



**Wagner & Co**

SOLAR TECHNOLOGY  
TECHNIQUE SOLAIRE  
TECNOLOGÍA SOLAR  
TECNOLOGIA SOLARE  
SOLARTECHNOLOGIE

# TRIC Mounting Systems

Fast, clever, versatile



# Solar Power With Passion

Everyone has goals. We help ecologically minded home owners, installers and enterprises meet theirs with our components, systems and solutions. We bank on more than 30 years experience in the field and our unshakable belief that the future is solar.

## We design and produce

The design of a solar power racking system has to meet highest standards. It has to ensure that the modules remain firmly mounted in adverse conditions for the long-term. We have designed and produced high-performance systems with optimally aligned components for more than 30 years. Our versatile systems suit any application – new buildings, retrofits, single family homes and large projects.

## Economical and safe

Coherent designs and smart detail solutions simplify and speed installation. Safety is key. All our racking systems are certified by TÜV, the German Technical Inspection Association.

**See the many advantages of our racking systems on the following pages.**



*We are solar pioneers with perspective. We have been successfully working with the sun for more than 30 years. As total systems supplier we stand for integrated sustainable solar power, solar heat and space heating solutions with 300 motivated employees world wide.*

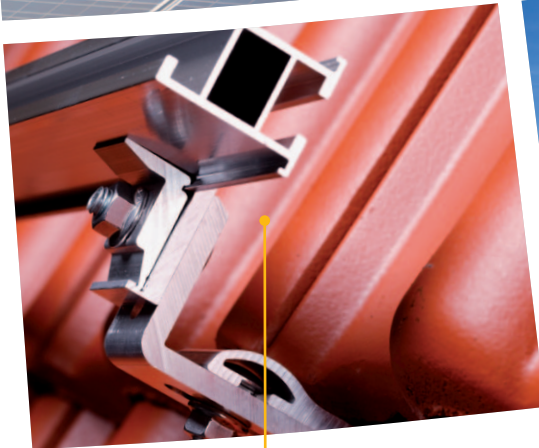
#### **TRIC F pro - for industrial roofs**

Aerodynamically optimized, low-weight flat-roof racking system. Because of its compactness it does not need to be fixed to the roof structure.



#### **TRIC F - versatile mechanical innovation**

Free standing set-up of solar panels on almost any type of even or sloping surfaces. Solid construction, easy to handle because collapsible.



#### **TRIC A - universally applicable**

The roof racking system offers varied solutions for all applications. Pre-assembled components and a sophisticated system concept assure rational and safe installations.



#### **Greenfield mounting system TRIC flex**

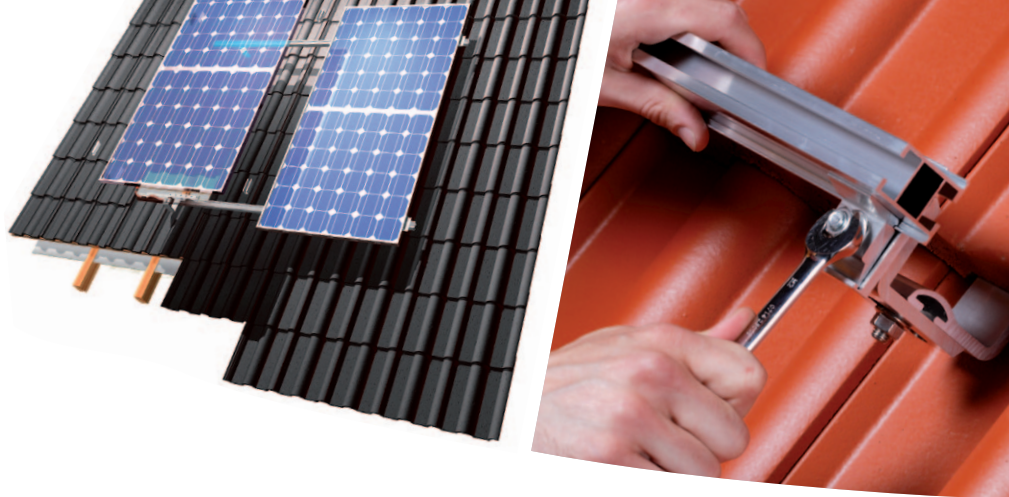
Universal mounting system for free standing greenfield installation on rammed ground anchors. Applicable for all framed module types; also available as East-West variant.



Seal of the Berlin  
branch of TÜV, the  
German Technical  
Inspection Association



*With our pre-assembled system components, panel mounting becomes a walk in the park. Individually tailored for each respective installation you find a TRIC A solution for every case. Even under difficult and complicated conditions the system proves to be efficient and flexible.*



## On-Roof Mounting System TRIC A

### Install anywhere

A system for placing solar modules on nearly all roofs. High-quality materials, smart detail solutions and system coherence assure fast, rational and safe installation.

### Smart components

The newly developed HDC aluminum racking rails allow for free rail length of up to 1.85 m between roof brackets. Ready made rail connectors with gap keepers enable problem-free installation in any situation. We supply roof anchors and brackets for all common roofing materials and tiles.

### Ready to install

All system components are pre-assembled and delivered with fastening materials. They can be customized and tailored for specific installations. Components for potential equalization complete the system.

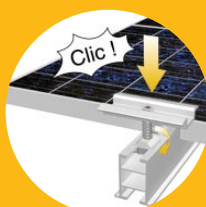


Video TRIC A



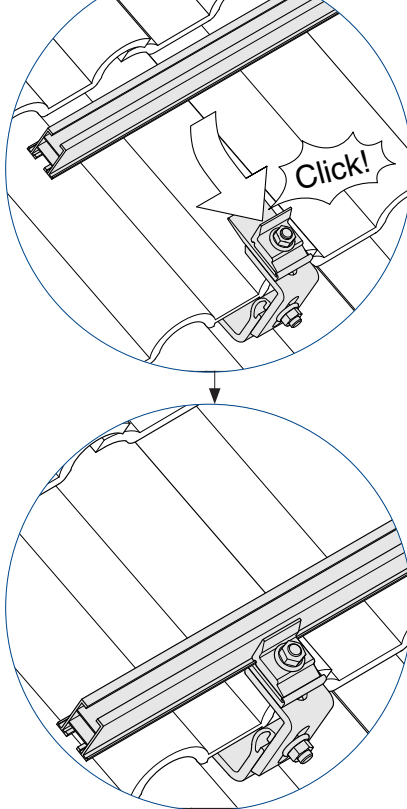
#### INSTALL FROM ABOVE

Adjustable roof brackets for all common roofing and tile types ease installation. Rails are affixed from above.



