

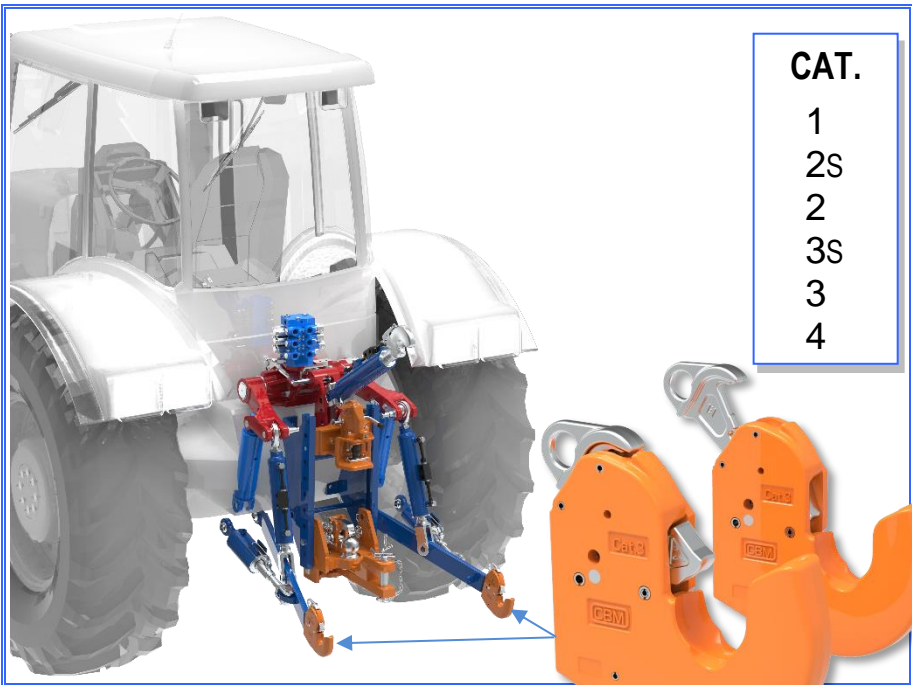
CBM



Group

AUTOMATIC HOOKS FOR THREE POINT LINKAGE LOWER LINKS




ORIGINAL USER INSTRUCTIONS
ASSEMBLY - USE - MAINTENANCE



Please read and follow these operating instructions before use.
Please keep them in a safe place for further use.

1. EXPLANATION OF WARNINGS AND SYMBOLS

Information in these operating instructions is identified as follows:

	<p>DANGER</p>	<p>Risk of personal injury or environmental damage.</p>
	<p>IMPORTANT</p>	<p>Risk of product damage.</p>
	<p>NOTE</p>	<p>Additional useful information.</p>

- Numbers in illustrations (1, 2, 3 ...) correspond to the numbers in brackets (1), (2), (3) ... in the accompanying text and positions in tables.
 - Procedures which must be completed in the correct order are sequentially numbered (A, B, C, ...)
 - Lists are identified with bullet points (•, •, ...)
-
- Keep all paperwork delivered with this product in a safe place for reference purposes. Keep your invoice in case of guarantee claims.
 - If the product is to be hired out or sold on, ensure that you forward the user instructions with it.

2. ACCIDENT PREVENTION INSTRUCTIONS

2.1. GENERAL NOTES ON SAFETY

- These operating instructions have been produced in such a way as to ensure your safety.
- Personnel who is not familiar with the points made in these instructions should not be allowed to use the product.
- Read the entire operating instructions before using the product. Pay particular attention to the safety notes.
- These instructions are addressed to persons that have prior technical experience of this device.
- If you do not have experience of this type of device, seek advice from an experienced operator.
- Follow all maintenance schedules and care plans outlined in these operating instructions.
- Be aware of children, and ensure that they are not allowed to come into contact with, or play with, the product.
- The product may not be used after the consumption of alcohol, drugs or medication which may cause drowsiness.
- This product is not suitable for use by inexperienced operators or children.
- The manufacturer accepts no responsibility for injury or damage which occurs due to these instructions not having been followed.
- The machine operative is responsible for injury or damage caused to third parties during operation.



ATTENTION:

Assembling, use, cleaning and maintenance or adjustment shall be performed with the vehicle off and in a safe stationary position.

The above mentioned operations shall be carried out wearing individual protection devices (protective gloves and safety shoes).

2.2. WARNING FOR THE USER



- Assembling, maintenance and cleaning work should only be carried out wearing protective gloves.



- Well fitting safety shoes must be worn during the operation of, and working on, the product.

- Carry out a visual inspection and function test before every use to avoid damage and to identify worn components.



- Use of the Hooks with damaged, worn or missing components is strictly forbidden.

- Only pass The Hooks on to personnel who are experienced in the use of this type of product. These user instructions must also be passed on.



