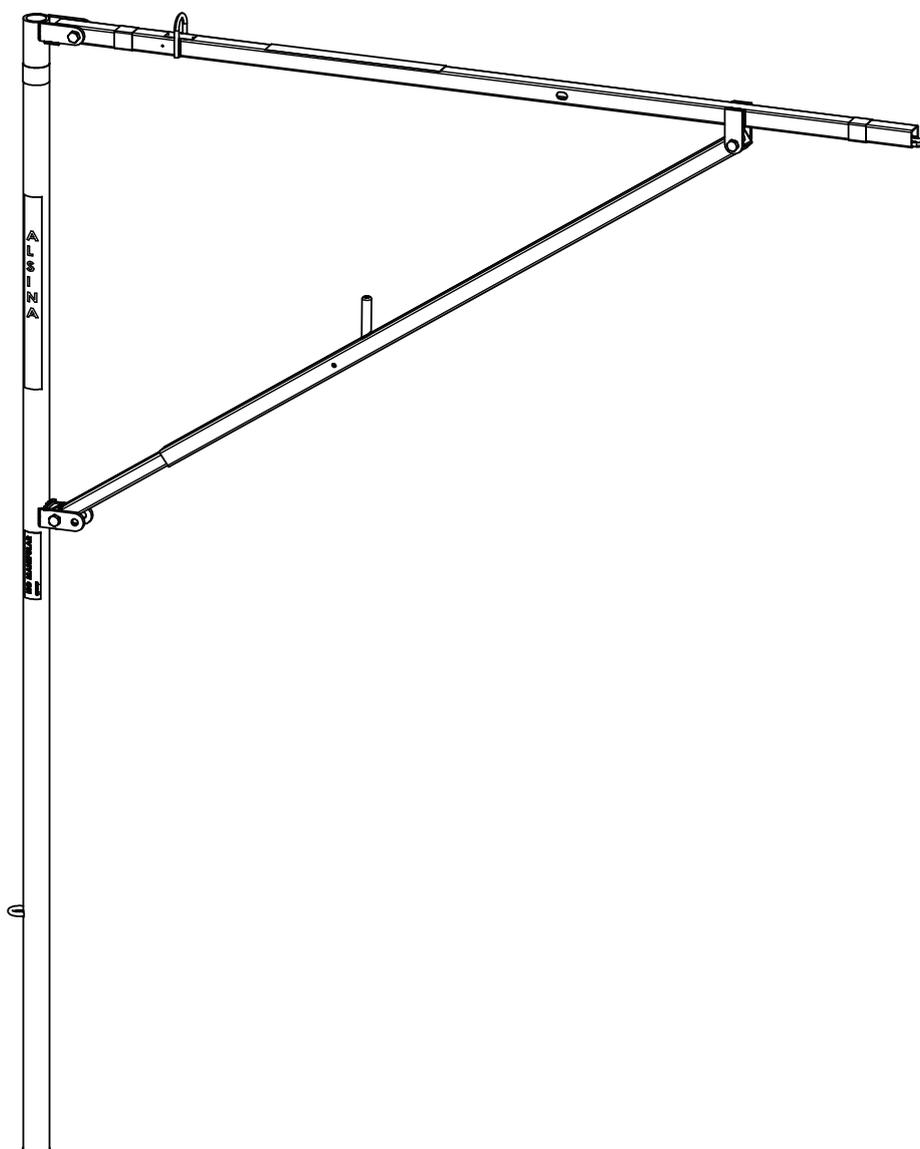


# Alsina

# ALSIPERCHA SYSTEM

Anchor-Device according to EN 795:2012 Type B

## Assembly, Use and Safety Instruction Manual



## 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 for the construction work. 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](http://www.alsina.com)



**Info** In order to obtain the best performance from its formwork systems, Alsina continuously updates the assembly and operation instructions for its products. For further information, contact the Alsina Marketing Technician in your area. The locations of the Alsina Group's Sales Network are available at [www.alsina.com](http://www.alsina.com), or you can e-mail us at [alsinainfo@alsina.com](mailto: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 recommendations and advice for use, assembly, and safety.

## 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 formwork business with the ISO 9001:2015 certification for: "Design, fabrication, engineering services, and commercialization (sale and leasing) of concrete formwork equipment. Provision of assembly services for scaffolding and formwork equipment. On-site implementation of collective protection elements".



Encofrados J.Alsina, S.A.

# Alsina

### Alsipercha (Alsina Fall Arrest System)

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

#### Alsipercha

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.

