TIGA-CYNK

CAR PORTS

PHOTOVOLTAIC

Modern photovoltaic carports are revolutionising the traditional concept of car parks by transforming them into advanced electricity generation centres, according to scale. They not only maximise the use of available space by producing green energy, but also provide reliable protection for vehicles from unpredictable precipitation. The supporting elements form a kind of sail covered with photovoltaic panels, under which users of previously designated parking spaces can enjoy shade and vehicle protection.

CARPORT DESIGN

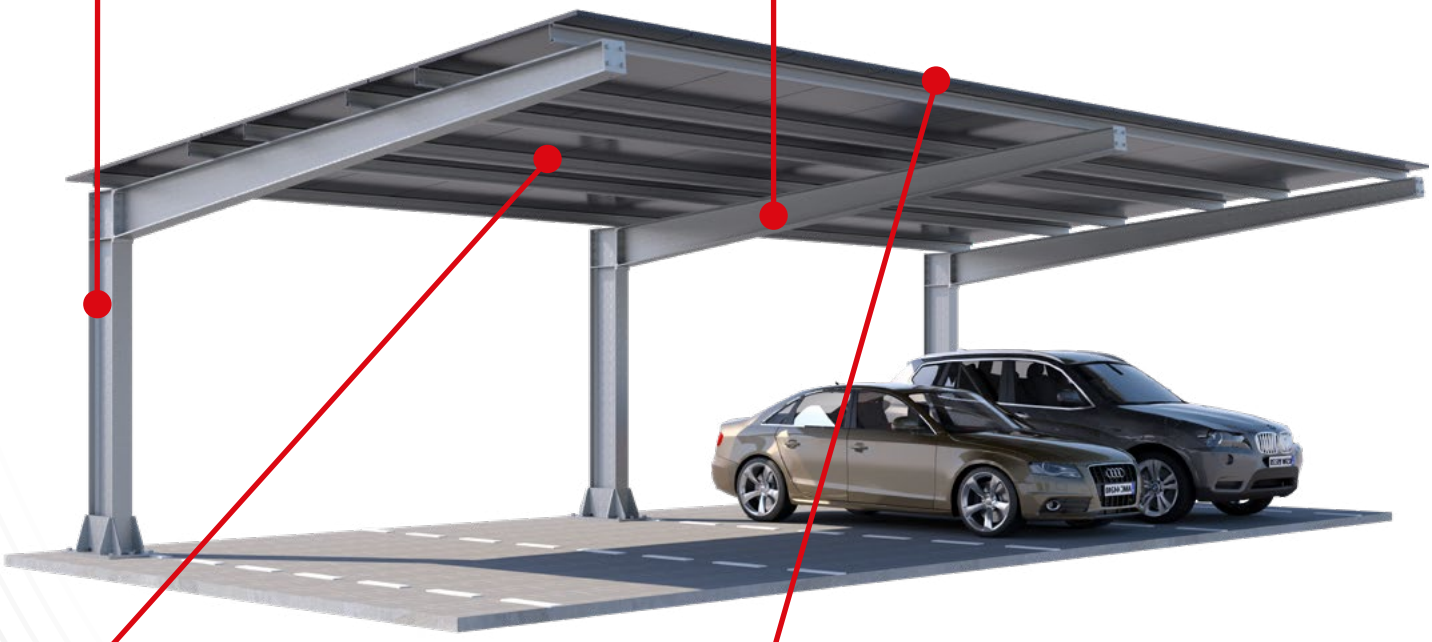
Carports consist of four basic elements:

POSTS

The posts, which are fastened to the carport foundations, anchor the structure in the ground and provide support for the roof. Their length is determined by the user to adapt the height of the carport to his or her needs. The cross-section of the posts is carefully selected to ensure not only adequate strength, but also aesthetic values. The post structures are limited to I-beams and hollow sections to find the optimum balance between the strength of the structure and its aesthetics.

BEAMS

in the form of gradually tapering plate girders give the structure a visual lightness, so that it blends seamlessly into the aesthetics of the surrounding area. Their length allows the installation of any type of photovoltaic panel by using dedicated connectors. The fact that the spacing between the support points of the rails can be adjusted is a key advantage of the structure offered, which allows it to be prefabricated, thus enabling a quick completion date.



RAILS

the horizontal load-bearing components of the roof provide a solid base for the installation of photovoltaic panels, while at the same time they act as a reinforcement for the structure.

ROOFING

in principle, it is the photovoltaic panels of the user's choice, while an option is an aesthetically pleasing trapezoidal sheet metal finished with felt to ensure a fully watertight roof.

WHY TIGA-CYNK CARPORTS?

The key advantage of a photovoltaic carport is the generation of green electricity while protecting vehicles from the weather, reducing heating effects in summer or preventing freezing in winter. Tiga-Cynk carports are distinguished by a unique combination of qualities:

UNIVERSAL ASSEMBLY SYSTEM

The carports are equipped with an innovative connection system that allows the installation of any type of photovoltaic panels without the need to adapt the mounting holes. This solution is crucial for ensuring short delivery times and eliminating the need to drill holes in the structure on site, thereby affecting the anti-corrosion coating.