- Do not make any technical alterations to the product.
- Maintenance schedules and cleaning plans as set out by the manufacturer in Chapter 8 "*Maintenance and Care*" must be followed carefully.
- Adjustment and maintenance should only be carried out by authorized, qualified personnel.
- Only replacement parts from CBM S.p.A. must be used for maintenance and replacement.

2.3. WARNINGS FOR USE



- Never transport any implement or equipment unless both hooks are securely locked so as to avoid possible disengaging and therefore serious damage or injury. **RISK OF ACCIDENT!**
- Periodically check the good and correct functioning of the locking system of the hooks and wash them with a water jet.
- If the hook does not couple, check the spread width of the lower links and if necessary correct it.
- If the locking mechanism does not engage, it may be necessary to replace the spring.

3. SECURITY NOTES



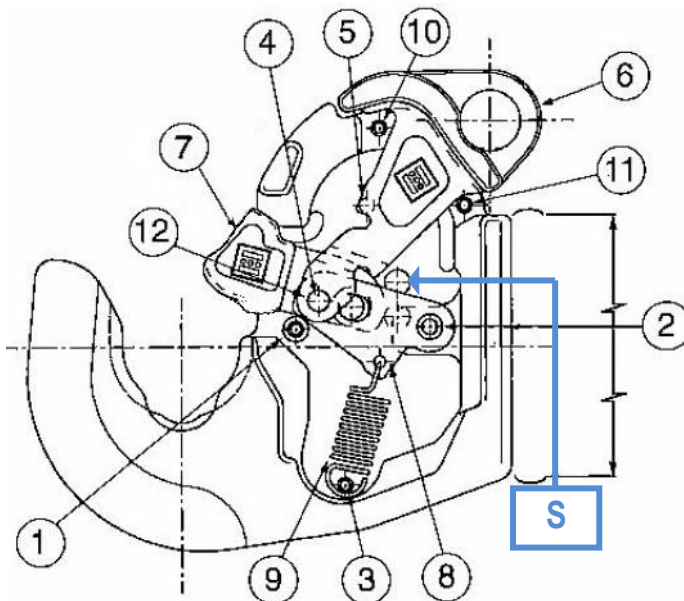
- For very difficult work conditions – for example on slopes and with projecting implement (forest land or hilly ground) – the hook may be securely locked by inserting a screw in the hole “S” indicated in the below Pict.0.



- Follow and comply to the instructions given so as to avoid damages to things or injuries to people and use only original CBM S.p.A. parts.



- Do not carry out any welding repair. The hook must be replaced.



(Pict.0)

Not included:

CATEGORY	HEX. SCREW (ISO4017 CL.8.8)	SELF-LOCK. NUT (UNI7473 CL.8)
1, 2S	M6 x 40	M6
2, 3S, 3	M8 x 55	M8
4	M12 x 70	M12

4. PRODUCT DESCRIPTION

!! WARNING!!

The Automatic Hooks enable the coupling and uncoupling of farm implements without any manual intervention of the tractor operator.

Even though the above operations can be easily carried out directly from the driver's seat with an extremely easy and safe operation, it is anyway necessary to check if the Hooks are properly coupling the implement, if they are effecting the uncoupling function or if they are uncoupled.

The Automatic Hooks are not to be used for any procedure or purpose other than those outlined above.



Any use other than described above is strictly forbidden and constitutes non designated use, which can lead to serious injury or damage to property for the environment. **RISK OF ACCIDENTS!**



Use which exceeds the stated capacity of the product is strictly forbidden and can give rise to extreme risk of accidents with serious consequences for personnel and the environment, as well as damage to the product. **RISK OF ACCIDENTS!**

All the safety and working instructions mentioned in this booklet must be read together with the tractor and farm implement instructions.

4.1. TECHNICAL AND DIMENSIONAL CHARACTERISTICS



Cat.	MAX. ENGINE POWER	
	HP	kW
1	< 60	< 44
2S (*)	< 90	< 66
2	< 150	< 110
3S (*)	< 150	< 110
	< 280 (*)	< 206 (*)
3	< 280	< 206
4	< 400	< 294

(*) Especially suitable for Front Linkages.
 More compact and the ball seat is not induction hardened.

4.2. MANUFACTURING CHARACTERISTICS

1) General characteristics

The Hooks enable the coupling and uncoupling of farm implements without any manual intervention of the tractor operator.

The control is carried out directly from the driver's seat with an extremely easy and safe operation.

2) Dimensional and Technical Characteristics (dimensions in mm.)

The CBM Hooks guarantee a quick and safe implement coupling, respecting the oscillation range specific for each Category of tractor and the relative working implement.

The new generation of CBM Hooks, complying with the specifications of international standards (ISO 2332 - ISO 730 - ISO 11001-3), have been simplified in their use by reducing the overall dimension but increasing their functionality and resistance.