#### Features of the system

- Allows the worker to work safely covering an area of 125 m<sup>2</sup> and moving within a radius of 6.5 m around the column.
- Inverted "L" shaped steel structure measuring 2.5 m long and 4.3 m high (3.5 m when attached to the column).
- Metal structure weighing 80 Kg, made of high quality steel (elastic limit 42 - 46 Kg/mm<sup>2</sup>; breaking strength 61 - 76 Kg/mm<sup>2</sup>).
- Retractable fall arrest block measuring 4m (SRL+lanyard) maximum length, or optional with SRL 6.0 m or 6.5 m maximum length.
- Alsipercha housing steel tube measuring 85 cm long.
- To be moved by crane.
- With a wide range of accessories for use in any building site situation, ensuring safety at all times.
- A system designed for column heights up to 8.5 m (this requires use of the hook accessory).
- A built-in energy-absorber device reduces the impact forces transmitted to the structure and to the user.

**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 competent, qualified personnel:

- Before first use and subsequent use.
- After the system is activated by a fall.
- 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



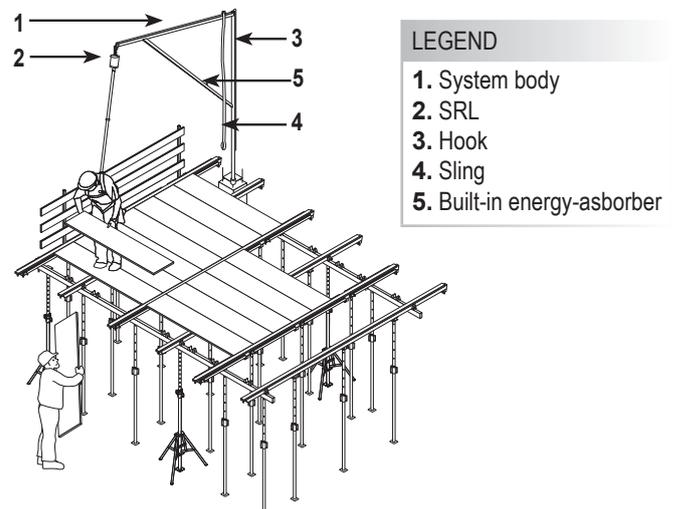
Info. The illustrations in this assembly and safety manual are guidelines and, at any event, they may not reflect all the possible assembly formats.

#### 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 6.5 m. Do not attempt to extend this working radius with ropes or other such methods.

The Alsipercha system is a safety system for preventing falls at height, designed with different configurations.

#### System components



Alsipercha is CE certified in accordance with the DIN EN 795 type B (Notified Body 0158, DEKRA EXAM)

1 → **Alsina** ENCERRADOS - FORMWORK  
 www.alsina.com  
 Camí de la Font Freda, 1  
 08110 Montcada i Reixac  
 (Barcelona - España)

REVIEW YEAR										
201	0	1	2	3	4	5	6	7	8	9
202										
203										
204										

3 → **CE** 0158  
 REF. N.: 84411  
 83471  
 ALSIPERCHA

2 → Código / Code: 8441151

4 → Diseñado conforme a / Engineered according to:  
 EN 795:2012 Tipo B / type B  
 ANSI/ASSE Z359.18-2017 Type D

6 → Sólo para el uso de una persona / Only for one person's use  
 Año de fabricación / Year of manufacture:  
 Nº de Serie / Serial no:

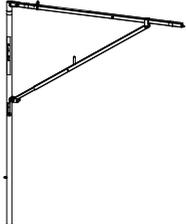
5 → **IMPORTANTE: Leer las instrucciones de su uso.**  
**ATTENTION: Read instructions before use.**

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

**Component Description**



**Info.** In all codes the second digit can be either 3, 4, or 7.



**ALSIPERCHA BODY**

Description: Inverted “L” shaped unit, anchored in the column with a working radius of 6.5 m that allows access to a surface area of 125 m<sup>2</sup>.

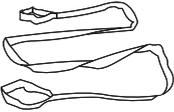
code	dimensions (mm)	weight (kg)
84411	2,500 x 4,300	80



**HOOK**

Description: Component used to bring the Alsipercha fall arrest system closer to the worker when changing the anchorage.

code	dimensions (mm)	weight (kg)
83418	140 x 2,850	2



**SLING**

Description: An essential component used to move the assembly with a crane, to take it to the column, or remove it once the work is complete.

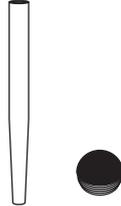
code	dimensions (mm)	weight (kg)
84414	3,000	0.62



**LEVELLER**

Description: Component that is introduced into the housing tube, in order to ensure its verticality and prevent the Housing Tube from rising under the pressure of the concrete.

code	dimensions (mm)	weight (kg)
83416	1,005 x Ø70	3.96



**HOUSING TUBE**

Description: Component that is sunk into the concrete column and houses the Alsipercha 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	2,500	1.599
84439	3,500	1.850



**HARNESSEXTENSION**

Description: Component joining the worker to the retractable device.

code	dimensions (mm)	weight (kg)
84423	1.500	0.31
84474	500	0.15



**HARNESSEXTENSION**

Description: Device anchoring the worker to the Alsipercha fall arrest system.

