



TECHNICAL MANUAL

# ARTOSI CARPORT



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## **ISOTRA** *Quality*

A mark symbolising long tradition, inestimable investment into development, the use of quality materials, state-of-the-art technologies, reliable work from hundreds of employees and numerous other parameters, contributing one entity - the final product of ISOTRA.

## DECLARATION OF PERFORMANCE No. 01/2023

<b>Product – type identification code</b>	Artosi Carport
<b>Type designation</b>	2-01819-XXXX-A
<b>Intended use</b>	Shelter
<b>Manufacturer</b>	ISOTRA a. s.
<b>Bílovecká 2411/1</b>	ISOTRA a. s. Bílovecká 2411/1, CZ-74601 Opava, Czech Republic ID No.: 47679191
<b>Authorised representative</b>	Not appointed
<b>System of assessment and verification of constancy of performance</b>	2+
<b>Notified body</b>	Technický a zkušební ústav stavební Praha, s. p., (Technical and Test Institute for Construction Prague, SOE) Prosecká 811/76a, CZ-19000 Prague, Czech Republic, No. OS 1020 FPSC Certificate No. 1020-CPR-305/2011


## Properties listed in the Declaration: (in accordance with Table ZA.1 EN 1090-1:2009+A1:2011)

Basic properties	Property value	Harmonised technical specification
Tolerances and geometric data	in accordance with EN 1090-2, -3 and production documentation	4.2 and 5.3 EN 1090-1:2009+A1:2011
Weldability	steel EN 10025-2 - S235JRC+N steel EN 10219-1 - S235JRH steel EN 10111 - DD11	4.3 and 5.4 EN 1090-1:2009+A1:2011
Fracture toughness Impact resistance	JR = 27J at +20 °C	4.4 and 5.5 4.8 and 5.10 EN 1090-1:2009+A1:2011
Reaction-to-fire performance	Class A1	4.6 and 5.8 EN 1090-1:2009+A1:2011
Release of cadmium	NPD	4.7 and 5.9 EN 1090-1:2009+A1:2011
Radioactivity	NPD	4.7 and 5.9 EN 1090-1:2009+A1:2011
Durability	NPD	4.9 and 5.11 EN 1090-1:2009+A1:2011
Ultimate load	Static calculation 2211-09 000 001 of 1/2023	4.5.1, 4.5.2 and 5.6.2 EN 1090-1:2009+A1:2011
Deformation in serviceability limit state		4.5.5 EN 1090-1:2009+A1:2011
Fatigue strength		4.5.1, 4.5.3 and 5.6.2 EN 1090-1:2009+A1:2011

Product properties conform to the properties introduced in the table.

This Declaration of Performance (conformity with the supplied part specification) is issued under the sole responsibility of the manufacturer.

On behalf of the manufacturer: ISOTRA a. s. Ostrava, 15.11.2023 Signature:

	
OS 1020 <b>ISOTRA a.s.</b> <b>Head office: CZ, Opava, Bílovecká 2411/1   Manufacturing plant: CZ, Opava, Bílovecká 2411/1</b> ID No.: 47679191   1020-CPR-070063765 23 <b>EN 1090-1:2009+A1:2011</b> Artosi Carport – 2-01819-XXXX-A <b>DECLARATION OF PERFORMANCE No. 01/2023</b>	
Tolerances and geometric data	in accordance with EN 1090-2, -3 and production documentation
Svařitelnost	steel EN 10025-2 - S235JRC+N steel EN 10219-1 - S235JRH steel EN 10111 - DD11
Fracture toughness	JR = 27J at +20 °C
Reaction-to-fire performance	Class A1
Release of cadmium	NPD
Radioactivity	NPD
Durability	NPD
Design characteristics: <b>Design:</b> drawing No. 2-01819-XXXX-0 <b>Manufacture:</b> according to drawing No. 2-01819-XXXX-0 – ARTOSI CARPORT, execution class EXC 2	



# CARPORT ARTOSI



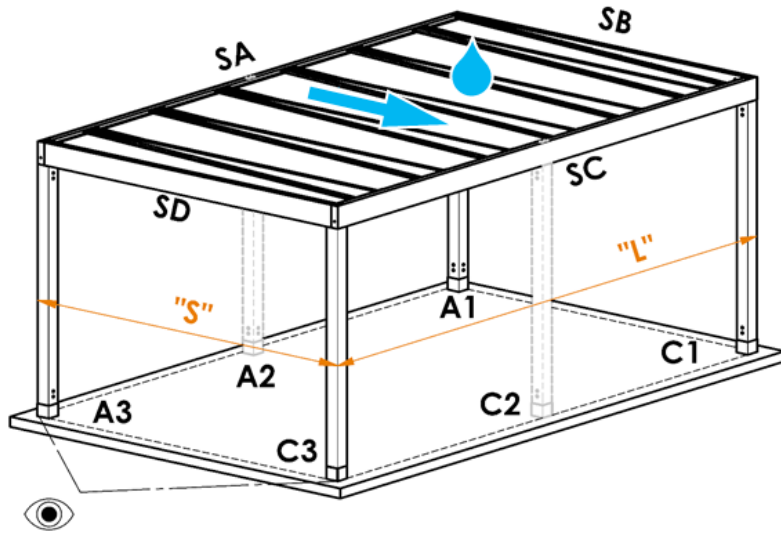
- ▲ Own development and manufacture
- ▲ Clean, elegant design
- ▲ The shelter roof is manufactured with high precision
- ▲ Possibility to place the poles outside the shelter roof corners
- ▲ Three types of roofs – polycarbonate sheet, trapezoidal sheets, roofless frame
- ▲ Possibility of LED lighting along the entire shelter roof perimeter (warm or cold light)
- ▲ Possibility of installing screen roller shutters or sliding glass panels
- ▲ Weather resistance – Class 6