WARRANTY

Each of the parts is protected by anti-corrosion coating applied with the use of innovative hot dip galvanising technology, the process of which includes continuous monitoring of the zinc bath. The quality and durability of the anti-corrosion coating is confirmed by a guarantee of 15 years.

DELIVERY TIME

A well-organized management system of the technological process ensures quick delivery of Tiga-Cynk Carports, even for custom-designed structures.

PARKING COMFORT AND FAVOURABLE CONDITIONS FOR ENERGY FACILITIES

In summer, carports provide shade and reduce the temperature of the parking space and thus improve the thermal comfort of the use of the vehicle, they also support the energy devices underneath such as inverters and car chargers by reducing their temperature, which has a beneficial effect on the loss of energy transmission between the devices. They isolate vehicles from precipitation such as hail, snow or rain, with beneficial effects on vehicle condition and safety.

PROPRIETARY DESIGN

Tiga-Cynk offers unique assembly solutions that combine aesthetics with speed and simplicity of assembly. Each of the structure types we offer has been thoroughly tested in the form of demonstrators for ease and speed of assembly, while our in-house laboratory has tested the thickness of the anti-corrosion coatings and the accuracy of the workmanship.

ADDITIONAL SYSTEMS

As an additional option, the carport can be equipped with a sealed roof system with gutters, the carport or parts of it can be painted in a RAL colour and traditional or piled foundations can be provided by subcontractors.

Central University Hospital

Example of an investment project for the Central University Hospital. Installed power of the photovoltaic system of 2.45MW over an area of 13,000 m² makes it possible to generate electricity without restricting the parking area. The use of multiplied carports at public facilities brings tangible benefits for both investors and users.

With the covered parking spaces, patients and employees can leave their vehicles in shade. This aspect contributes to the overall comfort of vehicle use, especially in summer and winter.

Service and shopping centre

Example of an investment in a service and shopping centre. This project was based on the adaptation of an existing car park to the requirements of the investor. The total area of the car park is nearly 1.5 hectares and is capable of generating a total power of 2.7MW.

Carports at a production company

One of the flagship installations invested in by a company specialising in the production of bearings is a car park of 5050 m² covered with carports with a total capacity of 854 kWp. The installation of carports at the production company is a clear example of improved energy efficiency: the highest energy consumption coincides with the period of highest solar energy production - maximum use of RES energy allows a reduction in the level of energy returned to the grid.

Photovoltaic carport

Y-TYPE CARPORT

The Y-type photovoltaic carport is a structure focused on maximum use of the available parking area and installation features.

A massive pole attached to the foundations provides stability and strength to the structure. The roof of the carport is made up of gradually tapering plate girders which point upwards to form a Y-shape, giving the impression of lightness, but maintaining the most favourable strength-to-weight ratio of the component.

The 4-car carport is available in two widths: 5 m and 5.7 m which provides the possibility to install it on existing car parks with a width of one space limited to 2.5 m and on car parks with an extended width of 2.85 m.

The layout of the Y-type carport's roof is ideal for car parks which require the photovoltaic panels to be oriented in an east-west direction, thus contributing to the constant production of electricity throughout the full cycle of daily sunlight.

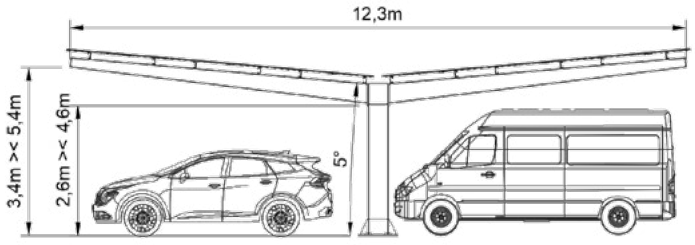
The front-to-back parking arrangement of the Y-type Carport is the key to optimum space utilisation in large car parks. With the possibility of a two-sided approach, manoeuvring and parking long vehicles are no problem at all. In addition, the positioning of the posts in the middle of the carport allows collision-free egress from the vehicle, which is one of the many practical features of the Tiga-Cynk solution.

The Y-type carports feature an adjustable height at the lowest point. The available extension options ensure that the height of the structure can be adapted to the individual needs of the user.