code	dimensions (mm)	weight (kg)
84415	500 x 150	1



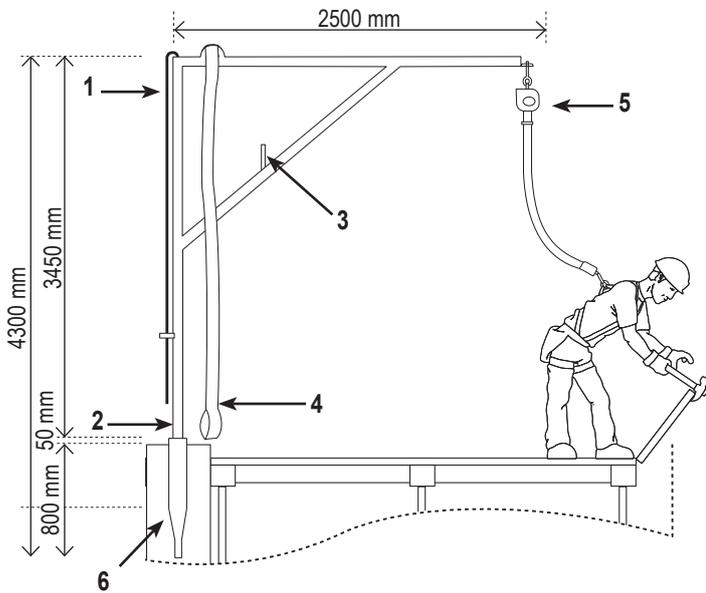
**CARABINER-EN 362**

Description: connects SRL to Alsipercha and harness extension to the user harness

code	dimensions (mm)	weight (kg)
8341203	100	0.50

**Assembly process**

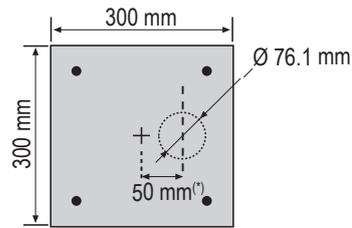
**Step 1/4\_System components**



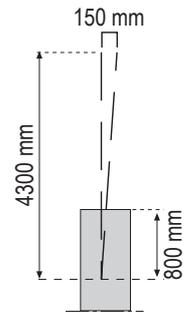
Technical details for arranging the housing tube.

Housing tube tolerances.

1) Tolerance in diversion, with respect to the centre of the column



2) Tolerance in vertical diversion



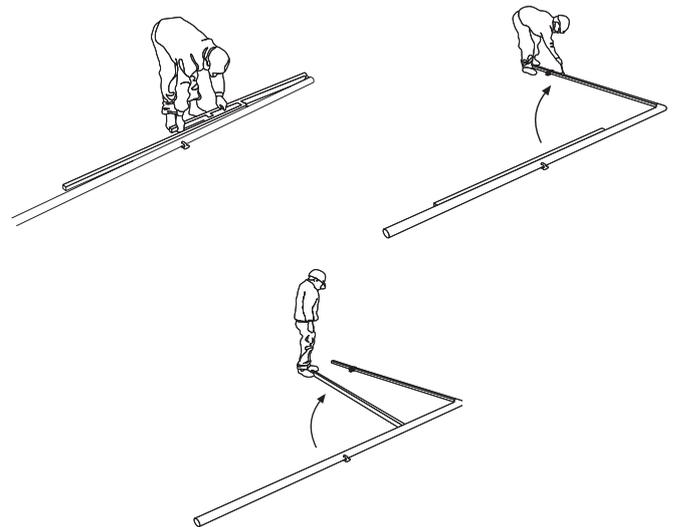
(\* ) This tolerance will vary depending on the column section. If using the Alsipercha system in columns with a section smaller than 30 cm, cracks may appear in the concrete. In this case, consult the structure client.

**LEGEND**

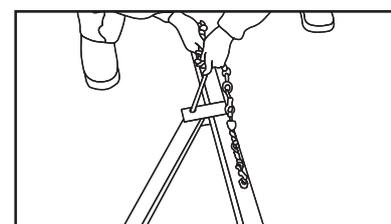
- 1. Hook (accessory for changing the anchor point)
- 2. Alsipercha Body (the main body that turns through 360° and allows the worker to work freely)
- 3. Pivot (used to anchor the hook)
- 4. Sling (used to move the assembly with a crane)
- 5. Retractable device
- 6. Housing tube

**Step 2/4\_System assembly**

1.- Open out the Alsipercha Body.

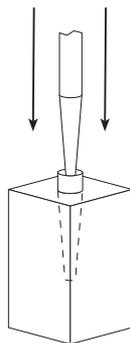


2.- Use the pin to fix the Alsipercha Body.



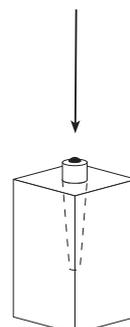
1.- Immediately after pouring the concrete columns, place the housing tube in the center of the latter, protruding 50 mm. This tube will later accommodate the Alsipercha column.

