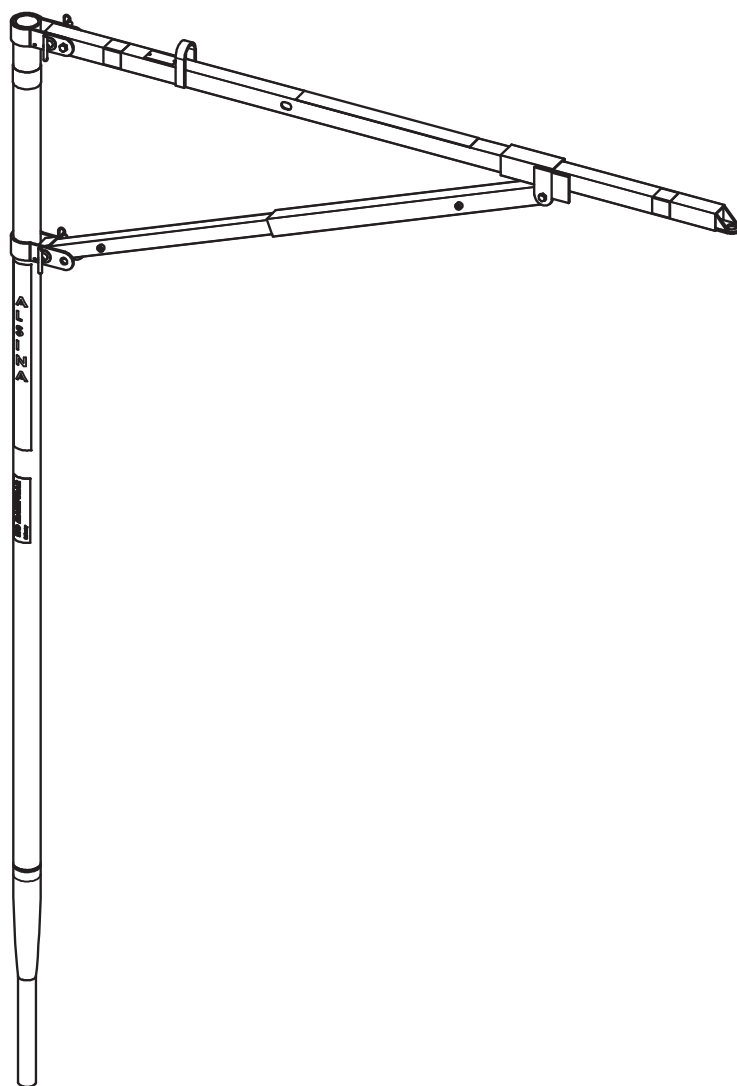


ALUPERCHA SYSTEM

Anchor-Device according to EN 795:2012 Type B

Assembly, Use and Safety Instruction Manual

Code: 6490063ENKZ / 6790063ENKZ



Introduction

Alsina's instructions for installation, use and safety are intended as a guide to the procedures required for safe and correct assembly, disassembly and use of formwork systems under normal conditions, in line with the standards commonly accepted on work sites. Any specific work circumstance falling outside these standards may require them to be adapted. When in doubt, do not hesitate to contact one of our technical departments, anywhere in the world.

The instructions in this document are intended to explain to users and technicians how the system works; they should ensure correct preparation and use of the equipment on site. Consequently, there will be references to general standards that any professional user should be familiar with. Thus, it is best not to reproduce them in this manual, since any modifications to these standards would lead to discrepancies between the standards and the manual and could cause confusion. Users should always refer to the latest version of the standards in force.

Therefore, the references in this manual in no way annul, replace or prevail over:

- 1- Standards and regulations on prevention of risks in the workplace specific to a country or region.
- 2- The instructions in the specific Health and Safety Plan for the works.
- 3- Safety instructions in the evaluations and plans applying to specific work functions in a company.
- 4- Technical orders and instructions specific to particular stages of the works, issued by the technical directors, the health and safety officer, the foremen and/or Prevention Resources.

Throughout the project, users shall respect, at all times, the specific laws, standards and regulations of the country or region related to prevention of risks in the workplace and any other legislation applicable to each case and, if necessary, supplement the instructions and adapt to other Work Safety Measures.

It is the customer's responsibility to prepare, document, implement and review the risk evaluation of the works. This documentation provides the basis for the evaluation of specific risks in the works, and Alsina's Instruction Manuals may in no case be regarded as a substitute.

Sets of vertical formwork equipment, as systems, are made up by joining different components. As far as possible, drawings and diagrams have been included as an aid to understanding these instructions. All personnel working with these products should be familiar with the contents of this document and the safety instructions therein.

The illustrations in this manual refer, in part, to different phases of the assembly process. Customers should ensure that they have a copy of the assembly and operating instructions, supplied by Alsina, and that these are known to and available to users on site.

Apart from the assembly and operating instructions, each chapter includes a series of safety recommendations. It is important that these are observed. However, these recommendations are neither exhaustive nor definitive, and should they not coincide with the indications in the Health and Safety Plan or its equivalent according to local legislation, the latter shall prevail.

If there are persons who cannot read the documentation or have difficulty doing so, they must follow the customer's instructions and indications.

Should you have any questions regarding the contents of this manual or any suggestions as to how it can be improved, please address your

comments to your Alsina Marketing Technician or through our website: www.alsina.com



Note: in order to obtain the best performance from its formwork systems, Alsina continuously updates the assembly and operating instructions for its products. For further information, contact the Alsina Marketing Technician in your area. The addresses of the Alsina Group's Commercial Network are available via: www.alsina.com, or you can e-mail us at -alsinainfo@alsina.com

Symbols used in this document:



Information

Information on a section of the assembly and use instructions, or additional information on the system that users and works technicians should take into account.



Warning/Precaution/Danger

Essential information that the reader must be aware of; disregarding this information may lead to material damages or serious personal injuries.



Advice

Indicates useful pieces of advice for implementation.

ISO 9001:2015 Certification

The Alsina Group is ISO 9001:2015 certified.

The Alsina Group has been granted the ISO 9001:2015 certification for their sales and rental service of concrete formwork equipment.

The certificate was granted by BVQI, an institution of renowned prestige and worldwide experience, under UKAS accreditation. The scope of this certification confirms the maturity and efficiency of our Quality Management System for the design, manufacture, marketing (sales and rental) and maintenance of concrete formwork equipment, provision of scaffolding erection services and implementation of collective protection systems, while ratifying the company's commitment to continuous improvement.

Alsina is possibly the only company in the formworking sector with the ISO 9001:2015 certification for: "Design, manufacture, marketing (sales and rental) and maintenance of concrete formwork equipment. Provision of scaffolding erection services and implementation of collective protection systems in the workplace".