#### TRIC clip PANEL FASTENERS

Simple, fast and safe module installation: a flick of the hand and the TRIC clip panel fastener automatically snaps into its position, confirmed by an audible click. For all TRIC on-roof and free standing systems.



### TRIC A HDC mounting system

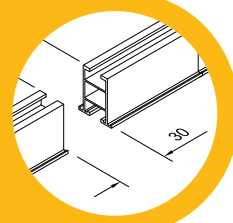
- Basic set for 1, 2, 3, 4, 5, 6 or 7 panels, extension set for 4 panels
- 2 HDC racking rails in required length, incl. rail connectors
- Patented TRIC clip panel fasteners, potential equalization
- Available in aluminum (blank) or black
- Upright, side-by-side panel alignment, individual installation
- Choice of roof anchors or brackets for any roofing type

TRIC A HDC	Module	Module manufacturer
TRIC A HDC 1	1	BOSCH/HYUNDAI/PANASONIC/REC/YINGLI
TRIC A HDC 2	2	BOSCH/HYUNDAI/PANASONIC/REC/YINGLI
TRIC A HDC 3	3	BOSCH/HYUNDAI/PANASONIC/REC/YINGLI
TRIC A HDC 4	4	BOSCH/HYUNDAI/PANASONIC/REC/YINGLI
TRIC A HDC 5	5	BOSCH/HYUNDAI/PANASONIC/REC/YINGLI
TRIC A HDC 6	6	BOSCH/HYUNDAI/PANASONIC/REC/YINGLI
TRIC A HDC 7	7	BOSCH/HYUNDAI/PANASONIC/REC/YINGLI
TRIC A HDC, another 4	4	BOSCH/HYUNDAI/PANASONIC/REC/YINGLI

### LEAVE EXPANSION GAPS

Without expansion gaps, temperature changes could build tension and deform the aluminum racking rails. To prevent this, an expansion gap is placed after every 12-meter length of rail. Solar panels must not be attached over these gaps.

For example, with temperature fluctuations from -25°C to +50°C and a rail length of 12 m the length may expand by up to 21.5 mm.



# On Roof Mounting System TRIC A

## Tool set TRICA HDC

- Allen T-grip S8
- Combined ratchet spanner
- Set of 10 TORX RX 40 bits
- BIT holder with lock

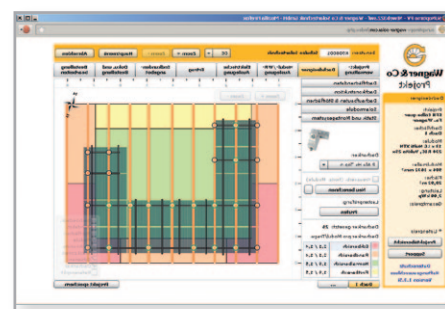
Tool set TRIC A HDC	Part no.
	290 301 08



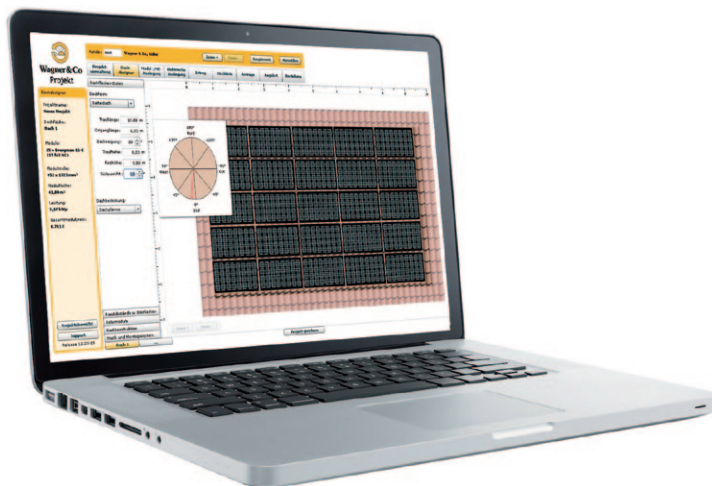
## Design software SUNOptimo PV

Our design tool SUNOptimo PV allows you to quickly and easily plan and start up your PV projects, from sizing over yield forecast and profitability calculation all the way to the bill of material for your order. Step by step - fast and efficient.

- Manage your projects
- Roof designer
- Module and inverter dimensioning
- Electrical design
- Yield forecast
- Offer for your end customer
- Comprehensive project documentation
- Bill of material and order



As a Wagner Solar customer you can utilize SUNOptimo online free of charge and without installation. You only require a standard internet connection and an up to date version of the Adobe Flash Player. Please contact your technical sales person for your personal access permission.



## PHOTOVOLTAIC INSTALLATIONS INCREASE THE ROOF LOAD

A solar power installation - panels, racking rails, anchors - can add from 15 to 20 kilograms per m<sup>2</sup> to the weight of a roof.

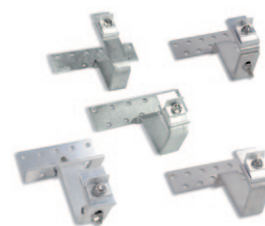
More strain on the roof structure can also come from wind and snow loads. For example, the upper edge of the panel field prevents snow sliding off.