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# CARPORT ARTOSI

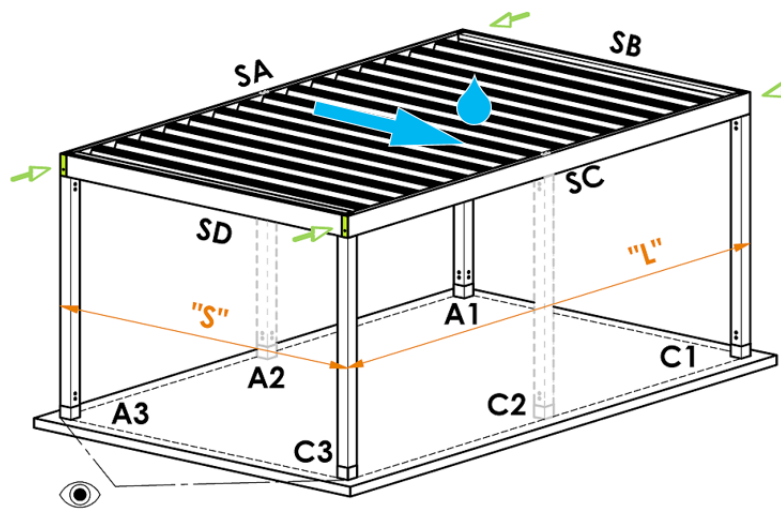
## Basic specification

Frame with a polycarbonate roof



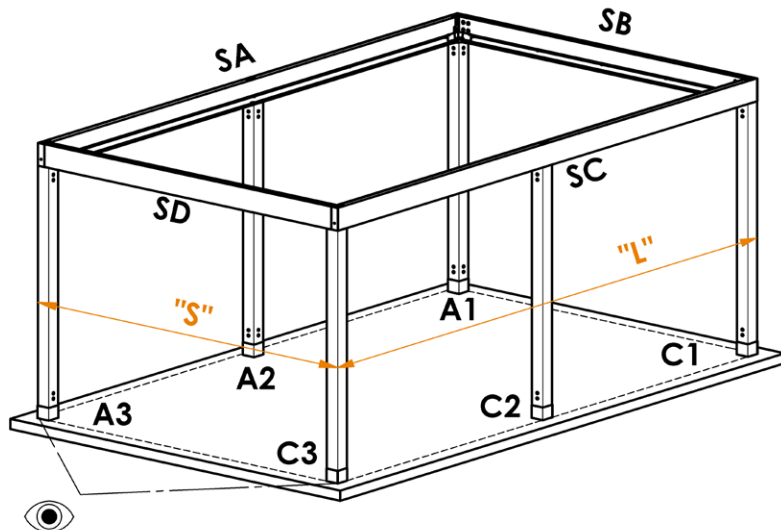
- SA, SC – Perimeter frame – Length
- SB, SD – Perimeter frame – Width
- A1, A3, C1, C3 – Corner poles
- A2, C2 – Additional poles
- "S" – Maximum shelter roof width
- "L" – Maximum shelter roof length
- 👁️ – Viewing direction of the pergola
- 💧 – Direction of water outflow

Frame with a trapezoidal roof



- SA, SC – Perimeter frame – Length
- SB, SD – Perimeter frame – Width
- A1, A3, C1, C3 – Corner poles
- A2, C2 – Additional poles
- "S" – Maximum shelter roof width
- "L" – Maximum shelter roof length
- 👁️ – Viewing direction of the pergola
- 💧 – Direction of water outflow

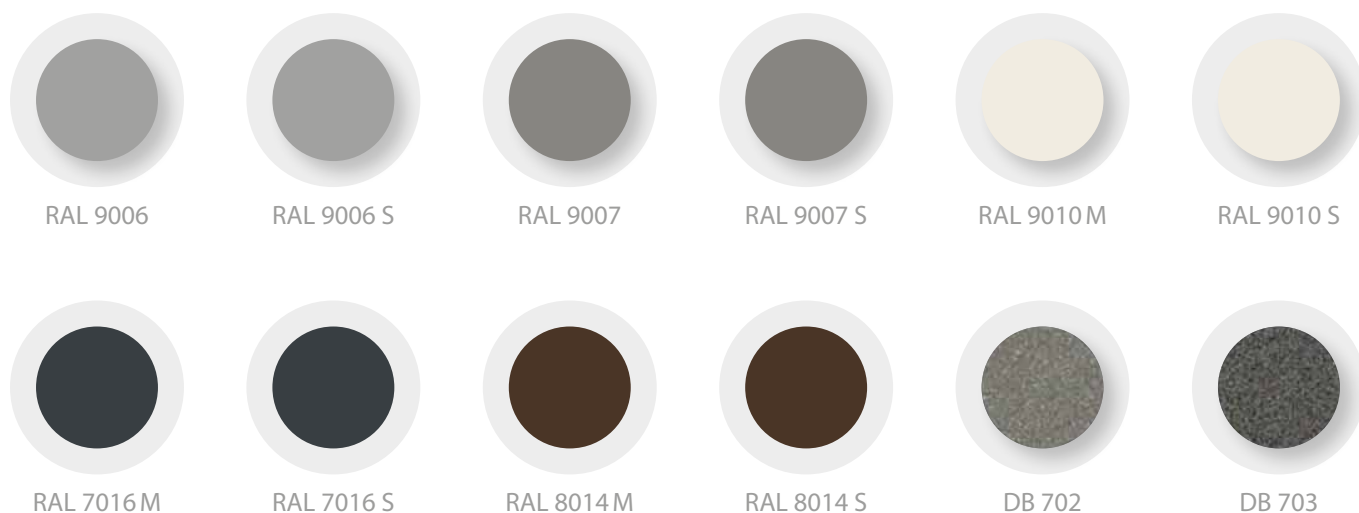
Roofless frame



- SA, SC – Perimeter frame – Length
- SB, SD – Perimeter frame – Width
- A1, A3, C1, C3 – Corner poles
- A2, SD – Additional poles
- "S" – Maximum shelter roof width
- "L" – Maximum shelter roof length
- 👁️ – Viewing direction of the pergola
- 💧 – Direction of water outflow



## Colours Shelter roof frame

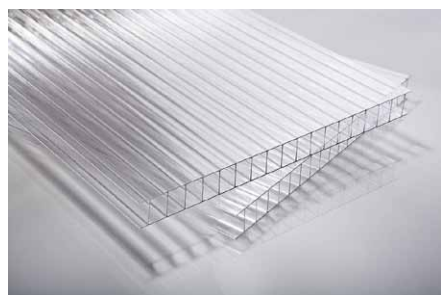


RAL 9006 White aluminium  
 RAL 9006S White aluminium structure  
 RAL 9007 Grey aluminium  
 RAL 9007S Grey aluminium structure  
 RAL 9010M Pure white matt  
 RAL 9010S Pure white structure

RAL 7016M Anthracite grey matt  
 RAL 7016S Anthracite grey structure  
 RAL 8014M Sepia brown matt  
 RAL 8014S Sepia brown structure  
 DB 702 Pearl light grey  
 DB 703 Pearl dark grey

Note: Other RAL colours upon request for an extra charge.

