



Installation procedure

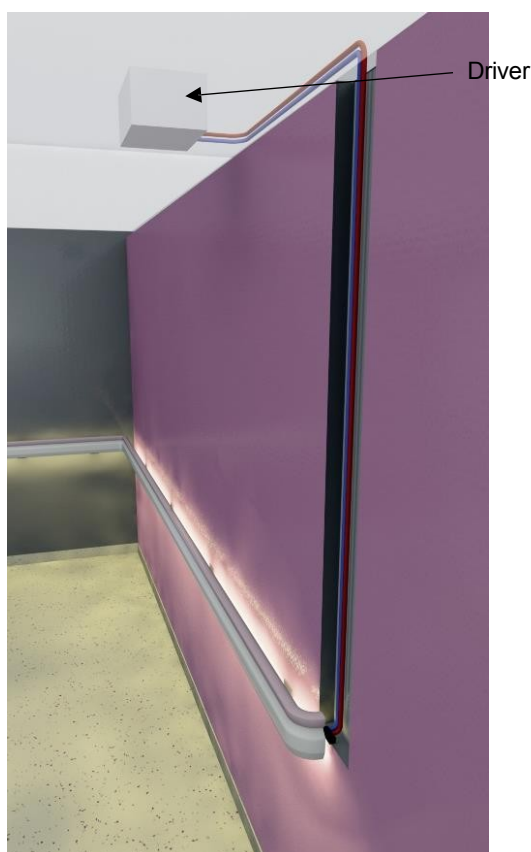
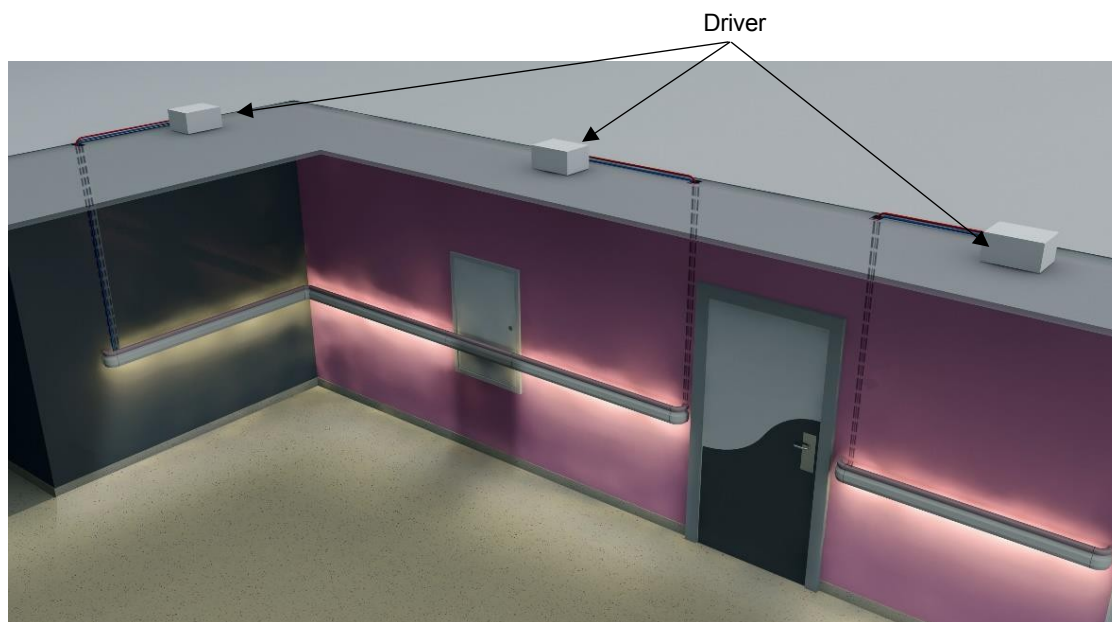
Linea'Duo LED handrail

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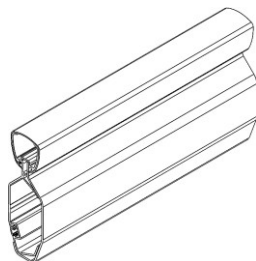
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BEFORE YOU START

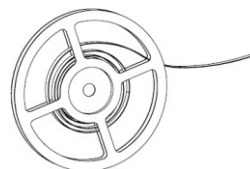
- Before installing the LINEA DUO LED handrail, the dimmable driver must be installed by a qualified person (SELV dimmable box with constant voltage SPM 24VDC 60W or sufficient power for a 12 W/m LED strip).
- The driver can be controlled by a dimmer for 0V to 10V ballasts (not supplied).
- The handrail should be connected using a domino or terminal block (not supplied) to a **24V** cable (not supplied) coming out of the wall, having first checked that the system is de-energised.
- Any work involving electrical risks must be carried out by qualified personnel.



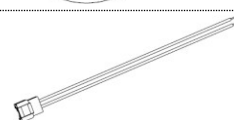
1. COMPOSITION OF THE LINEA DUO LED SYSTEM



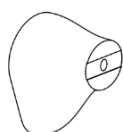
Anti-bacterial PVC bumper
handrail **with** continuous
aluminium profile
L. 4.00 m
Ref.
DULI1XXX



LED strip 5 m
coil Ref.
LD000BLC+B



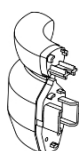
Wired connector
Ref. LD000SCO+COF



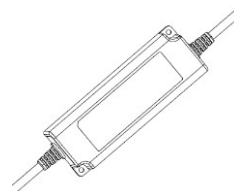
PVC mounting bracket
Ref. DULIOGVR+S



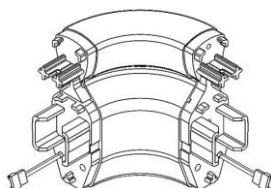
Single connector
Ref. LD000SCO+COS



End cap for wall mounting
Antibacterial PVC **with seal**
bactericidal
(right or left to be specified)
Ref. DULIO+ER



