

OPERATION AND MAINTENANCE MANUAL

FOR PHOTOVOLTAIC MODULES SUPPORT STRUCTURES

Applies to single and double support steel structures in Magnelis and Galvanic coating.

§1 General Provisions

1. The subject of the documentation is a set of structural, fastening and assembly components, hereinafter referred to as the Structure.
2. The purpose of the Operation and Maintenance Manual, hereinafter referred to as OMM, is to make the Buyer familiar with the parameters of the Structure, its characteristics, principles of operation and correct handling of the product.
3. The Manufacturer of the Products is ROLLFORM Polska sp. z o.o. with its registered office in Łódź (93-465) ul. Dubois 114/116, suite 2.01, registered in the Register of Entrepreneurs kept by the 20th Section of the National Court Register for Łódź-Śródmieście District in Łódź under KRS No 0000762681, NIP: 8311638200 (hereinafter referred to as the Manufacturer).
4. The Buyer is defined as the natural person or entity purchasing the Structure from the Manufacturer, as well as the end User of the Product.
5. The guidelines under this documentation shall be provided to the end user at the expense and effort of the Buyer.
6. Failure to comply with the guidelines set out in this document by the Buyer shall discharge the Manufacturer from any obligation under the warranty.
7. The manufacturer shall provide a warranty for the Product on condition that the the OMM recommendations specified in General Terms of Warranty are observed.

§2 Delivery

1. The products should be packed in such a way that they cannot be depleted.
2. All films, adhesive and steel tapes must be removed after unloading. Failure to comply with these guidelines may result in discolouration of coatings, excessive oxidation, secondary rust build-up from protective tapes.
3. Following the delivery the structure should be stored in a place protected against weather conditions.
4. Delivered materials should be stored a minimum 20 cm over the ground level, and spacers should be installed with a maximum spacing of 1m.
5. Protection against mechanical damage to components should be ensured during loading, transport and unloading, as well as safety during transport. Unloading must be carried out using appropriate tools that do not damage the products to be delivered.
6. When unloading manually, care should be taken to ensure that a sufficient number of people are available to unload the load to avoid damage of deformation and scratches. Do not slide the goods on the ground – this may damage the anti-corrosion protective coatings.

7. Upon delivery, the Product must be absolutely checked for quality and any delivery shortages.
8. The recipient of the delivery confirms that it has been complete and that the Product is in proper condition shall be confirmed in the WZ [*external release*] document. Any remarks concerning the delivery must be mandatory included in the WZ document of the delivery.
9. If any shortage in a delivery has been noticed, the supplier must be notified as soon as possible (no longer than within 3 working days) and any such shortage should be documented in the delivery note.
10. Any discrepancies, including defects and damage, must be reported to the manufacturer before the product is installed. Notification after installation shall not be taken into account.
11. The supplied material must be installed within three months of delivery.
12. If the materials get wet during transport or unloading, it is absolutely essential to dry all components, and to re-bed the components with wooden spacers so that ventilation is ensured to allow moisture to escape.
13. The Manufacturer shall not be responsible for any damage caused by storage against the Manufacturer's recommendations.

§3 Installation

1. During installation, the applicable safety and fire protection regulations must be strictly observed.
2. Installation shall be carried out in accordance with the Manufacturer's instructions.
3. The materials supplied shall be used in accordance with the intended use.
4. The use of materials shall be in accordance with applicable standards and regulations.
5. Any tampering with the structure: undercutting, drilling, grinding, changing the dimensions of any component is forbidden. Any deviation from this clause shall require a written approval of the Manufacturer under the sanction of losing the right to Warranty.
6. If it is necessary to cut profiles, the cut must be made with a device that does not generate heat and does not damage the usable surface of the section. Cutting with an angle grinder is not allowed. After cutting and before the installation, the component must be cleaned from coolant and swarf generated during cutting.
7. The bottom and top surfaces of the prestressed concrete columns should be treated with impregnation dedicated to concrete surfaces before the installation.
8. If minor damage occurs (e.g. during transport) to the prestressed concrete column, the damage must be impregnated with an impregnating agent dedicated to concrete surfaces.
9. In steel columns, the contact area between the upper part of the support and the pile driver must be protected with zinc paint. The protection should be provided up to the distance of the pile driver scratching the coating.
10. For prestressed concrete columns it is mandatory to use a rubber spacer between the pile driver's hammer and the column during when hammering.
11. Before taking subsequent installation steps, the components to be assembled must be cleaned of dirt.
12. All joining elements, i.e. bolts, washers and nuts are made of stainless steel unless otherwise specified in the order. Bolts must be tightened to the recommended torques in the following list:
 - a. Screws M16 – 140Nm
 - b. Screws M12 – 57Nm
 - c. Screws M10 – 33Nm
 - d. Screws M8 – 17Nm
13. Over-tightening or under-tightening of screws is not permitted and may result in loose connections or in damage to the installation and joining parts.

14. When the entire structure has been assembled, check all connections once more with a torque spanner.
15. Laying of cables in the ground must be carried out on disconnected cables.
16. Keep a safe distance from the structure when excavating. This is necessary so that the excavation does not reduce the load-bearing capacity of the soil, thereby weakening the anchorage of the support in the soil.
17. Discolouration may appear on the surface of stainless steel components during operation. The occurring tarnish is of superficial nature and does not affect the mechanical properties of the products.
18. ROLLFORM structure is designed to be assembled by professional teams with equipment and experience.
19. Installation guidelines show how to mount on flat ground.
20. It is up to the installation company to adjust the structure to the curvature of the terrain. When installing on a curved surface, the foundation of the supports should be planned first and then adjusted in consultation with the Project Supervisor, taking into account the principle to always drive piles into soil deeper than the minimum value permitted in the design. At the same time, it is important to ensure that the longitudinal gradient is as gentle as possible.
21. For defects and damage caused by improper installation, ROLLFORM POLSKA SP. Z O.O. assumes no liability.
22. Any modifications made by the Buyer/User will result in the loss of warranty.
23. It is forbidden to climb the structure or load it in any other way.

§4 Use

1. Periodic inspections of the system must be conducted to ensure correct and long-lasting use of the structure. The first two inspections in six and twelve months after installation. Further inspections every twelve months.
2. During inspection, check that all bolts and fixings are properly tightened and in position.
3. It is forbidden to climb the structure or load it in any other way.
4. The structure may be cleaned, as this will ensure a better appearance and less susceptibility to corrosion. Abrasive, alkaline or acidic cleaning agents are not allowed. The structure must be cleaned with water or water and natural detergents. Do not use abrasive cleaning agents which could damage the anti-corrosion protective coating.

§5 Parameters of the Structure

1. Structures made of cold-formed sections are made of sheets with anticorrosive coatings.
2. Coatings cover plate surfaces only.
3. There may be a superficial rust film on the edges of cuts and openings, this is not a product defect. Oxidation is superficial and does not affect the safe use of the structure.
4. It is permissible that the Buyer protects the edges with a coat of galvanised paint additionally.

§6 Entry into Force

1. This documentation shall become valid as of 01.03.2022.
2. Any amendments to the Documentation shall become valid 7 days after the change is announced on the Manufacturer's website – www.rollform.pl