connecting slings with angles that are too sharp. - Ignoring the reduction in capacity due to the working angle.
Sideways dragging of loads	Unintended use: Pull or drag the load sideways while it is suspended.
	Foreseeable misuse: - Force non-vertical movements of the lifting equipment.
Lifting unsecured or unstable loads	Unintended use: Lifting objects without adequate attachment points, without balance or without securing them.
	Foreseeable misuse: - Lifting loads with the centre of gravity displaced. - Using slings that are incorrectly positioned or without ensuring stability.
Use of equipment in incompatible environments	Unintended use: Operating in environmental conditions for which the equipment was not designed.
	Foreseeable misuse: - Exposure to corrosive agents without protection. - Use in temperature ranges outside the design criteria.
Application of excessive dynamic loads	Unintended use: Generate impacts, sudden acceleration or braking on the lifting system.
	Foreseeable misuse: - Lifting the load suddenly instead of gradually tensing up. - Sudden stops during movement.
Handling without proper training	Unintended use: Allowing untrained personnel to operate the equipment.
	Foreseeable misuse: - Incorrect use of crane controls. - Lack of knowledge of lifting signals and safety procedures.
Remaining under the suspended load	Unintended use: Allow the presence of operators or third parties under heavy loads.
	Foreseeable misuse: - Walk under the load to shorten the distance. - Remain in the risk area to manually 'guide' the piece.

9. LIMITS OF USE

TEMPERATURE

The operating temperature range of the product may vary depending on the model. For specific details, please refer to the **Technical Specifications Sheet** (Annex I).

CLASSES OF WORKING CYCLES

Product design load cycles may vary depending on the model. For specific details, please refer to the **Technical Specifications Sheet** (Annex I).

RESTRICTION FOR OPERATION IN SPECIAL ATMOSPHERES

The use of these devices is prohibited in special atmospheres and/or situations (unless expressly specified), such as:

- Use in atmospheres with high humidity.
- Use in explosive atmospheres.
- Use in saline atmospheres.
- Use in acidic atmospheres.
- Use in alkaline atmospheres.
- Handling of hazardous loads, such as molten masses, radioactive materials, etc.

ACCESSORIES

The Spreader Beam assembly must be lifted with the lifting accessories (slings, grommets, chains, etc.) with the length determined by the chosen load configuration, with the accessories of the capacity and type that also adjust to the measurements, shapes and direction of work of the crane hook, whether single or double or other, always with safety latches, without twisting or bending of the accessories, nor overlapping of elements or tensions of any kind between them.

If this is not possible, they should consider the incorporation of an intermediate element or modify the coupling configuration or the type of accessory until these conditions are met, as well as other conditions indicated in the instructions of the manufacturers of such accessories or in the regulations applicable in each case.



Consult our sales team for the supply of accessories suitable for your specific needs.

You can also consult our sales team about the cost of advice and preparation of a personalized Rigging Plan.

LIFTING CONFIGURATION (ASSEMBLY)

The maximum capacity of the Spreader varies depending on the length of the assembly and the working angle of the slings; refer to the **OX-SB Technical Specifications Sheet** (Annex I) to check the capacities of a specific model.

In general, top slings are designed to work **at angles ranging from 20° to 45° above the vertical, with no additional tolerance.**

We provide capacities for typical configurations of 20°, 30° and 45° from the vertical. In the case of intermediate angles, the capacity must be adjusted to that indicated for the immediately more restrictive angle; that is, between 20° and 30°, the capacity limit will be 30°, and between 30° and 45°, the capacity limit will be 45°.

We also provide data tables and formulas for determining top sling lengths and height loss.

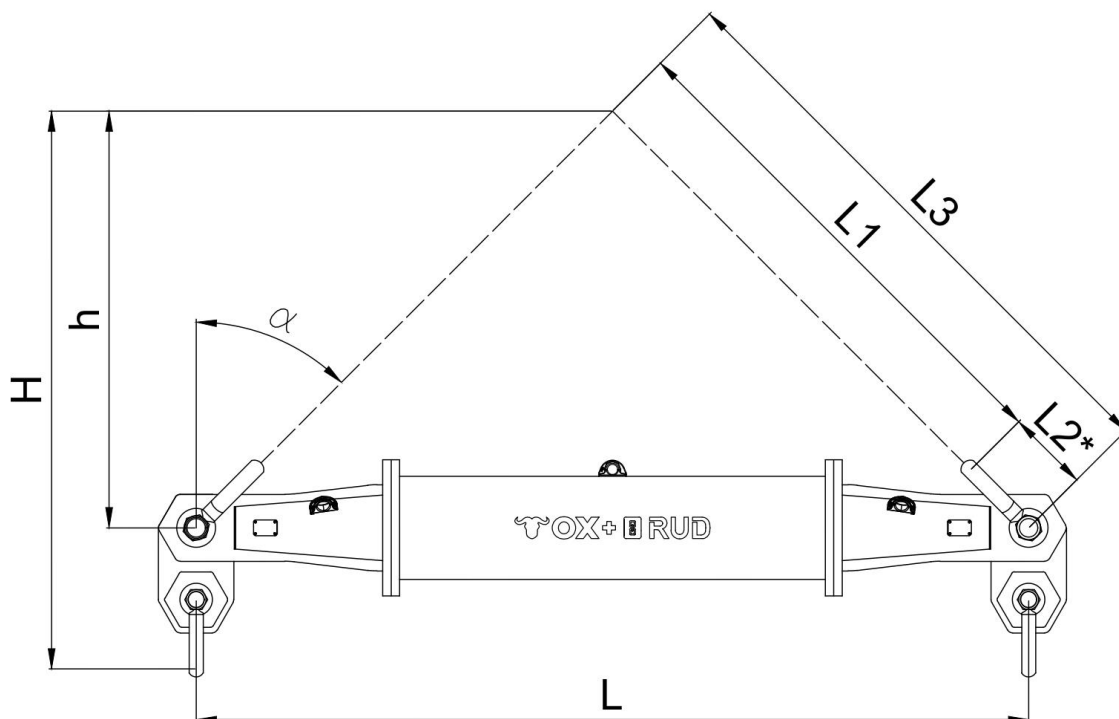
In general, bottom slings are designed to **work vertically, at 0° to the vertical, with an additional tolerance of ±6°**.