- 5/7° — Inclination angle 5 or 7 degrees
- Strength for snow zone 3
- Width between columns 5m and 5.7m
- Zn — Hot-dip galvanised structure
- Modular expansion possible

TECHNICAL DATA

Number of spaces / 1 carport	**4**
Number of PV modules / 1 carport	**30 ÷ 36 [pcs]**
PV module dimensions	**any**
Power / 1 carport	**13 ÷ 21,6 [kWp]**
PV module brand	**any**
Material	**S355JR + S235**
Protective coating	**Hot-dip galvanised**
Structural strength	**Snow zone 3**
Coating warranty	**15 years**
Structural warranty	**15 years**
Extendable	**Yes**
Assembly system	**Proprietary Tiga-Cynk**
Technical and construction documentation	**Included**
Assembly instructions	**Included**
Foundation anchor cage	**Available for purchase in the set**
Installation of inverter and car charger possible	**Yes**
Painting	**Optional**
Sealed roof	**Optional**
Construction of concrete /screw foundations	**Optional by subcontractor**
Guttering	**Optional**



DIMENSIONS

Min. height	**2,6 ÷ 4,6 [m]**
Max. height	**3,4 ÷ 5,4 [m]**
Width at centreline	**5 ÷ 5,7 [m]**
Depth	**12,3 [m]**

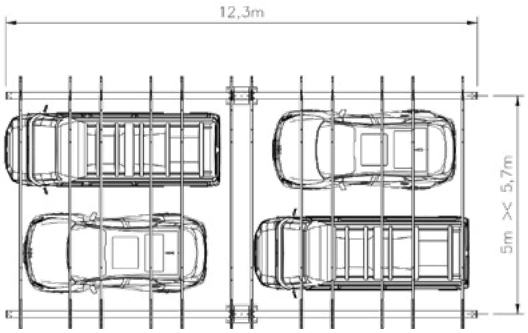
STANDARDS

PN-EN 1090
Execution of steel structures

PN-EN 1991
Actions on structures

PN-EN 1993
Design of steel structures

PN-EN 1461
Hot dip galvanizing on iron and steel products



The roof of the carport is formed by photovoltaic panels, which play a dual role - primarily they are used to produce electricity from RES. Carport areas are perfect for producing green energy and increasing energy efficiency - large areas exposed to the sun can generate energy, the potential consumers of which are the facilities (shops, businesses) that are most often located in close proximity to them.

The structures we offer allow photovoltaic panels to be installed on the surfaces of car parks that already exist, e.g. in city centres, which is an alternative considering the high price of land.

The second key role of the carport is to protect vehicles from the sun and precipitation (hail, snow, rain). The function of the carport is not only to reduce electricity costs, it is also to actively support the idea of sustainable development which contributes to the reduction of the carbon footprint.

Modern Tiga-Cynk parking systems, including the Y-type carport with photovoltaic panels, combine usability with a commitment to green energy production, reflect a desire for sustainable development in modern parking infrastructure.

Photovoltaic carport

T-TYPE CARPORT

The T-type carport is a steel structure similar to the Y-type, focusing on functionality of use and use of available parking space.

The T-type carport is a steel structure similar to the Y-type, focusing on functionality of use and use of available parking space.
It is based on a post fixed to the foundations, which ensures the stability and strength of the entire structure. The modifiable height of the post makes it possible to adjust the height of the carport.

The design of the carport is distinguished by two plate girders, which taper towards each other at the far end of the structure to form a T-shape. The use of such shaped profiles not only has a positive effect on the aesthetics, but also allows an ideal balance between strength and weight of the component.

The T-type carport is available in two widths: 5 m and 5.7 m. The 5 m version is designed for car parks with a single car space width of 2.5 m, so that the positioning of the post is at the junction of the parking spaces, which has a beneficial effect on the appearance and use of space.

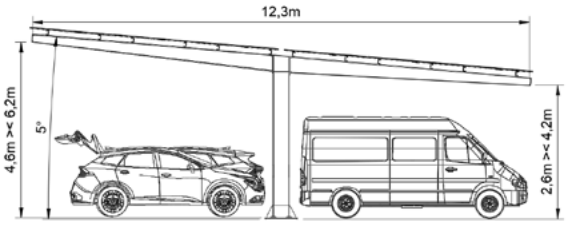
The 5.7 m variant, in contrast, with a car space width increased to 2.85 m, offers additional space to make it easier to get out of the vehicles.

The arrangement of photovoltaic panels in the T-type carport is a solution best suited to car parks facing south. The T-type carport as compared to the Y-type carport has the potential to produce more energy, as it can be favourably positioned to face south. The T-type carport is designed for a front-to-back in-row parking arrangement. It allows optimum use of the available space while ensuring ease of manoeuvring and parking, even for longer vehicles. In addition, the characteristic location of the posts in the central part of the structure makes it significantly easier to open the doors and get out of the vehicles, which is an important aspect in terms of user comfort. The height of the T-type carport at its lowest point can be easily increased or decreased by modifying the post height. This design feature makes it easy to adapt the parking space to different types of vehicles, from cars to trucks. With this solution, the T-type carport represents a versatile parking solution.