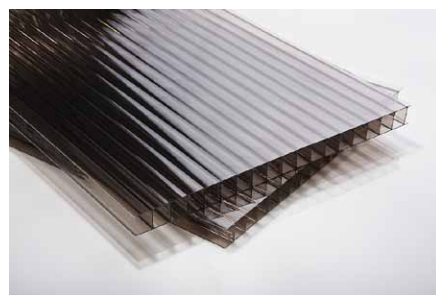
## Polycarbonate roof



clear



opal



bronze

## Trapezoidal roof

Surface finish in RAL 9006 shade on both sides.

NOTE: The shade and surface structure of the paint of the trapezoidal sheet may differ from the shade and surface structure of the paint of the shelter structure and therefore the difference makes no reason for any complaint



## Water resistance

The shelter roof is an open, outdoor structure, and is incomparable with an enclosed, heat-, water- and wind-resistant structure. It is a shelter, not a fully-fledged roof.

Equipment within the shelter roof must be suitable for outdoor use.

In the rain, water drops dripping in the shelter roof gutter are likely to splash into the areas under the shelter roof (this always depends on the rain intensity and weather conditions). The drains are placed in the shelter roof poles.

The shelter roof is capable of draining the following quantities of rain water:

Shelter roof area [m <sup>2</sup> ]	Shelter roof length [m]	Number of drains [pcs]	Quantity of water drained [per m <sup>2</sup> in 1 hr]
12	4	1	50
24	7	2	50
24	7	3	70

Note: The values stated above only apply if all the drains are located at the catchment side of the roof and if the shelter roof is free-standing. In case the shelter roof is added to another structure, it is necessary to take into account that the quantity of water to be drained may differ.

Note: Due to the fact that temperatures above and beyond the shelter roof will differ, it is likely that water will condensate on the lower side and inside the shelter roof structure.

## Wind resistance

The shelter roof is capable of withstanding wind exceeding Class 6 acc. to ČSN 13561 (more than 88 km/h).

## Snow resistance

The shelter roof roof carrying capacity is 150 kg/m<sup>2</sup> at the maximum dimensions of 4.5×7 m and if 6 poles are used.

Structural analysis was performed for the required snow load of 150 kg/m<sup>2</sup>, corresponding to Snow Region III acc. to ČSN EN 1991-1-3.

Note: If the shelter roof is added to another structure with a sloped roof, it is necessary to take into account the additional quantity of snow which is likely to load the shelter roof.

## Standard dimensions

Roof version	Length L [mm]		Width S [mm]		Passing height H [mm]		Guaranteed surface [m <sup>2</sup> ]
	min.	max.	min.	max.	min.	max.	
Polycarbonate	1440	7000*	1000	4500	500	3000	31,5
Trapezoidal	1440	7000*	1000	4500	500	3000	31,5
Roofless	1440	7000*	1000	4500	500	3000	31,5

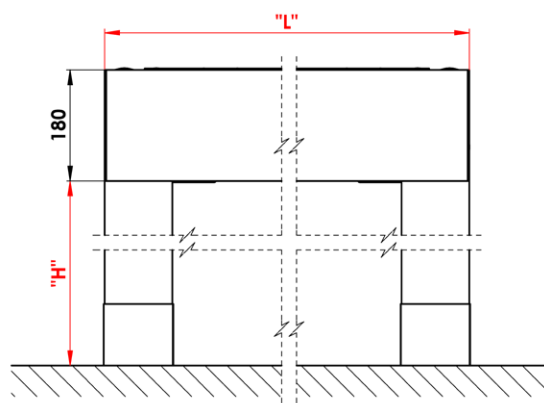
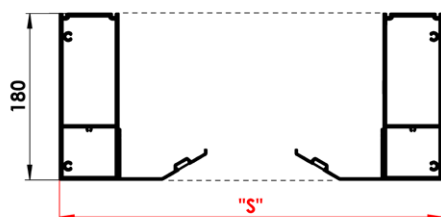
\*The shelter roof must have 6 poles for lengths above 4500 mm.

## Installation dimensions

"S" – Shelter roof width

"L" – Shelter roof length

"H" – Passing height of a specific pole



## Linear expansion

When the temperature of aluminium increases, the metal will expand; this phenomenon is called thermal expansion. The coefficient of thermal expansion of aluminium alloy is  $23.5 \mu\text{m}/(\text{m}^*\text{K})$ .

Example:

At  $20^\circ\text{C}$ , an aluminium profile measures 7000 mm. When heated to  $50^\circ\text{C}$  – during a sunny day – it will measure 7005 mm due to thermal expansion. The length will increase by +5 mm as a result of the change in aluminium temperature.

When incorporating the shelter roof to surrounding structures, it is important to consider change in the shelter roof dimensions due to ambient temperature.

When taking measurements of screen roller shutters and installing them in the shelter roof, it is necessary to consider thermal expansion of the aluminium profile in relation to ambient temperature. We recommend that measurements be taken at ambient temperatures of  $23 \pm 5^\circ\text{C}$ .