Some special applications may be approved with a different range both above and below, but this must be clearly reflected in the Technical Specifications Sheet provided for that special application in order for it to be accepted and properly registered in the EU Declaration of Conformity.



IMPORTANT NOTE: There are applications in which the Spreader Beam is used **upside down**, in which case the limits are the same, but obviously the consideration of top and bottom slings is reversed, so this must be taken into account, as Standard EN 13155 allows a tolerance of ±6° in the bottom slings, which should not be considered in the case of upside-down applications. See application examples A and B on pages 16 and 17 of this Manual.

The load must be lifted correctly, complying with all safety regulations and in such a way that the load's centre of gravity is centred with the crane hook. In addition, the load must be completely horizontal: the maximum permitted angle of inclination is 6° from the horizontal axis after lifting the load. If the angle is greater, the lifting configuration must be changed.



$$H = h + \text{Drop Link} + \text{Shackle}^*$$

α	$L1 + L2^*$	h
20°	$L \times 1,46$	$L \times 1,37$
30°	$L \times 1,00$	$L \times 0,87$
45°	$L \times 0,71$	$L \times 0,50$

**Dimensions of accessories supplied by OX & RUD.*

CONDITIONS FOR LOAD LIFTING

The device must always be used with a hook that is appropriate in size and capacity and, preferably, has safety locks; it must be able to withstand oblique pulls in a stable and secure way, or additional accessories such as a triple ring, triangular plate, etc. must be added.

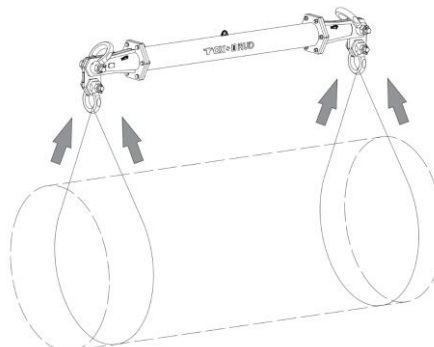
Check the device itself, all lifting accessories, the load attachment points, the lifting conditions, the position of the centre of gravity, and the stability of the load and its divisible parts or parts with degrees of freedom. It is very important to know whether the load requires a specific lifting system in order to comply with it, or whether it must be studied as part of the manoeuvre to avoid deformation, breakage, falling, etc.

INDIVIDUAL LIFTING CONFIGURATIONS:

LIFTING A LOAD WITH 4 SLINGS WITH AN OBLIQUE DIRECTION.

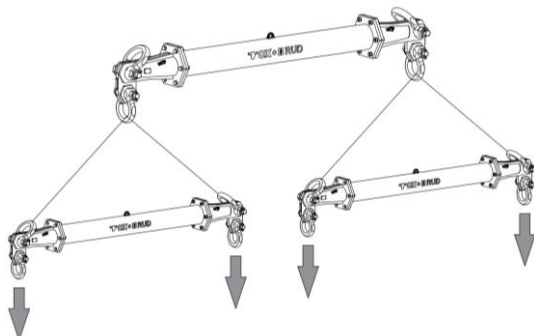


LIFTING LOADS WITH TWO SLINGS IN A BASKET, OBLIQUE SLINGS ENCLOSING THE LOAD.

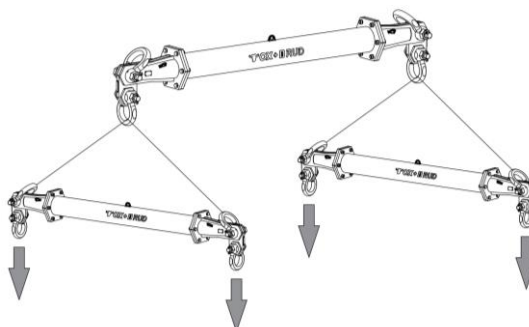


CASCADE LIFTING CONFIGURATIONS:

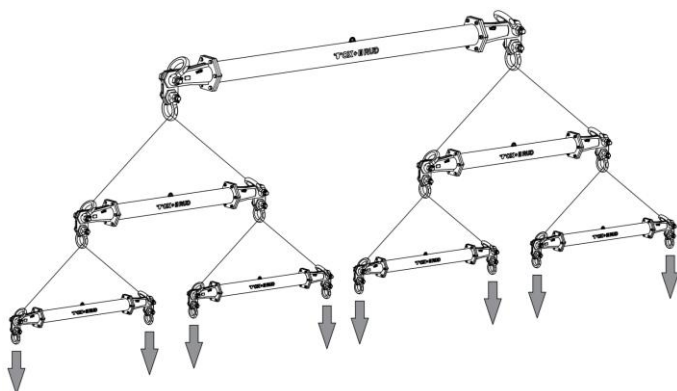
COMPOSITION FOR LOAD LIFTING WITH 4 ANCHORAGE POINTS IN LINE.



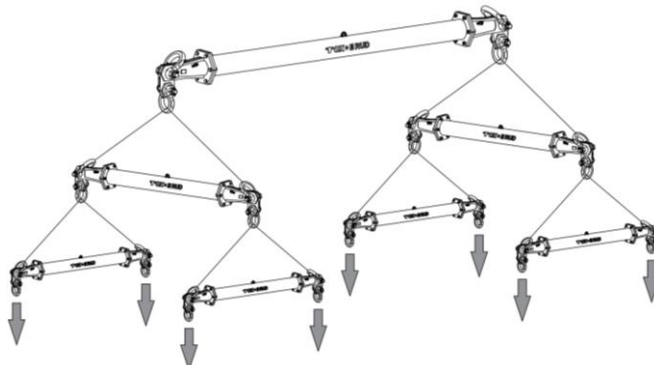
COMPOSITION FOR LOAD LIFTING WITH 4 ANCHORAGE POINTS AT THE ENDS.



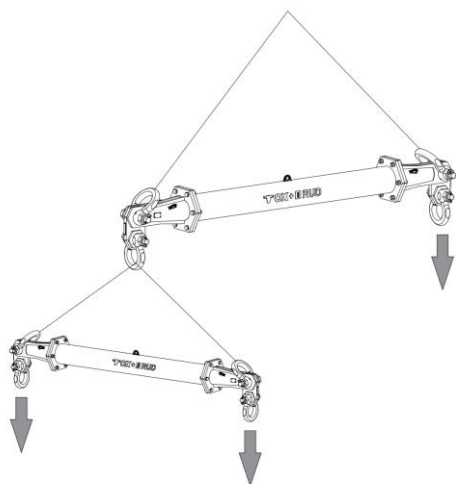
COMPOSITION FOR LOAD LIFTING WITH 8 ANCHORAGE POINTS IN LINE.