3) Functional Characteristics

CBM Hooks guarantee their performance of closing – opening – and remaining open at temperatures ranging from -30° to $+80^{\circ}\text{C}$.

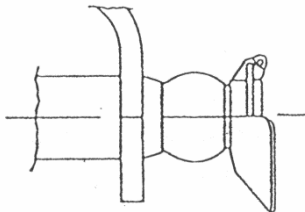
On the side of the Hook, except for the ball, no other part protrudes from the Hook body line.

The Hook may assume any position during work but there is never any interference between it and the implements.

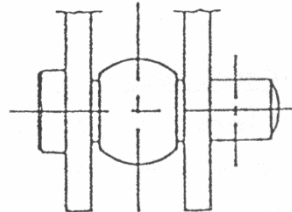
The Hooks allow the ball oscillation cone more than 24° for Cat.1 - 2S - 2 - 3S - 3 - 4 for any type of ball connection. (Pict. 1)

(Pict. 1)

a) Pin connection



b) Fork connection



The CBM Hooks are compact, resistant and protected against atmospheric agents and their uncoupling can be performed only by means of a specific manual operation.

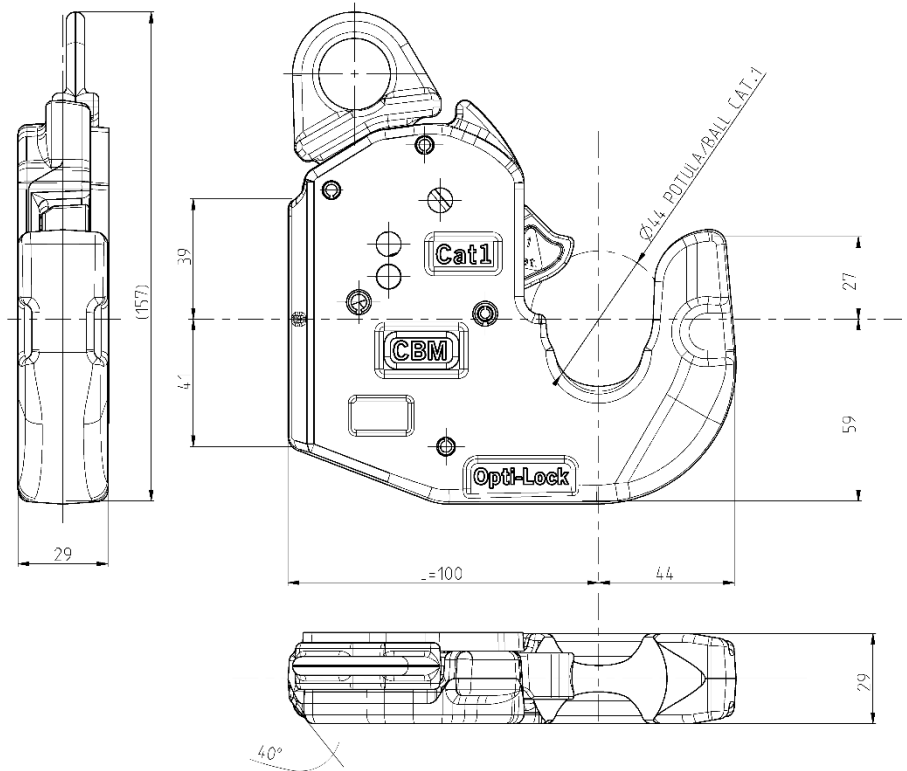
The Hooks are equipped with a totally reliable safety system that prevents casual uncoupling.

The kinematic devices inside the Hook can be easily and quickly disassembled, cleaned and reassembled (see Maintenance Instructions - pag. 22 and 23).

In order to protect the Hook opening lever and avoid the opening of the Hook due to an incorrect operation by the user, it is recommended to close the Hook before coupling the implement.

