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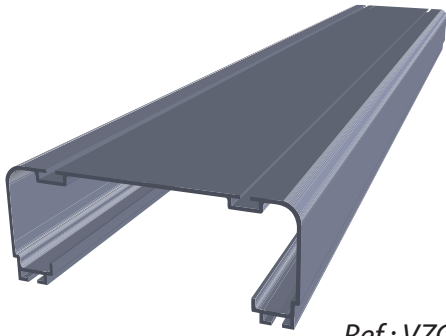
INSTALLATION NOTICE

16-10-2013

VISIONAUTE
Advance

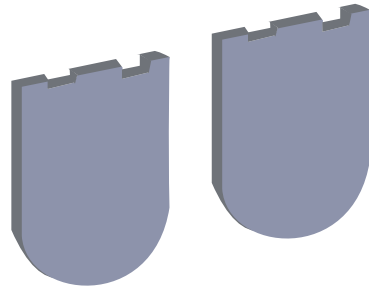
DESCRIPTION OF RAILDOME COMPONENTS

Aluminium rail extrusions in 3 m sections



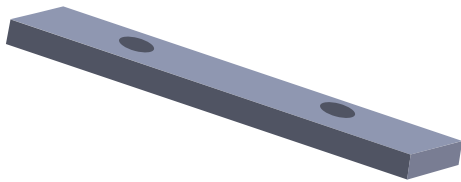
Ref.: VZC-RAIL3

Rail end-cap



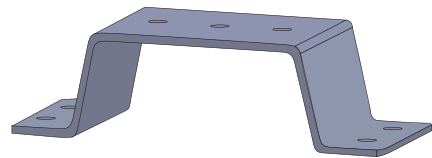
Ref.: VZC-EB6

Connecting fishplate / Cable tensioner fishplate



Ref.: VZC-ECLIS6

U attachment bracket



Ref.: VZC-SUPU

Mirror-finish cover



Ref.: VZC-CPT3

2 magnetic sensors with connector boxes



Ref.: VZC-CMA

Hardware



M6 washers
Ref.: VZC-RM6



Bolt 6x8 mm
Ref.: VZC-VIS608



Bolt 6x12 mm
Ref.: VZC-VIS612



Bolt 6x25 mm
Ref.: VZC-VIS625



M6 nut
Ref.: VZC-ECRM6



Tensioner attachments



Heat-shrink tubing
Ref.: VZC-GAIN



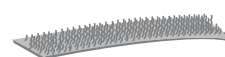
Protective cable duct
Ref.: VZC-PASS



Gland
Ref.: VZC-PE

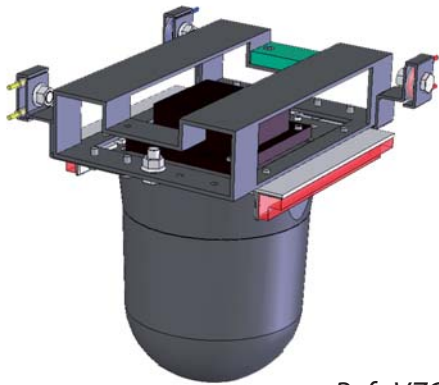


Female Velcro (loops)
for the cover
Ref.: VZC-BFF



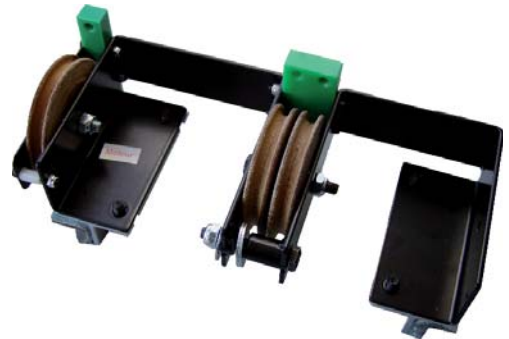
Male Velcro (hooks)
for the rail
Ref.: VZC-BFM

Camera truck



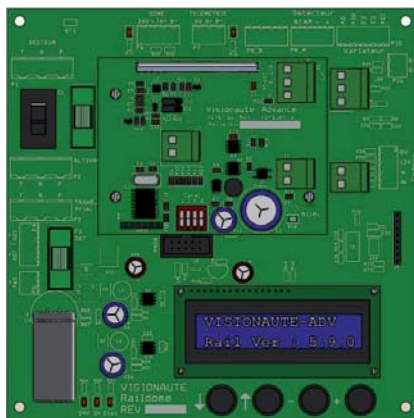
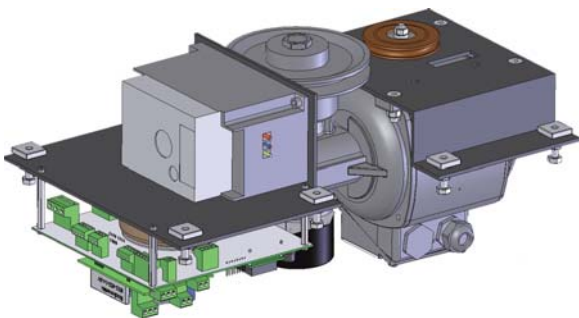
Ref.: VZC-CHA6

Motor base with 3 pulleys



Ref.: VZC-NAVM

Motor station with circuit board



Ref.: VZC-GAREM

Tensioner base with 4 pulleys



Ref.: VZC-NAVT

Tensioner station



Ref.: VZC-GARET

INSTALLATION OVERVIEW

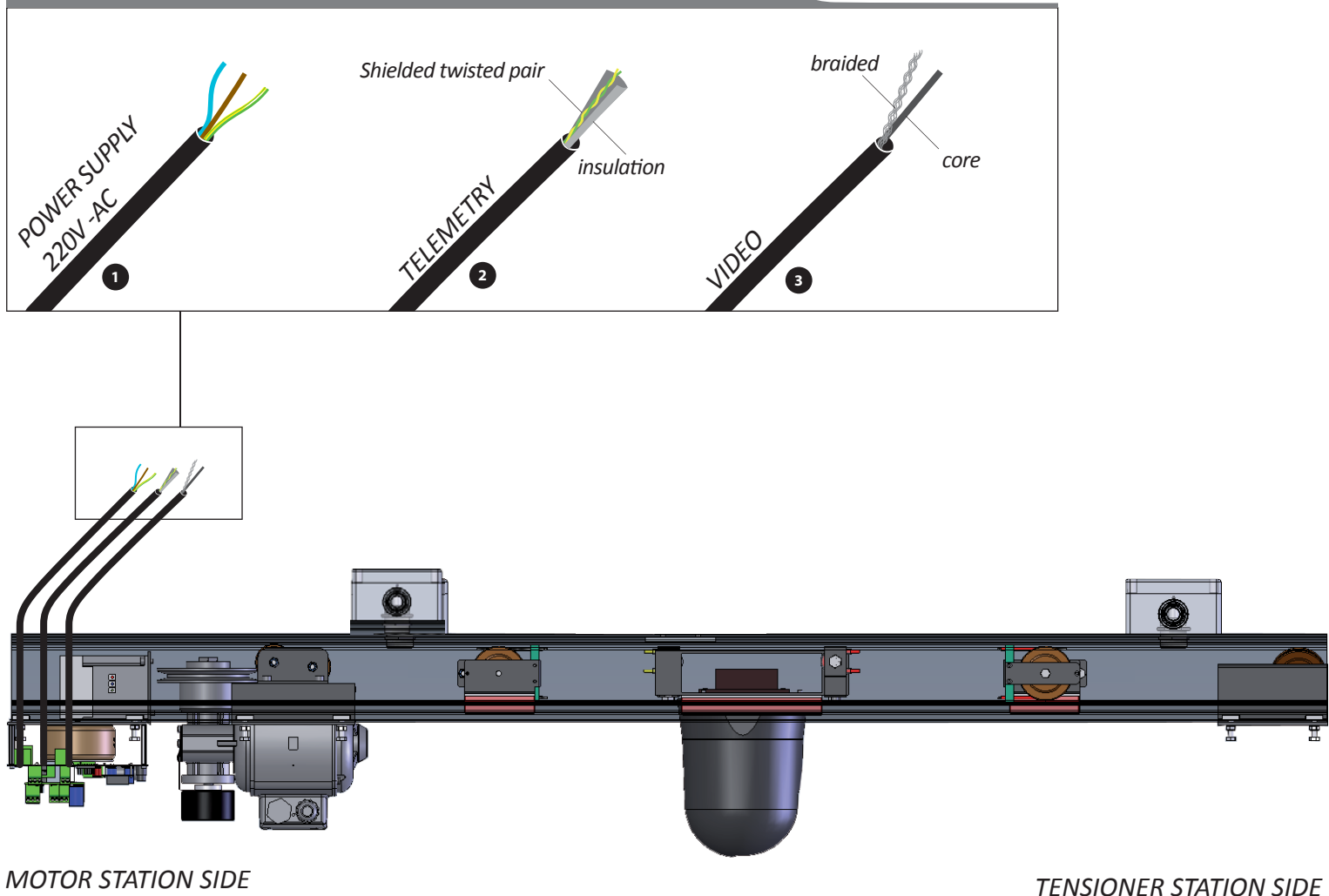
The Raildome is connected with:

- 1 A 220V 2 amp power supply,
- 2 An RS485 telemetry line with a twisted pair and a earthed shield
- 3 A coaxial video line.

IMPORTANT: Comply with RS485 standard cabling: 1 shielded pair + earthed drain wire

If the electrical supply is intermittent or backed up by a generator, it is recommended that the Raildome be connected via a 1000VA inverter.

Connection to the outside environment



LIST OF TOOLS REQUIRED FOR INSTALLATION:

- Drill bits: 2.5, 3, 6 millimetres
- Metal hole saws: 20 mm
30 mm
- Spanners and sockets:
 - 2x10 spanners (for the threaded rods)
 - 2x13 spanners (for the threaded rods)
 - 2x5.5 spanners (for the M3 bolts on the shuttles)
- Allen keys: 2.5, 3, 4, 5
- Screwdrivers: 2, 3, 5
- File for deburring
- Calculator,
- Soldering iron,
- Heavy gloves,
- Torch,
- Measuring tape,
- Multimeter,
- 2 metre aluminium straight-edge (important for aligning the rail),
- Vice grips,
- Slip joint pliers,
- 2 reversible clamps,
- Lighter,
- Gas torch.

SUPPLIES:

- Sandpaper (for deburring)
- Electrical insulating tape.
- Colring type 2.5 mm plastic wire ties,
- 8 mm threaded rod or steel cable with the Gripple system (for suspending the rail)
- Slings

Recommended equipment



Ref.: VZ-TEST-CCTV

. CCTV Multifunction tester

- 3.5" colour screen
- Resolution 960x240
- Test pattern generator
- 20 protocol PTZ controller
- Power adapter (5V 2A)
- LAN cable tester
- Lithium polymer battery (4H autonomy)
- BNC Cable
- Security cable
- RS485 data cable
- Transport cover

Installation steps:

Phase 1 - Preparation on the ground

- 1 - Lay out all of the rail sections on the ground. _____ p.8
- 2 - Position the two "cable tensioner fishplates" which are used to attach the cables. _____ p.9
- 3 - Drill the two clearance holes for the cables. _____ p.10
- 4 - Install the glands. _____ p.11
- 5 - Drill the rail for the coaxial clips. _____ p.12
- 6 - Drill the holes for the magnetic sensors. _____ p.13
- 7 - Clean the rail, vacuum up all swarf. _____ p.13
- 8 - Stick the male Velcro to the rail. _____ p.14
- 9 - Stick the female Velcro to the mirror-finish sheets. _____ p.15
- 10 - Position the junction fishplates and the U attachment brackets in the rail section channels. _____ p.16-17

Phase 2 - Mounting the rail

- 1 - Attach the rail sections to the ceiling, one at a time, using the U attachment brackets and the junction fishplates. _____ p.19
- 2 - Place the Raildome components into the rail. _____ p.20-21

Phase 3 - Installing the traction cables

- 1 - Install cable C1. _____ p.23-25
- 2 - Install cable C2. _____ p.26-28
- 3 - Install cable C3. _____ p.29-33
- 4 - Adjust the cable tension. _____ p.34-39
- 5 - Install and connect the magnetic sensors. _____ p.40-41
- 6 - Power up the Raildome. _____ p.42
- 7 - Perform the first powered test without the coaxial cable. _____ p.43

Phase 4 - Installing the coaxial cables

- 1 - Install the coaxial cables K1 and K2 (telemetry/power supply). _____ p.45-50
- 2 - Install the coaxial cable K3 (Video). _____ p.51-53
- 3 - Connect the Raildome to the security PC. _____ p.54

Phase 5 - Settings

- 1 - Check the variable speed drive parameters. _____ p.56
- 2 - Motor wiring. _____ p.56
- 3 - Setting the circuit board parameters. _____ p.57-59
- 4 - Put into service. _____ p.60
- 5 - Install the mirror-finish cover and the rail end-caps. _____ p.61

Remote control option _____ p.62-63

Glossary _____ p.64

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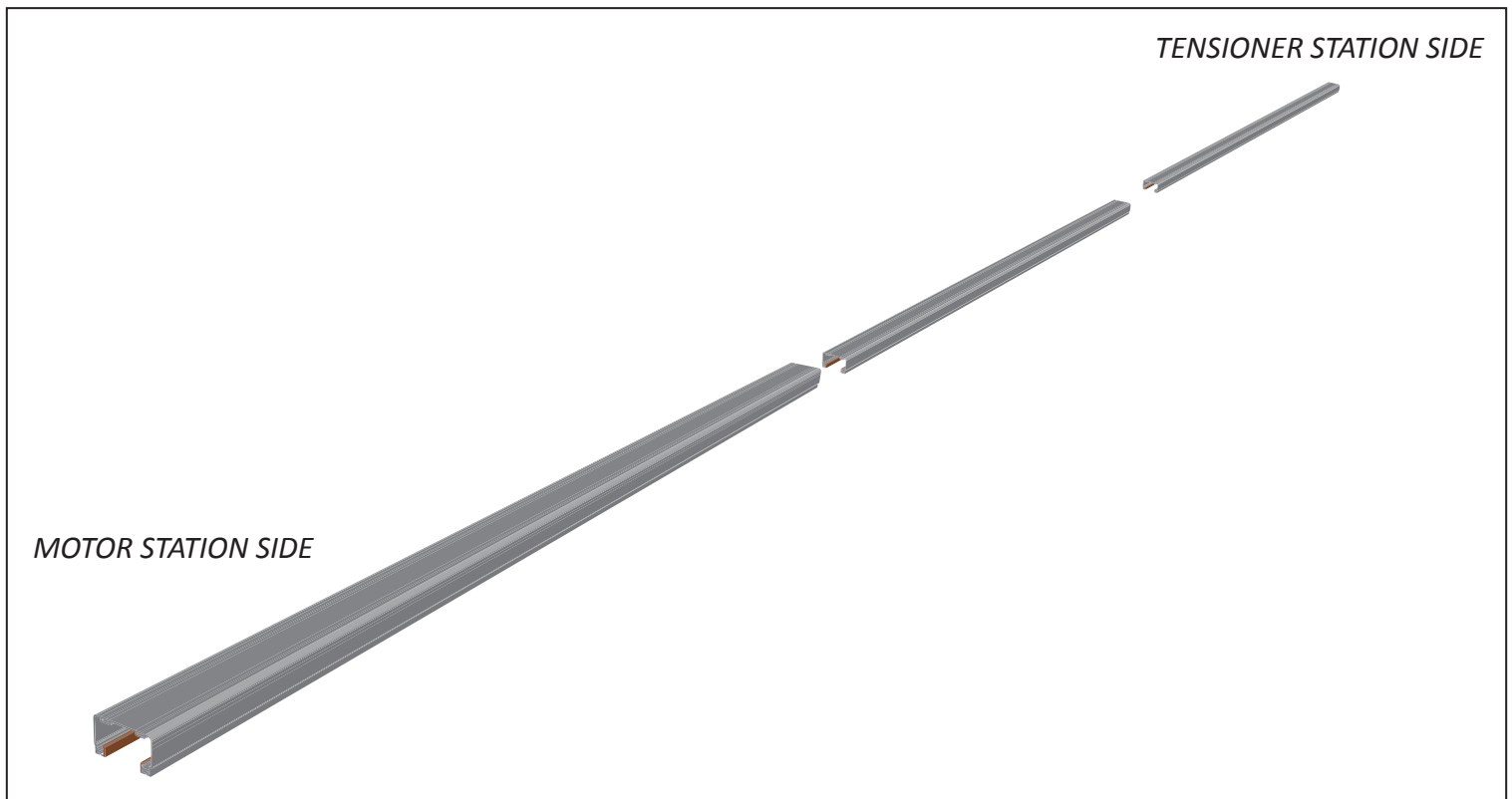
PHASE 1 - PREPARATION ON THE GROUND

To start the installation, lay out all of the rail sections on the ground.

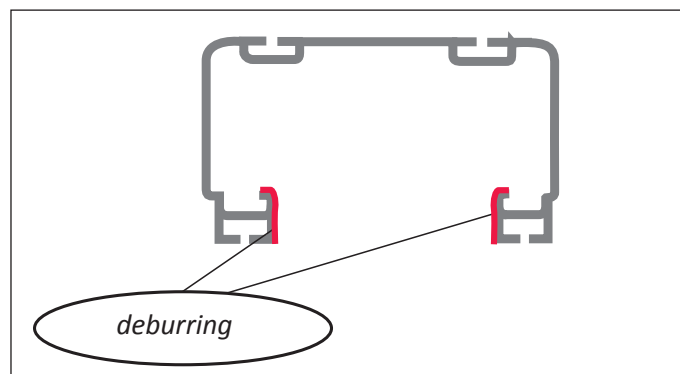
For reference during the installation, we label the two Raildome ends: “motor station side” and “tensioner station side”.

The motor station is the end of the Raildome which will be connected to the power supply.

The diagrams in the installation notice are laid out as follows: “motor station side” on the left and “tensioner station station side” on the right.



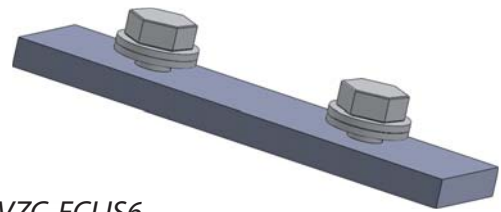
Ensure that the truck slides properly in the rail.
If necessary, very lightly sand the area shown below.



Of the group of fishplates supplied, two are used to attach the cables. We call these the “cable tensioner fishplates”.

Position the two “cable tensioner fishplates” in the grooves on the top of the rail as shown in the diagrams below. Provisionally tighten the fishplates using the 6x12 hex-head bolts supplied.

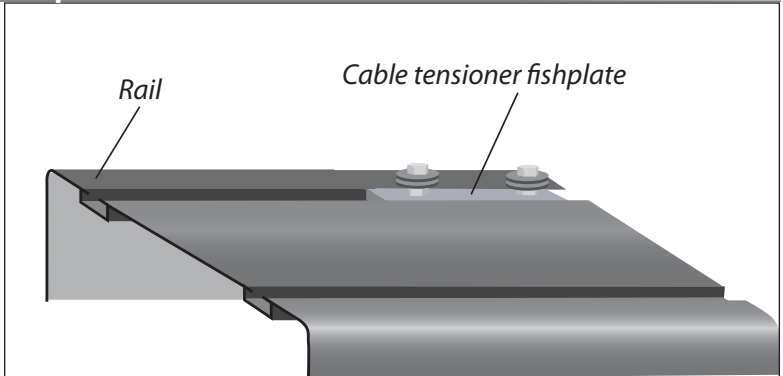
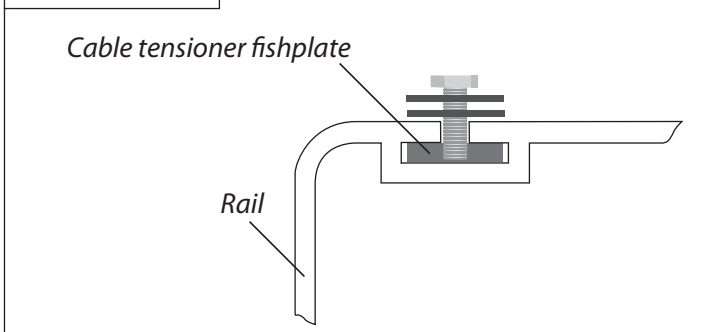
Cable tensioner fishplate with hardware



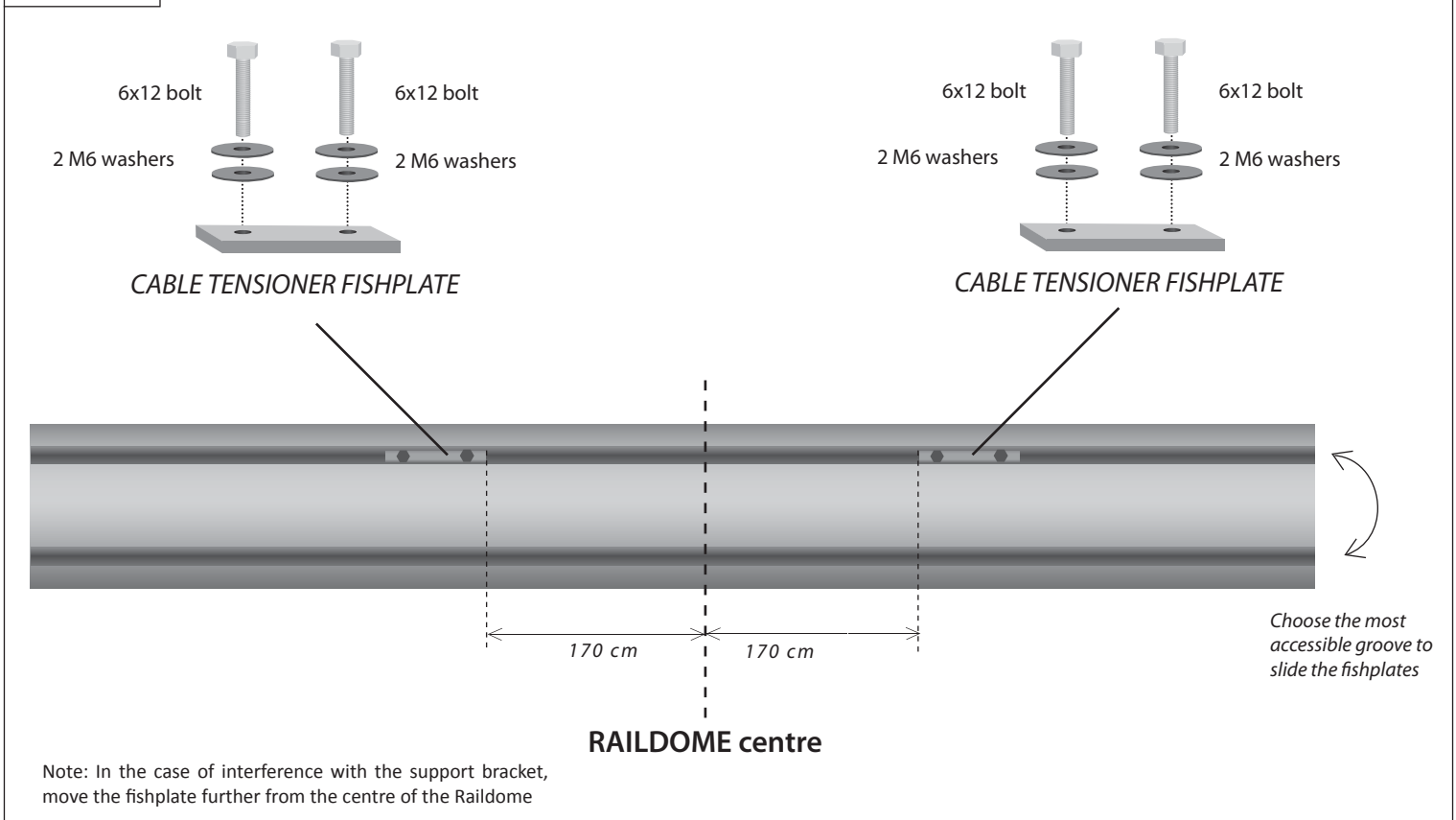
Ref.: VZC-ECLIS6

Assembly and location of the cable tensioning fishplates

Cross-section



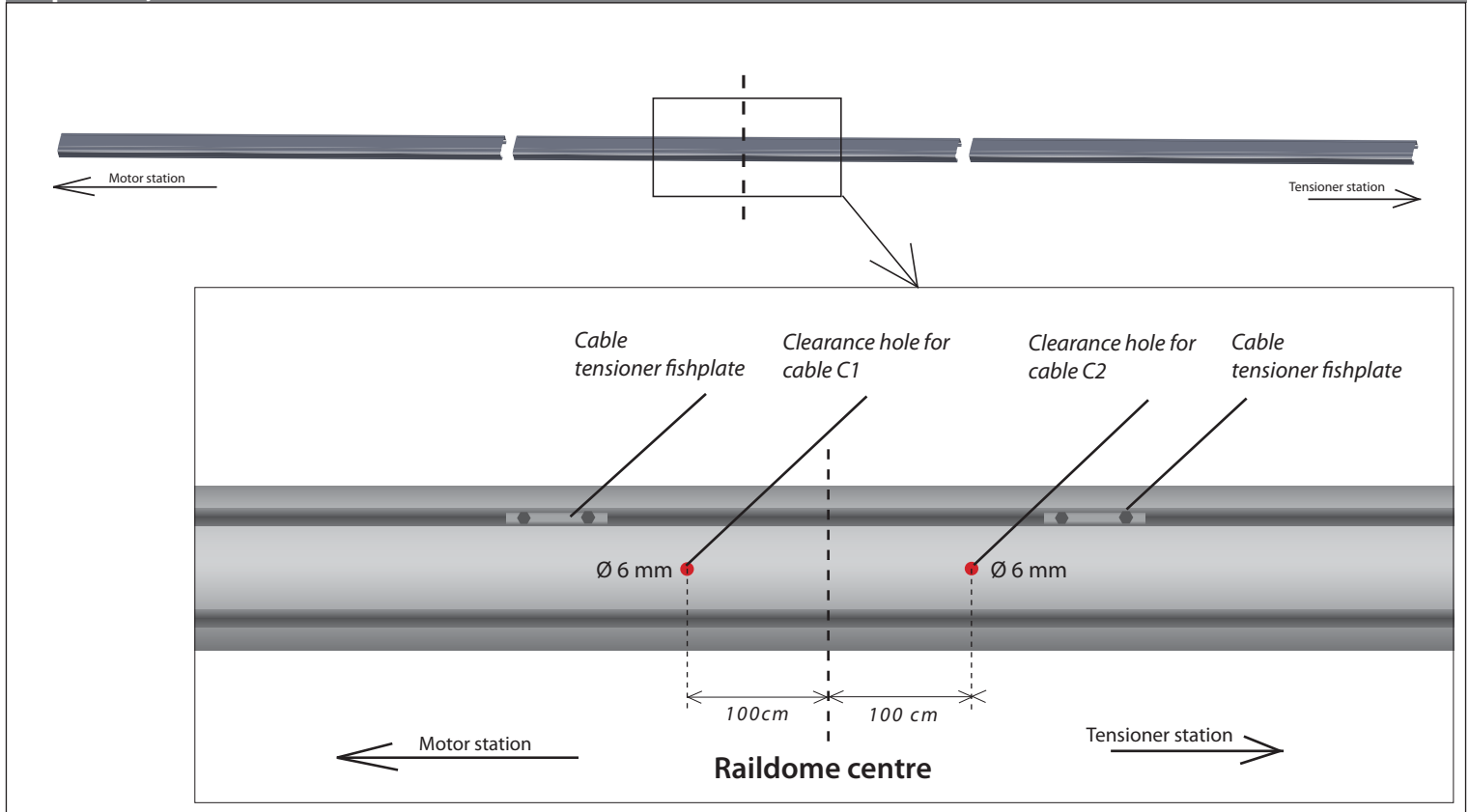
Top view



The installation consists of 3 cables which we will call C1, C2 and C3 respectively.

Cables C1 and C2 have attachment points on the outside top of the rail. Therefore, you have to drill two cable clearance holes one metre from the centre of the Raildome. Hole diameters: 6 mm minimum (see diagram).

Top view, location of clearance holes for cables C1 and C2

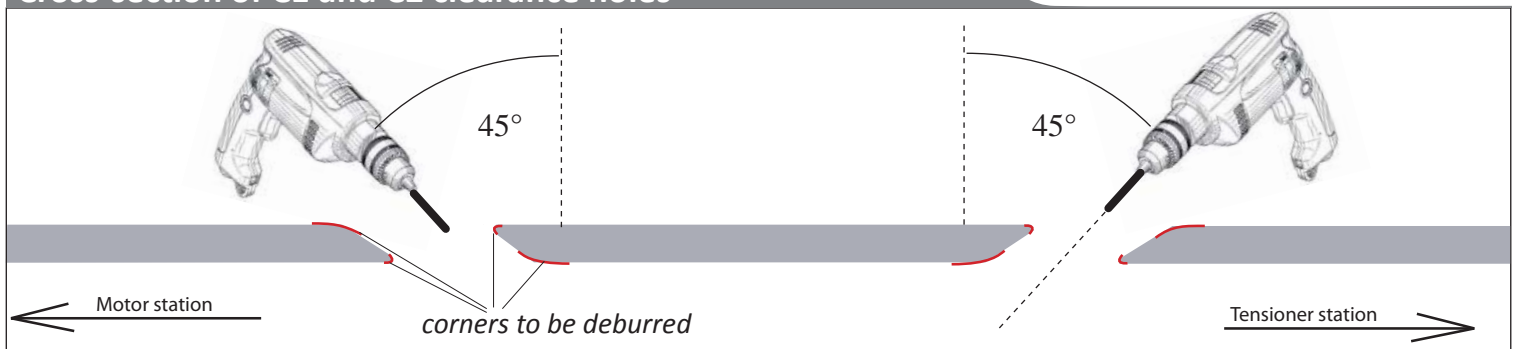


IMPORTANT:

It is recommended that the holes be drilled at an angle (the angle will be opposite for the two cables). (See cross-section below)

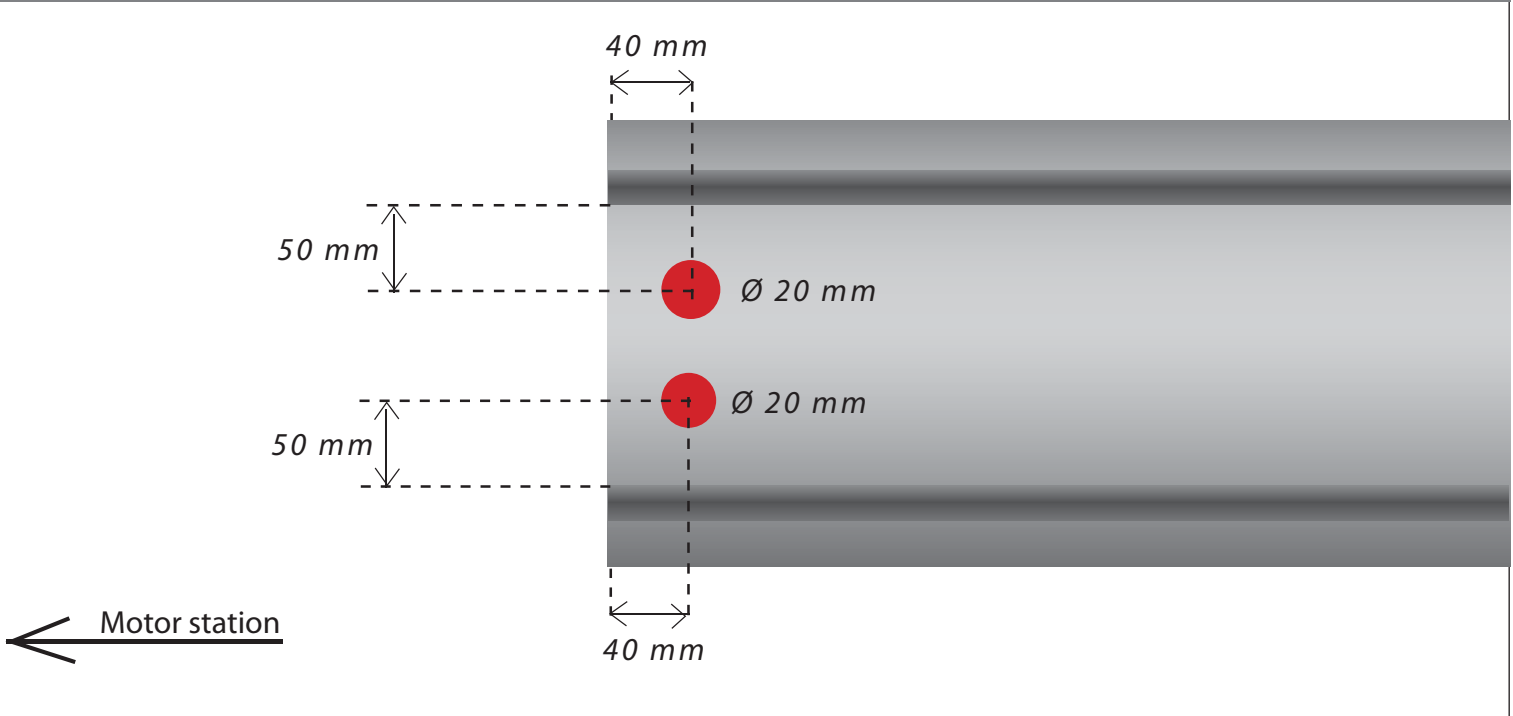
The clearance holes must not have sharp corners that can damage the cable. It is very important to file and deburr the corners (in red on the cross-section below) so that the surface is smooth to prevent any binding on the cable.

