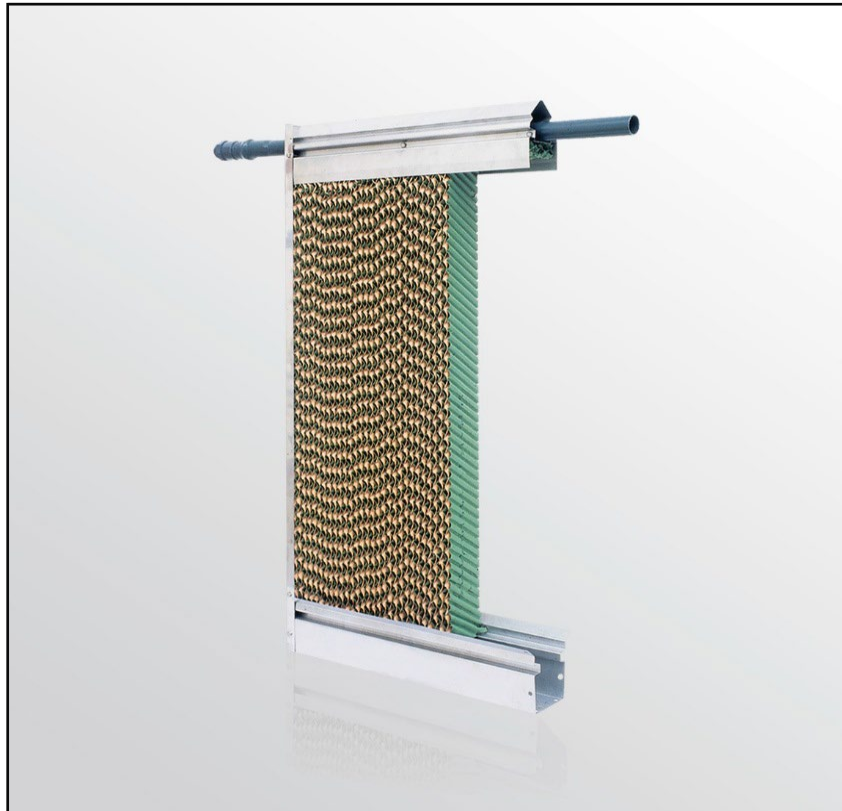


Assembly Manual

Euroemme WDP



Original instructions

Thank you for purchasing a Modular Plastic Gutter! GrainProteinTech Climate Control & Air Treatment equipment is designed to be the highest performing and highest quality you can buy. With the proper installation and maintenance, it will provide many years of service.

To achieve maximum performance and ensure long life from your GrainProteinTech Climate Control Air Treatment product it is essential that it be installed and maintained properly. Please read all instructions carefully before beginning installation.

This document is destined for the user of the apparatus: it may not be reproduced in whole or in part, committed to computer memory as a file or delivered to third parties without the prior authorization of the assembler of the system. GrainProteinTech Climate Control Air Treatment Italy S.p.A. reserves the right to effect modifications to the apparatus in accordance with technical and legal developments and to make alterations to specifications, quantities, etc., for production or other reasons, subsequent to publication.

Warranty Conditions and Limitations:

For Warranty information please refers to "Standard Terms and Condition of Sale" available by scanning the QR code.

- Products and Systems involved in a warranty claim under the "General terms and condition of sale" shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by GrainProteinTech Climate Control & Air Treatment;
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.



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1. General

1.1 Disclaimer

GrainProteinTech Climate Control Air Treatment Italy S.p.A. reserves the right to make alterations to specifications, quantities, dimensions etc. for production or other reasons, subsequent to publication. The information contained herein has been prepared by qualified experts within GrainProteinTech Climate Control & Air Treatment.

While we believe the information is accurate and complete, we make no warranty or representation for any particular purposes. The information is offered in good faith and with the understanding that any use of the units or accessories in breach of the directions and warnings in this document is at the sole discretion and risk of the user.

Any complaints concerning the products are conditioned by the strict compliance of the instructions contained by the manual. The manufacturer reserves the right to forfeit any claims e.g. corrosion resulting from non-observance of the instructions and non-compliant use e.g. proper bleed-off.

1.2 Introduction

Congratulations on your excellent choice of purchasing WDP!

In order to achieve full benefit from this product it is important that it is installed, commissioned and operated correctly. Before installation or using the WDP, this manual should be studied carefully. It is also recommended that it is kept safe for future reference.

The manual is intended as a reference for installation, commissioning and day-to-day operation of the WDP gutter system.

1.3 Notes

Date of release: January 2025.

GrainProteinTech Climate Control & Air Treatment cannot guarantee to inform users about changes or to distribute new manuals to them.

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The contents of this manual are subject to change without notice.



WARNING!

- All the components and spare parts **MUST** be stored in dry and clean environment.
- Max environment temperature during assembling and/or storage shall not exceed 50°C.
- **DO NOT** store packages under direct exposure

2. Before using

WARNING! The presence of Chlorine in the water will cause corrosion to the Gutter. DO NOT USE water containing Chlorine.

WARNING! The presence of Chlorides in the water will cause corrosion to the Gutter. DO NOT USE water having Chlorides content higher than 200mg/l.

WARNING! Do not expose the gutter system to substances containing barium polysulfide (insecticides, pesticides and fungicides) as irreversible damage may occur to the gutter system.

Please note the limits for make-up water and sump water at ambient temperature for evaporative cooling systems.

Constituent	Make-up* Water	Sump ** Water	Reasons
Chlorides (as Cl)	<50 mg/l	<200 mg/l	High Chlorides will cause corrosion of metal parts. Chlorides are contributed by contaminants such as sodium chloride. Chlorine is a minor contributor
Chlorine or Bromine	0-1.5 mg/l ***	0 mg/l	Chlorine and bromine will rarely control algae because they are both very volatile and will not stay in the water. Both will turn pads soft and shorten their life.
pH	6.0-8.5	7.0-9.0	Low pH is acid and will cause the paper to be brittle. High pH is more likely and causes the paper to become fluffy like cotton. Pads will last the longest with a pH of 7 to 9. If the water absorbs ammonia from the air drawn across the pads, the pH can increase to as high as 10.5. Bleed off definitely helps to control pH.

*) Make-up water is the water supply needed to replace the water which is lost by evaporation in a closed-circuit gutter system;

**) Sump water is the water found in the covered tank or cistern;

Sources of water:

- **Deep wells or municipal water supplies are recommended;**
- *****) Chlorinated municipal make-up water is not recommended for spray on pads;**
- **Lake and river water should be filtered and chemically treated for microbial growth;**
- **Seawater, brackish water and reclaimed water are not recommended;**
- **Rainwater, reverse osmosis water, demineralized water and zeolite softened water should be used with caution. Consult GrainProteinTech Climate Control & Air Treatment before using.**

Note: only pure water evaporates from the evaporative cooling pads. Naturally occurring components such as sodium and chlorides, minerals and contaminants such as sulfur or barium present in the water do not evaporate. Over time, as these substances concentrate in the remaining water, they can become harmful resulting in damaging the gutter system and the evaporative cooling pads.

Any disregard of the above warnings and recommendations shall exonerate the manufacturer from any liability and shall be considered improper use of the gutter system.

2.1 Delivery check

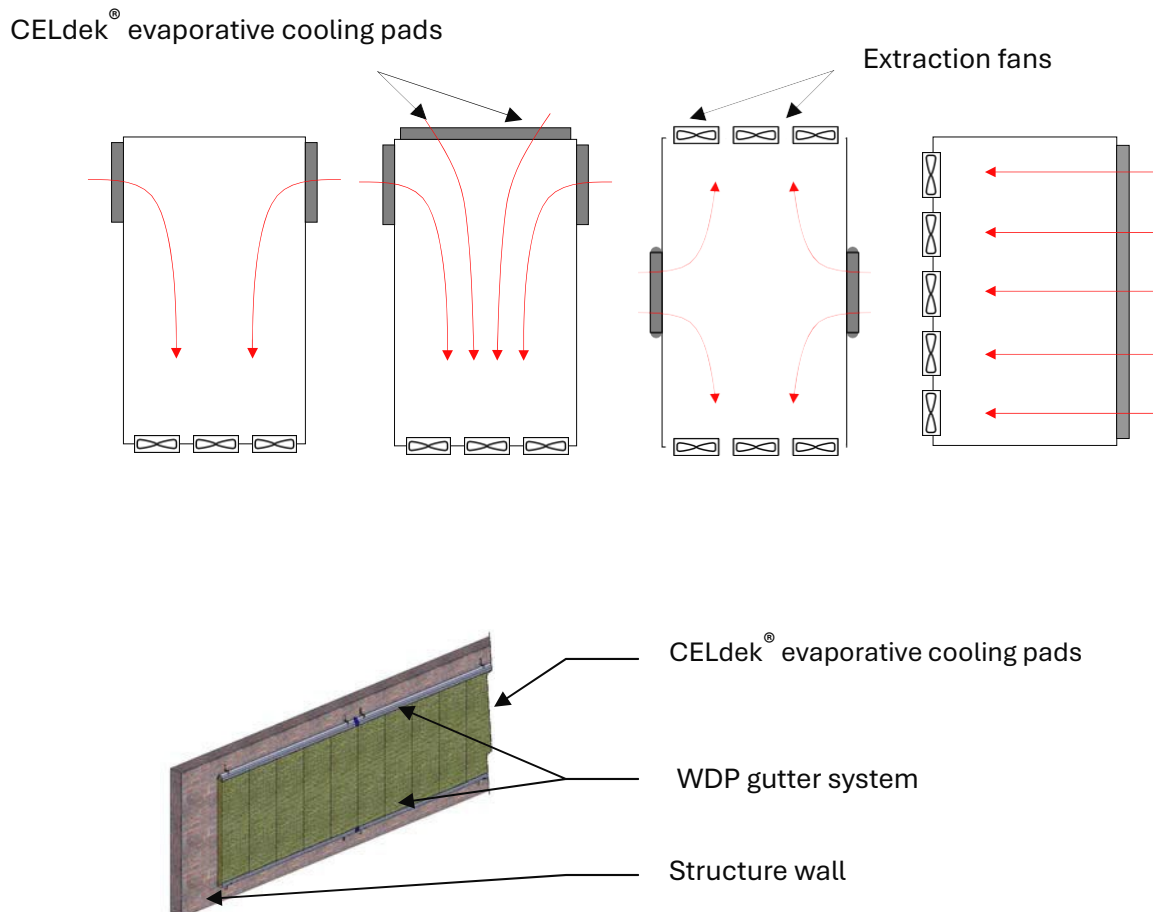
Upon receipt, inspect the item for external damage and if found, inform the forwarding agent without delay. Check the data on all the rating plates of the pumps, especially voltage and frequency.

2.2 Packaging and transport

Since the gutter segments consist of numerous long pieces, care should be taken when the pieces are handled and stored. If the pieces are placed on a heap, the sides of the heap should be supported to prevent the heap from collapsing and causing injury.