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

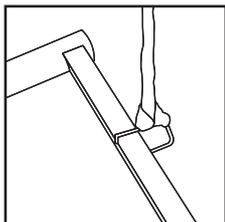
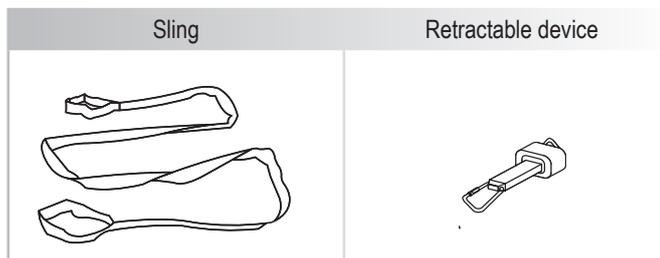


2.- Use the leveller to make sure that the tube is vertical and does not rise up. The column is strengthened by the housing tube.

Leveller detail.



### 3.- Install the sling and the retractable device.



Detail of sling installation:

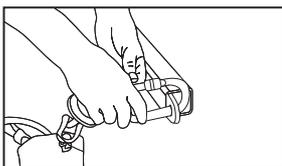
To move the Alsipercha to its location on the column, and to remove it once hazardous operations have been completed.

#### 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 with the fall arrest system.

It is important to close the clasp properly.

#### Check:



#### 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.

### Step 3/4\_ Installing and using the Alsipercha

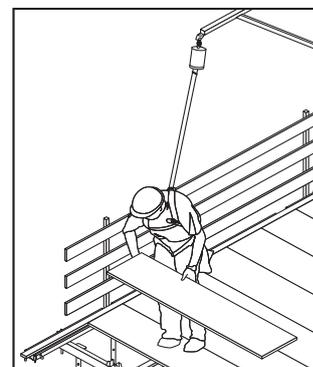
1.- Use a crane to place the Alsipercha Body into the housing tube.



2.- 36 hours after pouring the column concrete, the Alsipercha 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 Alsipercha 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 6.5 m., which is equivalent to about 125 m<sup>2</sup>.



It is possible to extend the range of action of the Alsipercha, but following a specific alternative work sequence. See page. 10



### System limitations:

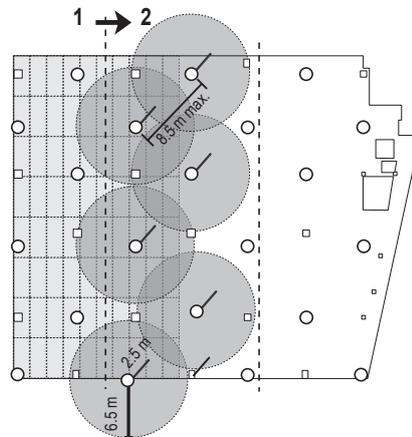
- The maximum number of users in each system will only be 1 (one). The system's resistance capacity is based on the weight of the person using it and the lightweight tools that may be carried, and this weight must not exceed 100 Kg in total.
- The structure where the system is assembled must be sufficiently resistant.
- The maximum action radius, once the system is anchored, is 6.5m. 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.

### Example of onsite layout



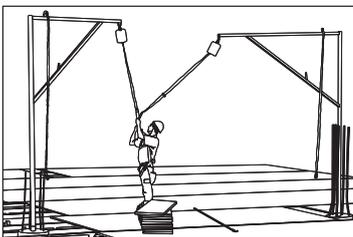
### LEGEND

○ Columns with a housing tube	<b>1.-</b> Starting the boarding of the floor
Alsipercha body - 2.5 m	<b>2.-</b> Direction of progress during boarding process
Working radius - 6.5 m	
Distance between columns - 8.5 m	

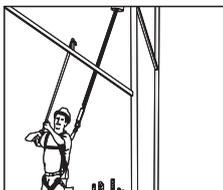
To facilitate use of the Alsipercha, we recommend prior planning of the working area where it is going to be used.

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

### Step 4/4\_Repositioning the Alsipercha



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

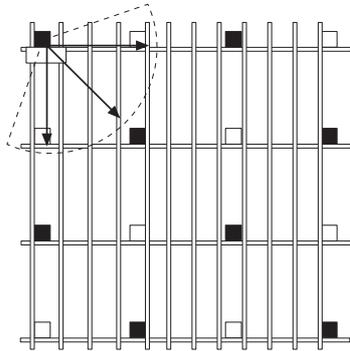


Use the hook to do this if the next Alsipercha is positioned so that the worker cannot reach to anchor themselves.

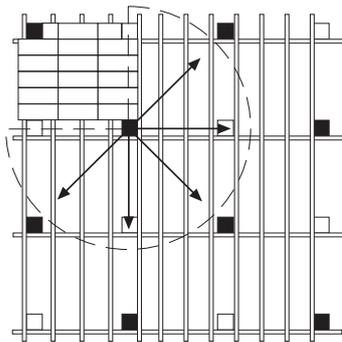


**Info.** A set of approximately 6 Alsipercha units are sufficient for complete formwork of a floor measuring approximately 500 m<sup>2</sup>.