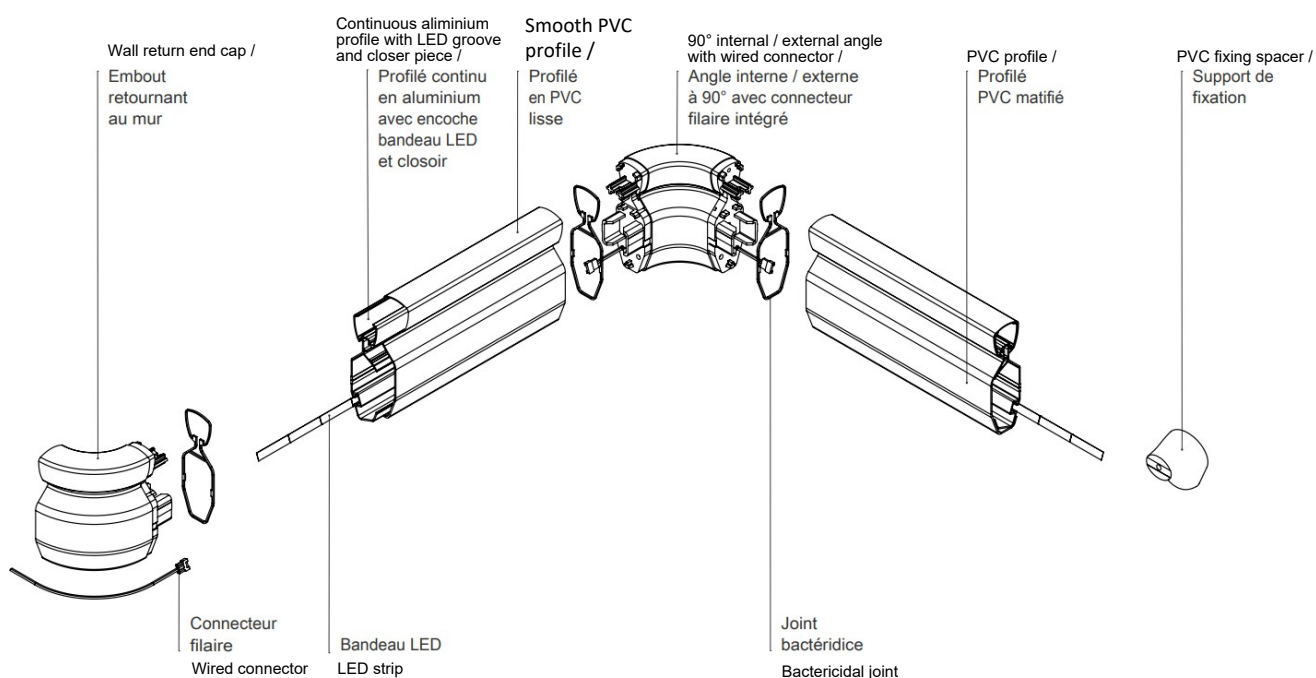
Dimmable **driver** 24V
60W
(up to 8 m of handrail
handrail)
Ref. LD000SCO+DRD



90° internal angle in antibacterial
antibacterial **with seals**
bactericidal.
Ref. DULIO+A



Connection piece
(with hexagonal locking screw)
Ref. DULIO+MD



2. TOOLS REQUIRED



**Pendulum saw
with carbide blade
for aluminium and
PVC**



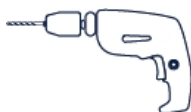
**2.5mm and 2mm
diameter Allen
keys**



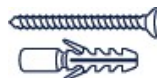
Meter and pencil



**Electrical insulating
tape**



**Drill and
screwdriver**



Screws and plugs

3. WALL TYPES / ASSEMBLY TECHNIQUES

- The table below shows the assembly techniques to be used for the main substrates used in the building industry.

| TYPE OF WALL | ASSEMBLY METHOD |
|---|--|
| ❖ Wall with wood reinforcement | Wood screws 6 x 50 |
| ❖ Metal structure | Self-tapping screw 6 x 50 |
| ❖ Single-skin plasterboard, hollow brick, hollow breeze block (*) | Metal expansion plug 6 x 50 |
| ❖ Double-skin plasterboard | Metal expansion plug 6 x 60 |
| ❖ Concrete wall | FISCHER dowel diameter 8 for 6 x 50 screw |
| ❖ Solid brick wall, old wall | Diameter 8 FISCHER-type anchor for 6 x 50 screws |
| ❖ Hollow plaster tile, aerated concrete | Diameter 8 FISCHER dowel for 6 x 50 screws |

(*) In the event of heavy loads, provide a wooden or metal reinforcement in the wall to withstand a vertical and horizontal pressure of 100 kg between 2 supports.

- In the case of installation on single-skin plasterboard (such as Placoplatre), wood or metal reinforcements should be provided in accordance with the supplier's recommendations for this type of support.

4. LED SYSTEM INFORMATION



System complies with European directives



Class III system



Module to be fitted

Non-replaceable by the user, only by a qualified person



System complies with RoHS directive



Scrap and end-of-life electrical parts should not be disposed of in standard waste bins but sent to SPM International for recycling:

SPM international S.A.S.
Déchet D3E
16 rue Isabelle Eberhardt
CS 92083 - 31019 Toulouse Cedex 2

System designed for :

- direct installation on "normally flammable surfaces".
- indoor use only.

LED strip characteristics :

| | |
|-----------------------|---------------|
| Electrical voltage | 24V |
| Power | 12 W/m |
| Luminous flux | 1200 lm/m max |
| Neutral white | 4000K |
| CRI | ≥90 |
| Base | LED |
| IP | 20 |
| Operating temperature | -25°/45°C |

The dimmable driver is offered as an option by SPM; it is SELV and constant voltage:

| | |
|---------------------|--------------------------|
| Output voltage Uout | 24 V D C — — — |
| Max power | 60W |
| Maximum length | 8 m |
| Dimming technology | 0-10V PWM Resistor |
| Dimensions | 150x53x35mm |

Before installation, refer to the driver data sheet.

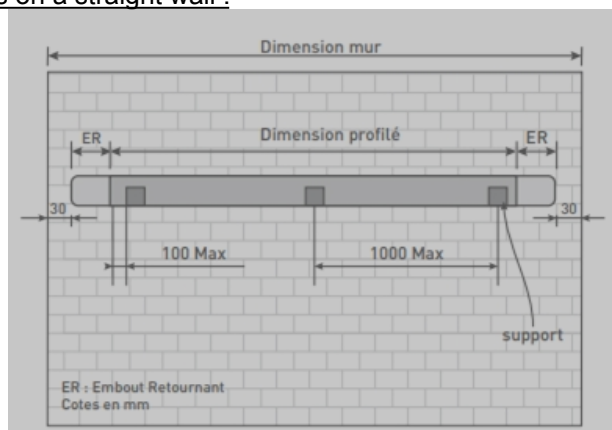
The light source contained in this lighting must only be replaced by a qualified person.