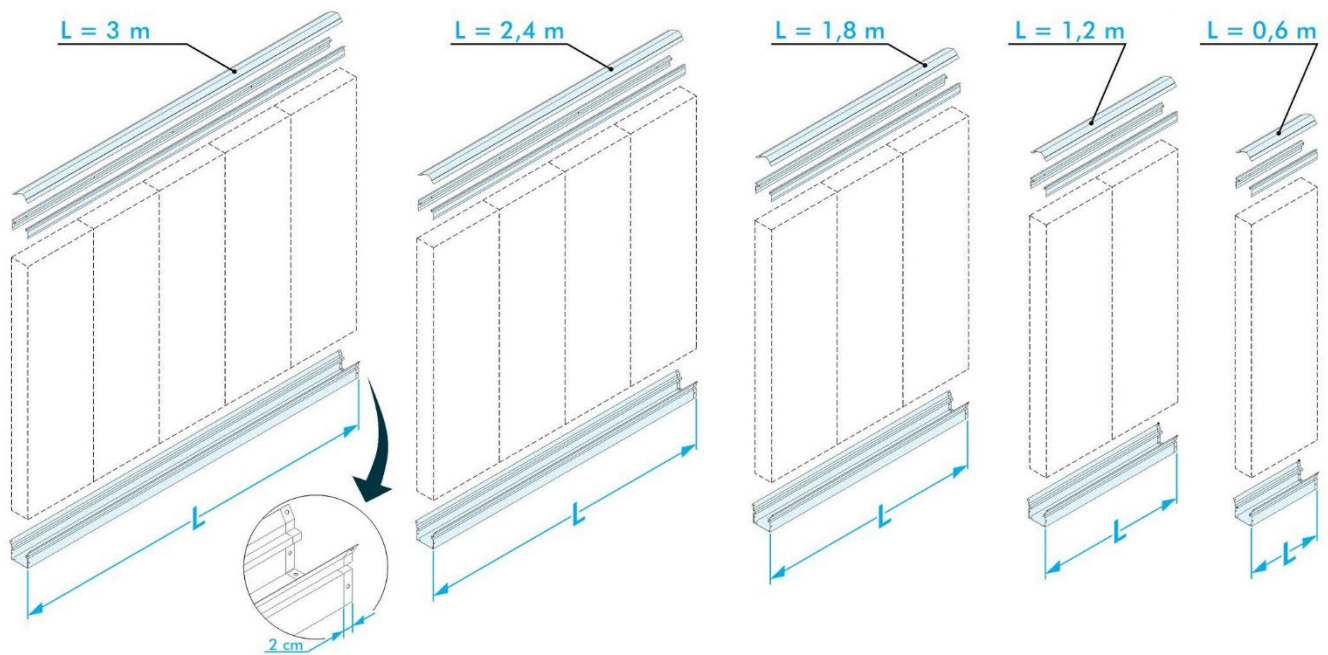
2.3 Typical installations

Typical ways in which the WDP system in combination with CELdek® evaporative cooling pads can be installed in structures indicated in the diagrams below. The diagrams depict structures as seen from above with the relative placement of ® extraction fans and CELdek® evaporative cooling pads. The WDP system is intended for installation on the outside of the structure.