- 5/7° — Inclination angle 5 or 7 degrees
- Strength for snow zone 3
- Width between columns 5m and 5.7m
- Zn — Hot-dip galvanised structure
- Modular expansion possible

TECHNICAL DATA

Number of spaces / 1 carport	**4**
Number of PV modules / 1 carport	**30 ÷ 36 [pcs]**
PV module dimensions	**any**
Power / 1 carport	**13 ÷ 21,6 [kWp]**
PV module brand	**any**
Material	**S355JR + S235**
Protective coating	**Hot-dip galvanised**
Structural strength	**Snow zone 3**
Coating warranty	**15 years**
Structural warranty	**15 years**
Extendable	**Yes**
Assembly system	**Proprietary Tiga-Cynk**
Technical and construction documentation	**Included**
Assembly instructions	**Included**
Foundation anchor cage	**Available for purchase in the set**
Installation of inverter and car charger possible	**Yes**
Painting	**Optional**
Sealed roof	**Optional**
Construction of concrete /screw foundations	**Optional by subcontractor**
Guttering	**Optional**



DIMENSIONS

Min. height	**2,6 ÷ 4,6 [m]**
Max. height	**4,2÷ 6,2 [m]**
Width at centreline	**5 ÷ 5,7 [m]**
Depth	**12,3 [m]**

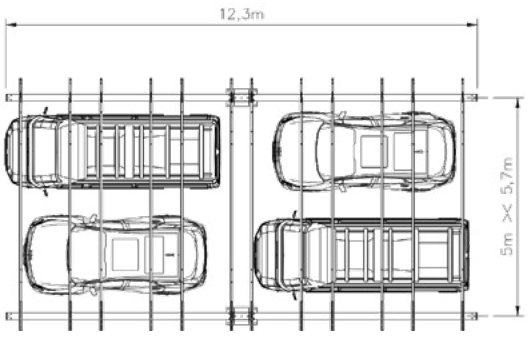
STANDARDS

PN-EN 1090
Execution of steel structures

PN-EN 1991
Actions on structures

PN-EN 1993
Design of steel structures

PN-EN 1461
Hot dip galvanizing on iron and steel products



The roof of the carport is formed by photovoltaic panels, which play a dual role - primarily they are used to produce electricity from RES. Carport areas are perfect for producing green energy and increasing energy efficiency - large areas exposed to the sun can generate energy, the potential consumers of which are the facilities (shops, businesses) that are most often located in close proximity to them.

The structures we offer allow photovoltaic panels to be installed on the surfaces of car parks that already exist, e.g. in city centres, which is an alternative considering the high price of land. The second key role of the carport is to protect vehicles from the sun and precipitation (hail, snow, rain).

The use of a carport equipped with photovoltaic panels brings significant economic benefits by reducing electricity costs. With the production of their own green energy, users can significantly reduce their electricity bills, while increasing energy independence. In addition, photovoltaic carports make a practical contribution to the idea of sustainable development by offering a solution that not only supports environmental protection by reducing carbon emissions, but also promotes the use of renewable energy sources.

The presence of carports in both public and private car parks underlines the sustainability of modern parking solutions, while demonstrating that environmentally friendly technologies can be effectively integrated into everyday life.

Photovoltaic carport

L-TYPE CARPORT

By combining the design elements of the Y-type and T-type carports, the L-type carport places particular emphasis on functionality of use and optimisation of available parking space.

The structure was designed to make use of parking spaces where cars park in rows, while offering convenience and ease of parking.

The massive post connected to the foundations guarantees the stability and strength of the structure in all weather conditions, and the adjustability of its height makes it easy to adapt the carport to backyard spaces and highly urbanised areas.

The upper part of the carport is made up of gradually tapering plate girders to form a shape similar to an inverted L letter. This arrangement contributes positively to the aesthetics of the structure and ensures an optimal strength-to-weight ratio.

The L-type carport is available in two widths: 5 m and 5.7 m. The 5 m version is dedicated to car parks with a standard car space width (2.5 m), while the

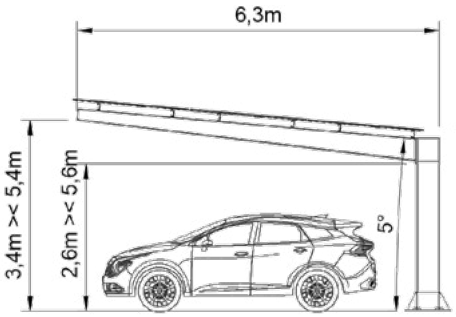
5.7 m version is designed for car parks with a car space width of 2.85 m. The arrangement of photovoltaic panels in the L-type carport is suitable for all car parks, regardless of their orientation.

The in-row parking arrangement allows optimum use of perimeter spaces in large car parks where the use of Y-type and T-type carports would not be possible. Positioning of the post at the far end makes it easier to manoeuvre and park trucks, while eliminating the risk of vehicle doors colliding with the steel structure. The adjustability of height at the lowest point of the L-type carport allows the structure to be adapted for parking cars and trucks.