## Dimensional tolerances

Length	Tolerance	Width	Tolerance	Passing height	Tolerance
up to 2000 mm	$\pm 2,4$	up to 2000 mm	$\pm 2,4$	from 500 mm to 3000 mm	+20/-10 - adjustable
up to 3000 mm	$\pm 2,6$	up to 3000 mm	$\pm 2,6$		
up to 4000 mm	$\pm 2,8$	up to 4000 mm	$\pm 2,8$		
up to 5000 mm	$\pm 3$	up to 4500 mm	$\pm 3$		
up to 6000 mm	$\pm 3,2$				
up to 7000 mm	$\pm 3,4$				

## Approximate shelter roof weight

Values in the table are in [kg].

"S" – Shelter roof width

"L" – Shelter roof length

L/S	2000	2500	3000	3500	4000	4500
1440	123	139	155	171	188	204
1620	131	148	166	183	201	218
1800	139	158	176	195	214	232
1980	147	167	187	207	227	247
2160	155	176	197	219	240	261
2340	163	186	208	230	253	275
2520	172	195	219	242	266	289
2700	180	204	229	254	279	303
2880	188	214	240	266	292	318
3060	196	223	250	277	305	332
3240	204	233	261	289	318	346
3420	212	242	271	301	331	360
3600	221	251	282	313	343	374
3780	229	261	293	325	356	388
3960	237	270	303	336	369	403
4140	245	279	314	348	382	417
4320	253	289	324	360	395	431
4500	261	298	335	372	408	445
4680	270	308	345	383	421	459
4860	278	317	356	395	434	473
5040	286	326	367	407	447	488
5220	294	336	377	419	460	502
5400	302	345	388	430	473	516
5580	311	354	398	442	486	530
5760	319	364	409	454	499	544
5940	327	373	419	466	512	558
6120	335	383	430	478	525	573
6300	343	392	441	489	538	587
6480	351	401	451	501	551	601
6660	360	411	462	513	564	615
6840	368	420	472	525	577	629
7000	376	429	483	536	590	643

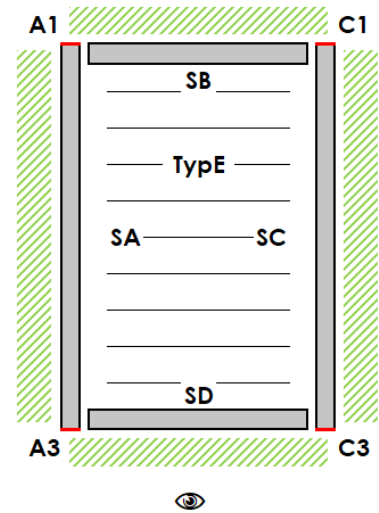
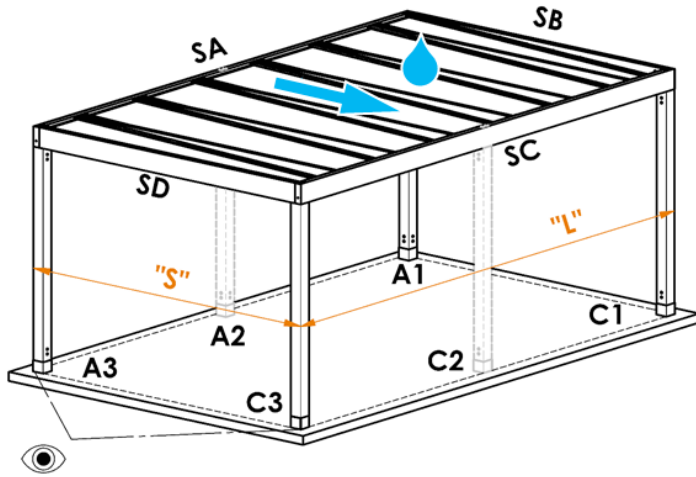


## CARPORT ARTOSI



### Installation

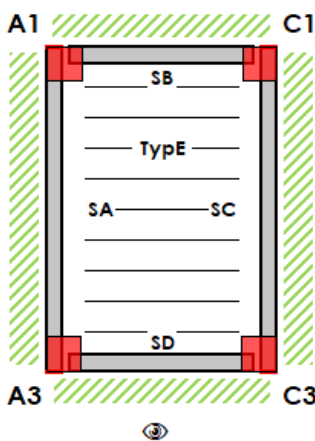
#### Types of installation

- Free-standing (supported by 4 to 6 poles)
- Possibility of anchoring to the adjacent building using the SA/SC perimeter frame, without having to use poles at the anchored side
- The SA and SC sides may be built up
- Handling area of at least 700 mm must be allowed in front of SB and SD sides

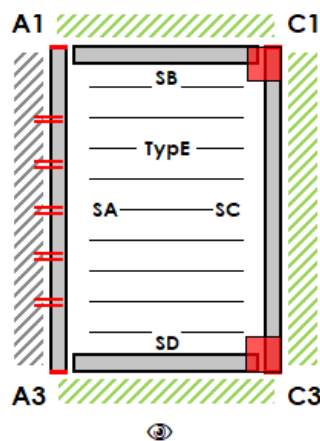


SA, SD – Perimeter frame – Length  
 SB, SC – Perimeter frame – Width  
 A1, A3, C1, C3 – Corner poles  
 A2, C2 – Additional poles

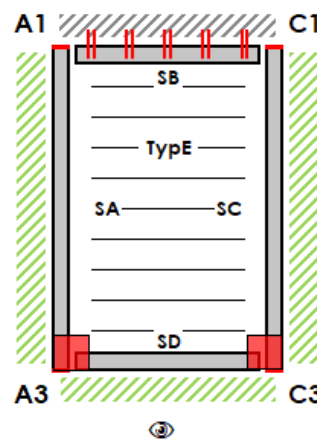
"S" – Maximum shelter roof width  
 "L" – Maximum shelter roof length  
 – Viewing direction of the pergola  
 – Direction of water outflow



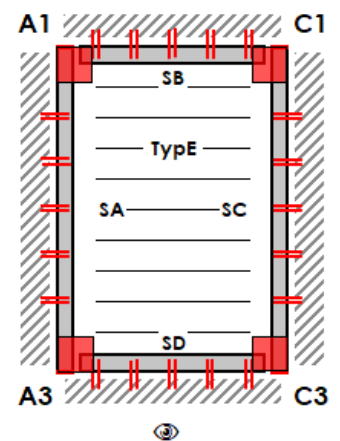
- Anchored side: -
- Compulsory pole: A1 / A3 / C1 / C3
- Optional pole: A2 / C2