Cross-section of C1 and C2 clearance holes



The use of glands for electrical cable crossings requires you to drill two holes 20 to 40 millimetres from the end of the rail on the motor station side.

Top view



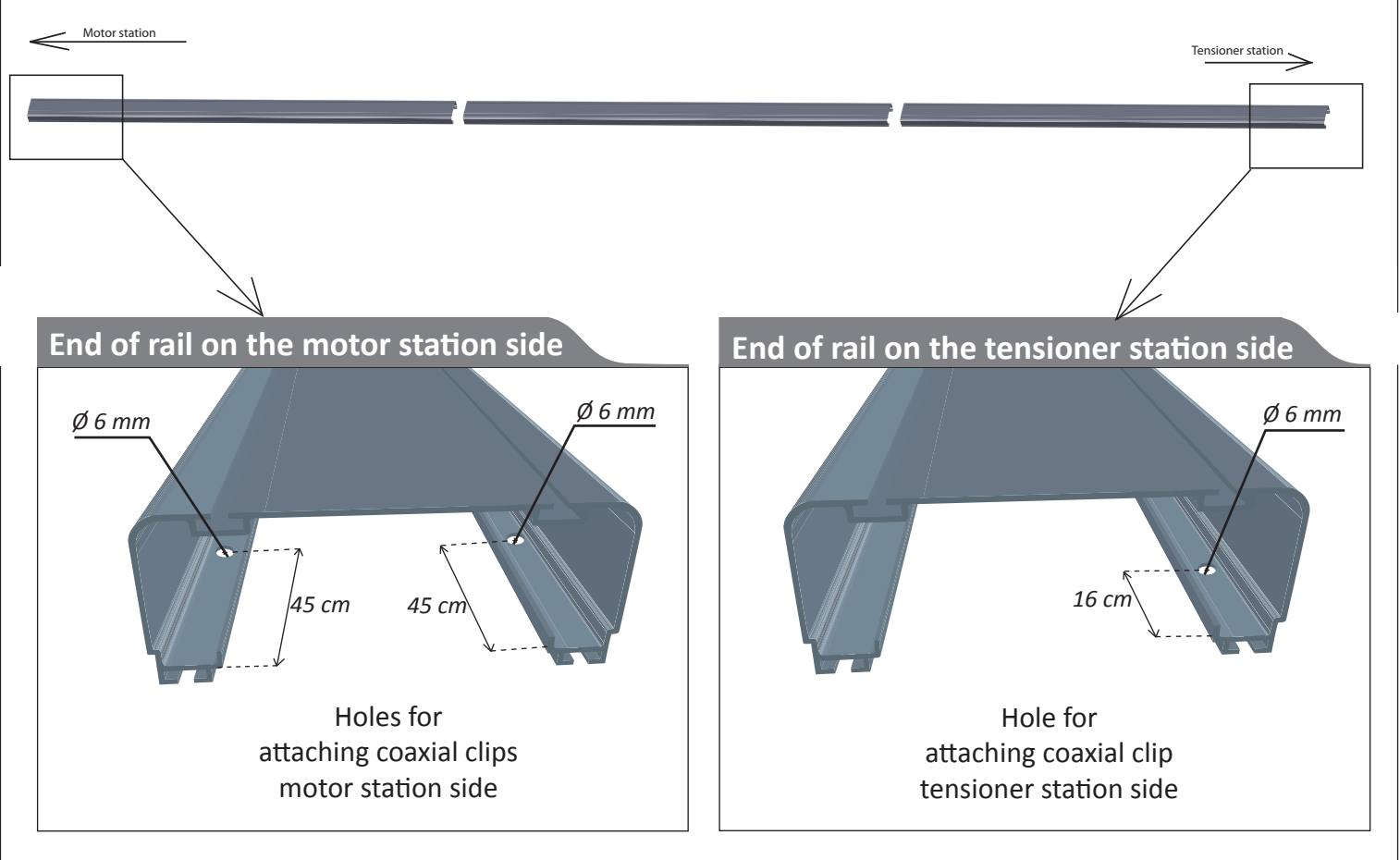
End of rail on the motor station side

*glands
(supplied)*



Three coaxial cables will be installed at height in the rail during the following steps. These cables will be attached to the rail using “coaxial clips”. It is necessary to drill three 6 mm diameter holes in advance, as shown below:

Top view of inner rail channels

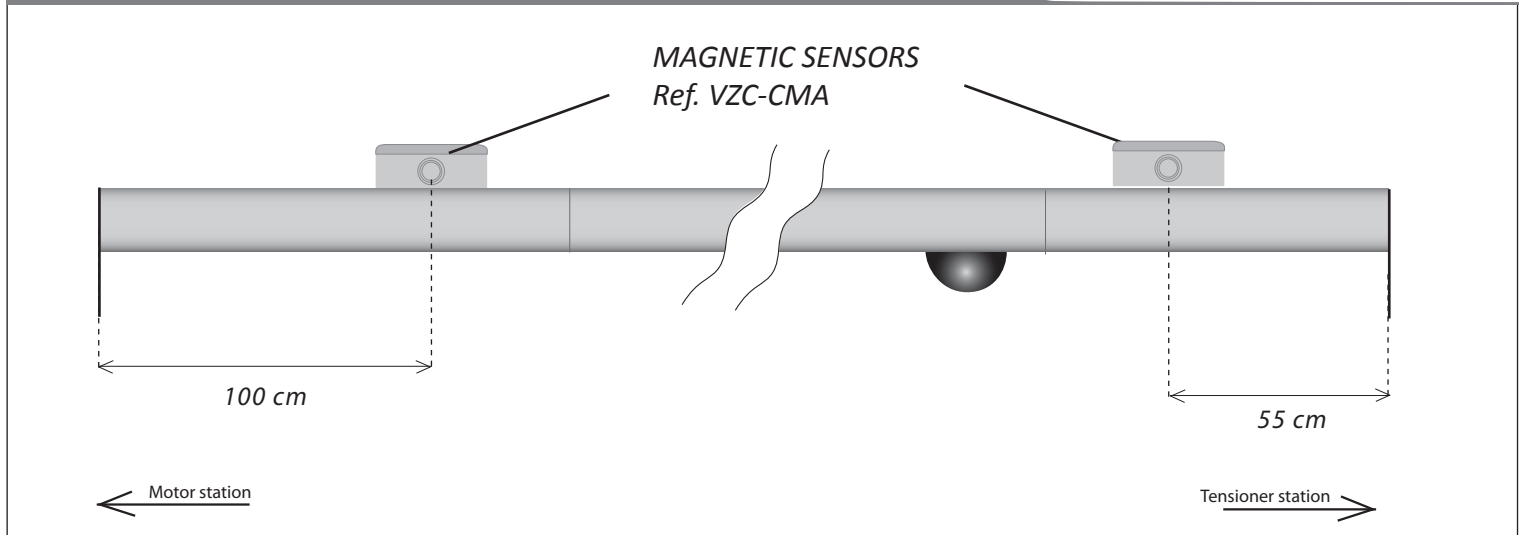


Important: Deburr the inside of the rail with sandpaper.

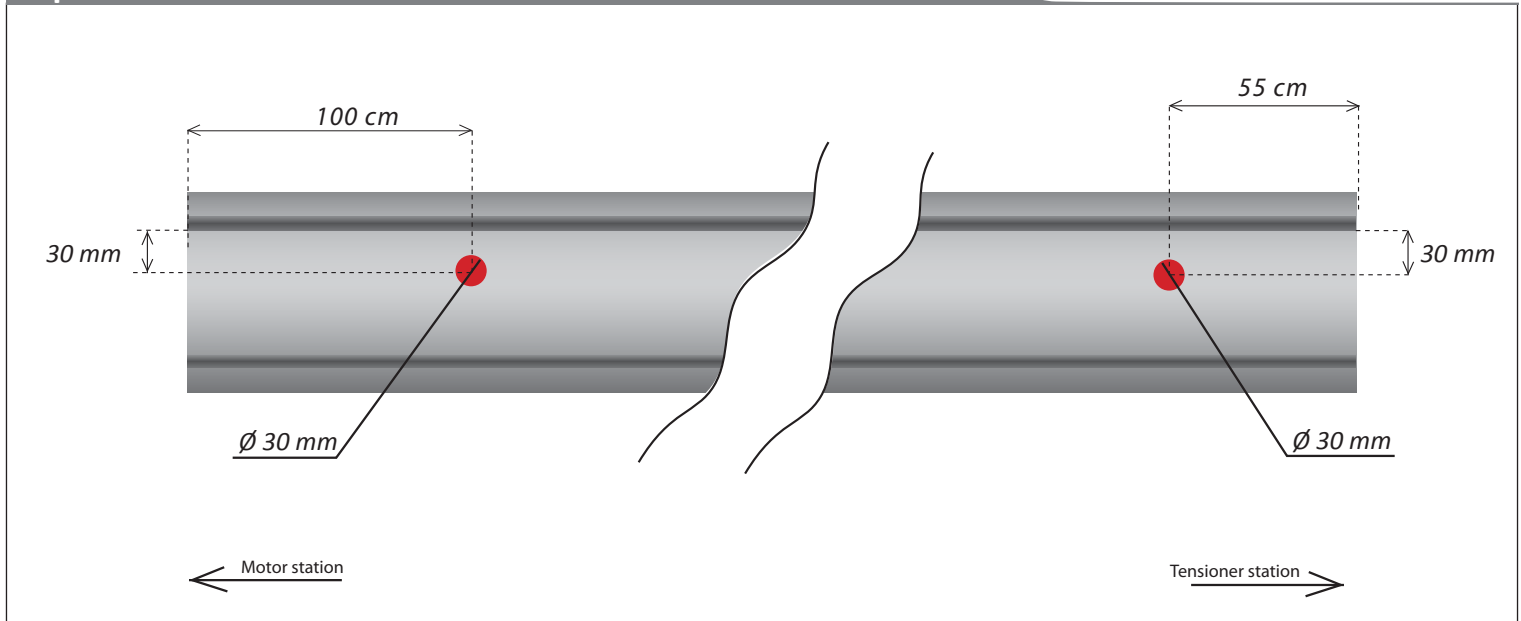
Drill the holes for the magnetic sensors which will be installed in a later step.

For optimum travel of the camera truck, the sensors must be located 100 cm from the motor station end and 55 cm from the tensioner station end:

Side view



Top view



7. CLEAN THE RAIL

Important: clean the rail to remove any drilling swarf.

A two-way mirror effect panel is installed along the rail to hide the optical system. This is called the “mirror-finish cover”. It is attached using Velcro strips positioned on the edges of the rail sections.

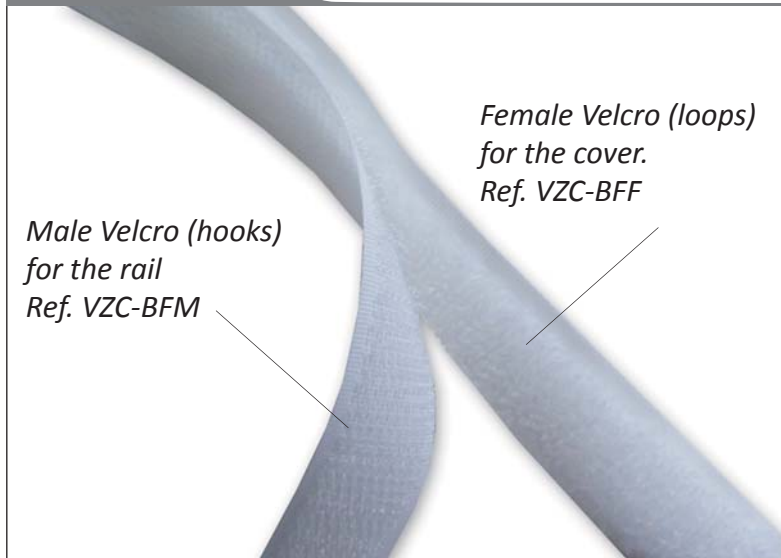
Thoroughly degrease the rail surface where the Velcro strips will be attached.

Apply the male part (hooks - Ref. VZC-BFM) on the rail edges at the location provided without stretching the Velcro:

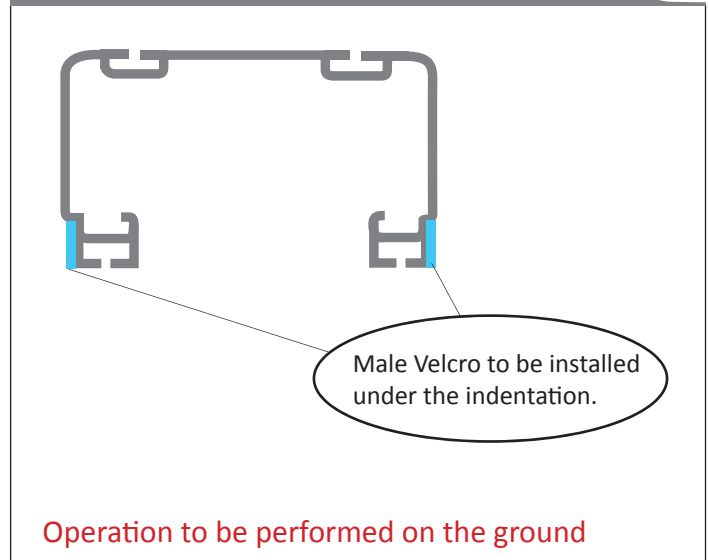
Mirror-finish cover



The Velcro



Position of the Velcro on the rail



ATTENTION: Do not inverse the male and female Velcro. The double-sided glue is specific to each material. The loop side is to be located on the cover and the hook side is to be located on the rail.

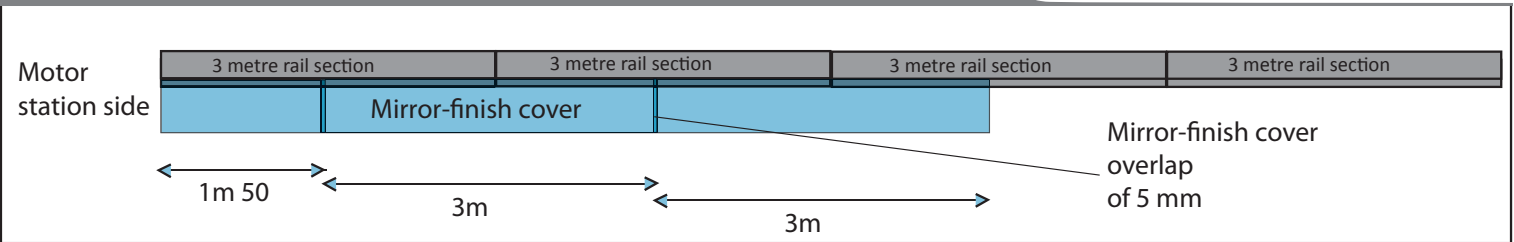
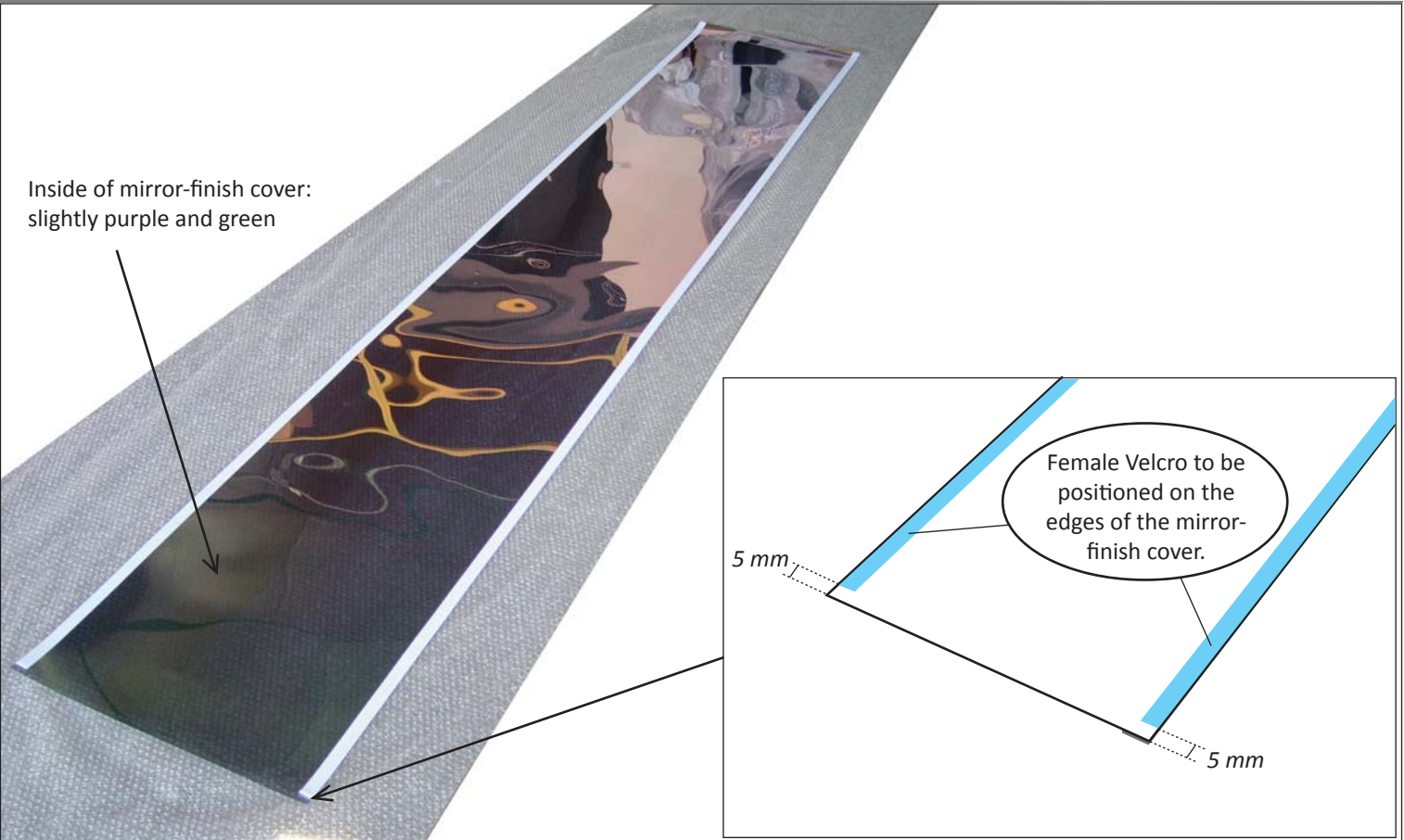
TO BE DONE AT THE END OF THE INSTALLATION

Lay out the mirror-finish cover sheets on a clean surface to avoid scratching them.

Stick the female Velcro strips (loops - Ref. VZC-BFF) to each edge of the panel on the inside of the non-reflective side (slight purple/green appearance).

The panels are delivered in sections of approximately 3.03 metres long. A slight overlap of about 5 mm will allow a perfect connection without harming the inside visibility. (installation diagram below)

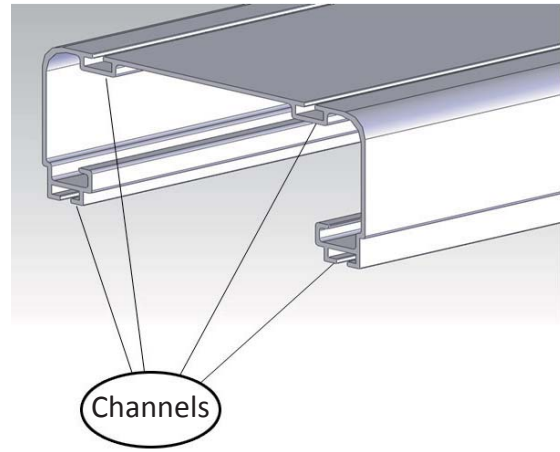
Note: for easier access, use a 1.5 metre section under the motor station! (cut a piece in half).

Cover side view**Location of female Velcro on the cover**

ATTENTION: Do not inverse the male and female Velcro. The double-sided glue is specific to each material. The loop side is to be located on the cover and the hook side is to be located on the rail.

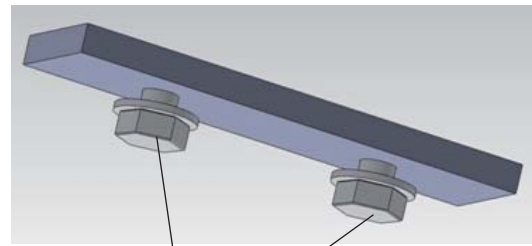
4 channels are used to assemble the rail sections using 2 types of element: the junction fishplates and the U mounting brackets.

Each rail section must be joined using 4 fishplates and one U attachment bracket.



THE JUNCTION FISHPLATES (Ref. VZC-ECLIS6)

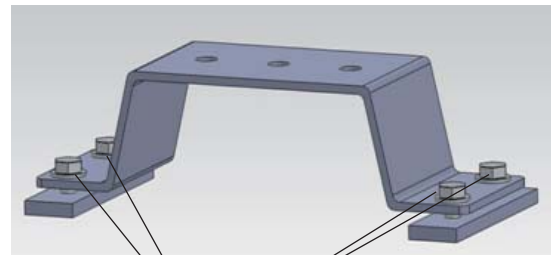
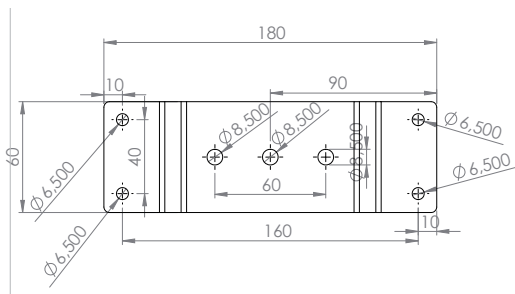
Install this group at each junction inside the channels.



6x8 Hex-head bolts (Ref. VZC-VIS608)
+ M6 washers (Ref. VZC-RM6)

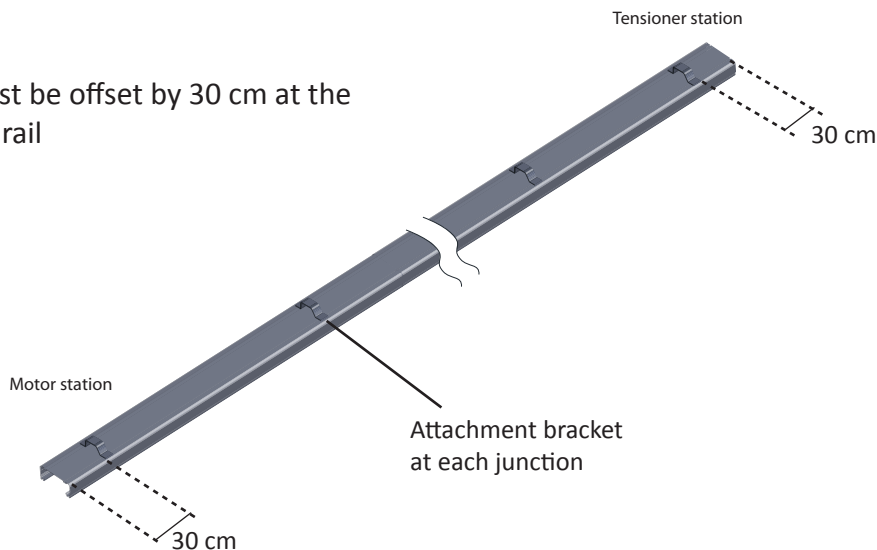
THE MOUNTING BRACKETS: U BRACKETS (Ref. VZC-SUPU)

Assemble this group every 3 metres at each rail section junction.



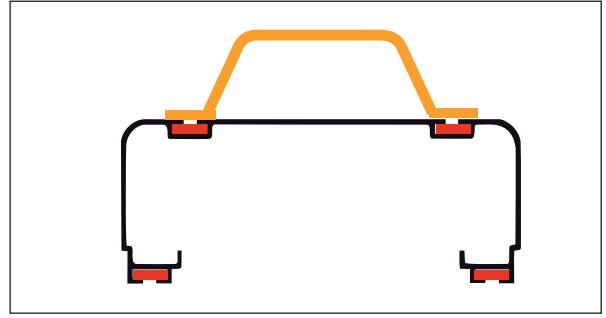
6x12 Hex-head bolts (Ref. VZC-VIS612)+
M6 washers (Ref. VZC-RM6)

The rail brackets must be offset by 30 cm at the start and end of the rail



For the standard attachment version, we supply:

- a **U bracket** for attachment and **two fishplates** (for the 2 upper channels) for each junction.
- **two fishplates** (for the 2 upper channels) for each junction with the corresponding hardware.



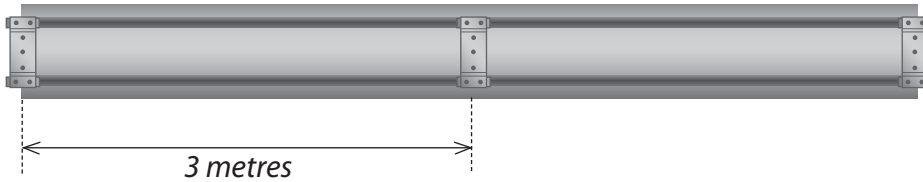
In the case where the attachments do not correspond with these junctions, move the U brackets and fishplates in the upper part.

In this case, order extra U brackets and/or fishplates. See the example below.

Examples:

Top view of rail: standard case.

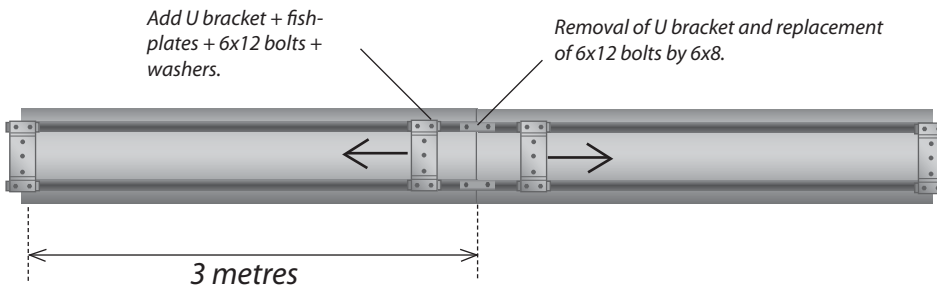
e.g.: 12 fishplates (above and inside the rail), 3 U brackets.



Top view of rail: locating the attachment brackets at the junction impossible

---> **Add a U bracket and 2 fishplates**

e.g.: 16 fishplates (above and inside the rail), 4 U brackets.



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PHASE 2 - MOUNTING THE RAIL

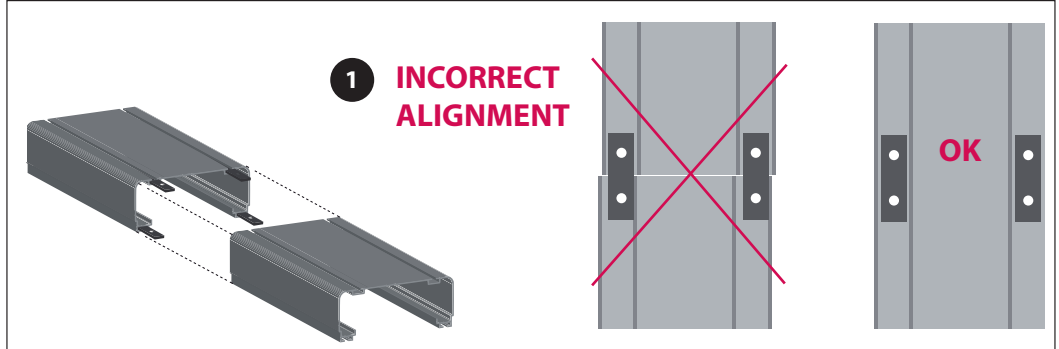
1. ATTACH THE RAIL SECTIONS TO THE CEILING USING THE U MOUNTING BRACKETS AND THE JUNCTION FISHPATES.

Mount the 3 m rail sections one by one and attach them to the ceiling.

Assemble the sections by tightening the junction fishplates.