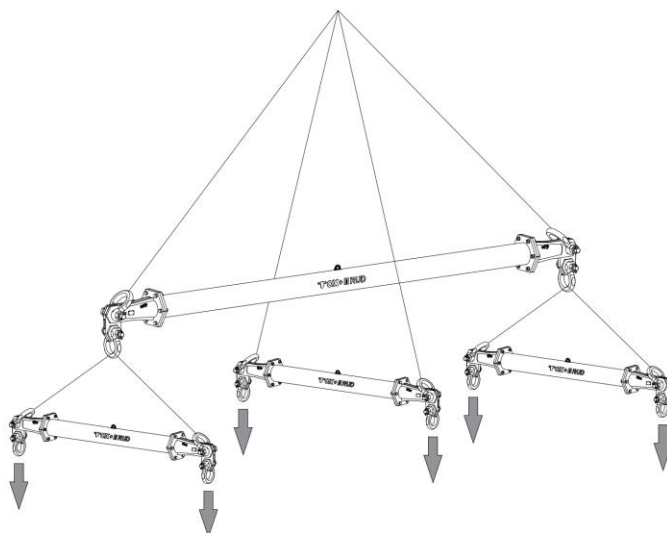
COMPOSITION FOR LOAD LIFTING WITH 8 ANCHORAGE POINTS.



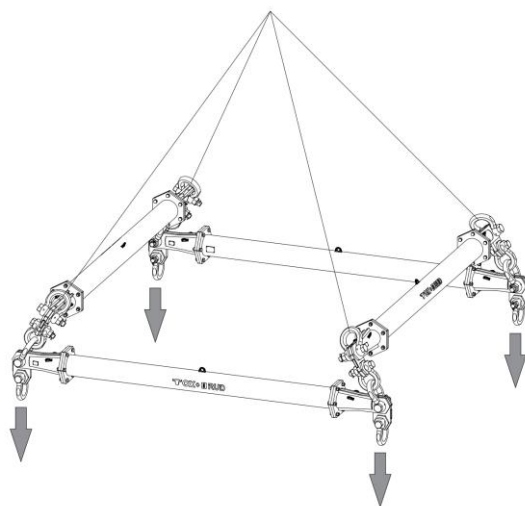
LOAD LIFTING WITH 3 ANCHOR POINTS.



LOAD LIFTING WITH MULTIPLE ANCHORAGE POINTS.

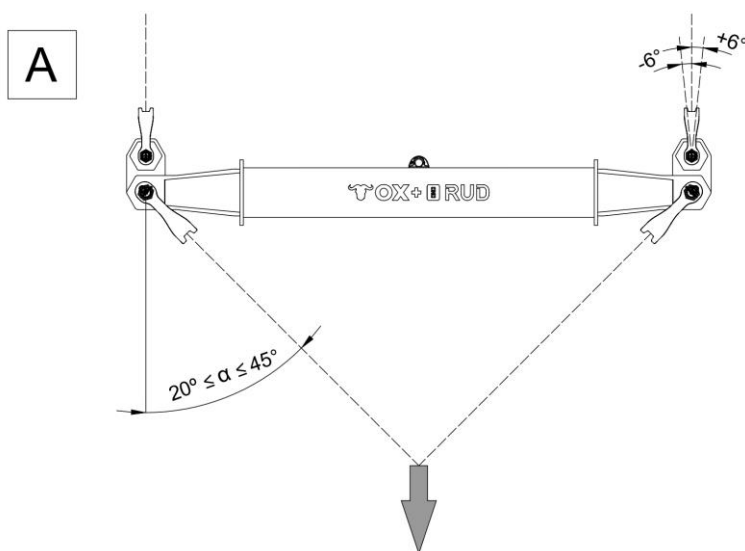


FRAME MADE WITH CASCADE SPREADER BEAMS.



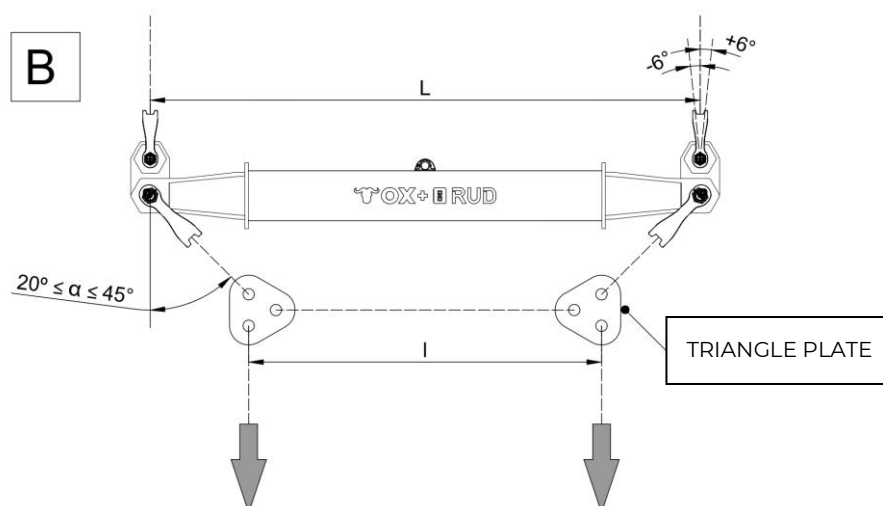
UPSIDE DOWN SEPARATOR - 1 BOTTOM LIFTING POINT:

This system allows a load to be lifted using at least two cranes, reasonably synchronised so that neither of them is overloaded, combining the lifting capacity of both and using a central attachment point if the cranes are of equal capacity, or using a point offset towards the more capable of the two cranes in the case of cranes of different capacities (the moments on both sides must be compensated to find the position).