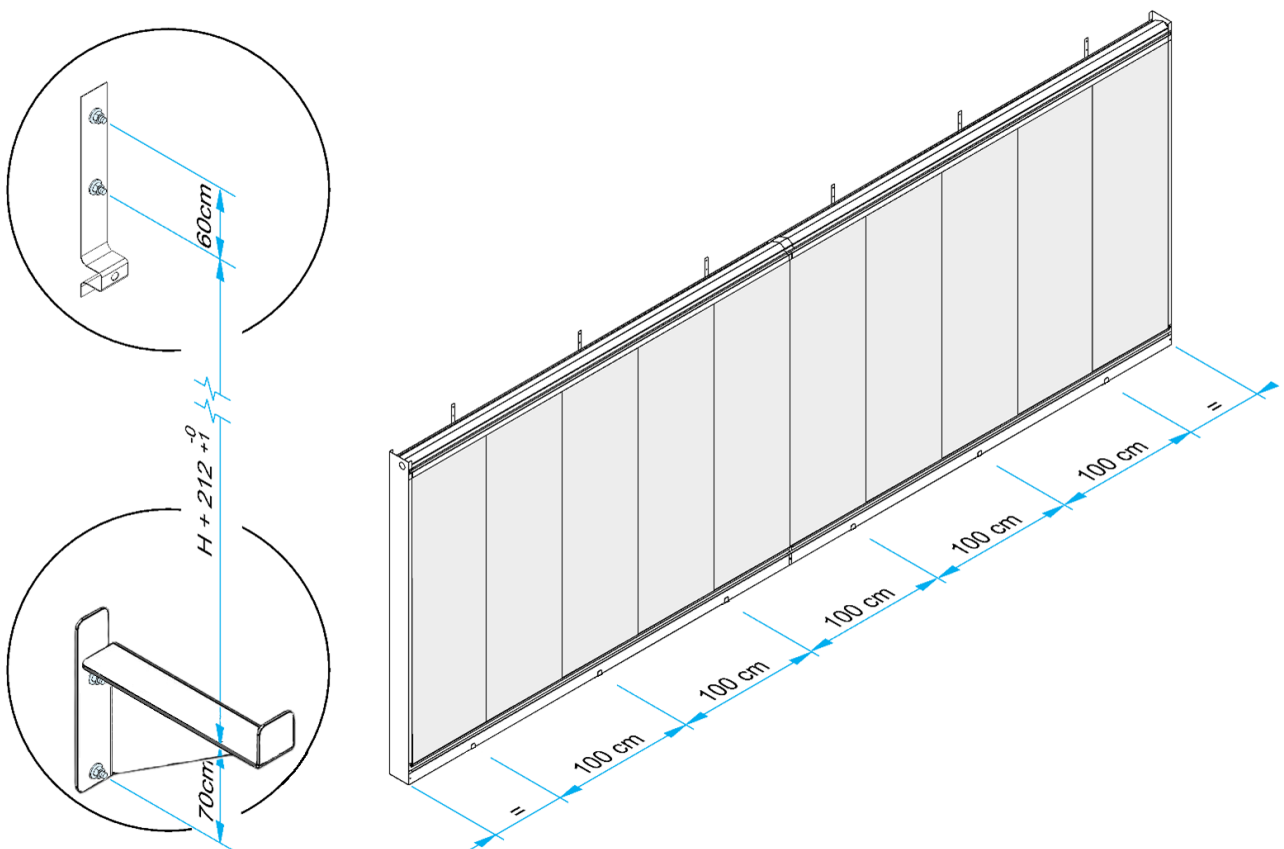


3. Installation

3.1 Gutter sections



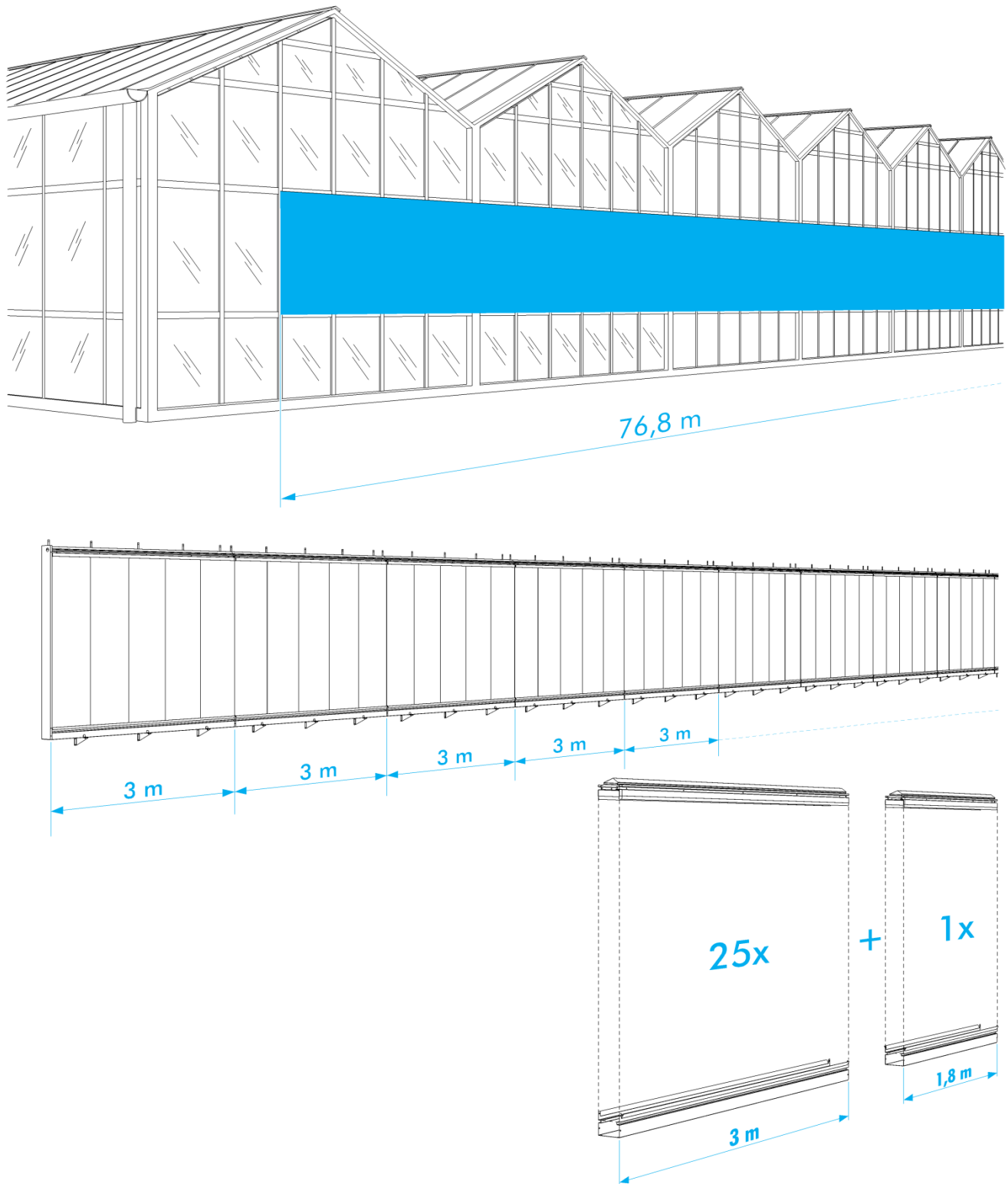
3.2 Positioning of the gutters



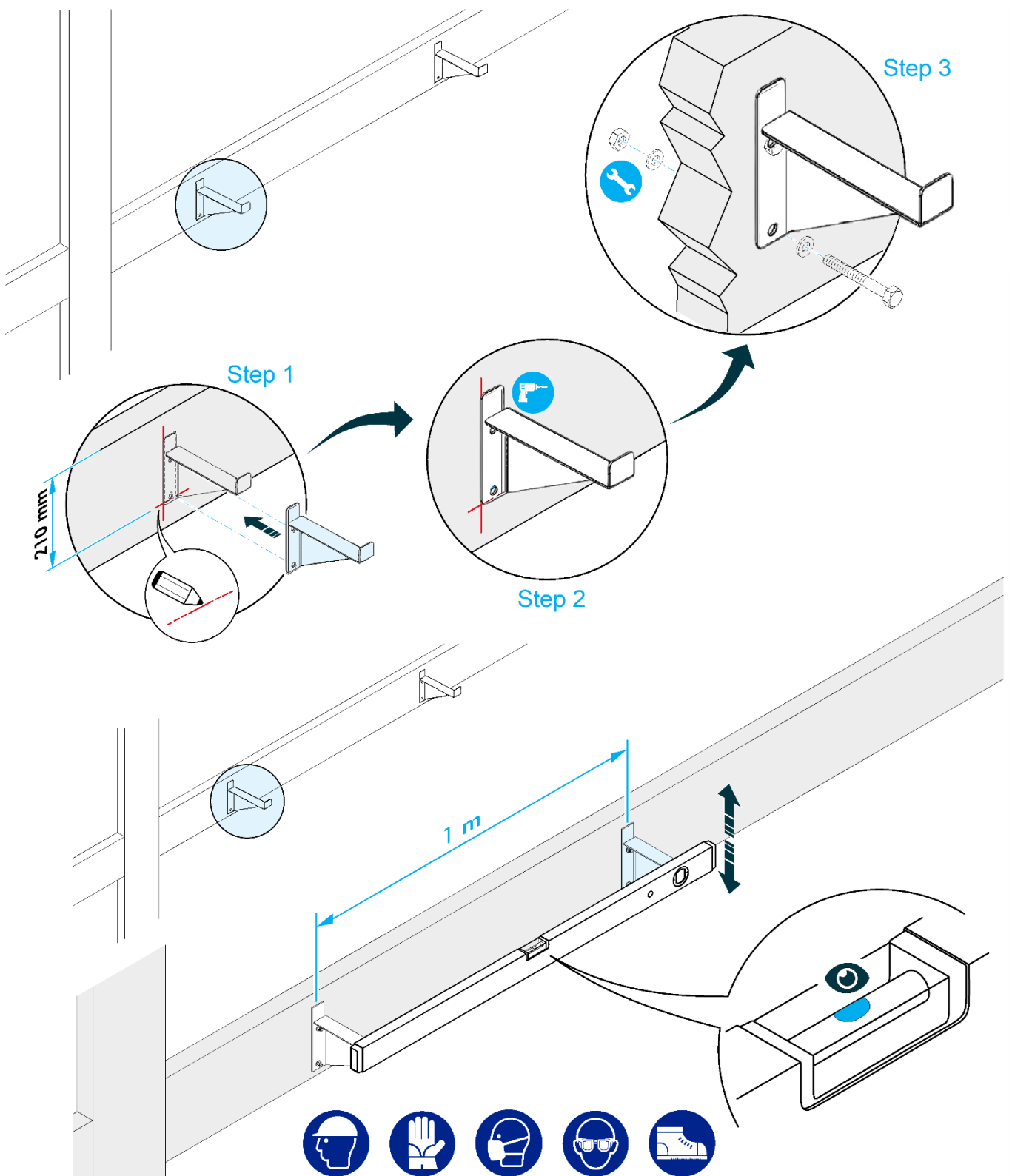
3.3 Choice of gutter sections

- An installation can be compiled by using different combinations of the lengths.
- Make a hole in the wall with a horizontal dimension multiple of 0.6 m.
- It is recommended to use 3.0 m sections as many as possible, then complete the required length with a shorter cut on size section.

Example for choosing the size of the gutter:



3.4 Mounting lower brackets

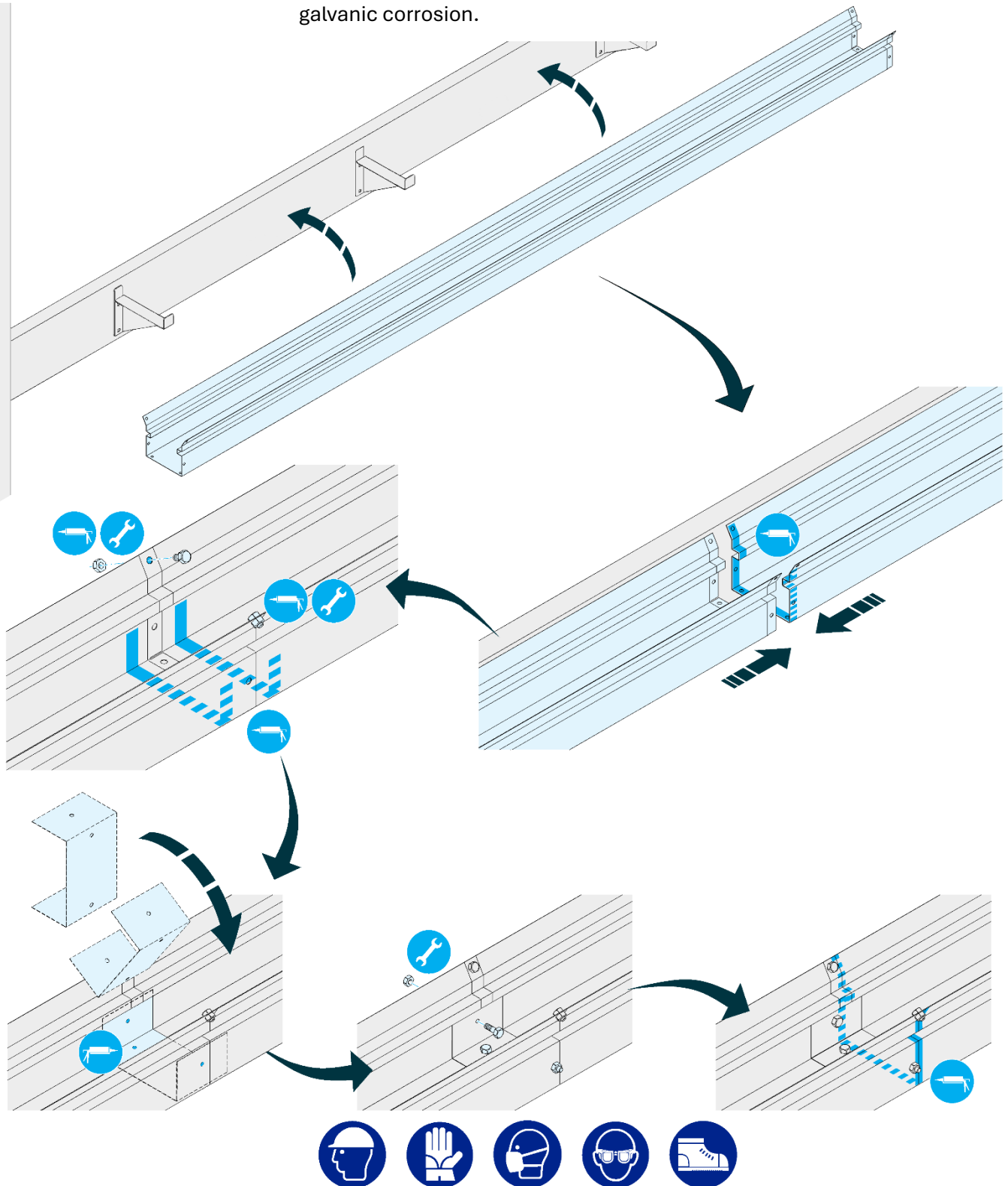


WARNING! The load from the system after start of operation is 38kg/m (86 lb/m)