When tightening the fishplates, ensure that the rail is perfectly aligned. 1

Alignment of rail sections



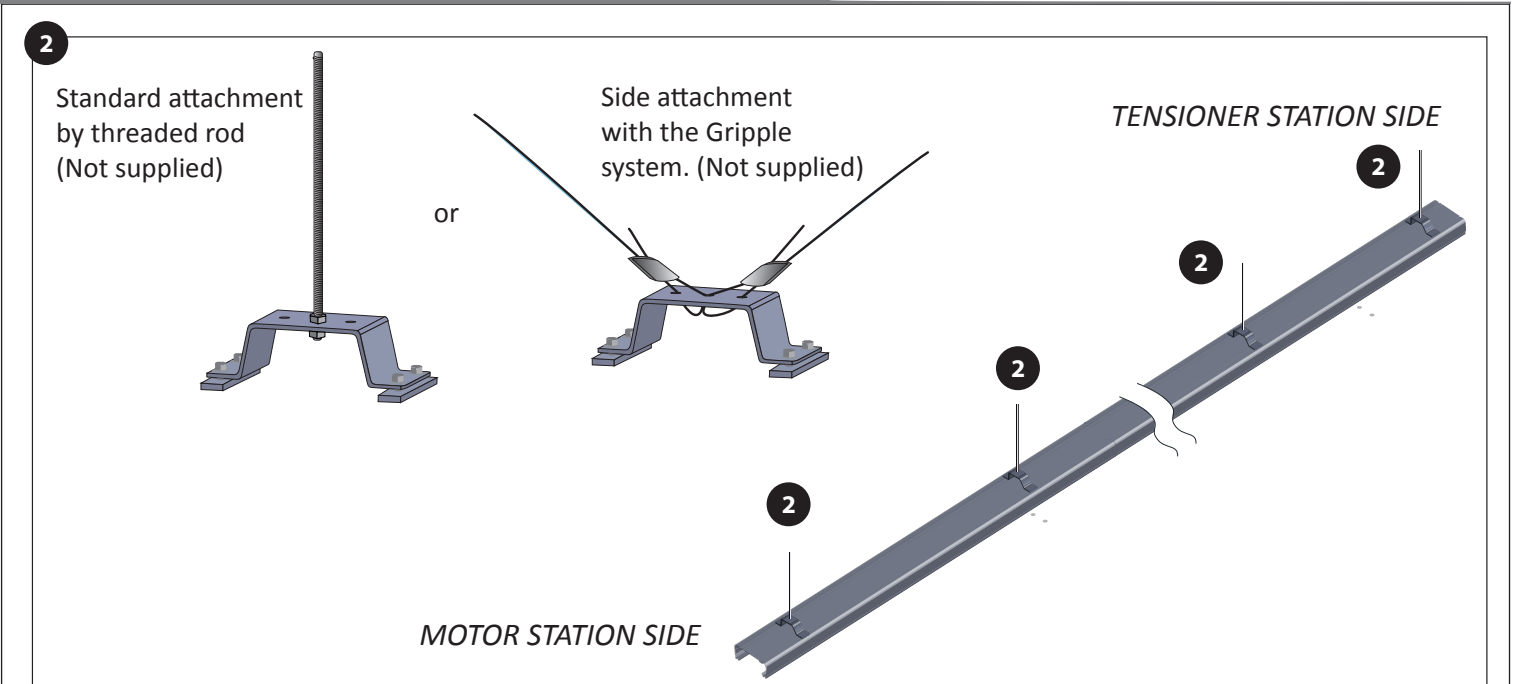
The U attachment brackets have 3 holes for 8 mm diameter threaded rods.

It is recommended to use the centre attachment.

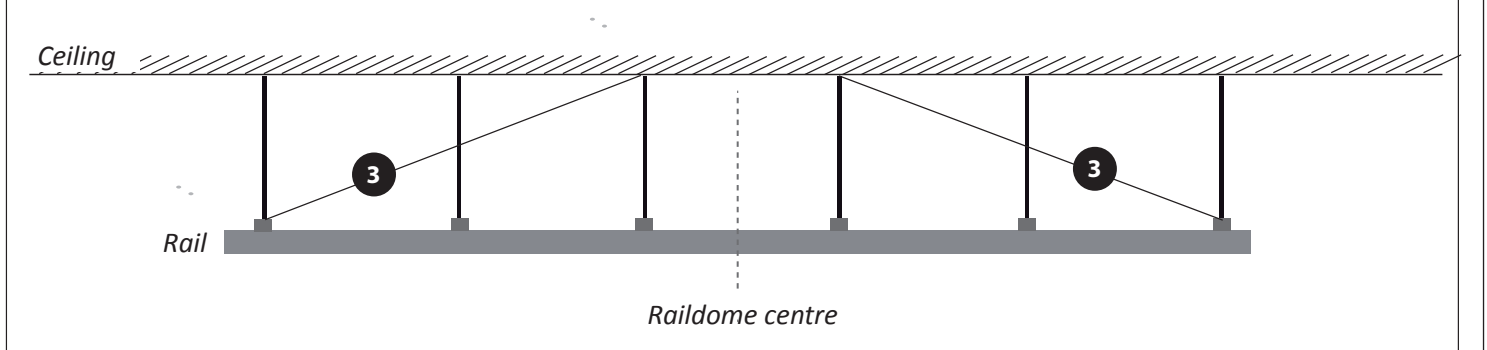
If there is no support for the rail alignment, use steel cable with a Gripple system. 2

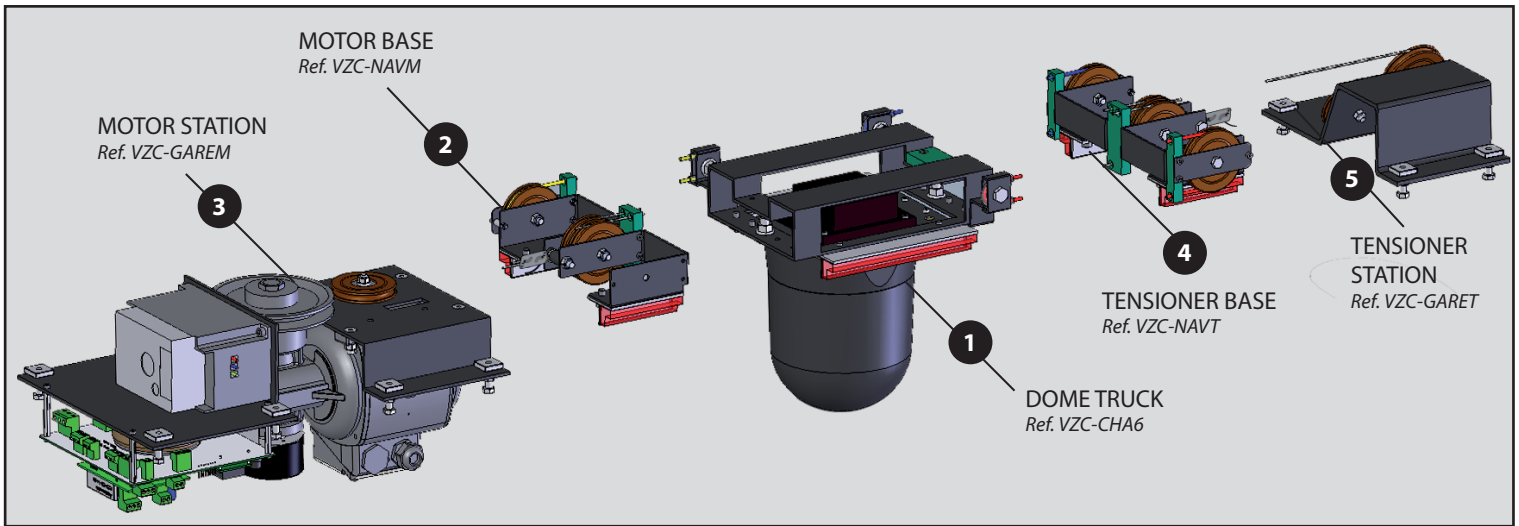
It is important to add, in addition to these attachments, some slings to avoid rocking effects, particularly in the longitudinal direction, due to movement of the truck and camera. 3

Attachment of the rail sections



3 Brace each end of the rail with slings to ensure rigidity and prevent sway:





Position the elements inside the rail in the following order:

MOTOR STATION SIDE:

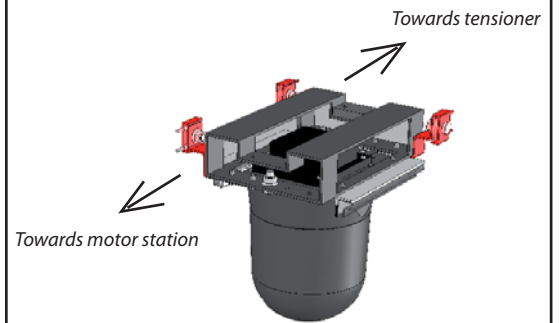
- 1 Camera truck (Attention to the orientation)
- 2 Motor base (base with 3 pulleys)
- 3 Motor station **to be positioned 3 mm from the edge to prevent blocking the holes for the coaxial clips**

TENSIONER STATION SIDE:

- 4 Tensioner base (base with 4 pulleys)
- 5 Tensioner station **to be positioned just touching the rail to prevent blocking the holes for the coaxial clips**

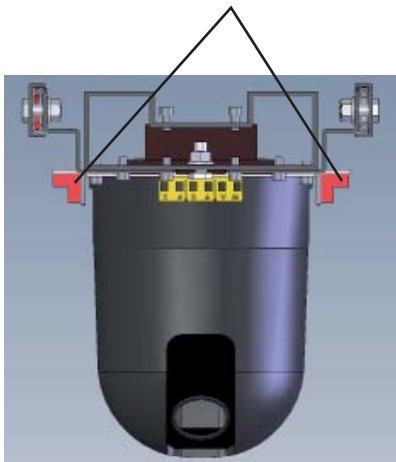
Camera truck orientation

- 1 The three coaxial clips on the camera truck show the camera truck orientation



truck coaxial clip

If necessary, adjust the sliders on the various elements to allow fluid motion all along the rail.



Slide - Bottom view

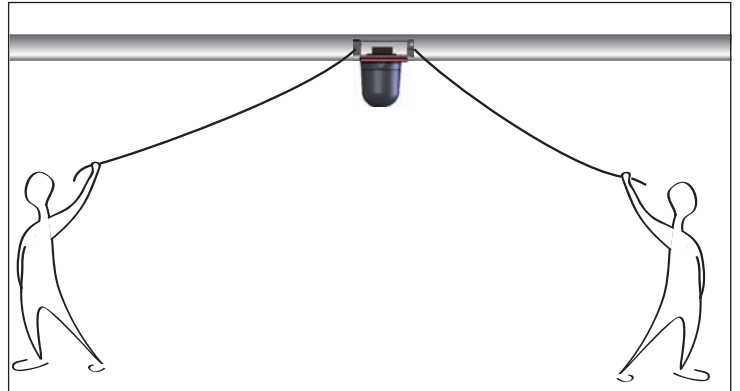
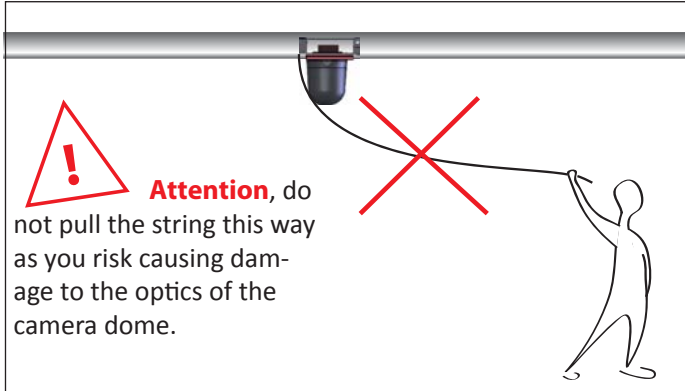


To adjust the spacing of the slides, use the screws located underneath.

Adjusting screw

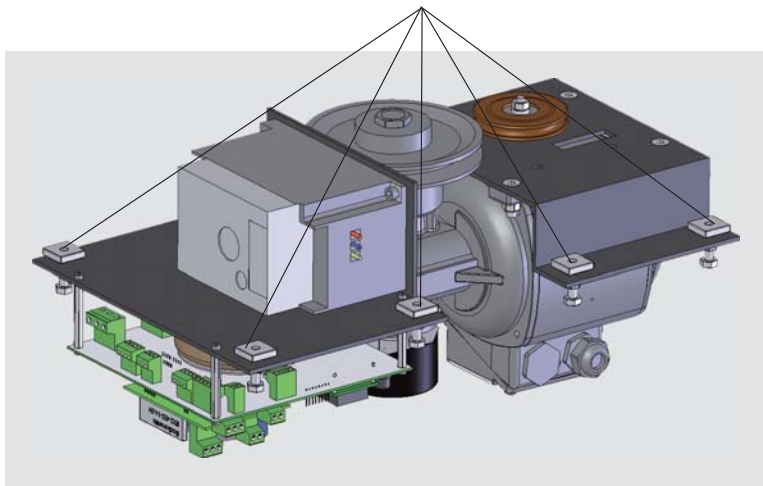
Dome truck

To facilitate manual movement of the camera truck during installation, it is recommended to attach a string to each side of the dome.

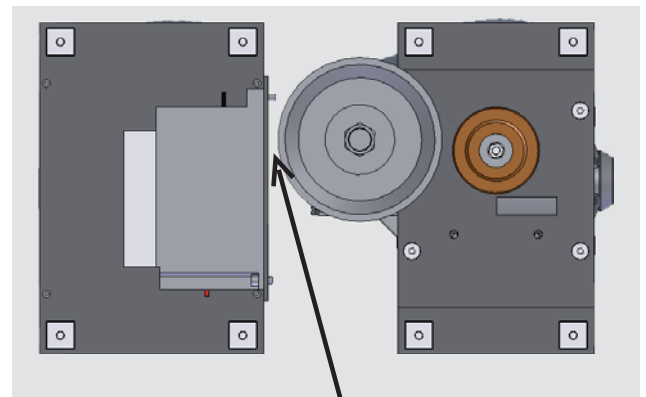


Motor station assembly

Attach the motor station using the M6 square nuts (Ref. VZC-ECRCM6)



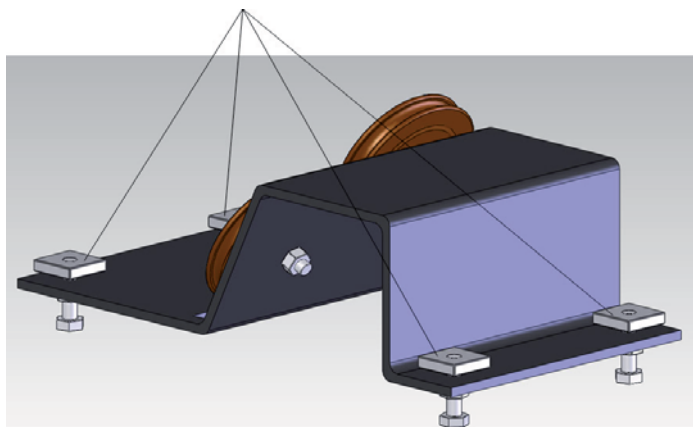
TOP VIEW



Leave a 1 cm gap between the motor pulley and the front of the circuit board.

Tensioner station assembly

Attach the tensioner station using the M6 square nuts (Ref. VZC-ECRCM6).



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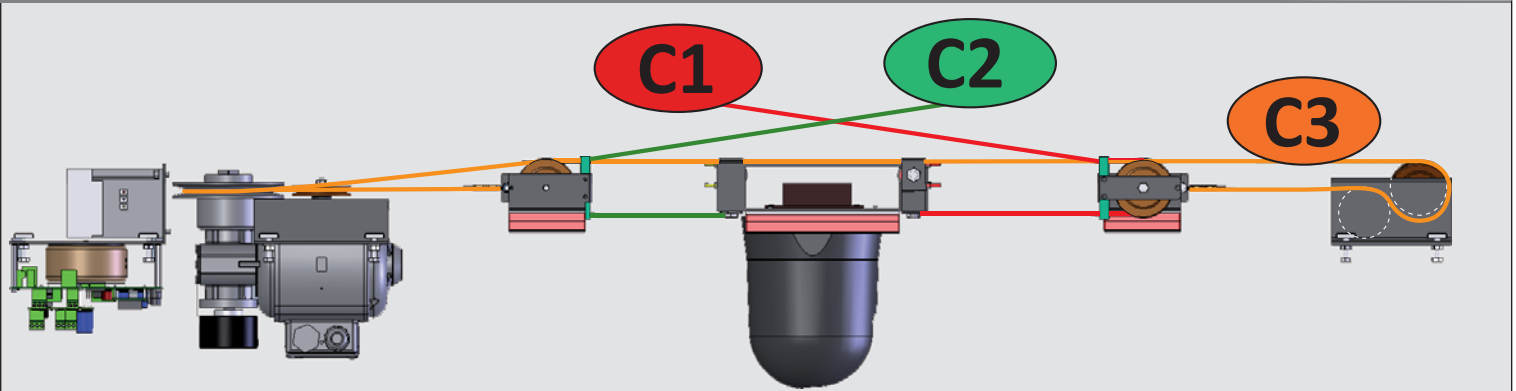
PHASE III - INSTALLING THE TRACTION CABLES

The traction system consists of 3 cables.
To simplify, we will name them **C1**, **C2**, **C3**.

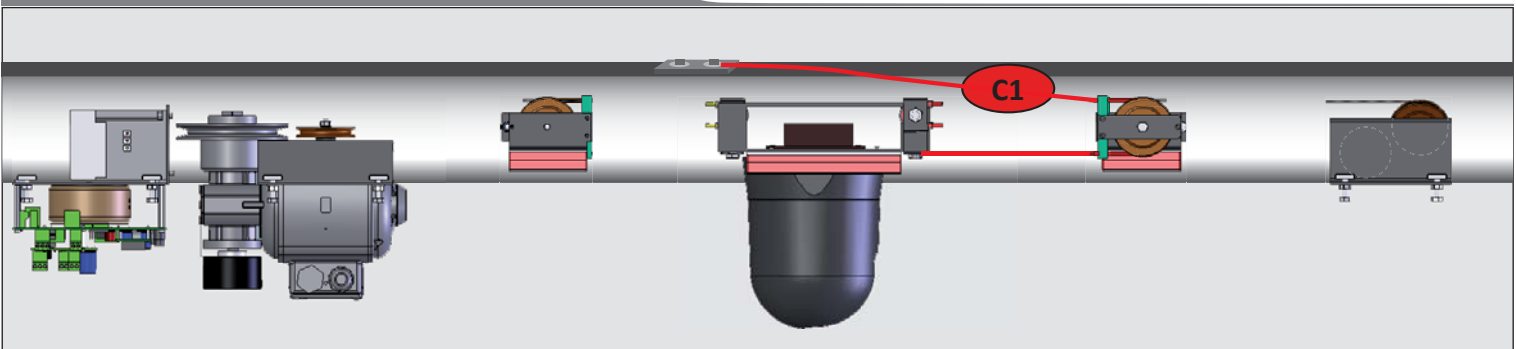
C1 and C2 are mounted symmetrically. They have an attachment point above the rail and one on the camera truck.

C3 is attached to the rear of each base.

ORDER OF ASSEMBLY of the traction cables: C1 then C2 and finally C3.

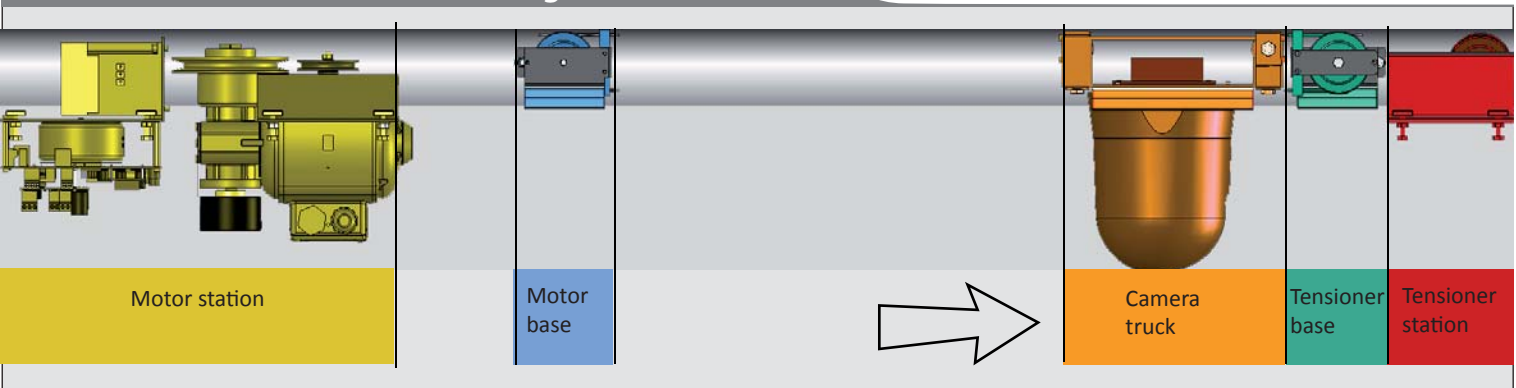


Route of traction cable C1



To install the traction cable C1, position the elements at the rail ends as shown below. When moving the camera truck, ensure that the movement in the rail is smooth.

Position the elements before installing C1



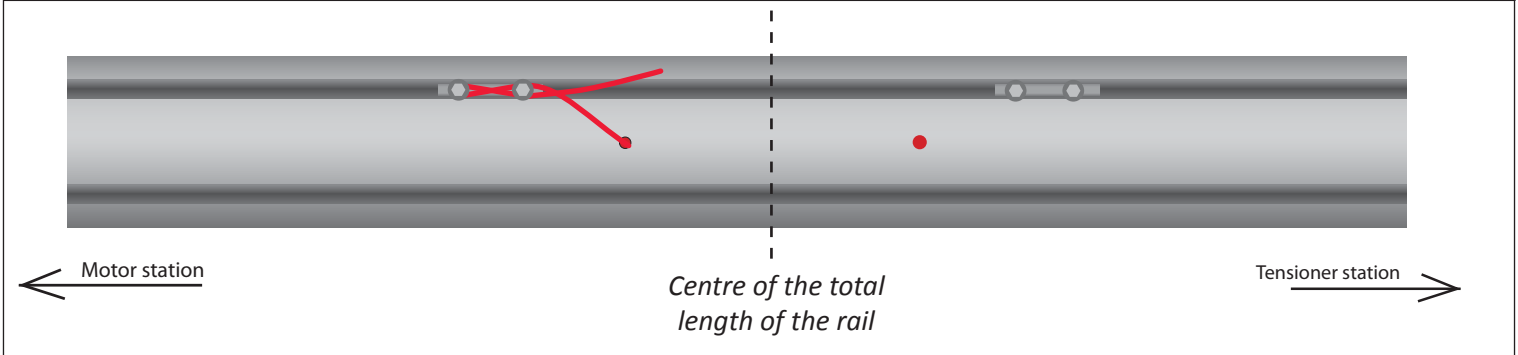
Unroll the cable C1 on the ground to facilitate assembly.

The cable C1 is attached above the rail using a "cable tensioning fishplate".

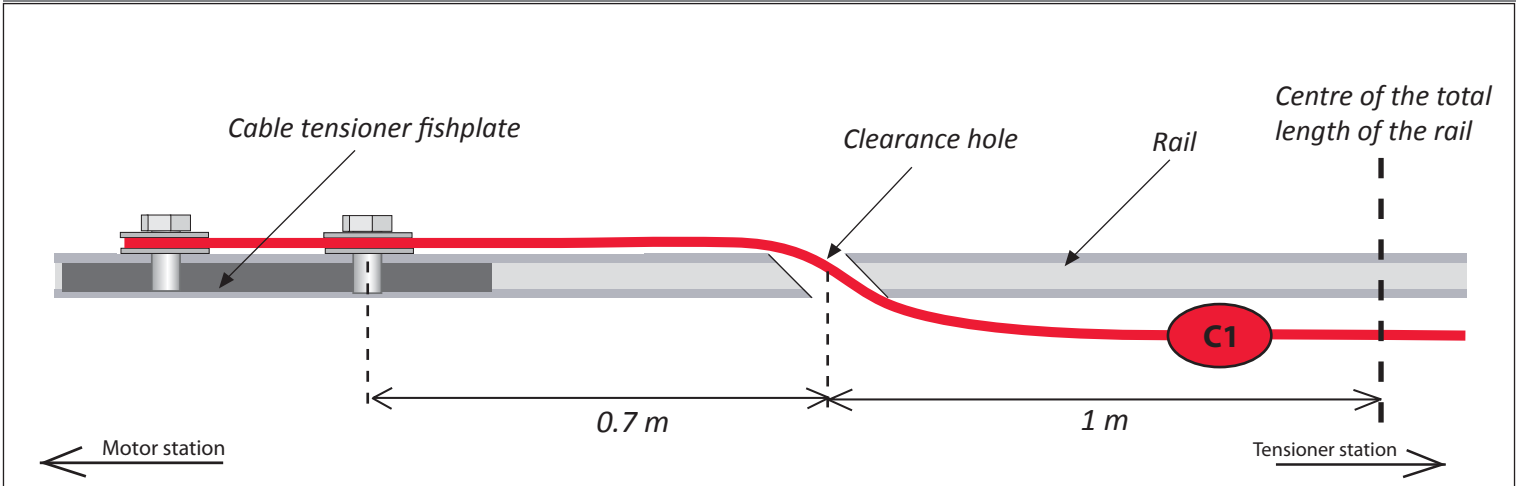
When attaching the cable, leave 1 metre of length to facilitate the tension adjustment later.

C1 then passes through the rail through the clearance hole.

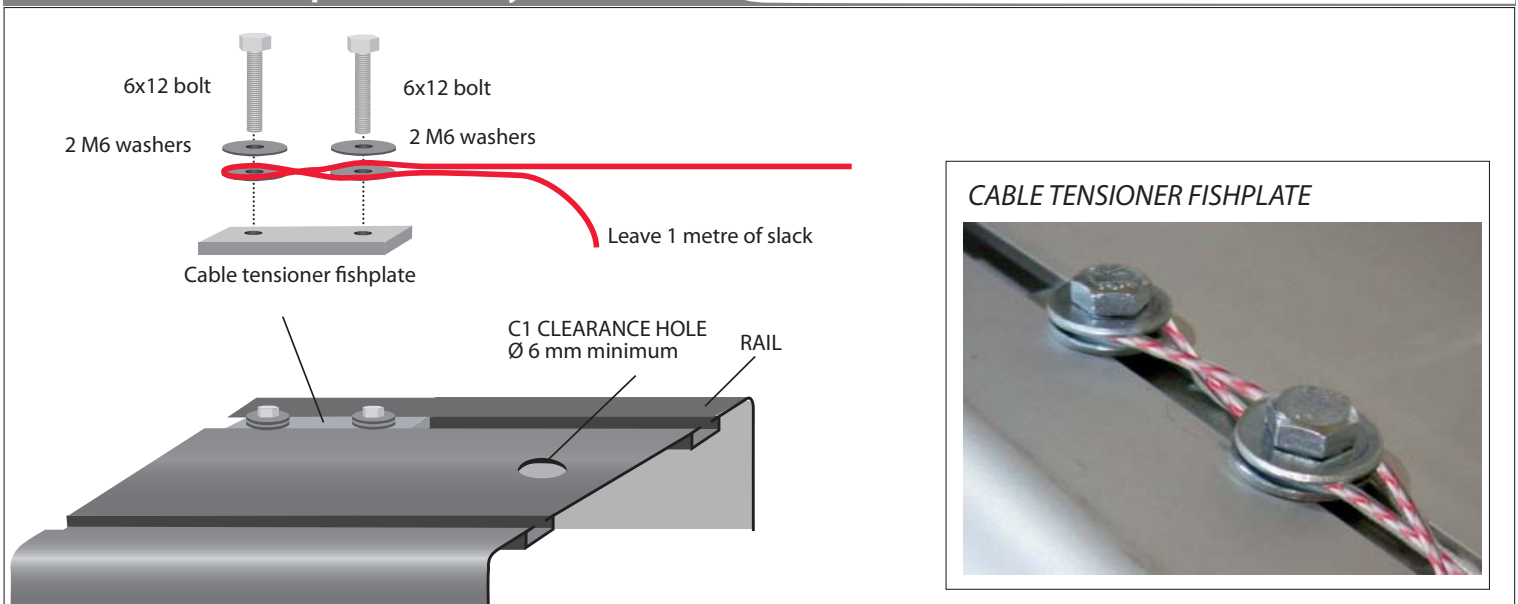
Passage of the traction cable C1 - top view



Start of cable C1, side view:



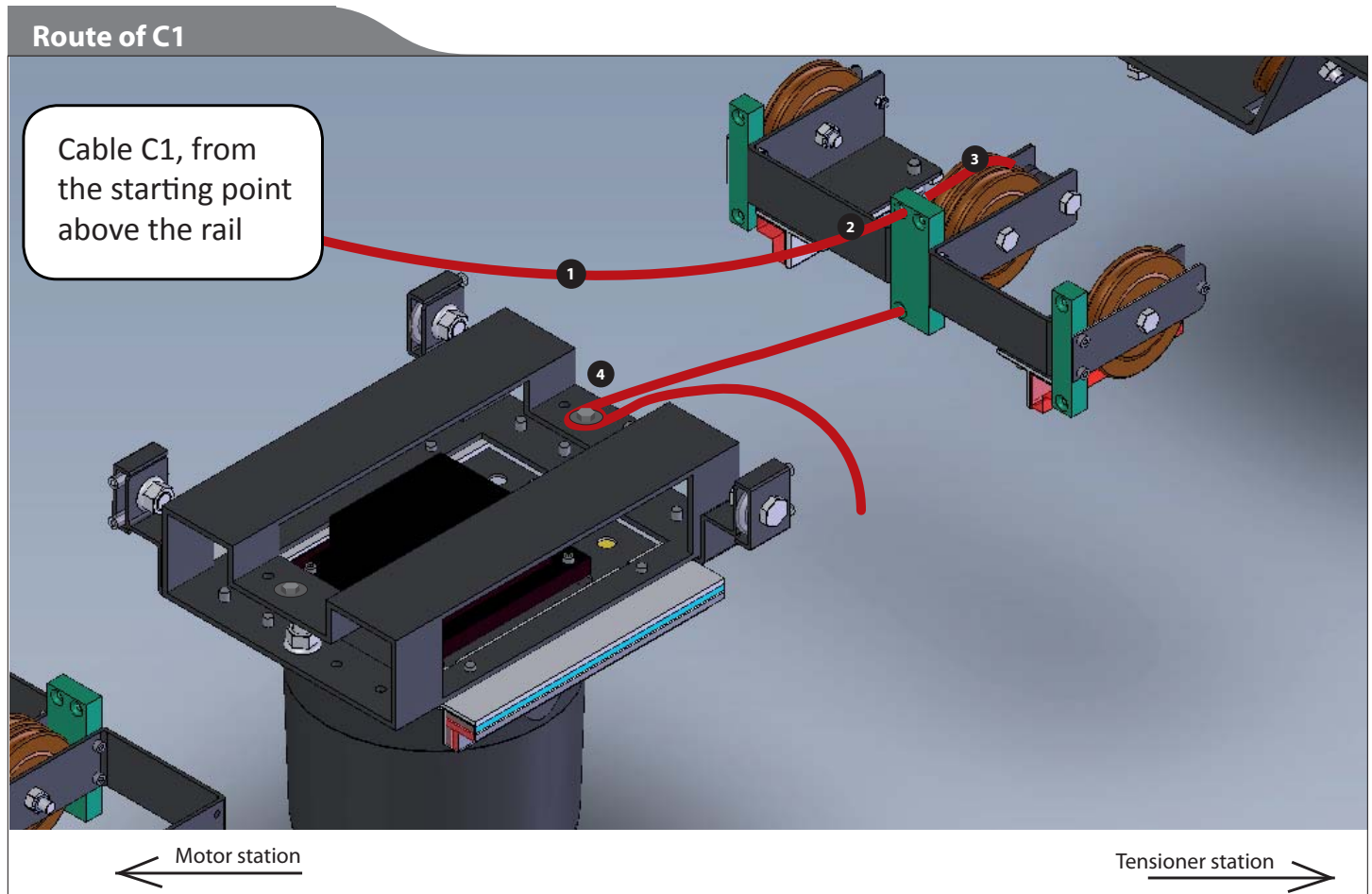
Cable tensioner fishplate assembly:



- After having crossed through the rail with cable C1, pass it above the camera truck to reach the tensioner base. ① Use a lighter to burn the end of the cable so it passes through the elements easier.
- Pass C1 through the green guide as shown in the diagram below. ②
- Make a half turn around the centre pulley and back through the low part of the green guide. ③
- Return to the camera truck to attach the cable. ④

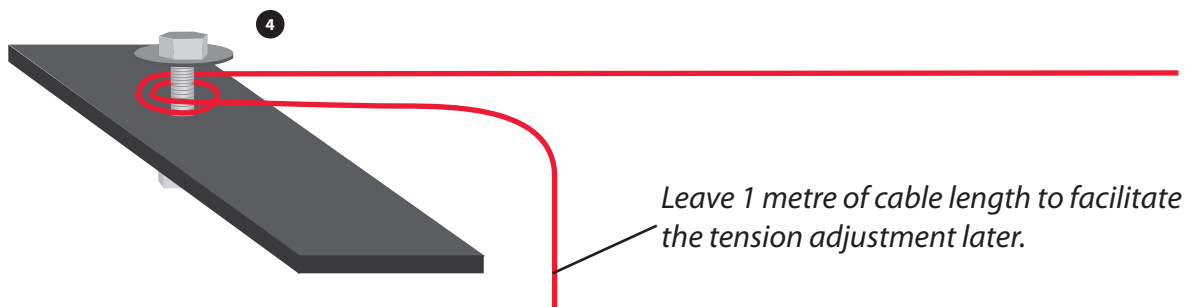
To minimise the amount of adjustment to be done later, adjust the length at the camera truck to obtain a tight cable* when the camera truck, the tensioner base and the tensioner station are all touching.