- Anchored side: SA
- Compulsory pole: C1 / C3
- Optional pole: A1 / A2 / A3 / C2



- Anchored side: SB
- Compulsory pole: A3 / C3
- Optional pole: A1 / A2 / C1 / C2



- Anchored side: SA / SB / SC / SD
- Compulsory pole: -
- Optional pole: A1 / A2 / A3 / C1 / C2 / C3

**Poles – feet**

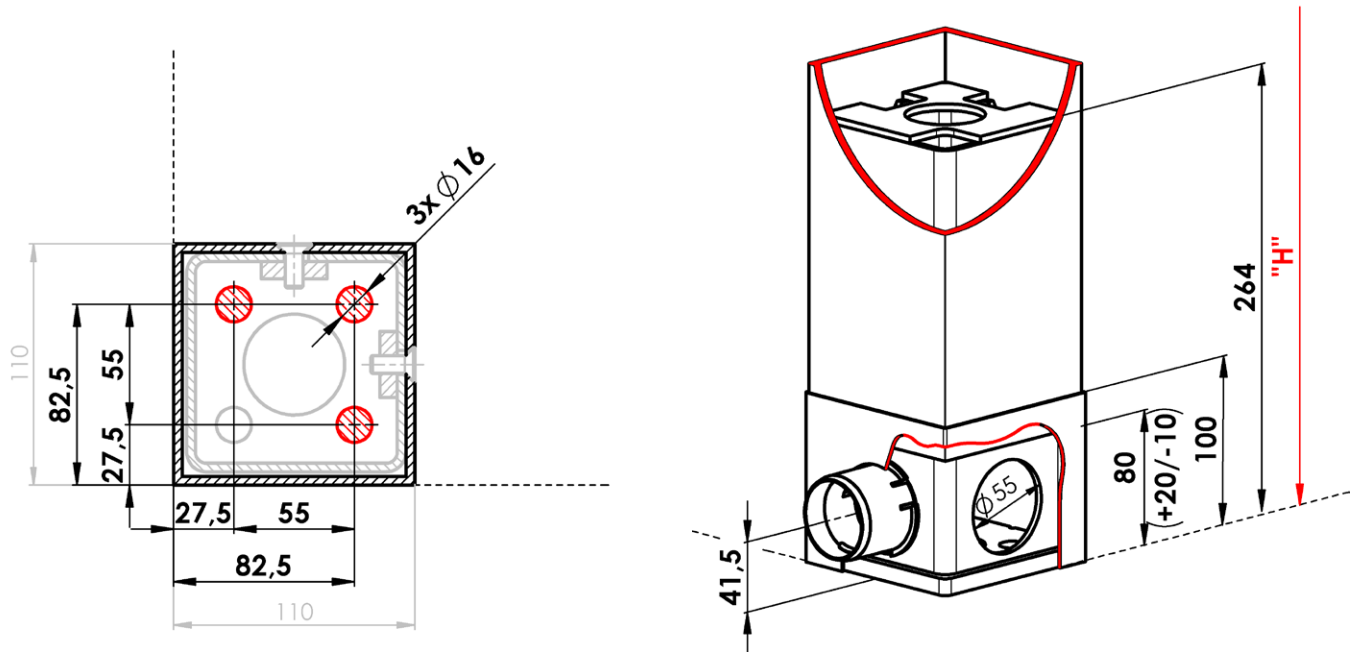
**CONCEALED FOOT**

The anchoring holes for the fasteners are hidden in the foot.

The lower end of the foot with access to the anchoring holes is covered by a sheet-metal trim.

The foot allows additional adjustment of the passing height "H" by +20/-10 mm.

Foundation for anchoring the foot is part of neither the offer nor the delivery. The implementation of the foundation with regard to specific terrain conditions must be solved individually in cooperation with an authorized person (architect, construction company, etc...)