Alupercha (Aluminium Fall Arrest System)

Safety system designed to prevent falls from heights during the formwork boarding process.

Alupercha

A safety system, especially useful for PERIMETERS, or during all work associated with decking for horizontal formwork operations. The system ensures completely safe conditions while installing: boards, safety handrails, gallows-type safety nets, formwork risers and all activities involved in formwork assembly where there is risk of falling from a height.

Easy to assemble and use, does not require outside installers. Due to the lightweight design of the Alupercha, it can be manoeuvred and installed by a single person, and it can also be moved by crane if that is preferred.

Features of the system

- Allows the operator to work safely covering an area of aprox 125 m² and moving within a radius of 6.0 m around the column, with the PPE length up to 4m, and aprox 230 m² when combined with PPE length up to 6,5 m (working procedure with extended PPE on page 8).
- Inverted "L" shaped and 100% aluminium structure measuring 2.0 m long and 3.10 m high (2.25 m when attached to the column).
- A built-in shockabsorber device reduces the forces transmitted to the structure and to the user.
- Lightweight structure weighing just 19 Kg, made of high quality elastic aluminium.
- Retractable fall arrest block measuring 2.5 m maximum length, or optional with SRL 6.0 m or 6.5 m maximum length.
- Alupercha housing steel tube measuring 85 cm long.
- To be manoeuvred and installed by a single person with no lifting equipments, or the be moved by crane if that is preferred.
- Wide range of accessories for use in any building site situation, ensuring safety at all times.
- A system designed for columns spaced up to 8,5 m (this requires use of the hook accessory).

i Info The system and its components must be used by competent, qualified personnel.

i Info The system and its accessories must be inspected by a competent, qualified personnel:

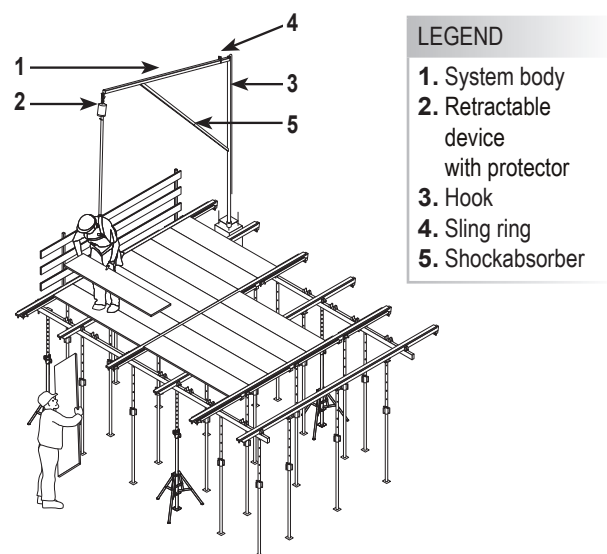
- Before first use and subsequent use.
- If the product is activated by a fall, it must be withdrawn from service immediately and replaced.
- At regular intervals (at least once a year). The inspection records may be called for.
- Certain individual components may require inspection at shorter intervals.
- Never use the equipment if wear, rust or unauthorized repair attempts are detected in any part of the system.
- Do not use the system for any use other than that which it was designed for.
- Use approved harnesses only.
- Do not use or fasten any components or accessories that have not been supplied by the manufacturer.
- The user must assess the risk involved before using the system

i Info The illustrations in this assembly and safety manual are guidelines and, at any event, they may not reflect all the possible assembly formats.

Limitations of the system

- The structure on which the system is mounted must be capable of bearing the weights indicated.
- The maximum working radius when the worker is anchored to the system with the safety harness is 6 m. Do not attempt to extend this working radius with ropes or other such methods.

System components



LEGEND

1. System body
2. Retractable device with protector
3. Hook
4. Sling ring
5. Shockabsorber

Alupercha is CE certified in accordance with the DIN EN 795 standard (Notified Body 0158 Dekra Exam)



LEGEND

1. Manufacturer
2. Name of the product
3. Identification number of the notified body; DEKRA EXAM GmbH
4. Compliance with EN 795:2012; Type B
5. Pictogram: read user instruction before use
6. Number of users allowed
7. Production year
8. Serial number

Read carefully through this user instruction before using the product. In case of questions and uncertainties, please contact Alsina for support

Safety instructions

The Alupercha is only intended for the purpose stated in this user instruction, any other use is not recommended. The Alupercha is a personal fall protection anchor device, used to protect workers operating at height and if used incorrectly, there is a potential risk of accidents to both the user and other people in the vicinity. Please read this manual carefully before any usage.

- Accidents and dangerous situations may arise by the use of combinations of equipment in which the safe function of one item is affected by, or interferes, with the safe function of another.
- Under no circumstances shall the product be used as a makeshift crane or lifting/lowering device.
- Under no circumstances shall any item other than those provided with the system be used either in replacement or through preference as this may affect the performance of the product.
- Care should be taken in the transportation of the product between uses and locations. If any damage occurs or is detected in any part, the item should be withdrawn from use, inspected by a trained person and replaced if required.
- Care should be taken in the installation of the product and if any damage occurs or is detected in any part, the item should be withdrawn from use, inspected by a trained person and replaced if required.
- The site location where the Alupercha is being used should have a rescue plan in place, in the event of a fall arrest incident.
- The device is only intended for use by one person at a time, under no circumstances shall multiple persons be attached to the device.
- If a crane is used as lifting device, be aware of the movements made by the crane and keep workers at a safe distance.
- The usage of the Alupercha is intended to be used within a zero factor fall arrest system. Make sure that the anchorage is always overhead and the self-retracting lifeline is taut between the anchorage point and the worker.
- The maximum vertical deflection of the anchor point that can occur during service is 0,95 m.
- In case that Alupercha is re-sold outside the original country of destination, it is essential that the reseller provides user instructions in the language of the country in which the system is to be used.
- When referring to included components not produced by Alsina or official distributors, please refer to the specific user guide / manual for that specific item. When using a retractable fall arrest block, the

certification of this product is only valid when the prescribed block is used, hence it is tested and approved in combination with the Alupercha.

- PFPE that is used together with the Alupercha must be CE-certified and approved in the specific country of use.
- It is not recommended to use the products stated in this user instruction if pregnant, suffering from cardiovascular disease, affected by alcohol or drugs or other health issues that might affect your mental or physical capacity.

Always check products and equipment before use

Check all component parts of the Alupercha before assembly. Never use damaged or rusty materials, as this can affect safety. Refer to the check list in the Maintenance chapter which must be followed prior to use.

The system must be withdrawn from use immediately, if any doubt arise about its condition for safe use.

Never combine products

It is not recommended to install, combine or interconnect products other than those supplied by Alsina or official distributors.