*** IMPORTANT: A tight cable is a horizontal cable. The cable must not have significant sag.**
Tolerance of 1 cm on rails < 50 m

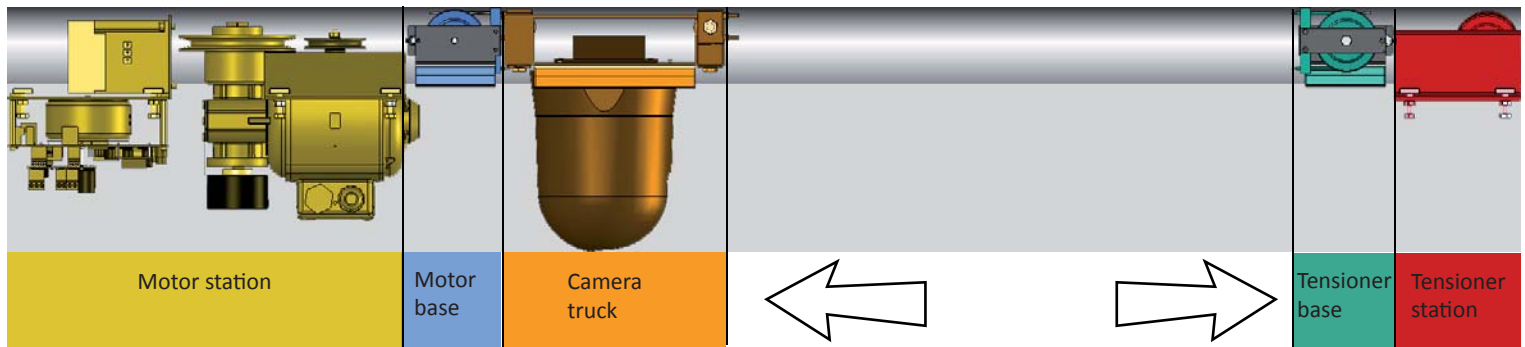


Attach to the dome truck

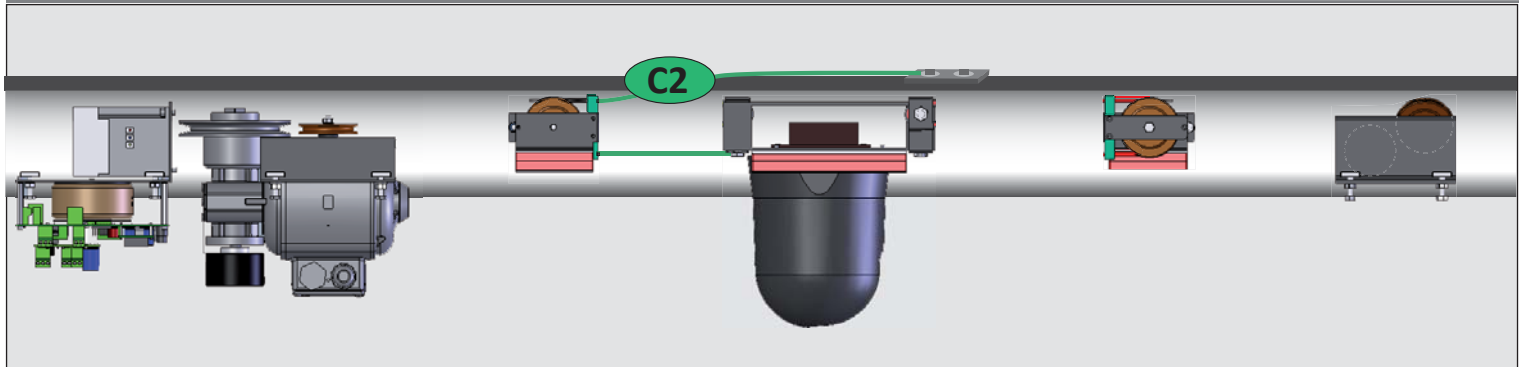
To attach the traction cable to the camera truck, make a complete turn around the bolt between the washer and the camera truck. Retighten the bolt to hold the cable.



To install the traction cable C2, position the elements at the rail ends as shown below.



Route of traction cable C2



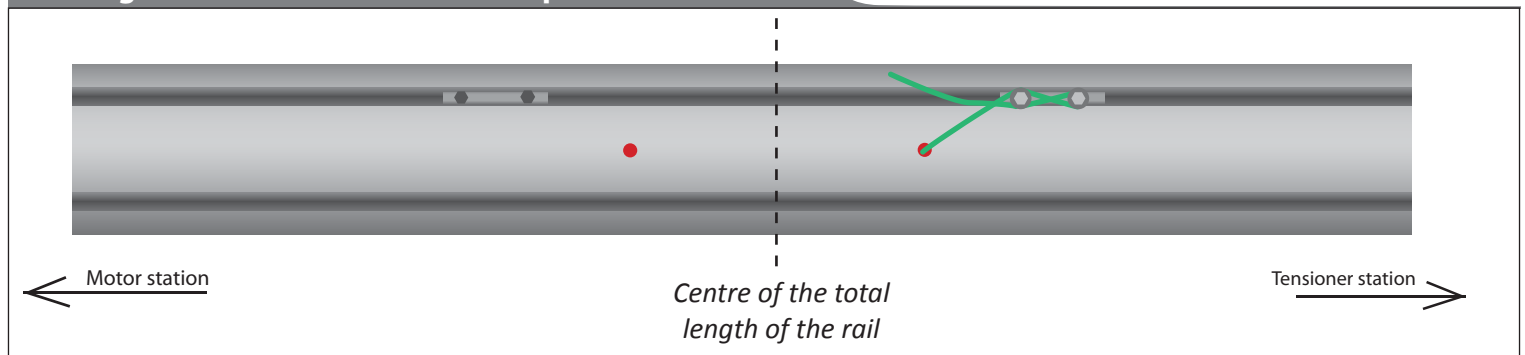
Unroll the cable C2 on the ground to facilitate assembly.

The cable C2 is attached above the rail using a “cable tensioning fishplate”.

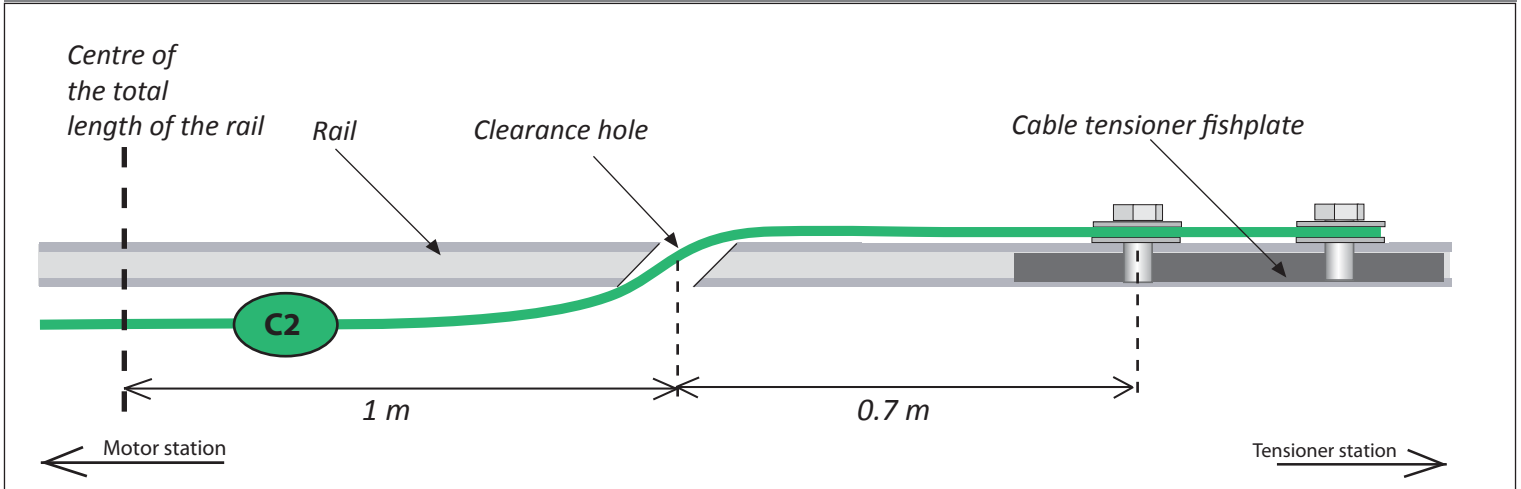
When attaching the cable, leave 1 metre of length to facilitate the tension adjustment later.

C2 then passes through the rail through the clearance hole.

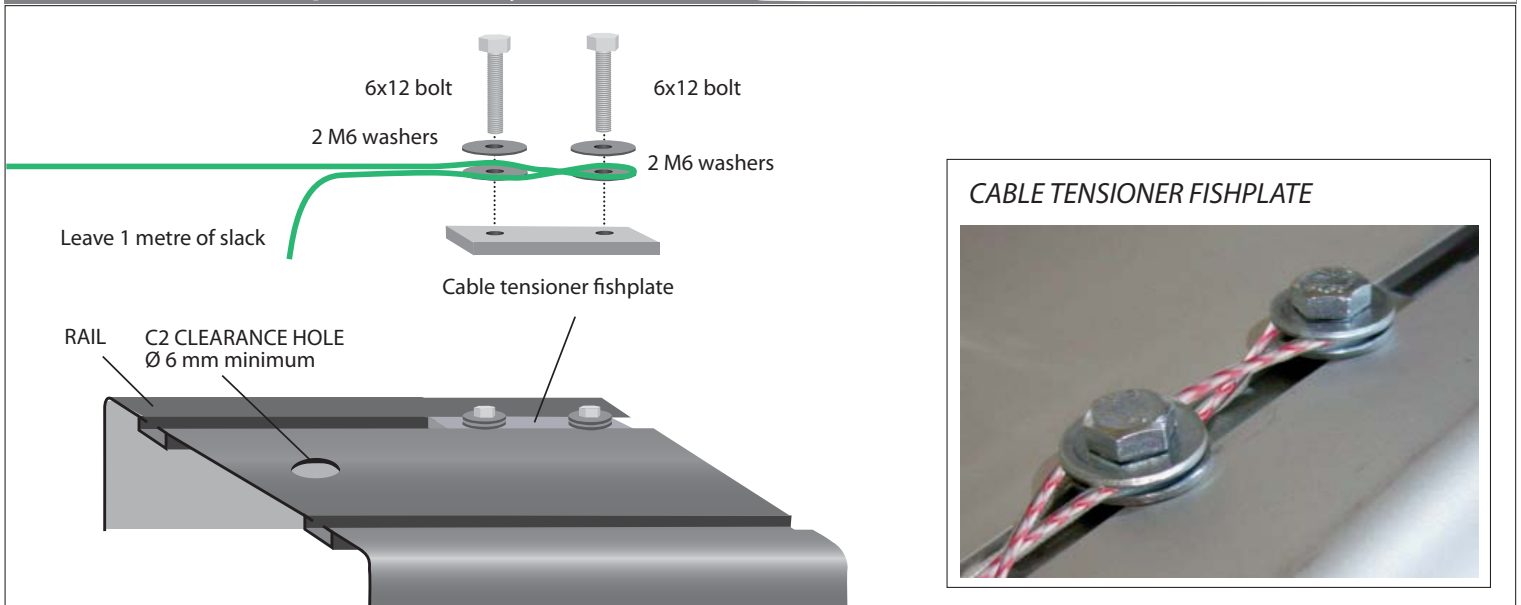
Passage of the traction cable C2 - top view



Start of cable C2, side view:



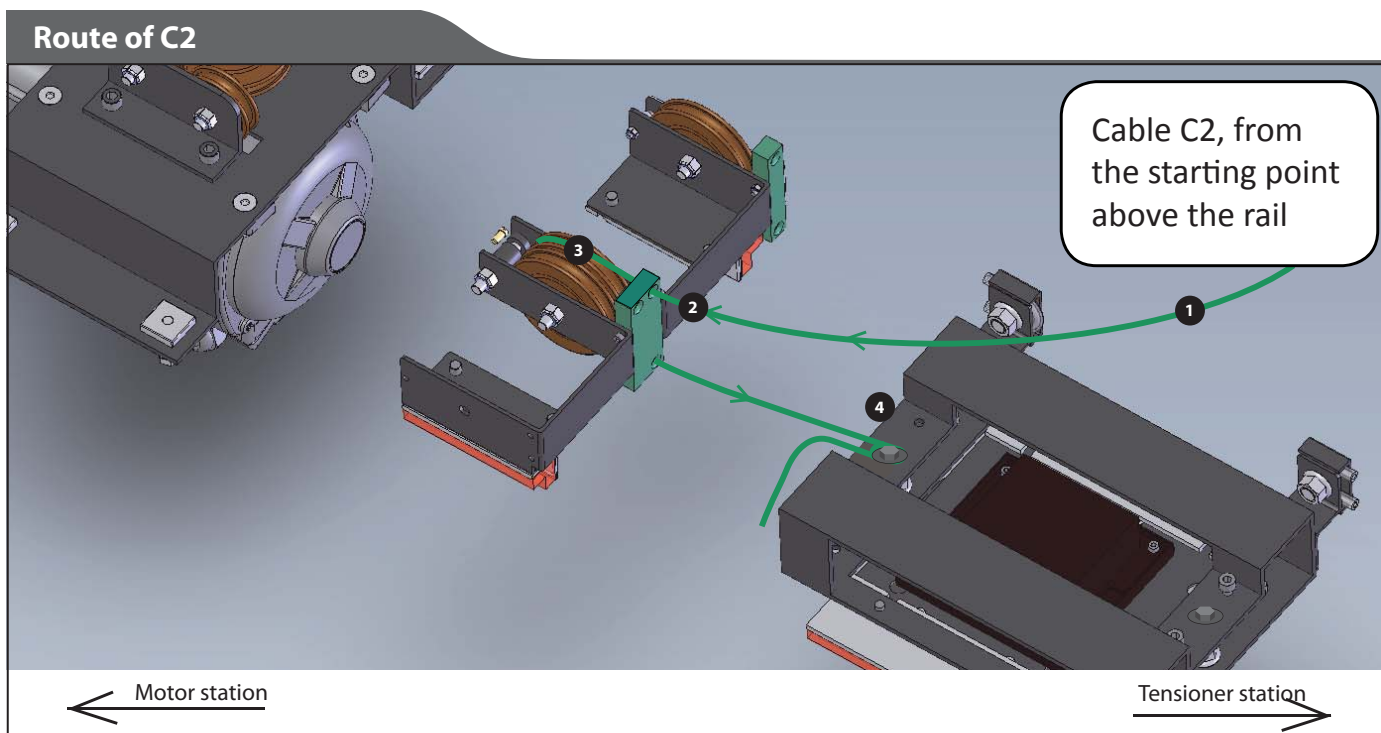
Cable tensioner fishplate assembly:



- After having crossed through the rail with cable C2, pass it above the tensioner base and the camera truck to reach the motor base. ❶ Use a lighter to burn the end of the cable so it passes through the elements easier.
- Pass C2 through the green guide as shown in the diagram below. ❷
- Make a half turn around the centre pulley and back through the low part of the green guide. ❸
- Return to the camera truck to attach the cable. ❹

To minimise the amount of adjustment to be done later, adjust the length at the camera truck to obtain a tight cable* when the camera truck, the motor base and the motor station are all touching.

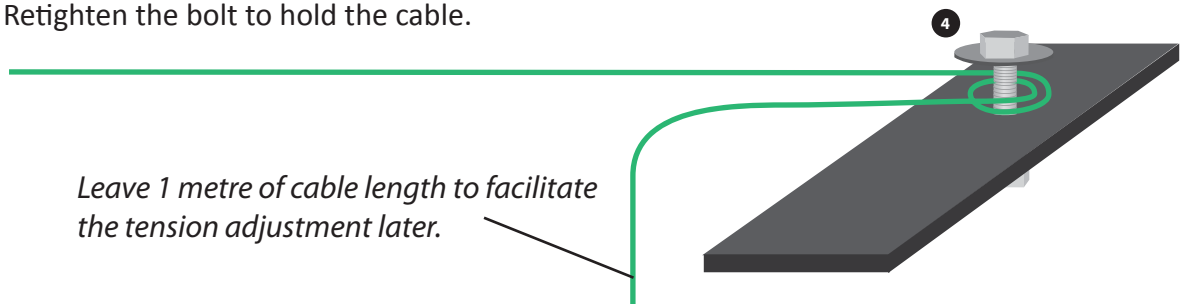
*** IMPORTANT: A tight cable is a horizontal cable. The cable must not have significant sag. Tolerance of 1 cm on rails < 50 m**



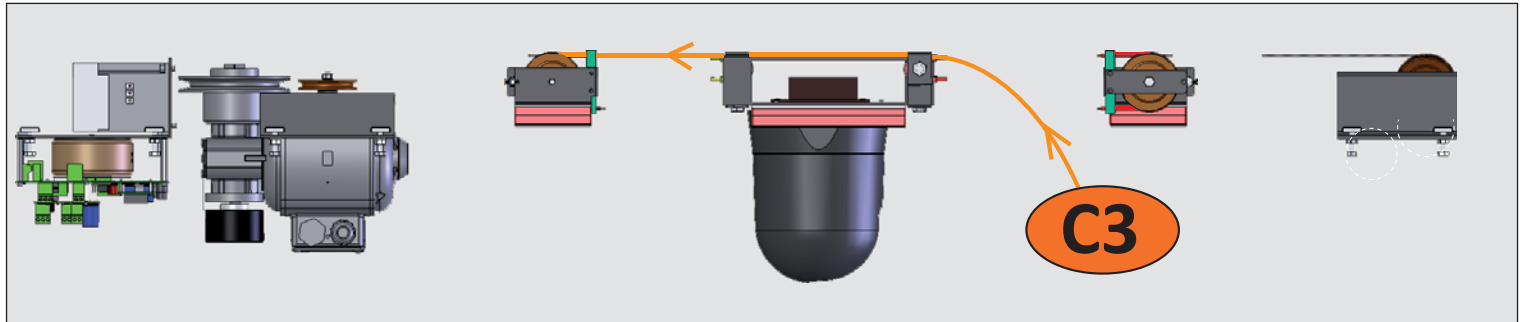
Attach to the dome truck

To attach the traction cable to the camera truck, make a complete turn around the bolt between the washer and the camera truck. Retighten the bolt to hold the cable.

Leave 1 metre of cable length to facilitate the tension adjustment later.

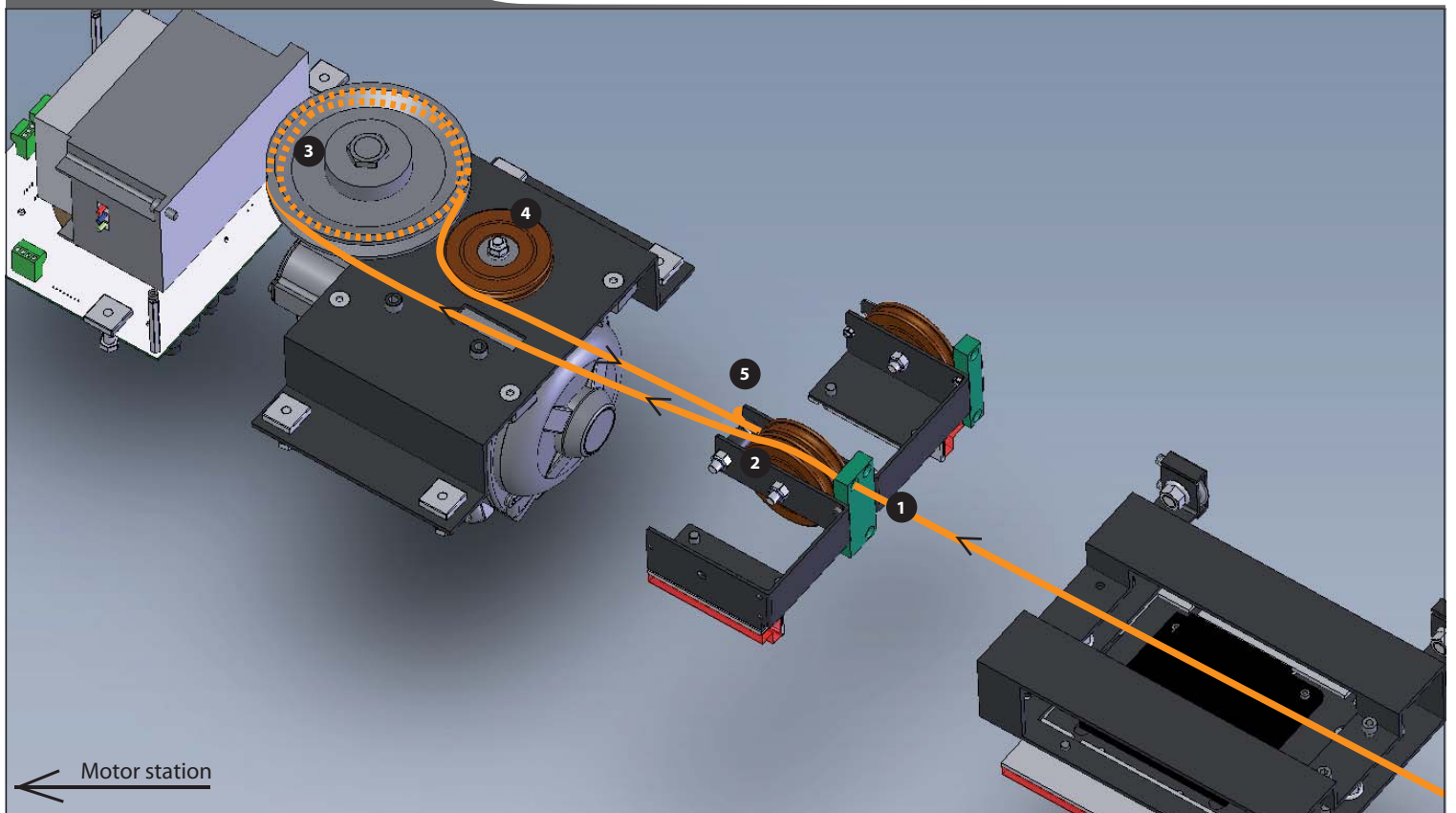


- Unroll the cable C3 on the ground. Pass one end of the cable over the camera truck, on the right side, as shown below.

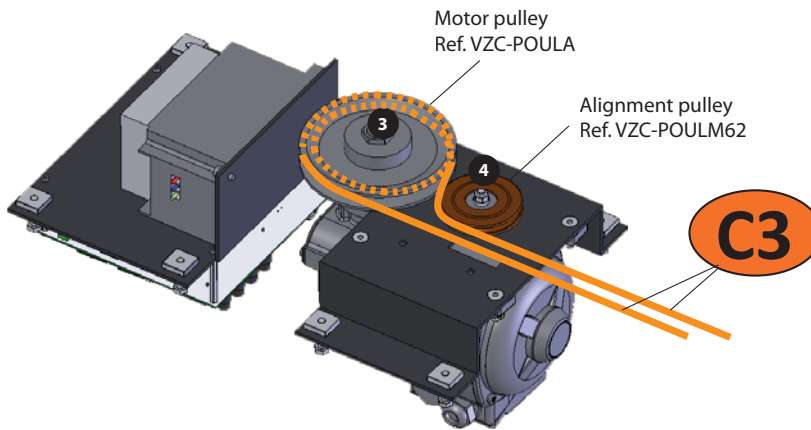


- Pass through the green top-centre guide of the motor base. ①
- Pass the cable around the central pulley of the motor base. ②
- Make a complete turn around the motor pulley. (See detail on the next page) ③
- Recentre the cable with the alignment pulley. ④
- Attach the cable to the rear of the motor base (see attachment to the base on the next page). ⑤

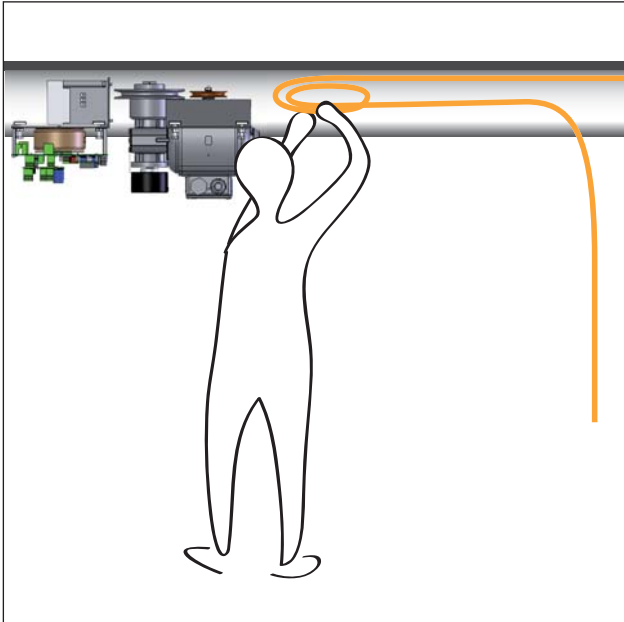
Route of C3



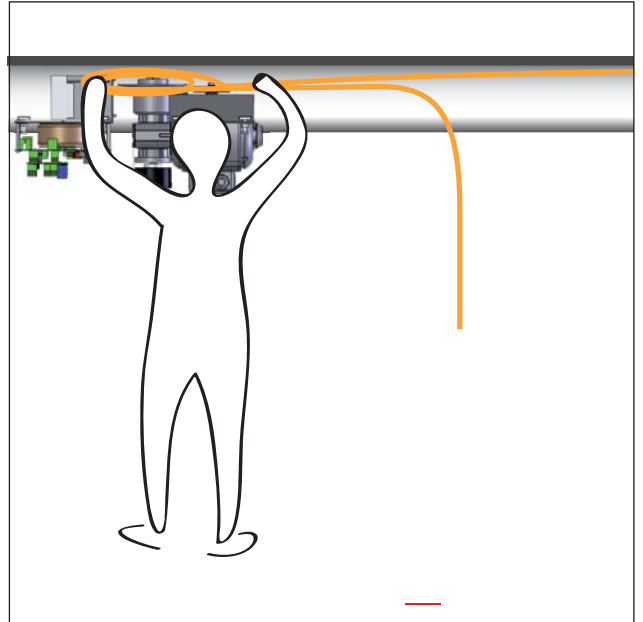
Passage of the cable C3 in the motor station



1. Prepare the loop for the motor pulley taking care not to form a knot.



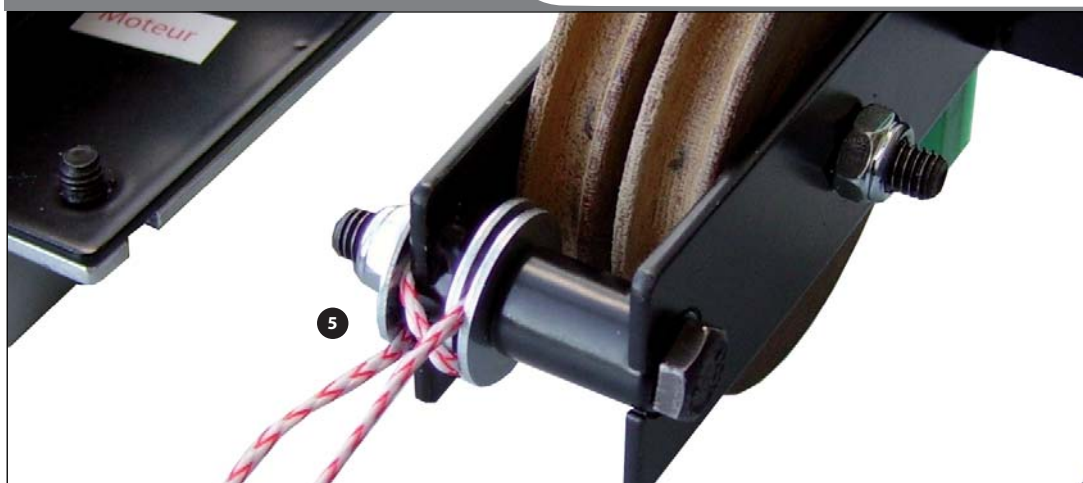
2. Slide it above the motor station. Position it on the pulley using one hand on each side of the motor station.



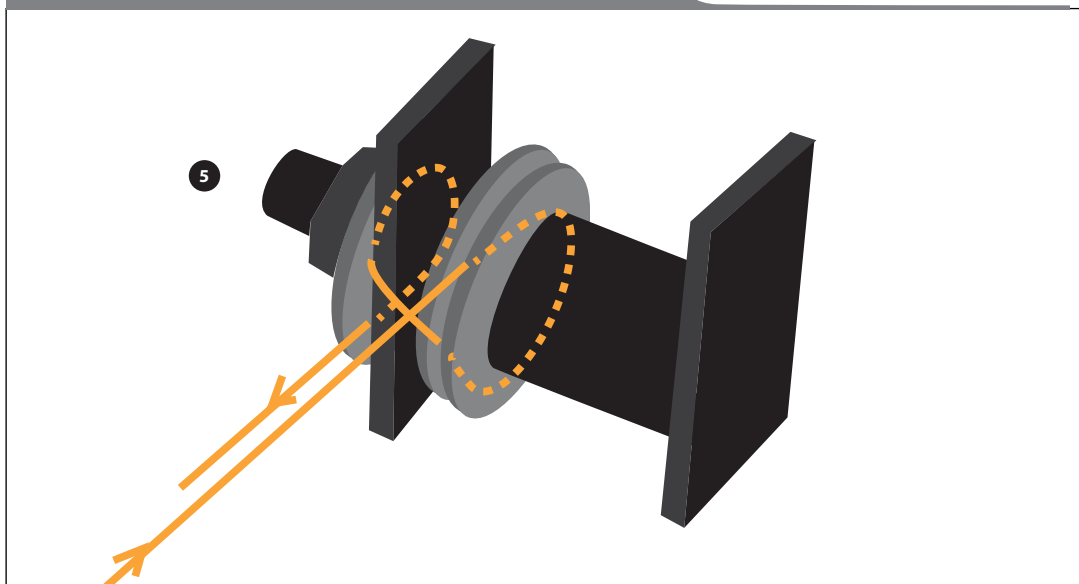
Attention: check that the cable doesn't cross over itself when leaving the motor station.