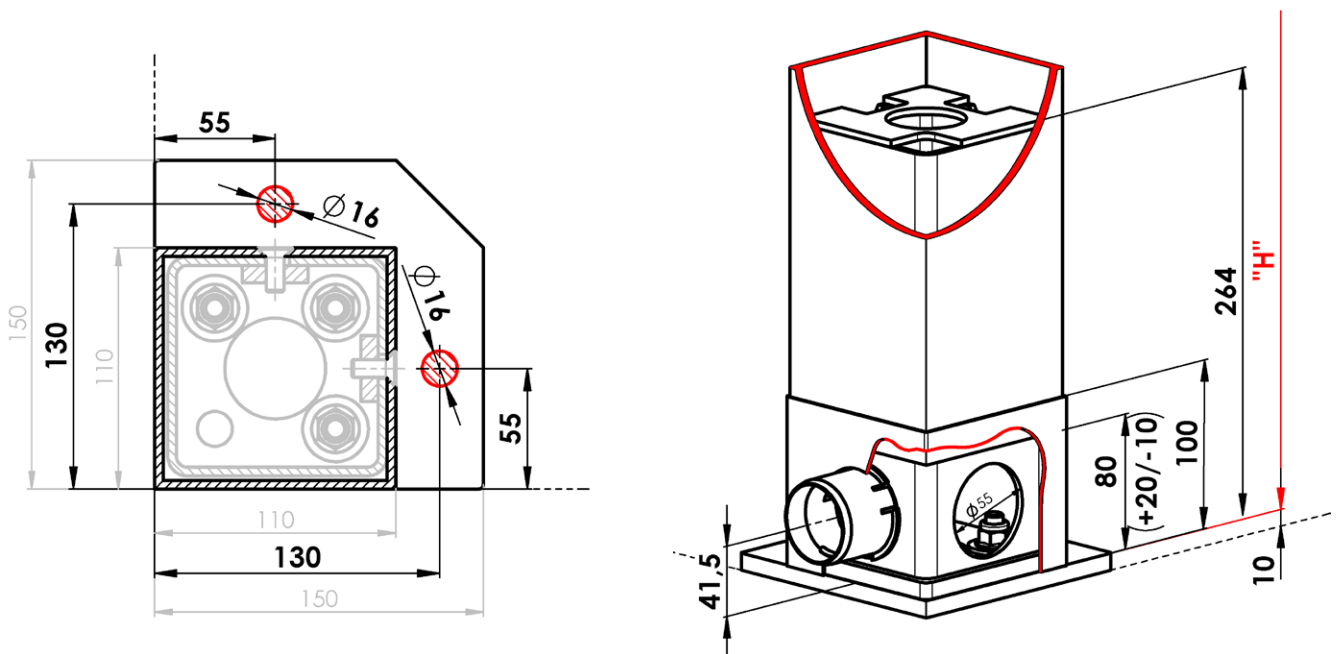
**EXTENDED FOOT**

The anchoring holes for the fasteners are visible on the foot.

The lower end of the foot is covered by a sheet-metal trim.

The foot allows additional adjustment of the passing height "H" by +20/-10 mm.

Foundation for anchoring the foot is part of neither the offer nor the delivery. The implementation of the foundation with regard to specific terrain conditions must be solved individually in cooperation with an authorized person (architect, construction company, etc...)



## Draining system

### Basic information

The shelter roof is equipped with a system for the draining of rain water. From the slats, water flows to gutters installed inside the shelter roof around the perimeter frame, and then to poles intended for this purpose. Water leaves the pole foot via a drain hole (see below).

The shelter roof is an open outdoor structure with limited rain protection. Detailed information can be found in the section Basic specification – Water resistance.

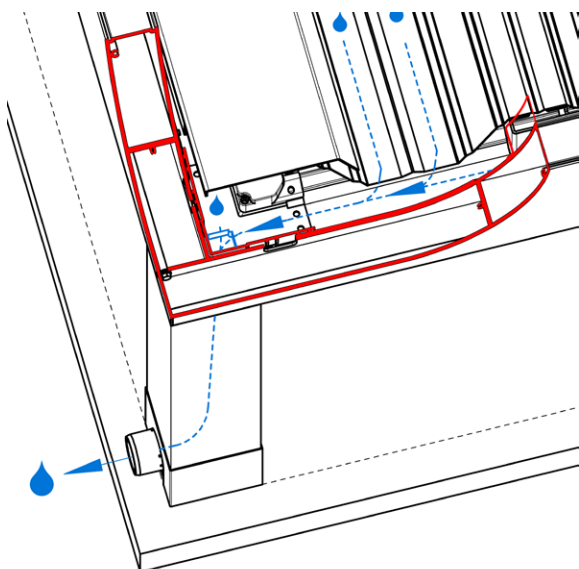
The shelter roof is sloped.

The minimum number of drains located at the catchment side:

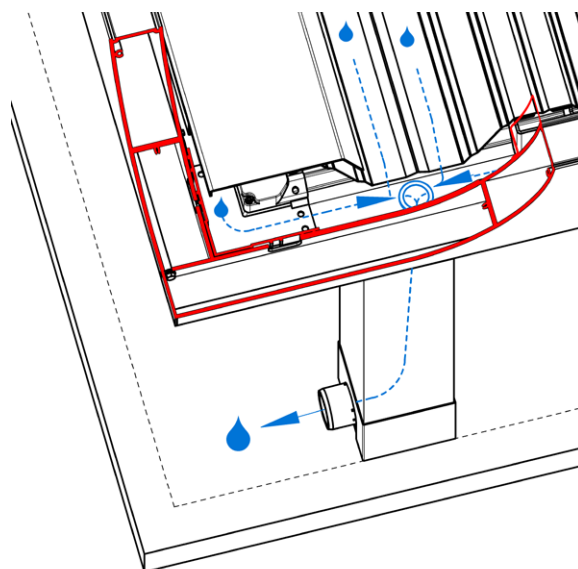
Shelter roof area	Number of drains
up to 12 m <sup>2</sup>	1
up to 24 m <sup>2</sup>	2
above 24 m <sup>2</sup>	3

Each shelter roof pole can include a drain. The maximum number of drains is only limited by the number of poles.

### Direction of water flow in the shelter roof structure



Water flow direction to the pole with a drain located in the shelter roof corner



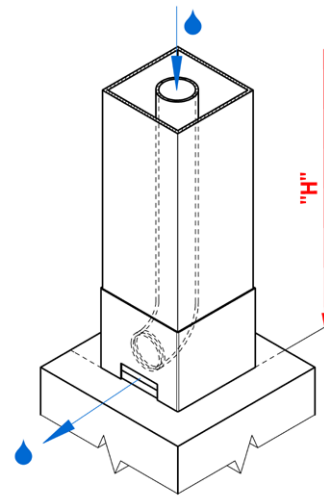
Water flow direction to the pole with a drain located outside the shelter roof corner



## Pole drains

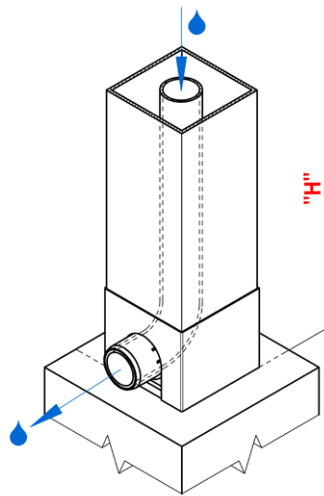
### Uncontrolled draining (rectangular opening)

- The spout hose outfall is directed outside the shelter roof.
- The hose has a loose end.
- The hose ends just after the sheet-metal trim inside the pole.
- Water flows freely through the rectangular opening in the trim.
- Hose length = "H" + min. 300 mm.



