

ICM Vertical Fall Arrest System Instructions

Installation, Inspection, Maintenance and Repair:

Vertical fall arrest system complying with Regulation (EU) 2016/425 of the European Parliament and of the Council and the standard EN 353-1:2014+A1:2017.

ICM Vertical Fall Arrest System is identical to the product which is the subject of the type examination by:

Force Certification A/S

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Denmark

Notified Body no.0200

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EU Overensstemmelseserklæring



Producenten

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- bekræfter at følgende produkt

Model: ICM Vertical Fall Arrest System med 3M Protecta Cabloc model 6180200, 6180201
ICM varenummer:
Serienummer(s):

- er i overensstemmelse med Europa-Parlamentets og Rådets Forordning (EU) 2016/425

og standarden:

EN 353-1:2014+A1:2017

- og er identisk med det produkt som er testet og type godkendt af:

Force Certification A/S
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Notified Body no. 0200

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Content

| | |
|---|----|
| 1. General Information..... | 3 |
| 1.1. Instructions for Use | 3 |
| 1.2. Intended Purpose, Application and Limitations | 3 |
| 1.3. Competent Person..... | 4 |
| 2. Installation..... | 5 |
| 2.1. Pre-Check of Installation Requirements and Limitations | 5 |
| 2.1.1. Installation Angles | 5 |
| 2.1.2. Loads on the Structure | 5 |
| 2.1.3. Limitations | 5 |
| 2.2. Description of the System Components..... | 6 |
| 2.3. How to Install the System..... | 7 |
| 2.3.1. Top Anchor | 7 |
| 2.3.2. Wire Rope | 7 |
| 2.3.3. Wire Guides | 7 |
| 2.3.4. Bottom Anchor | 8 |
| 2.3.5. Wire Rope Tensioning..... | 8 |
| 2.3.6. System Identification..... | 9 |
| 2.3.7. Final Installation Inspection..... | 9 |
| 3. Inspections..... | 10 |
| 3.1. When to Inspect | 10 |
| 3.1.1. Before Each Use..... | 10 |
| 3.1.2. Formal Inspection..... | 10 |
| 3.1.3. After a Fall..... | 10 |
| 3.2. How to Inspect the ICM Vertical Fall Arrest System Installation..... | 10 |
| 3.3. If the System Does Not Pass an Inspection | 11 |
| 3.4. System identification plate..... | 11 |
| 4. Maintenance, Repair and Warranty..... | 12 |
| 4.1. Maintenance, Repair and Storage | 12 |
| 4.2. Warranty..... | 12 |
| 5. Records | 13 |
| 5.1. Registration of the System Installation | 13 |
| 5.2. Inspection Log..... | 13 |
| 5.3. Marking of the Cablos slider | 15 |
| 5.4. How to use the Cabloc slider..... | 16 |

1. General Information

1.1. Instructions for Use

These instructions describe the installation, inspection, maintenance and repair of the ICM Vertical Fall Arrest System.

For instructions for use of the guided type fall arrester, see the manual for 3M Protecta Cabloc model 6180200, 6180201.

1.2. Intended Purpose, Application and Limitations

The ICM Vertical Fall Arrest System is to be installed on fixed, vertical ladders or similar vertical climbing surfaces that are part of the structure. Only a 7/19 Ø8mm stainless steel wire AISI 316 can be used. The system is installed to protect users connected to the system from falling while climbing.

The working temperature range of the system is -30 – + 45°C. Remove ice that might have built up on the system or on the fall arrester before use.

A maximum of three simultaneous users are allowed on the system.

Only a fall arrest harness (EN 361) may be used in conjunction with a fall arrest system. During use, the harness must be adjusted and fit snugly.

Never use a loose harness. If the harness comes loose during use, it must be retightened when the user is standing in a safe place.

The Cabloc slider is connected directly to the A-point of the fall arrest harness at the chest using the supplied carabiner.

The Cabloc slider must not be used for positioning.

The slider must always be connected and disconnected from the wire from a safe place or by using another fall arrest system.

Minimum and maximum weight of person including tools is 40 to 140 kg.

Do not install the system on portable ladders or movable structures.