Always use Personal Fall Protection Equipment

Personal Fall Protection Equipment (PFPE) must always be worn during assembly and dismantling when a risk of falling exists. This also applies to work carried out from MEWPs (Mobile Elevating Working Platforms).

The worker must only use full body harnesses according to EN 361, with an arrest attachment point marked with (A).

Remember

- Plan the fall prevention at an early stage, this will benefit everyone.
- Use only safety-checked products.
- Restrict access below and around the installation and working area to prevent injury to others from any fall hazard.
- Use tools designed for the type of work to be carried out.
- Keep the installation area in order.
- A safe workplace is a good workplace.
- Many fall accidents occur from a low height.

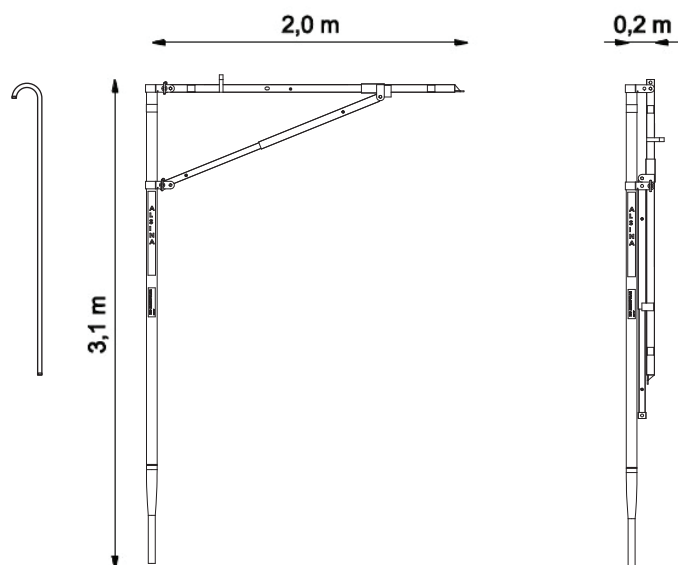
Technical data

Alupercha (Art. 84067)

The Alupercha is designed to be a lightweight product that can be folded for easy relocation, transport and space-saving storage. To secure both the assembled mode and the folded transportation mode, the attached Lock Pin is used. Due to the lightweight design on the Alupercha, it can be installed by a single person with no lift external equipment.

Incorporated to the Alupercha is the 3 m Sling which allows the product to be lifted by crane if needed.

Material: Aluminium
 Weight: 19 kg
 Height: 3,1 m
 Assembled width: 2,0 m
 Packed width: 0,2 m



Attachments

The Alupercha has been tested and approved to be used together with the following described attachments.

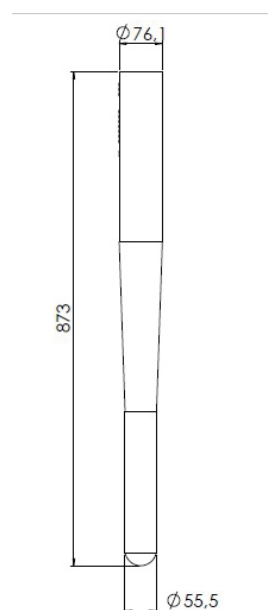
It is important to remind that the Alupercha CE-certification is valid only when used with these attachments.

Housing Tube (Art. 84410)


The housing tube is a steel socket that shall be cast directly into the concrete on-site to house the Alupercha


Please see the Attachment installation chapter for information on how to insert the housing tube into the concrete.

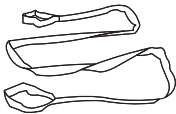
Material: S275JR quality steel, conical shape
 compatible with Alupercha/Alupercha
 Weight: 2,6 kg
 Height: 0,873 m
 Diameter: 76 mm

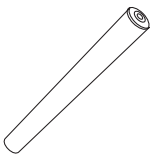



Component Description


	ALUPERCHA BODY		
	Description: Aluminium inverted "L" shaped unit, anchored to the column/structure, providing a working radius of 6.0 m.		
	code	dimensions (mm)	weight (kg)
	84067	3100 x 2000	19


	HOOK S.A.		
	Description: Component used to reach the subsequent Alupercha to change the anchor point.		
	code	dimensions (mm)	weight (kg)
	83068	140 x 2250	1,6


	SLING		
	Description: Used for crane handling if preferred, to take it out of the column, or remove it once the work is complete		
	code	dimensions (mm)	weight (kg)
	84414	3000	0.62

	CYLINDRICAL LEVELLER S.A.		
	Description: Accesory to ensure the housing tube verticality and prevent from rising under the pressure of the concrete.		
	code	dimensions (mm)	weight (kg)
	83416	1.005 x Ø70	3.96

	HOUSING TUBE S.A.		
	Description: Component to be inserted into concrete structure, that houses the Alupercha fall arrest system.		
	code	dimensions (mm)	weight (kg)
	84410	873 x Ø76	2.71

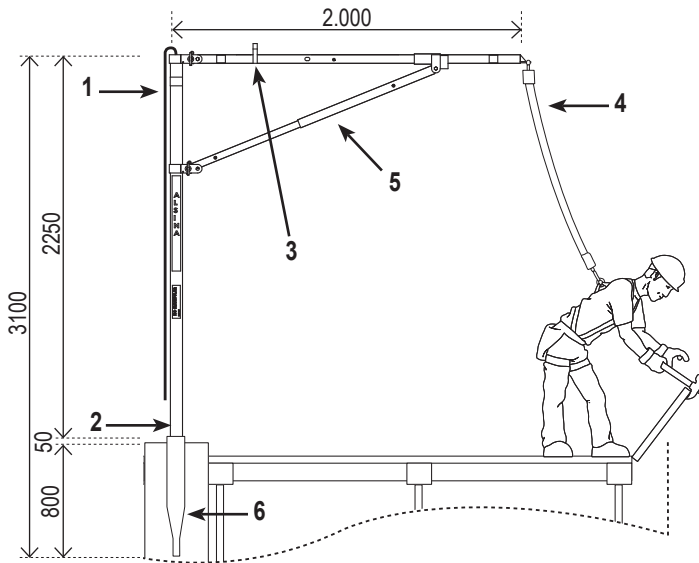
	RETRACTABLE DEVICE		
	Description: Fall arrest block that stops in case of fall.		
	code	dimensions (mm)	weight (kg)
	8441201	2500	1.599

	HARNESS EXTENSION W/CLASP S.A		
	Description: Component joining the operator to the retractable device with 1.5 m maximum length.		
	code	dimensions (mm)	weight (kg)
	84423	1500	0.31

	HARNESS S.A.		
	Description: Device anchoring the operator to the Alupercha fall arrest system.		
	code	dimensions (mm)	weight (kg)
	84415	500 x 150	1

Assembly process

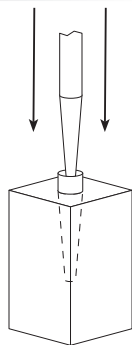
Step 1/5 - System components



LEGEND

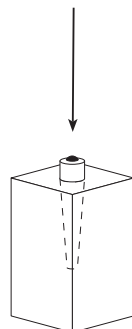
1. Hook (accessory for changing the anchor point)
2. Alupercha Body (the main body that turns through 360° and allows the operator to work freely)
3. Sling ring used to move with crane if preferred
4. Retractable device
5. SHOCK-ABSORBER device
6. Housing tube

- 1.- Immediately after pouring the concrete columns, place the housing tube into the center of the column, protruding 50 mm. This tube will later accommodate the Alupercha.