5. PREPARATION AND CUTTING TECHNIQUES

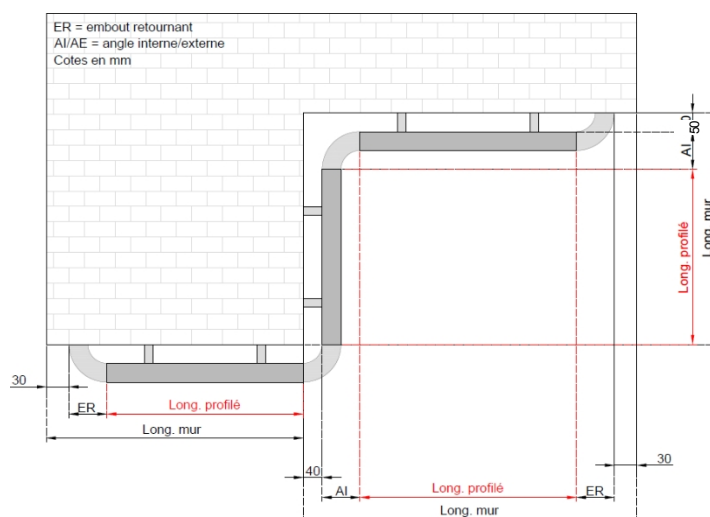
■ 5.1- MEASURING THE LENGTHS OF ALUMINIUM AND PVC PROFILES.

- Measure each section of wall in order to cut and prepare the handrail lengths in advance.
- At each end of the handrail, leave a gap of at least 30 mm between the end of the handrail (including the end cap) and the edge of the wall or frame. This space will be used to remove the end of the handrail if it has to be replaced.

Example of measurements on a straight wall :



Example of measurements taken on a wall with an internal / external angle :



- Based on the wall measurement, minus the 30 mm spacing required on the side(s), use the table below to determine the lengths of aluminium and PVC profiles to be cut according to the accessories used:

| Handrail | End cap | | | Wall return end cap | | External / internal angle |
|------------------|---|---|---|---|---|--|
| LINEA'DUO | PVC : - 27mm Alu : - 35 mm | - | - | PVC : - 97 mm Alu : - 105 mm | - | Interne PVC : - 144,5 mm Externe Alu : - 152,5 mm Externe : - 2 mm |

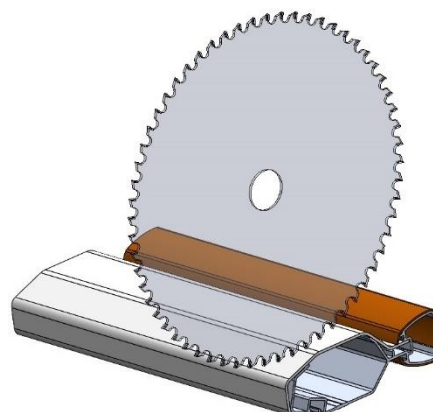
(The values include the dimensions of the joints)

■ 5.2- CUTTING ALUMINIUM AND PVC LENGTHS AND CUTTING ACCESSORIES TO SIZE

- Once the dimensions of the aluminium and PVC profiles have been determined, cut the profiles using a pendulum saw with a suitable blade (preferably a blade with small teeth to avoid splintering). The recommended blades are alternating trapezoidal and flat teeth. See tools required section.



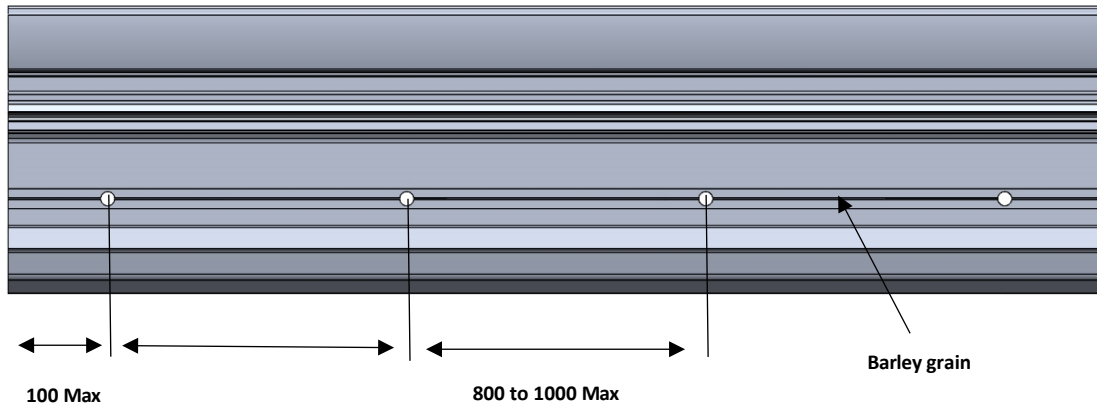
- For a better finish, it is advisable to cut the aluminium profile and the PVC profile clipped together and held on one side. Preferably cut by pushing.



■ 5.3- PREPARING THE LINEA'DUO LED HANDRAIL

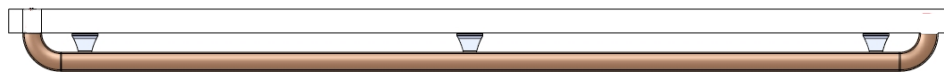
Refer to paragraphs 5.1 and 5.2 for the calculation and cutting of the profiles. Once the cut-outs have been made :

- Remove the matt and smooth PVC sections of the aluminium profile.
- First drill the holes in the barley grain of the aluminium rail for the supports close to the plugs and/or return end caps and/or internal/external corners. The distance should not exceed 100 mm. Then drill the holes for the brackets every 800 mm to 1000 mm, depending on the expected load on the handrail.

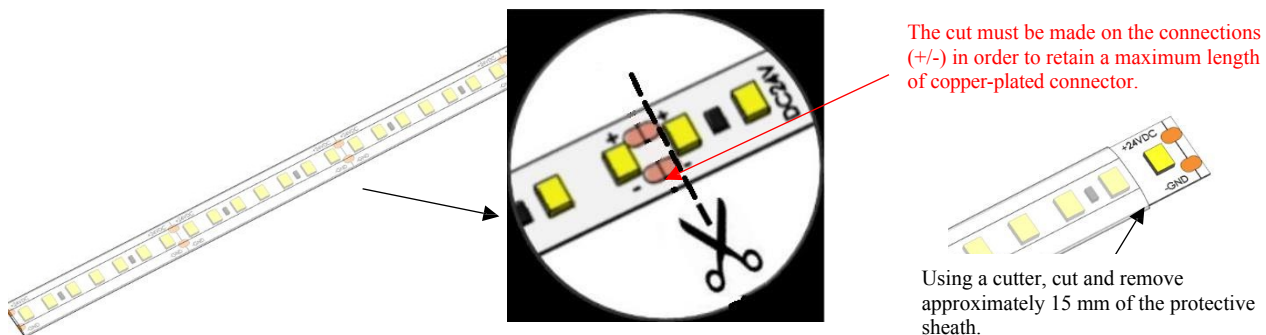


6. ASSEMBLING THE HANDRAIL

■ 6.1- INSTALLATION ON A STRAIGHT WALL



- Refer to paragraphs 5.1 and 5.2 to calculate and cut the profiles.
- Cut the required length of LED strip. The strip can be cut every 50 mm. Leave a minimum of 35 mm without strip at each end for the connector and return end. The cuts must be made where indicated by the symbol (✂).