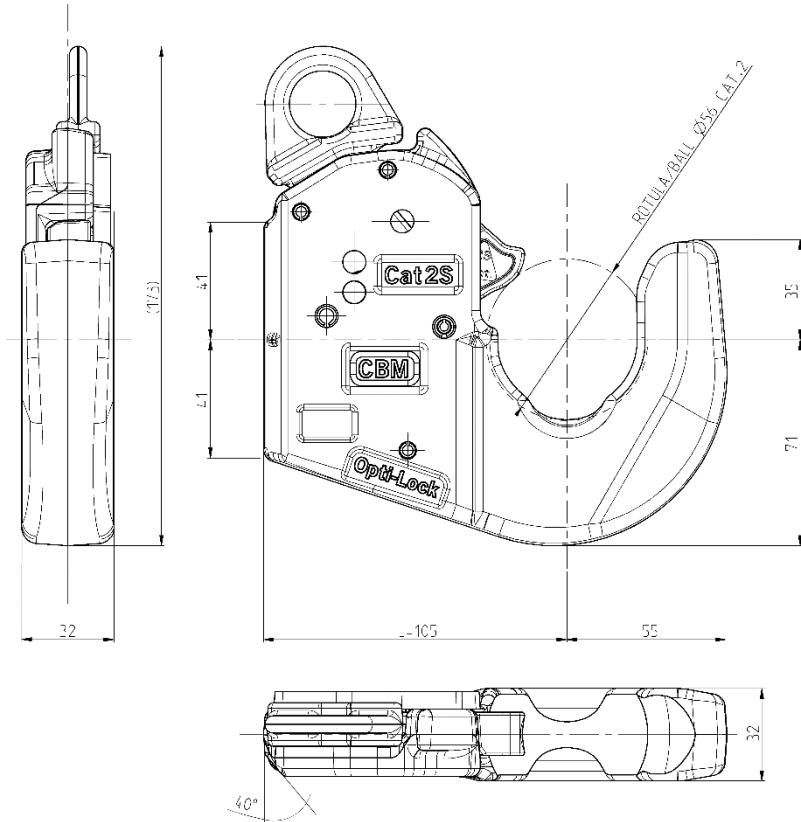
The Hooks always allow the coupling of the implement without any manual operation.

AUTOMATIC HOOK CAT.1



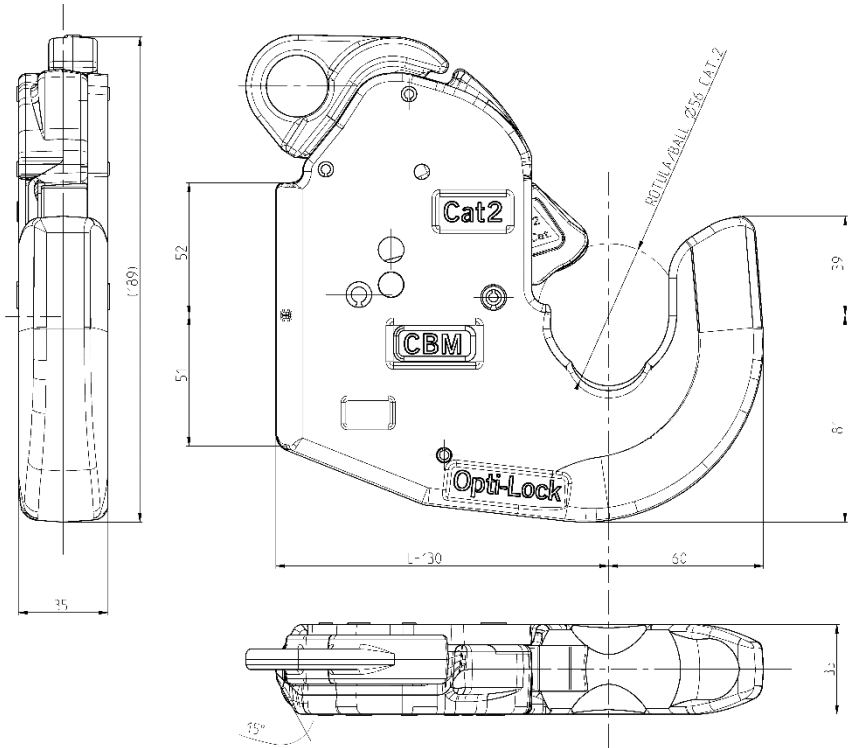
(Pict. 2)

AUTOMATIC HOOK CAT.2S



(Pict. 3)