Detail of the placement of the Fall Arrest System in the conical tube

- 2.- Use the leveller to make sure that the tube is vertical and does not rise up. The column is strengthened by the steel housing tube.

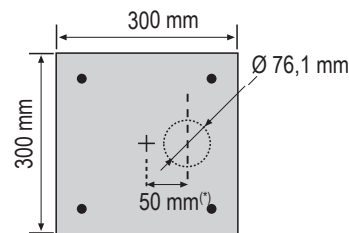


Leveller detail.

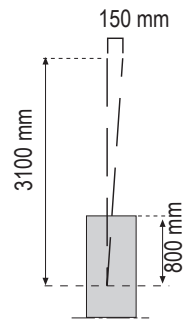
Technical details for arranging the conical tube.

Conical tube tolerances.

1) TOLERANCE IN DIVERSION, WITH RESPECT TO THE CENTRE OF THE COLUMN



2) TOLERANCE IN VERTICAL DIVERSION



(*) This tolerance will vary depending on the column section. If using the Alupercha system in columns with a section smaller than 300 mm, cracks may appear in the concrete. In this case, consult the structure client.

Step 2/5

36 hours after pouring the column concrete, the Alupercha can be used to: install boards, handrails, risers,...

When all the boards, handrails, netting for perimeter and openings have been put in place and the perimeter boards have been nailed and watered (dry climate), the Alupercha Body can be removed.

Now we can start the panelling process from one end of the floor, working in an assured position with a radius of 6.0 m., which is equivalent to around 125 m².



System limitations:

- The maximum number of users in each system will only be 1 (one).
- The structure where the system is assembled must be sufficiently resistant.
- The maximum action radius, once the system is anchored, is 6.0 m. Do not try to widen this radius by lengthening the retractable system to which it is tied

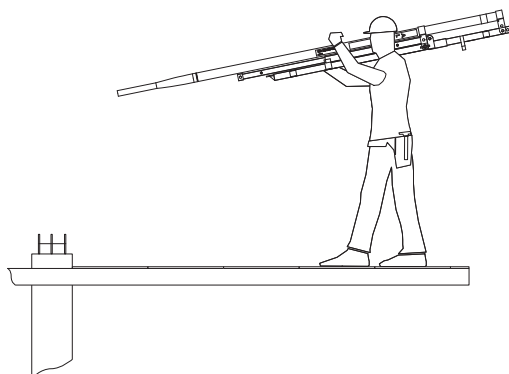
Precaution

- ONLY use slings supplied by Alsina.
- Do not keep weight hanging from the sling, as this may damage it.
- Protect the sling from inclement weather conditions.
- Each sling must be checked before being used. Reject it if it has any cuts, particularly if the cuts are at the ends.
- Place the sling in its correct position of use and the load stable.

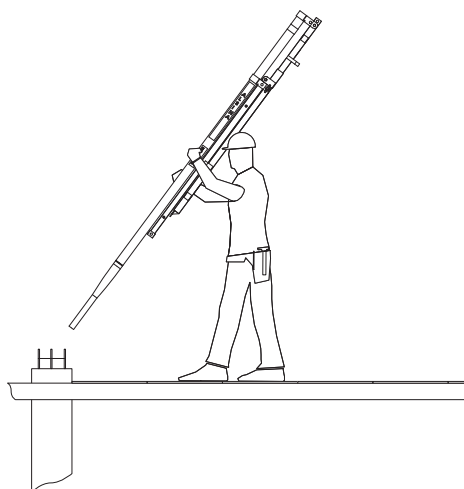


Step 2/5 - System assembly

1.-

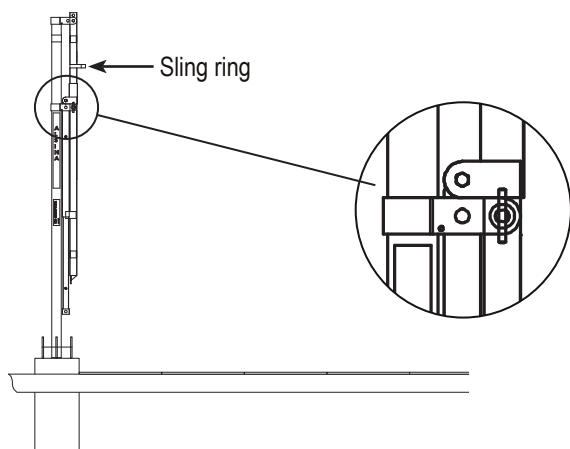


2.-



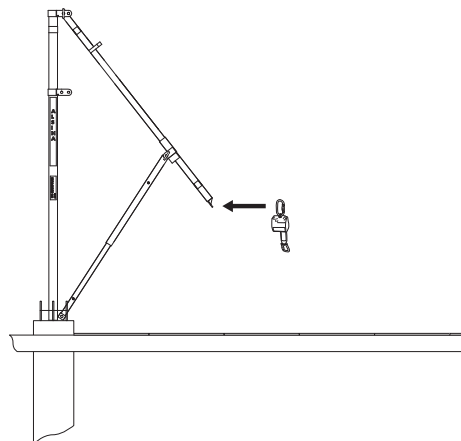
Info Always take care during installation; keep hands away from hinge or folding parts to avoid injury. Keep a firm grip of the Alupercha brace, during final unfolding, to avoid contact/impact with the head or other parts of the body.

3.- Remove the lock pin

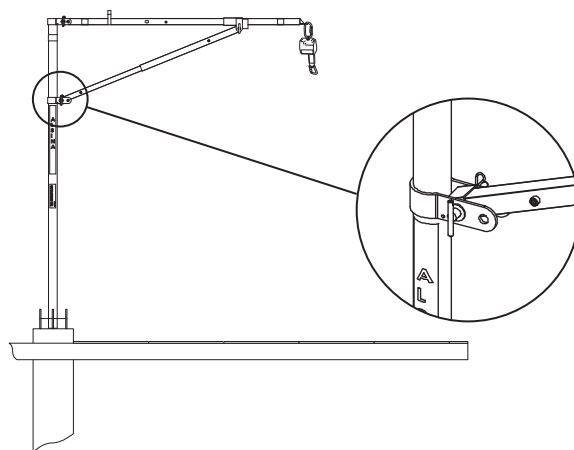


Info If the Alupercha is expected to be moved by crane, attach the crane hook to the sling, using the sling ring, and lift the Alupercha. For more information go to **Move by crane** section.