# On Roof Mounting System TRIC A

## Roof brackets

### Roof bracket P for all standard roof tiles

- Pre-assembled, includes self-drilling wood screws
- Easy single-handed attaching of racking rails from above by tiltable clamping angle.



Roof bracket P	Material	Adjustability	Part no.
P Alu Hv Top	Aluminum	Height, horizontally, angle	219 401 80
P A2 Hv Top	Stainless steel	Height, angle	219 401 76
P A2 Top	Stainless steel	-	219 401 77
P Stv KF Top	Steel, galvanized	-	219 401 78
PS Stv Top*	Steel, galvanized	-	219 401 79
* Designed for heavy-snowfall areas			

### Roof bracket BS for plain tile/slate

- Pre-assembled, includes self-drilling wood screws
- Easy single-handed attachment of the racking rails from above by tiltable clamping angles.



Roof bracket BS	Material	Adjustability	Part no.
BS A2 Hv Top	Stainless steel	Height	219 401 81
BS Stv KF Top	Steel, galvanized	-	219 401 82
BS MPT Stv Top	Steel, powder coated	-	219 402 70

### Roof bracket A1 flash for large slates and asphalt shingles

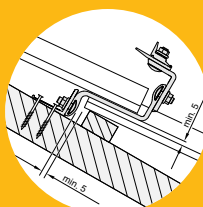
- Stainless steel, aluminum, incl. set of T-head bolts
- Easily screwed in with Allen screw SW 4



Roof bracket A1 flash	Part no.
A1 flash	219 402 94

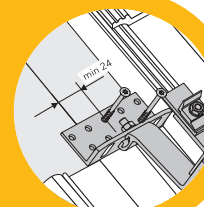
#### AVERT TILE BREAKAGE

A roof bracket must be able to change shape to absorb stresses. For that it needs to be able to move. So mount the bracket with a gap of about 5 mm to the lowest tile.



#### KEEP THE EDGE SPACING

The distance of the wood screws from the edge in the rafters and/or purlins is stipulated in the DIN 1052 standard. The minimum distance is the triple diameter of the screw. For our self-drilling screws that is 24 mm.



# On-Roof Mounting System TRIC A

## Roof brackets

### Roof bracket for metal roofings

- Clamping bracket for rounded standing seam KalZip roofs (Type KK) and standing seam roofs (Type KS), incl. set of T-bolts

Roof bracket TR	Material	Part no.
KK	Aluminum	219 401 10
KS	Aluminum	219 401 13
KS A2	Stainless steel	219 401 12



### Roof anchor K for trapezoidal roofs, corrugated roofings

- Stainless steel, adjustable height, pre-assembled
- Comfortable fastening through tiltable clamping plate (single handed "top" mounting from above)

Roof anchor K A2 Hv	Length (mm)	Part no.
K A2 Hv 180	180	219 402 94
K A2 Hv 200	200	219 402 95
K A2 Hv 250	250	219 402 96
K A2 Hv 300	300	219 402 97



## CONTACT CORROSION

Material with small area	Material with large area					
	Aluminum	Lead	Copper	Zinc	Stainless steel V2/V4	Steel, galvanized
Aluminum	+	+	-	o	+	o
Lead	+	+	+	+	+	+
Copper	-	+	+	-	+	-
Zinc	+	+	-	+	+	+
Stainless steel V2/V4	+	+	+	o	+	o
Steel, galvanized	+	+	-	+	+	+

+ good / o uncertain / - poor

We use only high-quality materials in our racking systems, for example aluminum as used in shipbuilding or Class A2 70 stainless steel screws. Irrespective of that, electrochemical corrosion can occur between the roof anchor and roof surface with certain metal pairings. To avoid this, use only the material combinations marked + (good) in the table.



# On-Roof Mounting System TRIC A

## Roof brackets

### Roof anchors BE for trapezoidal and corrugated roofing

- Stainless steel, adjustable height, pre-assembled
- The version for trapezoidal roofings (E16/8) requires suitable calottes, which have to be determined on a case by case base
- Special drills upon request
- Always order the appropriate set of accessories!

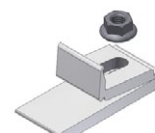
Roof bracket BE for steel sub-structures	Roofing	Length (mm)	Part no.
BE steel 8.0 x 64 E16/8	Trapezoidal roofing	64	219 402 42
BE steel 8.0 x 64 FZD	Corrugated roofing	64	219 402 43
BE steel 8.0 x 80 E16/8	Trapezoidal roofing	80	219 402 44
BE steel 8.0 x 80 FZD	Corrugated roofing	80	219 402 45
BE steel 8.0 x 100 E16/8	Trapezoidal roofing	100	219 402 46
BE steel 8.0 x 100 FZD	Corrugated roofing	100	219 402 47
BE steel 8.0 x 125 E16/8	Trapezoidal roofing	125	219 402 48
BE steel 8.0 x 125 FZD	Corrugated roofing	125	219 402 49
BE steel 8.0 x 150 E16/8	Trapezoidal roofing	150	219 402 50
BE steel 8.0 x 150 FZD	Corrugated roofing	150	219 402 51
BE steel 8.0 x 160 E16/8	Trapezoidal roofing	160	219 402 52
BE steel 8.0 x 160 FZD	Corrugated roofing	160	219 402 53
BE steel 8.0 x 200E16/8	Trapezoidal roofing	200	219 402 54
BE steel 8.0 x 200 FZD	Corrugated roofing	200	219 402 55

for wood sub-structures			
BE wood 8.0 x 80 E16/8	Trapezoidal roofing	80	219 402 56
BE wood 8.0 x 80 FZD	Corrugated roofing	80	219 402 57
BE wood 8.0 x 100 E16/8	Trapezoidal roofing	100	219 402 58
BE wood 8.0 x 100 FZD	Corrugated roofing	100	219 402 59
BE wood 8.0 x 130 E16/8	Trapezoidal roofing	130	219 402 60
BE wood 8.0 x 130 FZD	Corrugated roofing	130	219 402 61
BE wood 8.0 x 150 E16/8	Trapezoidal roofing	150	219 402 62
BE wood 8.0 x 150 FZD	Corrugated roofing	150	219 402 63
BE wood 8.0 x 180 E16/8	Trapezoidal roofing	180	219 402 64
BE wood 8.0 x 180 FZD	Corrugated roofing	180	219 402 65
BE wood 8.0 x 200E16/8	Trapezoidal roofing	200	219 402 66
BE wood 8.0 x 200 FZD	Corrugated roofing	200	219 402 67