UPSIDE DOWN SEPARATOR - 2 BOTTOM LIFTING POINTS:

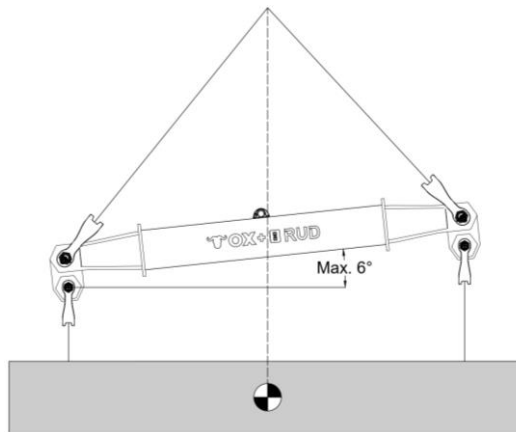
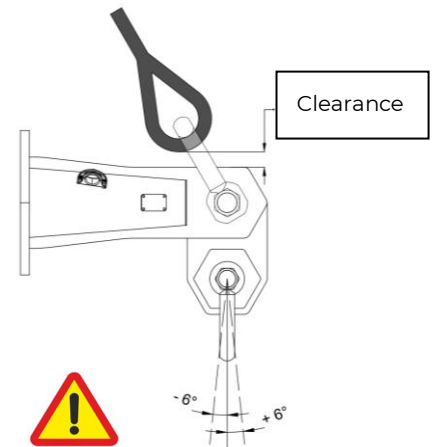
This is the same case as above, with the difference that we can have two bottom lifting points thanks to the Triangle Plate accessories.



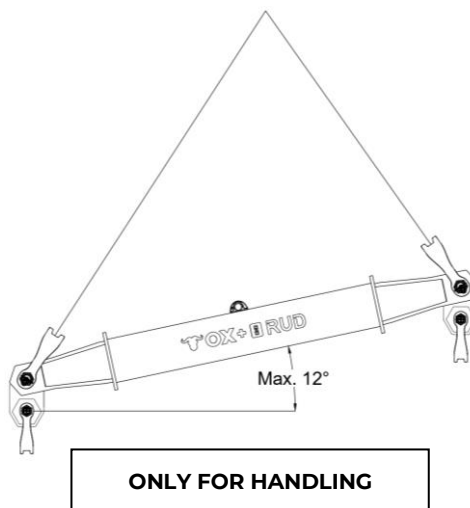


IMPORTANT NOTES:

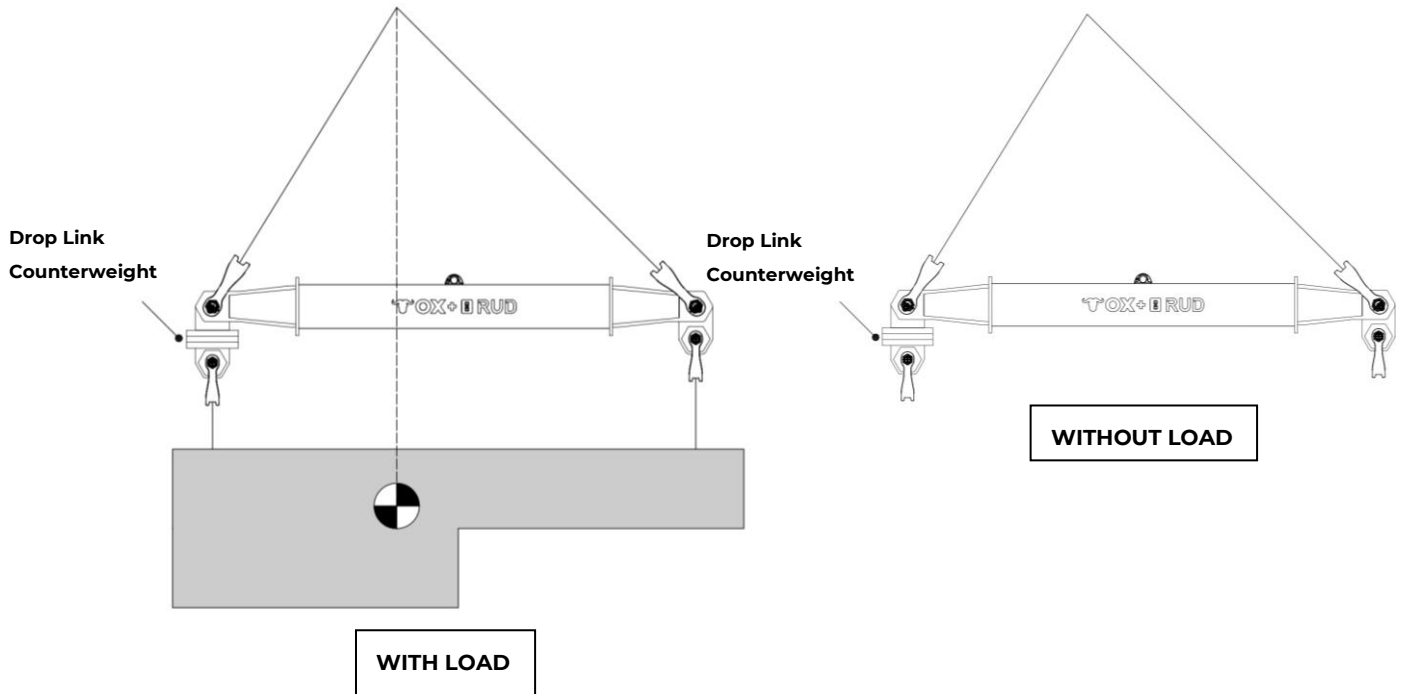
1. There is a table to determine the maximum capacity at a certain length and at a working angle of **20, 30 or 45°**. In no case is it allowed to work with angles greater than 45° with respect to the vertical.
2. The **bottom slings** may not deviate **+/- 6°** from the vertical or what is equivalent to 96°/84° with respect to the axis of the spreader
3. **The spreader beam when loaded can tilt up to 6° and as long as the bottom slings descend perpendicular to the axis of the spreader. If the lower branches descend slightly inclined, the inclination will have to be deducted from the value of 6°.**



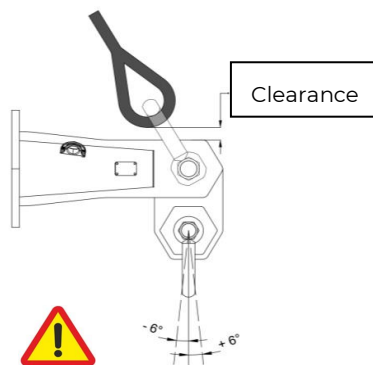
4. The centre of mass or centre of gravity of the load must be aligned with the crane hook, being able to lift off-centre loads horizontally, but always with the load beam in a horizontal position or slightly inclined as indicated in point 3.
5. **The empty spreader beam may need to be inclined in particular cases such as in asymmetrical lifting configurations, in which case an inclination of up to 12° is allowed, but the lower branches must be provided with an additional length to avoid touching the load with the spreader beam.**



6. If necessary, a counterweight can be inserted on one side between the lifting accessories, or a special counterweighted version **can be supplied from the factory so as not to exceed the inclination of 12°**.