4.-

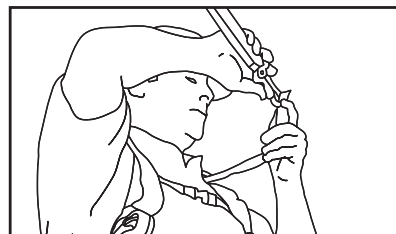


5.-



Info Make sure that the Lock Pin is properly installed. Under no circumstances should a Lock Pin other than the ones provided by Alsina be used. The Alupercha should be able to rotate freely after installation, make sure that nothing prevents the rotation.

6.- Connect SRL to harness



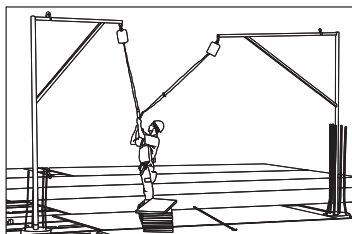
Info Before using the retractable device, **check**:

- That the strap winds and unwinds completely without difficulty.
- That the locking function works correctly, by jerking the strap.
- That the entire assembly is in perfect condition, with no cuts or loose threads.
- That the metal parts are not rusted and the snap hooks work and close correctly.
- When not in use, keep it clean and store in a dry place.

Dismantling

The installation procedure should be performed in the reverse order when dismantling.

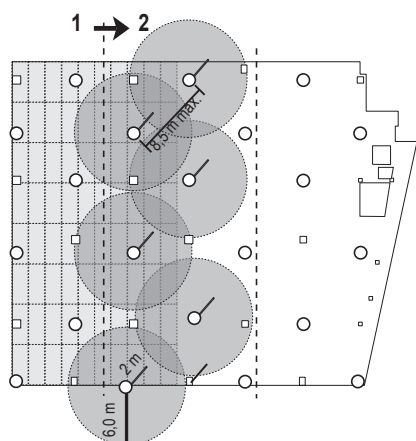
Step 4/5 - Repositioning the Alupercha



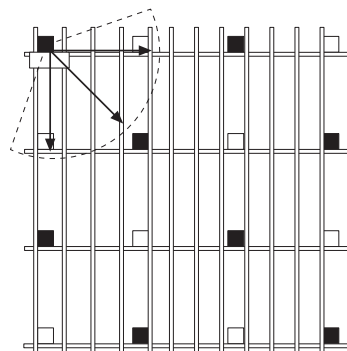
The Alupercha allows the worker to change anchorings before unhooking from the first Alupercha Body, so safety is maintained at all times.

Use the hook to do this if the next Alupercha is positioned so that the worker cannot reach to anchor themselves.

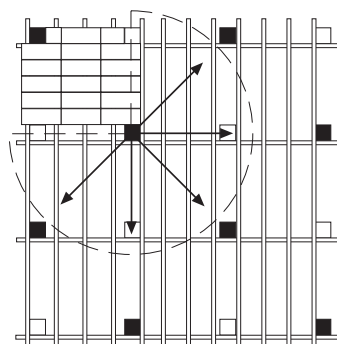
Example of onsite layout



Working with the Alupercha System



First, locate the embedded tubes in the columns where the Fall Arrest System is going to be accommodated and then begin the boarding process from that point.



Then begin the boarding process from one end of the surface and work safely with a radius of 6.0 m, which equals approximately 125 m².

LEGEND

○ Columns with a conical tube

Body - 2.0 m

Working radius - 6.0 m

Distance between columns - 8.5 m

1.- Starting the boarding of the floor

2.- Direction of progress during boarding process

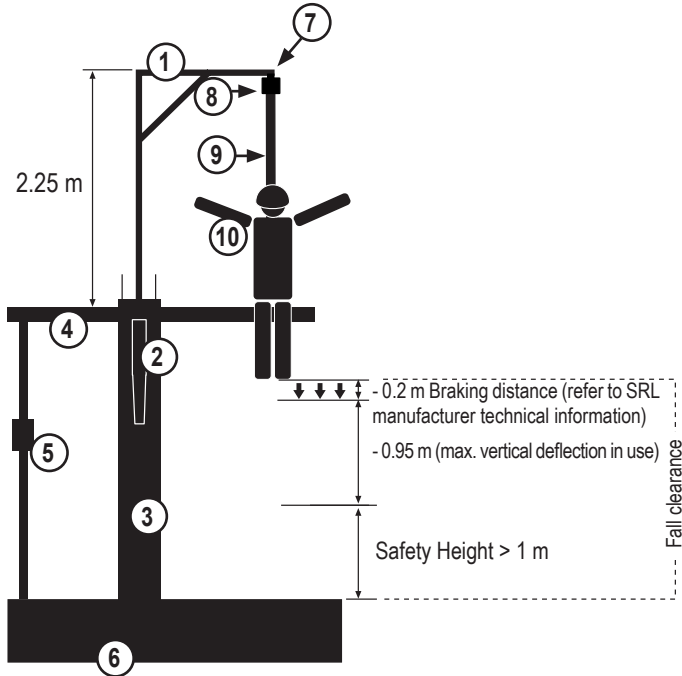
To facilitate use of the Alupercha, we recommend prior planning of the working area where it is going to be used.

Thanks to advanced CAD systems, we can know where to place the Alupercha and how many are needed to optimize their use within the working radius.



Info A set of approximately 6 Alupercha units are sufficient for complete formwork of a floor measuring approximately 500 m².

The work should be carried out in such a way, as to minimise both the potential for falls and potential fall distance. (Optimisation to reduce the possible fall distance to the minimum.)



LEGEND

- | | |
|-----------------|----------------------|
| 1. Alupercha | 6. Ground |
| 2. Housing tube | 7. Anchor point |
| 3. Column | 8. SRL |
| 4. Formwork | 9. Harness extension |
| 5. Struts | 10. Worker |

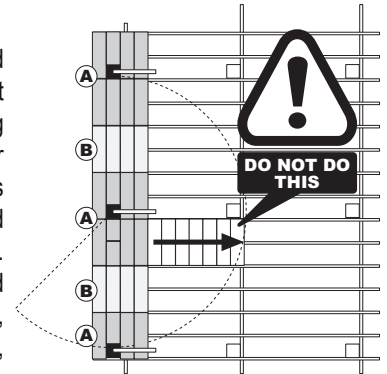


Info Rescue of operator after a fall: It is important that when operators work with the Alupercha Fall Prevention System, they are not alone. In this way, in the event of a fall, the other operator can rescue the other, hopefully within a few minutes, in order to prevent injury due to loss of blood circulation in the legs. The rescuing operator, anchored to a safety point uses a hook to carry the trapped operator to the panelling area, in order to be able to stand up.