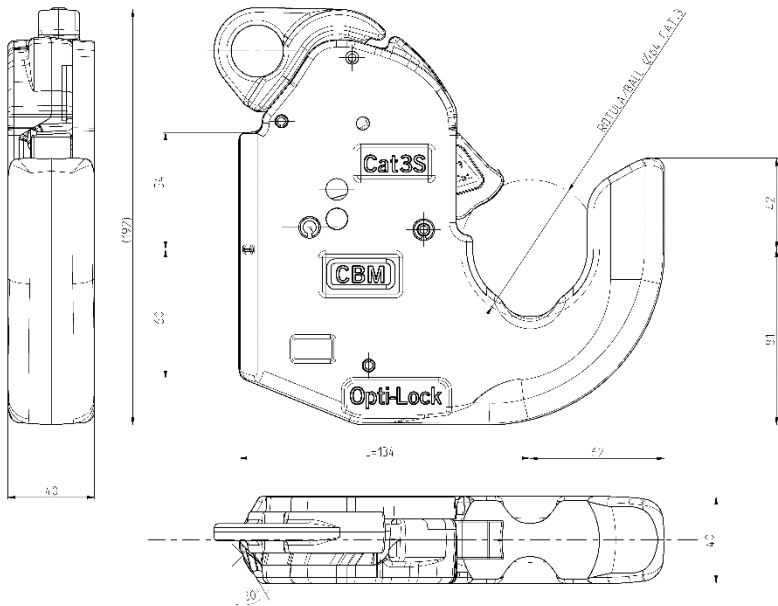
AUTOMATIC HOOK CAT.2



BALL SEAT INDUCTION HARDENED

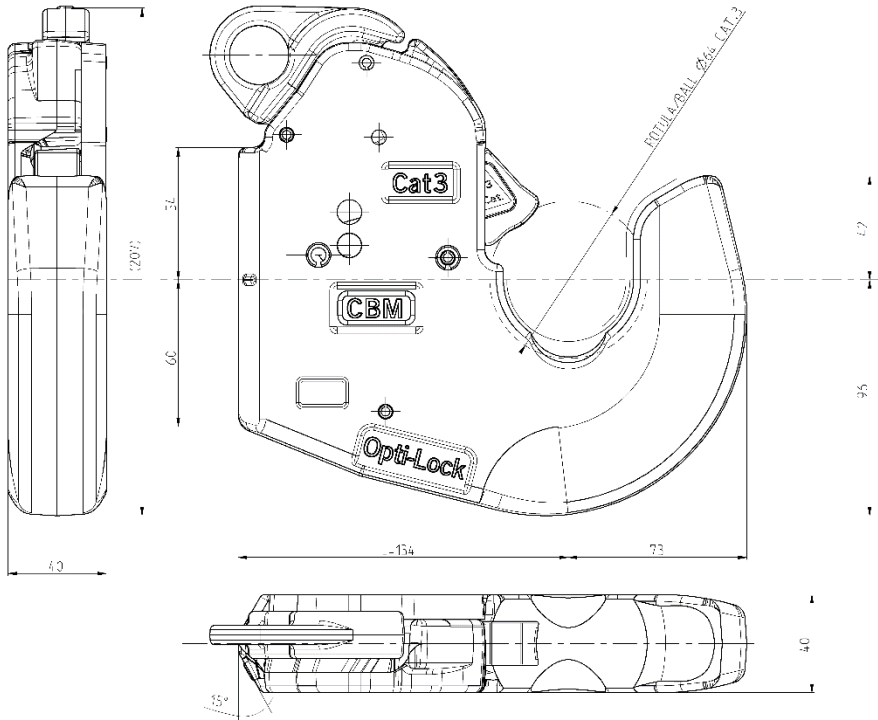
(Pict. 4)

AUTOMATIC HOOK CAT.3S



(Pict. 5)

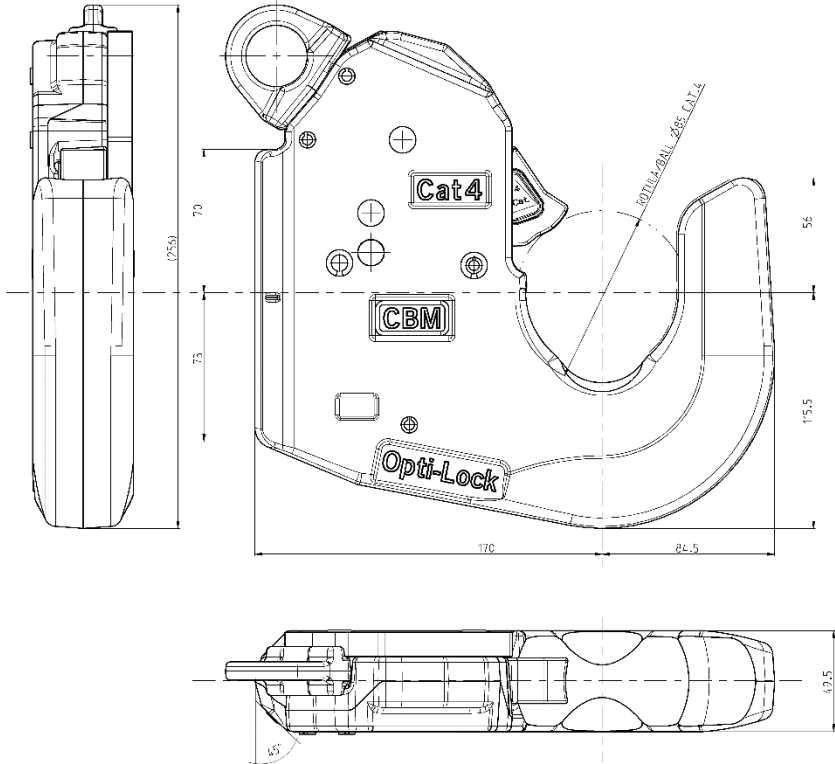
AUTOMATIC HOOK CAT.3



BALL SEAT INDUCTION HARDENED

(Pict. 6)

AUTOMATIC HOOK CAT.4



BALL SEAT INDUCTION HARDENED

(Pict. 7)

4) Mechanical Characteristics

The opening force of the two Hooks from the cab is minimal.