- 5/7° — Inclination angle 5 or 7 degrees
- Strength for snow zone 3
- Width between columns 5m and 5.7m
- Zn — Hot-dip galvanised structure
- Modular expansion possible

TECHNICAL DATA

Number of spaces / 1 carport	**2**
Number of PV modules / 1 carport	**15 ÷ 18 [pcs]**
PV module dimensions	**any**
Power / 1 carport	**6,5 ÷ 10,8 [kWp]**
PV module brand	**any**
Material	**S355JR + S235**
Protective coating	**Hot-dip galvanised**
Structural strength	**Snow zone 3**
Coating warranty	**15 years**
Structural warranty	**15 years**
Extendable	**Yes**
Assembly system	**Proprietary Tiga-Cynk**
Technical and construction documentation	**Included**
Assembly instructions	**Included**
Foundation anchor cage	**Available for purchase in the set**
Installation of inverter and car charger possible	**Yes**
Painting	**Optional**
Sealed roof	**Optional**
Construction of concrete /screw foundations	**Optional by subcontractor**
Guttering	**Optional**



DIMENSIONS

Min. height	**2,6 ÷ 4,6 [m]**
Max. height	**3,4 ÷ 5,4 [m]**
Width at centreline	**5 ÷ 5,7 [m]**
Depth	**6,3 [m]**

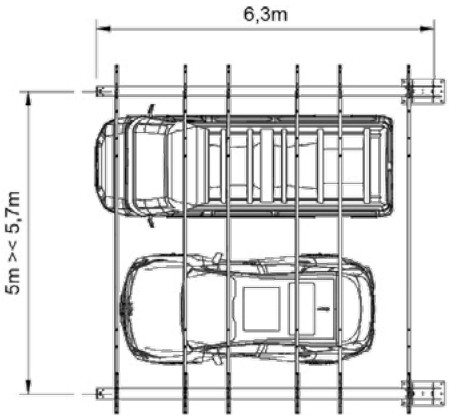
STANDARDS

PN-EN 1090
Execution of steel structures

PN-EN 1991
Actions on structures

PN-EN 1993
Design of steel structures

PN-EN 1461
Hot dip galvanizing on iron and steel products



Photovoltaic panels installed on the roof play a dual role, becoming a key element in promoting sustainable development and energy efficiency. Their primary task is to produce green electricity for their own use or for resale to the power grid. Car parks are surfaces which are particularly favourable for the production of energy from photovoltaic panels. Large areas exposed to the sun can generate energy, the potential consumers of which are the facilities (shops, businesses) that are most often located in close proximity to them.

The structures we offer allow photovoltaic panels to be installed on the surfaces of car parks that already exist, e.g. in city centres, which is an alternative considering the high price of land.

Another key role of the carport is to protect vehicles from adverse weather conditions such as hail, snow or rain and to ensure thermal comfort by providing shade for the parked vehicles and preventing the interior of the cars from overheating, which is particularly valuable during hot summer days.

Photovoltaic carport

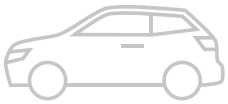
V-TYPE CARPORT

The V-type carport is a steel structure that ensures sensible and aesthetically pleasing use of parking space.

It is based on two posts connected at the far end of the roof support beam and made of hollow sections to ensure the strength of the structure.

The height of the carport is fixed with any modification requiring a design change according to the user's instructions or raising/lowering the foundations. The sections the roof is made of have a number of mounting holes to facilitate flashings or the installation of associated equipment, such as an inverter, car charger or lighting.

The V-type carport is available in two widths: 5 m and 5.7 m with an extended parking width to reduce the risk of doors colliding with the structure.



The V-type carport allows parking on both the higher and lower sides, so that its positioning on the parking space does not depend on the geographical direction corresponding to the exposure of the PV panels to sunlight.

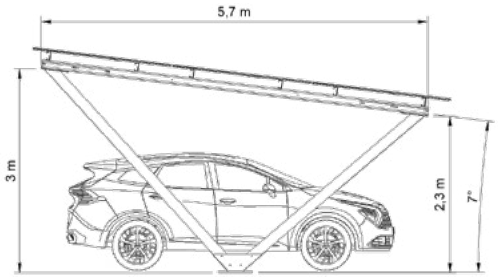
The canopy of the carport is formed by photovoltaic panels which produce green electricity for own use or for resale to the power grid. The canopy protects the vehicles parked underneath from precipitation and excessive exposure to sunlight.

The V-type carport is a functional solution for car parks with in-row parking arrangement.

- 7° — Inclination angle 7 degrees
- Strength for snow zone 3
- Width between columns 5m and 5.7m
- Zn — Hot-dip galvanised structure
- Modular expansion possible

TECHNICAL DATA

Number of spaces / 1 carport	**2**
Number of PV modules / 1 carport	**15 ÷ 18 [pcs]**
PV module dimensions	**any**
Power / 1 carport	**6,5 ÷ 10,8 [kWp]**
PV module brand	**any**
Material	**S355JR + S235**
Protective coating	**Hot-dip galvanised**
Structural strength	**Snow zone 3**
Coating warranty	**15 years**
Structural warranty	**15 years**
Extendable	**Yes**
Assembly system	**Proprietary Tiga-Cynk**
Technical and construction documentation	**Included**
Assembly instructions	**Included**
Foundation anchor cage	**Available for purchase in the set**
Installation of inverter and car charger possible	**Yes**
Painting	**Optional**
Sealed roof	**Optional**
Construction of concrete /screw foundations	**Optional by subcontractor**
Guttering	**Optional**