The system is only to be used by people who have received proper instruction and training in the use of the system.

For the first 2 m the user may not be protected against hitting the ground, extra care should be taken when ascending or descending. There must be at least 2 m of free space from the feet to a surface.

For those systems which permit more than one user there should be a minimum distance of 5 m between the feet of the upper person and the head of the lower person.

When working at heights, always make sure that carried items are secured from dropping on climbers below.

The system is only to be installed and used by people who are in good health and fit for climbing.

The equipment shall only be used by a person trained and competent in its safe use.

A rescue plan shall be in place to deal with any emergencies that could arise during the work.

Do not make any alterations or additions to the equipment without the manufacturer's prior written consent. Any repair shall only be carried out in accordance with manufacturer's procedures.

The equipment shall not be used outside its limitations, or for any purpose other than that for which it is intended. Do not combine equipment that may compromise safety when using the ICM Vertical Fall Arrest System.

The fall arrester should be a personal issue item.

It is essential for safety that equipment is withdrawn from use immediately should:

- 1) any doubt arise about its condition for safe use or;
- 2) it have been used to arrest a fall.

Do not use it again until confirmed in writing by a competent person that it is acceptable to do so.

If the product is re-sold outside the original country of destination, the reseller shall provide instructions for use, for maintenance, for periodic examination and for repair in the language of the country in which the product is to be used.

1.3. Competent Person

By being competent in installing, inspecting, and servicing the ICM Vertical Fall Arrest System we as the manufacturer expect the following:

A competent person has received training by the manufacturer or knows from experience how to inspect, service, and use a wire system approved to EN 353-1:2014+A1:2017. A competent person has read and fully understood the user manual and is fully aware of the proper use, limitations, and possible misuse of the system. If required by the manufacturer or the customer, competent personal must be able to document their qualifications.

In case you are in doubt whether you or your employees are competent to install, inspect, and service the ICM Vertical Fall Arrest System, ask ICM A/S.

2. Installation

2.1. Pre-Check of Installation Requirements and Limitations

2.1.1. Installation Angles

The maximum forward and sideways leaning angles of installation from the vertical are 0 – 15°.

2.1.2. Loads on the Structure

The maximum loads at the top anchor that could be transmitted in service from the rigid anchor line to the structure are 15 kN for one user and 20 kN for two and three users at the same time on the system in the direction of a fall.

The maximum load at the bottom anchor that could be transmitted in service from the rigid anchor line to the structure is 5 kN upward in direction of the wire rope.

The wire rope shall be fixed at both ends and tensioned to 0.8 kN.

2.1.3. Limitations

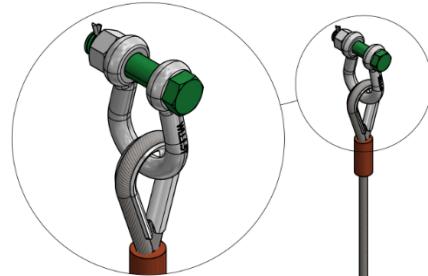
The ICM Vertical fall arrest system should not be installed in a highly corrosive atmosphere (e.g. above a swimming pool) because of the risk of non-visible stress corrosion cracking, unless specific control measures are in place or compatibility is established.

Be aware of environmental hazards, which can damage the system or injure the user. The hazards could for example be welding, strong heat, the use of movable or metal cutting tools, acids and chemicals, explosive or toxic gasses, solutions containing salt, electricity, oil, dust, grease, and sharp objects and edges.

2.2. Description of the System Components

Shackle options:

- 6803000 Shackle with cotter, galvanized steel.
- 6803011 Shackle with cotter, stainless steel AISI 316.
- Breaking strength min. 20 kN.



Stainless steel wire rope with swaged eye, diameter 8 mm, construction 7 x 19, weight approx. 250 g/m.

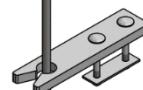
Stainless steel thimble and copper ferrule, swaged to EN 13411-3:2004.

The system identity number is stamped in the ferrule.

Breaking strength min. 20 kN.