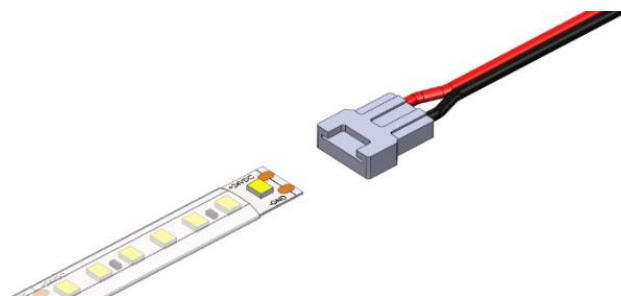


Never cut the LED strip when the system is powered up.

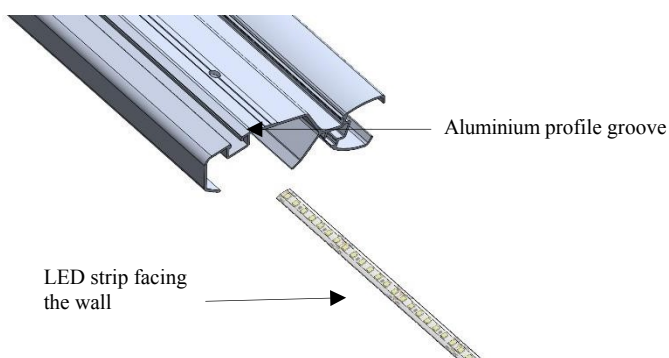
- Connect the wired connector (driver side) to the LED strip.



- *Observe the electrical standards: connect the red wire to the positive terminal and the black wire to the negative terminal of the LED strip.*



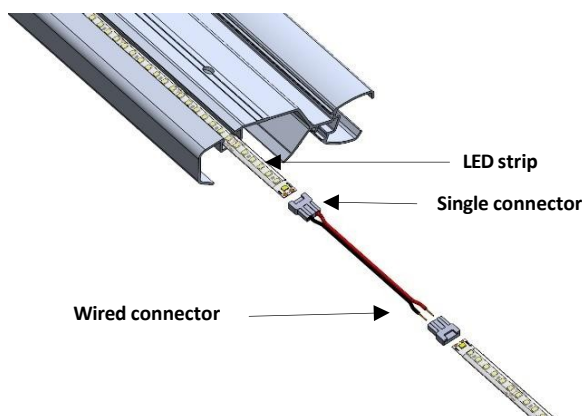
- Insert the LED strip(s) into the groove in the profile(s). The LEDs on the strip must face you.
Do not stick the LED strip in the groove.



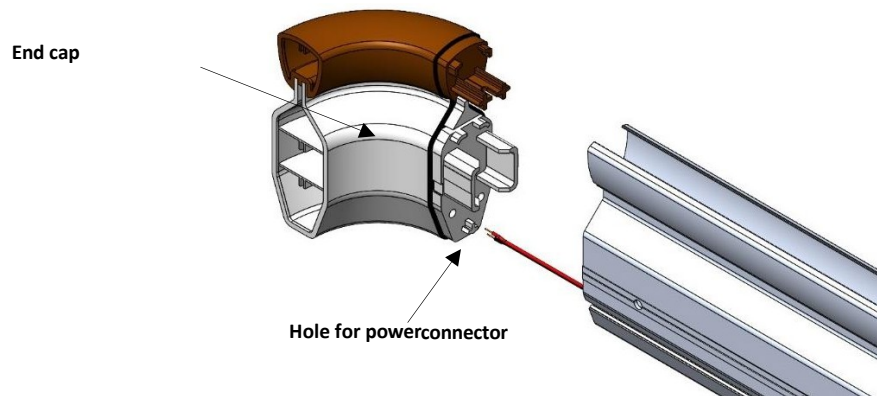
- If the profile is longer than one LED strip, the strips must be connected together. To do this, use the single connector and wired connector.



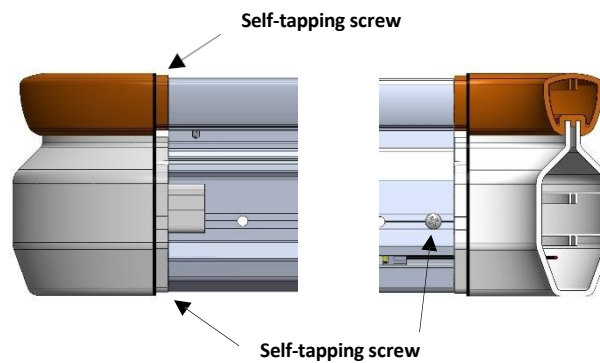
- *Observe the electrical standards: connect the red wire to the positive terminal and the black wire to the negative terminal of the LED strip.*



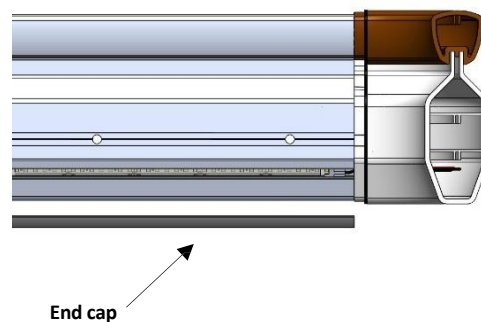
- Slide the LED strip into the groove in the aluminium profile. Position the end caps. On the power supply side, pass the wired connector through the hole provided.



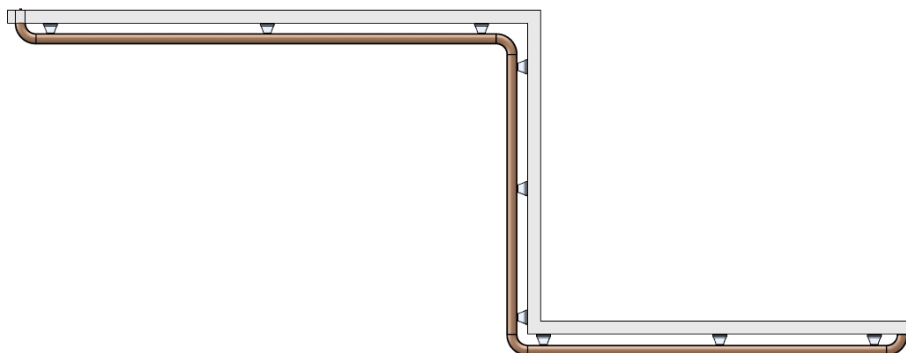
- Secure the plugs and/or end caps and/or internal/external corners (make sure to position the seals) and the aluminium rail using self-tapping screws.