### Accessory set for roof anchor BE

- "Top" mounting from above, comfortable fixing of mounting rail with adjustability through screw slot

Roof anchor BE accessory set	Part no.
	219 402 94



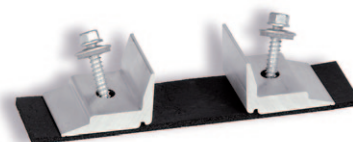
# On-Roof Mounting System TRIC A

## Roof brackets

### Roof bracket TR for trapezoidal roofings

- Pair of aluminum angles; two special mounting angles, self-tapping sheet screws and neoprene underlay sealant
- Screwed directly onto the trapezoidal steel sheeting
- Only in connection with the Wagner HDC/LDC mounting rail
- Structural dimensioning and rating mandatory!

Roof bracket TR	Part no.
	219 401 68



### Roof bracket TRN for trapezoidal roofings

- Pair of aluminum angles; two special mounting angles, blind rivets with gasket and neoprene underlay sealant.
- Direct riveting to trapezoidal steel sheeting
- Only in connection with H profile mounting rail
- Structural dimensioning and rating mandatory!

Roof bracket TRN	Part no.
	219 402 82



### Roof bracket TRN aluminum H profile mounting rail

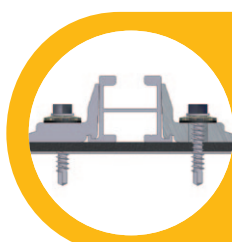
Roof bracket TR rail	Length (mm)	Part no.
TRN H profile (36x29)	5,200	290 102 04
TRN H profile (36x29)	6,000	290 101 96



### Roof bracket TRN potential equalization set

- To connect aluminum round wire of up to 50 mm<sup>2</sup> to the TRN rail
- Incl. pre-assembled stainless steel connection components

Roof bracket TRN potential equalization set	Part no.
	219 402 78



#### APPLICATION OF TR ROOF BRACKET

When using the TR roof bracket the minimum required thickness of the trapezoidal roof sheeting must be taken into account. The self tapping screws are certified steel sheetings with a thickness of 0.63 mm or more. Make sure to not overtighten the

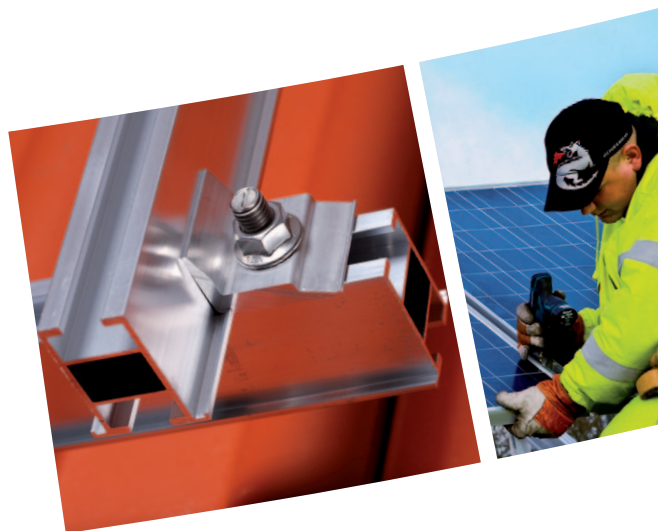
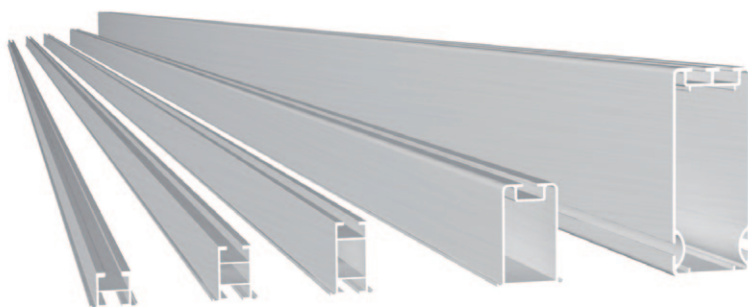
screws. Overtightened screws cannot transfer the occurring forces. Before commencing installation make sure that sub-structure and trapezoidal sheeting are safely and durably joined.

# On-Roof Mounting System TRIC A

## Mounting rails

### Aluminum mounting rails

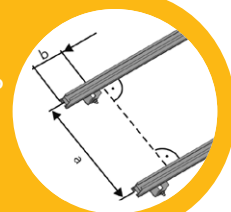
Mounting rails	Span width (max.)	Length	Part no.	Length	Part no.
LDC (36 x 28)	1,200	5,150	290 101 95	6,000	290 300 61
HDC (34 x 44)	1,800	5,200	219 300 60	6,000	219 300 50
SDC (36 x 60)	2,500	5,200	290 101 89	6,000	290 101 88
MLC (50 x 85)	3,500	4,250	219 300 94	6,000	219 300 93
HL (75 x 182)	6,000	6,000	219 300 72		
All dimensions in mm					



### CORRECT RAIL INSTALLATION

The following instructions must be observed: The stipulated gaps between the racking rails, the permitted cantilever length and the maximum permitted span between two roof brackets.

Generally the module manufacturers also have their own fitting rules that need to be followed.



