INSTALLATION INSTRUCTIONS – GROUND-MOUNT SYSTEM

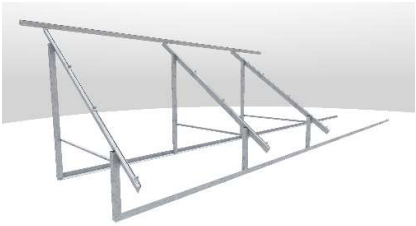
SUNPARK FLEX BALLAST

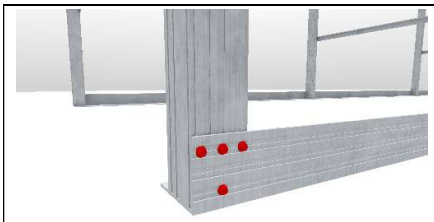
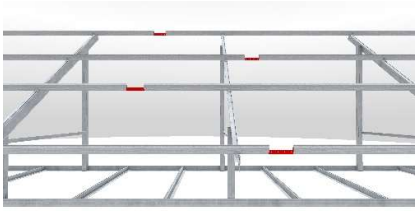
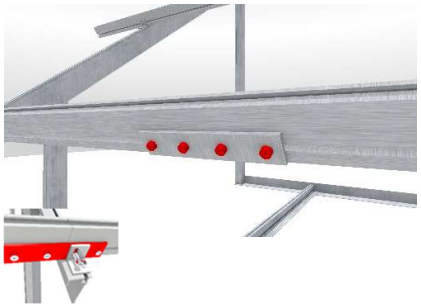
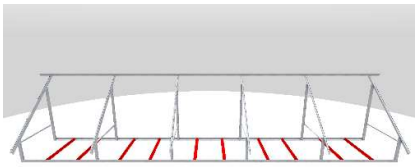
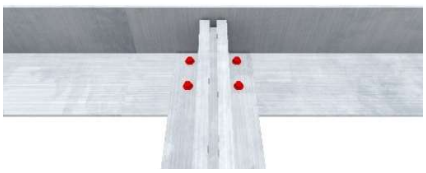
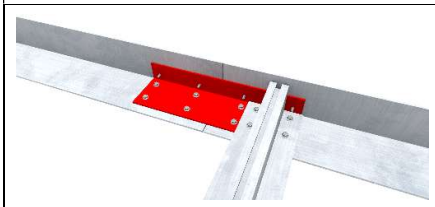


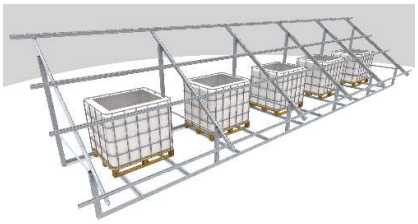
Installation Instructions for a Two-Row Ballast Ground-Mount System - Portrait Orientation

Maximum system length: 30 metres.
I CENTRE-TO-CENTRE (C/C) DIMENSIONS: REFER TO THE DELIVERY NOTE OR SYSTEM SPECIFICATION FOR THE SPECIFIED DIMENSIONS. If the specified C/C dimensions cannot be achieved, contact Mapab AB before proceeding with the installation.

1. Inspect the installation annually, preferably in spring after the snow has melted and following severe weather or storms.
2. During winter, it is important to keep the area around the ground mount system clear to allow snow to slide off freely and to minimize snow loads on the installation. Please refer to the **"Service & Maintenance"** section on our website for further information.
3.

	Position the base profiles according to the installation layout.
	Secure each profile connector to the base profile using **12 drilling screws**.
	Position the brackets according to the drawing. Cross-measure the diagonals to ensure accurate positioning. **C/C dimensions for the specific installation are specified in the accompanying system specification/drawing.** Install mounting rail rows **1–4**. Refer to the accompanying system specification/drawing for the specified rail layout dimensions and rail overhang from the bracket.