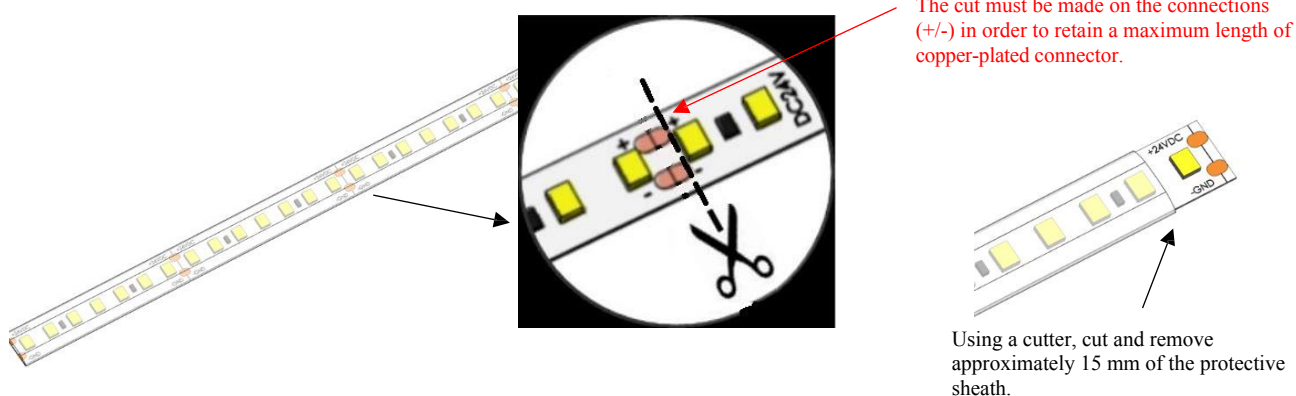
- Finally, cut the end cap to the required length and clip it into the groove.



■ 6.2- INSTALLATION AT AN ANGLE



- Refer to paragraphs 5.1 and 5.2 to calculate and cut the profiles.
- Cut the required lengths of LED strip. The strip can be cut every 50 mm. Leave at least 35 mm without strip at each end for the connectors and return end. The cuts must be made where indicated by the symbol (✂).

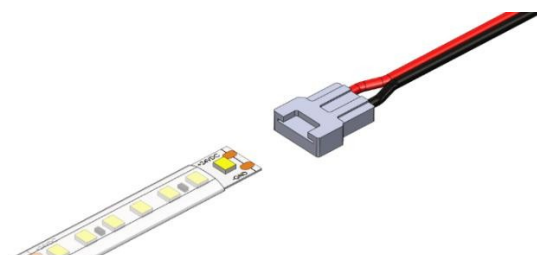


Never cut the LED strip when the system is powered up.

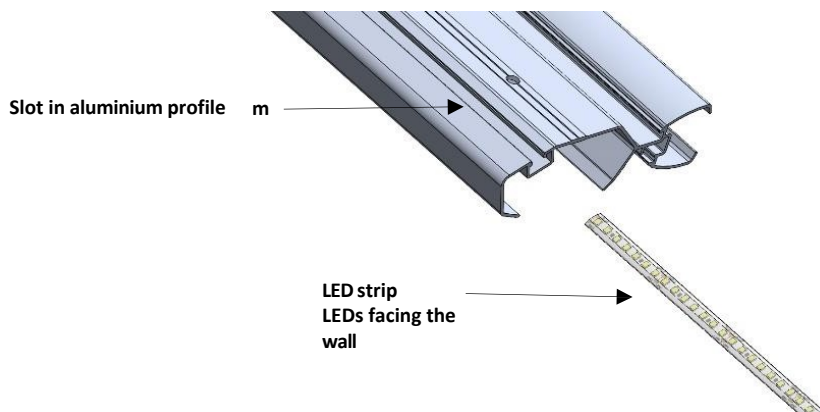
- Connect the wired connector (driver side) to the LED strip.



Observe the electrical standards: connect the red wire to the positive terminal and the black wire to the negative terminal of the LED strip.



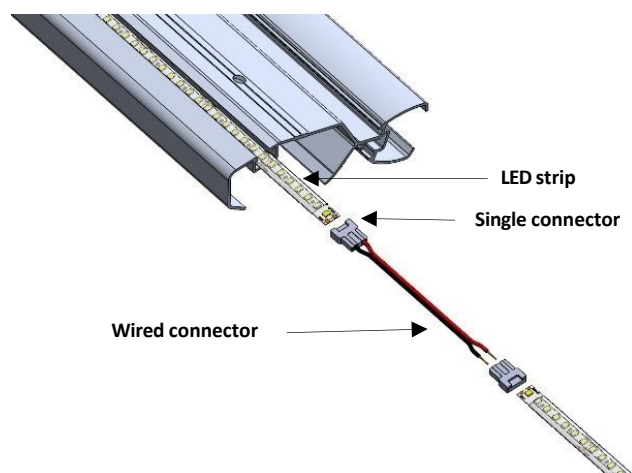
- Insert the LED strip(s) into the groove in the profile(s). The LEDs on the strip must face you.
Do not stick the LED strip in the groove.



- If the profile is longer than one LED strip, the strips must be connected together. To do this, use the single connector and wired connector.



- *Observe the electrical standards: red wire to be connected to the positive terminal and black wire to the negative terminal of the LED strip.*



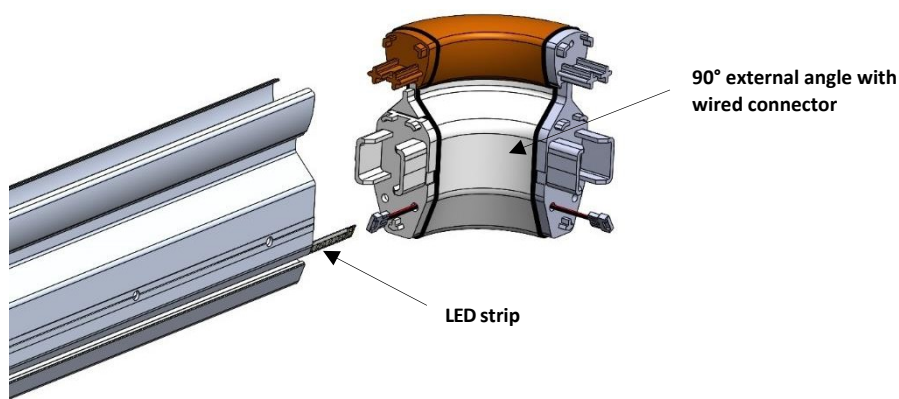
- **Corner treatment :**

- Connect the wired connector of the corner to the strip of the 1st profile, taking care to connect the red wire to the positive terminal and the black wire to the negative terminal of the LED strip.

