Flamco

Your reliable partner

THE UNIVERSAL PV PANEL MOUNTING SYSTEM

Flamco Falx

Technical Documentation

Flamco

Flamco Falx - The Universal PV Panel Mounting System

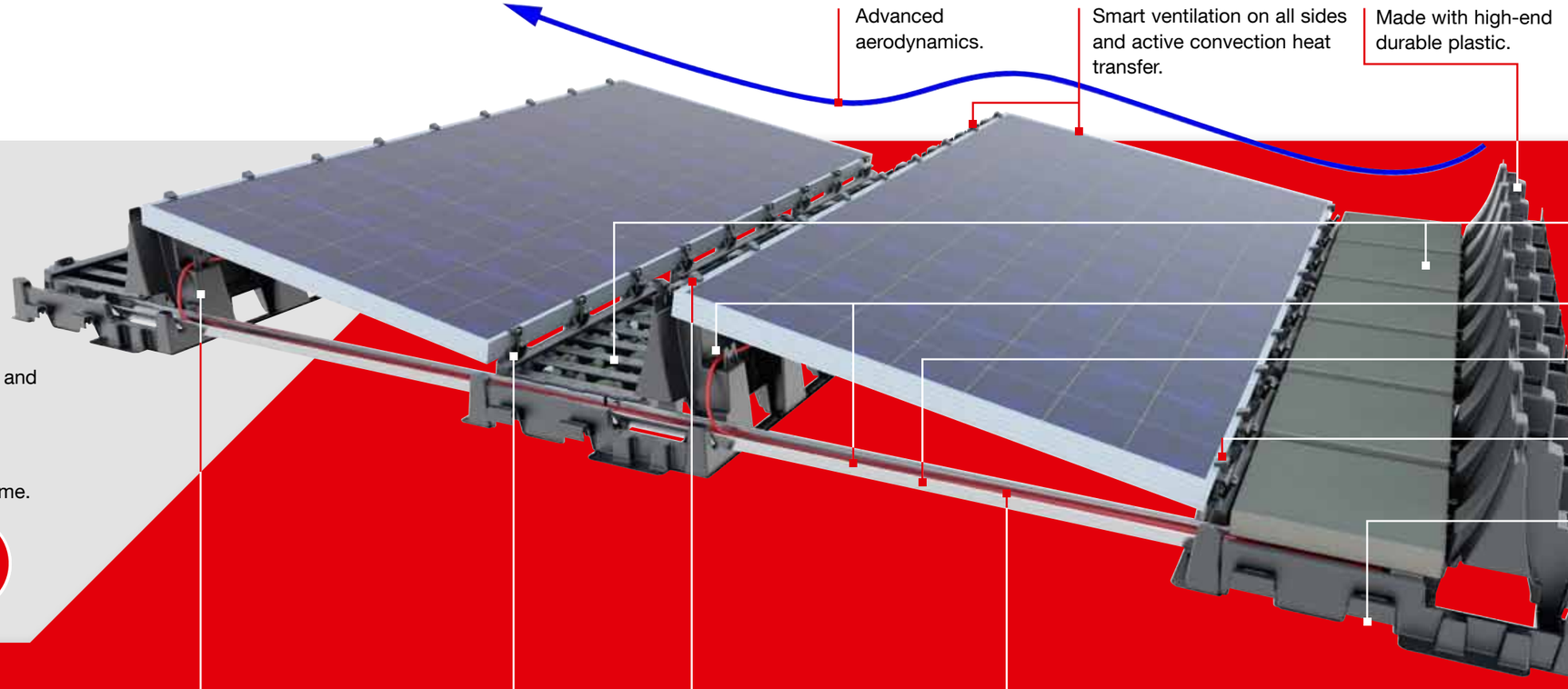
Flamco Falx is an ingenious mounting system for the installation of PV panels on flat roofs. Installing PV panels is often complicated and time-consuming and it can put an extra strain on your roof.

Flamco Falx is lightweight, with just three components: a mounting block, a rail so that you can easily attach rows of blocks, and a clip to fix the PV panels in place.
Quick, simple and safe.

Revolutionary and Innovative

A mounting system for every type of PV panel that consists of no more than three components is revolutionary in itself. But Flamco Falx is innovative in other ways, too. For example, the system remains firmly in place, even in strong winds, thanks to the smart aerodynamic design.