# On-Roof Mounting System TRIC A

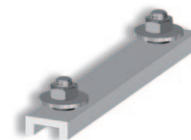
## Accessories

### TRIC A HDC rail connection set

- Aluminum rail incl. 2 sets of pre-assembled M8 stainless steel screws
- For firm connections

#### TRIC A HDC rail connection set

Part no. 219 707 19

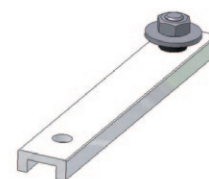


### TRIC A HDC slide connector set

- Aluminum rail incl. 1 set of pre-assembled M8 stainless steel screws
- For sliding connections (length adjustment)

#### TRIC A HDC slide connector set

Part no. 219 050 33



### TRIC A MLC rail connection set

- Aluminum rectangular pipe with rail connector incl. 12 rivets

#### TRIC A ML rail connection set

Part no. 219 300 98

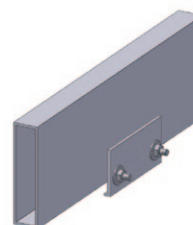


### TRIC A HL rail connection set

- Aluminum rectangular pipe with 2 rail connectors incl. 4 sets of pre-mounted M10 stainless steel screws and self-drilling tin screw

#### TRIC A HL rail connection set

Part no. 219 305 91

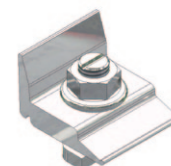


### TRIC A HDC cross connector set

- For fastening the HDC/LDC/MLC racking rails to each other in a cross bond
- Aluminum clamp suited for crossing angle of 45° - 90°, incl. set of pre-assembled SW 15 T-bolts

#### TRIC A HDC cross connector set

Part no. 219 707 28



#### WHY A CROSS BOND?

A cross bond or cross connection is an assembly of the racking rails in which a second layer of rails is fixed perpendicularly (cross-shaped) on the horizontal rails.

Such a construction is needed a) if the panels are to be mounted horizontally, b) for providing additional connection points for rafter parallel rail positioning, e.g. where snowfalls are unusually high.



# On-Roof Mounting System TRIC A

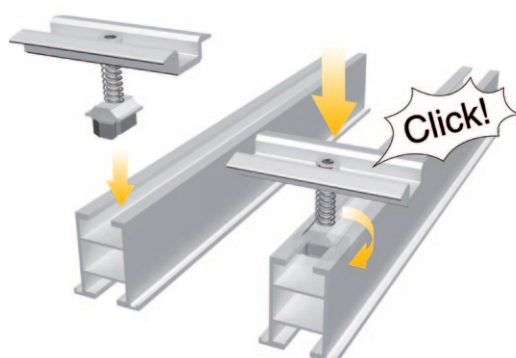
## Panel fastener TRIC clip

### Panel fasteners TRIC clip

- Pre-assembled Al/stainless steel module fasteners
- Patented design for simple and safe installation
- Considerable time savings!
- Suitable for all TRIC mounting rails
- For all common PV modules with frame heights from 30-50 mm
- 10 years warranty

Panel fastener TRIC clip, center	Module frame height	Aluminum, part no.	Black, part no.
	27 - 31 mm	219 700 84	219 700 85
	32 - 36 mm	219 700 86	219 700 87
	37 - 41 mm	219 700 88	219 700 89
	42 - 46 mm	219 700 90	219 700 91
	47 - 51 mm	219 700 92	219 700 93

Panel fastener set, edge	Module frame height	Aluminum, part no.	Black, part no.
	30 mm	219 701 22	219 701 23
	31 mm	219 701 24	219 701 25
	34 mm	219 700 94	219 700 26
	35 mm	219 700 95	219 700 96
	36 mm	219 701 28	219 700 97
	38 mm	219 700 98	219 700 98
	40 mm	219 700 99	219 701 00
	42 mm	219 701 02	219 701 03
	46 mm	219 701 04	219 701 05
	50 mm	219 701 06	219 701 07



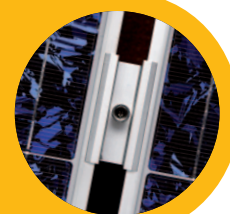
Video TRIC clip

### SAFE INSTALLATION WITH TRIC clip

A flick of the hand, an acoustic "click" signal, and the TRIC clip panel fastener safely sits in its correct position, yet it can still be shifted, if required. The clever mechanism turns panel mounting into a breeze!

Official type approval is pending.

To thwart theft, a stainless steel ball is hammered into the hexagonal nut to prevent it being unscrewed



# On-Roof Mounting System TRIC A

## Accessories

### Potential equalization earth strap

- Stainless steel mesh strap, 180 mm, 2 pre-assembled T-bolts with nuts and washers
- To bridge expansion gaps in mounting rails

#### Potential equalization earth strap

Part no. 219 400 26

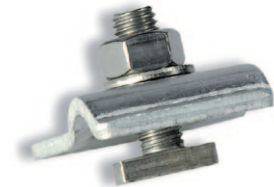


### Potential equalization terminal set

- For connecting round aluminum wire to the racking rails
- Aluminum, incl. pre-assembled T-bolt with nut and washer

#### Potential equalization terminal set

Part no. 219 400 30



### Wire strap clip "Edge"

- For attaching the solar cables to the panel frame
- UV resistant

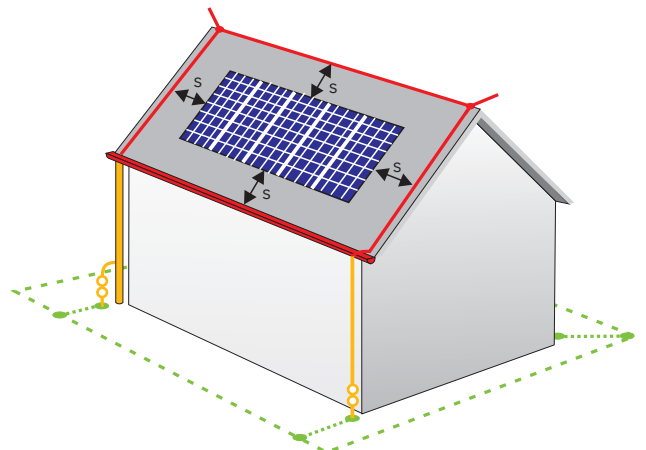
#### Wire strap clip "Edge"

Part no. 249 001 27



### Lightning protection, potential equalization and cable positioning

All racking rails of a panel field are interconnected as conductors for functional potential equalization. The cross section of the cables used must be at least 6 mm<sup>2</sup>. The anodized panel frames are not a conducting link. If there is a lightning arrestor system on the building, a lightning protection expert should be consulted for the assembly. For problem-free attachment of the cables to the panel frames we recommend our UV resistant wire strap clip "Edge".





