

# SHADEONE® Twister-Sail

## Installation, Operation, Maintenance & Care

V 1805.01 (VALID FROM MAY 2018)

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[http://www.onlineconversion.com/length\\_common.htm](http://www.onlineconversion.com/length_common.htm)



Passion for shade

# Table of contents

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## SHADEONE® INSTALLATION GUIDE

### 1. SAFETY INSTRUCTIONS AND WARNINGS – INSTALLATION INFORMATION

1.1	General safety instructions	Page 04
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### 2. INSTALLATION

2.1	Tools and equipment	Page 04
2.2	Before installation	Page 04
2.3	Installation instructions and restrictions	Page 05
2.4	Installing the wall consoles or the console rail	Page 06
2.4.1	Choice of fixing materials for the supporting surface	Page 06
2.4.2	Version using wall consoles	Page 07
2.4.3	Version using a console rail	Page 08
2.5	Attaching the fabric screen to the wall consoles or the console rail	Page 09
2.6	Positioning the columns (INOX) or the tensioning element (STRUCTURE)	Page 11
2.7	Attaching the tension cable	Page 13
2.8	Pretensioning and securing the tension cables in the tension cable tapers	Page 15
2.8.1	Pretensioning a tension cable by hand	Page 16
2.8.2	Releasing the tension cable clamp	Page 16
2.9	Installing the operating unit	Page 17
2.10	Tensioning the Twister-Sail	Page 18
2.11	Final adjustment to operating cord	Page 20
2.12	Fine adjustments to the columns (INOX) or the tensioning element (STRUCTURE)	Page 21
2.13	Attaching restraint cables to the tension cables	Page 22
2.13.1	Version using: Restraint cables that are built into the tensioning element	Page 22
2.13.2	Version using: Restraint cables that are supplied in the accessory box	Page 23
2.14	Installing the protective roof (optional, only possible for wall-mounting)	Page 24

3.	COMMISSIONING	Page 25
----	---------------	---------

4.	DISASSEMBLY	Page 25
----	-------------	---------

5.	FAQS, THE CAUSES OF FAULTS AND HOW TO RECTIFY THEM	Page 26
----	--	---------

6.	DIMENSIONED SKETCH OF INSTALLATION SITUATIONS	Page 28
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## SHADEONE® OPERATING INSTRUCTIONS

<b>7. BASIC INFORMATION</b>	Page 31
<b>8. OVERVIEW OF TWISTER-SAIL COMPONENTS</b>	Page 31
<b>9. SAFETY</b>	
<b>9.1</b> General safety instructions	Page 32
<b>9.2</b> Intended use	Page 33
<b>10. IMPORTANT OPERATING INFORMATION &amp; OPERATING INSTRUCTIONS</b>	
<b>10.1</b> Operating instructions	Page 34
<b>10.2</b> Unrolling the SHADEONE® Twister-Sail	Page 35
<b>10.3</b> Rolling up the SHADEONE® Twister-Sail	Page 35

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## SHADEONE® GUIDE TO CARE AND MAINTENANCE

<b>11. CLEANING AND CARE</b>	Page 37
<b>12. MAINTENANCE AND REPAIR</b>	Page 38

### EXPLANATION OF SYMBOLS: **SAFETY INSTRUCTIONS AND IMPORTANT INFORMATION**



This symbol indicates essential information that is important for the safety of individuals or for the functionality of the Twister-Sail.



This symbol indicates essential product information for the person installing the Twister-Sail.



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## 1. SAFETY INSTRUCTIONS AND WARNINGS; INSTALLATION INFORMATION

### 1.1 GENERAL SAFETY INSTRUCTIONS



Disregarding the applicable instructions for installation and/or operation could endanger the individuals involved.



It is very important that the installation and operating instructions are observed. Disregarding these instructions absolves the manufacturer of liability.



Country-specific legal requirements regarding occupational health and safety and accident prevention must be observed. In particular, work undertaken at great heights calls for specialised personal protection. The instructions provided on the product and its packaging must be observed.

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## 2. INSTALLATION

### 2.1 TOOLS AND EQUIPMENT

- 10 m tape measure
- Cordless screwdriver
- Drill
- Drill bits that are suitable for the fixtures and supporting surface being used
- Socket wrench (ratchet) with extension bar and 13 mm socket
- Hex keys: 3 mm and 7 mm
- Flat head screwdriver
- Phillips-type screwdriver
- T25 Torx screwdriver
- Scissors or a sharp knife
- Heat source (e.g. cigarette lighter)

### 2.2 BEFORE INSTALLATION



Ensuring that it is transported correctly, take the Twister-Sail to the installation location.



Secure an installation area that is at least as large as the Twister-Sail when it is fully rolled out. If using cords to raise the Twister-Sail to higher installation positions, the Twister-Sail should be taken out of its packaging. The operating cords should be attached in such a way that the Twister-Sail is fastened securely but not damaged. The components should be kept in a horizontal position while being raised and they should be raised at a steady pace.



Disregarding these instructions could lead to the components falling, which could pose a health and safety risk to individuals!