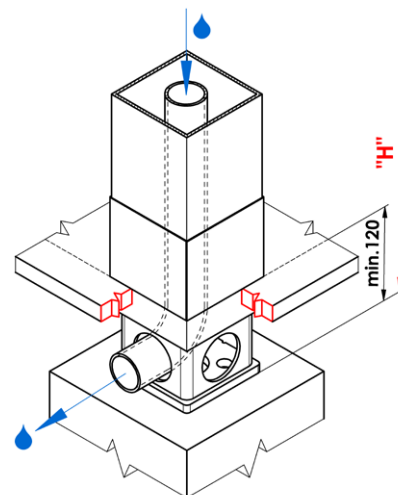
### Controlled draining (half-round opening)

- The spout hose outfall is directed outside the shelter roof.
- The hose has a plastic socket.
- The hose with the socket ends outside the sheet-metal trim.
- Water flows freely through the plastic socket.
- DN50 drain pipe may be connected to the plastic socket (not part of delivery).
- Hose length = "H" + min. 300 mm.



### Draining outside the trim (full trim)

- This type of draining is primarily intended for cases where the foot is anchored under the final terrain level and further connection of the spout hose is under the final terrain level.
- The spout hose outfall is directed outside the shelter roof.
- The hose has a loose end.
- Hose length = "H" + min. 300 mm.



## Lighting

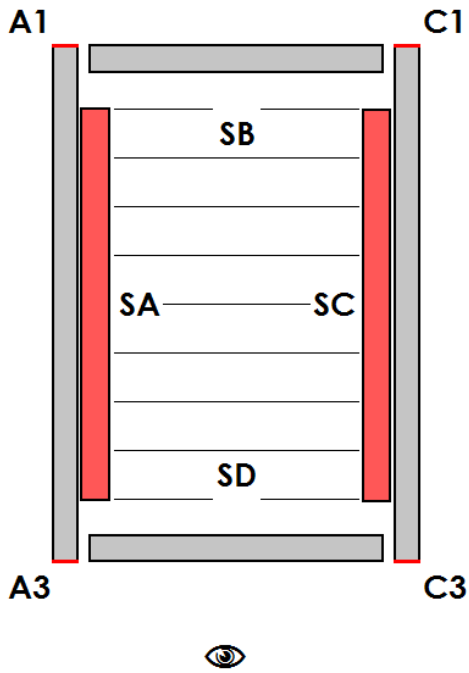
The shelter roof may be illuminated from the inside by a LED lighting system, which is to be installed in the groove of the gutter profile and covered by a light diffuser.

### Light colour:

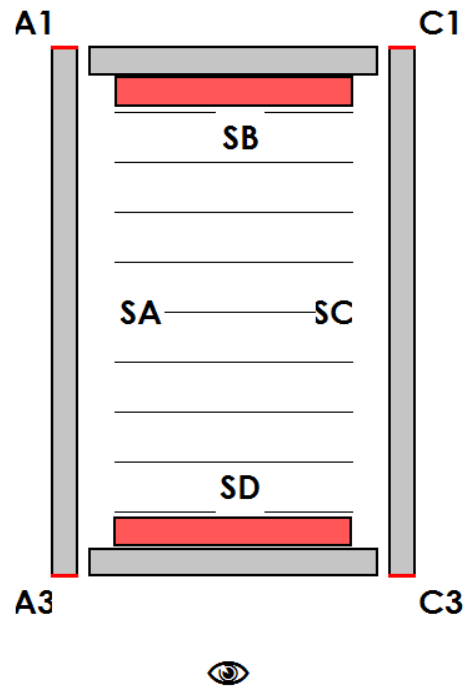
- Warm white
- Cold white

### Lighting placement:

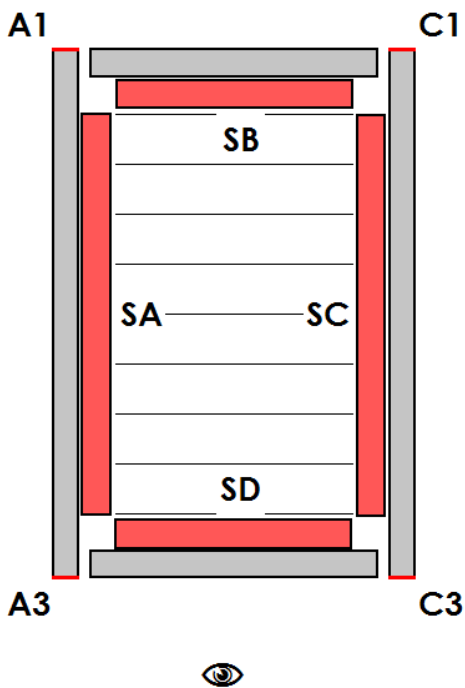
1) Lengthwise



2) Widthwise



3) Lengthwise and widthwise



## Optional accessories

### Cover sheets

This fitting element is intended to cover the gaps between the shelter roof and the adjacent structure.

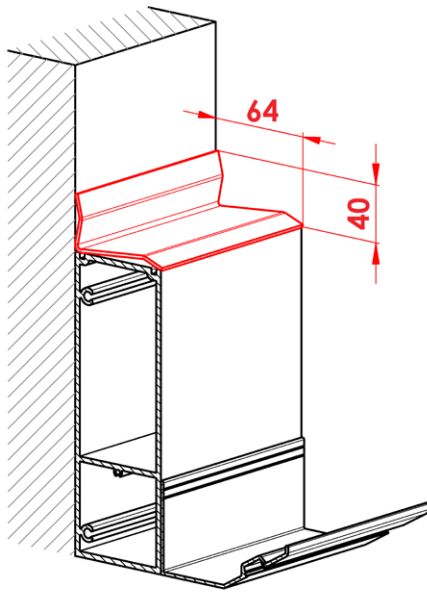
The sheets are manufactured to length, with max. length of one sheet being 4000 mm; material: AL.

Surface treatment of the sheet may be selected from the standard ARTOSI colour card; other RAL colours are upon request for an extra charge.