This reduces the amount of ballast required to a minimum. Paving slabs can be used or, if present, the gravel on the roof can also serve as ballast, thanks to special recesses in the lateral spaces.



UNIVERSAL

Suitable for every brand
and every size of framed PV panel.

LIGHTWEIGHT

Can be used on all flat roofs.
The safe answer to all your logistics and handling problems.

SIMPLE AND QUICK

Saves at least 50% on installation time.
No tools necessary.

Just three components

MOUNTING BLOCK

CLIP

RAIL

10-year warranty

- High quality
- Long service life
- Extensive testing

Revolutionary in Numbers

Flamco Falx represents the next step in mounting systems for PV panels. Thanks to advanced techniques, an optimal design and extensive testing

Flamco Falx can withstand the most extreme conditions, without compromising efficiency.

Quick and Easy Installation

Installation of PV panels on flat roofs couldn't be easier and faster than with Flamco Falx.
Just three easy parts and no installation tools are needed which make installation as quick and as easy as possible.

- **Speed**
  - At least 50% reduction on labour time.

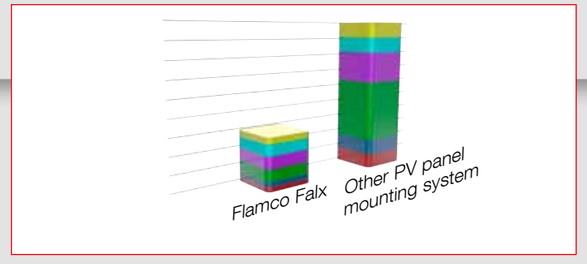
- **Installation**
  - No preparation before installing.
  - No tools needed.
  - Easy handling with lightweight components.
  - Less ballast needed.
  - Three easy parts, three quick steps:

Position the mounting blocks and rail

Ballast the system with gravel or paving slabs

Secure the PV panels with clips and pass the cables through the ducts

- **Installation time of PV systems on flat roofs:**



- Roof preparation and measuring
- Mounting structure logistics
- Mounting structure on building
- Ballast (incl. logistics)
- Panels (incl. logistics)
- Cables and cable trays

- **PV panel dimensions**
  - Length: Any.
  - Width: 978 mm - 1053 mm.
  - Thickness: 27 mm - 50 mm.
  - Rails for other dimensions on request.

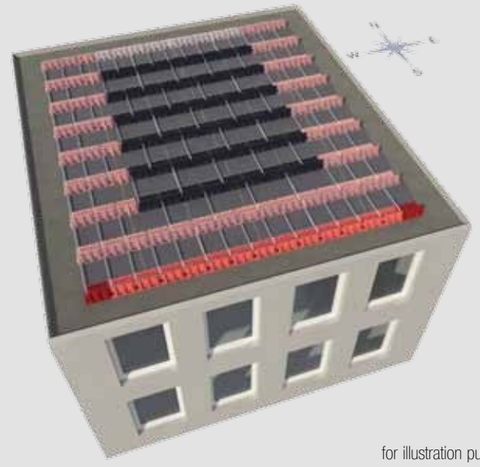
- **Flat rooftops**
  - Suitable for all flat roofs.
  - No layer between the rooftop and Flamco Falx and no metal parts come in contact with the roof.
  - No drilling in the roof needed.
  - Slope: Max. 5°.
  - Minimum field size: 6 panels.
  - Maximum connected field size: 100 m x 100 m (safety measure).

- **Other flat surfaces**
  - Mounting on other flat surfaces possible.
  - Anchoring in the ground not required.

- **Ballast**
  - Ballast type for mounting blocks: Paving slabs (max. width 300 mm) or gravel (max. Ø 15 mm).
  - Ballast load: This depends on the wind zone and the height of the building. The system has been optimized for minimal ballast.
  - Calculation tool available: Visit www.flamcofalx.com.

- **Rail distribution and ballast zones**

Zone 0:
Zone 1:
Zone 2:
Zone 3:
Zone 4:



for illustration purposes

Easy Transportation, Low on Maintenance

Flamco Falx is easy to transport and hold on stock as it can be stacked on a standard Euro-pallet.
With the walkways integrated in the design, maintenance and inspection will also be quick and easy.