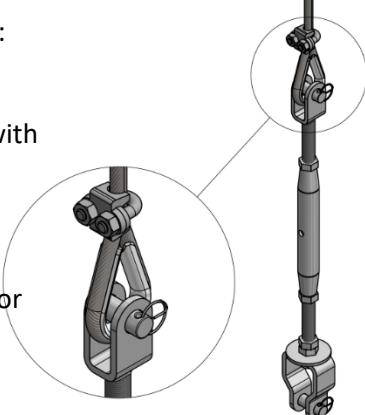
Intermediate bracket options:

- ICM 6804784 Wire guide for alu-ladder
- ICM 6804794 Wire guide for steel ladders



6804506 ICM Vertical parts for bottom section, containing of:

- 6804318 Thimble, stainless steel, for 8 mm wire rope
- 6804332 Rigging screw, stainless steel, with fork/fork ends, with tension indicator
- 6804312 Wire rope clip with locking nuts, stainless steel, for offshore installations without seawater contact
- 6804390 Simplex wire clip with locking nuts, stainless steel, for offshore installations with periodic/temporary sea water contact (not for permanent immersion)



Since top anchor, bottom anchor and wire guides are specific to the installation situation, these components are described in separate documents. For installations where the top anchor and/or the bottom anchor are ladder mounted, please ask ICM A/S for suitable options for your project.

2.3. How to Install the System

2.3.1. Top Anchor

Always have the top anchor and the ladder inspected by a qualified engineer before installing in order to determine if the load requirements for the system are fulfilled.

The position of the top anchor shall allow the user safe access when connecting or disconnecting from the system.

If the top anchor is ladder mounted, please ask ICM A/S for suitable options for your project.

For load requirements, see section 2.1.2.

2.3.2. Wire Rope

To prevent injuries, always wear correct personal protective equipment (e.g. safety glasses and safety gloves) when handling the wire rope.

Roll out the wire rope on the ground and inspect it for shipping damages. If there are any damages to the wire rope do not install it but have it exchanged or inspected by a competent person.

Connect the swaged eye at the end of the wire rope with the top anchor by using the shackle. Lock the shackle safely.

The shackle may be left out of the ICM Vertical Fall Arrest System if the top anchor itself is suitable for direct and safe connection to the swaged eye of the wire rope.

Lower the wire rope safely underneath the top anchor so it hangs alongside the ladder.

2.3.3. Wire Guides

Wire Guides keep the wire rope in position and prevent the wire rope from moving from side to side during climbing and from hitting against the ladder or structure. In windy conditions the wire rope guides shall also prevent the wire rope from moving sideward and thereby reduce noise from the system.

Wire Guides shall be mounted at regular intervals along the wire rope between the top and bottom anchor. The recommended maximum intervals between wire guides are:

- Indoor: 15 m
- Outdoor: 9 m
- Offshore: 6 m

The required intervals also depend of the system length and the wire tension, therefor the intervals shall be shorter if there is a risk that the wire rope can touch the ladder or the structure.

Only wire guide types that have been tested and certified with the ICM Vertical Fall Arrest System must be used. Please ask ICM A/S for suitable options for your project.

2.3.4. Bottom Anchor

A bottom anchor connection enables tensioning of the wire rope and must fulfil the load requirement for the bottom anchor.

Always have the bottom anchor inspected by a qualified engineer before installing in order to determine if the load requirements for the system are fulfilled.

The bottom anchor shall be positioned to allow the user safe access when connecting or disconnecting from the system.

The wire rope is to be connected to the bottom anchor via the rigging screw.

Proceed as following:

1. Connect the rigging screw to the bottom anchor.
2. Loosen the nuts and turn the rigging screw into max length.
3. Run the wire rope through the free end of the rigging screw.
4. Place the thimble between the wire rope and the rigging screw in order to protect the wire rope.
5. Cut the free end of the wire rope allowing 40 cm to run through the rigging screw and back towards itself.
6. Loosely clamp the wire rope clips around the wire rope.
7. Slide the free end of the wire rope through the wire rope clips.
8. Tighten the wire rope by hand until there is no slack, and lock it in its position with the wire rope clips.
9. Three clips are required, and they shall be placed with a distance of approx. 10 cm.
10. The first clip shall be placed so close to the rigging screw that the thimble is unable to move out of place.
11. Note: When mounting the wire clip the "saddle" of the clip shall press on the wire going downwards. The U-bolt part of the clip shall bite on the free end of the wire going upwards.
12. In windy outdoor conditions use the Simplex wire clip as the lowest of the three clips.
13. Cut off excess wire rope 5 cm from the top wire rope clip, and cover the free end with tape.