## Flat Roof Mounting System TRIC F

*We placed particular emphasis on racking versatility when developing the TRIC F system. Be it a flat roof, a sloping one or complex demands, such as slanted positioning on sloping roofs – none is a problem.*



Video TRIC F

### Versatile mechanical innovation

With TRIC F solar panels can be freely racked on almost all even and sloping surfaces. The system impresses with high-quality materials, smart detail solutions and a coherent overall concept.

### Less is more

Root-and-branch reworking and consistent alignment of all components further optimized the system and achieved significant reductions in the materials needed. Hence fewer racking elements are required and assembly of up to two panels per racking triangle is possible. Fast, simple and safe installation is guaranteed.

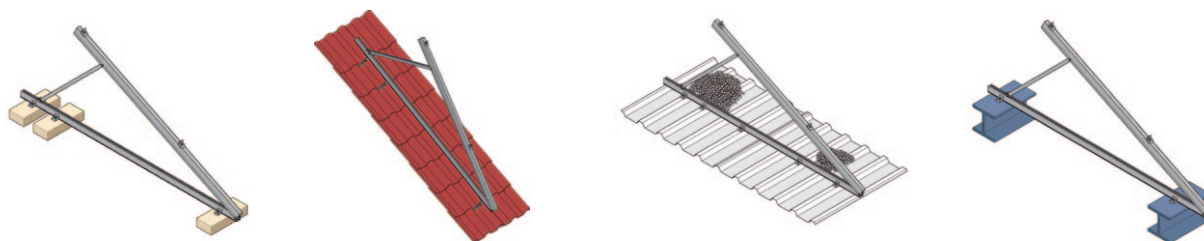
### FOLDED

The TRIC F racking triangles are delivered folded up. That saves space and costs, easing transportation. At the installation site they are simply unfolded to the desired angle and screwed together.

The angle can be set steplessly. Angles from 15° to 60° can be set with the systems TRIC F 15, 30 and 45.



# Flat Roof Mounting System TRIC F



## Mounting system TRIC F for flat and sloping roof installation

- Completely pre-assembled racking triangles of bend-resistant Wagner & Co profiles
- Connecting elements of stainless steel and aluminum
- Flexible fastening with mounting groove in the ground rail

## TRIC F horizontal

- 2 racking triangles for horizontal installation of 1 module
- Step-less adjustment of angle from 18° - 43°

TRIC F horiz.	Mod. frame height	Color	Part no.
	35 mm	Aluminum	219 050 42
	35 mm	Black	219 050 10
	38 mm	Aluminum	219 050 60
	42 mm	Black	219 050 64
	43 mm	Aluminum	219 050 12
	46 mm	Black	219 050 40
	50 mm	Aluminum	219 050 39
	Other heights	Alum./black	219 050 43



Spacing racking triangles for different snow and wind conditions (examples)*					
SLZ	WZ	H = 0 - 300 m	H = 300 - 500 m	H = 500 - 700 m	H = 700 - 900 m
		A <sub>max</sub> [mm]	A <sub>max</sub> [mm]	A <sub>max</sub> [mm]	A <sub>max</sub> [mm]
1a	1	1,720	1,500	1,200	920
2	2	1,500	1,090	860	630
2	4	1,090	920	710	550
2a	2	1,330	1,000	710	520
3	2	1,200	860	630	460
3	4	1,000	750	570	410

TRIC F 30° / Building height < 10m / H = Height above NN / SLZ/WZ = snow load zones/wind zones; \*Based upon German snow and wind zones; contact our technical support team for more information on structural dimensioning and rating.

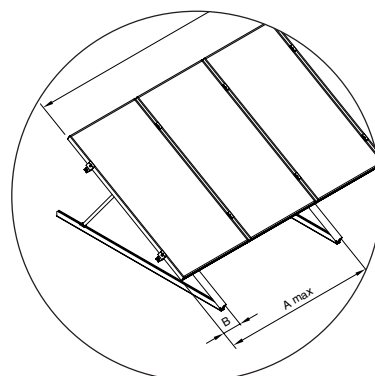


# Flat Roof Mounting System TRIC F

## TRIC F 15/30/45

- Structurally optimized: up to 2 vertically installed modules per racking triangle (dep. on location and module type)
- Step-less adjustment of racking angle
- To fasten the modules an additional TRIC A HDC mounting system is required.

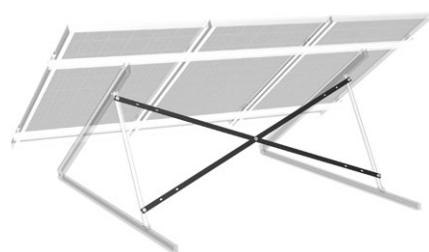
TRIC F 15/30/45	Racking angle	Part no.
TRIC F 15	15° - 22°	219 050 01
TRIC F 30	22° - 38°	219 050 02
TRIC F 45	38° - 60°	219 050 03



## TRIC F diagonal strutting set

- For the additional stabilization, 1 set per module row
- Mandatory for installation in pitched roofs
- Maximum spacing of racking triangles 1,500 mm

TRIC F Diagonal strutting set	
Part no.	219 050 41



## Gravel board installation set

- Steel gravel board for fastening the TRIC F racking system to the ground; with aluminum clamping angles and rivets.
- Ground area 2,000 x 1,035 mm, for 1 racking triangle (TRIC F 15/30/45) resp. for 1 horizontal panel (TRIC F horizontal)