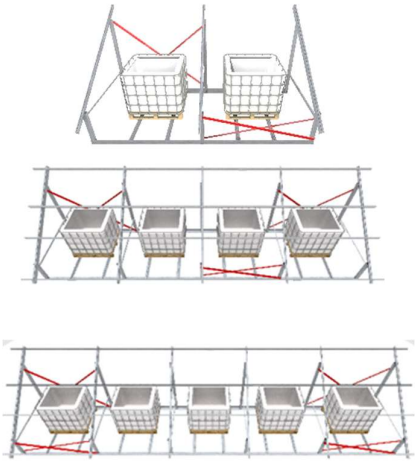
	Secure each post with 4 drilling screws.
	Check the clamping zones specified for the solar panel. For a two-row system, start from the centre of the bracket. Position the rails on either side of the centre so that they are evenly distributed across the system and aligned with the panel clamping zones. Secure the angle bracket with **2 Allen screws M8x20** in the grooved channels. Tightening torque: 12 Nm.
	Profile connectors must be staggered in relation to each other. Profile connectors **MUST NOT** be positioned underneath the same solar panel.
	Secure the profile connector in the grooved channel of the rail using **4 Allen screws** M8x20 **Tightening torque: 12 Nm.** If the profile connector overlaps a bracket, fasten it through both the angle bracket and the profile connector. **Tightening torque: 12 Nm.**
	Position the hat profile evenly within each section as shown in the illustration.
	Secure the hat profile to the base profile using **4 drilling screws at each end.**
	If the hat profile overlaps a profile connector, the hat profile must be fastened through the profile connector.



Place the ballast **on the mounting rails**.

Leave sufficient space for installation of the diagonal braces.

The required ballast load per section is specified in the accompanying snow and wind load calculation.



Universal Diagonal Cross Bracing

Install diagonal cross braces to ensure structural stability and prevent twisting of the structure.

Cut the braces to the required length as needed.

Install the diagonal braces approximately **150 mm above ground level**.

Secure each brace using **4 short self-drilling screws**.

- **Up to 3 brackets:** 2 cross braces
- **4 to 5 brackets:** 3 cross braces
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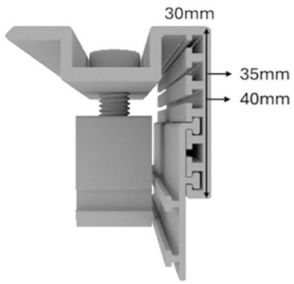


Panel Clamps and End Caps

Insert the mid-clamp and end-clamp clips into the mounting rail channel. Angle the clips slightly and press them into position by hand.

Ensure a minimum distance of **50 mm between the panel edge and the end of the rail** when installing the end clamp and end cap.
Slide the clamp towards the panel and tighten.

Tightening torque: 12 Nm.
Press the end cap firmly into position.

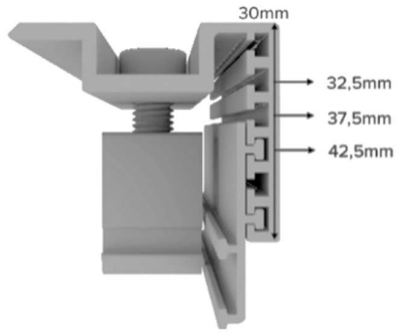
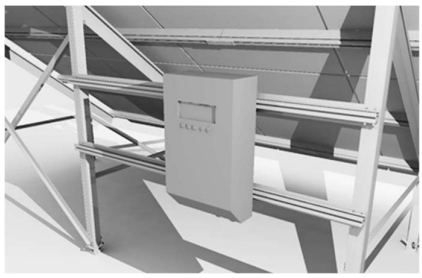
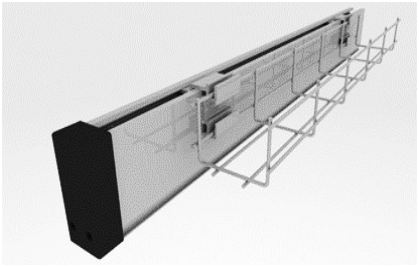


30 mm End Clamp – Without Insert

For **30 mm panel thickness**, use the end clamp without an insert.

For other panel thicknesses, install the appropriate insert and adjust it to suit the panel thickness.

Note: The insert is asymmetrical. Ensure that it is installed in the correct orientation and adjusted to suit the panel thickness.

	**30 mm End Clamp – Without Insert** For **30 mm panel thickness**, use the end clamp without an insert. For other panel thicknesses, install the appropriate insert and adjust it to suit the panel thickness. **Note:** The insert is asymmetrical. Ensure that it is installed in the correct orientation and adjusted to suit the panel thickness.
	**ANTI-THEFT BALL** Install the anti-theft ball after consultation with the end customer. **IMPORTANT: Once the anti-theft ball has been installed, the panel can no longer be adjusted.** 1. Apply a small amount of silicone sealant to the Allen screw. 2. Press the anti-theft ball onto the Allen screw. 3. Install the anti-theft balls only after the installation has been **fully completed**, to help prevent removal and theft of the panels.
	**OPTIONAL INVERTER MOUNTING RAIL** Secure the inverter mounting rail using **4 short drilling screws at each end**. The following components are supplied for securing the inverter mounting bracket in the rail channel: • **5 × M8 × 14 Allen screws** • **5 × T-slot nuts** • **5 × washers** Install the inverter.
	**OPTIONAL – CABLE TRAY BRACKETS** Install **5 adapters per rail** for securing the cable tray. Position the adapters so that they **do not sit underneath the panel frame**. Hang the cable tray securely in the installed brackets.