If the bottom anchor is ladder mounted, please ask ICM A/S for suitable options for your project.

For load requirements, see section 2.1.2.

2.3.5. Wire Rope Tensioning

- Tighten the rigging screw until the tension indicator can rotate freely.
- Lock the rigging screw in its position by tightening the nuts.
- If the wire rope remains slack and the rigging screw is at its minimum, bring the rigging screw back to its maximum, loosen the wire rope clips, and re-tighten the wire rope more by hand. Then re-tighten and lock the rigging screw.

For systems installed in areas with large temperature ranges or strong winds it is likely they will require to be re-tensioned periodically. The longer the system, the more likely it is to require periodic re-tensioning.

2.3.6. System Identification

Install the system identification label onto the bottom bracket, the ladder or as close to the entrance point of the system as possible.

The installer shall put the following data in permanent writing on the label:

- A unique system identity number given by the manufacturer or created by the installer,
- the date of installation,
- the name of the installer, and
- the number of users allowed on the system at one time.

Record the same data on the system registration card.

2.3.7. Final Installation Inspection

After installation conduct a final inspection of the system as follows:

- Make sure that the wire rope is placed correctly in every wire rope guide on the system.
- Make sure that the wire rope is tightened and the tension indicator can rotate freely.
- Make sure that top anchor, bottom anchor and wire guides are in line and the wire rope is kept securely in the wire guides.
- Make sure that the wire rope is not in conflict with the ladder or structure at any point.
- Make sure that all connectors and fasteners are properly closed and tightened.
- Make sure that the system identity label is in place at the entrance of the system and the system data are correctly written on the label and on the registration card.

3. Inspections

3.1. When to Inspect

3.1.1. Before Each Use

For the guided type fall arrester follow the instructions in the manual for the 3M Protecta Cabloc model 6180200, 6180201.

Inspect the system identification label for the date of next inspection.

Inspect the condition of the installed system in general. Inspect the wire rope for broken strands. Make sure that the wire rope is tightened and the tension indicator can rotate freely.

Inspect the ladder or ladder structure in regards to safe climbing.

3.1.2. Formal Inspection

All components that are part of the ICM Vertical Fall Arrest System together with the ladder or ladder structure must be inspected at least every 12 month by a competent person. See chapter 1.3 for information on being competent. The outcome of the formal inspection must be logged on the system identification label and the registration cards for the system and the fall arrester. Inspection is important for user safety and the durability of the system.

3.1.3. After a Fall

In case the ICM Vertical Fall Arrest System arrests a fall, it shall be replaced.

3.2. How to Inspect the ICM Vertical Fall Arrest System Installation

- Inspect top and bottom anchors for deformation, corrosion, or any kind of damage. Check for anything that could affect the strength of the anchor or the function and quality of the system.
- Inspect the wire rope guides. Make sure they are correctly mounted and maintain their grip on the wire rope. Check for tear, deformation, and loose fasteners. Retighten the wire rope guide if required.
- Inspect the wire rope for damage. Check for worn or broken strands. Inspect for signs of abrasion from the ladder or structure. The wire rope must not contact the ladder or structure. Replace damaged wire rope if necessary. Check the wire rope for correct tension and re-tighten if necessary.
- Inspect the swaged eye of the wire rope and the ferrule. Ensure the ferrule shows no sign of corrosion, deformation, or slip from its original position at the time of manufacture. Replace damaged wire rope if necessary.
- Inspect the shackle connecting the wire rope to the top anchor. Check for deformation, corrosion, or any kind of damage, which could affect the strength of the shackle. The locking pin must be in place; if not, insert a new locking pin.
- Inspect the rigging screw, thimble, and wire rope clips connecting the wire rope to the bottom anchor. Check for deformation, corrosion, or any kind of damage, which could affect the strength of the components. The locking pins must be in place at both ends of the rigging screw. Retighten the nuts on the wire rope clips if necessary.