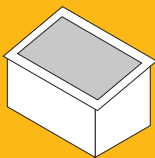
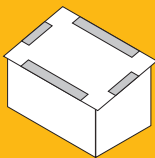
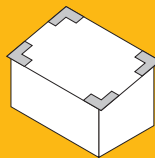
Gravel board installation set	
Part no.	219 050 27

## Concrete slab installation set

- To fasten the TRIC F racking system on concrete slabs
- For 1 triangle, 8 AL clamps, dowels, stainless steel screws

Concrete slab installation set	
Part no.	219 203 45



Gravel ballast loading G [kg] per m² module area (incl. safety co-efficients according to DIN 1055-100)*			
Wind zone			
1	105	172.5	232.5
2	135	217.5	285
3	172.5	270	352.5
4	210	330	427.5
TRIC F 30° / Building height < 10 m / inland, 800 m altitude; *based upon German wind and snow zones, contact our technical support for more information on structural dimensioning and rating.			



*Keeping the racking system's own weight as low as possible is key to installing on industrial roofs. In standard cases TRIC F pro requires only a third of the usual ballast load.*

## Flat Roof Mounting System TRIC F pro

### Aerodynamically optimized

TRIC F pro is an aerodynamically optimized, wind tunnel tested installation system we developed specifically for industrial flat roofs. Its stand-out feature is its greatly reduced own weight, only about a third of the usual ballast is required in standard situations.

### Low weight

Involving the panels as active elements of the racking system saves material, weight and installation time. The construction not only avoids the ram pressure under the installation, it also lessens the wind induced suction loads, which in turn reduces the required ballast weight.

### Simple, compact assembly

The panels are fastened directly to the ground and support rails and then clad with a back wall. This creates a very stable panel compound that does not have to be attached to the roof construction.



*Video TRIC F pro*



### SIMPLE BALLASTING

The racking system is ballasted by concrete slabs that are simply laid into the rear walls. Slabs can also be laid onto the racking rails at the edges.

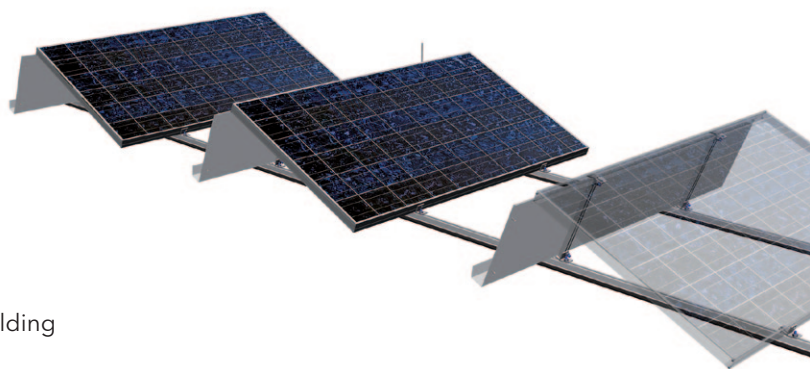


### SNOW LOAD NO PROBLEM

Because of its low construction height of maximum 0.48 m, TRIC F pro falls under the exception regulation of the DIN 1055 norm, stating that snow loads don't have to be taken into account for rooftop structures < 0.5 m



## Flat Roof Mounting System TRIC F pro



### TRIC F pro

- Aerodynamically optimized industrial roof system
- Low weight, fixed 25° inclination angle
- Installation without puncturing the roof skin
- Set of 3 contains all the racking materials incl. building protection mat and cable straps
- Concrete slabs to be provided on site

TRIC F pro	Frame width (mm)	Part no.
For wide modules	940 - 1,000	219 050 67
For narrow modules	790 - 865	219 050 66

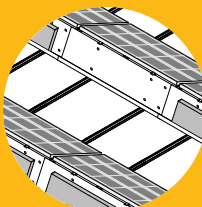
### Protective underlay for TRIC F pro

- Roll, 12,500 x 100 x 6 mm (LxWxH)
- Per set of 3 TRIC F pro one roll is required

TRIC F pro protective underlay	Part no.
Roll, standard	219 200 08
Roll, aluminum laminated	219 200 09

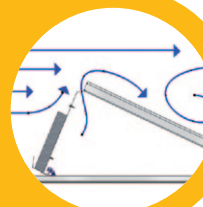
### EVEN LOAD DISTRIBUTION

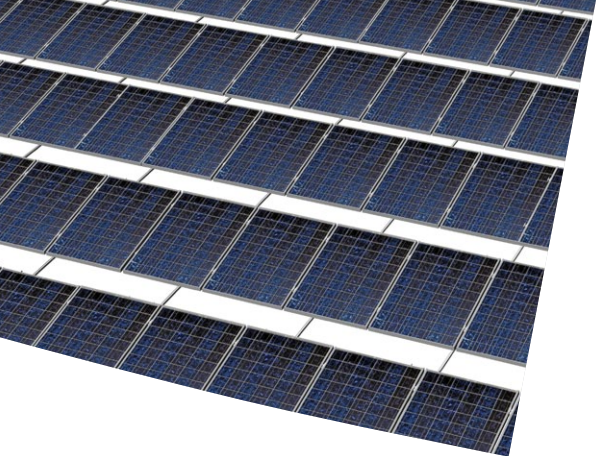
The compounded panel array with continuous ground rails avoids horizontal push stress. Loads are evenly spread across the roof surface.



### OPTIMAL AIRFLOW

The back wall cladding prevents ram pressure below the panels. A gap between the back wall and the panels diffuses pressure.





*TRIC F Box utilizes the maximum of the existing roof area while reducing the structural load. The intelligent and optimized system layout halves the installation time.*

## Flat Roof Mounting System TRIC F box

### Rapid installation

The clever TRIC F box mounting system can be installed with just a few components and simple steps, requiring not more than two tools. At least 50% time savings!  
The setup is independent of the module installation schedule.