DIMENSIONS

Min. height	**2,3 [m]**
Max. height	**3 [m]**
Width at centreline	**5 ÷ 5,7 [m]**
Depth	**5,7 [m]**

STANDARDS

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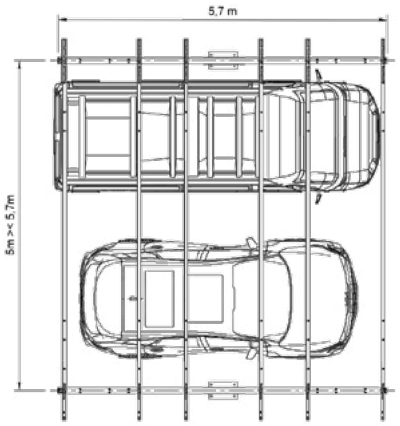


Photovoltaic panels installed on the roof play a dual role, becoming a key element in promoting sustainable development and energy efficiency. Their primary task is to produce green electricity for their own use or for resale to the power grid. Car parks are surfaces which are particularly favourable for the production of energy from photovoltaic panels. Large areas exposed to the sun can generate energy, the potential consumers of which are the facilities (shops, businesses) that are most often located in close proximity to them.

The structures we offer allow photovoltaic panels to be installed on the surfaces of car parks that already exist, e.g. in city centres, which is an alternative considering the high price of land.

Another key role of the carport is to protect vehicles from adverse weather conditions such as hail, snow or rain and to ensure thermal comfort by providing shade for the parked vehicles and preventing the interior of the cars from overheating, which is particularly valuable during hot summer days.

Photovoltaic carport

4N-TYPE CARPORT

The 4N-type carport is a steel structure designed to combine visual impact with the functionality of the installation.

Its base, like that of the V-type carport, is formed by two posts connected at the far ends of the roof support beam, but their restraint with the foundations was spread to create a collision-free space for opening the vehicle doors.

The height of the carport is fixed with any modification requiring a design change according to the user's instructions or raising/lowering the foundations. The sections the roof is made of have a number of mounting holes to facilitate flashings or the installation of associated equipment, such as an inverter, car charger or lighting.

The 4N-type carport allows parking on both the higher and lower sides, so that it can be positioned in any direction.

The V-type carport, equipped with photovoltaic panels, not only contributes to the effective reduction of costs associated with electricity consumption, but also actively participates in the energy transition, thus emphasising the sustainable nature of modern parking solutions.

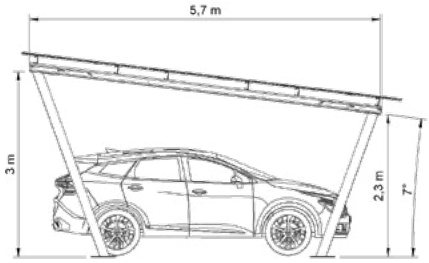
The canopy of the carport is formed by photovoltaic panels, which are primarily used to produce electricity from RES for local use (self-consumption) or for resale to the grid, but also to protect the vehicles parked underneath from excessive exposure to sunlight or precipitation such as hail, snow and rain.

The 4N-type carports are available in two widths:
5 m and 5.7 m.

- 7° — Inclination angle 7 degrees
- Strength for snow zone 3
- Width between columns 5m and 5.7m
- Zn — Hot-dip galvanised structure
- Modular expansion possible

TECHNICAL DATA

Number of spaces / 1 carport	**2**
Number of PV modules / 1 carport	**15 ÷ 18 [pcs]**
PV module dimensions	**any**
Power / 1 carport	**6,5 ÷ 10,8 [kWp]**
PV module brand	**any**
Material	**S355JR + S235**
Protective coating	**Hot-dip galvanised**
Structural strength	**Snow zone 3**
Coating warranty	**15 years**
Structural warranty	**15 years**
Extendable	**Yes**
Assembly system	**Proprietary Tiga-Cynk**
Technical and construction documentation	**Included**
Assembly instructions	**Included**
Foundation anchor cage	**Available for purchase in the set**
Installation of inverter and car charger possible	**Yes**
Painting	**Optional**
Sealed roof	**Optional**
Construction of concrete /screw foundations	**Optional by subcontractor**
Guttering	**Optional**



DIMENSIONS

Min. height	**2,3 [m]**
Max. height	**3 [m]**
Width at centreline	**5 ÷ 5,7 [m]**
Depth	**5,7 [m]**

STANDARDS

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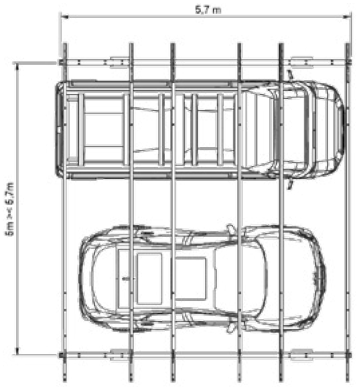

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Another key role of the carport is to protect vehicles from adverse weather conditions such as hail, snow or rain and to ensure thermal comfort by providing shade for the parked vehicles and preventing the interior of the cars from overheating, which is particularly valuable during hot summer days.

