



Van der Valk Solar Systems - Life-cycle Sustainability

To better understand the impact of our products on the environment and what we do to minimize this. For this reason we have performed a general life-cycle sustainability assessment for our mounting systems, looking at the six phases. In this document we summarize the sustainability aspects of our solar mounting systems for each phase.

1. Design phase

At Van der Valk Solar Systems we have our own team of R&D engineers, that design and test new components and systems. In the design phase, the focus is not only on functionality, quality and cost, but also on sustainability. The following aspects are always considered in our designs:

Materials

Durability of the applied materials is key for Van der Valk Solar Systems. Our company has more than 60 years of experience with components and constructions used in the glasshouse industry. We know what the influence of sunlight, temperature changes and humidity can do to materials. Therefore we always carefully select materials that ensure a long service life and maintain their mechanical properties overtime under the given conditions.

In our designs we make sure to only apply materials that can be separated and recycled at the end of their service life.

Production

It is our aim in the design phase to use as much of our own state-of-the-art production machines and assembly lines in the realization of designed products. In this way we can better control the stream of required raw materials, machine efficiency and energy consumption used in the process.

Packaging

Each new component needs the packaging to protect it before use. The best packaging method depends on the component size and impact resistance. For our packaging methods we make sure to only apply materials that are made from recycled carton and / or can be separated and recycled at the end of their use.

Transportation

By making sure the new designed components can be nested, the air between the components is reduced. This means that less space is required in a truck for transportation which has a positive effect on the efficiency of transportation: the number of movements can be kept to a minimum.

2. Extraction of raw materials

Our main components are made of:

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| • Aluminium | Mounting profiles, support feet, panel clamps, inverter clamps, etc. |
| • Magizinc / Magnelis | Roof carriers, side plates, back plates. |
| • Rubber | Tile carriers, load distributors, support blocks. |
| • Plastic | Cable- and connector holders. |
| • Stainless steel | Roof hooks, screws, nuts- and bolts. |

For each component, the material is sourced responsibly and where applicable recycled materials are used. Our materials are all 100% recyclable and do not contain harmful elements.

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Aluminium

For our aluminium products we use extruded profiles made of “circular aluminium”. This means up to 97% recycled aluminium can be used in the extrusion process. This results in 95% lower energy consumption and 80% smaller carbon footprint compared to the extrusion process for standard aluminium. The energy used in the process comes from sustainable sources, such as hydro, wind and solar power.

MagiZinc® / Magnelis®

For our high strength constructional components, such as roof carriers, side and backplates, steel with a special zinc coating is used to extend the product life. The zinc coating is known under the brand names MagiZinc and Magnelis and is much thinner compared to pure zinc coatings. This ensures the preservation of natural resources as it uses significantly less zinc than pure zinc coatings. It also reduces zinc runoff to soils by more than 75% compared to standard zinc coated materials.

MagiZinc / Magnelis is 100% recyclable and does not contain any harmful elements.

Rubber

For our system supporting components, such as tile carriers and load distributors, recycled rubber granulate, including from scrap car tyres, is used. In this way valuable raw materials are preserved and energy consumption and emission of harmful substances is minimised.

Stainless steel

Components to make strong joints and fixations to the roof structure, like nuts, bolts and screws are made in stainless steel and purchased from well-known European suppliers. The choice for stainless steel for these components is to guarantee a long service life and reliability and to ensure the components can be disassembled at the end of use.

Plastic

In our mounting systems, only a very small number of components is made in plastic. These components are mostly used for cable management. The components are made from UV-resistant and temperature resistant plastics, to ensure a long service life. The plastic components are not connected with or glued to other materials, so they can be easily separated for recycling at the end of the service life.

3. Manufacturing

Energy

At our manufacturing location in Monster, The Netherlands, we have more than 1800 solar panels installed on our roofs to generate sufficient power on annual basis for the production processes and office building. This means our electricity is 100% green. For heating of the new production halls, heat pumps are used.

Oils and chemicals

For the aluminium cutting and punching process only oils that are readily biodegradable are used. No other chemicals are used in the processes.

Waste

All waste materials generated by the manufacturing process are separated and collected by our partners for recycling. Main waste material flows are aluminium and steel scrap from cutting and punching processes, wood from pallets and containers and carton.

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4. Distribution and packaging

Packaging

Our smaller components are packed mostly in small, medium or pallet sized carton boxes, made out of 100% recycled carton. In the second half of 2022 we will shift to 100% eco-friendly tape to close the boxes.

Large components, like mounting profiles and roof carriers, are stacked on wooden blocks. No additional wrapping is applied.

Distribution

For distribution of our components to installers, we work with a large network of distributors that keep stock locally. In this way we can optimize and combine shipments to our distribution partners. We work with a selected group of logistic partners that have a network in Europe to plan shipments efficiently and keep their emission to a minimum.

5. Product use

Our mounting systems for solar panels are designed to have 25 years of service life or longer, without the need to replace components. This is in line with the expected life of solar panels. During the service life, the material properties are maintained and no reactions like corrosion should occur, as long as the general installation guidelines are followed and contact with aggressive chemicals or salt water is avoided. No cleaning of the components is required during use.

6. End of life

All components of our mounting system can be easily and completely disassembled at the end of their service life and re-used or separated for recycling. The systems only contain nut and bolt, screw and click connections, so nothing is glued or welded. All materials are fully recyclable and do not contain harmful substances.

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