### Lightweight design

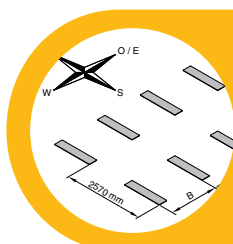
Aerodynamically optimized and wind tunnel tested system components significantly reduce the structural loads (realistic values from 20 kg/kWp). At the same time the roof loads are significantly reduced (realistic values of 12 kg/m²).

### Flexible orientation

With a single system you can choose for either southern or East-West orientation of the modules.  
Suitable for all common types of industrial flat roofs by means of choosing suitable protective underlays.



Video TRIC F box



### BEST ROOF AREA UTILIZATION

The vertical alignment of the modules and the low mounting angle of only 10° allow for a roof utilization of up to 95% for East-West and 65% for southern orientation.

### FOR ALL MODULE TYPES

Module installation is done with TRIC clip panel fasteners on HDC mounting rails. Therefore almost all common framed module types can be mounted.



# Flat Roof Mounting System TRIC F box

## Mounting TRIC F box for flat roof/industrial roof mounting

- Aerodynamically optimized
- Reduced roof load, fixed mounting angle 10°
- Optimally suitable for regions with high wind and snow loads
- Available as southern as well as East-West versions
- Concrete slabs to be provided on site
- Structural dimensioning required
- To interlock the box rows to form a structural compound additional LDC rails are required. They have to be ordered on a case by case base.



TRIC F box	Part no.
TRIC F box, set of 1 (1 box, 6 cross connectors)	219 050 80
TRIC F box rear sheeting (only southern ver.)	219 050 76

## Module mounting components for TRIC F box

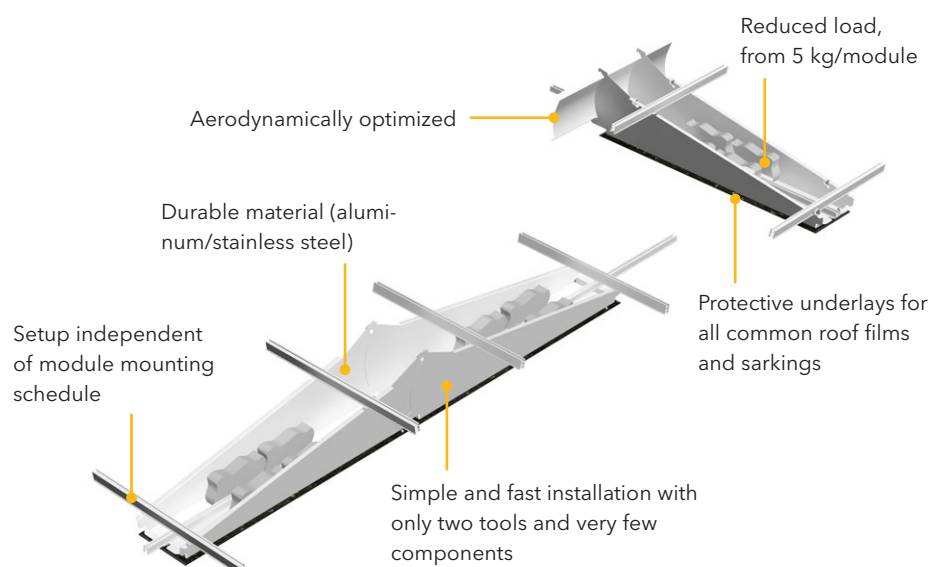
- HDC mounting rails, panel fasteners, rail connectors

TRIC F box module mounting	Part no.
Per module	219 703 30

## Protective underlay for TRIC F box

- Underlay matt, 1,350 x 280 x 6 mm (LxWxH)

TRIC F box protective underlay matt	Part no.
Underlay standard	219 050 81
Underlay, aluminum laminated	219 050 82





## Greenfield Mounting System TRIC flex

### Greenfield mounting System TRIC flex

- Mounting system for greenfield ground installation on rammed ground anchors (sigma profiles), suitable for all framed module types
- Maximum length per module table 13.40 m
- Available as southern or East-West version
- Order ground anchors (ramming elements) separately
- Project specific sizing required
- Delivery time approx. 4 weeks

Greenfield mounting system TRIC flex	Part no.
Southern version, 2 row ramming for approx. 40 modules horizontal, in 5 rows one above the other	Upon request
East-West version, 3 row ramming for approx. 2 x 32 modules, horizontal in 4 rows, one above the other	Upon request



### TURNKEY DELIVERY

The mounting system will be structurally optimized by our experts for each construction site - of course at no additional costs. For your convenience we also offer total turnkey project development.



### SAFE GROUNDING

The standard case is grounding with sigma profile ramming foundations. With suitable adaptors the system can also be set up with drilled or screwed ground anchors or concrete foundations.

# Customized Dimensioning

## TRIC Optimo and TÜV certification

### Individual dimensioning

Our experts quickly and precisely dimension your solar project with our newly developed customizing program, TRIC Optimo. Using your project data we calculate the numbers of roof anchors and racking triangles needed. We guarantee the norm-abiding design of the rack system with a certificate attesting state of the art calculations according to EUROCODE 1, subject to the condition that wind and snow loads were provided according to valid local norms and regulations. Customizing cuts your costs and prevents risks resulting from under-dimensioning.

### TÜV-certified quality

Safety is our top priority. A solar power racking system must guarantee the secure hold of the panels in the long term and under harsh conditions.

Hence, aside from the rack assembly, the quality of the components and the entire system is of paramount importance.

To be absolutely certain, we submit all our assembly systems to testing and certification by TÜV, a global provider of technical, safety and certification services.



# Installation Know How for Your Solar Projects

## Seminars and workshops

Invest some time in your further education. The Wagner Academy offers hands-on seminars, workshops and product coaching for beginners, professionals and specialists.

## One stop shop

We offer you the best system solutions for your project and support in its planning and stability design.

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