**Working with the Alsipercha System**

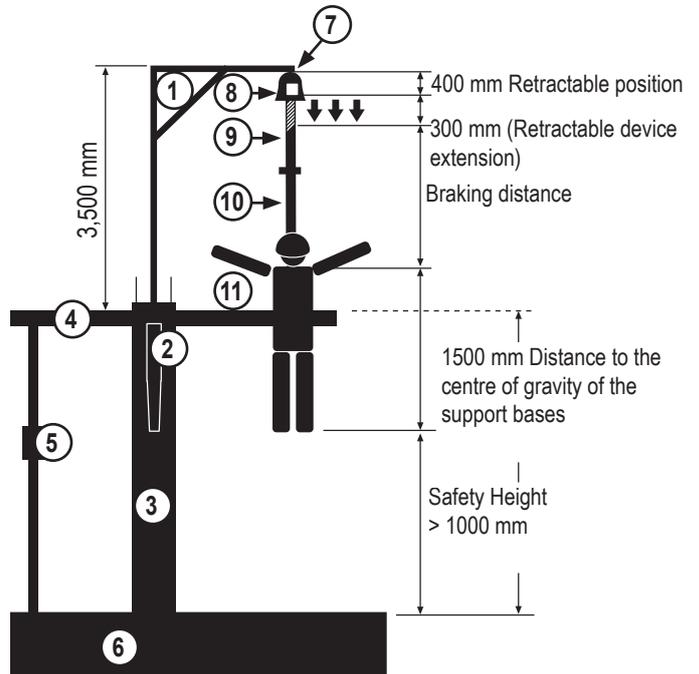


First, locate the embedded tubes in the columns where the Fall Arrest System is going to be accommodated and then begin the boarding process from that point.



Then begin the boarding process from one end of the surface and work safely with a radius of 6.5 m, which equals approximately 125 m<sup>2</sup>.

**Position after Fall**



**LEGEND**

1. Alsipercha	7. Anchor point
2. Housing tube	8. SRL
3. Column	9. Braking distance
4. Formwork	10. Harness extension
5. Struts	11. Worker
6. Ground	

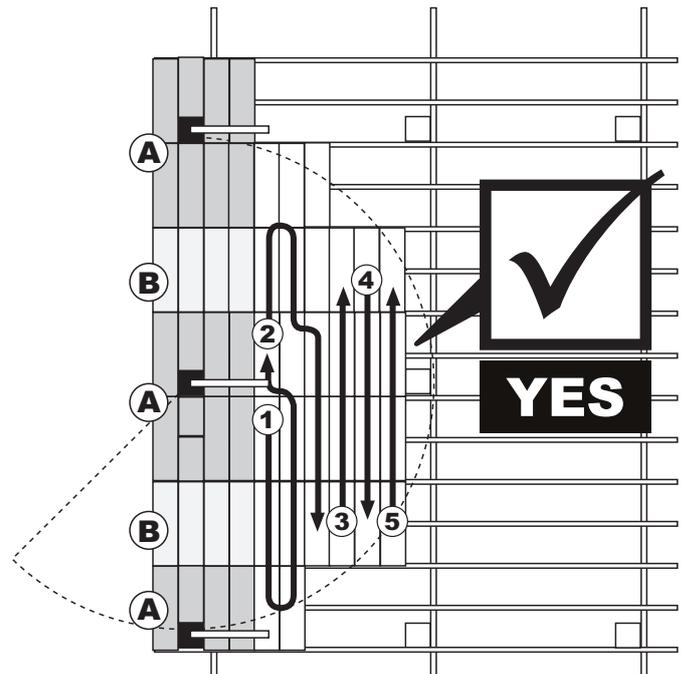


**Info.** Rescue of worker after a fall: It is important that when workers work with the Alsipercha Fall Prevention System, they are not alone. In this way, in the event of a fall, the other worker can rescue the other, hopefully within a few minutes, in order to prevent injury due to loss of blood circulation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

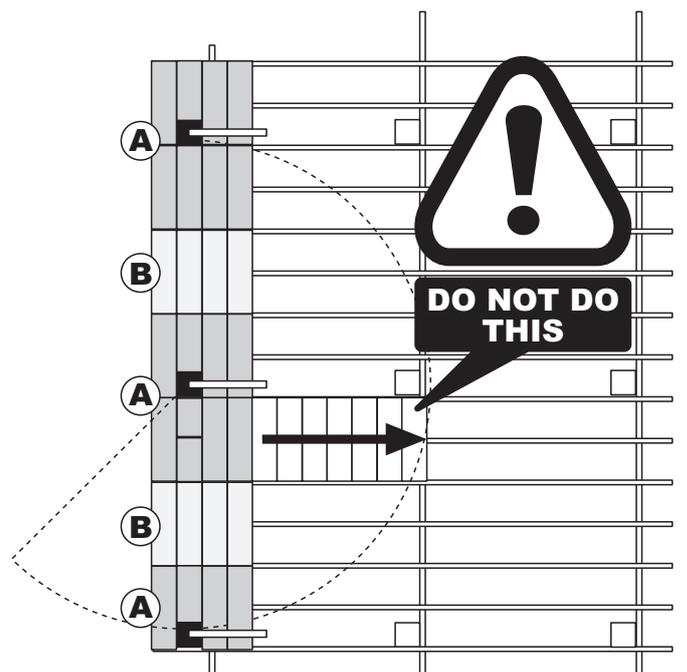
**Extended user equipment for Alsipercha**