Pass the cable between the two central washers. Make a half turn and go back to the outside washer. Make a half turn and leave a 1 metre length for future tension adjustments.
Tighten the assembly using two 10 mm spanners.

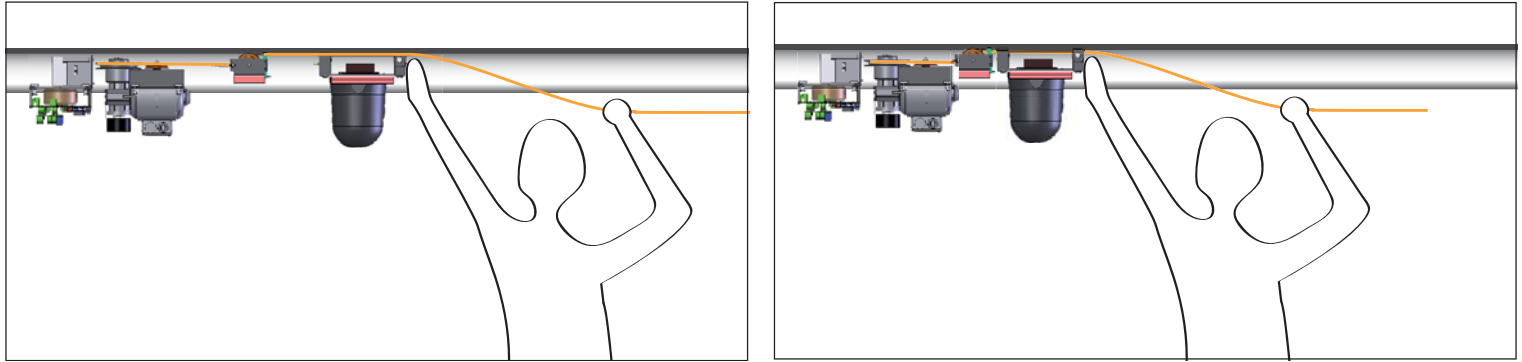
Attachment to the motor base



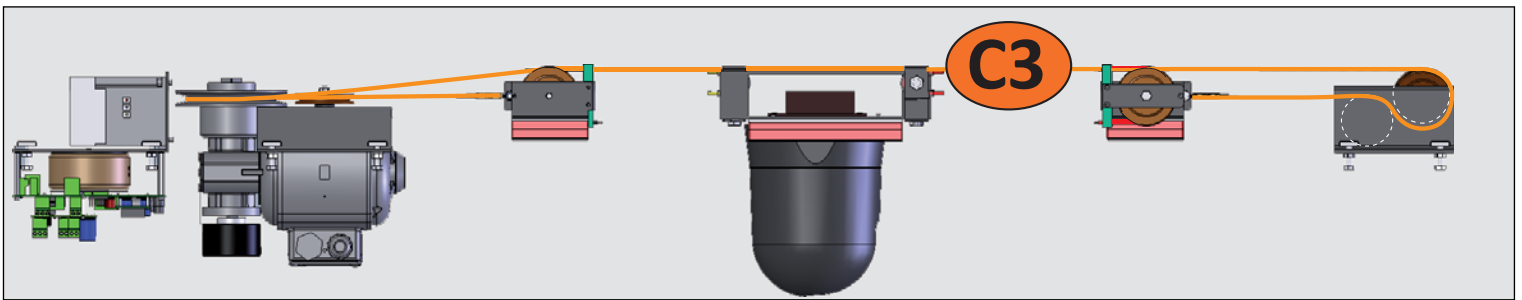
Detail of the attachment to the motor base



Check that the cable C3 slides properly in the pulleys. To do that, hold the camera truck with one hand and pull on the cable with the other hand until the elements are touching.



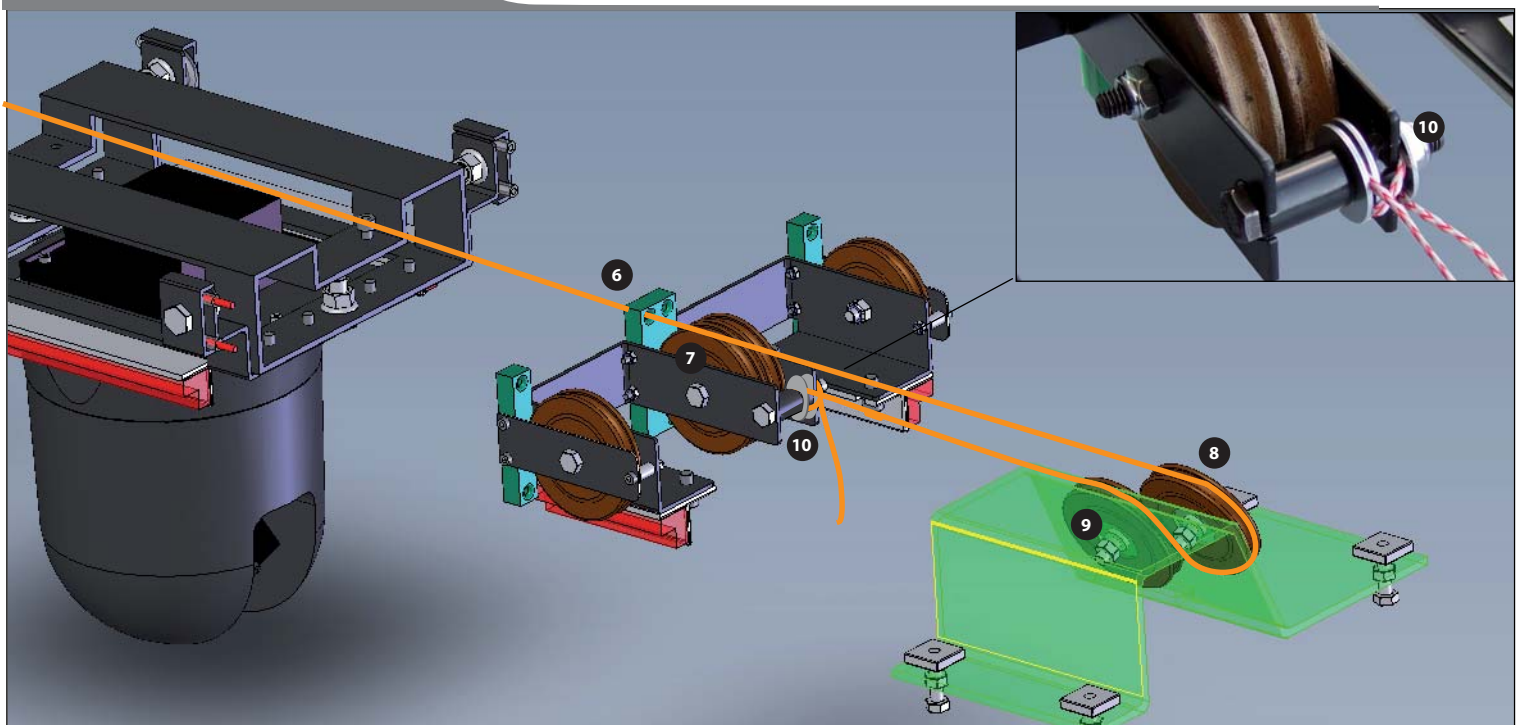
Position the cable C3 alongside the tensioner station.



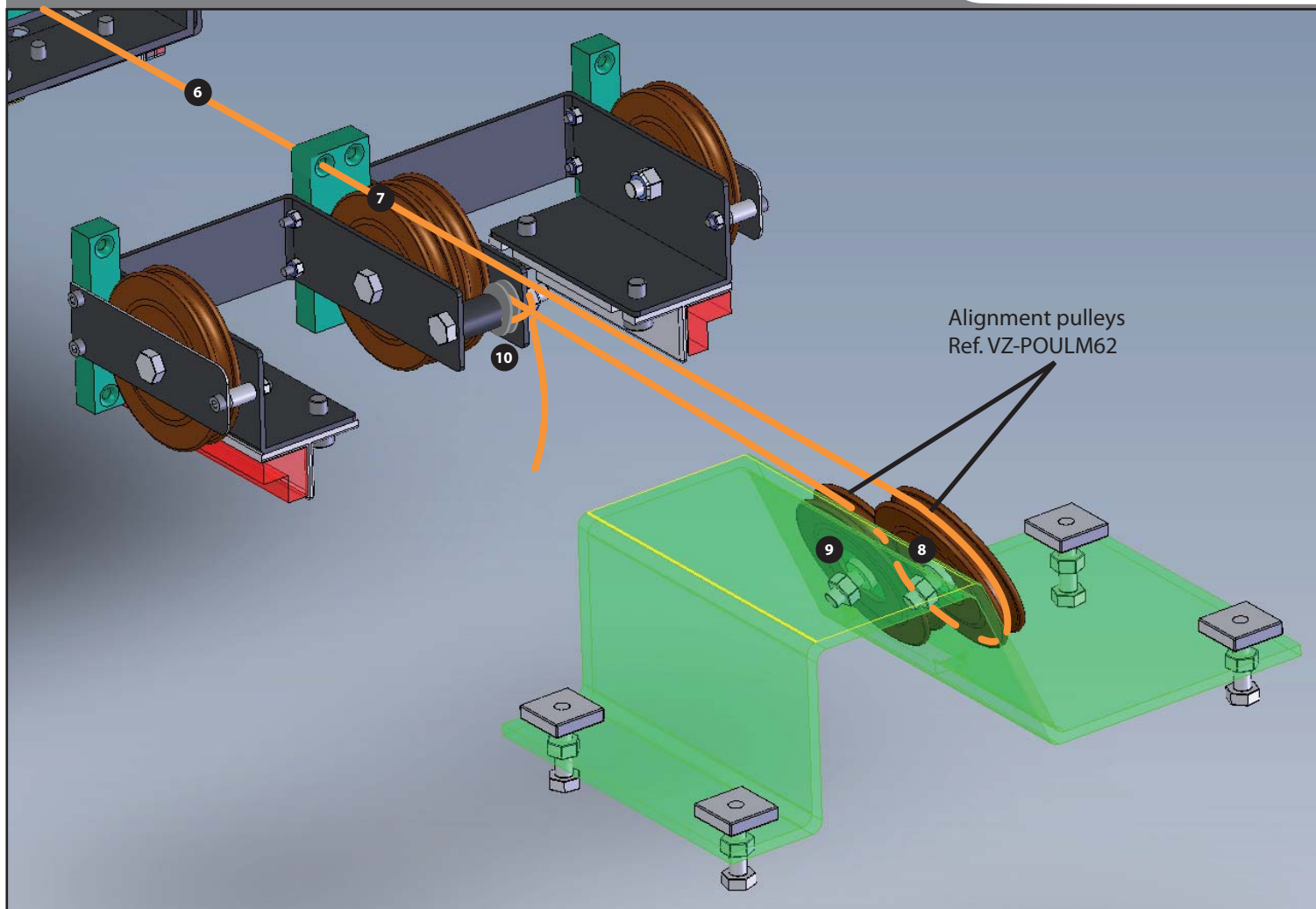
To do that:

- Pass C3 through the green top guide of the tensioner base. ⑥
- Pass the cable over the central pulley of the tensioner base ⑦
- Go back to the tensioner station and make a half turn around the top pulley of the tensioner station. ⑧
- Recentre C3 by passing around the bottom pulley of the tensioner station. ⑨
- Go back to the tensioner base to attach C3. ⑩

End of route of C3



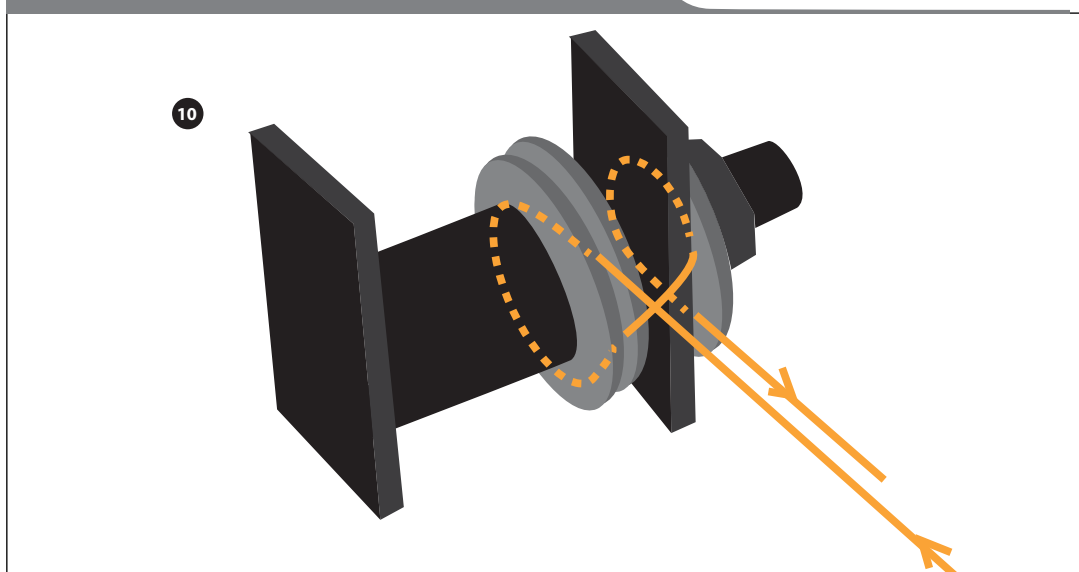
Route of the cable C3 inside the tensioner base and the tensioner station



Pass the cable between the two central washers. Make a half turn and go back to the outside washer. Make a half turn and leave a 1 metre length for future tension adjustments.

Tighten the assembly using two 10 mm spanners.

Detail of the attachment to the motor base



*** IMPORTANT:** A tight cable is a horizontal cable.

The cable must not have any sag. Tolerance of 1 cm on rails < 50 m

THIS MUST BE DONE BEFORE THE COAXIAL CABLES ARE INSTALLED

Each traction cable must be adjusted for optimum tension.

The cable C1 is properly adjusted when the camera truck reaches the sensor and the motor base does not touch the motor station. (see diagram below)

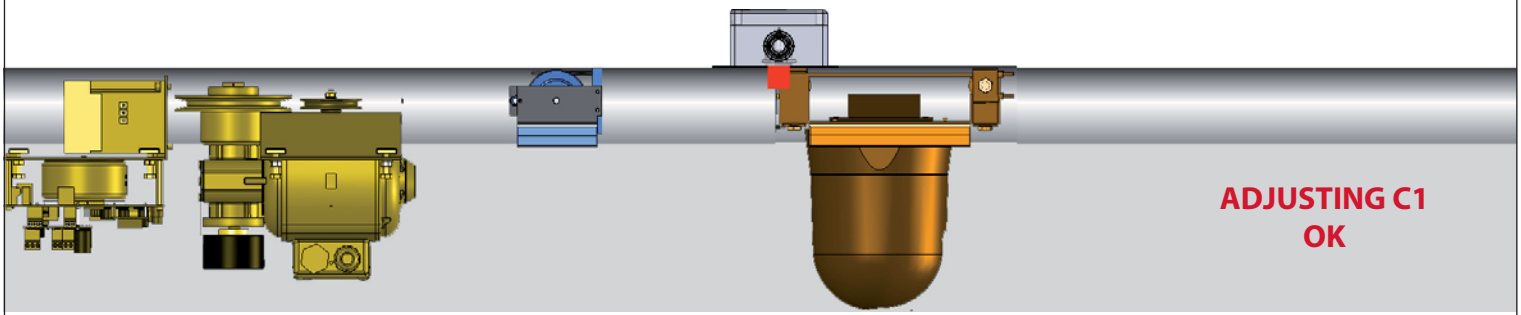
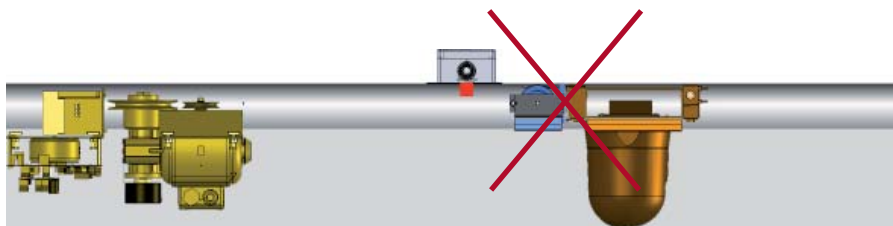
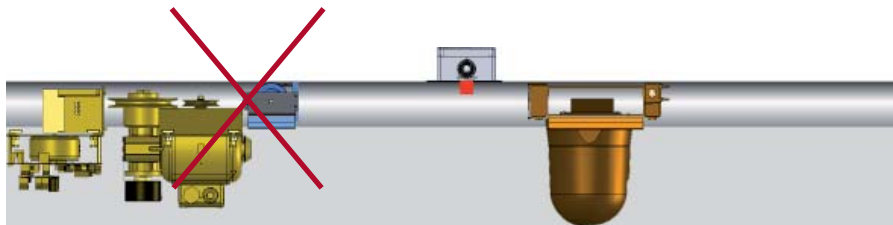
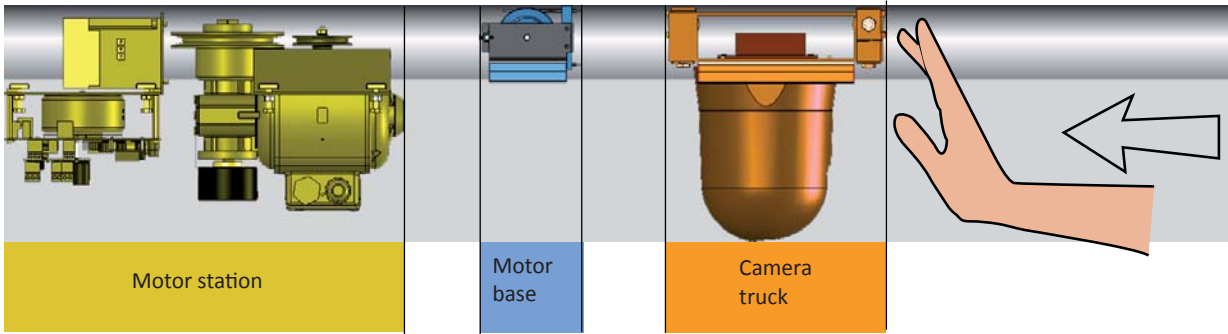
The cable C2 is properly adjusted when the camera truck reaches the sensor and the tensioner base does not touch the tensioner station. (see diagram on the next page)

The tension of C3 depends on the proper adjustment of C1 and C2.

To facilitate these adjustments, a calculation can be made to determine how much slack should be added to or removed from the cables. (See explanation on following page)

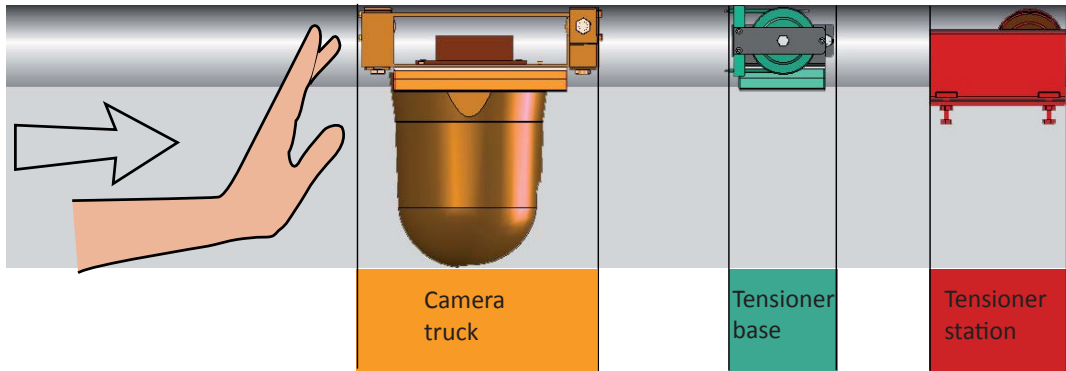
Visual inspection of the correct adjustment of cable C1

Move the truck as far as possible towards the motor station.

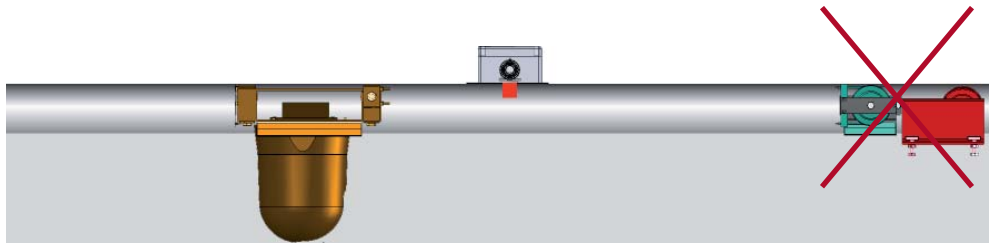


Visual inspection of the correct adjustment of cable C2

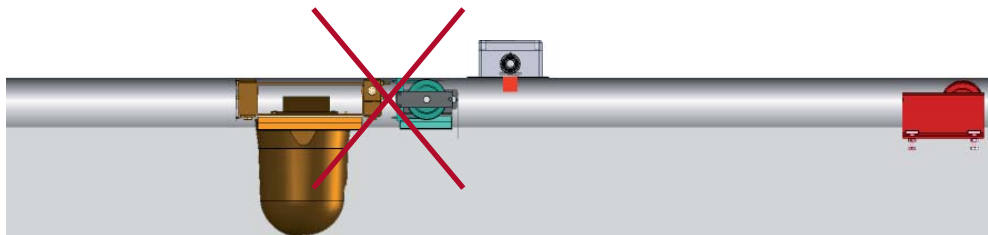
Move the truck as far as possible towards the tensioner station.



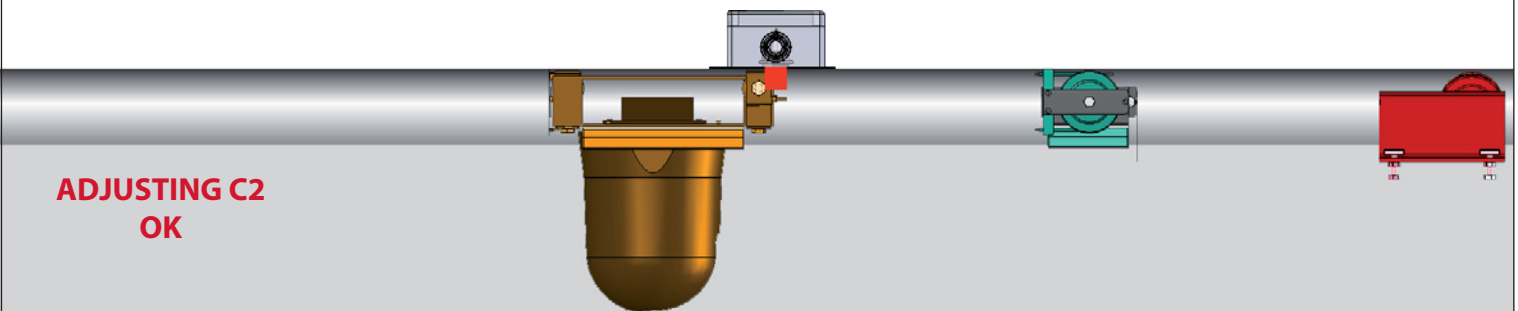
C2 is not tight enough

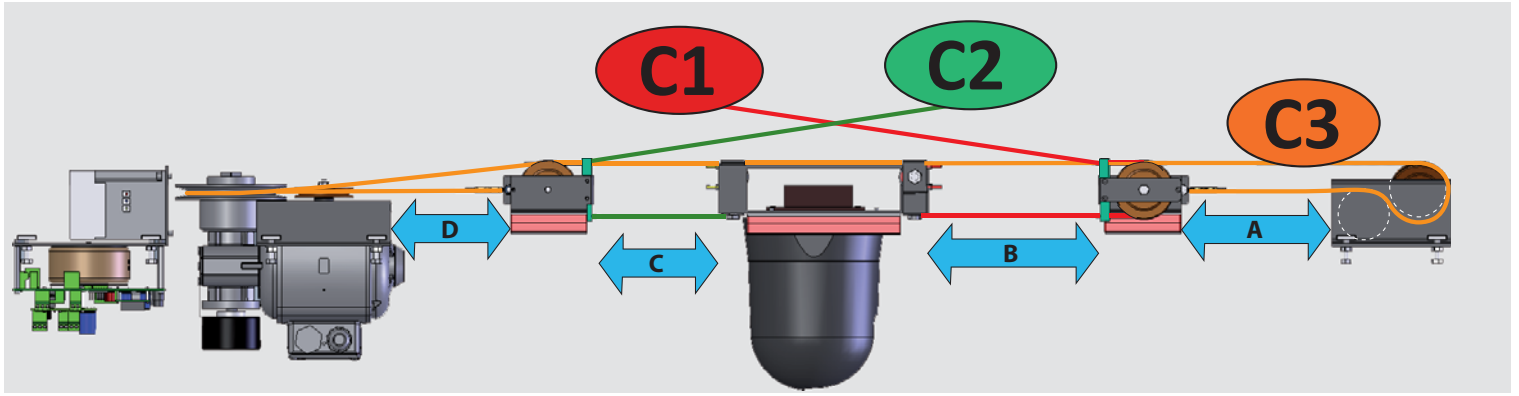


C2 is too tight



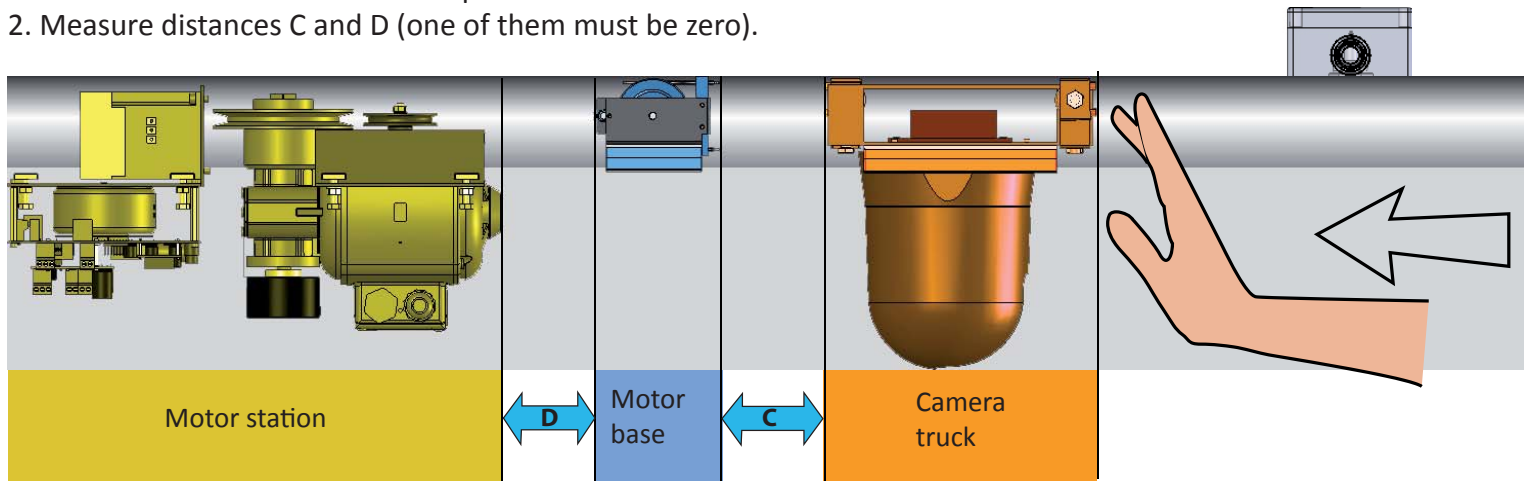
ADJUSTING C2 OK



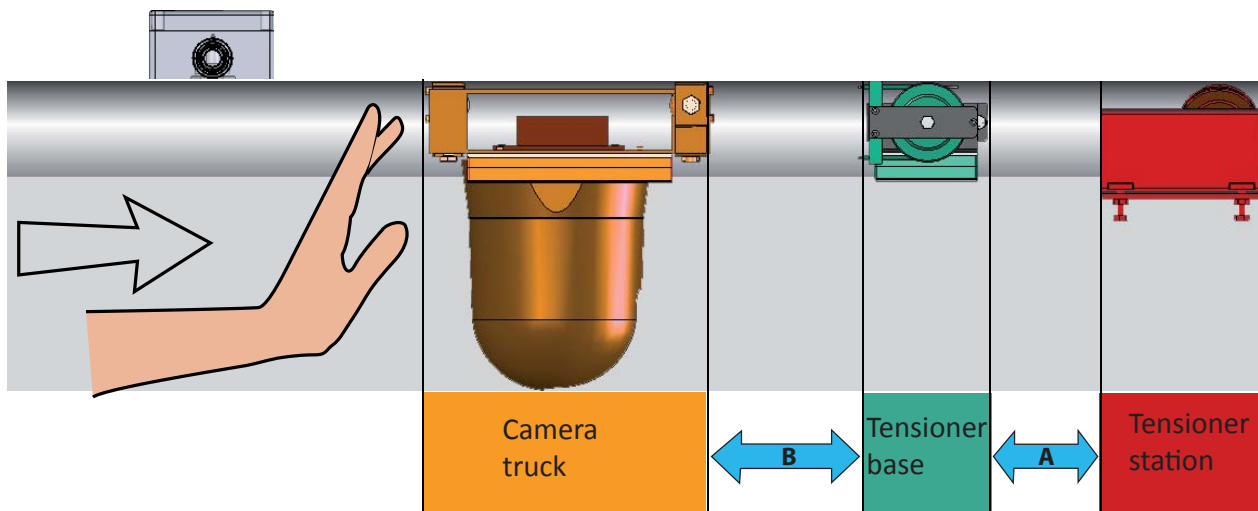


ADJUSTMENT STEPS

1. Move the camera truck as far as possible towards the motor station.
2. Measure distances C and D (one of them must be zero).



3. Move the truck as far as possible towards the tensioner station.
4. Measure distances A and B (one of them must be zero).



5. Once the distances A, B, C and D have been measured, calculate the length of adjustment for cable C3. To do that, a calculation can determine the length to be added to or removed from cable C3, so that the tension is ideal.

Perform the following calculation:

$$\frac{[(A - B) + (D - C)]}{(-2)} = \text{the length to be added to or removed from C3}$$

- If the result is positive, the cable C3 must be lengthened by this amount.
- If the result is negative, the cable C3 must be shortened by this amount.

Example:

distance A = 0 cm
 distance B = 7 cm
 distance C = 5 cm
 distance D = 0 cm

$$\frac{[(A - B) + (D - C)]}{(-2)} = \frac{[(0 - 7) + (0 - 5)]}{(-2)} = \frac{(-7 + -5)}{(-2)} = 6 \text{ cm}$$

Increase the length of cable C3 by 6 cm.

The adjustment is made at the tensioner base.

Mark the cable with tape before unscrewing the attachment.

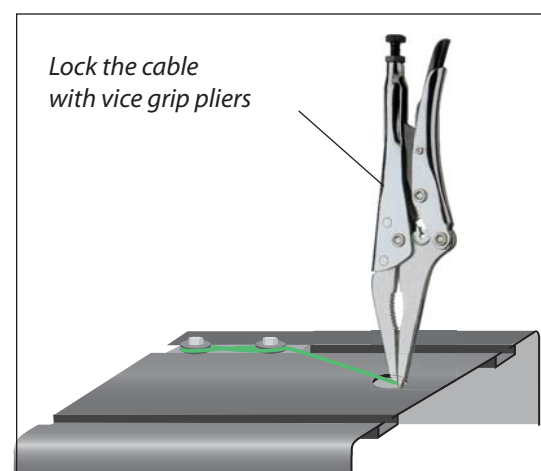
Tightening or loosening cable C3 affects the tension of cables C1 and C2.