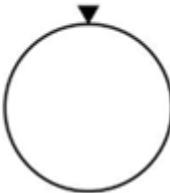
- Inspect the ladder structure for damage, corrosion or deterioration that could affect the strength of the ladder.
- Inspect the wire rope tension. Make sure that the wire rope is tightened and the tension indicator can rotate freely.
- Inspect the system identity label. Make sure the label is located at the entrance point of the system, and that all data is filled in and readable.

3.3. If the System Does Not Pass an Inspection

If any component, which is part of the ICM Vertical Fall Arrest System, in any way fails to fulfil the guidelines set in this section, then the complete system must be withdrawn from use until it has been formally inspected by a competent person.

3.4. System Identification Label

Must be located at the entrance point of the system. For identification purposes the installer must create a unique individual system identity number.

| | | | | | | | | | | | |
|---|--|--|---|---|---|--|--|--|--|--|--|
| Manufacturer | ICM A/S Petersmindevej 15 5000 Odense C, Denmark (+45) 70 606 606 |  | | | | | | | | | |
| | ICM Vertical Fall Arrest System Only use with guided type fall arresters type 3M Protecta Cabloc model 6180200 or 6180201 | Approved slider | | | | | | | | | |
| Serial no. | SYSTEM ID NO.: | | | | | | | | | | |
| Max users | SYSTEM CAPACITY: Max. no. of users on the system at one time: | <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </table> | 1 | 2 | 3 | | | | | | |
| 1 | 2 | 3 | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| EN standard | APPROVALS: EN353-1:2014+A1:2017 |  <small>Notified Body</small> | | | | | | | | | |
| | INSTALLED BY/DATE: | Installer and date | | | | | | | | | |
| | NEXT INSPECTION DATE: | Next inspection | | | | | | | | | |
|  | | | | | | | | | | | |

Follow the instructions given in the instruction manual for the ICM Vertical Fall Arrest System in regards to correct installation, use, inspection, and maintenance of the system. Failure to follow the instructions, alterations on the system, or substitution of components may lead to serious injury or death. Only connect the front D-ring of the EN361 harness to the karabiner of the guided type fall arrester. Read the user manual for the guided type fall arrester before using the system or taking new fall arresters into use.

4. Maintenance, Repair and Warranty

4.1. Maintenance, Repair and Storage

The ICM Vertical Fall Arrest System requires no scheduled maintenance, however, if there is oil or dirt on the wire or other parts, it can be wiped off with a clean cloth. The system shall be inspected at least once a year (every 12 month) according to this manual.

All components part of the ICM Vertical Fall Arrest System are made of galvanized steel, stainless steel or nylon. Contact ICM A/S for further details.

If the wire rope requires cleaning contact the installer for recommendations. Do not use any kind of chemicals which could damage the wire rope.

For the guided type fall arrester follow the instructions in the manual for the 3M Protecta Cabloc model 6180200, 6180201 fall arrester. In general, the slider should be stored clean and dry under temperate conditions.

Always remember to store the equipment and system registration cards in a safe area known to the user.

A competent person must complete additional maintenance and servicing procedures. See chapter 1.3 for information on being competent.

4.2. Warranty

We offer a warranty of 18 months from the date of purchase or one year from the date of installation (whichever occurs first) for all components of the ICM Vertical Fall Arrest System. These components must be supplied by ICM A/S, either directly or through a retailer.

The warranty does not cover component damages caused by vandalism, shipping, or other types of damage not controllable by ICM A/S.

The warranty only covers ICM Vertical Fall Arrest Systems that are installed, inspected, and serviced by competent personal.

Lifespan:

There is no set lifespan for the parts of the ICM Vertical Fall Arrest System if installed, used and maintained as described in this manual. It is estimated that after approximately 20 years some of the parts will be suitable for replacement, but this is entirely dependent on how frequently the system is used and in what environment it is installed.