INSTALLATION INSPECTION CHECKLIST – SUNPARK ROT GROUND-MOUNT SYSTEM
This checklist must be completed after installation to verify that the system has been installed in accordance with the installation instructions.

Kontrollpunkt	Kommentar	Sign
Posts: ☐ Verify that each post is securely fastened with **4 screws**.		
Connectors: ☐ **Base Profile:** Verify that each profile connector is secured with **12 drilling screws**. 		
Number of Cross Braces per Number of Brackets ☐ • **Up to 3 brackets:** 2 cross braces • **4 to 5 brackets:** 3 cross braces • **6 to 9 brackets:** 4 cross braces • **10 or more brackets:** 6 cross braces		
C/C Spacing Between Brackets ☐ Verify the C/C spacing against the material specification or delivery note. ☐ If there is a deviation of **±200 mm** between two brackets, correct the spacing at the following bracket. The C/C spacing must **not exceed 2,200 mm.**		
Angle Bracket and Mounting Rail ☐ Verify that the angle bracket is securely fastened to both the **mounting rail and the bracket**. **Tightening torque: 12 Nm**		
Profile Connectors ☐ Verify that each profile connector is secured with **4 screws**. ☐ Verify that profile connectors are **not positioned underneath the same solar panel**. **Tightening torque: 12 Nm.**		

Rail Overhang ☐ Verify that the rail overhang from the bracket is **50–400 mm**. **Standard rail overhang: 295 mm.**		
Ballast ☐ Verify that the correct ballast weight is installed in each section in accordance with the accompanying snow and wind load calculation.		
Solar Panels ☐ Verify that the panels are securely fastened to the mounting rails using mid clamps and end clamps. **Mid clamps and end clamps: Tightening torque: 12 Nm.**		
SPOT CHECK Check the panels by applying light manual pressure and gently shaking them. Any unusual movement or noise may indicate loose components or insufficiently secured connections.		

COMMENTS / ADDITIONAL INFORMATION

This document must be handed over to the customer and presented in the event of a warranty claim or complaint.

Projectname/nr_____

Name_____Datum_____

Company_____

SERVICE & MAINTENANCE

Maintenance

Regular inspection of the solar panel mounting system should always be carried out. Mapab AB recommends an annual inspection, preferably in spring after the snow has melted, as well as following severe weather or storms. The purpose of the inspection is to identify any faults, damage or deficiencies that may have occurred due to weather conditions.

Inspection Points

- Verify that the mounting system has been installed in accordance with the Mapab AB installation instructions.
- Check that all fasteners are secure and correctly tightened.
- Any additional components or replacement parts for the mounting system must be supplied by Mapab AB.
- Replace any deformed or damaged components and/or mounting points.
- In the event of excessive snow loads, the mounting system must be relieved of the load in a suitable manner without causing damage to the installation.
- During winter, keep the area around ground-mounted systems clear to allow snow to slide off and minimise the snow load on the installation.

INSTALLATION INSTRUCTIONS – GROUND-MOUNT SYSTEM

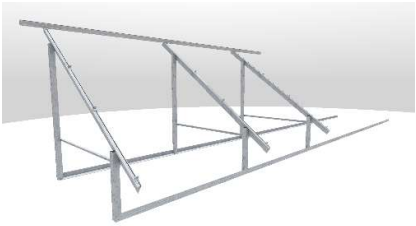
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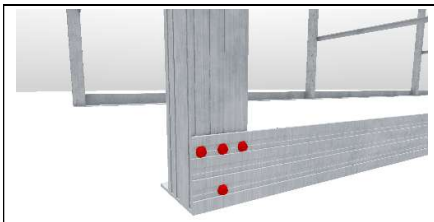
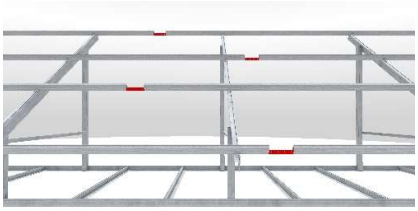
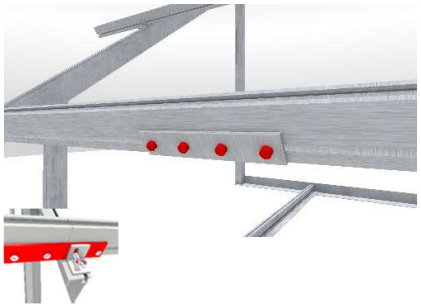
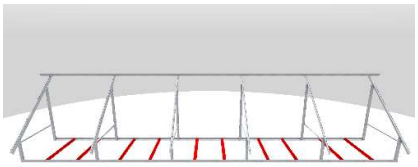
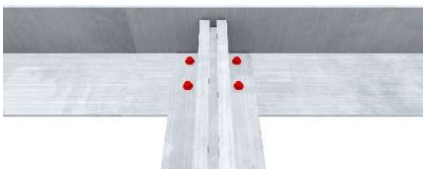
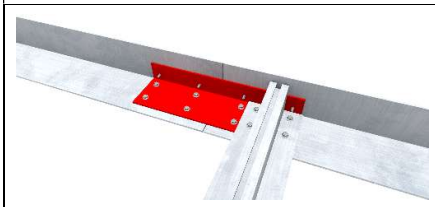