- **Transport and storage**
  - Pallets in 40ft palletwide container: 30.
  - Mounting blocks per standard Euro-pallet: 100 (in container).

- **Maintenance**
  - The system must be inspected annually to check all components are still in order and/or the position of the equipment is the same as the original installation. Environmental conditions may occur, requiring visual inspection of the installation. These may include a serious storm or earthquake.

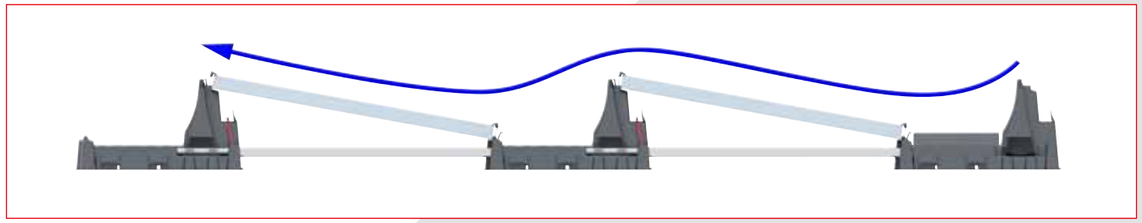
Number One in All Circumstances

All kinds of different situations have been taken into consideration for the optimal design to make sure Flamco Falx can withstand all circumstances, while maintaining the best possible conditions for the roof and PV panels. The Flamco Falx PV mounting system has undergone many different tests to ensure the highest quality materials and best performance possible, resulting in a 10 year warranty for all components.

- **Tests**
  - Finite Element Method (analysis of mechanical properties of the components and systems)
  - Wind tunnel tests (scale 1:10, 360°)
  - Durability tests
  - Tests for lift and pressure
  - Transportation tests
  - Mechanical tests

- **Certification**
  Flamco is taking part in in developing a norm for flat roof mounting systems.

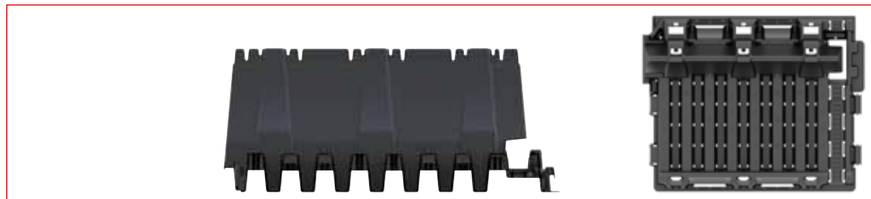
- **Aerodynamics**
  - Aerodynamics have been tested by an independent party in a wind tunnel.
  - Tested and approved for wind speeds up to a maximum of 144 km/h (40 m/s). Wind speed test are based on wind speeds occuring only once every 25 years in Europe.
  - Complies with standards:
    - NVN 7250:2007 nl - Solar energy systems - Integration in roofs and facades - Building aspects.
    - NEN-EN 1991-1-4:2005+NB:2007 nl Eurocode 1: Loads on constructions - Part 1-4: General loads - Windloads).
    - Dutch CUR reccomendation C103 - Windtunneltest for the determination of design-windloads.



- **Atmospheric corrosion**
  The materials of construction have been selected for their physical, mechanical and environmental endurance properties. The European climate resistance for this material is estimated at a minimum of 25 years.

- **Temperature**
  - Temperature range: -30 °C up to 90 °C.
  - Installation temperature range: 0 °C up to 40 °C.

- **Water drainage**
  Rainwater on the roof can drain away to all sides.
  The mounting block is designed in such a way that it has the maximum possibilities in all directions to discharge the rainwater and the rail is mounted 45 mm above the roof surface.



- **Snow**
  - Maximum snow load of the system: 3250 Pa or 3,25kN/m^2. Corresponding with snow zone 2a on 700 meters above sea level (EN 1991-1-3).

- **UV**
  - Custom made compound which is optimized with UV stabilizer and additives.
  - Lifetime in Europe: Designed for a period of at least 25 years.

- **Loads**
  - Very lightweight: On average only 10-15 kg/m^2 additional load on the roof.
  - Maximum allowed weight on walkways: 160 kg.
  - The design generates extra turbulance, which lowers the grip of the wind on the PV panels.

- **Noise levels**
  - The system has been designed to be free of noise.
  - There are no sharp edges or small holes that can produce noise caused by airflow.