7. It is very important to **maintain a clearance between the sling and the End Unit**, as well as to leave space between the modular spreader beam arm and the load, since under load they can suffer elastic deformation and reach and rub against each other, crush or even collapse the hoist.



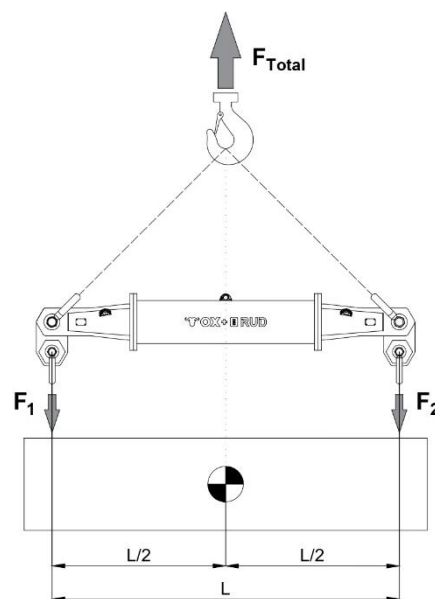
8. When handling loads with a centred centre of gravity, the Spreader Beam is used symmetrically, i.e., the End Units on both sides receive the same loads. In this way, the total load is the sum of both sides:

$$F_{Total} = F_1 + F_2$$

For stable lifting, the load received by each of the End Units must be calculated using the law of the lever:

$$F_1 \cdot (L/2) = F_2 \cdot (L/2) \rightarrow F_1 = F_2$$

From which it also follows that $F_1 = F_2$.



9. When handling loads with an off-centre centre of gravity, the Spreader Beam is used asymmetrically, i.e., the End Units on both sides receive different loads. In this way, the total load is the sum of both sides.

$$F_{Total} = F_1 + F_2 \rightarrow F_1 \neq F_2$$

For stable lifting, the load received by each of the End Units must be calculated using the law of the lever, where 'X' is the load offset:

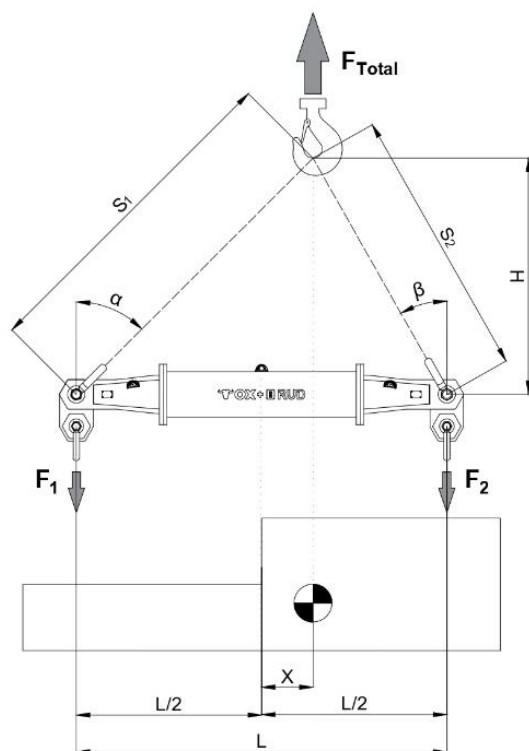
$$F_1 \cdot (L/2 + X) = F_2 \cdot (L/2 - X) \rightarrow F_1 \neq F_2$$

The result of the largest load must never exceed half of the nominal load. Therefore, the following must always be ensured:

$$F_1 \leq \frac{WLL_{Spreader\ Beam}}{2}$$

$$F_2 \leq \frac{WLL_{Spreader\ Beam}}{2}$$

In this case, the working angles described cannot be exceeded, nor can the Spreader Beam be used with the maximum rated load of the model under any circumstances. Therefore, according to the results of these calculations, it may be necessary to modify the angle of the lifting configuration or even the Spreader Beam model.



Other formulas of interest:

"S1" Length of the long sling	$S_1 = \frac{(L/2 + X)}{\sin \alpha}$
"S2" Length of the short sling	$S_2 = \frac{(L/2 - X)}{\sin \beta}$
"H" Height loss	$H = S_1 \cdot \cos \alpha$
"β" Resultant angle	$\tan \beta = \frac{(L/2 - X)}{X}$
Note: the working angle relative to the vertical axis must always be less than 45°: $\alpha \leq 45^\circ$ $\beta \leq 45^\circ$	



In the case of lifting with multiple cranes or cascade configurations, the weight distribution must be calculated to ensure that no element of the configuration receives a load exceeding its rated capacity.

The load may only hang from the Drop Links of a Spreader Beam; under no circumstances may it hang from any other part of this Spreader Beam.



Consult our sales team about any application you do not know how to resolve or that requires additional solutions outside the range.



Under no circumstances should the equipment be used to lift people, and it is prohibited to handle loads above people. There must always be a perimeter safety zone.

10. INSTRUCTIONS FOR USE

BEFORE LIFTING THE LOAD

- a) Check the rated capacity (W.L.L.) of the equipment and each individual accessory; do not exceed the W.L.L. of any item used under any circumstances.
- b) Check the general condition of the lifting equipment: deformations, cracks, wear, corrosion, legible identification, and valid certificates.
- c) Calculate the total load, including the weight of the load, rigging, slings, lifting beams, and any intermediate accessories.
- d) Ensure the correct selection of accessories according to the working angle, load type, and lifting configuration.
- e) Check the load's centre of gravity and stability before lifting it.
- f) Plan the manoeuvre, defining roles, signals, workspace and obstacle-free routes.