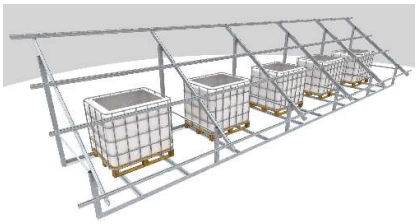
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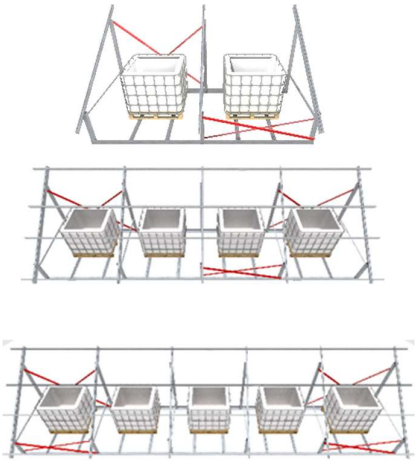
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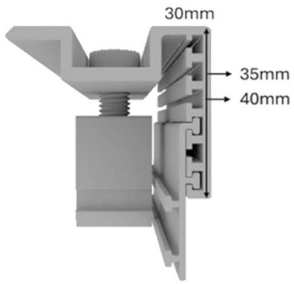


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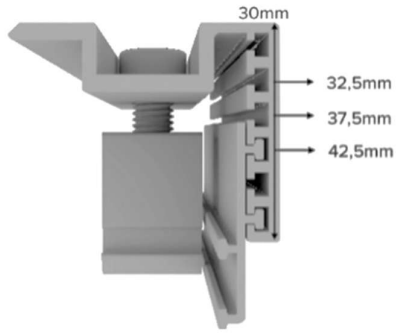
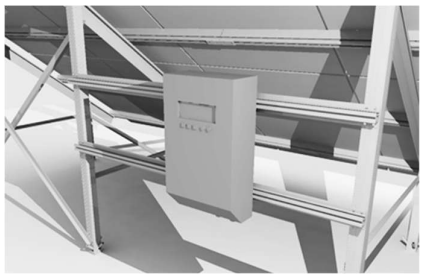
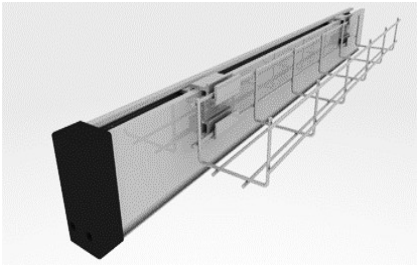