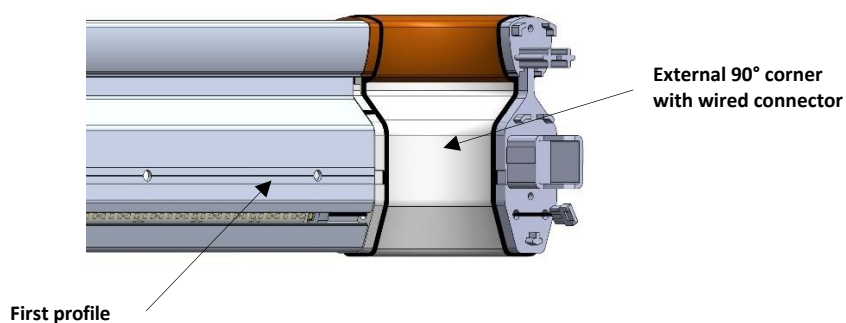


When connecting the corner, it is important to maintain the electrical continuity of the installation, so make sure that the "+" of an LED strip is connected by a wired connector to the positive terminal of the strip.

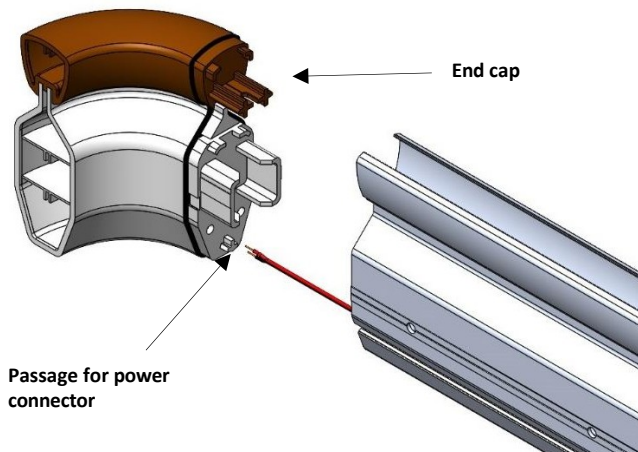
The "-" is the same as the "+" for another LED strip.



- Position and assemble the corner with the 1st profile



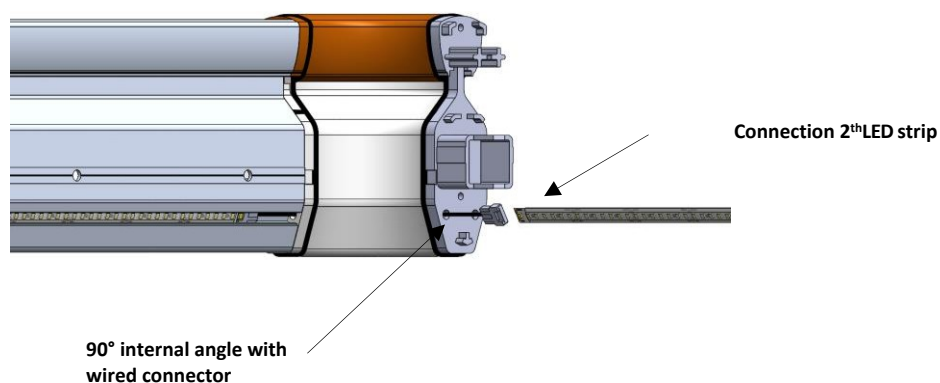
- Position and assemble the reversing end cap on the power supply side (pass the wired connector through the hole provided).



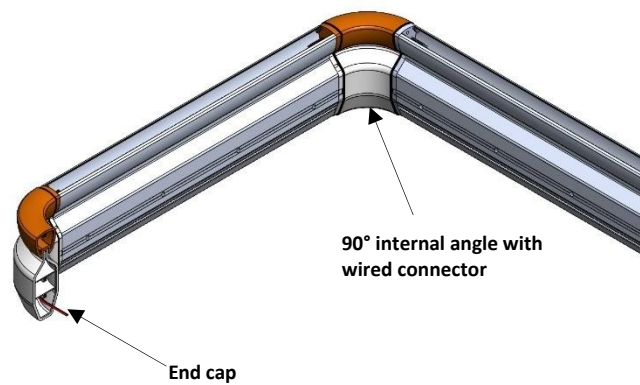
- Connect the wire connector of the corner to the strip of the 2nd profile, taking care to connect the red wire to the positive terminal and the black wire to the negative terminal of the LED strip.



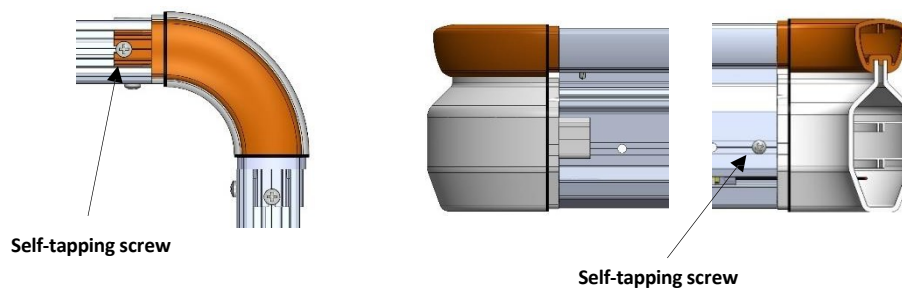
When connecting the corner, it is important to maintain the electrical continuity of the installation, so ensure that the "+" of one LED strip is connected by a wired connector to the "+" of another LED strip (same for the "-").



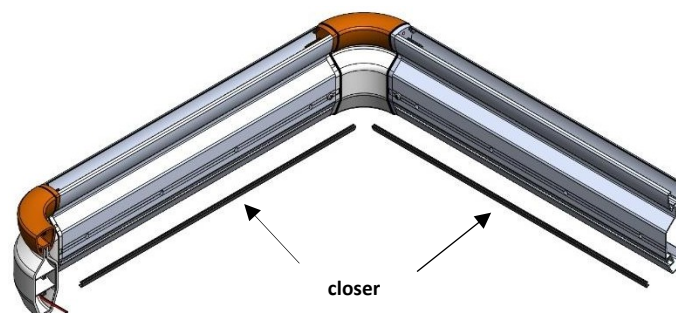
- Insert the LED strip using the same method as described above.
- Position and assemble the corner and the return end with the second profile.



- Fix the plugs and/or the reversing end caps and/or the internal/external corners (take care to position the joints) and the aluminium rail using self-tapping screws.