Proposed alternative method of work, whilst using a 6.0 m retractable block, with a 0.5 m extended back anchorage. The extended user equipment will allow protected access along this leading edge for up to 8.5 m in either direction.

The protected area covered by a single Alsipercha 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 (8441201 / 84439) and the Harness Lengthener (84423 / 84474) with a Fall Arrest Block (EN360 Compliance) of 6.5 m, or combination of 6 m + 0.5 m extender, the user can increase the distance forward from the Alsipercha 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 Alsipercha body, in the priority sequence as shown beside.

## Employment and Loading of the system

### Table of minimum concrete strengths

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

The results shown below are from tests performed with Alsipercha in columns measuring 30 x 30 cm<sup>2</sup>, 25 x 25 cm<sup>2</sup> and 15 x 40 cm<sup>2</sup>.

Type of concrete	Column section (cm <sup>2</sup> )	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 cm<sup>2</sup> or greater, the system allows for a maximum deviation in the position of the housing tube of 50 mm from the center of the column.
- (\*3) For sections of 25x25 cm<sup>2</sup> and 15x40 cm<sup>2</sup>, the system allows for a maximum deviation in the position of the housing tube of 10 mm 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.

## Disassembly Process

The system is folded when packing it away for storage or moving. There is no need to dismantle its components as they remain attached at all times. The affected areas must be delimited for this task in order to prevent parts from falling suddenly and unexpectedly.

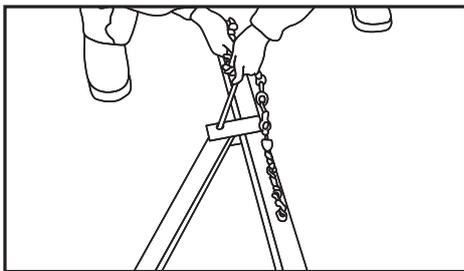
### Folding the product for storage or transport



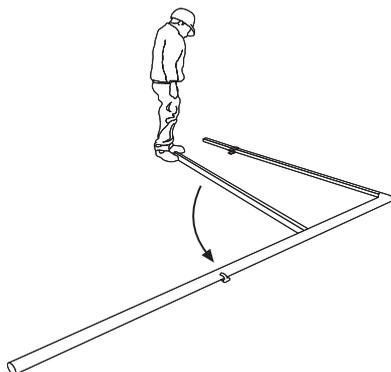
**Warning.** NEVER fold the product from its erect position of use, because it may cause injury.

Fold the product in the following order:

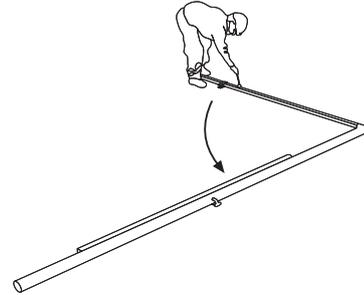
- Remove the boat hook accessory from the Alsipercha and place it on the ground or on a stable surface.
- Remove the Alsipercha from its connection support using auxiliary equipment and place it in a horizontal position on the ground or on a sufficiently stable surface.
- Remove the retractable system connected to the upper horizontal tube.
- Remove the diagonal tube connection pin from the upper tube.



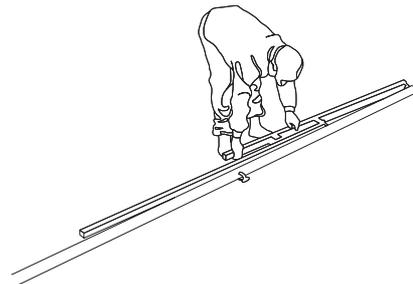
- Fold the diagonal tube until it attaches to the main mast.



- Fold the upper horizontal tube in the same direction as the previous one, attaching it to the diagonal tube.



- Insert the safety pin, making sure that the three tubes are perfectly joined and that the safety pin fastens the three tubes.



**Report by the Association of Building Consultants (ACE)\***

**1. BACKGROUND AND PURPOSE OF THE REPORT**

...the checks to assess the structural impact of this system, which is the subject of this report, will be carried out in accordance with the following regulations:

- **EUROCODE 2:** Design of concrete structures. Part 1-1: General rules and rules for buildings. **UNE-EN 1992-1-1:2013**
- **EUROCODE 3:** Design of steel structures. Part 1-1: General rules and rules for buildings. **UNE-EN 1993-1-1:2008**

**5. SUMMARY AND CONCLUSIONS**

In the case of a C25/30 concrete column, placing an S-235JR tube of the dimensions specified in point 2 of this report inside it does not imply any reduction of its resistant characteristics, as demonstrated in the previous point.