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Projectname/nr_____

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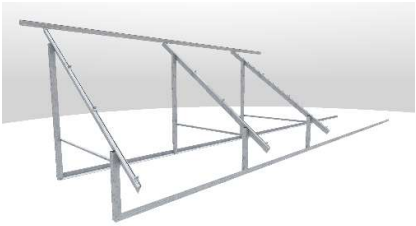
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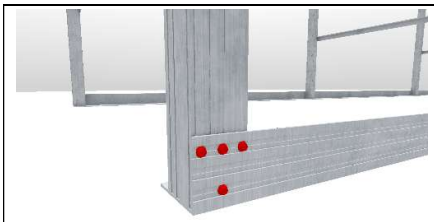
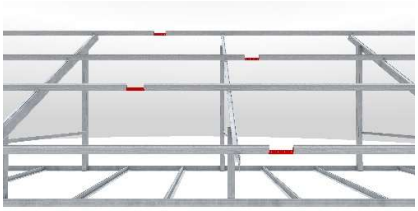
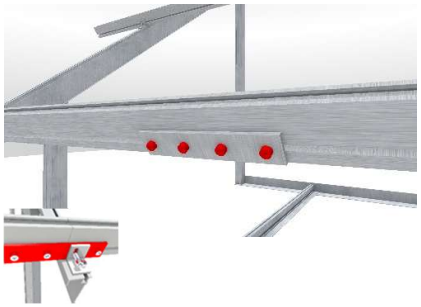
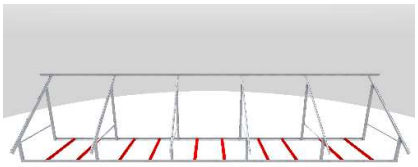
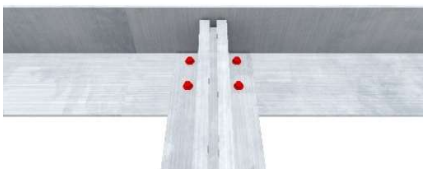
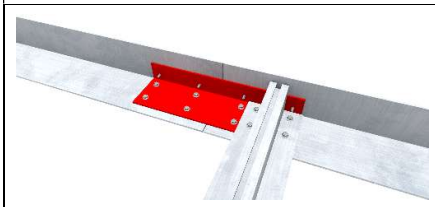


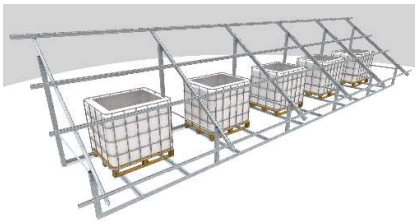
Installation Instructions for a Two-Row Ballast Ground-Mount System - Portrait Orientation

Maximum system length: 30 metres.
I CENTRE-TO-CENTRE (C/C) DIMENSIONS: REFER TO THE DELIVERY NOTE OR SYSTEM SPECIFICATION FOR THE SPECIFIED DIMENSIONS. If the specified C/C dimensions cannot be achieved, contact Mapab AB before proceeding with the installation.

1. Inspect the installation annually, preferably in spring after the snow has melted and following severe weather or storms.
2. During winter, it is important to keep the area around the ground mount system clear to allow snow to slide off freely and to minimize snow loads on the installation. Please refer to the **"Service & Maintenance"** section on our website for further information.
3.

	Position the base profiles according to the installation layout.
	Secure each profile connector to the base profile using **12 drilling screws**.
	Position the brackets according to the drawing. Cross-measure the diagonals to ensure accurate positioning. **C/C dimensions for the specific installation are specified in the accompanying system specification/drawing.** Install mounting rail rows **1–4**. Refer to the accompanying system specification/drawing for the specified rail layout dimensions and rail overhang from the bracket.

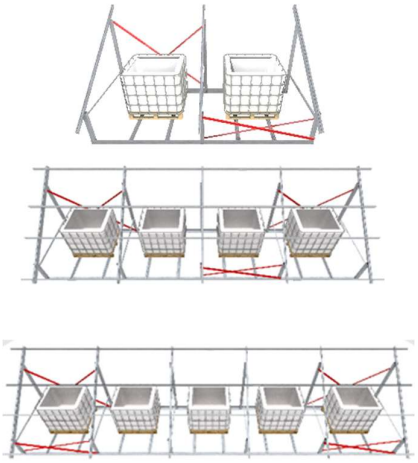
	Secure each post with 4 drilling screws.
	Check the clamping zones specified for the solar panel. For a two-row system, start from the centre of the bracket. Position the rails on either side of the centre so that they are evenly distributed across the system and aligned with the panel clamping zones. Secure the angle bracket with **2 Allen screws M8x20** in the grooved channels. Tightening torque: 12 Nm.
	Profile connectors must be staggered in relation to each other. Profile connectors **MUST NOT** be positioned underneath the same solar panel.
	Secure the profile connector in the grooved channel of the rail using **4 Allen screws** M8x20 **Tightening torque: 12 Nm.** If the profile connector overlaps a bracket, fasten it through both the angle bracket and the profile connector. **Tightening torque: 12 Nm.**
	Position the hat profile evenly within each section as shown in the illustration.
	Secure the hat profile to the base profile using **4 drilling screws at each end.**
	If the hat profile overlaps a profile connector, the hat profile must be fastened through the profile connector.



Place the ballast **on the mounting rails**.

Leave sufficient space for installation of the diagonal braces.

The required ballast load per section is specified in the accompanying snow and wind load calculation.