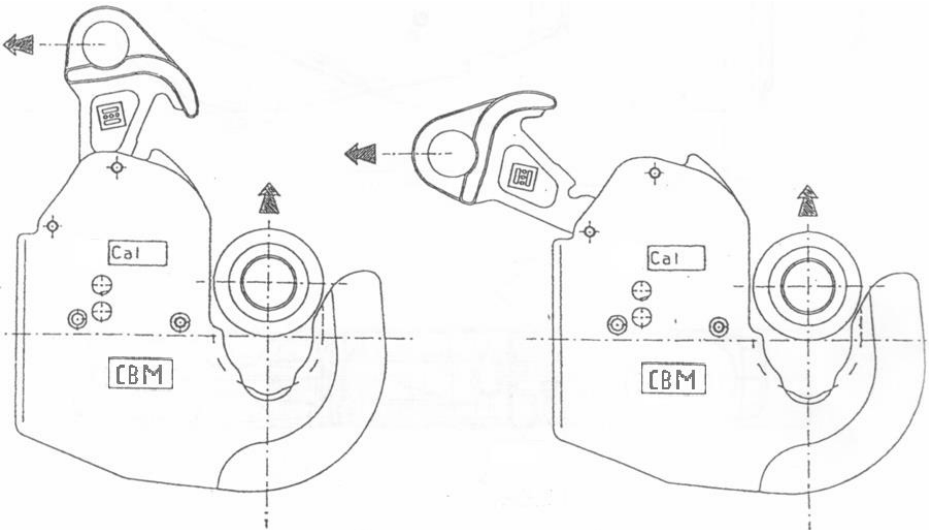
The direction of the force on the opening cord of the Hook – taking as a reference the point of action of the operator from the driver's seat and the position of the Hook – can easily vary without any negative limits.

Severe tests assure the safety of this system in any environmental condition and with any type of implement.

The CBM Hooks are equipped with an additional device which can keep the Hook open in two different positions (Pict.8) to enable easy and safe coupling operations with all types of farm implements.

The Hook can be later closed directly from the cab.

(Pict. 8)



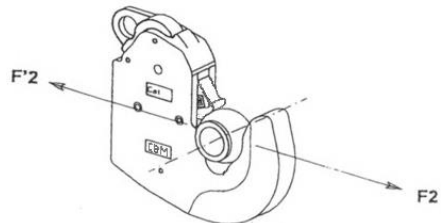
5. DYNAMIC RESISTANCE TESTS ON CBM CERTIFIED TEST BENCH

CAT.	TRACTOR POWER		TEST LOAD	CYCLES N°	FRE-QUENCY (Hz)
	(HP)	(kW)	F2 / F'2 (KN)		
1	< 60	< 44	80	50.000	4
2S	< 90	< 66	95		
2	< 150	< 110	120		
3S (*)	< 150	< 110	120 / 200		
	<280 (*)	<206 (*)			
3	< 280	< 206	200		
4	< 400	< 294	280		

(*) Especially suitable for Front Linkages.
More compact and the ball seat is not induction hardened.

TABLE OF LOAD APPLICATIONS:

The Hooks have undergone testing standards that certify the product suitability at the stated loads.



6. EXPERIMENTAL AND PROTOTYPE LABORATORY



Test Bench for dynamic stress tests – Resistance tests

6.1. TEST BENCH DESCRIPTION:

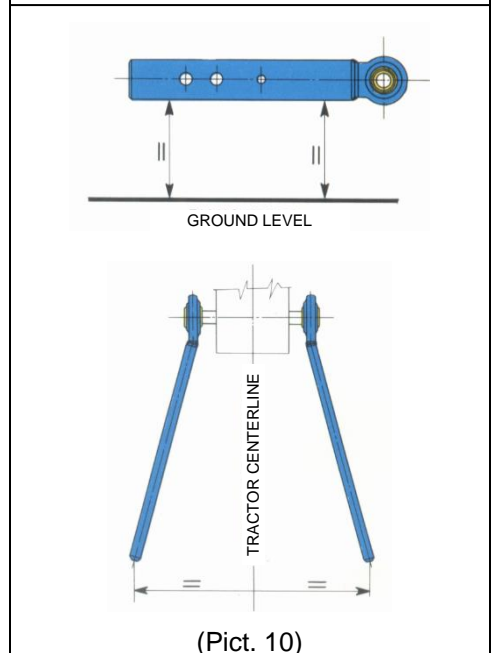
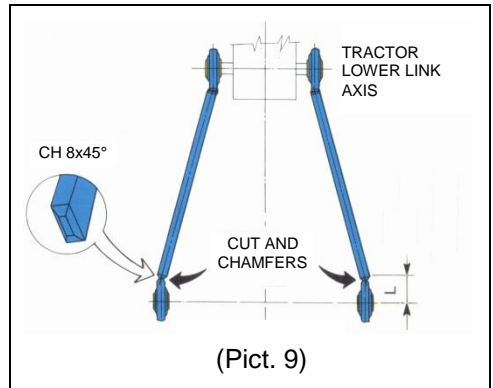
- Frame with a grooved base for the assembling of test parts.
- Hydraulic cylinder mounted on an upper cross-slide moving on four columns complete with a 300 KN and 200 mm. servo-cylinder equipped with test performance controls.
- 0,28 FS load cell.
- Hydraulic station with control display.
- Cooling System.
- Personal computer with digital oscilloscope for the electronic control of the system.
- Control system with personal computer and printer for data input/output throughout the test.