As a summary, and for different concrete and steel resistances, two tables (compression and shear) are shown with all possible combinations:

**COMPRESSION**

Concrete	Steel		
	S235 JR	S235 JR	S355 JR
C25/30	1.302	1.524	1.968
C30/37	1.085	1.270	1.640
C35/45	0.930	1.089	1.405
C40/50	0.814	0.953	1.230
C45/55	0.724	0.847	1.093
C50/60	0.651	0.762	0.984

**SHEAR STRESS**

Concrete	Steel		
	S235 JR	S235 JR	S355 JR
C25/30	1.892	2.214	2.858
C30/37	1.615	1.890	2.440
C35/45	1.411	1.651	2.131
C40/50	1.253	1.466	1.893
C45/55	1.128	1.320	1.703
C50/60	1.025	1.200	1.549

It is observed, for example, that for a steel S-235JR such as that of the current tube, in concrete with a characteristic strength equal to or greater than 35 MPa, the safety coefficient is lower than the unit. Therefore, in this case and in all those that appear in red in the compression table, the incorporated tube as part of the ALSIPERCHA system supposes a decrease in the resistance capacity of the column. In these cases, once the formwork has been placed and the system is no longer used, the hole should be cleaned and then filled with a GROUT mortar of the same resistant characteristics as the concrete of the column.

We present, for all relevant purposes and based on our firm knowledge and understanding, our opinion which we defer to any other better-founded opinion, in Girona, on July 11, 2019.



Antoni Blázquez y Boya  
BLÁZQUEZ GUANTER SLP



Jorge Blasco  
A.C.E Technical Commission

**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  
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Signed: Juan Navarro Gregori  
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**Info\*** The original document consists of 8 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.

## General usage considerations

These considerations complement those described in the system's assembly and disassembly process.

The system has been designed and calculated for the specific uses and applications described in this manual. Therefore, Alsina accepts no responsibility for the use of the equipment in situations other than those described in this manual.

The Alsina Group does not participate in the management or execution of the project, and the client is solely responsible for the proper use of the materials supplied.

All the components have sufficient strength and stability to support the loads and stresses described in these instructions. It is essential to place all the system's components with all the accessories mounted and properly assembled.

The technical operating instructions, safety indications and data on loading conditions must be scrupulously observed and followed. Failure to respect these indications may lead to accidents and severe injuries (or death) and to considerable material damage.

Systems should not be mixed as they may be incompatible and are neither designed for nor adapted to the assembly. Alsina rejects all liability if the system components are replaced with similar components supplied by another company.

Before starting assembly, the person in charge must plan for loading and unloading, material storage, and laying out and marking the areas where the work is to take place, in accordance with the general organization of the construction work.

The following PPE must be used in the assembly/disassembly: Gloves, boots, goggles, helmet, reflective vest, etc.

For heights greater than 3.5 m, a safety harness must be used.

The equipment must be assembled by specialized personnel.

Work areas must be kept clean and orderly.

The largest possible number of operations must be carried out on the floor.

Formwork must be interrupted in the event of heavy rain, snow, lightning storms, or winds over 65 km/h (service wind pressure of 0.2 kN/m<sup>2</sup>), removing any materials or tools that may be loose.

Sources of fire are not allowed near the formwork area.

Workers must always access the work area through the areas made available for this purpose.

## Storage

Having an area designated for compiling and controlling all the elements supplied is recommended.

Areas must be delimited for the storage of materials or accessory items for formwork, assembly, use and disassembly of formwork elements. Personnel not involved in assembly or disassembly shall not be allowed inside these delimited areas.

Storage shall be properly organized in suitable locations, away from passageways.

All material must be properly stacked, without exceeding safe heights, to avoid the risk of toppling or causing difficulties when roping it for lifting or transport. Work materials and tools must be placed or stored so that they cannot collapse, fall or turn over.

Materials stored must be stable, arranged horizontally and wedged in place.

Materials must not be stored on insecure slopes, unstable or loose ground, or loose or unstable elements.

If the material is strapped, the straps should not be removed while there are workers in its path.

## Transporting Materials

There must be proper coordination between the crane worker and the worker who hooks or guides the load. The crane worker must have a clear view of the trajectory of the load or, failing this, must be assisted by a guide, communicating with each other using a pre-agreed set of signals.

Before starting load hoisting, the worker must move away from the sweep area of the load. When the load is moving, no worker shall be on it, and movements above or near people should be avoided. The presence or passage of people under suspended loads must be avoided.

The load must be well balanced and must be raised and lowered slowly, avoiding abrupt acceleration and deceleration.