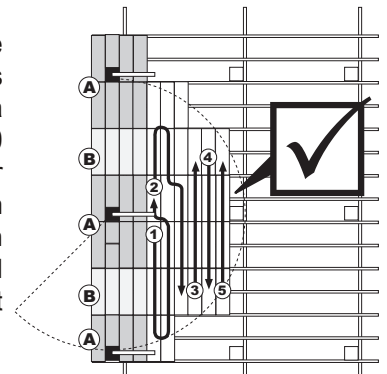
Extended user equipment for Alupercha

When all the boards, handrails, netting for perimeter and openings have been put in place and the perimeter boards have been nailed and watered (dry climate), the Alupercha Body can be removed.

The protected area covered by a single Alupercha unit can be extended by using an alternative set of user equipment, however this **MUST** be used in a controlled and disciplined manner. Failure to follow the revised working method in detail, could result in a pendulum fall, or in an increased fall distance to the level below, both could result in injury or even death.



By replacing the Retractable Element and the Harness Lengthener (84423) with a Fall Arrest Block (EN360 Compliance) of 6,0 m, or combination of 6m + 0,5m extender, the user can increase the distance forward from the Alupercha body that is protected.



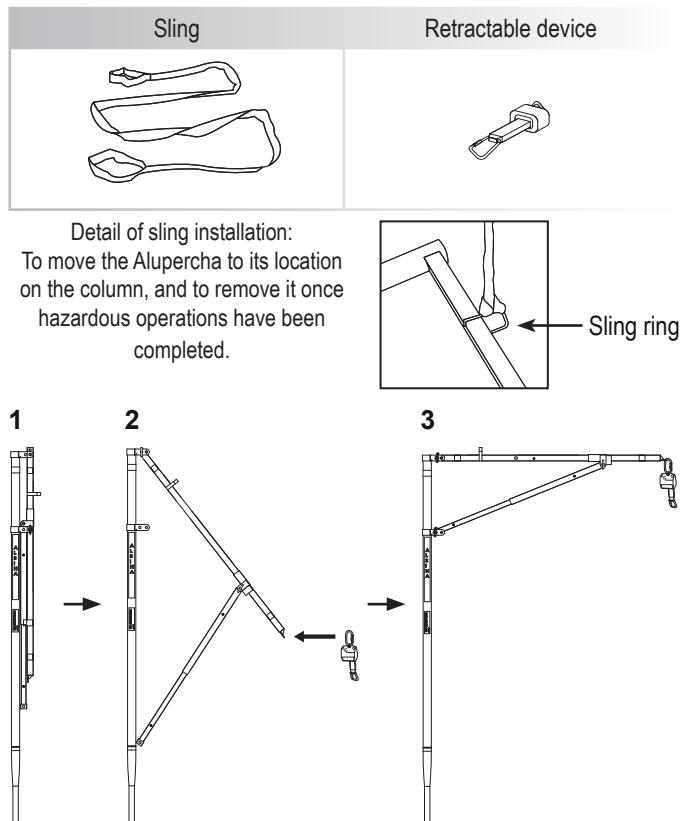
Important

It is extremely important that this increased protected area, is decked in a progressive, leading edge fashion working forwards from the Alupercha body, in the priority sequence as shown beside.

Move by crane

A - On the ground

1.- Install the sling and the self retractable device.

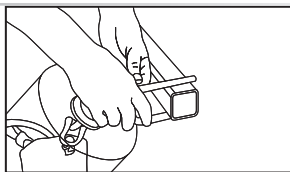


Precautions:



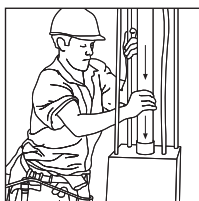
Warning Precautions:

- Use the slings supplied by Alsina.
- Do not allow loads to rest on the sling if they could damage it.
- Protect the sling against adverse weather conditions.
- Each sling should be examined before use. Remove the sling if it presents cuts, especially at the edges.
- Place the sling in its correct position (bight angles no greater than 120° and stable load).



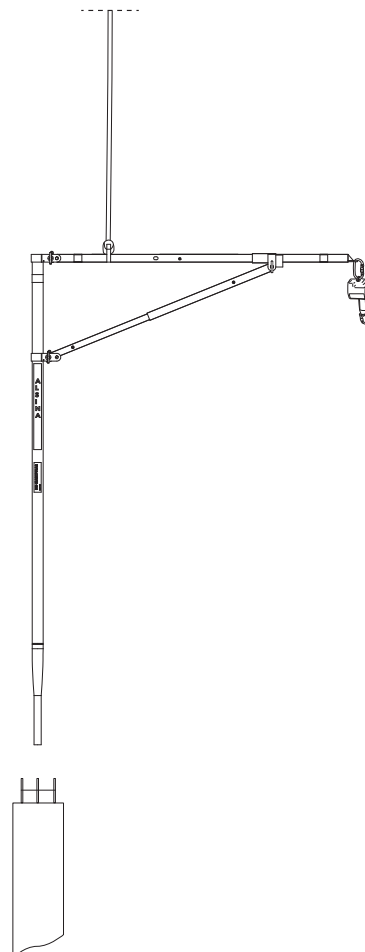
Detail of the installation of the retractable device
It is important to close the clasp properly.

2.- Use a crane to place the Alupercha Body in the column tube.



B - With product erected

1.- Lift Alupercha from current position.



2.- Use a crane to place the Alupercha Body in the column tube.

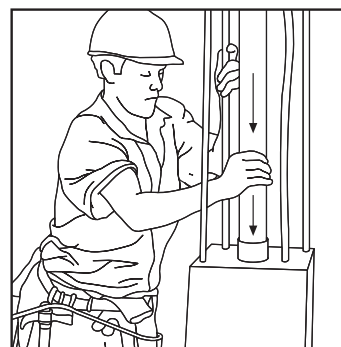


Table of minimum concrete strengths

Shown below are the time periods for use (the time between pouring column concrete and when the Alupercha can be used) depending on ambient temperature and column cross-section.

The results shown below are from tests performed with Alupercha in columns measuring 30 x 30 cm², 25 x 25 cm² and 15 x 40 cm².