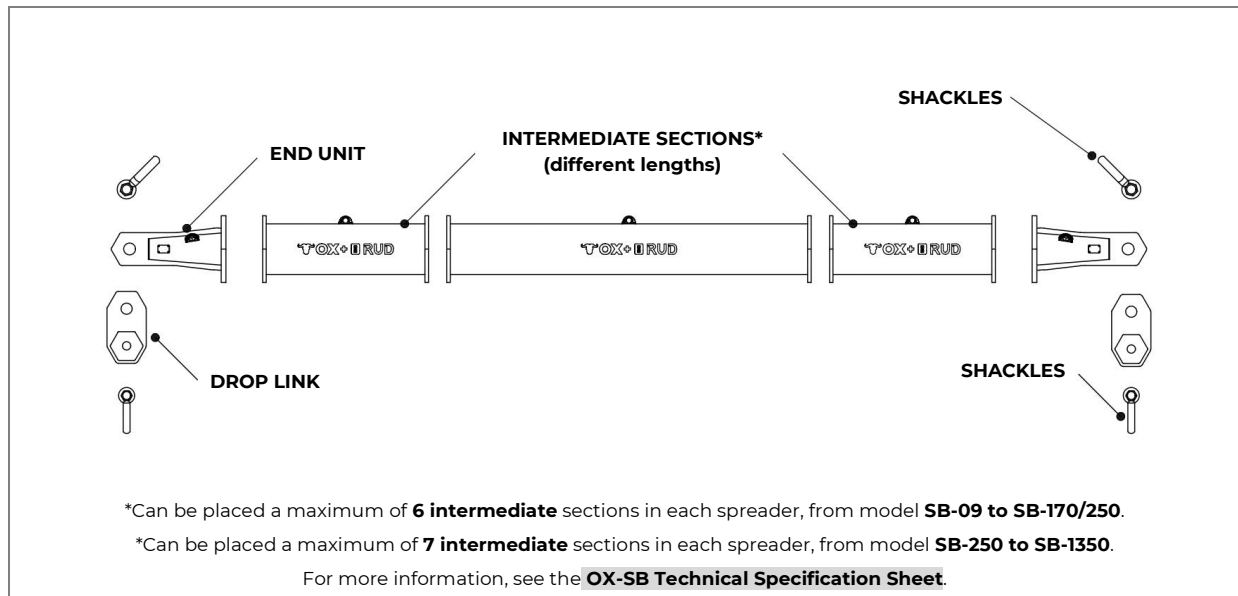
DURING THE LIFTING OF THE LOAD

- g) Raise the load slowly and progressively, avoiding sudden accelerations or impacts.
- h) Stop lifting immediately if abnormal vibrations, unusual noises or excessive swaying are detected.
- i) Stay out of the suspended load zone; it is strictly forbidden to stand under the load.
- j) Control the swaying and correct any deviation with smooth, coordinated movements.
- k) Ensure clear communication between the operator, signaller and support team.

AFTER LIFTING THE LOAD

- l) Set the load down carefully, avoiding impacts against the ground or structures.
- m) Gradually release the tension on the accessories before disconnecting them.
- n) Carry out a visual inspection of the equipment after the manoeuvre, recording any anomalies.
- o) Store the accessories properly, free from moisture, dirt and corrosive agents.

11. ASSEMBLY PROCEDURE



1. Determine that the required lifting configuration is compatible with the OX Spreader Beam model and determine the combination of elements necessary to make the composition.

2. Validate the availability of the elements to form the necessary length.



The length of the Spreader must be such that the bottom slings do not deviate from the vertical by more than 6°. If necessary, the bottom accessories (slings) must be lengthened to meet this requirement.

The lengths of the top slings must be equal to or greater than the calculation length to guarantee the working angles.

3. Inspect each element separately: Welds, deformations, and general condition of the element.
4. Place the horizontal elements, with the hexagonal faces matching and aligned laterally, in the relative position they will occupy in the lifting configuration, either directly on the ground or on planks or trestles.

IMPORTANT NOTE: The longest sections should be placed in the centre of the assembly.

5. Manually place all screws in each pair of hexagonal clamps, without forgetting the washers and preferably facing the same way. **NO LUBRICATION IS REQUIRED**, as the nuts have an additional molybdenum disulphide (MoS2) lubricant coating.
6. Proceed to progressively and uniformly tighten the screws according to the torque and sequence specified in the **OX-SB Technical Specifications Sheet (Annex I)**.



Consult the OX-SB Technical Specifications Sheet (Annex I) for measurements, quality, screw tightening torque and the wrench required to perform the procedure. Follow all instructions and recommendations specified in the document.

7. Place the Drop Link between the two plates of the End Unit. The larger hole in the Drop Link should line up with the holes in the End Unit.
8. Fit the top slings or grommets of the appropriate size to the top shackles, ensuring that they are not off-centre, twisted or pinched, and that there is sufficient space between them and the End Unit.



Respect the measurements of the top slings, in terms of capacity and length, defined for each model according to the working angle and the total length of the assembly, as defined in the OX-SB Technical Specifications Sheet (Annex I).

9. Place the top shackle (with the sling, grommet or chain attached) at each End Unit, matching the pin hole with the holes in the Drop Links and End Units, with the Drop Link inside the slot of the End Unit, and fit the threaded pin, nut and safety pin to prevent the nut from loosening.
10. Assemble the accessories of the bottom slings on the bottom shackles (those with the smallest load capacity).
11. Place the bottom shackle (with the sling, grommet or chain ring) by aligning the pin hole with the lower hole of the Drop Link and insert the threaded pin, nut and lock the safety pin on the nut to prevent it from loosening.
12. Connect the free ends of the top slings to the hook that will move the assembly. And connect the free ends of the bottom slings to the load.

12. VERIFICATION BY TESTING

In accordance with standard EN 13155:2020 + A1:2025, for products manufactured in series under a type approval such as that of the product described in this Manual, it is stipulated that, in addition to manufacturing under an EN ISO 9001 Quality Management System, the units defined in the standard must be tested in accordance with the size of the production series, as set out in the following table:

Table 9 — Guidance to samples of load lifting attachments

Total number of units in a series	Proof load test, number of units to be tested from each series
1 - 5	1
6 - 10	2
11 - 20	3
21 - 40	4
> 40	10 % unless otherwise agreed with enterprise of competence

Consequently, for practical purposes, this requires testing at least 10% of the production run for batch production of 40 units or more.