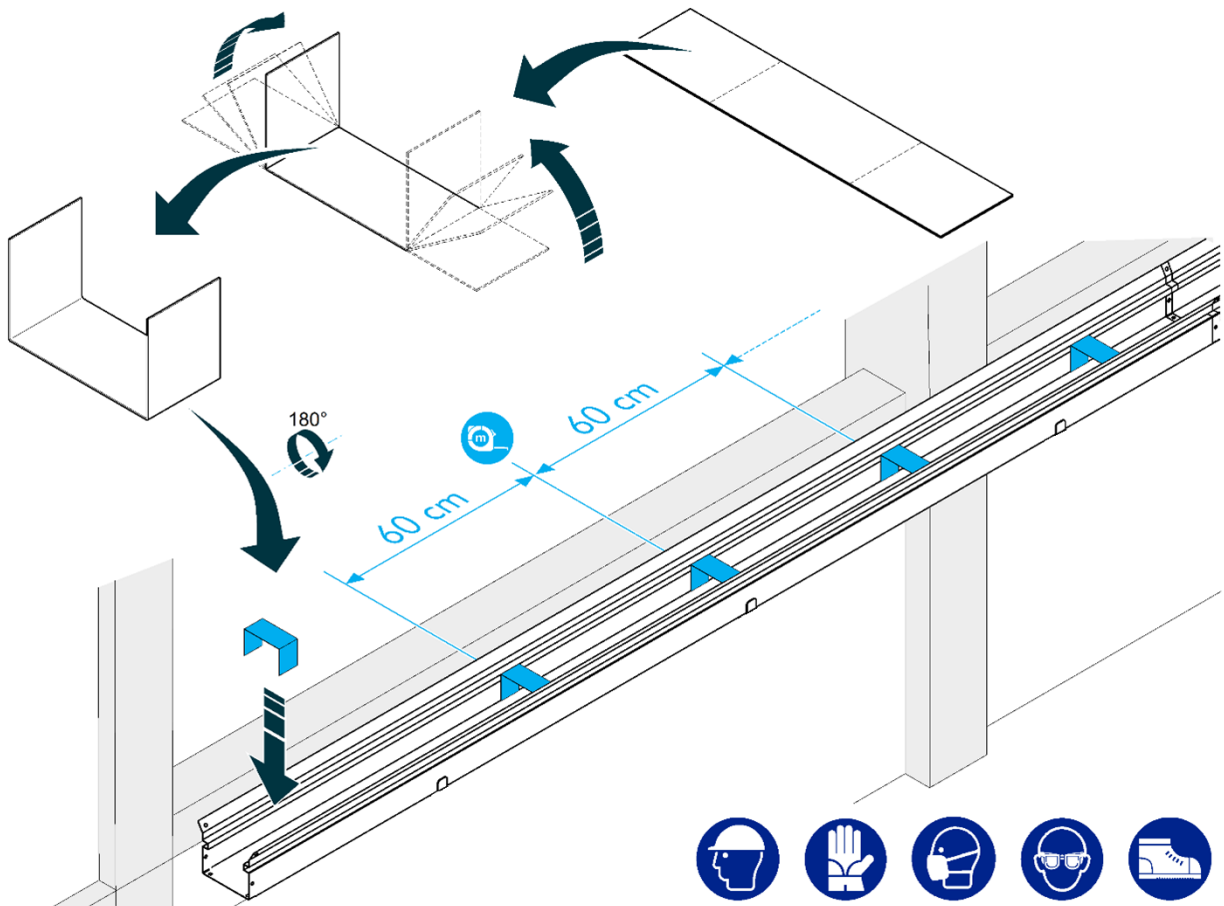
3.5 Assembling the bottom gutter



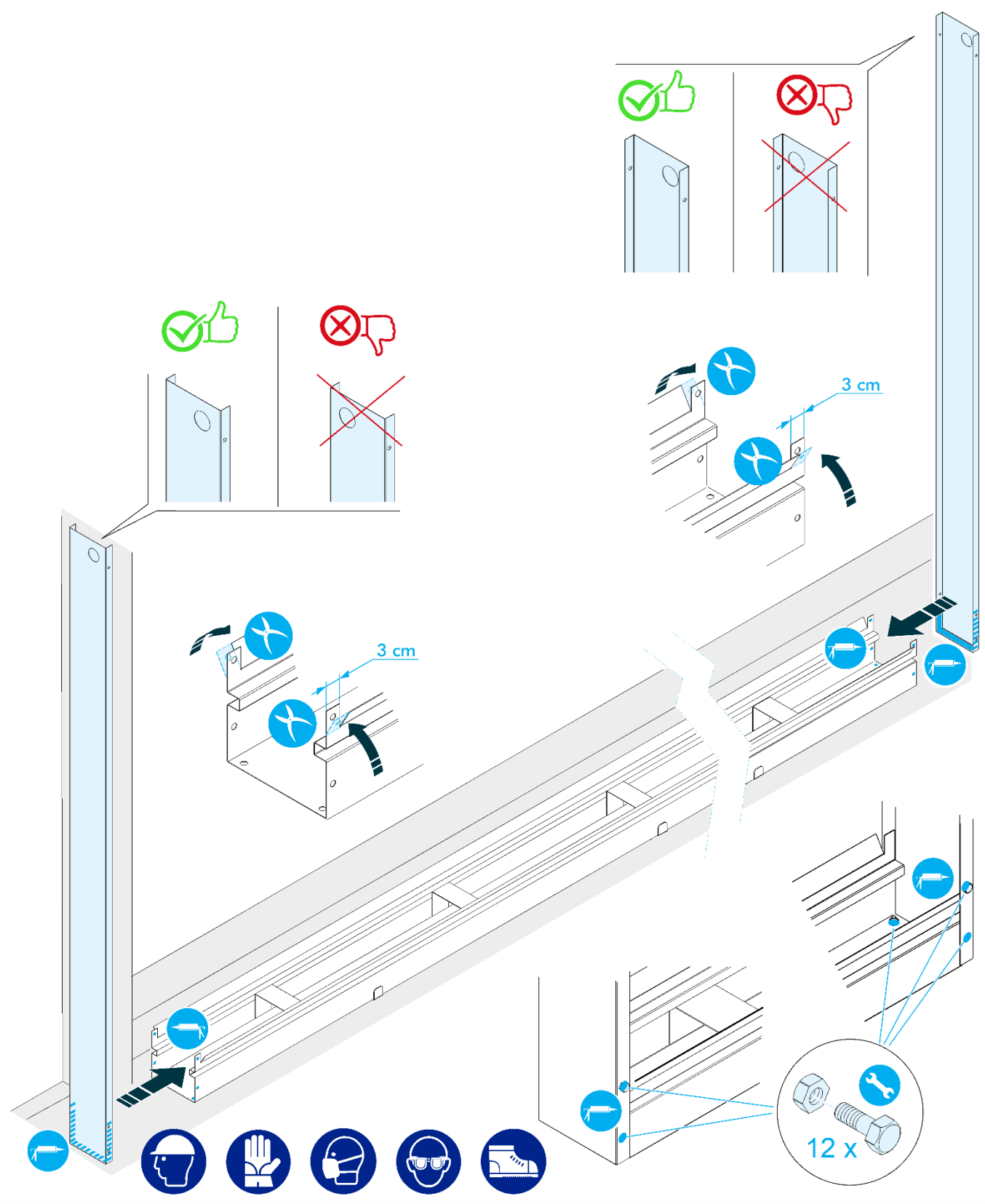
WARNING! If the bottom gutter is in contact with an extended surface of different metal, it is advisable to insert an electrical insulator between the contact surfaces to avoid the galvanic corrosion.



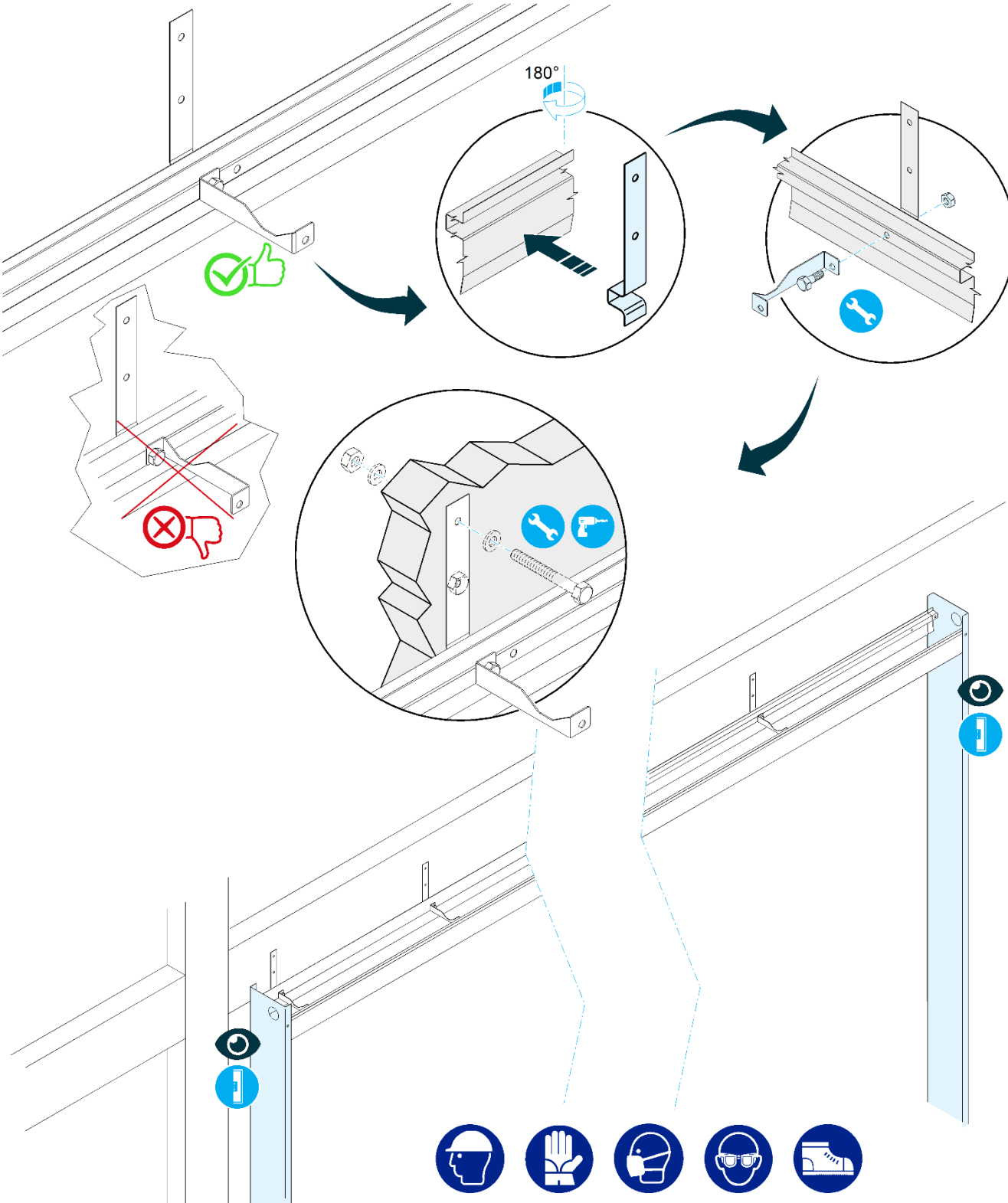
3.6 Mounting additional supports (Only for 150 mm CELdek®)