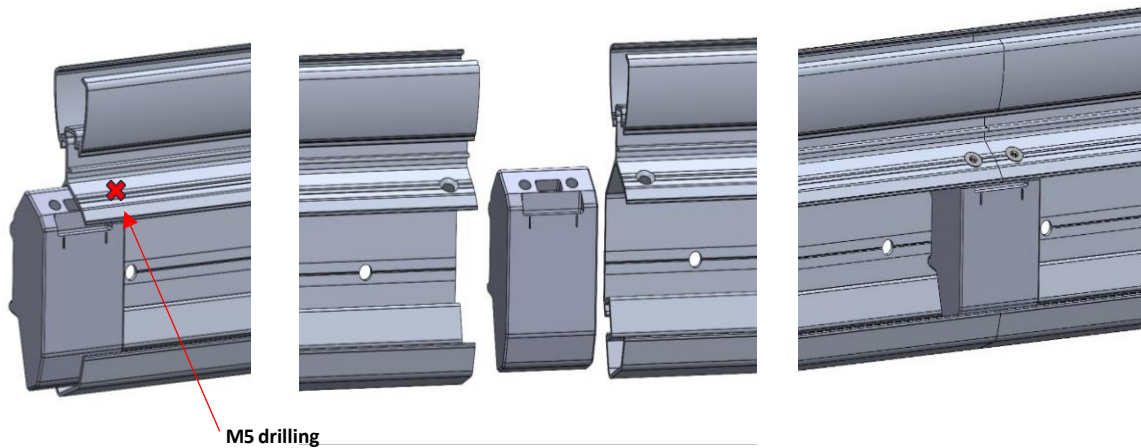


- Finally, cut the end caps to the required lengths and clip them into the groove.



■ 6.3- PROFILE-PROFILE ASSEMBLY

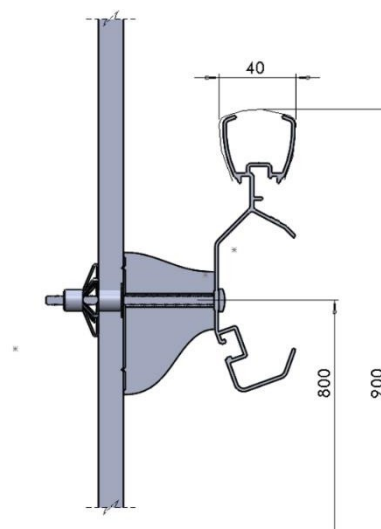
- For profile-profile assembly: mark the holes for the connecting piece on both profiles, using the indentations on the piece. Drill the holes (diameter M5) in the barley grain of the aluminium rail and countersink the holes to countersink the screw head. Fix the profiles together.
- The LED strip will not be affected by this assembly.



7. FIXING THE HANDRAIL TO THE WALL

■ 7.1 DRILLING HEIGHT

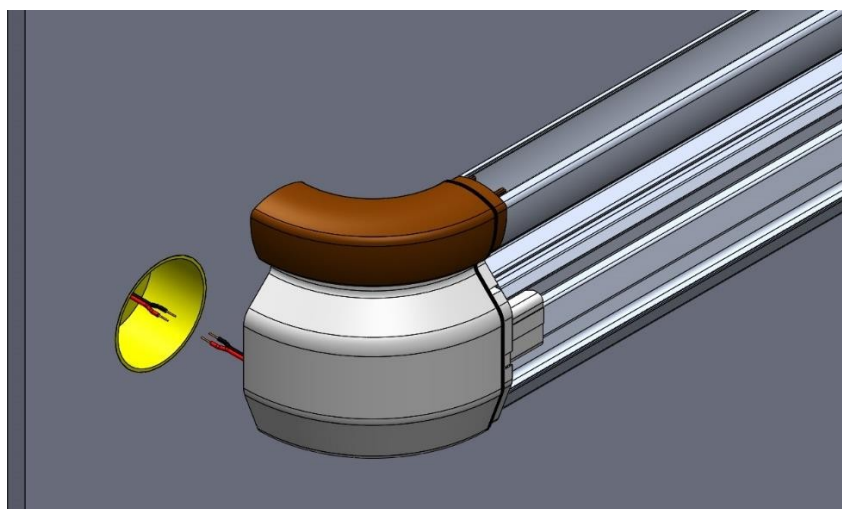
- Mark the holes for the brackets to be drilled for a handrail height of 900 mm (upper handrail support surface) the drilling height is 800 mm.
- Drill the marked holes on the wall. Insert the wall plugs.
- Fix the rail with its brackets to the wall, starting at each edge. The PVC sheaths have not yet been installed as shown in the diagram.)



■ 7.2- CONNECTING TO THE POWER SUPPLY

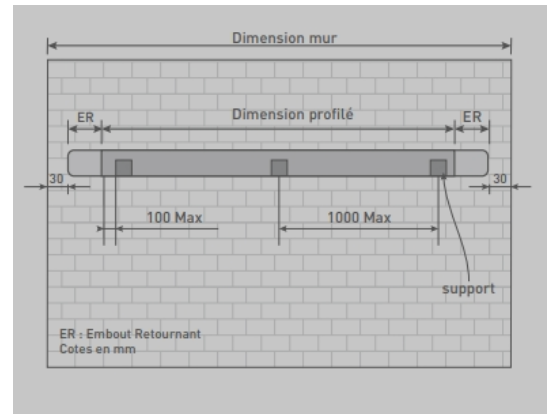


- Check that the power supply is switched off.
- Connect the wired connector (**red and black wires**) to the driver input using a domino or a terminal block.
- Installation requires the help of a qualified person.