Type of concrete	Column section (cm ²)	Min. compression value (Mpa)*1	Indirect tensile value (Mpa)*1	AMBIENT TEMPERATURE				Time periods for use in hours
				5°C	10°C	15°C	≥20°C	
Any type of structural concrete (HA-25 or superior)	30 x 30 (or superior) *2	3.27	0.37	28 h	23 h	19 h	15 h	
	25 x 25 *3	4.72	0.52	30 h	24 h	20 h	16 h	
	15 x 40 *3	5.70	0.62	32 h	26 h	21 h	17 h	

(*1) When using the system for the first time.

(*2) For sections of 30x30 cm² or greater, the system allows for a maximum deviation in the position of the housing tube of 5 cm from the center of the column.

(*3) For sections of 25x25 cm² and 15x40 cm², the system allows for a maximum deviation in the position of the housing tube of 1 cm from the center of the column. Based on the tolerances allowed by the Spanish EHE Standard for deviation in column cross-sectional dimensions.



Info Study performed by the Universidad Politécnica de Valencia.

Report by the Association of Building Consultants (ACE)*

This report analyzes the influence that internal empty space left by a steel tube with a variable section (conical central trunk section) can exert on the strength capacity of reinforced concrete columns.

Studies were performed on columns of various strengths and tubes of various sections, but with the same S275JR quality steel.

- HA-25 concrete column with maximum external diameter of 7.6 cm and 0.18 cm thickness.
- HA-30 concrete column with maximum external diameter of 7.6 cm and 0.22 cm thickness.
- HA-35 concrete column with maximum external diameter of 7.6 cm and 0.25 cm thickness.

The conclusion of the analysis is:

- Installing the S275JR quality steel tube with a variable section, maximum external diameter of 7.6 cm and 0.18 cm thickness in HA-25 reinforced concrete columns with sections measuring 30 x 30 cm² or more, and leaving them empty, does not impair its strength characteristics in any way.
- Installing the S275JR quality steel tube with a variable section, maximum external diameter of 7.6 cm and 0.22 cm thickness in HA-30 reinforced concrete columns with sections measuring 30 x 30 cm² or more, and leaving them empty, does not impair its strength characteristics in any way.
- Installing the S275JR quality steel tube with a variable section, maximum external diameter of 7.6 cm and 0.25 cm thickness in HA-35 reinforced concrete columns with sections measuring 30 x 30 cm² or more, and leaving them empty, does not impair its strength characteristics in any way.

We present, for all relevant purposes based on our firm knowledge and understanding, our opinion which we defer to any other better founded opinion, in Barcelona, on May 8, 2003.



David Rodríguez Santàs, Industrial Engineer Technical Committee



Antonio Blázquez Boya, Architect President of the Technical Committee

Report by the Universidad Politécnica de Valencia (UPV)*

(.../...)

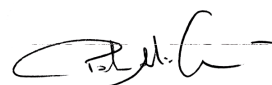
4.- CONCLUSIONS

- This study analyzes the influence exerted on the behavior of the reinforced concrete columns by the use of the Fall Arrest System developed by ENCOFRADOS J. Alsina, S.A.

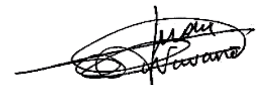
(.../...)

The most important conclusions are as follow:

- 1.- Although the sizes of concrete column sections are usually selected for shear stress and flexocompression separately, this study has considered these jointly, in a similar way to the analysis of metal structural sections. This makes it easier to consider the influence of the steel tube.
- 2.- As a result, we estimate that the reduction of section shear stress resistance caused by the hole in the concrete would be absorbed assuming, in the flexocompression calculation, that the steel of the tube experiences a reduction in elastic limit which has been taken as 5%, to be on the safe side.
- 3.- Considering this reduction in the elastic limit of the steel, the Axis-Moment interaction diagrams for the section were calculated without modification and including the tube (for different types of steel and thicknesses of tube). Accordingly we have determined, for each type of concrete and steel, the tube thicknesses that cause the interaction diagram for the modified section to wrap around the original section. This ensures that there is no loss of resistance for the section for that thickness of tube.



Signed: Pedro A. Calderón García
Dr. Civil Engineering, C. and P.
Head Teacher in Building and Prefabrication



Signed: Juan Navarro Gregori
Civil Engineering, C. and P.
Assistant Teacher in Concrete



Info* The original document consists of 4 pages, and is available to our customers for inspection.



Info* The original document consists of 17 pages, and is available to our customers for inspection.

Appendix 1: Conditions of use on site

Below are the guidelines for reviewing each component of the Alsina Alupercha Fall Arrest System. Reviews should be performed regularly, once per year at the very least.

As explained in Alsina's Alupercha Assembly and Safety Manual, this review does not replace the visual inspection that the user should perform each time before using the Fall Arrest System.

Retractable Review Procedure - 8441201

Control guidelines	Procedure
Check that the belt winds automatically and unwinds normally along its whole length.	If it does not work, put the product to one side as it is faulty .
Check that the blocking function is operative, by pulling the belt sharply.	If it does not work, put the product to one side as it is faulty .
That the textile is in perfect condition, without tears or loose ends .	If it does not work, put the product to one side as it is faulty .
That the metallic parts are not oxidised and that the karabiners work and block correctly .	
That the system includes the red peg	Otherwise, attach a new one .
It is important to check that the continuous energy absorber protected by the plastic and the fibres forming it, have not broken .	Otherwise the product will have to be put to one side because it has been dropped, and consequently it is faulty .

Alupercha Body Review Procedure - 84067

Control guidelines	Procedure
Place the Alupercha system on two trestles, or sufficiently stable and open it up to:	If problems are identified with any of the above, contact the Alsina Service Department, or any of our official distributors.
- Check that the bolts, pins, and nuts of the various extensions are in good condition and that they can move freely.	
- Check that the extensions tubes are neither askew, bended nor misshapen (maximum tolerance in both directions is 5 mm). Pay special attention to ensuring that the diagonal tube shock-absorber is straight.	
- Clean the concrete and particularly some areas between the two lugs, as this is the area where various hanger accessories are housed. If these are closed, open them with a hammer, until the beam can enter.	
- Inspect the welds, especially on the ring to which the SRL is attached.	



Warning - Never remove the Alupercha Body's diagonal tube. Handling the tube may be dangerous. If any problem is observed in this diagonal, contact the Alsina Commercial Technician.

S.A. Hook Review Procedure - 83068

Control guidelines	Procedure
- Check that the hook is neither askew nor misshapen.	If the deformation is minor, it can be fixed provided that the tube structure is not misshapen.
- Clean the concrete.	
- Check that there are no fractures.	