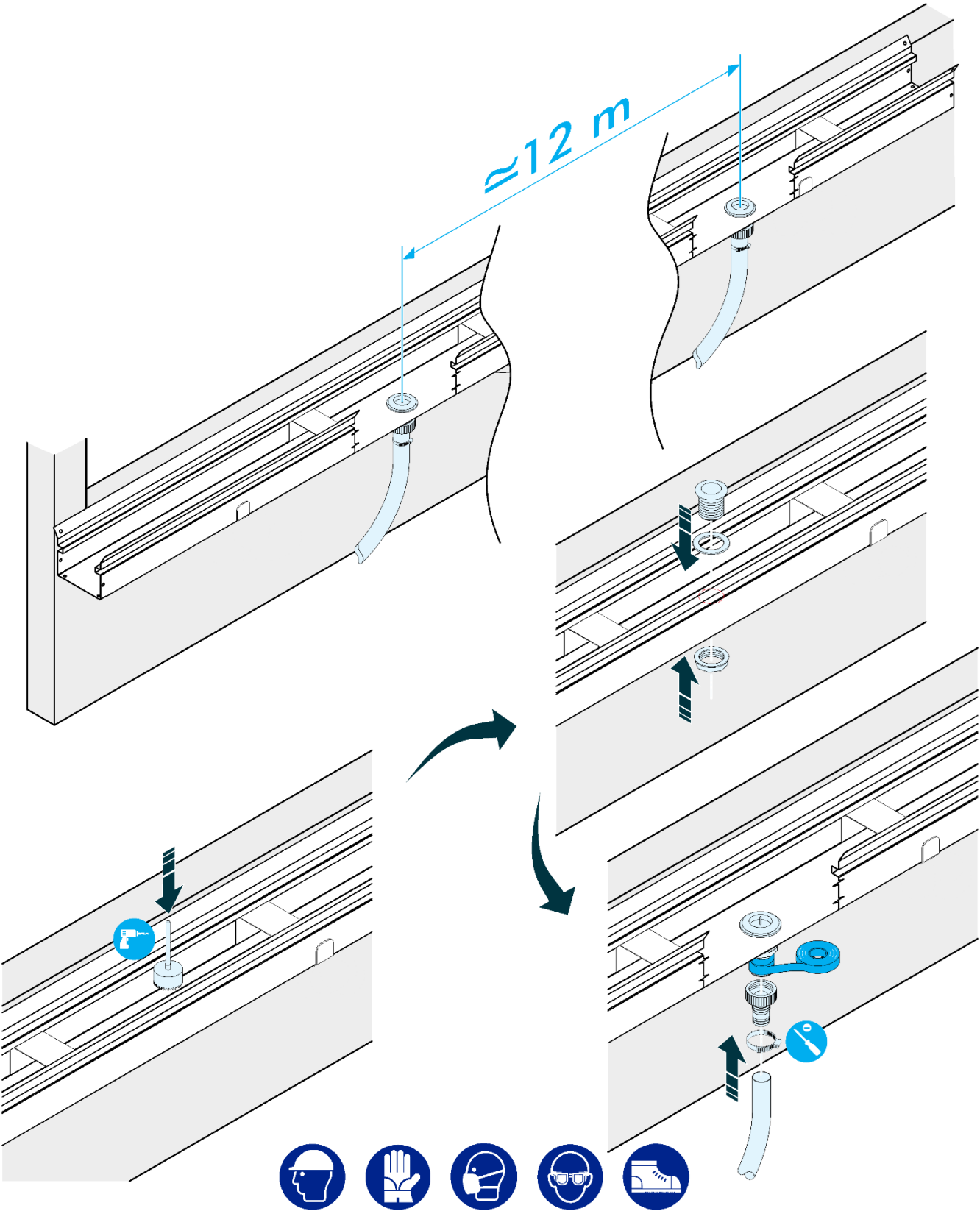
3.7 Mounting the sides



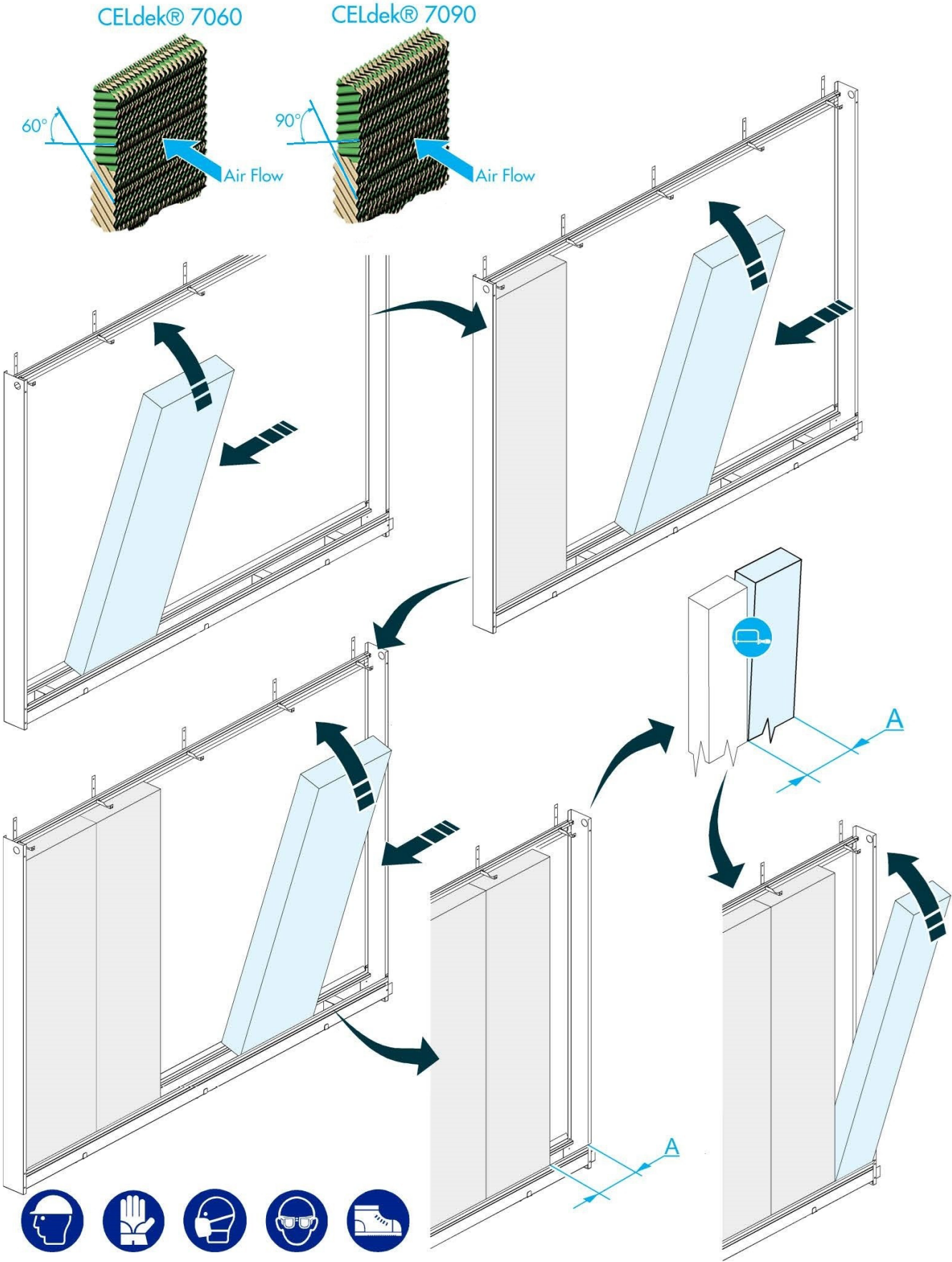
3.8 Assembling the top gutter



3.9 Inserting the drains

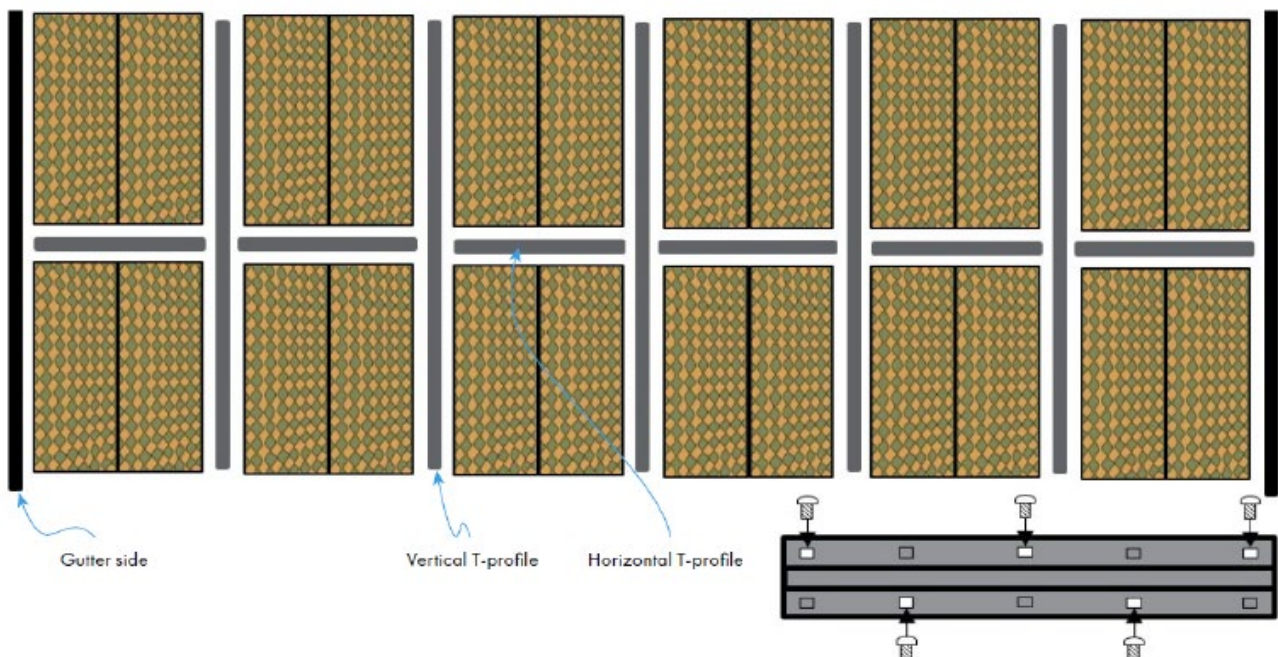


3.10 Inserting the CELdek® pads

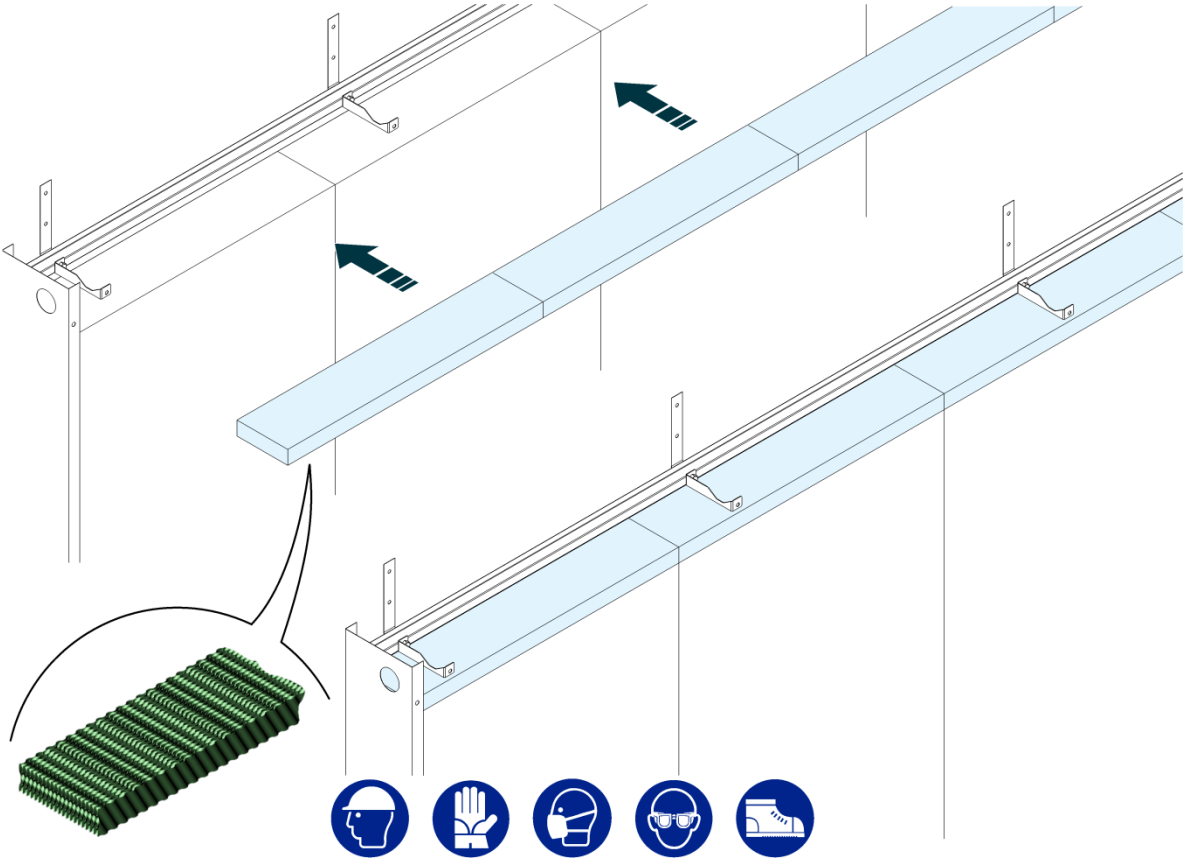


3.11 Double "T" profile for CELdek® pads overlapping

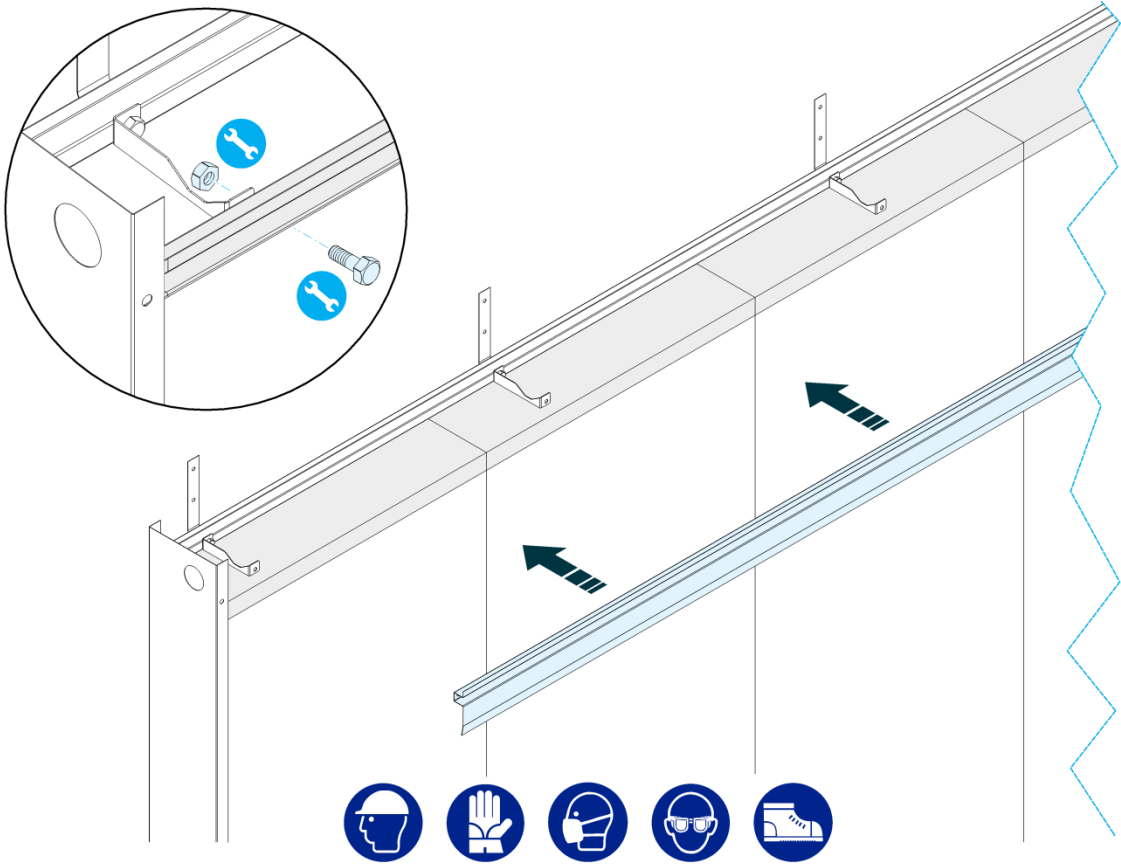
STEP 1	STEP 2
 When you order these item, you will receive the double "T" profile in the same length of the gutter system you asked for. Screw the nut into the threaded bar and then put in with the washer into the square hole as shown in the picture.	 Then put the "T" profile on The CELdek® pad. In order to lock the T profile place on the opposite side the other T profile inserting the threaded bar into the square hole, then put the Ø6 washer and screw the M6 nut. Make this operation for all the T profile length in correspondence of the square hole.