ABOUT US

2012

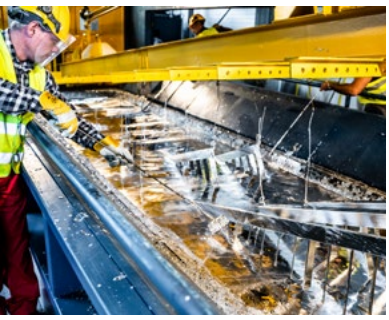
Establishment of

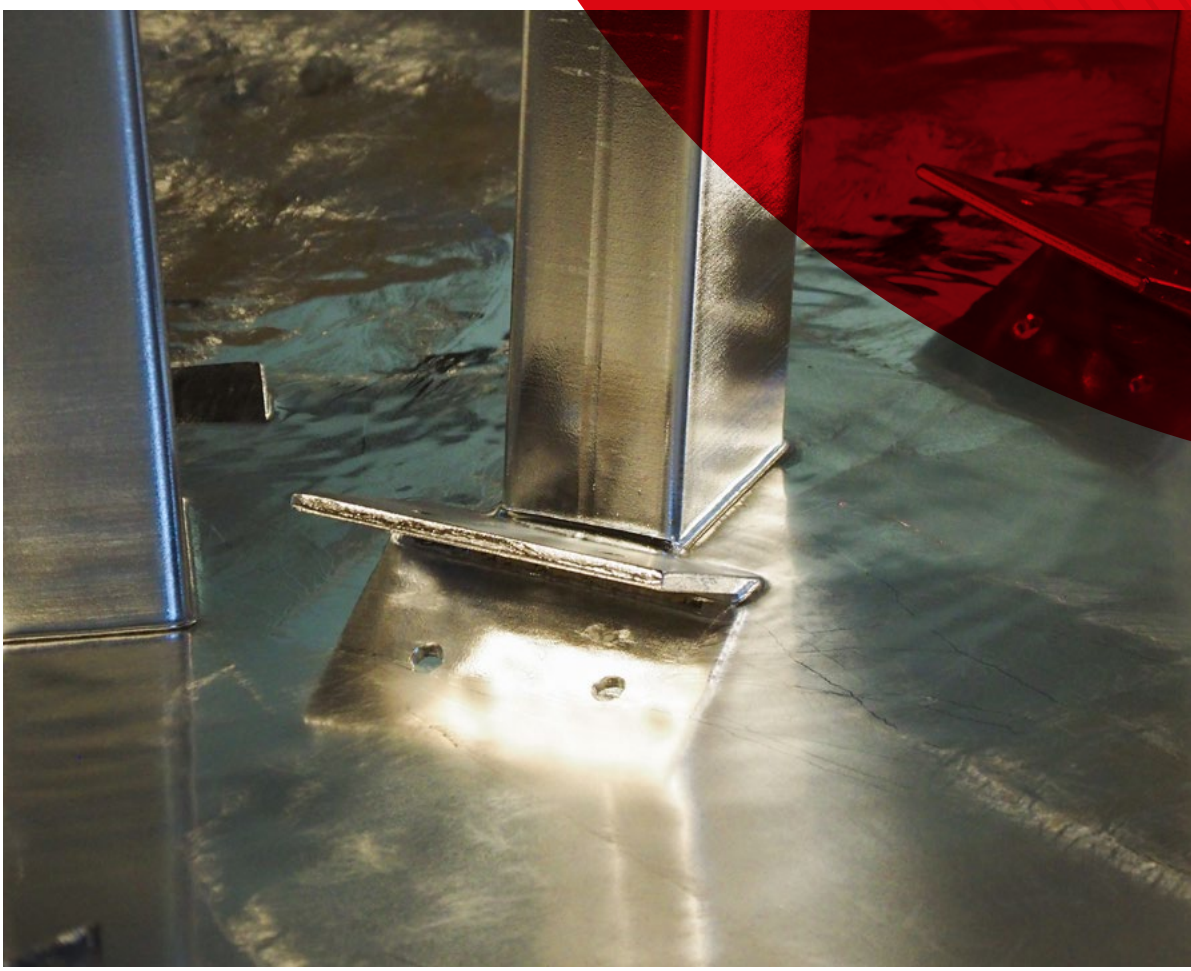
TIGA-CYNK

The establishment of TIGA-CYNK dates back to 05.09.2012. Previously, since 1993, the company's shareholders had been engaged in the production of galvanised hoop iron, lightning protection wires and galvanised strips for the manufacture of galvanised pipes and cold-formed profiles.

At present, thanks to the use of advanced technologies in the integrated, partly automated continuous galvanising line for steel strips and lightning protection wires in our production plant in Małomice, we ensure not only the high quality of our products, but also care for the environment and safety of our employees.