The test shall be carried out by applying a static test load, which shall be the maximum rated force increased in accordance with the applicable regulations in each case, with the load distributed in one of the most unfavourable lifting configurations envisaged within the correct range of use of the accessory. The load shall be applied progressively, without acceleration, and shall be maintained for a predefined period, after which it must be verified that no permanent deformations have occurred in order to validate the test.

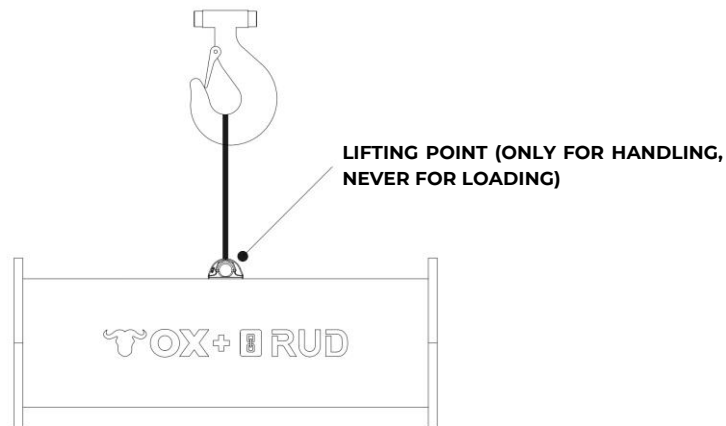
The test reports for these load tests shall be recorded and shall form part of the Technical File for the product's type approval.

13. TRANSPORT AND STORAGE

When leaving the factory, the device is usually supplied disassembled (unless otherwise expressly indicated) in a stable position and duly packaged and protected in units that can be handled by crane and, preferably, it must be transported in vehicles or containers with removable roofs and unloaded by crane.

If individual manipulations are carried out using a crane, the individual parts should preferably be grabbed by the hook points provided for lifting that allow them to be manipulated in a horizontal position. For other manoeuvres such as turning (tilting), always use textile slings to avoid chafing and damaging the surface finish of the components.

The individual components of the OX Spreader Beam with a tare weight of more than 25kg have specific lifting points to facilitate assembly by crane. These lifting points are for handling only, never for loading.



14. WARRANTY

This OX & RUD product has a 12-month warranty from the date of delivery, subject to separate written notifications or agreements. The warranty covers material or manufacturing defects, once it has been verified that work has not been carried out under abnormal circumstances.

For warranty claims, it is the customer's responsibility to prepare a technical report specifying the lifting configuration performed in the manoeuvre (a Rigging Plan is necessary). The lifting configuration must be described, documenting the lifting with pictures with date of each lift, to ensure that the lifting was done correctly or not.



We guarantee the replacement of spare parts or the repair of elements by our assistance service in our workshops. The customer must send the parts to be repaired, postage paid to OX & RUD Sant Boi de Llobregat- Barcelona and once repaired, OX & RUD will also send them, if they are within the warranty, free of charge nationwide (Spain).

We do not guarantee compensation for possible damages, direct or indirect, to tools, machinery or people, caused by said unit. We have civil liability insurance.

IT IS EXCLUDED FROM THIS WARRANTY

- Breakdowns caused by improper use.
- Breakdowns caused by modifications and spare parts not indicated by OX & RUD.
- Damage caused by lack of maintenance (see maintenance book).
- Improper installation and start-up.
- Damage caused in transportation.
- Use in corrosive environments, acids, steam, etc.
- Use of equipment / items manufactured by other companies (for example: the use of another manufacturer)

WARRANTY EXPIRATION

The unit will be exempt from the particularities of the warranty in the following cases:

- In case of late payment or breach of contract.
- In case of repairs or modifications without express authorization from OX & RUD.
- When there is damage caused by incorrect use.
- For reasons that do not derive from a normal work operation.
- All disputes will be settled in the courts of Barcelona (Spain).

15. MAINTENANCE

Before its use and once it has been assembled, qualified staff must inspect the device and its connections. The inspection status of the crane must also be checked, as well as that the entire lifting procedure is carried out in accordance with the current Regulations for the Protection of the Safety and Health of the people in the place where the manoeuvre is carried out.

<i>CHECKLIST</i>		Before each use	Monthly	Annual	Other
CRANE	1.0 VALIDATE THE CAPACITY OF THE CRANE TO LIFT THE LOAD PLUS THE TARE OF THE LIFTING ASSEMBLY.	X			
	1.1. CHECK THE OVERALL CONDITION OF THE CRANE AND, IN PARTICULAR, THE LOAD LIMITER.			X	
	1.2. VISUALLY CHECK THE CONDITION OF THE CRANE HOOK, ITS ROTATION AND TILTING CAPACITY, AND ITS SAFETY LATCH.	X			
SPREADER BEAM	2.0. VISUALLY CHECK THAT THE WELDED JOINTS ARE FREE OF CRACKS* AND THE ELEMENTS ARE FREE OF DEFORMATIONS.	X			
	2.1. CHECK THAT THE END UNITS AND DROP LINKS ARE FREE OF DEFORMATION* WITH BURRS AND THAT THEY SWING FREELY WITHIN THE WORKING RANGE ONCE THE SHACKLES ARE ASSEMBLED.	X			
	2.2. EACH TIME A SECTION IS ASSEMBLED, CHECK THE TIGHTENING TORQUE OF ALL BOLTS AS THEY ARE ASSEMBLED, WE RECOMMEND A TORQUE WRENCH TRIP, CALIBRATE IT TO THE REQUIRED TORQUE AND THE TRIP CHECKS THE TORQUE**.				EVERY TIME AN ELEMENT IS MOUNTED
	2.3. IF IT IS STORED ASSEMBLED. AT EACH OPERATION CHECK THE TIGHTENING TORQUE WITH A TORQUE WRENCH OF A DIFFERENT BOLT IN EACH SECTION, IF ANY OF THEM IS FOUND TO BE LOOSE, CHECK ALL OF THEM.	X			
ACCESSORIES	3.0. CHECK THAT THE SHACKLES ARE OF THE MEASUREMENT INDICATED IN THE COMPATIBILITY TABLE BY MODEL AND ARE WITHIN THE CAPACITY REQUIRED IN THE CASE OF USE OF A MODEL COMPATIBLE IN SIZES, BUT OF DIFFERENT CAPACITY.	X			
	3.1. CHECK THAT THE NUTS ON THE SHACKLES ARE WELL THREADED AND THE PINS ARE SECURED	X			
	3.2. CHECK THAT THE CAPACITY AND LENGTHS OF THE LIFTING ACCESSORIES ARE WITHIN THE REQUIREMENTS OF THE LOAD CONFIGURATION TO BE MADE.	X			
	3.3. INSPECTION OF LIFTING ACCESSORIES IN ACCORDANCE WITH CURRENT REGULATIONS IN THE REGION OF USE***: SHACKLES TEXTILE SLINGS WIRE ROPE SLINGS CHAIN SLINGS AND ACCESSORIES OTHERS			X	

* If cracks or deformations appear in the structure, carry out a weld inspection to determine the extent of the damage.