STEP 3	STEP 4
 Make sure to place the double T profile inside the side panel as shown in the picture. Overlap the CELdek® pad and tighten all the nuts of the threaded bar.	 After that follow the top gutter assembling instruction. For walls higher than 2 meters, a set of vertical T-profiles will be provided to firmly hold pads in position.



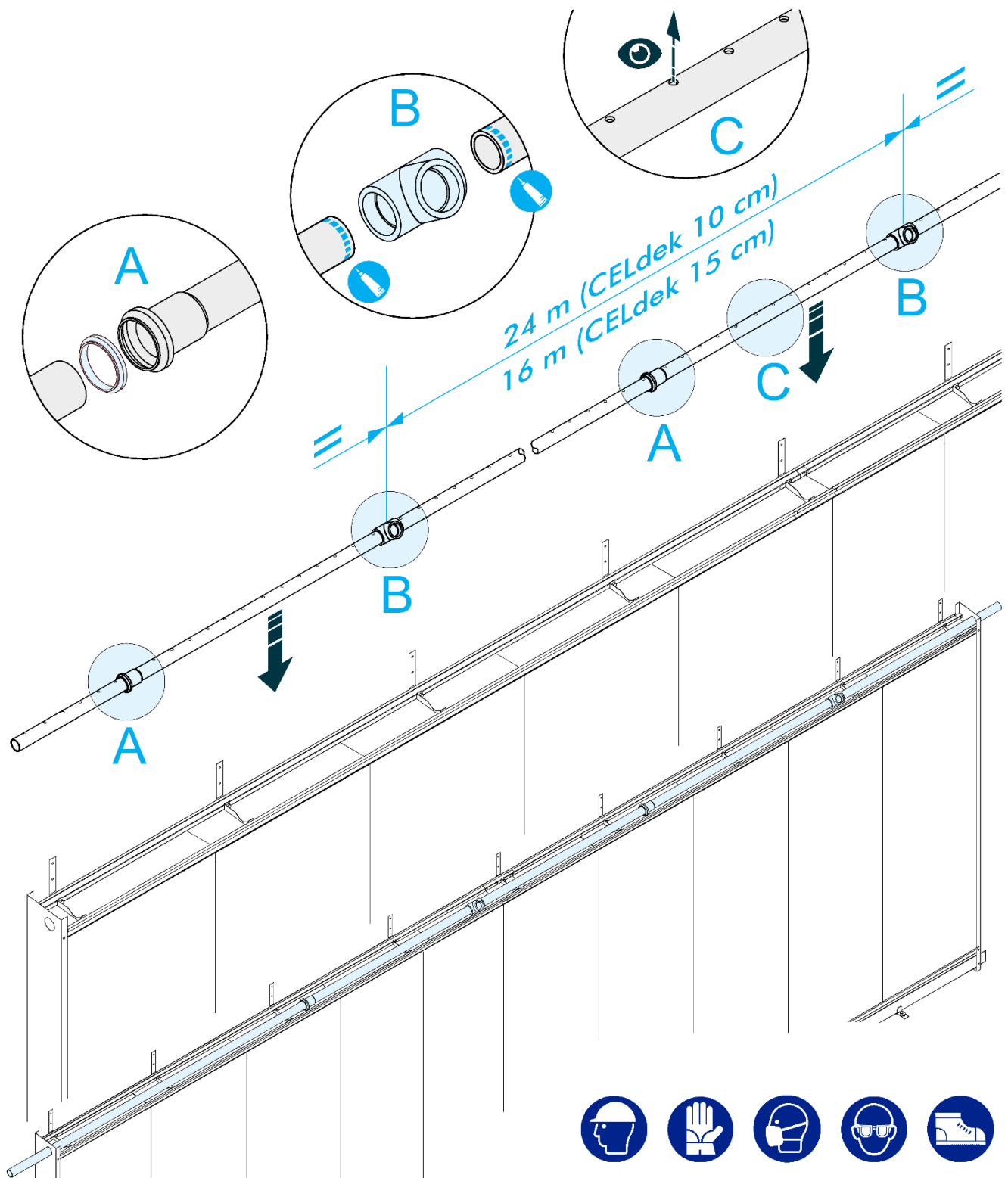
3.12 Insert the distributor CELdek® pads



3.13 Fixing the CELdek® pads



3.14 Mounting kit components for distribution pipes



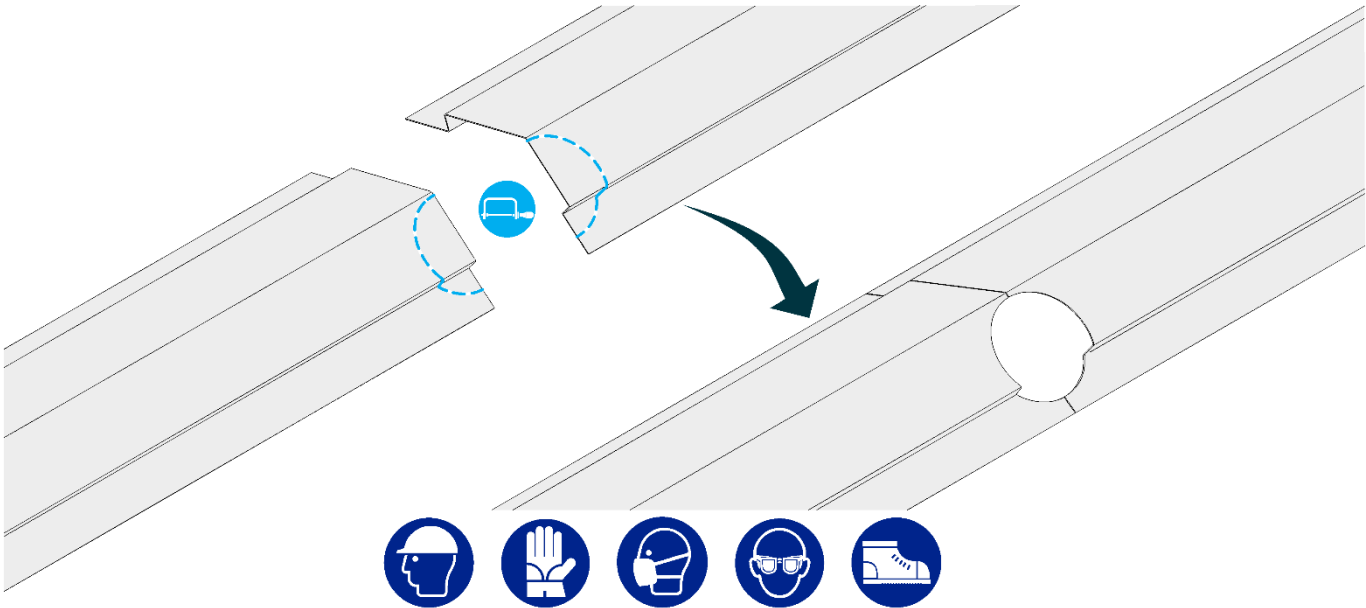
Join all the components by using Teflon tape and the PVC cement glue. Insert the complete assembly you have obtained in the side panel hole and then put it into the water distribution pipe.