Universal Diagonal Cross Bracing

Install diagonal cross braces to ensure structural stability and prevent twisting of the structure.

Cut the braces to the required length as needed.

Install the diagonal braces approximately **150 mm above ground level**.

Secure each brace using **4 short self-drilling screws**.

- **Up to 3 brackets:** 2 cross braces
- **4 to 5 brackets:** 3 cross braces
- **6 to 9 brackets:** 4 cross braces
- **10 or more brackets:** 6 cross braces

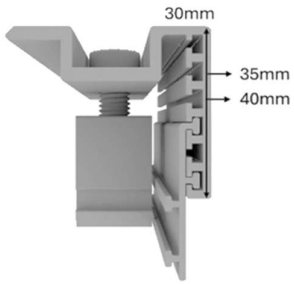


Panel Clamps and End Caps

Insert the mid-clamp and end-clamp clips into the mounting rail channel. Angle the clips slightly and press them into position by hand.

Ensure a minimum distance of **50 mm between the panel edge and the end of the rail** when installing the end clamp and end cap.
Slide the clamp towards the panel and tighten.

Tightening torque: 12 Nm.
Press the end cap firmly into position.

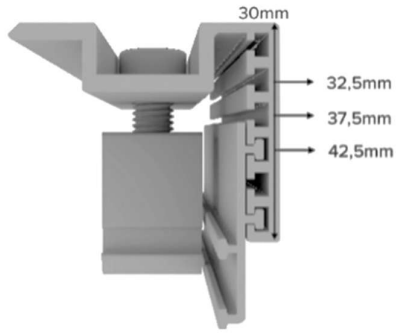
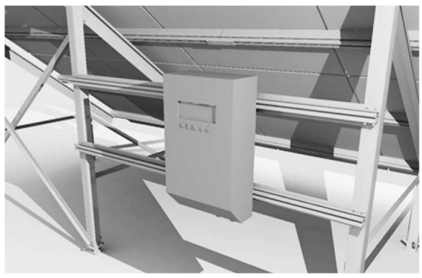
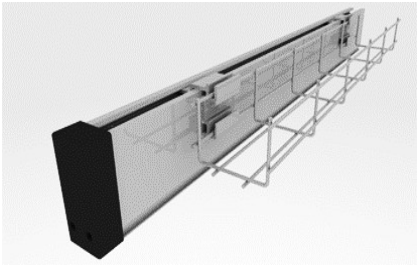


30 mm End Clamp – Without Insert

For **30 mm panel thickness**, use the end clamp without an insert.

For other panel thicknesses, install the appropriate insert and adjust it to suit the panel thickness.

Note: The insert is asymmetrical. Ensure that it is installed in the correct orientation and adjusted to suit the panel thickness.

	**30 mm End Clamp – Without Insert** For **30 mm panel thickness**, use the end clamp without an insert. For other panel thicknesses, install the appropriate insert and adjust it to suit the panel thickness. **Note:** The insert is asymmetrical. Ensure that it is installed in the correct orientation and adjusted to suit the panel thickness.
	**ANTI-THEFT BALL** Install the anti-theft ball after consultation with the end customer. **IMPORTANT: Once the anti-theft ball has been installed, the panel can no longer be adjusted.** 1. Apply a small amount of silicone sealant to the Allen screw. 2. Press the anti-theft ball onto the Allen screw. 3. Install the anti-theft balls only after the installation has been **fully completed**, to help prevent removal and theft of the panels.
	**OPTIONAL INVERTER MOUNTING RAIL** Secure the inverter mounting rail using **4 short drilling screws at each end**. The following components are supplied for securing the inverter mounting bracket in the rail channel: • **5 × M8 × 14 Allen screws** • **5 × T-slot nuts** • **5 × washers** Install the inverter.
	**OPTIONAL – CABLE TRAY BRACKETS** Install **5 adapters per rail** for securing the cable tray. Position the adapters so that they **do not sit underneath the panel frame**. Hang the cable tray securely in the installed brackets.

INSTALLATION INSPECTION CHECKLIST – SUNPARK ROT GROUND-MOUNT SYSTEM
This checklist must be completed after installation to verify that the system has been installed in accordance with the installation instructions.