## 2.3 INSTALLATION INSTRUCTIONS AND RESTRICTIONS



Before beginning installation, please note the following:

- The standard Twister-Sail version is designed to operate with an incline of 0% to 40% (= 22°).
- A minimum incline of 14% (= 8°) is recommended in order for water to run off independently. If the incline is less than this, there is the option of installing at least one height-adjustable stainless steel column to enable water to run off independently. Otherwise, when it is rolled out, the Twister-Sail will not be suitable for use in rain.
- For the entirety of the rolling cylinder's path, ensure that there is at least 2 cm between each of its ends and any adjacent walls or similar structures (= space required for installation and lateral freedom of movement for the cylinder).
- The recommended clearance height (= to the bottom edge of the cylinder) is 220 cm.
- The distance between the point where the fabric screen is mounted to the supporting surface and the tension cable apertures on the tensioning elements (INOX columns or STRUCTURE tensioning element) should be between <length of Twister-Sail extension> and <length of Twister-Sail extension + 100 cm>.
- As a protective measure for transportation, the wall consoles or the console rail and the sail connection rail (for the version with a protective roof) have set/grub screws that are fully screwed in. Before beginning the installation process, these set/grub screws should be unscrewed to the extent that their tips no longer protrude into the relevant grooves.
- The sail connection rail is to be mounted horizontally in order to ensure smooth operation.
- To ensure smooth operation, the tension cable apertures on the two tensioning elements must be at the same height. This is a particularly important consideration when establishing the column lengths (INOX)!



## 2.4 INSTALLING THE WALL CONSOLES OR THE CONSOLE RAIL

The first step is to determine the position of the rolled-up Twister-Sail, in accordance with the installation instructions and the restrictions regarding the fixed supporting surface, i.e.

- the installation height on the wall or ceiling (incline, water run-off, clearance height, etc.), the position of the left and right ends of the Twister-Sail system (lateral freedom of movement, etc.).

### 2.4.1 A CHOICE OF FIXING MATERIALS FOR THE SUPPORTING SURFACE

The fixing materials are determined by the supporting surface. Additionally, appropriate materials should be chosen so that nothing protrudes above the surface of the console.

- Wall consoles: Use countersunk screws or bolts that have been cut to the right length
- Console rail: Drill holes for countersunk screws and use appropriate countersunk screws



*Wall consoles and console rail with stand-off mounting screws or bolts*



*Fischer Thermax 8*



*Fischer Thermax 8, used with a wall console*



If the wall is insulated, for example, the consoles are to be mounted in such a way that the fixing materials are firmly anchored in the underlying supporting surface, and so that the wall consoles/console rail are/is not pressed into the insulation material (e.g. by using Fischer Thermax 8 or 10 systems).

## 2.4.2 VERSION USING WALL CONSOLES

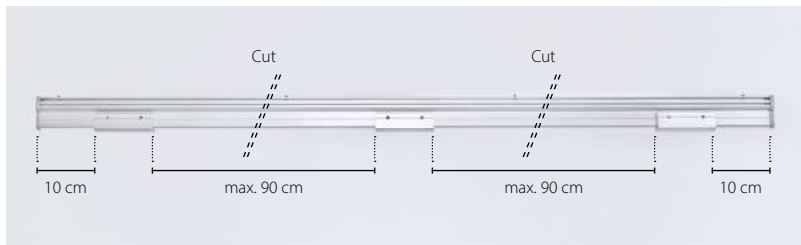
For each mounting console, there are two options for mounting it onto the supporting surface:

- either using two  $\varnothing$  6 mm countersunk screws
- or by using one M10 size bolt in the centre (e.g. threaded bolt).

It is advisable to start by horizontally mounting the two outermost wall consoles at the prescribed 10 cm distance from the edge. The remaining wall consoles should also be positioned horizontally, evenly spaced and aligned with the two outermost wall consoles. It should be ensured that the spacing between each wall console is no wider than 90 cm.



If the wall is uneven, it may be necessary to place one or more spacers behind the wall consoles.



*Measuring out and distributing wall consoles on the sail connection rail*

### **Wall mounting:**

When mounting onto a vertical wall, the bottom edge of the consoles should be around 5 cm below the desired installation height of the Twister-Sail (e.g. if the sail is to be installed at a height of 350 cm, the bottom edge of the consoles should be at a height of 345 cm). There should be at least 4.5 cm of free space above the top edge of the console so that the sail connection rail can subsequently be inserted.

### **Ceiling mounting:**

If the Twister-Sail is being mounted to a horizontal surface (e.g. the underside of a balcony), the wall consoles need to be mounted with the open side facing the direction towards which the Twister-Sail will be extended. There should be at least 4.5 cm of free space behind the rear edge of the wall consoles so that the sail connection rail can subsequently be inserted.