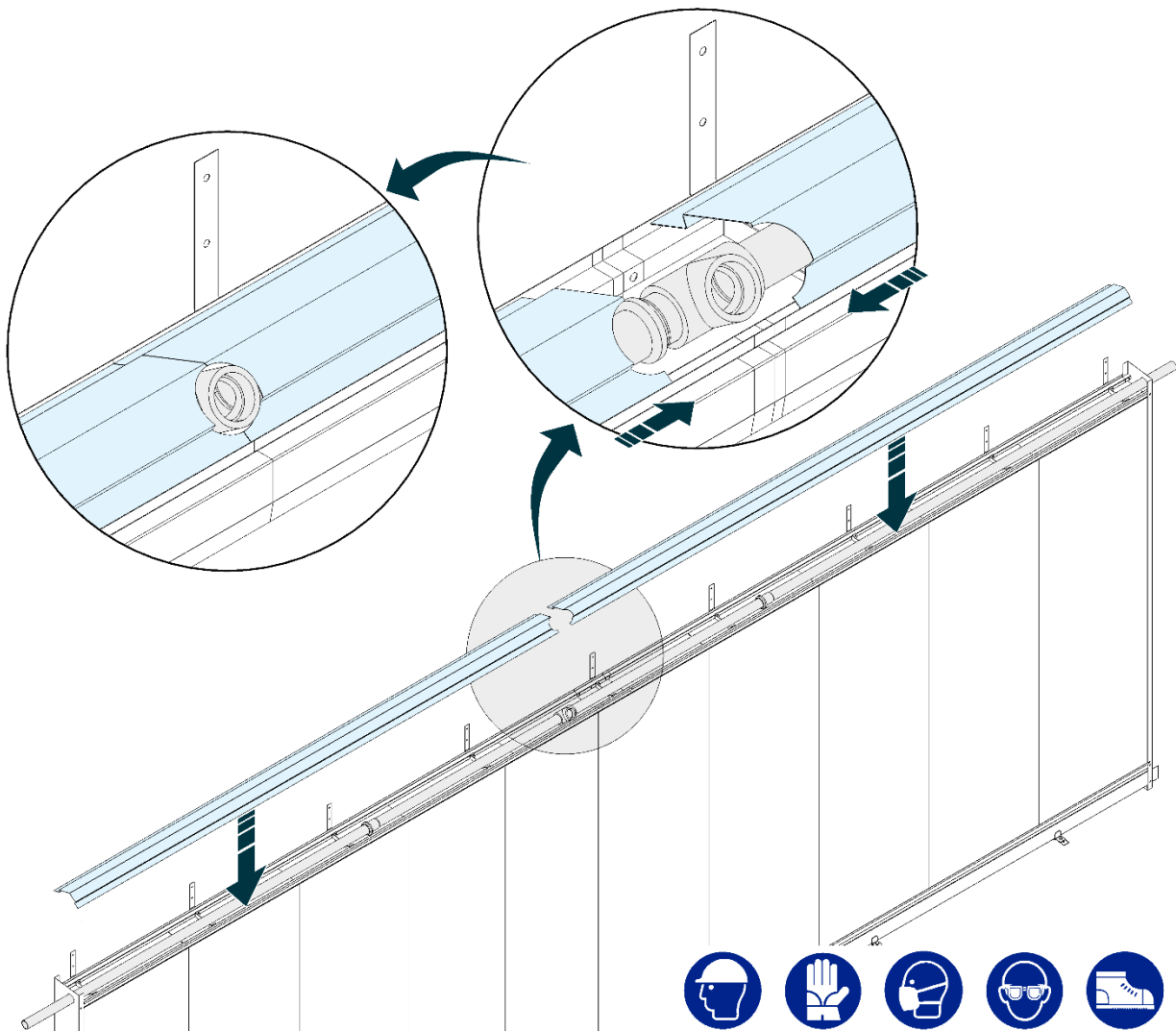
WARNING! The glue supplied is potentially toxic. Please read the instructions on the packaging.



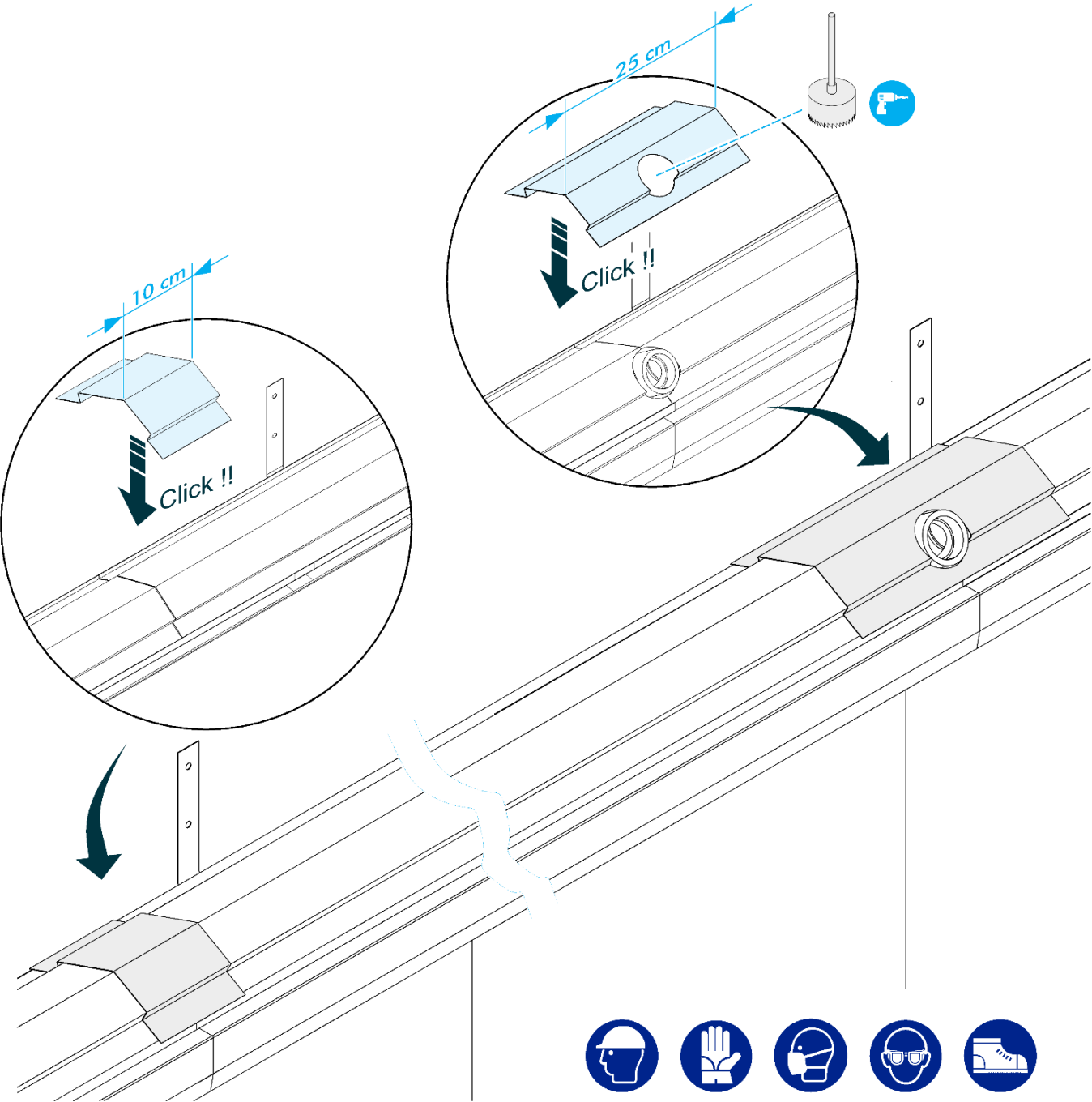
3.15 Cut the top cover gutter



3.16 Put the top cover gutter



3.17 Mounting of joints between covers

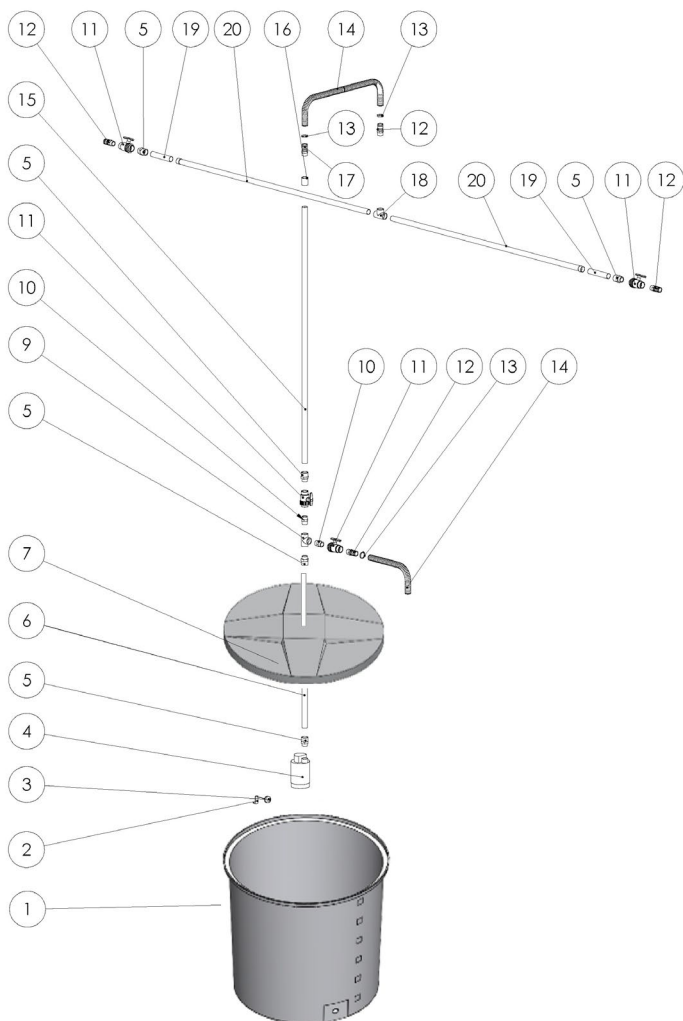


3.18 Water distribution components

All the threaded connections need to have Teflon tape wrapped tightly around the thread to ensure a watertight seal, while sleeved connections need to be glued with PVC glue.

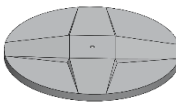
The plastic pipe is supplied in 2 sections. One is 1m long and the second is supplied according to the installation demands.

The plastic tube is supplied in 1 section of 1,8m long.