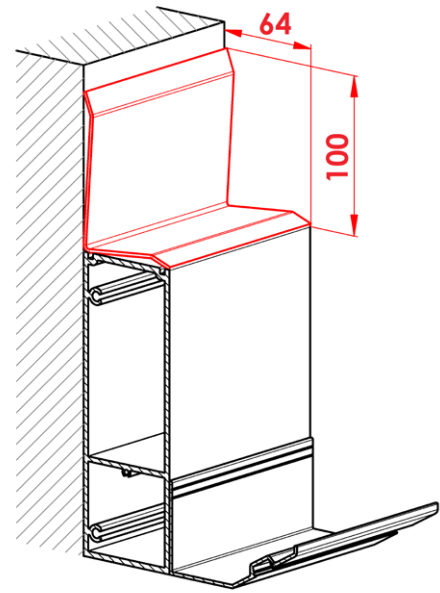
The sheets are not part of the shelter roof; they are optional accessories and must be ordered separately.

The manufacturer shall not be responsible for failures and defects caused by incorrect incorporation of the shelter roof to adjacent structures.

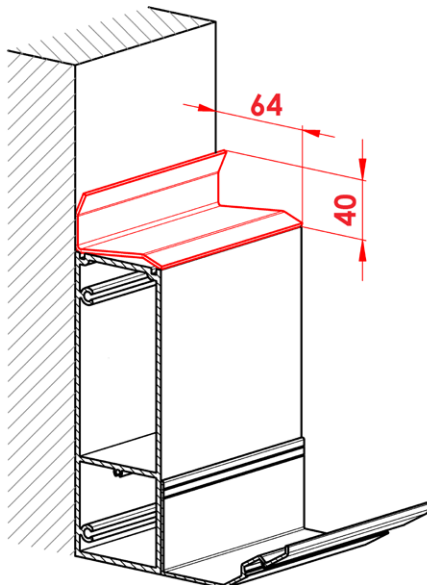
**Sheet PG PK\_01**



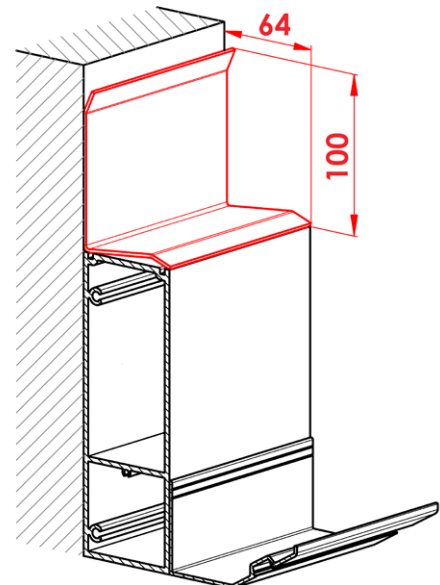
**Sheet PG PK\_01/1**



**Sheet PG PK\_02**



**Sheet PG PK\_02/1**

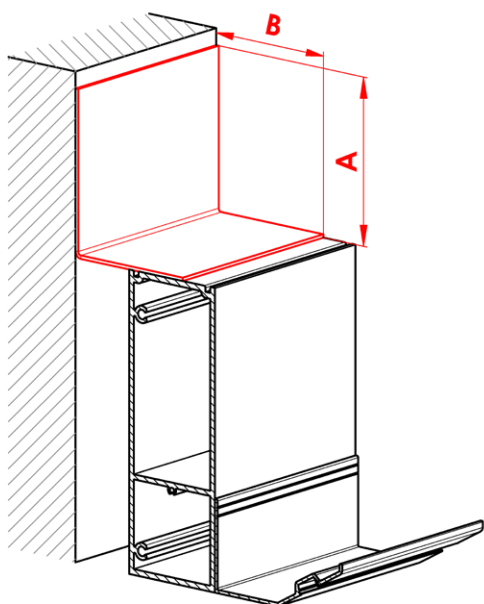
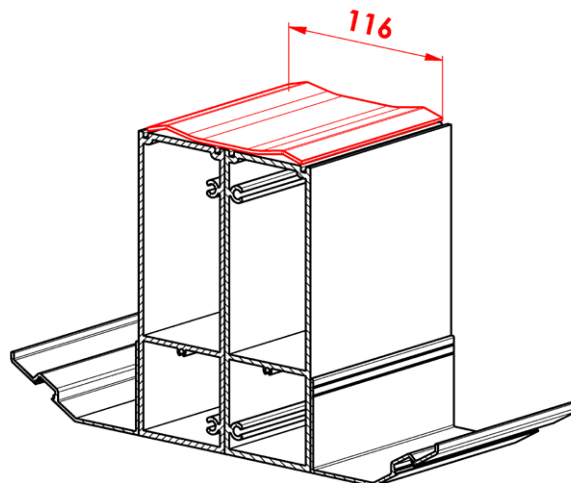




**Sheet PG PK\_03**

Dimension A is optional  
Min. 25 mm, max. 300 mm

Dimension B is optional  
Min. 25 mm, max. 300 mm

**Sheet PG PK\_04****Maintenance and safety instructions****Maintenance**

In order to maintain perfect operating and safety conditions of the product, proceed as follows:

- Check the supporting structure visually at least twice a year (in the spring and before the winter). If necessary, clean the surface of aluminium profiles, removing dirt, dust, and smog. Clean using a soft, damp cloth. Heavily soiled areas may be cleaned using common cleaning agents for painted surfaces of automobiles. Do not clean structural elements by aggressive cleaning agents like organic solvents, dilutants, cleaning pastes and scouring powders, and strong alkaline cleaning agents.
- Check tightening of all bolts and fasteners at least twice a year (in the spring and before the winter).
- Regularly remove gross impurities like branches from the shelter roof.
- Regularly check and clean the draining channels (especially remove leaves) to prevent clogging.

**Safety instructions**

- If the shelter roof is equipped with shading elements, pull them up in adverse weather conditions.
- If the shelter roof is equipped with shading elements, do not let children play with the control device.
- Regularly check the shelter roof for damage.
- If a defect or failure is detected, contact your system supplier!
- Due to continuous improvement of the product, technical information introduced in this manual may not correspond to the actual condition of the shelter roof supplied.



**ISOTRA a.s.**

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**[www.isotra.com](http://www.isotra.com)**

Released: 12/2023

**ISOTRA Partner**



*... a touch of intimacy.*