S.A. Cylindrical Leveller Review Procedure - 83416

Control guidelines	Procedure
<ul style="list-style-type: none"> - Check that the leveller is in its original condition. Verify that it enters and exits a housing tube that is in good condition. - Check that there is no washer. Verify the level. Check that the leveller is not broken. 	<p>If problems are identified with any of the above, contact the Alsina Service Department.</p>

Textile Components review procedure: S.A. Sling - 84414, S.A. Harness - 84415, Harness Lengthener - 84423

Control guidelines	Procedure
<ul style="list-style-type: none"> - Check that all textile elements are present. Check that there are no tears (especially along the edges) or loose threads. - The textile material must be kept in a clean, dry place. 	<p>Otherwise reject</p>

Maintenance, use and safety

Alsina performance criteria with regard to Technical Requirements, Safety and Accident Prevention at the worksite

Background

After more than 60 years in the Spanish market, the Alsina Group has become one of the largest companies in the formwork sector, with a construction market share of more than 20%. From its foundation, company priorities have been **safety** at the worksite, **quality** in the widest sense and **productivity**. The primary aim of the company is to industrialize concrete structure formwork.

Alsina dedicates a large part of its technical resources to working towards continuous improvement of products and processes, in order to add new solutions at both the functional and safety levels and make available a state-of-the-art and innovative range of products. More than 50 patents in Spain, in addition to several recent international patents, bear witness to the company's commitment in this area.

R+D+I

Both the Technical Department and the R+D Department use advanced computer equipment to simulate real situations when performing product related calculations. This allows us to develop a large number of new high quality and innovative products; the company also works closely with Universities, Laboratories and Engineering Companies.

In general we govern ourselves in relation to safety and technical requirements based on European regulations. Our products are certified on the basis of Spanish and European Community standards by recognised institutions. The most significant of these, among others, are: Intemac, Indus, Itec, ACE, LGAI, Bureau Veritas, etc.

Training and Standards

Above all, the purpose of this Assembly and Safety Manual is to assist whoever works with our products. This is why we make it available to our customer before the start of formwork assembly work. If you do not have a copy or require more copies, do not hesitate to contact Alsina directly or the Technical Salesperson responsible for your project.

This Manual has been prepared with the intention of supporting the theoretical-practical training given at the beginning of the construction work. Figures and diagrams are included to promote maximum understanding on the part of the workers who will be involved in the use and maintenance of the equipment.

../..

Alsina supplies the formwork material and is responsible for the delivery of the equipment in good working condition, in compliance with the criteria set out in our quality manual. Given that Alsina does not perform the assembly or manage the construction work, **the user bears responsibility for the use and maintenance of the equipment.**

In addition to the recommendations contained in this manual, the safety and health standards in force for the construction sector in force in each geographical area.

Periodical inspections to the system must be done, in order to ensure that the system is in good conditions for use.

The safety of users depends upon the continued efficiency and durability of the equipment.

The legibility of the product markings, must also be checked periodically.

Conditions of use

The Alupercha system has been designed and created for the specific uses and applications described in this manual. Therefore, we take no responsibility for the use of the equipment in situations other than those considered in this document.

At the time of assembly, the components must always be checked by a competent person, who must ensure that they are fit for use. To this end, each system has specific control guidelines. These guidelines can be found in the Annex (Annex 1) at the end of this section. In accordance with these criteria, when a part that is not fit for use is identified, it must be taken out of service.

Set out below are the main considerations to be taken into account during the installation, recovery and system maintenance phases.

Installing the components of the system

1. All the components are sufficiently strong and stable to support the loads and stresses described in this manual. It is essential to install all the components included in the system, with all the accessories assembled and correctly attached and especially to verify that the panels are correctly positioned and supported.
2. Alsina is absolved of all responsibility if the system components are substituted with other, similar components supplied by another company.

STORAGE. *Before storing, clean the Alupercha body and accessories, to remove any dirt, grease or other materials that may have accumulated. Store in a clean dry area when not in use.*

A		DEVICE IDENTIFICATION SHEET
(A) Distributor / Reseller / Details		
(B) Manufacturer	Encofrados J. Alsina S.A. Pol. Ind. Pla d'en Coll Camí de la Font Freda, 1 08110 - Montcada i Reixac (Barcelona - Spain)	
(C) Product (type, model, code)		
(D) User (company, name and address)		
(E) Serial number / batch		
(F) Year of manufacturer		
(G) Purchase date		
(H) Date of first use		
(M) Notified Body that performed the CE certification/check	DEKRA EXAM GmbH Dinnendahlstrasse 9 - D-44809 BOCHUM Phone : +49 (0) 234 3696 105 Website : www.dekra-exam.de	

B		DEVICE PERIODIC	CHECK SHEET			
No.	(O) Date	(P) Reason for check	(Q) Name and signature of the person responsible for checking	(R) Notes (defects found or other relevant information)	(S) Check results	(T) Date of next check
1		<input type="checkbox"/> Periodic check <input type="checkbox"/> Additional check			<input type="checkbox"/> Device fit for use <input type="checkbox"/> Device unfit for use <input type="checkbox"/> Device to be checked	
2		<input type="checkbox"/> Periodic check <input type="checkbox"/> Additional check			<input type="checkbox"/> Device fit for use <input type="checkbox"/> Device unfit for use <input type="checkbox"/> Device to be checked	
3		<input type="checkbox"/> Periodic check <input type="checkbox"/> Additional check			<input type="checkbox"/> Device fit for use <input type="checkbox"/> Device unfit for use <input type="checkbox"/> Device to be checked	
4		<input type="checkbox"/> Periodic check <input type="checkbox"/> Additional check			<input type="checkbox"/> Device fit for use <input type="checkbox"/> Device unfit for use <input type="checkbox"/> Device to be checked	
5		<input type="checkbox"/> Periodic check <input type="checkbox"/> Additional check			<input type="checkbox"/> Device fit for use <input type="checkbox"/> Device unfit for use <input type="checkbox"/> Device to be checked	
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7		<input type="checkbox"/> Periodic check <input type="checkbox"/> Additional check			<input type="checkbox"/> Device fit for use <input type="checkbox"/> Device unfit for use <input type="checkbox"/> Device to be checked	
8		<input type="checkbox"/> Periodic check <input type="checkbox"/> Additional check			<input type="checkbox"/> Device fit for use <input type="checkbox"/> Device unfit for use <input type="checkbox"/> Device to be checked	
9		<input type="checkbox"/> Periodic check <input type="checkbox"/> Additional check			<input type="checkbox"/> Device fit for use <input type="checkbox"/> Device unfit for use <input type="checkbox"/> Device to be checked	
10		<input type="checkbox"/> Periodic check <input type="checkbox"/> Additional check			<input type="checkbox"/> Device fit for use <input type="checkbox"/> Device unfit for use <input type="checkbox"/> Device to be checked	