** If red or white rust appears on metal accessories, they must be replaced with new ones.

*** If you provide us with a list of accessories and region of use, we can prepare Specific Technical Instructions for you. Please consult our sales team. Block use until repair and re-inspection with favourable results.

CLEANING

Keep the equipment and accessories clean of excess grease, oil and general dirt in order to properly assess the conditions of use of the lifting equipment and accessories.

16. INSPECTIONS

Periodic inspections should be carried out with the frequency and intensity indicated by the national regulations applicable in the country where the equipment is to be used, but they should all indicate the measures necessary to ensure that work equipment subjected to influences that may cause deterioration that could lead to hazardous situations is subject to periodic checks and, where appropriate, tests, in order to ensure compliance with the safety and health provisions and to remedy such deterioration in good time. Likewise, additional checks must be carried out on such equipment whenever exceptional events occur, such as transformations, accidents, natural phenomena or prolonged lack of use, which could have detrimental consequences for safety. They should also indicate that such checks should be carried out **by competent personnel** and that the results of the checks should be documented, made **available to the labour authority** in each country and retained for the useful life of the equipment.

Once the equipment is at the customer's home, the customer will be responsible for having it checked by competent personnel and for keeping a record of these checks, carried out according to the regulations of the place where the equipment is used and according to the periods established in the Maintenance Sheet of this **OPERATION AND MAINTENANCE MANUAL**.



Ask our sales team or distributor network about the existence of a Service Centre in your region to service this equipment as well as the lifting accessories.

INSPECTION FORMAT

SHT. NO. ____ of ____

DATE PUT INTO SERVICE:		REVISION DATE:	
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CHECKLIST		WHEN	RESULT OK / NOT OK or n/a	OBSERVATIONS:
CRANE	1.0 VALIDATE THE CAPACITY OF THE CRANE TO LIFT THE LOAD PLUS THE TARE OF THE LIFTING ASSEMBLY.	Before each use		
	1.1. CHECK THE OVERALL CONDITION OF THE CRANE AND, IN PARTICULAR, THE LOAD LIMITER.	Annual		
	1.2. VISUALLY CHECK THE CONDITION OF THE CRANE HOOK, ITS ROTATION AND TILTING CAPACITY, AND ITS SAFETY LATCH.	Before each use		
SPREADER BEAM	2.0. VISUALLY CHECK THAT THE WELDED JOINTS ARE FREE OF CRACKS* AND THE ELEMENTS ARE FREE OF DEFORMATIONS.	Before each use		
	2.1. CHECK THAT THE END UNITS AND DROP LINKS ARE FREE OF DEFORMATION* WITH BURRS AND THAT THEY SWING FREELY WITHIN THE WORKING RANGE ONCE THE SHACKLES ARE ASSEMBLED.	Before each use		
	2.2. EACH TIME A SECTION IS ASSEMBLED, CHECK THE TIGHTENING TORQUE OF ALL BOLTS AS THEY ARE ASSEMBLED, WE RECOMMEND A TORQUE WRENCH TRIP, CALIBRATE IT TO THE REQUIRED TORQUE AND THE TRIP CHECKS THE TORQUE**.	Every time any element is assembled		
	2.3. IF IT IS STORED ASSEMBLED. AT EACH OPERATION CHECK THE TIGHTENING TORQUE WITH A TORQUE WRENCH OF A DIFFERENT BOLT IN EACH SECTION, IF ANY OF THEM IS FOUND TO BE LOOSE, CHECK ALL OF THEM.	Before each use		
ACCESSORIES	3.0. CHECK THAT THE SHACKLES ARE OF THE MEASUREMENT INDICATED IN THE COMPATIBILITY TABLE BY MODEL AND ARE WITHIN THE CAPACITY REQUIRED IN THE CASE OF USE OF A MODEL COMPATIBLE IN SIZES, BUT OF DIFFERENT CAPACITY.	Before each use		
	3.1. CHECK THAT THE NUTS ON THE SHACKLES ARE WELL THREADED AND THE PINS ARE SECURED	Before each use		
	3.2. CHECK THAT THE CAPACITY AND LENGTHS OF THE LIFTING ACCESSORIES ARE WITHIN THE REQUIREMENTS OF THE LOAD CONFIGURATION TO BE MADE.	Before each use		
	3.3. INSPECTION OF LIFTING ACCESSORIES IN ACCORDANCE WITH CURRENT REGULATIONS IN THE REGION OF USE***: SHACKLES TEXTILE SLINGS WIRE ROPE SLINGS CHAIN SLINGS AND ACCESSORIES OTHERS	Annual		
OVERALL RESULT OF THE INSPECTION:				SIGNATURE:
NAME:				DATE:
COMPANY:				

* If cracks or deformations appear in the structure, carry out a weld inspection to determine the extent of the damage.

** If red or white rust appears on metal accessories, they must be replaced with new ones.

*** If you provide us with a list of accessories and region of use, we can prepare Specific Technical Instructions for you. Please consult our sales team. Block use until repair and re-inspection with favourable results.

NOTE: YOU MAY PHOTOCOPY THE FOLLOWING PAGE TO OBTAIN ADDITIONAL INSPECTION RECORD SHEETS.

INSPECTION RECORD FORMAT

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NOTE: YOU MAY PHOTOCOPY THE FOLLOWING PAGE TO OBTAIN ADDITIONAL INSPECTION RECORD SHEETS.



HEAVY LIFTING EQUIPMENT



**YOUR TRUSTED
PARTNER FOR
HEAVY LIFTING
SOLUTIONS**

ANNEXES

TECHNICAL SPECIFICATIONS SHEET FOR ALL MODELS SUPPLIED

EU DECLARATION OF CONFORMITY FOR ALL MODELS SUPPLIED