Kontrollpunkt	Kommentar	Sign
Posts: ☐ Verify that each post is securely fastened with **4 screws**.		
Connectors: ☐ **Base Profile:** Verify that each profile connector is secured with **12 drilling screws**. 		
Number of Cross Braces per Number of Brackets ☐ • **Up to 3 brackets:** 2 cross braces • **4 to 5 brackets:** 3 cross braces • **6 to 9 brackets:** 4 cross braces • **10 or more brackets:** 6 cross braces		
C/C Spacing Between Brackets ☐ Verify the C/C spacing against the material specification or delivery note. ☐ If there is a deviation of **±200 mm** between two brackets, correct the spacing at the following bracket. The C/C spacing must **not exceed 2,200 mm.**		
Angle Bracket and Mounting Rail ☐ Verify that the angle bracket is securely fastened to both the **mounting rail and the bracket**. **Tightening torque: 12 Nm**		
Profile Connectors ☐ Verify that each profile connector is secured with **4 screws**. ☐ Verify that profile connectors are **not positioned underneath the same solar panel**. **Tightening torque: 12 Nm.**		

Rail Overhang ☐ Verify that the rail overhang from the bracket is **50–400 mm**. **Standard rail overhang: 295 mm.**		
Ballast ☐ Verify that the correct ballast weight is installed in each section in accordance with the accompanying snow and wind load calculation.		
Solar Panels ☐ Verify that the panels are securely fastened to the mounting rails using mid clamps and end clamps. **Mid clamps and end clamps: Tightening torque: 12 Nm.**		
SPOT CHECK Check the panels by applying light manual pressure and gently shaking them. Any unusual movement or noise may indicate loose components or insufficiently secured connections.		

COMMENTS / ADDITIONAL INFORMATION

This document must be handed over to the customer and presented in the event of a warranty claim or complaint.

Projectname/nr_____

Name_____Datum_____

Company_____

SERVICE & MAINTENANCE

Maintenance

Regular inspection of the solar panel mounting system should always be carried out. Mapab AB recommends an annual inspection, preferably in spring after the snow has melted, as well as following severe weather or storms. The purpose of the inspection is to identify any faults, damage or deficiencies that may have occurred due to weather conditions.

Inspection Points

- Verify that the mounting system has been installed in accordance with the Mapab AB installation instructions.
- Check that all fasteners are secure and correctly tightened.
- Any additional components or replacement parts for the mounting system must be supplied by Mapab AB.
- Replace any deformed or damaged components and/or mounting points.
- In the event of excessive snow loads, the mounting system must be relieved of the load in a suitable manner without causing damage to the installation.
- During winter, keep the area around ground-mounted systems clear to allow snow to slide off and minimise the snow load on the installation.

INSTALLATION INSTRUCTIONS – GROUND-MOUNT SYSTEM

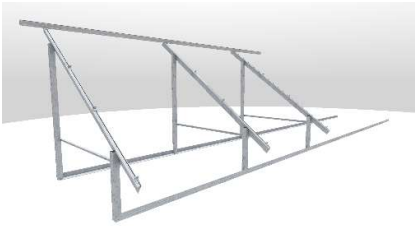
SUNPARK FLEX BALLAST

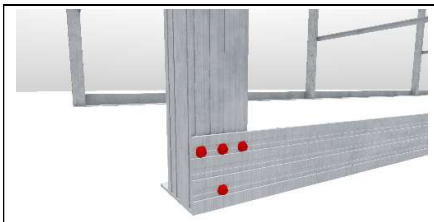
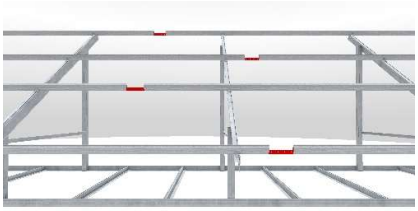
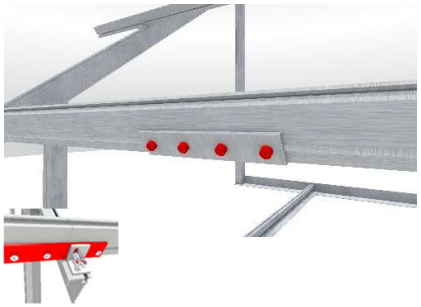
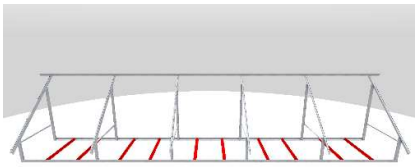
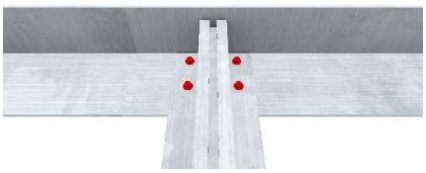
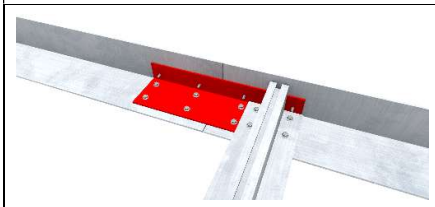