5. Records

The installer must keep a record of system identity number, location, and date of installation relating to a particular system. The installer must fill in the system identification label to complete the installation.

5.1. Registration of the System Installation

System identity number: _____

Date of purchase: _____

Date of installation: _____

Name of installer: _____

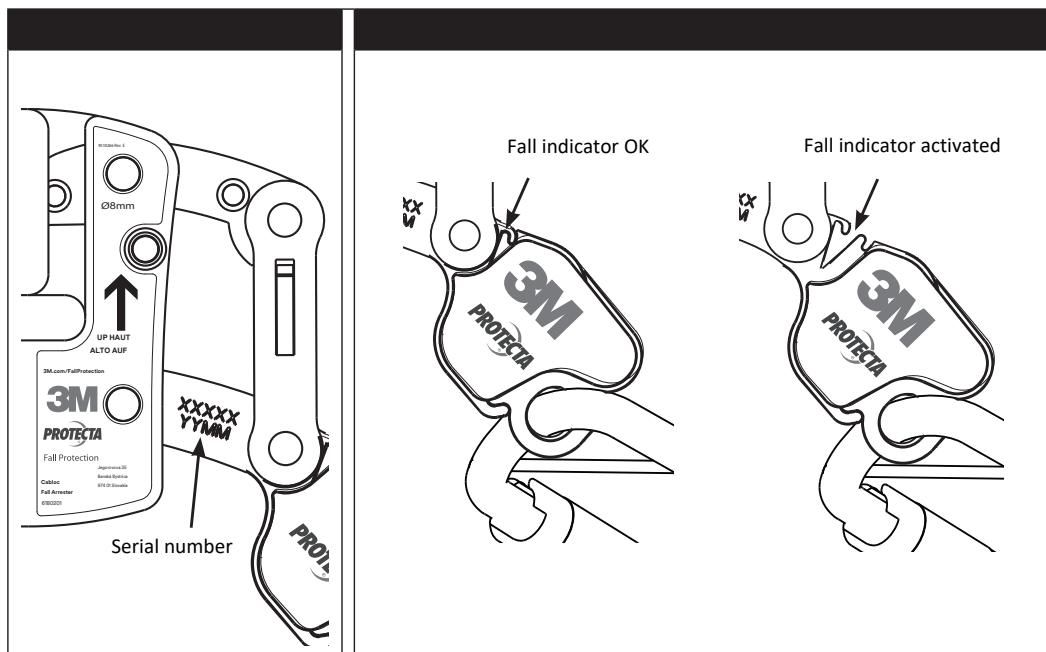
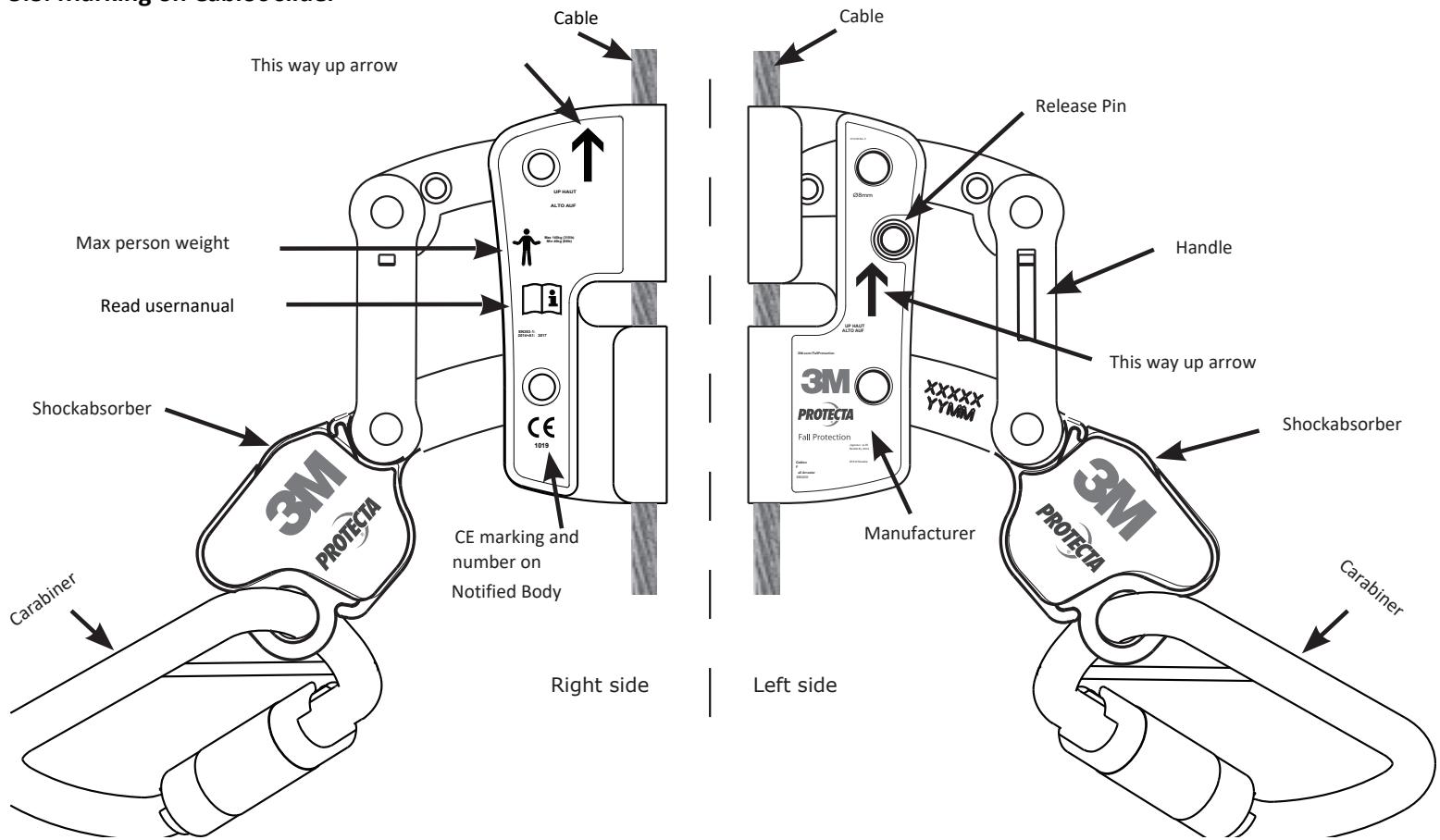
Installation company: _____