- **Expansion**
  Expansion and contraction caused by temperature fluctuations are compensated in the connection points of the individual components of the Flamco Falx system.

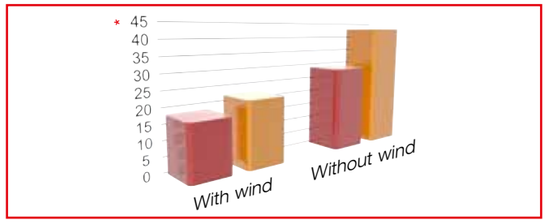
Optimal Efficiency

With the Flamco Falx PV panel mounting system you will get the most out of your PV panels.

- PV panel angle: 10°-12°.
  (Dependent on the size of the panel)

Result: **With Flamco Falx, more panels per square unit are possible. This results in a higher energy yield for the total roof.**

- **Temperature development underneath mounted PV panels**
  - Flamco Falx compared to a system without active convection:
    With wind: **26% more cooling / 3.5% more efficiency.**
    Without wind: **33% more cooling / 7% more efficiency.**



* Rise in temperature (in °C)
Atmospheric temperature is 32 °C.

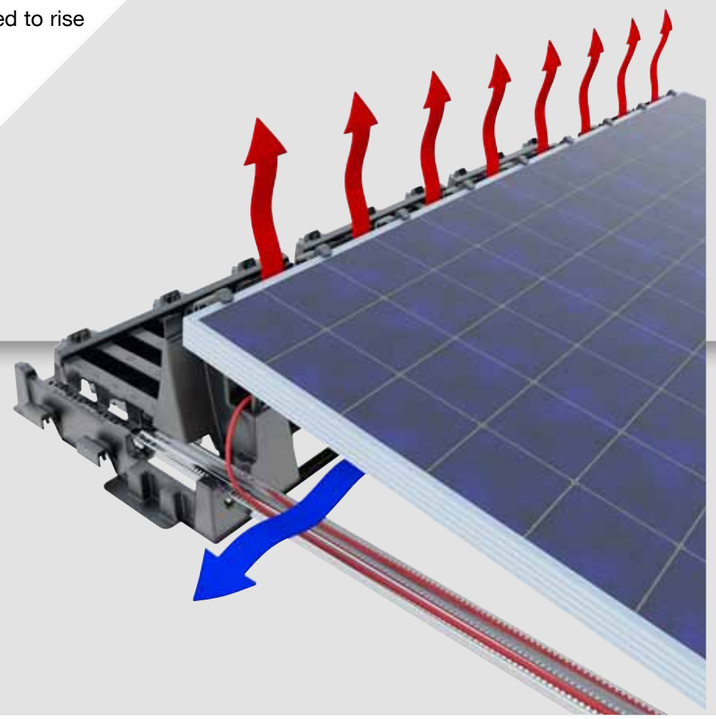
Flamco Falx
Other PV mounting system

Excellent Temperature Management

The average PV panel loses 0,5% efficiency for every degree above 20 °C.
In addition, a higher temperature has a negative effect on the service life of the panel.
For these reasons it is important to have optimal temperature management to get the most out of the mounted PV panels.

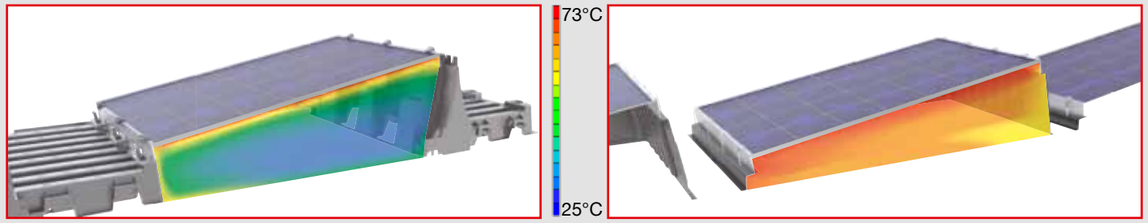
- **Ventilation**
  - Flamco Falx is an open system with an advanced aerodynamic design.

- **Convection**
  - Due to the created turbulance hot air is stimulated to rise up from underneath the PV panels.