7. TECHNICAL SPECIFICATIONS FOR THE WELDING OF THE AUTOMATIC HOOKS ON LOWER LINKS OF USED AGRICULTURAL TRACTORS



Attention: For safety purposes the welding of the hooks must be performed by well equipped workshops and competent personnel.

- 1) Remove the lower links from the tractor.
- 2) Cut the outer ends of the lower links to a length equal to the relevant hook length "L" indicated on pages 10, 11, 12, 13, 14, 15. (see Pict. 9)
- 3) Chamfer the flat sides of the links by 8x45° mm. to simplify the next step which is to weld the hooks. (see Pict. 9)
- 4) Re-assemble the arms on the tractor and set them at an identical level parallel to the ground; the cut ends should be at the same distance from the tractor center line. (see Pict. 10)
- 5) In order to weld the hooks to the lower links correctly, proceed as follows:
 - a) Pre-assemble the hook on a drawbar of the same Cat. or similar spacer and fasten them with balls or with ball and cones. (see Pict. 11)
 - b) Place the hooks against the cut ends of the arms. Distance "C" should be equal for both hitches. (see Pict.12)



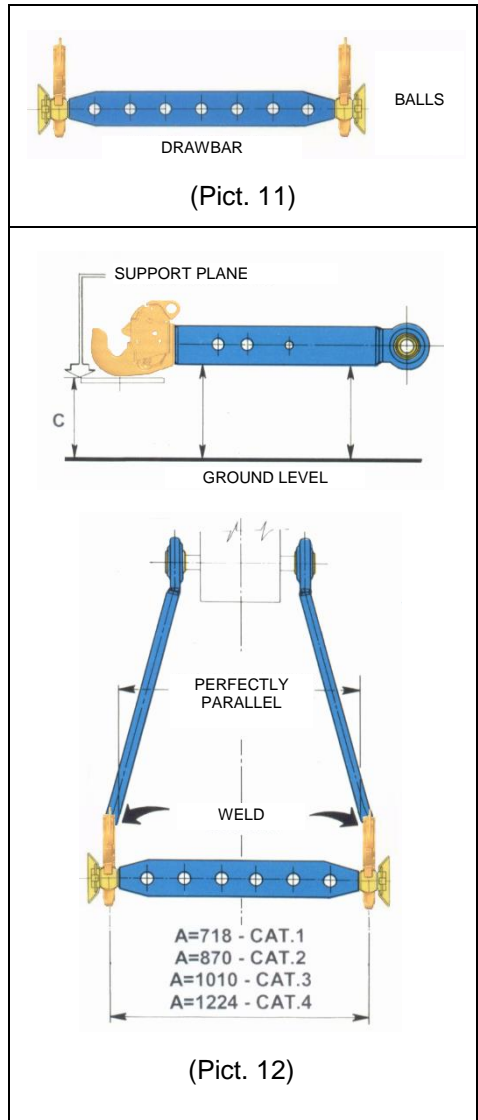
c) Make sure the hooks are closed during welding so as to avoid that heat might compromise the functionality of the spring. Do not open the hooks until they have cooled down.

d) Make sure that the hooks are perfectly parallel to each other; check that distance “A” respects the corresponding Cat. (see Pict.12)

e) Tack weld the hooks to the link arms.

f) Check again as per point “C” and then proceed to weld completely. (see Pict. 12)

6) The welding may be carried out both with wire or electrodes. In both cases, make sure that the chamfering on the faces to be welded is perfectly done and clean. It would be recommended to pre-heat the cut ends between 150°C and 250°C. (The correct heating temperature is shown by the colour yellow on the ends). After welding is carried out be sure to let it cool down slowly. Weld in alternate passages on the two faces with at least a double-weld on each face.



Since the material of which the hooks are manufactured has a good weldability use materials normally in commerce, such as:

- a) Basic type electrodes (Ø 3-3,25) AWS 5.1 E 7018/1 or equivalent.
- b) Continuous wire welding (MIG-MAG) wire diameter Ø 1,2 AWS A5.28 ER100SG or equivalent.