This is the “connected vessels” effect:

- If you extend C3 by 6 cm -> C1 and C2 must be shortened by 3 cm each.
- If you shorten C3 by 6 cm -> C1 and C2 must be lengthened by 3 cm each.

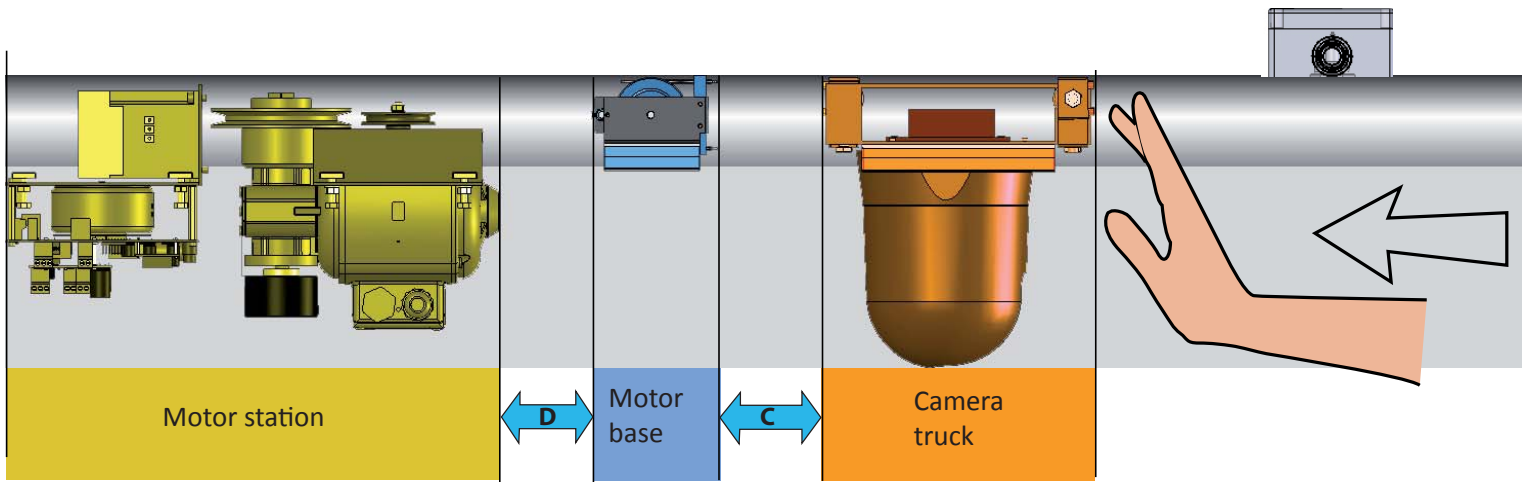
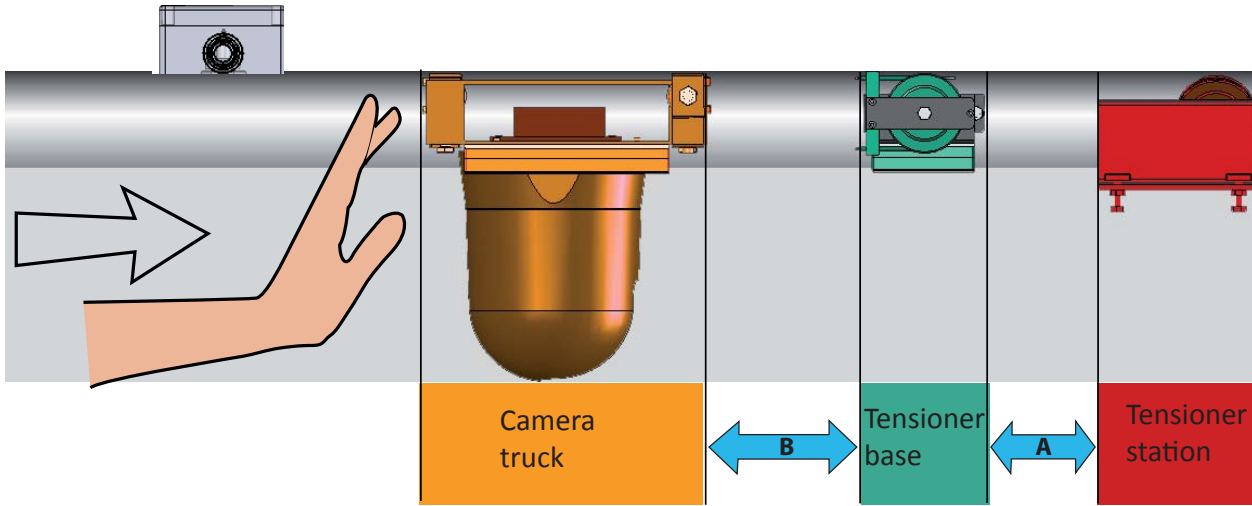
The adjustment is made at the cable tensioner fishplates, on the top of the rail.

Mark the cable with tape before loosening the attachment and clamp vice grip pliers on the cable at the clearance hole in the rail before making the adjustment.



6. After adjusting the cable tensions, check the measurements A, B, C and D. If the values are zero, all of the cables are properly adjusted.

If they are not, take the measurements A, B, C and D and perform the calculation on the next page.



Determine the adjustment length for cables C1 and C2.

To do that, a calculation can determine the length to be added to or removed from the cables, so that the tension is ideal.

Perform the following calculation:

$A - B =$ the length to be added to or removed from C1

$D - C =$ the length to be added to or removed from C2

- If the result is positive, the cable must be lengthened by this amount.
- If the result is negative, the cable must be shortened by this amount.

Example:

distance A = 0 cm
distance B = 1 cm
distance C = 0 cm
distance D = 2 cm

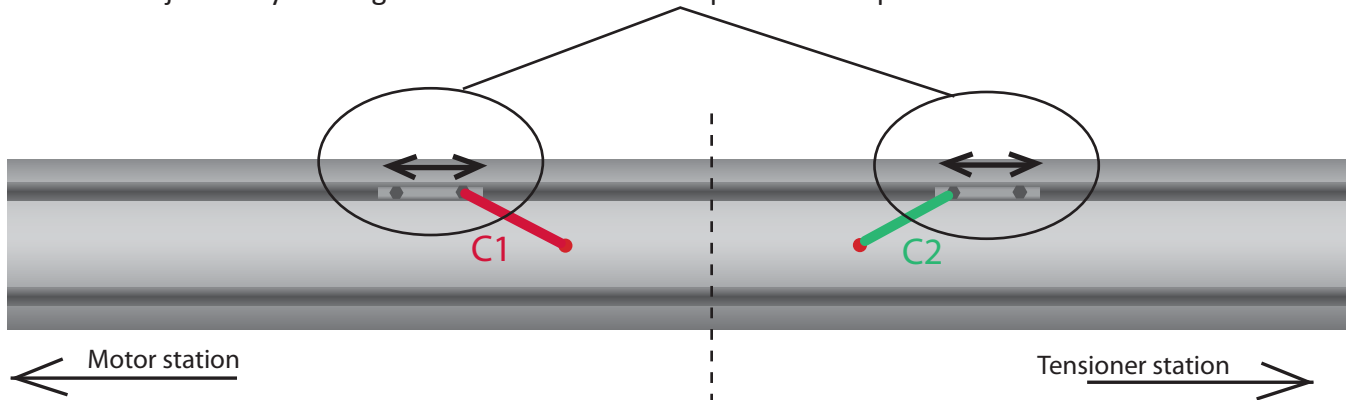
$$A - B = 0 - 1 = -1 \text{ cm}$$

Shorten cable C1 by 1 cm

$$D - C = 2 - 0 = 2 \text{ cm}$$

Lengthen cable C2 by 2 cm

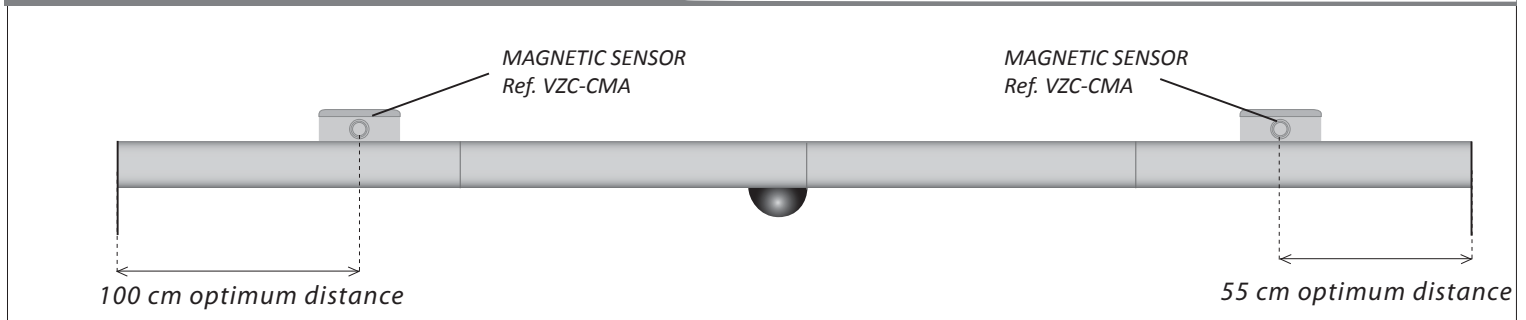
C1 and C2 are adjusted by moving the "cable tensioner fishplates" on top of the rail:



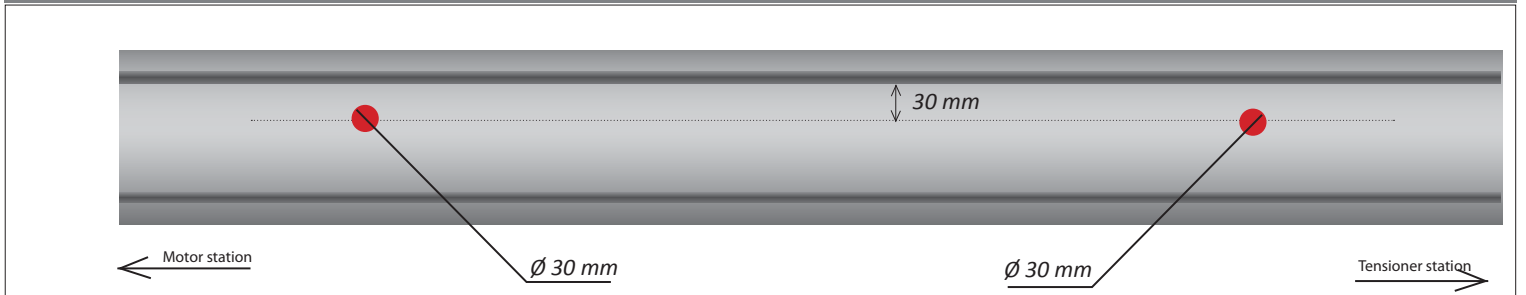
The importance of these adjustments is so the truck can reach and trigger the 2 magnetic sensors.

To operate, the Raildome has 2 magnetic sensors located at the ends of the rail.

Side view



Top view

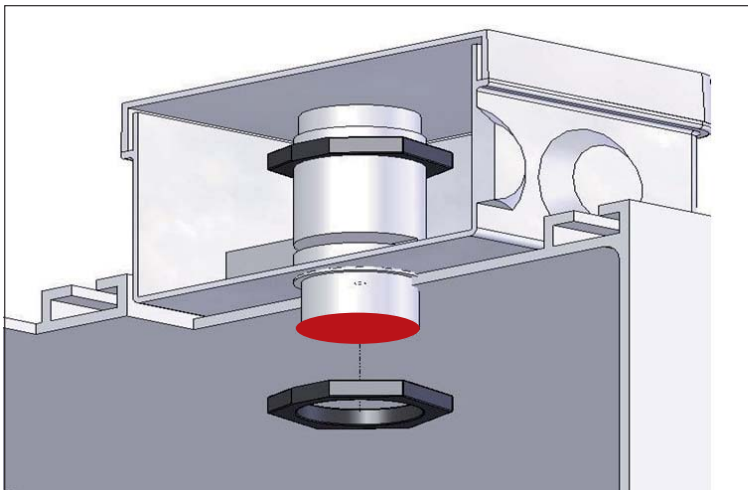


So that the camera truck can pass under the sensor, adjust the sensor's detection threshold as shown below.

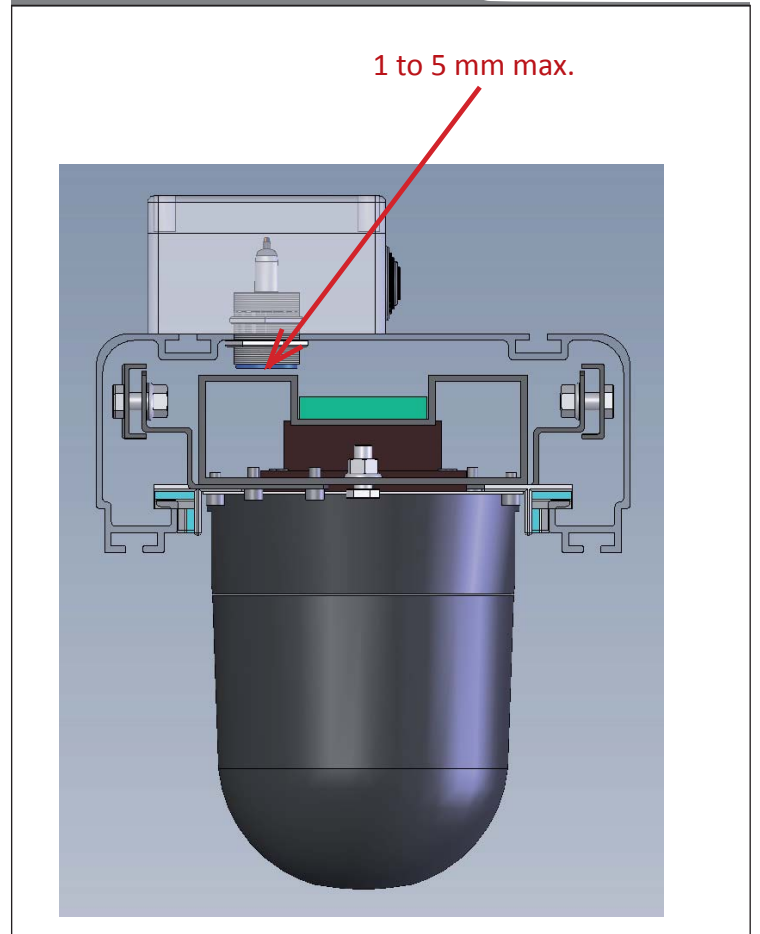
Comply with a distance of 1 to 5 mm maximum between: the base of the sensor and the detection area of the camera truck.

When installing the system, set the spacing to 1 mm.

During inspections, check that it does not exceed 5 mm.



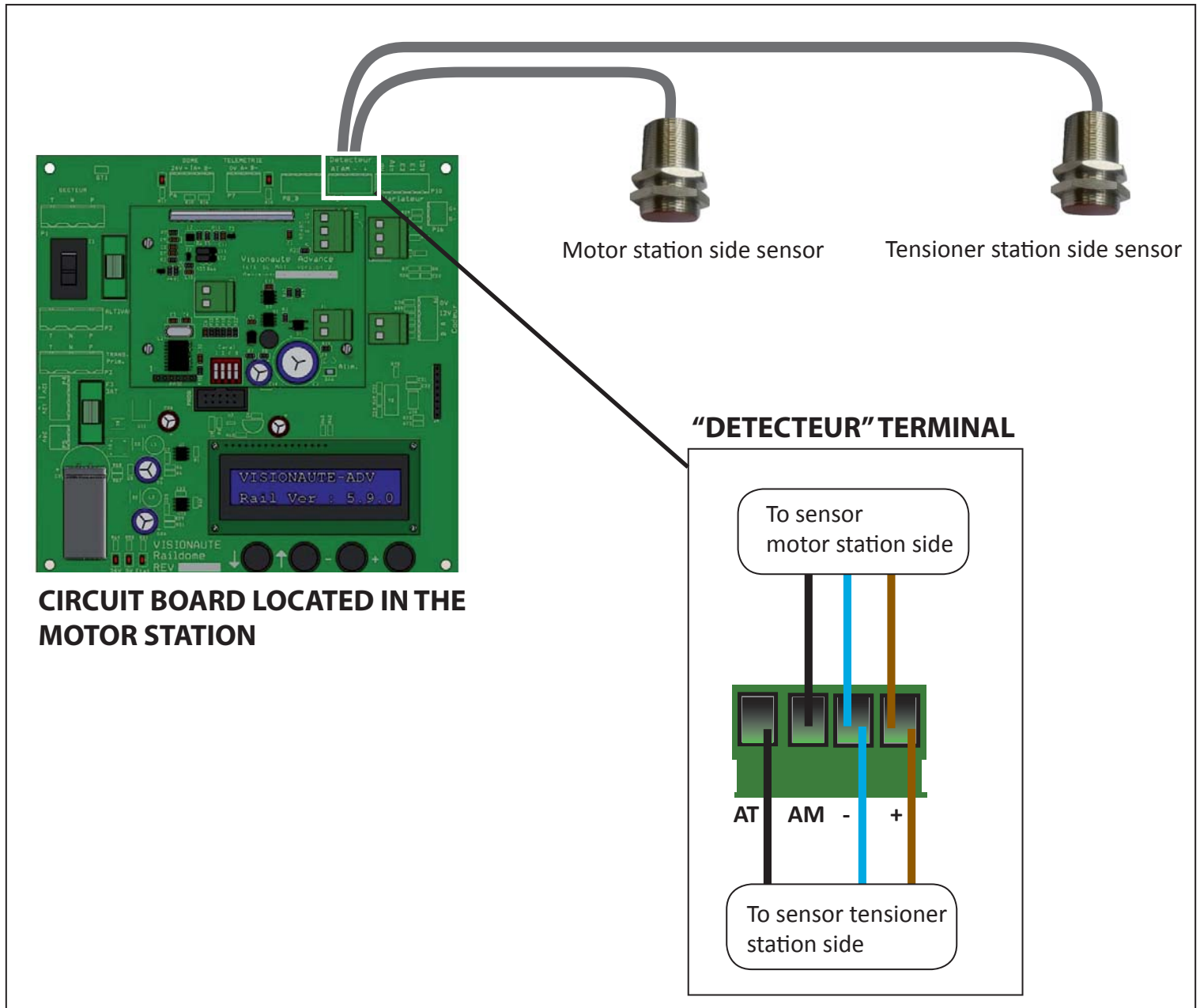
Adjusting the sensors



It is very important to use shielded electrical cables.

e.g.: SYT 2 pairs 0.9/10 shielded or cable type FTP cat 6 (Not supplied)

The 6 wires are to be connected to the circuit board of the motor station on the connector "DETECTEUR" which is marked "+", "-", "AM" (Motor stop switch) and "AT" (Tensioner stop switch).

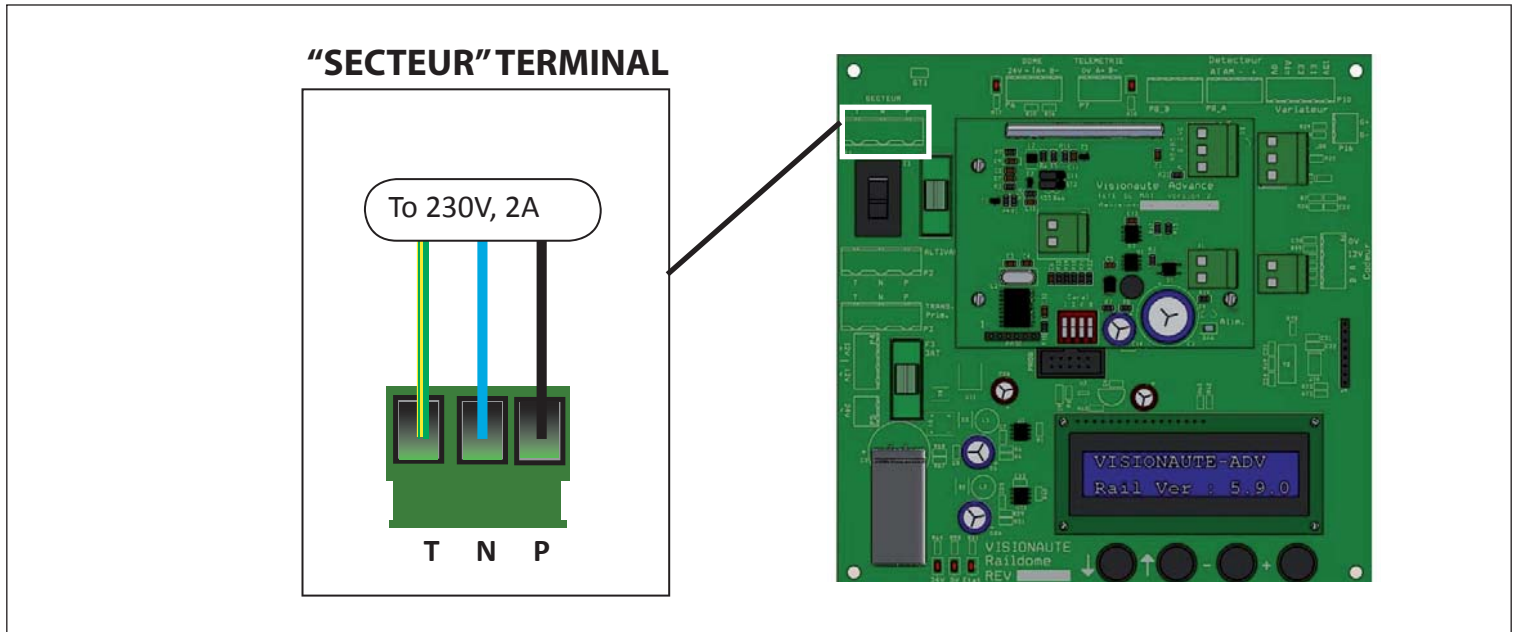


After having installed the magnetic sensors, perform the following tests:

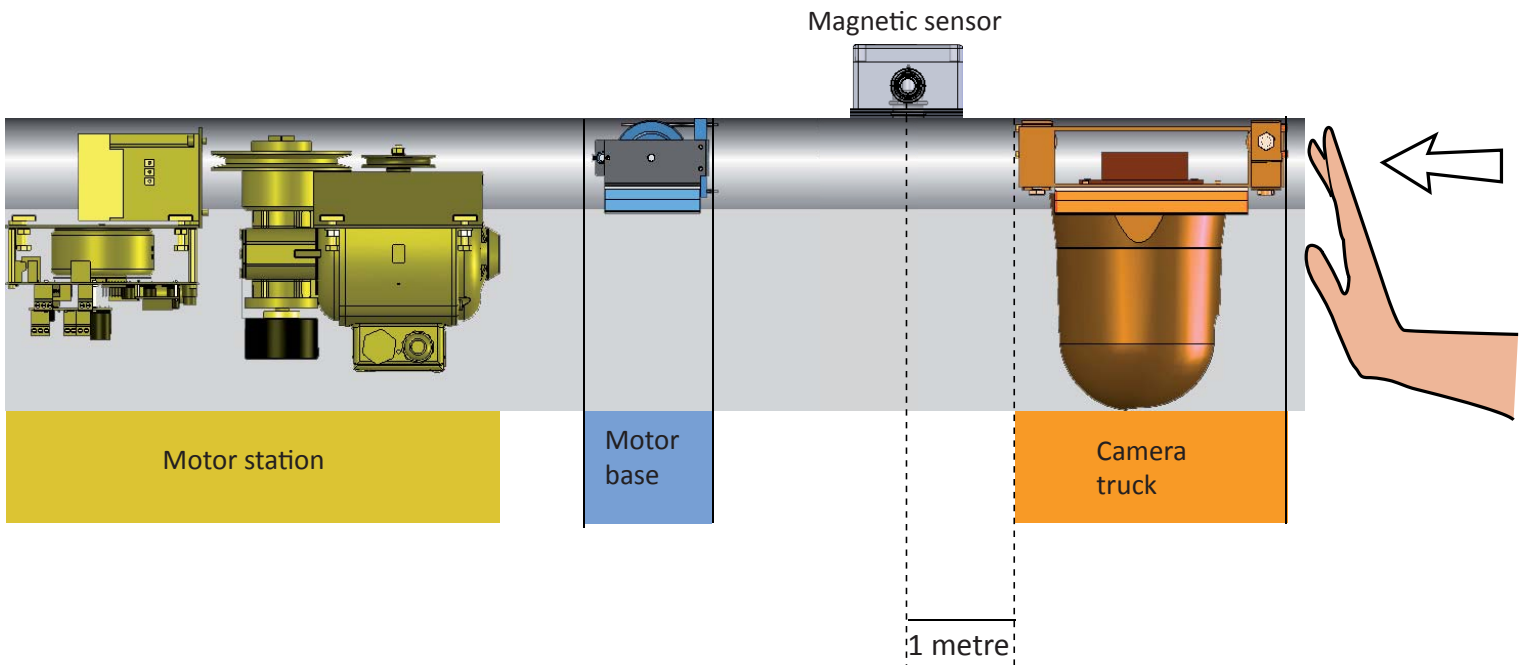
- Manually move the camera truck from the motor station to the tensioner station. The movement must be smooth without jolting.

The first powered test without the coaxial cable:

Connect the power to the circuit board located in the motor station



Position the truck 1 metre from the sensor on the motor station side



Power up the rail.

Remain close to the switch so that you can turn off the power if the camera truck is not detected by the sensors.

The rail will initialise itself, the truck will move under the sensor on the motor station side, then move slowly to the sensor on the tensioner station side.

It will then return at high speed to the motor station side sensor.

The rail is now ready for operation.

The noise from the cables during the first few kilometres is entirely normal.

Use the navigation buttons on the circuit board to perform tests (see p.57).

Start test functions to ensure that the camera truck moves properly on the rail.

To check that the sensors are correctly adjusted, a small light goes out when the truck is detected.

Sensor indicator light



The lights go out when the sensor detects the truck passing by.

If one of the bases tilts up when the power is switched on, adjust the base slides.

To do that, loosen the slides and reduce the spacing.

With wear, you may have to increase the spacing of the slides during inspections.

However, you must always leave a little play between the slides and the rail.

If the tests are passed, install the coaxial cables.

Slide - Bottom view



To adjust the spacing of the slides, use the screws located underneath.

Adjusting screw

RAILDOME®

PHASE IV - INSTALLING THE COAXIAL CABLES

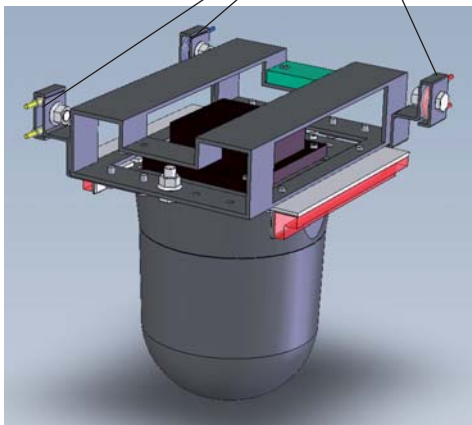
ATTENTION: Only perform this step after the traction cables have been completely adjusted.

The 3 coaxial cables must pass between the camera truck and the rail ends.
The three coaxial cables are named: K1, K2 and K3:

- K1 and K2 carry power (24VAC) on the braided shields of these 2 cables.
- K1 and K2 carry the telemetry (A+ and B-) on the cores of these 2 cables.
- K3 transports the video and its earth.

Notes: the coaxial clips*, used to attach the coaxial to the camera truck, have 2 mounting screws!
Remove these 2 mounting screws** for more flexibility when installing the coaxial!
The coaxial cables must be adjusted to length: NEITHER TIGHT NOR LOOSE but adjusted.

The dome truck has 3 coaxial clips.
(Ref. VZC-CHA6).