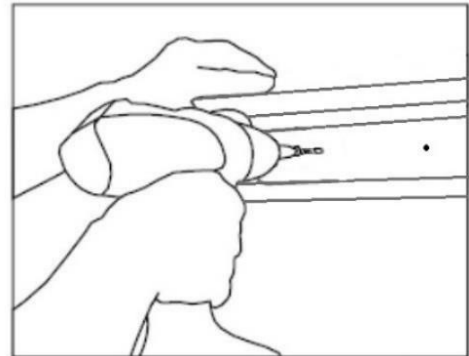


■ 7.3- FIXING

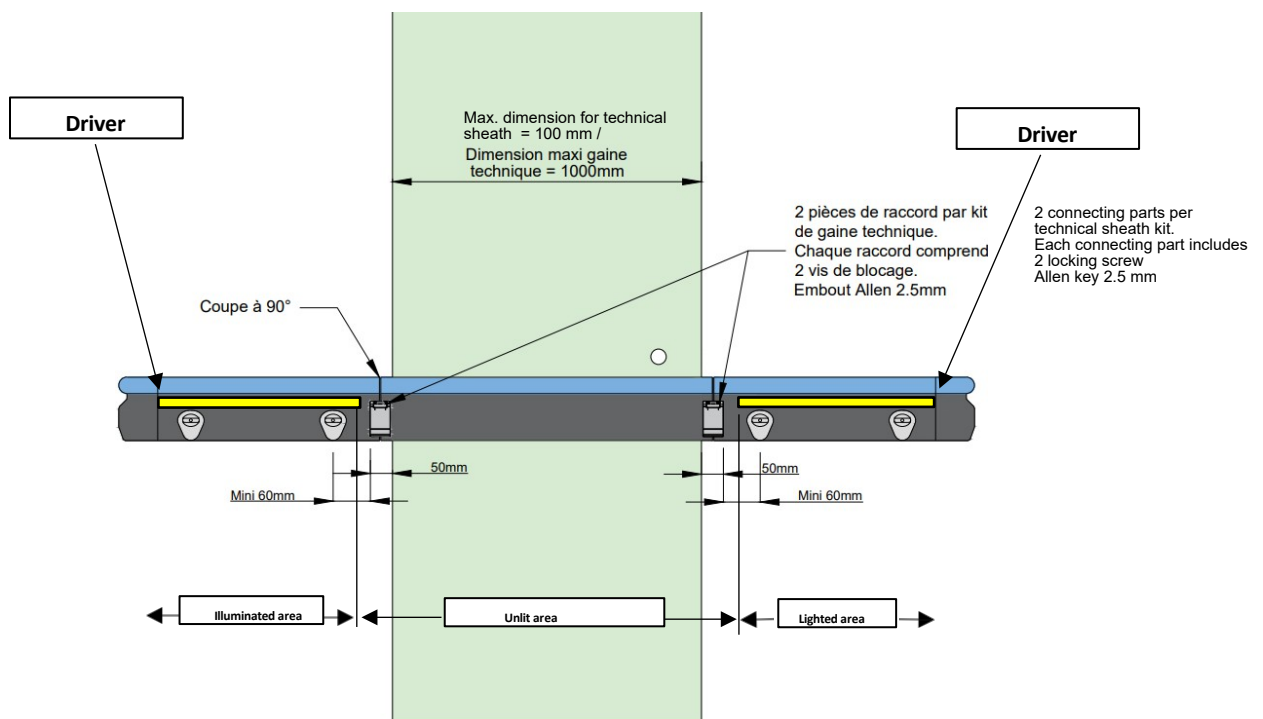
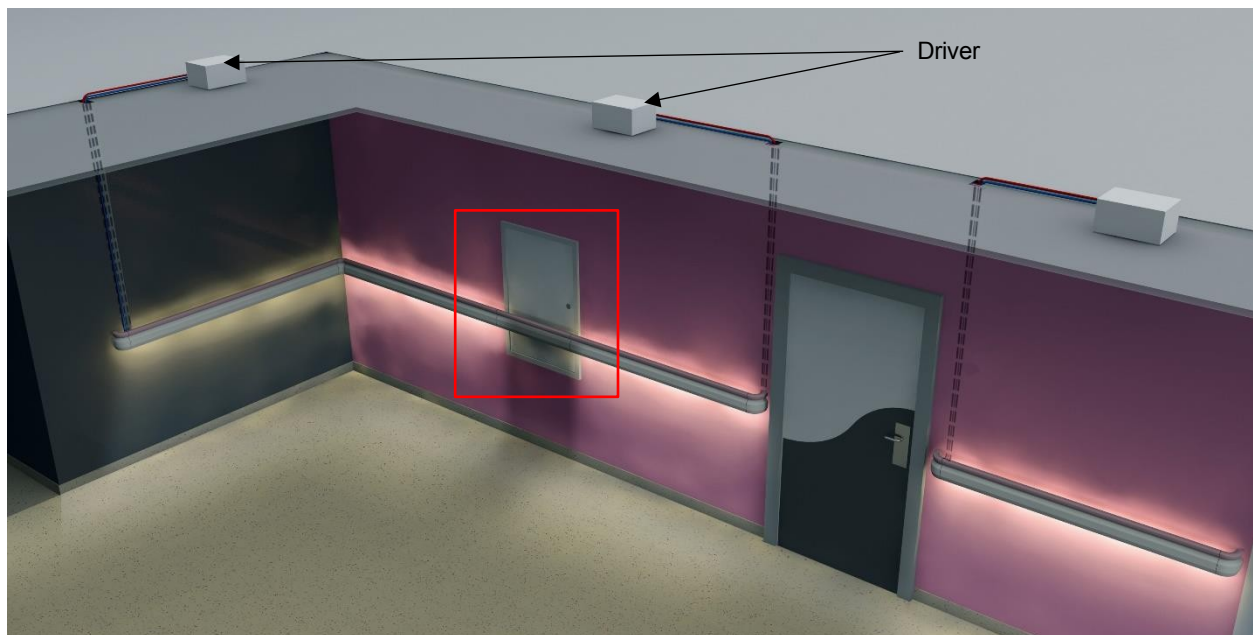
- Place the handrail against the wall. Leave a gap of at least 30 mm between the end of the wall and the end of the handrail. This space will allow the end caps to be replaced without dismantling the whole handrail.



- Mark the holes to be drilled in the aluminium profile.
- Drill the holes marked on the wall. Insert the wall plugs.
- Fix the brackets to the wall, starting at each edge.



8. TECHNICAL SHEATH



- The technical duct kit is made on site by cutting a section of handrail the length of the technical duct door + 50 mm (i.e. twice the length of a connecting piece). The cut is made at 90°. Then position the elements according to the dimensions shown in the sketch above.
- Make sure you cut the handrail end cap properly so that you can remove the removable part positioned in front of the technical duct.
- **The removable part of the handrail does not contain an LED strip, an unlit area the size of the profile must be taken into account.**

9. MAINTENANCE

- Procedure for changing an LED strip :



Module to be fitted

Not replaceable by the user, only by a qualified person

- Switch off the power supply,
- Remove the cover on the side of the return fitting where the power supply comes in,
- Remove the end cap (use a 2.5mm Allen key),
- Disconnect the wired connector,
- Unscrew the brackets from the wall,
- Place the handrail on the floor,
- Remove the brackets and the LED strip to be replaced,
- Install the new LED strip following the installation guide (see sections 6 and 7).



End-of-life scraps and electrical parts should not be disposed of in standard rubbish bins but sent to SPM International for recycling:

**SPM international S.A.S.
Déchet D3E
16 rue Isabelle Eberhardt
CS 92083 - 31019 Toulouse Cedex 2 - France**

spm-international.com

PANELS
HANDRAILS
BUMPERS
CORNER
GUARDS

Export department

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SPM International SAS.

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