To ensure the highest quality we employ an Integrated Management System for Quality, Occupational Safety and Environmental Protection in accordance with ISO 9001:2015, ISO 45001:2018, ISO 14001:2015





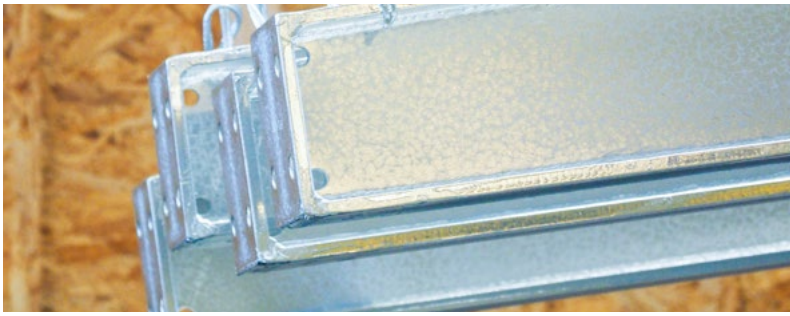
2022

Extension of our portfolio to include

HOT-DIP GALVANIZING

We run our production processes in accordance with EN 62561-2:2018. The integrated management system employed at our plant, based on the ISO 45001:2018, ISO 9001:2015 and ISO 14001:2015 standards, is a demonstration of our commitment to support the concept of sustainable development.

In 2022, we expanded our portfolio to include hot--dip galvanising services performed using a state--of-the-art process line. The centrepiece of this line, a tub measuring 7.0 m x 3.2 m x 1.5 m, enables the galvanisation of a wide range of components. This investment represents a further step in our efforts towards corrosion protection with respect for natural resources.



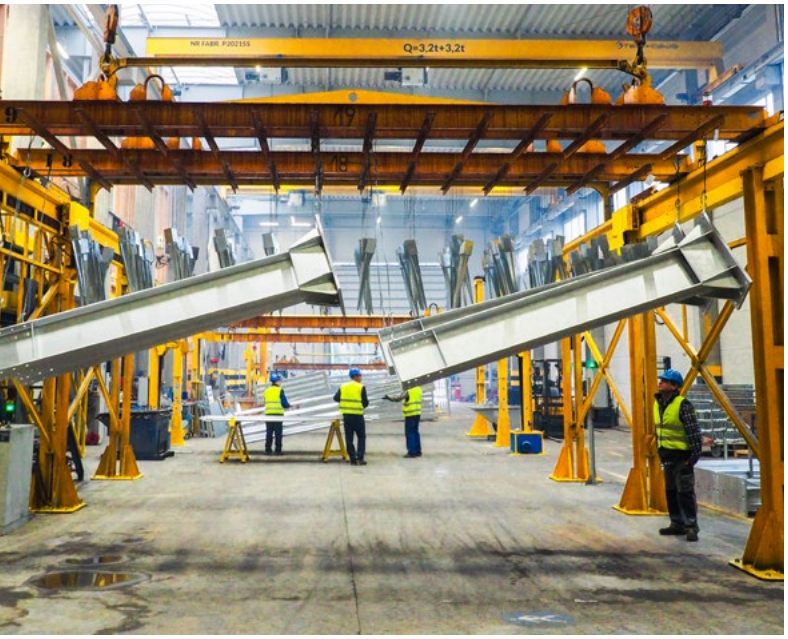
2024

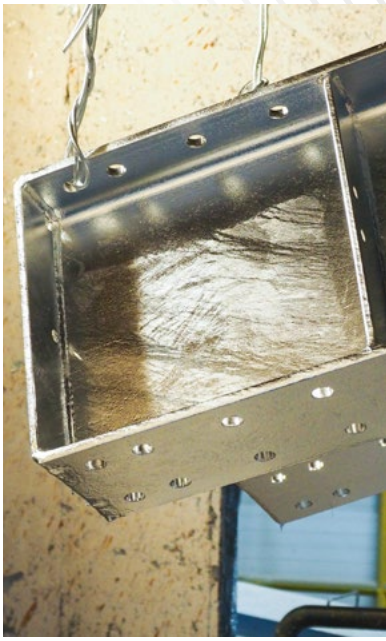
Expansion of our portfolio to include the sale of

PHOTOVOLTAIC CARPORTS

In 2022, we started design work to extend the offer of Tiga-Cynk sp. z o.o, to include steel structures in the form of photovoltaic carports. The key advantage of the products offered is the well-thought-out assembly method, a number of functional and technical improvements, as well as the quality of workmanship, which is supervised by our own modern laboratory.

The products marketed are proprietary designs developed by the in-house research and development centre.
While striving to set new standards in the industry, we use innovative unit hot dip galvanising technologies with constant monitoring of the zinc bath, to ensure the durability of our products while maintaining the highest ecological standards.





Guaranteed
QUALITY

Our commitment to building long-term relationships with our partners, offering products of the highest quality at competitive prices and striving to reduce lead times as much as possible goes hand in hand with our primary goal - satisfaction of our customers.

WELCOME TO CONTACT US!

BID SUBMISSION FORM

Production plant Małomice near Żagań (lubuskie voivodeship)

Tiga-Cynk is located close to the **A4** and **A18** motorways and the **S3** expressway, which allows us to offer fast delivery and easy collection of our products.

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