Plumbing kit components			
Pos.	Pict.	Description	Q.ty
2		Alimentation brass valve 3/4"	1
3		Plastic floating ball	1
6		Plastic pipe DN40 L=1000	1
5		Male threaded adaptor 40x50x1.1/4	3
9		Male threaded tee adaptor 1.1/4 FFF	1
10		Threaded nipple 1.1/4"	2
11		Single union valve F/F threaded 1.1/4 FFF	2

Pos.	Pict.	Description	Q.ty
12		Threaded hose Adaptor 1.1/4x4°	2
13		Metal clamp 40/63	3
14		Spiralled pipe D40	1,8
17		Solvent cement hose adaptor 40x40	1
-		PVC cement glue	1
-		PTFE tape	2
16		Solvent cement double socket	1
15		Plastic pipe L1000 for h1500 wdp L1500 for h2000 wdp L2000 for h3000 wdp	1
18		Male threaded tee adaptor 40x40x1.1/4" FFF	1
Plumbing kit components for distribution pipes			
Pos.	Pict.	Description	Q.ty
12		Threaded hose adaptor 1.1/4"x40	2

19		Plastic pipe DN40 L=200	2
5		Male threaded adaptor 40x50x1.1/4"	2
11		Single union valve F/F threaded 1.1/4" FF	2
-		PTFE tape	2
Water distribution plastic pipe			
Pos.	Pict.	Description	Q.ty
20		Water Distribution pipe	1
Pump and tank			
Pos.	Pict.	Description	Q.ty
1		Water tank	1
7		Trap door	1
4		Pump	1

4. Commissioning

4.1 First time start up

- After the gutter, pads and plumbing kit have been installed, connect the fresh water supply to the float valve in the tank and the pump to the electrical supply. The electrical connections should be done by a qualified electrician according to local laws and regulations.
- Remove any visible material from the tank and the gutter.
- Open the water supply to the tank.
- Remove the drainpipes from the tank.
- Once the tank has filled the float valve, the pump can be started.
- Let the system run for at least 15 minutes with the drainpipes still not connected to the tank. This will clean debris that might have been left in the system during the installation process.
- Make note of any leaks that might have occurred.
- Switch the pump off.
- Let all the water drain from the drainpipes before they are replaced into the tank.
- Unscrew the cap of the filter and clean the filament if necessary. Replace both the filament and the cap
- If there were any leaks, dry the places where the leaks occurred and re-seal.
- If necessary, start the system again and check again for any leaks.

4.2 Setting the bleed-off rate

The bleed-off rate is the water flow that needs to be constantly drained off to keep the mineral concentration in the water to an optimal level. Too little bleed-off means too much scaling and clogging, resulting in frequent pad change. Too much bleed-off results in high water costs. It is therefore important to calculate the optimal bleed-off rate to get a long lasting pad with high performance.

As a good starting value, use 0.2l/minute/running meter of gutter. If scaling becomes apparent, increase the amount of bleed-off.

To adjust the bleed-off, follow the steps listed below:

- place a 10l bucket underneath the outlet of the bleed-off;
- start the pump and allow it to run until the return water starts flowing into the tank;
- open the bleed-off valve and start measuring the time and continue to measure the time until the bucket is filled;
- use the table below as a quick guideline of how long it should take to fill the bucket with water. Adjust the opening of the valve according to how long it has taken to fill the bucket. Once the right opening size for the valve is determined, keep the valve at this position to ensure constant bleed-off.

As an alternative to the table, the following formula can be used to calculate the filling time for any size container.

$$\text{Time} = [\text{Container volume}] / [\text{Length of gutter} \times 0.2]$$

The quantity of water required is not dependent on the height of the pads installed.

Gutter length [meter]	Total bleed- off required [l/hour]	Time to fill a 10l bucket [min]
6	75.0	8
9	112.5	5½
12	150.0	4
15	187.5	3¾
18	225.0	2¾
21	262.5	2½
24	300.0	2

4.3 Trouble shooting

Problem	Possible fault	Corrective action
No water circulating	Pump doesn't work	Check electrical connection
	Not enough water in the tank	Fill the tank
	Water entry joint not opened	Open water entry joint
	Valve closed	Open valve
Water leaking from the system	Plumbing components not well closed	Close better where necessary
	Not enough silicon applied in junction points	Apply more silicon where necessary

5. Maintenance

The performance of pads can be influenced by the formation of either mineral deposits or algae. The methods used for the prevention of either of the two are different and are described below.

5.1 Mineral Deposits

During the evaporative cooling process some of the water evaporates, but the mineral salts remain in the water. This effectively increases the concentration of the mineral salts in the water, which leads to an increased likelihood for the formation of mineral deposits on the surface of the pads. The thickness of such deposits will increase over time and ultimately block the air passages and diminish the effectiveness of the pads. Below are some helpful guidelines for the prevention of the formation of mineral deposits.

- Ensure there is sufficient water in circulation in the system. This helps to wash dirt down from the pads. If 100mm thick pads are used, there should be at least 3.6l/min/running meter of gutter.
- Ensure sufficient bleed-off.
- In extremely dry circumstances the water quantity may be increased.
- too much water shouldn't be pumped up because this would transform the cooling pad wall into a closed water curtain jeopardizing the performances.
- Minimize the number of on/off wetting cycles for the cooling pads.
- Brush dry pads with a soft bristled brush when small crystals start forming. Ensure that the brush strokes are in the direction of the sheets in the pad (up and down). Do not use chemicals on the pad.

5.2 Algae

Algae require three essential elements to survive:

- Light
- Water
- Nutrients

Anywhere that an abundance of the three are required, the likelihood of algae growth is high. Below are some recommendations that will help to reduce the likelihood of algae growth.

- Completely dry the cooling pads once every 24 hours.
- It is not recommended to use chemicals on a daily basis.
- Shade the pads and the tank.
- Flush and disinfect the entire system quarterly.

5.3 Regular maintenance

- Clean the filter of the plumbing kit and pump regularly, dirty filter can reduce the water flow rate by 50% or more.
- Check system regularly for damaged or clogged cooling pads and replace damaged pads.

5.4 Replacement of a CELdek® pad

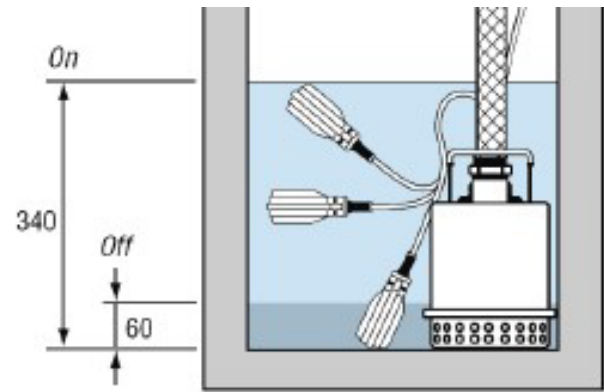


1. Change pads only when the system is completely dried.
2. Cut out the pad that needs to be replaced and remove it.
3. Cut the new pad in the middle to obtain two pieces.
4. Insert the new distributor (it will remain inside the top gutter).
5. Insert the upper part of the CELdek® that has been cut. Ensure that the pad is at an angle.
6. Insert the second half at an angle as indicated on the left.
7. Push two pieces together until they are flushed with the other pads.

6. Technical specifications

6.1 Pump functioning

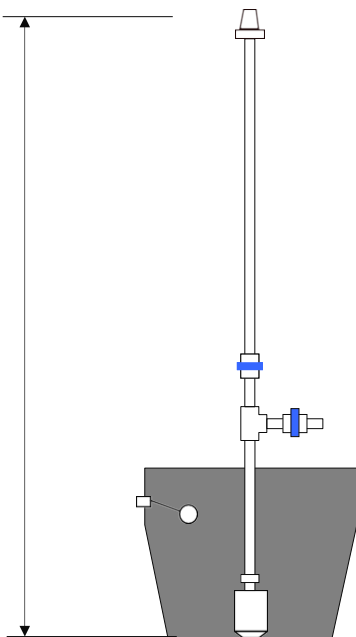
The float switch on the pump is there for protection of the pump, should the water level become too low. The diagram below illustrates how the float switch operates. Please take note at which levels the pump will switch off and at which level it will switch on again.



6.2 Pump functioning

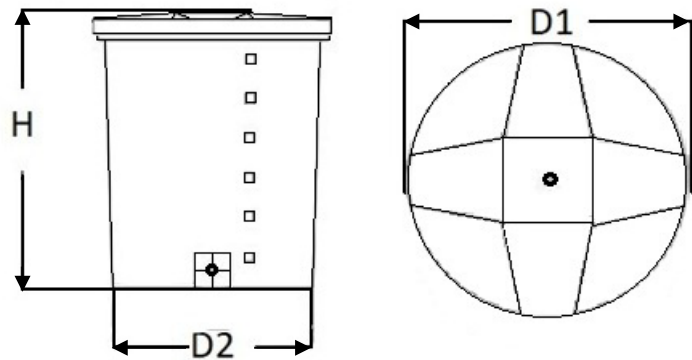
Pump type	Nominal power		Type phases	Frequency [Hz]	Voltage [V]	Current [A]	Max capacity		Weight [kg]
	[W]	[hp]					[l/min]	[m]	
a	0.25	0.33	1	50	230	1.4	128	1.7	3.75
b	0.25	0.33	1	60	230	1.4	128	1.7	3.75
c	0.55	0.75	1	50	230	3.5	250	3.8	6
d	0.55	0.75	1	60	230	3.5	250	3.8	6
e	0.55	0.75	3	50	400	1.9	250	3.8	6
f	0.55	0.75	3	60	400	1.9	250	3.8	6
Max operating temperature				40°C					
Discharge pipe connection				1 1/4"					
Pump shaft				Stainless steel AISI 416					
Pump body				Type a-b: polypropylene / Type c-f: Stainless steel AISI 304					
IEC protective class				IP68					
Winding insulation grade				Type a-b: F / Type c-f: B					

Height	Meters
Kit h 1.5	2.7m
Kit h 2.0	3.2m
Kit h 3.0	3.7m

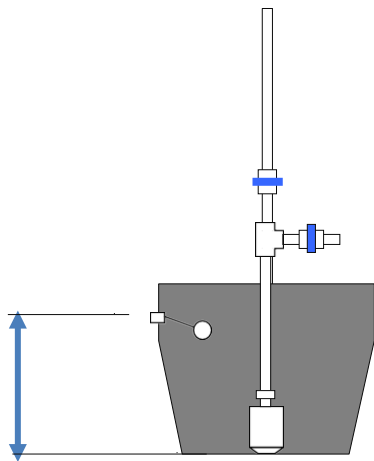


6.3 Water Tank

Tank type	Capacity [l]	D1 [mm]	D2 [mm]	H [mm]
A	310	800	610	940
B	510	940	800	1000
C	1000	1120	975	1360



Tank type	Height at which to position the float [mm]
A	600
B	700
C	1000





Euroemme WDP is developed and produced by GrainProteinTech Climate Control Air Treatment Italy S.p.A.
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