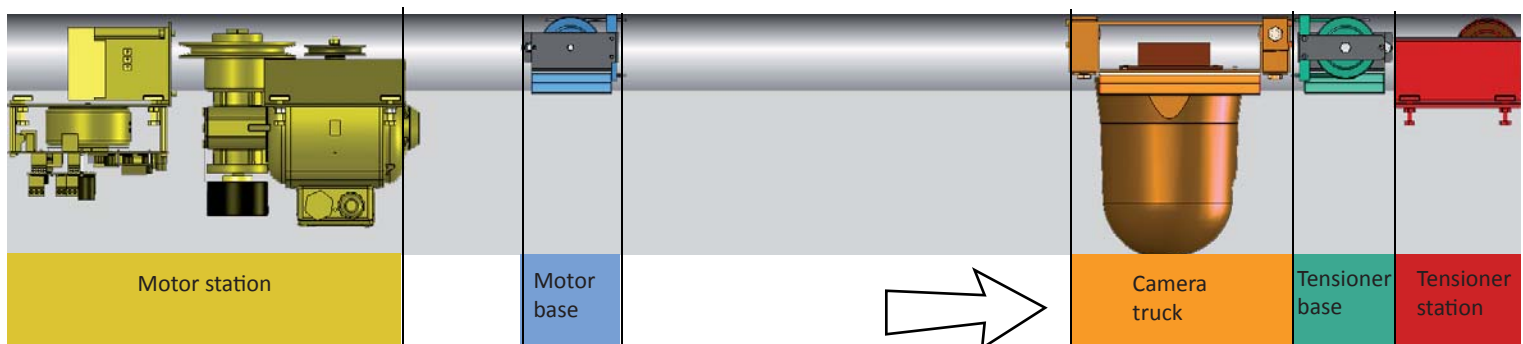


**attachment screws



*TRUCK COAXIAL CLIP

Before attaching the coaxial cables K1 and K2, position the camera truck on the tensioner station side.
To do that, use the navigation buttons on the circuit board (see p.57)

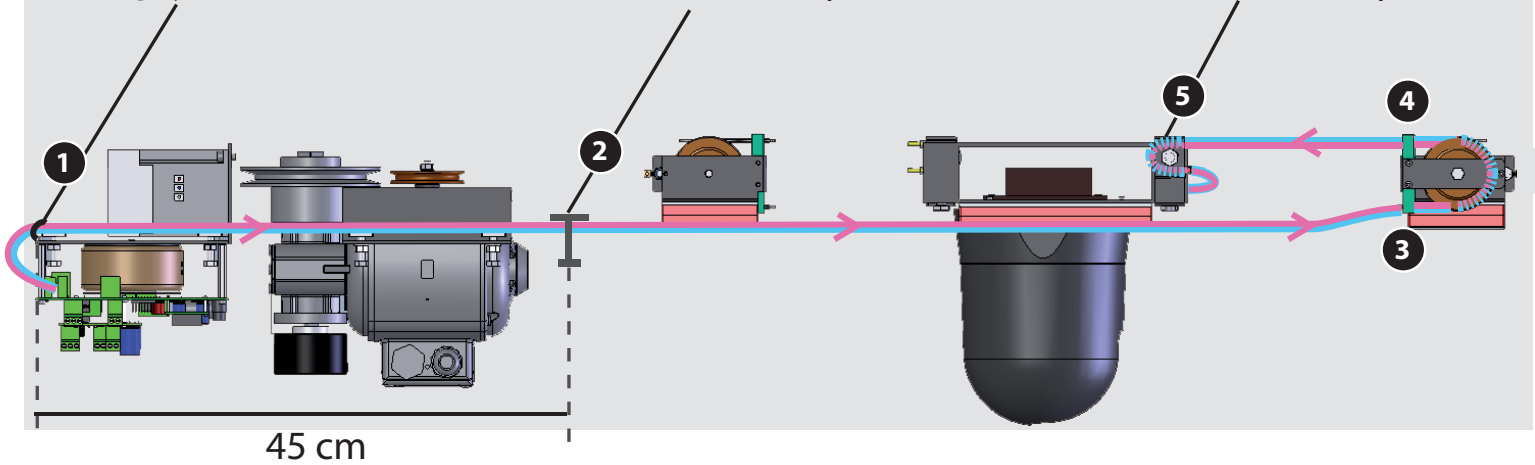


Overview of K1 and K2

Colring type wire ties

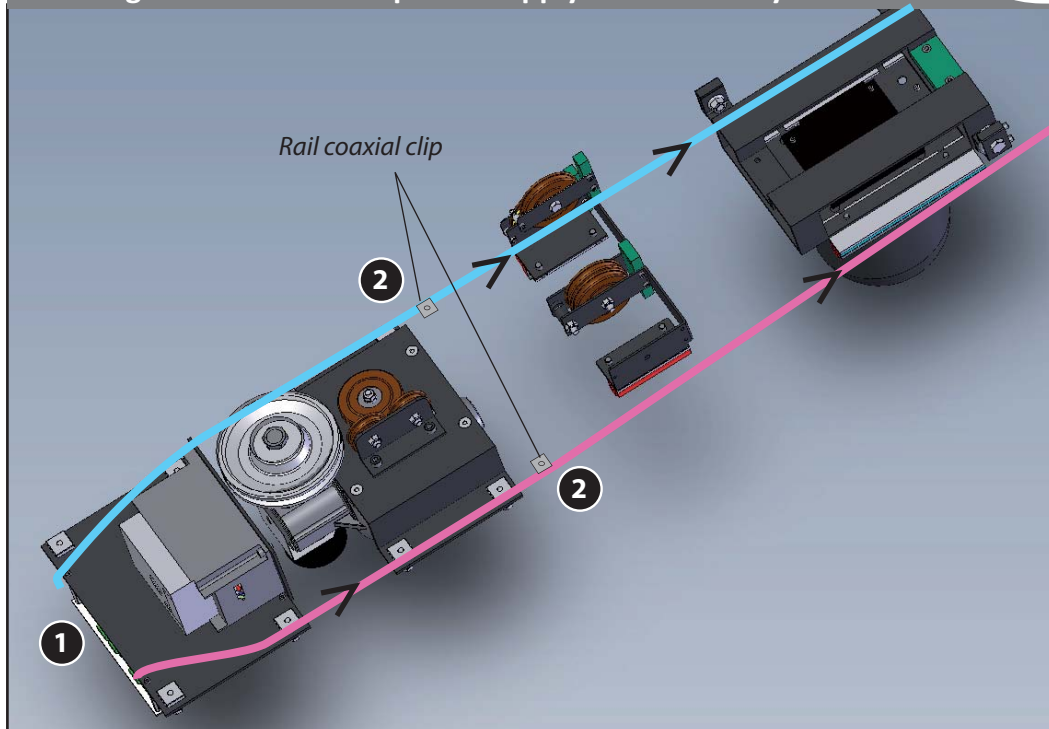
Rail coaxial clip

Camera truck coaxial clip

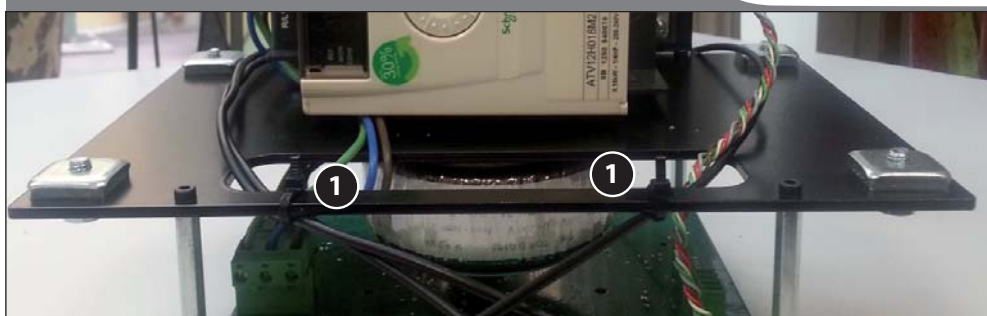


- K1 and K2 start at the motor station. Attach the coaxial cables using Colring type wire ties. 1
- Leave 1 meter of coaxial cable at the start to reach the connector terminal 24~ (green)

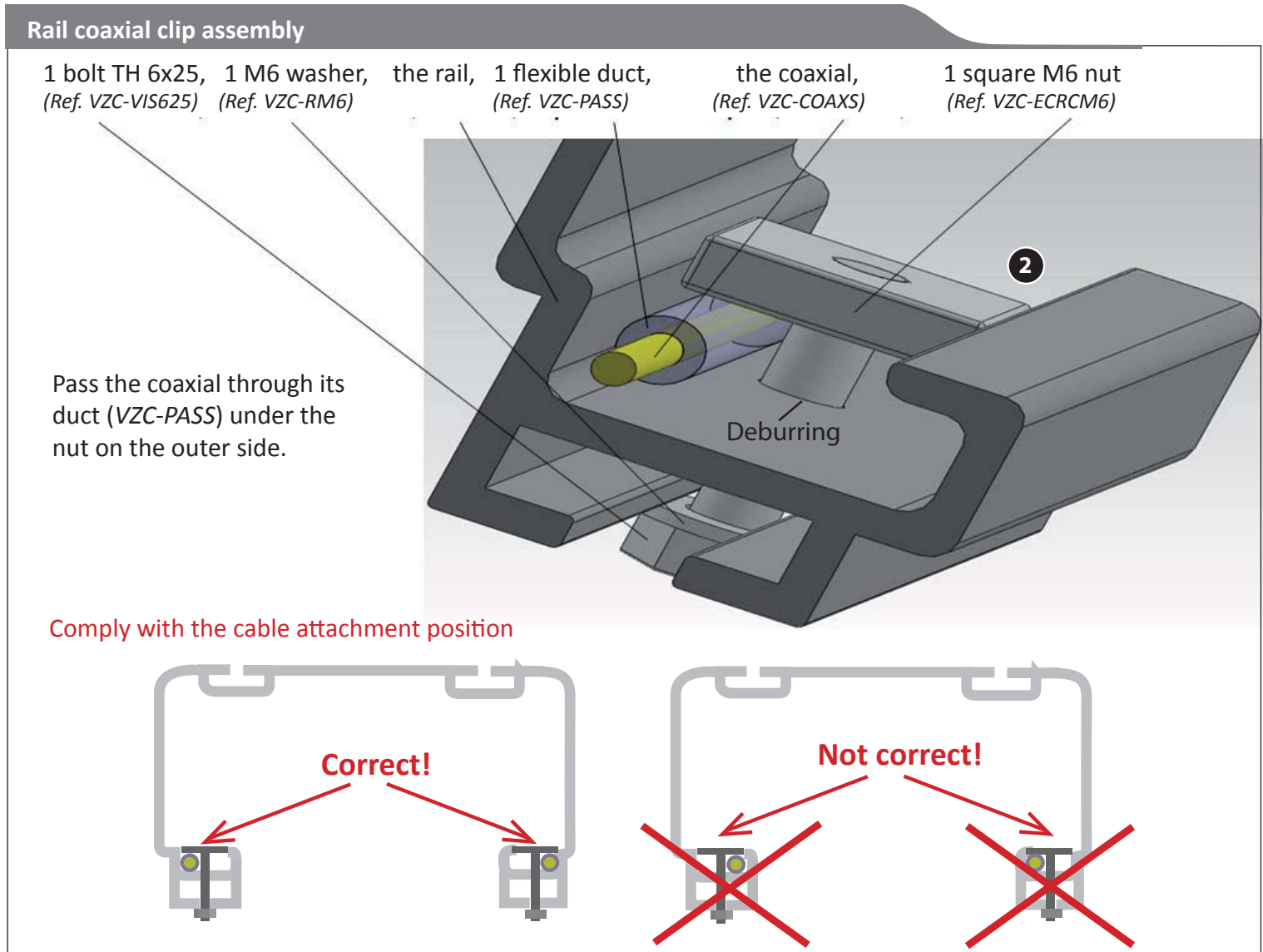
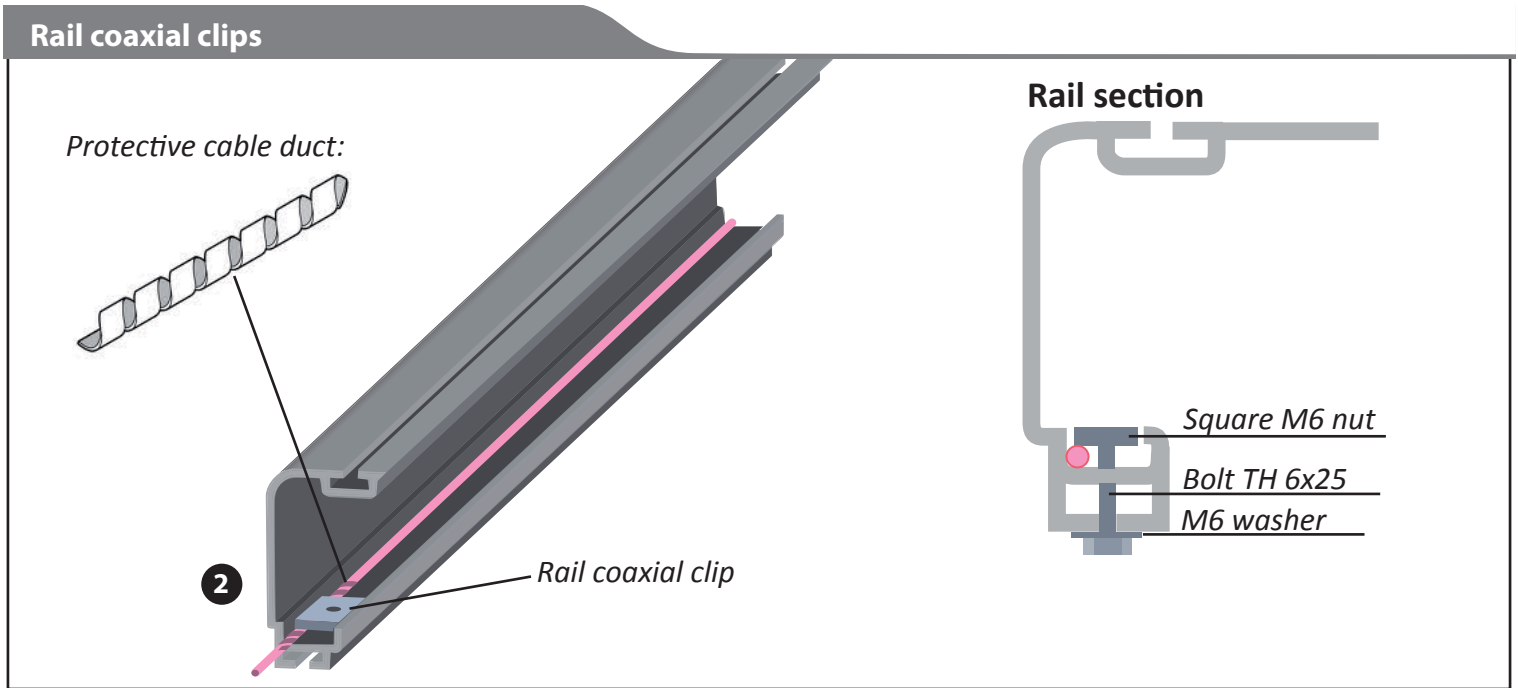
Routing of coaxial cables: power supply and telemetry



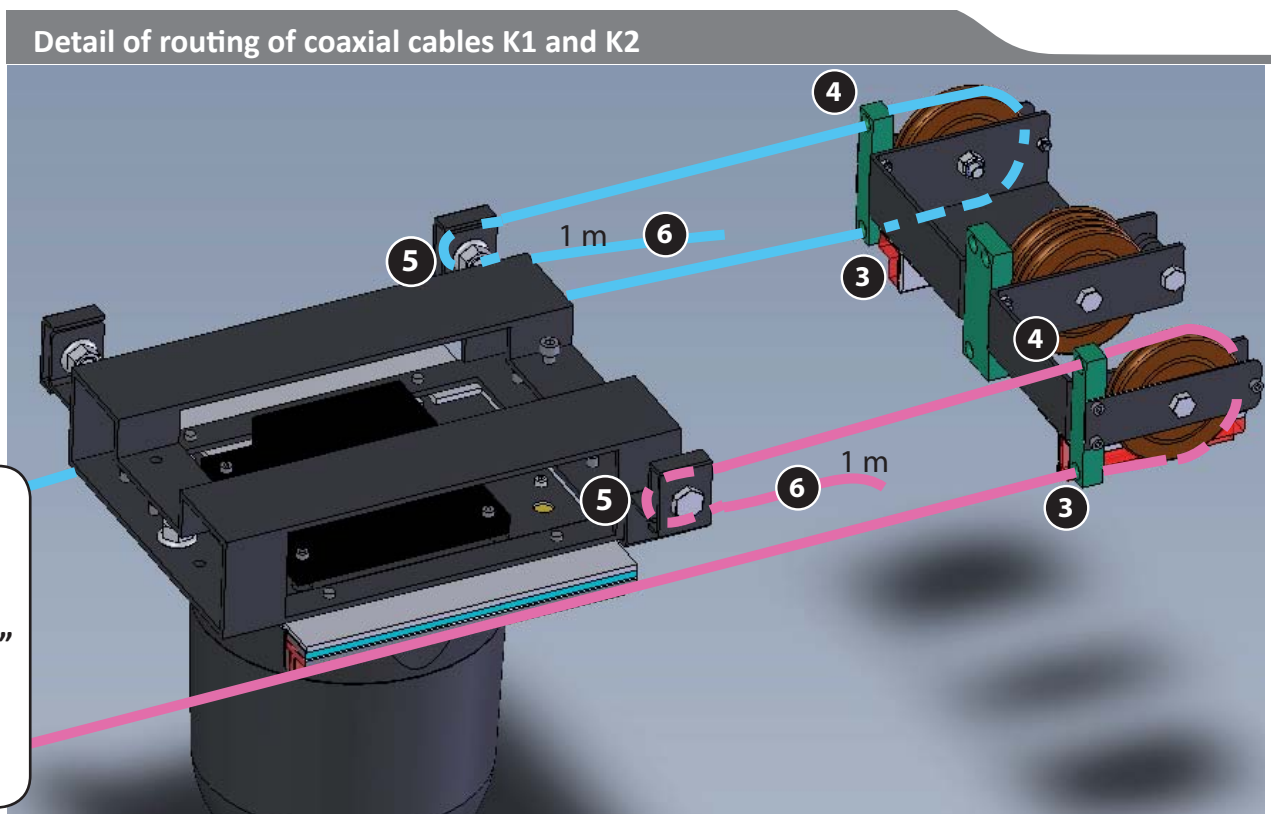
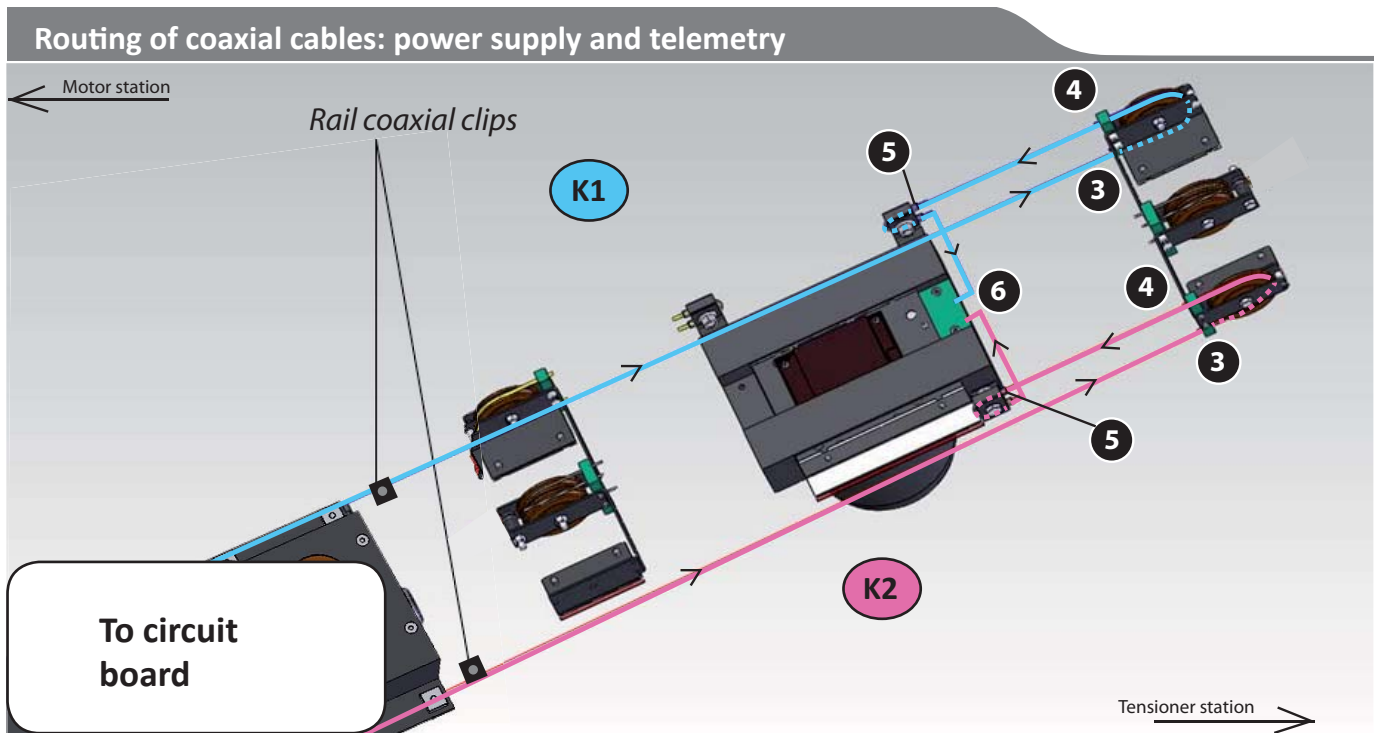
Attachment of K1 and K2 at the motor station



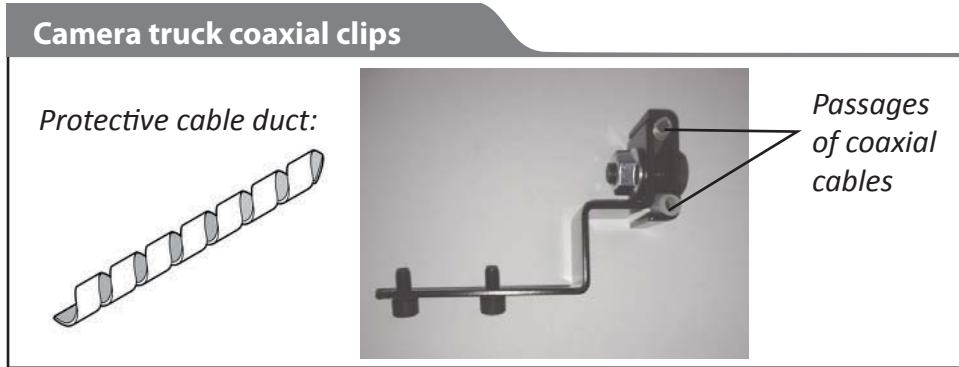
- After passing it above the motor station, fix the cable at the rail coaxial clip using a protective cable duct. Return to the tensioner base through the rail channel.



- Pass through the green bottom guide of the tensioner base. 3
- Make a half turn on the pulley.
- Pass through the green top guide of the tensioner base. 4
- Return to the camera truck at the coaxial clips. 5
- Leave a metre of slack for the connections. 6



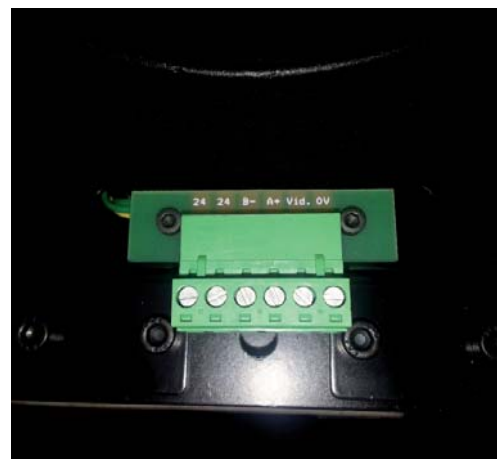
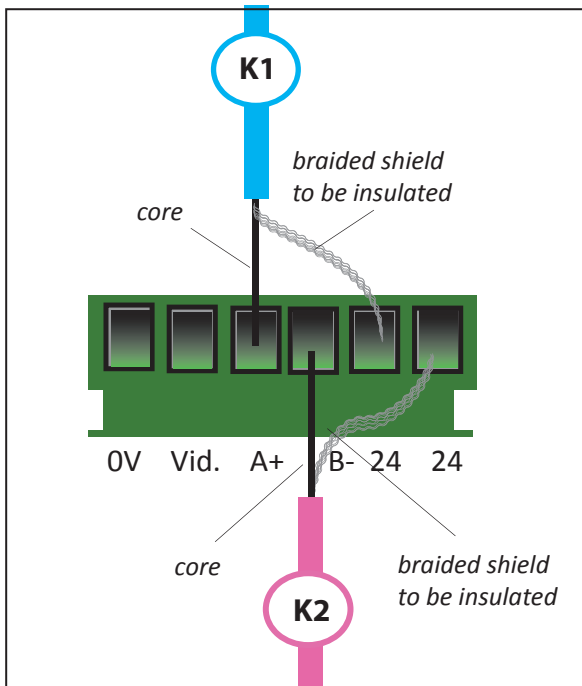
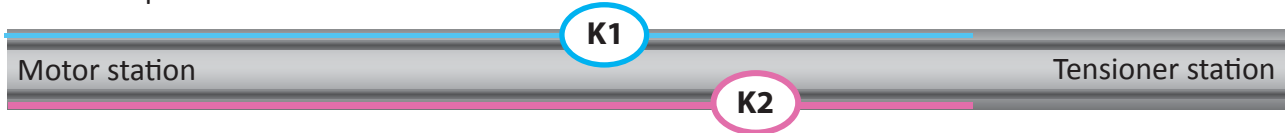
To fix the coaxial cables to the camera truck, use the coaxial clips, protecting the cable with a flexible duct (supplied). It is strongly recommended that you remove the coaxial clips to more easily position the cable.



- Connect the coaxial cables K1 and K2 to the camera truck.
- It is recommended that you tin the wires

Connecting the coaxial cables K1 and K2 to the camera truck

Reference points:

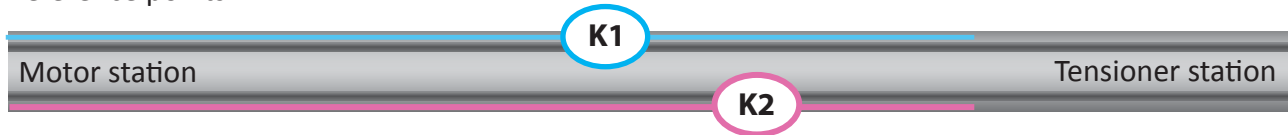


ATTENTION: It is imperative to insulate the 24V braided shields to avoid damage to the telemetry. Use the heat-shrink tubing.

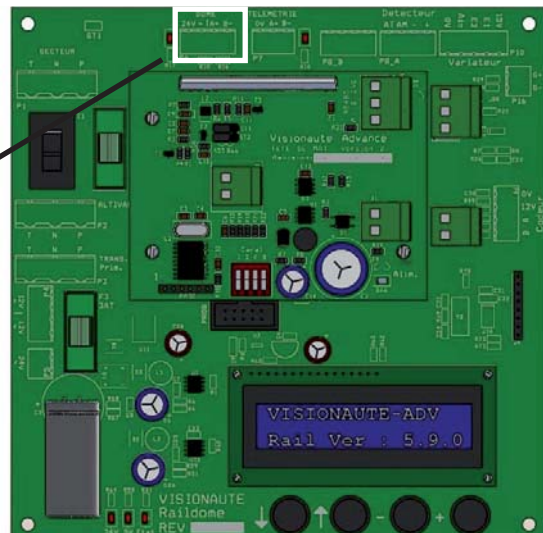
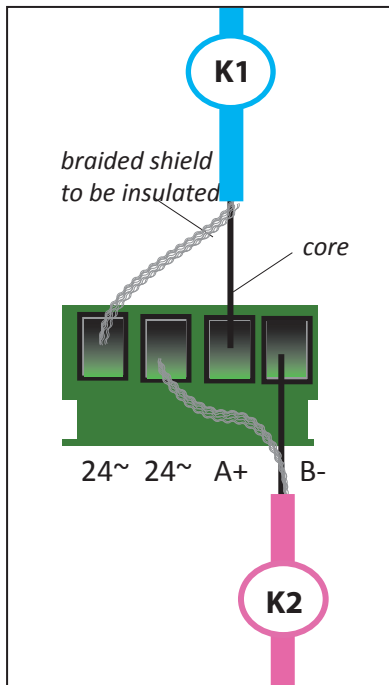
- On the motor station side, connect K1 and K2 to the circuit board on the "DOME" electronic connector, "24~" "24~" "A+" "B-"

Connecting the coaxial cables K1 and K2 to the motor station

Reference points:

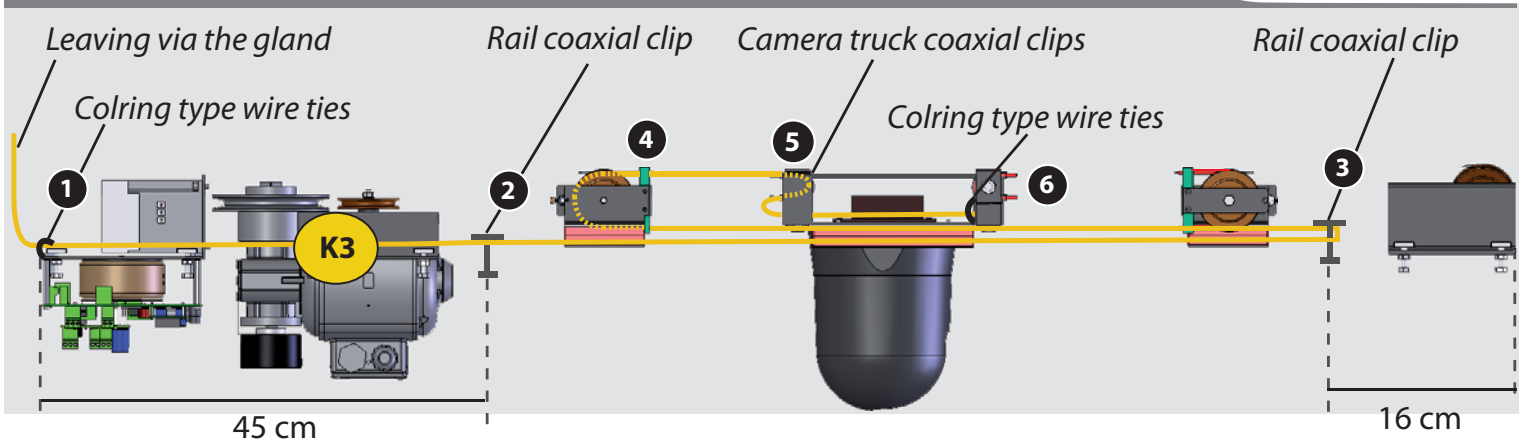


"DOME" TERMINAL



ATTENTION: It is imperative to insulate the 24V braided shields to avoid damage to the telemetry. Use the heat-shrink tubing.

Overview of the routing of K3



Departure point: the coaxial cable starts at the motor station.

- Attach the coaxial to the motor station with a Colring type plastic wire tie **1**

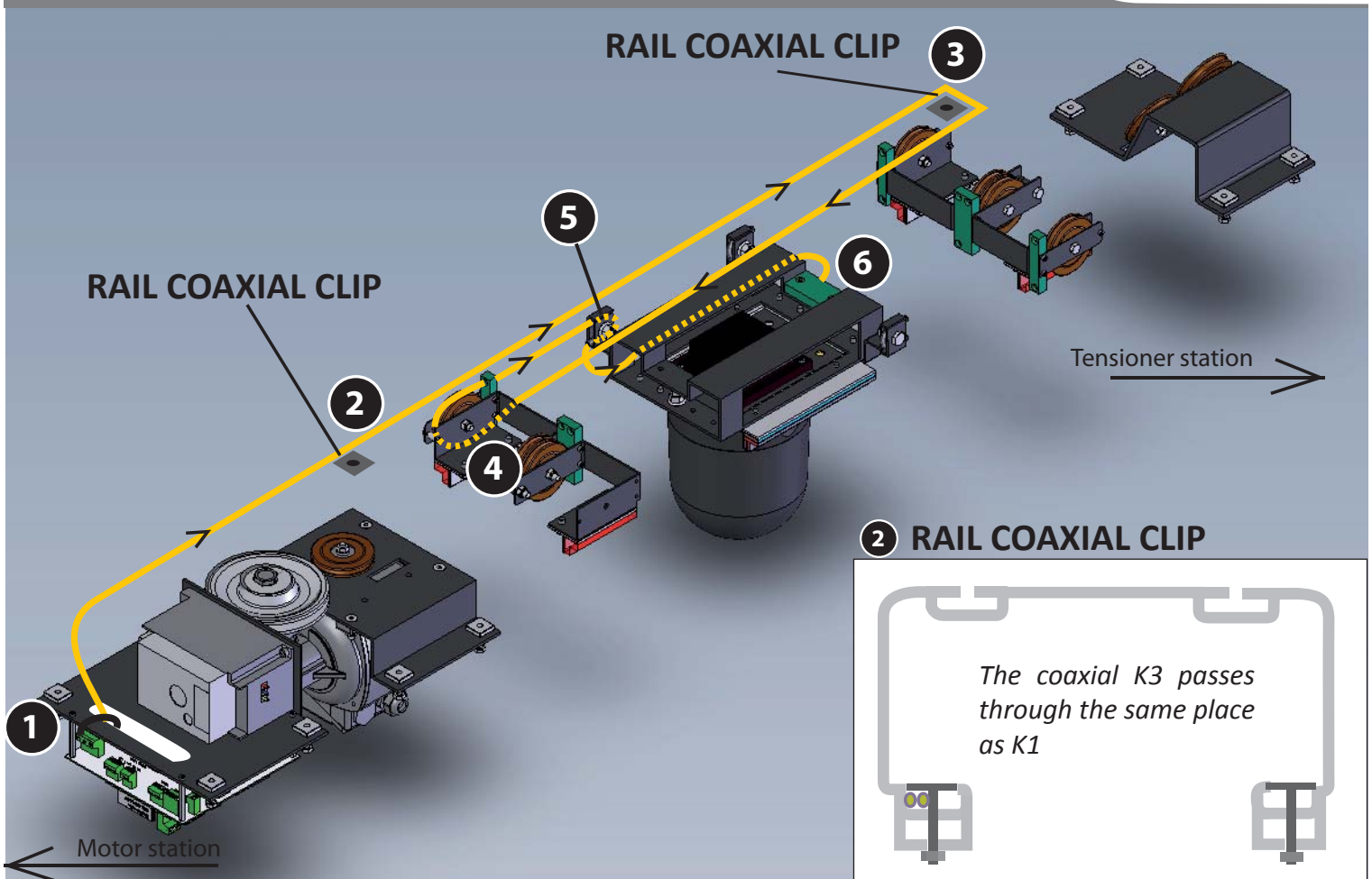
Always leave 1 metre of cable at the first attachment, in case of adjustment of the cables to release the coaxial.