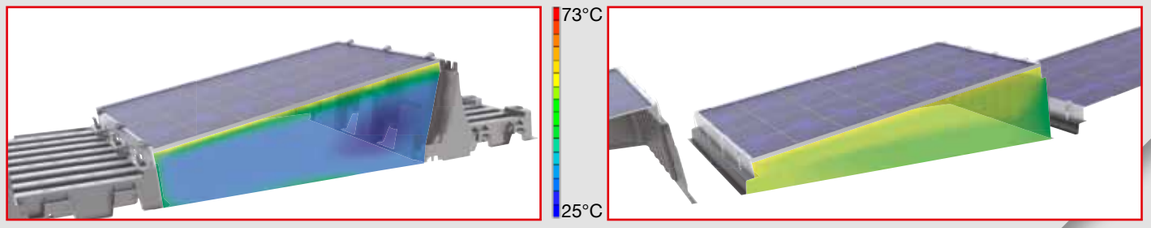


Flamco Falx with active convection | **Mounting system without active convection**

Without wind:



With wind:



Result:

- **Higher energy yield.**
- **The lifetime of the PV panels is prolonged.**

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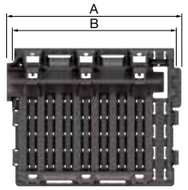
FLAMCO FALX

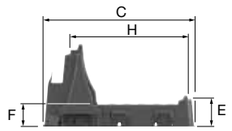
Universal PV panel mounting system for flat surfaces.

- Consists of only three components: mounting block, rail and clip.
- Made of recyclable materials.

Falx mounting block

- Material: Polypropylene, UV-stabiliser, Additives.
- Color: Black (standard).

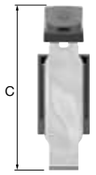




Type	Dimensions A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Weight [kg]		Code-number
Falx mounting block	740	675	586	317	107	86	45	445	3,84	76	39980

Falx clip

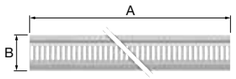
- Material: Clip: Polypropylene, UV-stabiliser, Additives.
  Spring: SST 301 Spring Steel.

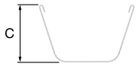


Type	Dimensions A [mm]	B [mm]	C [mm]	Weight [kg]		Code-number
Falx clip	50	30	95	0,03	40 / 200	39981

Falx rail F1411

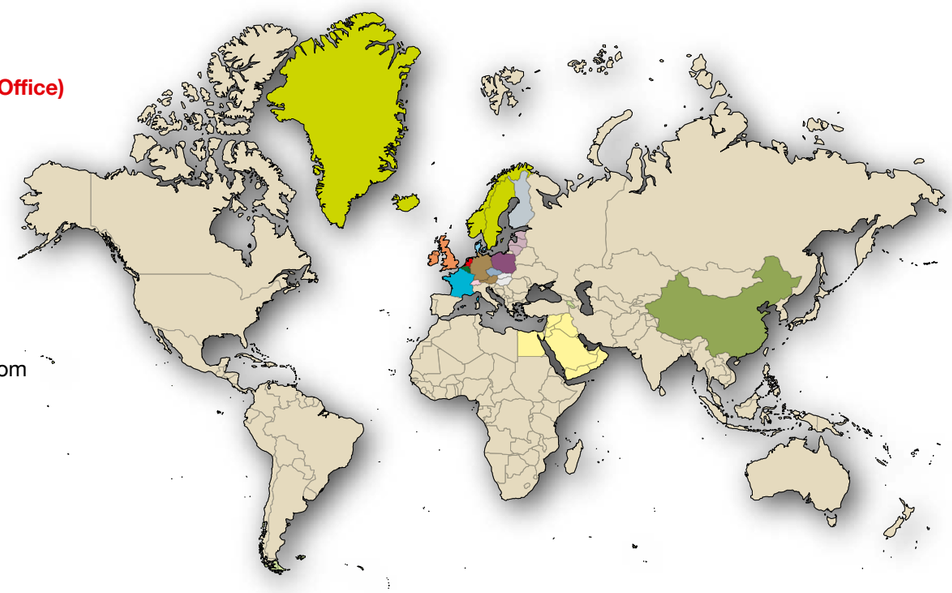
- Material: Coated S250.





Type	Dimensions A max. [mm]	B [mm]	C [mm]	Weight [kg]		Code-number
Falx rail F1411	1411	55	34	1,03	200 / 800	50095

Contact



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