8. MAINTENANCE AND CARE

These Hooks do not require specific maintenance except for the occasional removal of mud and soil by washing them with water. Frequency of washings depends on the kind of work done and the quality of soil. After cleaning the hooks, make sure the inner components can move freely.

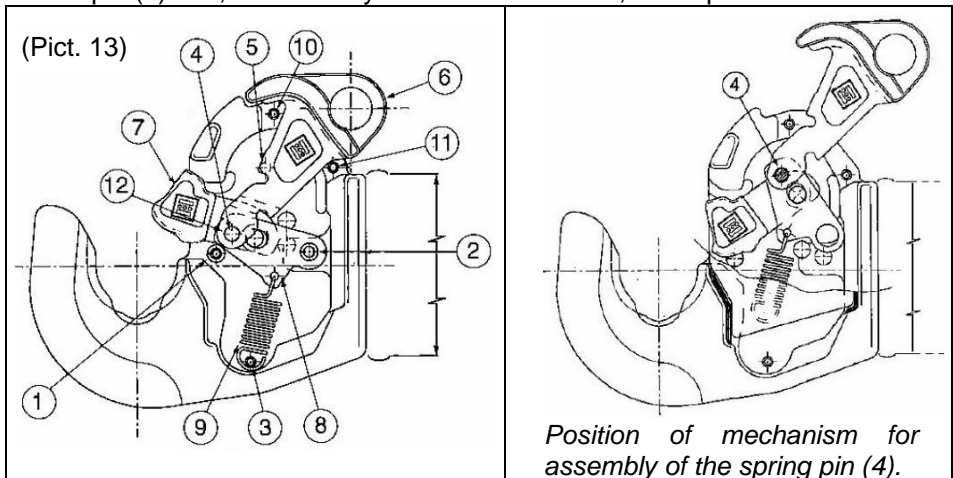
We strongly suggest disassembling the lower link from the tractor before replacing the kinematic components

Disassembling:

- 1 – Thoroughly clean the hook
- 2 – Remove spring (9) from pin (3) and remove pin (2)
- 3 - Align pin (4) with hole (5) and remove it.
- 4 - Remove lever (6) from the top side and the group composed of shutter, plate and spring (7-8-9) from the ball seat side.

Reassembling:

- 1 - Insert the group composed of shutter, plate and spring (7-8-9) taking care to connect the plate to the shutter by means of the slot. Slide the group in from the ball seat side.
- 2 - Align hole (12) of plate (8) to hole (5) of the hook, insert lever (6) through the top opening, overlapping it on the connecting rod and connect them with pin (4).
- 3 - Align the mechanism to the hook body and connect them with pin (2) taking care to align the pin to the two holes on the hook, connect the spring to pin (3) and, in case they have been removed, insert pins 10 and 11.



8.1. MAINTENANCE SCHEDULE

Before each use, the operator should check the product for wear and damage. In particular the integrity of the mounting points must be checked.



WARNING: Non-adherence to the maintenance schedule can lead to serious accidents and reduced performance of the product.

8.2. CLEANING PLAN

Clean all equipment after every use. Cleanliness when handling will ensure that equipment is protected from damage, and will extend its lifespan.

If you are unable to remove dirt using a brush, we recommend using a jet of water. Do not use aggressive cleaning agents.



WARNING: Wash only in authorized areas. Grease and oil run-off can lead to environmental damage. Please note the bylaws of the country where the equipment is used.

9. TRANSPORT AND STORAGE



- When storing the tractor and therefore the Automatic Hooks long term, these last ones should be washed and lubricated according to the specifications given in section 8.2 '*Cleaning Plan*' and prepared for the storage according to the specifications given in section 8.1 '*Maintenance Schedule*'.



- Check the condition of wear parts and that all components are correctly located. Carry out any necessary maintenance work or parts replacement prior to storage.
- The storage area should be dry. Cover the Lower Hook with a clean, dry tarpaulin.

10. ENVIRONMENTAL PROTECTION AND DISPOSAL

Separate disposal of different types of waste ensures that many materials can be re-used.

This is also true of materials that can be reclaimed from the unit itself, from lubricants, packing and wear parts after the normal, expected lifespan of the product.

Please ensure that you dispose of any waste material appropriately and safely.

Ensure that a life-expired unit is rendered inoperative prior to disposal.



WARNING: In case of doubt, please seek professional advice relating to removal and disposal. **RISK OF INJURY!**

!!! Please take note of any relevant bylaws of the country where the equipment is used!!!





These instructions, together with the "Technical and dimensional characteristics", should accompany the Tractor even if re-sold.

Quality is the key to our growth



A 05-2020



41122 MODENA (Italia) - Via L. Gazzotti, 284 – Tel. +39 059 287911-284084 – Fax +39 059 280876
E-mail : info@cbmspa.com - www.cbmspa.com