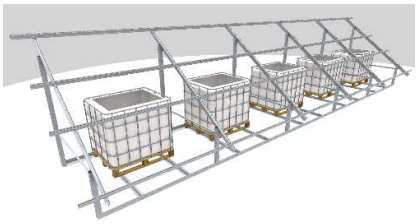
Installation Instructions for a Two-Row Ballast Ground-Mount System - Portrait Orientation

Maximum system length: 30 metres.
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2. During winter, it is important to keep the area around the ground mount system clear to allow snow to slide off freely and to minimize snow loads on the installation. Please refer to the **"Service & Maintenance"** section on our website for further information.
3.

	Position the base profiles according to the installation layout.
	Secure each profile connector to the base profile using **12 drilling screws**.
	Position the brackets according to the drawing. Cross-measure the diagonals to ensure accurate positioning. **C/C dimensions for the specific installation are specified in the accompanying system specification/drawing.** Install mounting rail rows **1–4**. Refer to the accompanying system specification/drawing for the specified rail layout dimensions and rail overhang from the bracket.

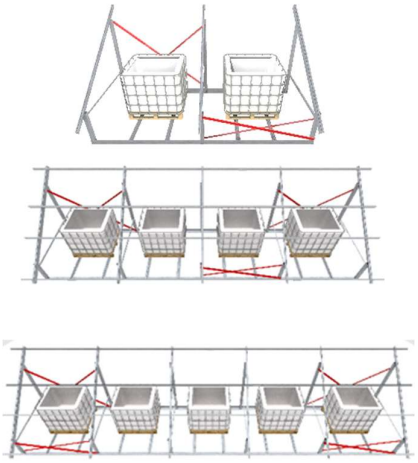
	Secure each post with 4 drilling screws.
	Check the clamping zones specified for the solar panel. For a two-row system, start from the centre of the bracket. Position the rails on either side of the centre so that they are evenly distributed across the system and aligned with the panel clamping zones. Secure the angle bracket with **2 Allen screws M8x20** in the grooved channels. Tightening torque: 12 Nm.
	Profile connectors must be staggered in relation to each other. Profile connectors **MUST NOT** be positioned underneath the same solar panel.
	Secure the profile connector in the grooved channel of the rail using **4 Allen screws** M8x20 **Tightening torque: 12 Nm.** If the profile connector overlaps a bracket, fasten it through both the angle bracket and the profile connector. **Tightening torque: 12 Nm.**
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Place the ballast **on the mounting rails**.

Leave sufficient space for installation of the diagonal braces.

The required ballast load per section is specified in the accompanying snow and wind load calculation.



Universal Diagonal Cross Bracing

Install diagonal cross braces to ensure structural stability and prevent twisting of the structure.

Cut the braces to the required length as needed.

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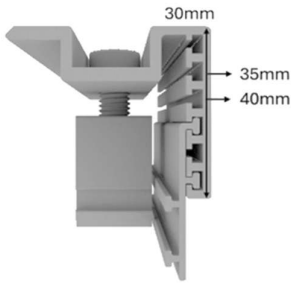


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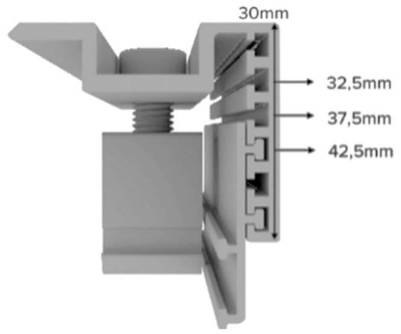
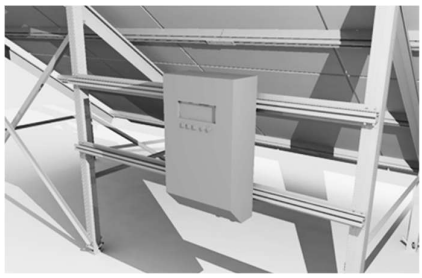
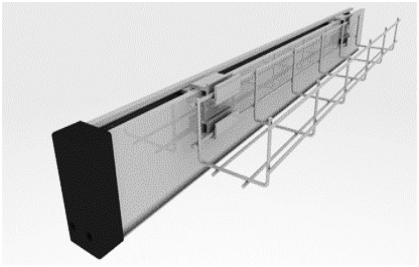


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Projectname/nr_____

Name_____Datum_____

Company_____

SERVICE & MAINTENANCE

Maintenance

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