- Pass through the rail coaxial clip previously installed after the motor station. Use a protective cable duct. **2**

- Return to the tensioner station via the rail channel up to the rail coaxial clip. **3**

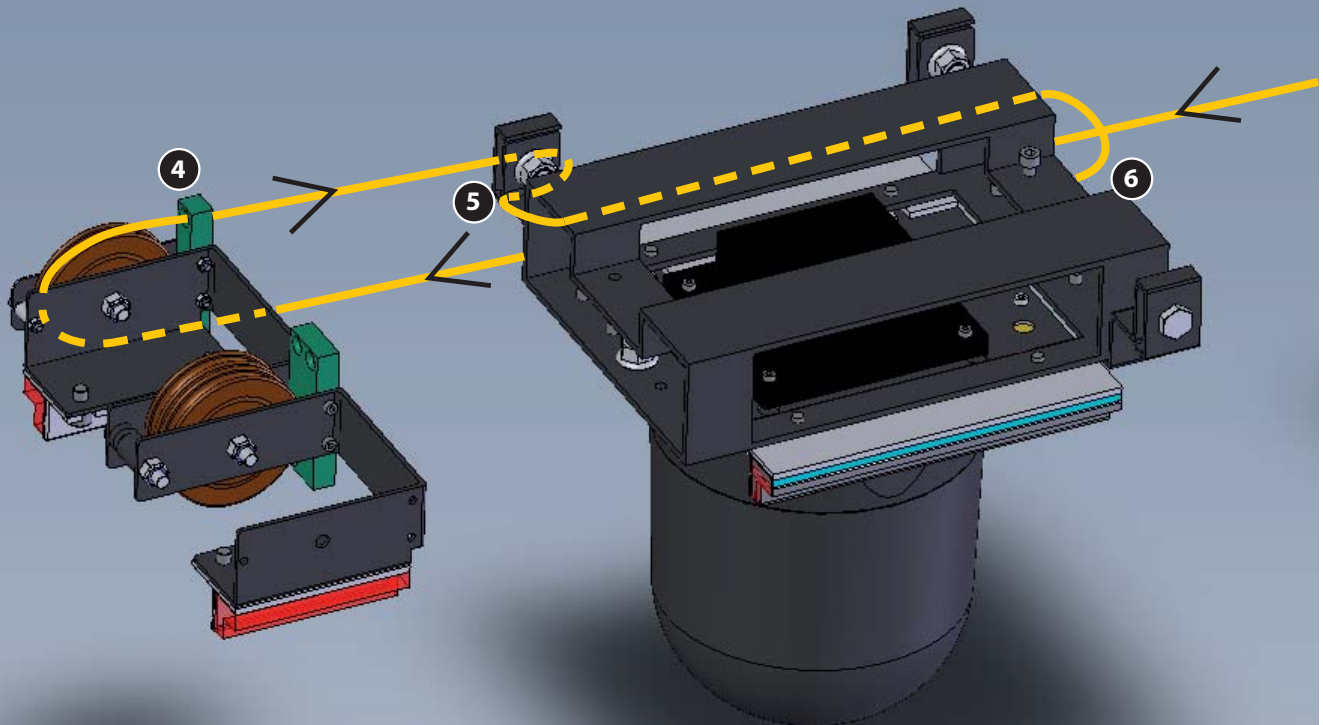
- Use a protective cable duct.

Routing of coaxial video cable



- Make a half turn to return to the motor base. ④
- Pass through the green bottom guide of the motor base.
- Make a half turn around the pulley and pass through the top green guide of the base.
- Return to the camera truck at its coaxial clip. ⑤
- Remove the coaxial clip from the truck to position the cable with a protective cable duct.
- Return to the dome connector passing through the truck base.
- Fix the coaxial cable to the camera truck using a Colring type wire tie ⑥

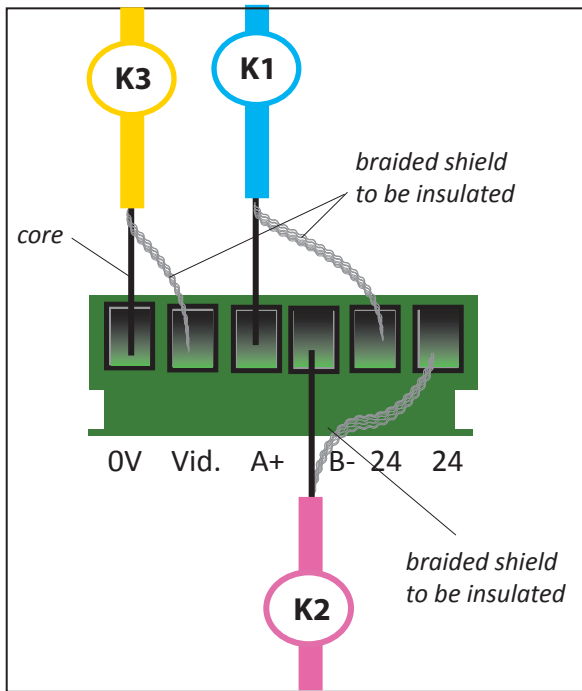
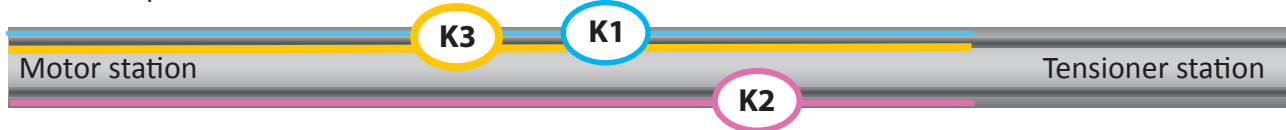
Detail of routing of coaxial video cable



- Connect the coaxial cable K3 (video) to the camera truck.

Connection of the coaxial cable K3 to the camera truck

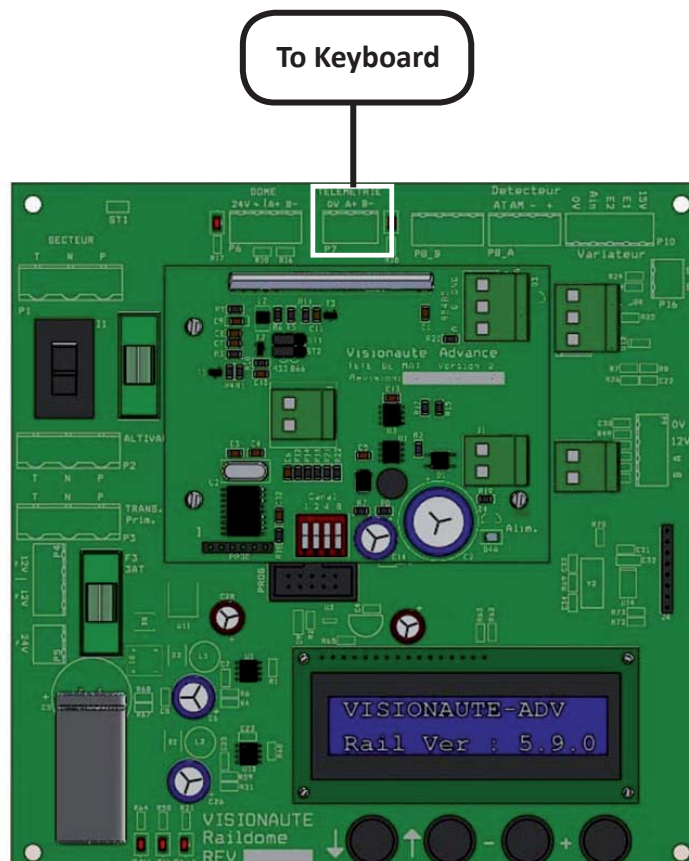
Reference points:



Bring out K3 on the motor station side via a gland.
Connect the video cable to the connection to the PC.

The video cabling is via the connection box above the motor station.
Splice the Raildome K3 (video) coaxial cable and the video cable coming from the security PC.

The keyboard is connected to the TELEMETRY "0V A+ B-" connector on the circuit board with an RS485 telemetry line with a twisted pair and a grounded shield



RAILDOME®

PHASE V - ADJUSTMENTS

Data given for information only FACTORY SETTING, DO NOT TOUCH!

The ACC and DEC parameters on the variable speed drive must be set to 0

(this new card controls acceleration and deceleration)

Adjustments on the variable speed drive:

- ACC = 0
- DEC = 0 possibly 0.2 for gentler braking.
- HSP = 75
- CONF / FULL / drc / tfr = 75
- CONF / FULL / FUN / rr5 = L2H

The other settings are default factory settings.

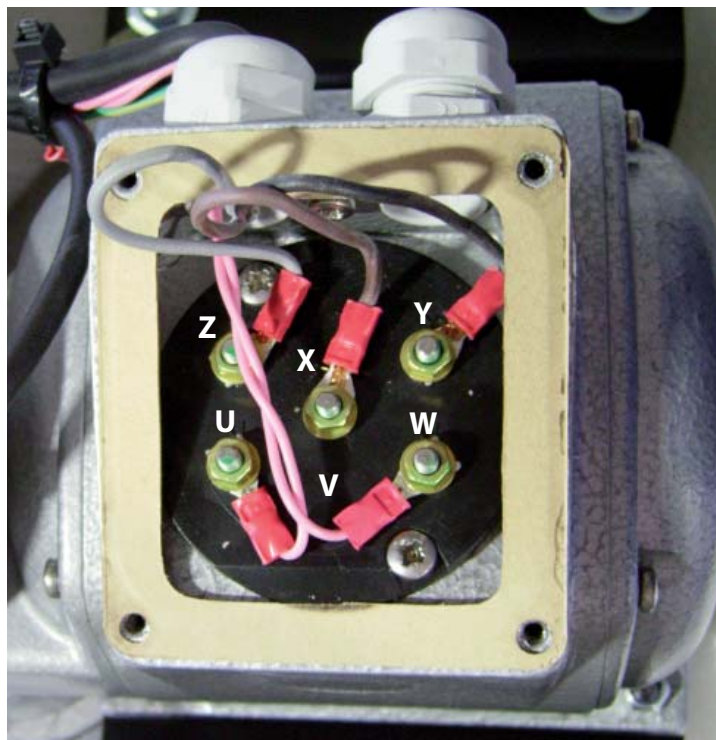
These parameters are given for information and are normally already set on delivery.

Connection:

VARIABLE SPEED DRIVE	Wire	CONNECTOR CARD P10 VARIABLE SPEED DRIVE
COM	YELLOW or WHITE/GREEN	0v
AI1	PURPLE or GREEN	Ain
LI1	BROWN	E1
LI2	GREY	E2
+24V	RED	15V

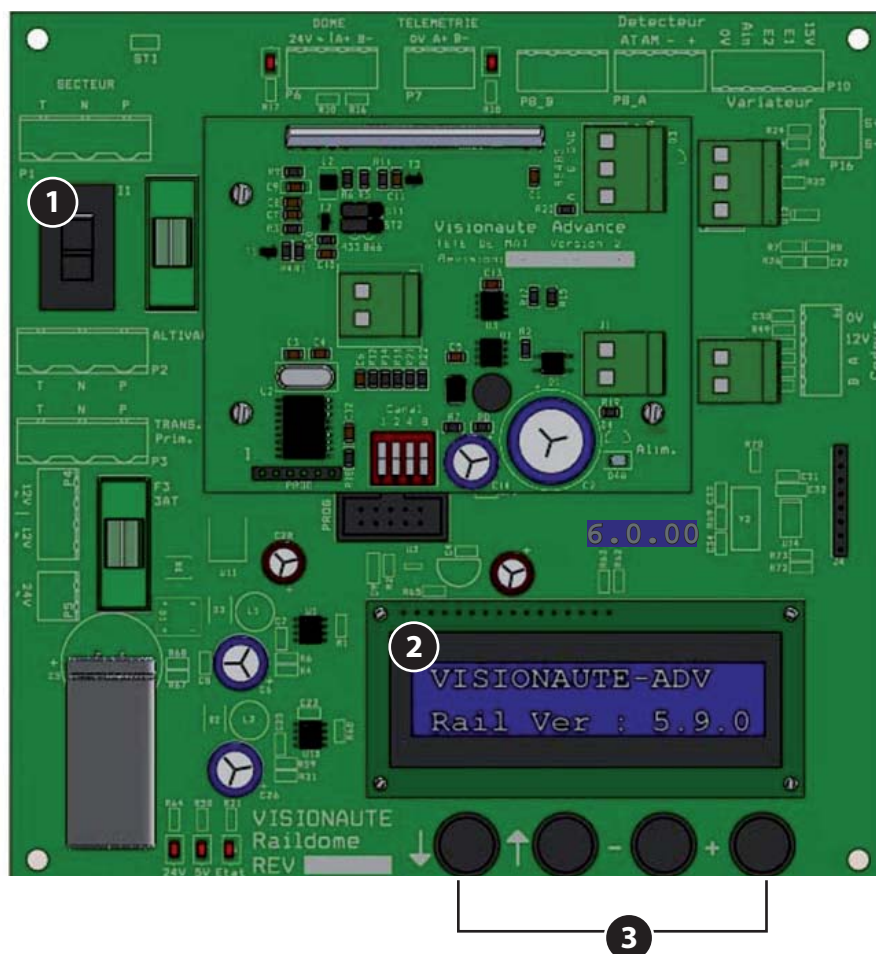
2. MOTOR WIRING

Motor connection cable colours.
Data given for informational purposes.



The rail circuit board contains:

- A start and stop switch **1**
- a display with 2 lines of 16 characters **2**
- 4 navigation buttons: **3**
 - 2 buttons marked with arrows used to move around the parameter menu
 - 2 buttons marked with “+” and “-” used to change the values of the parameters



Display and parameter menus:

VISIONAUTE-ADV Rail Ver : 6.X.X	Version information screen, indicates the release no. of the software
P= 0.000 V=0.00 P000 T000	Position, speed, pre-position and sequence countdown information screen
Distance Total d= 00,00Km	Total rail travel since start-up information screen
Tests Mouvements RailAP – AR + AV	Translation movements at approach speed test screen
Tests Mouvements RailPV – AR + AV	Translation movements at low speed test screen
Tests Mouvements RailGV – AR + AV	Translation movements at high speed test screen
Tests Mouvements Azimut – G + D	Dome rotation movements test screen
Tests Mouvements Site – B + H	Dome site movements test screen
Adresse du Rail 1-127 1	Camera/Rail no. parameter screen
Plan Large Prepo Oui / Non	Zoom back during movements between pre-positions parameter screen
Duree Acceler... 0.2 a 5.0 s 3.0	Acceleration duration parameter screen

Vitesse init 0.15-0.6 m/s 0.30	Initialisation speed parameter screen
Petite Approche 0.15-0.99m/s 0.30	Speed approaching a sensor or position parameter screen
Grande Vitesse 0.3-8.0 m/s 4.20	Maximum speed to be reached parameter screen
Télémetrie - + SAMSUNG	Telemetry selection parameter screen
Baud Télémetrie 9600	Telemetry speed parameter screen
Time Out Philips 128 m/s	Philips/Bosch telemetry time-out parameter screen
+ Mémoriser - Abandonner	Save parameters to non-volatile memory screen

IMPORTANT: The VIDEO inlay display will always show “Camera 1”, “Samsung”, “9600”. Do not take notice of the OSD info (as, in actuality, this is the internal dialogue between the circuit board and the dome).

ATTENTION: These parameters must be identical to the parameters of the keyboard or telemetry control system

Always check that the new parameters have been properly saved after a power cut!

Functions specific to the rail:

To reinitialise the rail: start pre-position no. 127 twice

this reinitialisation remotely simulates a restart of the rail which can clear faults caused by micro power cuts.

Wait for the dome to make the round trip and completely return to the motor station side.

Sequence programming function

Starting sequence: 2 x call pre-position no. 120

Sequence declaration: 2 x call pre-position no. 121

Change pause time: pre-position no. 123 followed by the pre-position no. corresponding to the time in s

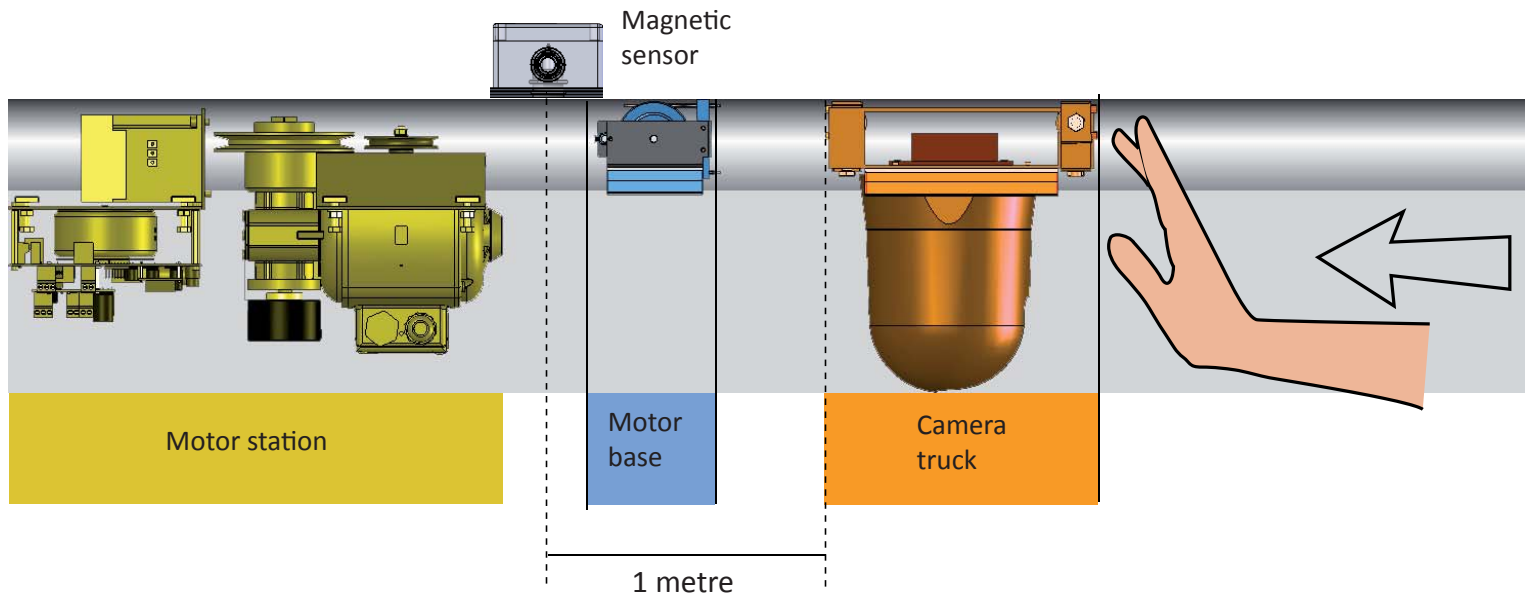
End of sequence: start pre-position 122

ATTENTION: When putting into service, the coaxial cables must not be tight.

In effect, the traction cables have a tendency to stretch after several kilometres of operation and, in contrast, the coaxial cables become tight.

TO BE CHECKED ANNUALLY OR BIANNUALLY DEPENDING ON THE AMOUNT OF USE.

Position the truck 1 metre from the sensor on the motor station side



Power up the rail.

The rail will initialise itself, the truck will move under the sensor on the motor station side

then move slowly to the sensor on the tensioner station side.

then return at high speed to the motor station side sensor.

The rail is now ready for operation.

The noise from the cables during the first few kilometres is entirely normal.

Using the display menu, perform dome movement operating tests.

Adjust all of the parameters using the menu on the circuit board display (see p.53).

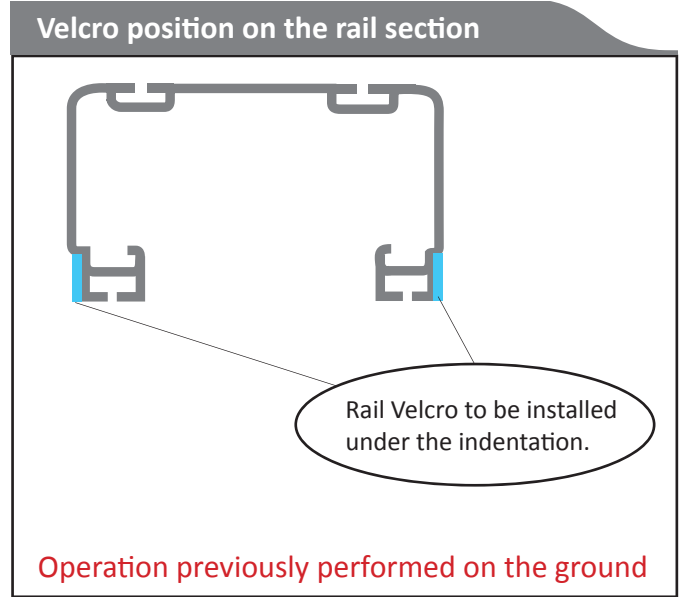
Cut off the excess traction cable and burn the ends with a lighter to prevent fraying.

A two-way mirror effect panel is installed along the Raildome to hide the optical system.

Assemble one side of the panels to one of the rail edges.

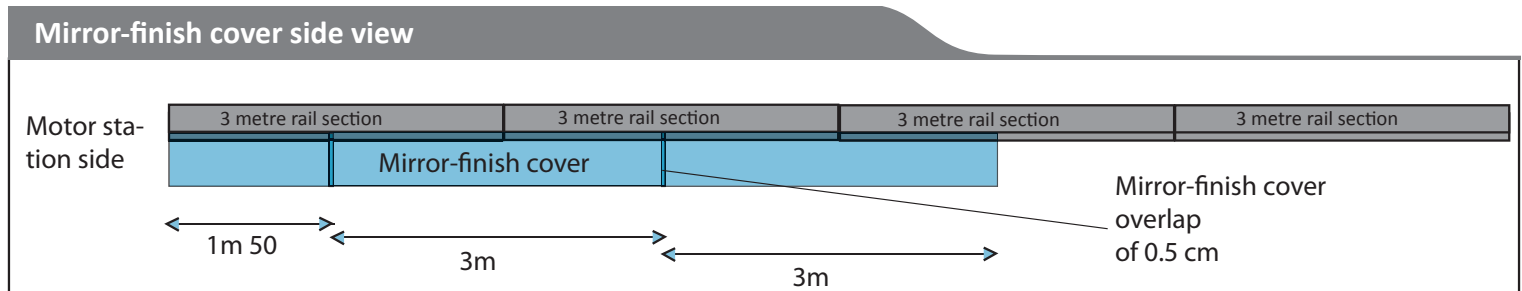
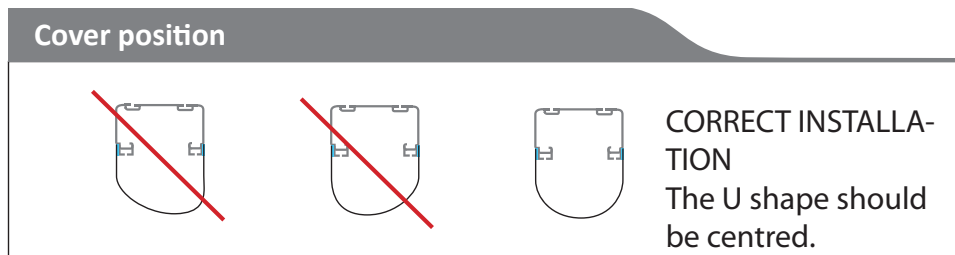
Assemble the other edge of the panel keeping them parallel.

The panels are delivered in sections of approximately 3.03 metres long. A slight overlap of about 0.5 cm will allow a perfect connection without harming the inside visibility.

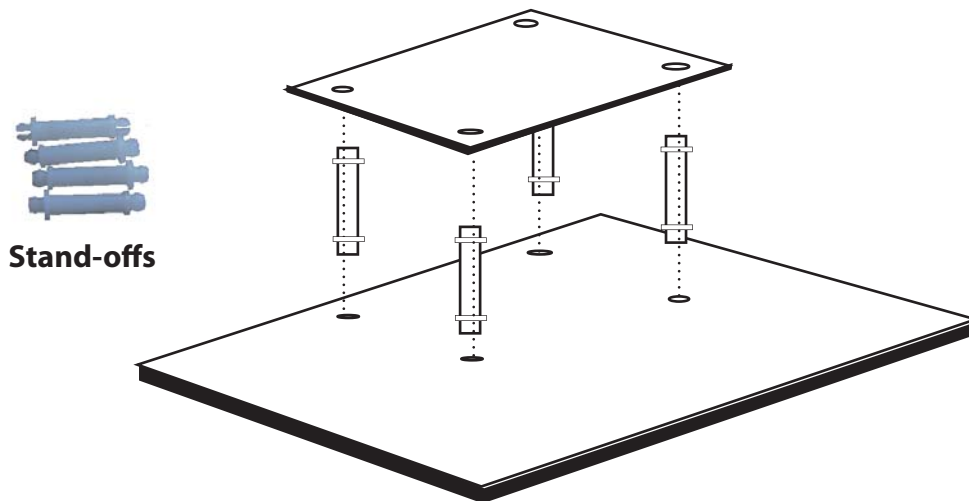


Note: for easier access, use a 1.5 metre section under the motor station! (cut a piece in half).
 Start by assembling the first piece of the cover at the least accessible end of the rail.
 As each piece of the mirror-finish cover is installed, check that the U shape is correct (See diagrams).

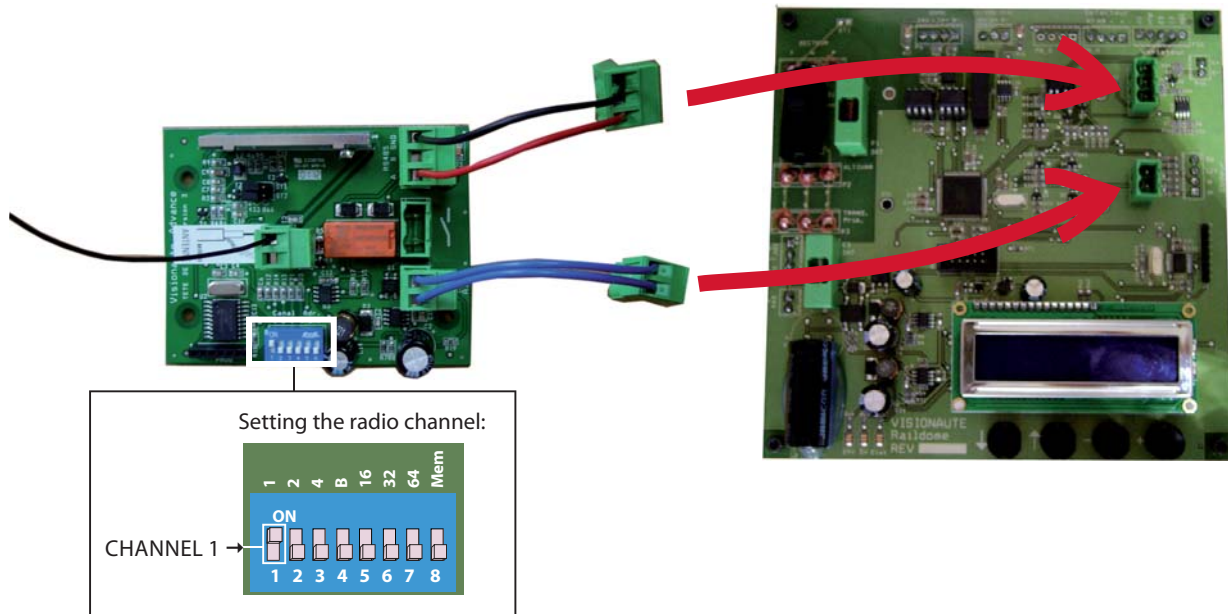
Mounting the end caps does not present any particular problem if you remembered to offset the end rail mountings.



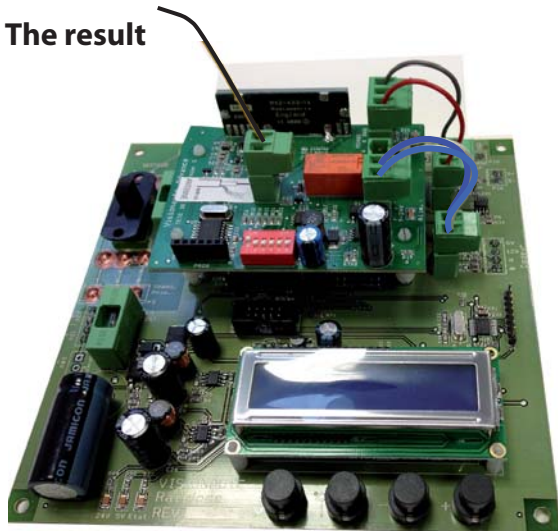
1. Assemble the daughterboard to the circuit board using the stand-offs



2. Connect the power supply and communications connectors as shown below.



3. The result



Only operates on camera numbers 1 to 4 and saving pre-positions 1 to 10.

Each movement command is active as long as the button is held down.
 The remote control uses a 9V battery (compartment on the back - battery supplied).

ACTIONS

INITIAL LAYOUT

CONTROL	①	SELECT CAMERA 1
	②	SELECT CAMERA 2
	③	SELECT CAMERA 3
	④	SELECT CAMERA 4
	◀	MOVE LEFT
	▶	MOVE RIGHT
	▼	MOVE DOWN
	▲	MOVE UP
	-	ZOOM -
	+	ZOOM +
	◀	RAIL, BACKWARDS TRANSLATION
	▶	RAIL, FORWARDS TRANSLATION

To programme a **pre-position***, position the camera at the desired location and then save it as shown below.

CONTROL	○	②	💡	RETURN TO INITIAL CONTROLS
	○	②	①	PRE-POSITION* 1
	○	②	②	PRE-POSITION* 2
	○	②	③	PRE-POSITION* 3
	○	②	④	PRE-POSITION* 4
	○	②	◀	PRE-POSITION* 8
	○	②	▶	PRE-POSITION* 5
	○	②	▼	PRE-POSITION* 9
	○	②	▲	PRE-POSITION* 6
	○	②	-	PRE-POSITION* 10
	○	②	+	PRE-POSITION* 7

↑ Replace the 2 key with the 1 key to start the corresponding pre-position.

GLOSSARY

Motor station (VZC-GAREM)	Assembly containing the motor, variable speed drive and the electronics
Motor base (VZC-NAVM)	Moving part between the motor and the truck
Camera truck (VZC-CHA6)	Moving part carrying the dome
Tensioner base (VZC-NAVT)	Moving part between the tensioner station and the truck
Tensioner station (VZC-GARET)	Part with 2 pulleys returning the inter-base cable
Cable C1, C2 (VZC-TEND)	Cable which starts at the camera truck, passes through a base and is attached 1.5 m from the centre of the rail.
Cable C3 (VZC-TEND)	Cable connecting the bases passing through the motor and tensioner stations
U attachment bracket (VZC-SUPU)	Attaches the rail using 2 fishplates
Fishplate (VZC-ECLIS6)	Flat piece of steel used to connect two rail sections.
AM (VZC-CMA)	Magnetic motor stop end-of-travel sensor, motor station end
AT (VZC-CMA)	Magnetic tensioner stop end-of-travel sensor, tensioner station end

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