5.2. Inspection Log for ICM Vertical Fall Arrest System

ICM A/S
Petersmindevej 15
DK-5000 Odense C
Tel: +45 70 606 606
Fax: +45 45 765 727
E-mail: mail@icmsafety.com

| Date | Reason (task) | Comments (findings, replaced parts) | Next inspection | Signature |
|------|---------------|-------------------------------------|-----------------|-----------|
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5.3. Marking on Cabloc slider



5.4. Cabloc Slider Operation and Use

There are hazards associated with connecting and disconnecting the system. Use secondary fall protection if necessary. Ensure that anchor points, platforms or other means are present at connection and disconnection points to enable safe transition to and from the system.

A minimum fall distance of 2 m is required between the user's feet and the surface below. The user may not be protected from hitting the ground during the first 2 meters of ascent or the last 2 meters of descent.

Always attach the Cabloc Slider to the A-point of the fall arrest harness at the chest.

The connection link between the slide and the fall arrest harness must not be extended.

Use appropriate climbing techniques (e.g. maintain three points of contact with hands and feet) when climbing up or down parts of the ladder that are not protected by the ICM vertical system.

Install the slider onto the wire: See Figure 2 for identification of components referenced in the following steps:

- Step 1. Position the slider so that the arrow marking "up" on the slider (I) is pointing upward.
- Step 2. Pull the release pin (G) to the outermost position.
- Step 3. Push the handle (D) up to the fully vertical position.
- Step 4. Rotate the slider 90 degrees and insert the cable (A) through the opening (B) at the front of the slider rotate the slider back to vertical after the cable has been installed into the opening. Release the handle (D) to lock the slider onto the cable.
- Step 5. Ensure the release pin (G) is in the locked position before use.