Loads must be lifted vertically, never diagonally, avoiding rocking and horizontal dragging movements. When necessary, guide ropes or cables adequate for the load being supported must be used for this purpose.

When lifting heavy or bulky loads, the use of rocker arms is recommended.

If the loads could collide with the structure, other on-site elements or personnel, retention or load-guiding cables should be used.

To prevent objects falling onto people and/or materials during hoisting, loading or unloading operations, using trays or transport containers, always following the manufacturer's instructions, is recommended. Alsina provides the ALSINA CONTAINER item. Alternatively, they can be lifted using slings, distribution beams, rocker arms, etc. in packages strapped at both ends, hanging the load, thus avoiding horizontal displacement of the stable assembly. Lifting systems must be with closed hooks. The crane worker, who will have received the proper training, shall always be responsible for final review of the attachment of the load.

Stacking the ALSINA CONTAINER more than three high is not recommended. They must be stacked on a stable, flat area.

Simultaneous movements shall not be carried out with the crane.

Loads must be hoisted using mechanical equipment, with a load capacity sufficient for the load being lifted.

## Equipment Maintenance

A pre-established expiration date cannot be established for formwork, but improper use of equipment that could cause damage to it must be avoided.

Alsina, S.A. supplies the formwork material and is responsible for delivering the equipment in good working condition, in accordance with the criteria in our quality manual. When assembly is not carried out by Alsina, the user must accept responsibility for proper use and maintenance of the equipment.

The users are always responsible for maintaining all equipment, whether rented or the customer's own property.

When assembling, the material must always be checked by a qualified individual who will verify that the equipment is apt for use or reject it, especially in the event of a person falling. There are specific control guidelines for using the main components of the system on site. These are detailed in the appendix at the end of this section (Appendix 1). In accordance with these criteria, when a part that is not fit for use is identified, it must be rejected, avoiding the use of defective or damaged parts.

The condition of the material must be checked before the start of a day after strong winds, rains, snow, etc. since it is possible that a part could have been dropped, displaced, loosened or damaged.

## Annex: Regulations in Spain

Spanish legislation requires that assembly and dismantling of the system must be performed by personnel duly trained, as described in Law 31/1995 and the modifications to this law contained in Law 54/2003, for work of this type, and must have the information and tools required for the proper performance of the task.

Also, the contents of Royal Decree 1627/1997, on minimum health and safety provisions applicable to construction work, as well as in Royal Decree 2177/2004, which modifies Royal Decree 1215/1997, which establishes the Minimum Health and Safety Provisions for Use of Work Equipment by Workers, on the subject of temporary work at heights.

Regulations also require mandatory use of personal protective equipment adequate for the work to be performed, as described in Law 31/1995 and its further development in Royal Decree 773/1997.

In cases where workers from multiple companies are active concurrently, there must be coordination on the subject of prevention, as defined in article 24 of Law 31/1995 and its further development in Royal Decree 171/2004.

### Appendix 1: Conditions of use on site

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

As explained in Alsina's Alsipercha Assembly and Safety Manual, this review does not replace the visual inspection that the user should perform each time he or she uses the Fall Arrest System.

#### Retractable Review Procedure - 8441201 / 84439

Control guidelines	Procedure
Check that the belt <b>winds automatically</b> and unwinds normally along its whole length.	If it does not work, <b>remove from service since it is faulty.</b>
Check that the locking function is, by pulling the belt sharply and observing that it locks.	If it does not work, <b>remove from service since it is faulty.</b>
That the textile is in perfect condition, <b>without tears or loose ends.</b>	If it does not work, <b>remove from service since it is faulty.</b>
That the metallic parts <b>are not oxidised</b> and that the karabiners work and <b>block correctly.</b>	
It is important to check that the continuous energy absorber protected by the plastic and the fibres <b>forming it, have not broken.</b>	If it does not work, <b>remove from service since it is faulty.</b>

#### Alsipercha Body Review Procedure - 84411, column clamps - 83424, column clamp sleeve - 83426 and Tripod for unloading trucks - 84475, 83472, 84478, 83473 inspection procedure.

Control guidelines	Procedure
Place the Alsipercha system on two trestles and open it up to:  - 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 are neither askew nor misshapen (maximum tolerance in both directions is 5 mm). Pay special attention to ensuring that the diagonal tube with spring 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 hood is attached.	If problems are identified with any of the above, contact the Alsina Service Department.



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

#### Hook Review Procedure - 83418

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.	

**Leveller Review Procedure - 83416**

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

**Textile Components review procedure: Sling - 84414, Harness - 84415, HARNESS EXTENSION with Jacket - 84423 / 84474**

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

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

<b>B</b>		<b>DEVICE PERIODIC CHECK SHEET</b>				
<b>No.</b>	<b>(O)</b> Date	<b>(P)</b> Reason for check	<b>(Q)</b> Name and signature of the person responsible for checking	<b>(R)</b> Notes (defects found or other relevant information)	<b>(S)</b> Check results	<b>(T)</b> 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	
6		<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	
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	