### 2.4.3 VERSION USING A CONSOLE RAIL



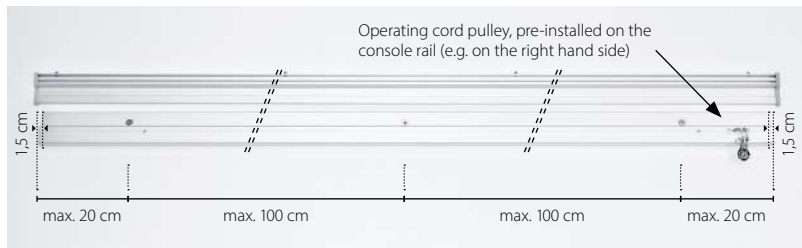
The console rail should be 3 cm narrower than the width of the cylinder system, which means that the rail should be inset by 1.5 cm at each end.

Mounting holes that are suited to the mounting location should be drilled in the console rail so that it can be affixed to the supporting surface. In doing so, ensure that

- neither of the two outermost mounting holes are any further than 20 cm from the respective end of the system and that the spacing for the other holes is no greater than 100 cm
- the wall-mounted console rail runs horizontally and is straight (i.e. is not bent)



If the wall is uneven, it may be necessary to place one or more spacers behind the console rail.



*Measuring the console rail mounting holes*

#### **Wall mounting:**

For installation onto a vertical wall, the bottom edge of the console rail is to be mounted approximately 5 cm below the desired installation height of the Twister-Sail (e.g. if the sail is to be installed at a height of 350 cm, the bottom edge of the consoles should be at a height of 345 cm). There should be at least 4.5 cm of free space above the top edge of the console rail so that the sail connection rail can subsequently be inserted.

#### **Ceiling mounting:**

If the Twister-Sail is being mounted to a horizontal surface (e.g. the underside of a balcony), the console rail needs to be mounted with the open side facing the direction towards which the sail will be extended. There should be at least 4.5 cm of free space behind the rear edge of the console rail so that the sail connection rail can subsequently be inserted.



## 2.5 ATTACHING THE FABRIC SCREEN TO THE WALL CONSOLES OR THE CONSOLE RAIL

When the Twister-Sail is delivered, it is already completely rolled up the tube and the end of the fabric screen is threaded into the sail connection rail using a keder welt and fastened there (= fabric screen unit). The cylinder and the sail connection rail are connected to each other at both ends by way of a cylinder clamp, which prevents any lateral and rotational movement. These cylinder clamps remain on the cylinder until the screen is rolled out. This ensures that the fabric screen remains rolled up the tube during installation.



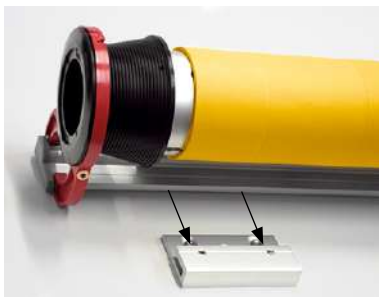
*Red cylinder clamp, e.g. on a Twister-Sail for wall mounting*



A Twister-Sail that is intended for wall mounting is not suitable for ceiling mounting and a Twister-Sail for ceiling mounting is not suitable for wall mounting!

### **Wall mounting:**

The fabric screen unit is lifted so that it is above the wall consoles or console rail that were/ was mounted previously. The sail connection rail is then inserted into the grooves in the wall consoles or the groove of the console rail, as pictured.



*Wall mounting – inserting the sail connection rail into the wall consoles or console rail*



### Ceiling mounting:

The fabric screen unit is lifted so that it is behind the wall consoles or console rail that were/ was mounted previously. The sail connection rail is then inserted into the grooves in the wall consoles or the groove of the console rail, as pictured.

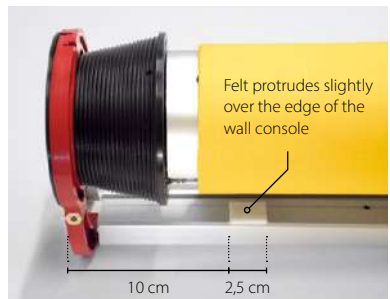
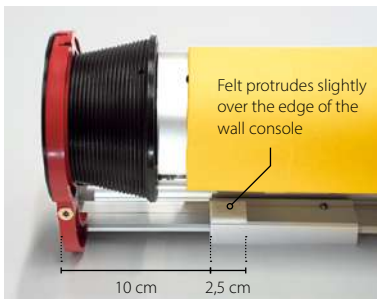


*Ceiling mounting – inserting the sail connection rail into the wall consoles or console rail*

Arrange the fabric screen unit horizontally – the ends of the sail connection rail represent the side edges of the Twister-Sail and can be used for reference.

Then, use a 3 mm hex key to tightly screw the set screws on the wall console or the console rail in order to secure the sail connection rail into the wall console or the console rail.

For both wall and ceiling mounting, felt cushioning strips are affixed onto the two outermost wall consoles (or onto the two edges of the console rail). The exact position is pictured here.



*Position of felt cushioning on the wall console and on the console rail, for wall and ceiling mounting*

## 2.6 POSITIONING THE COLUMNS (INOX) OR THE TENSIONING ELEMENT (STRUCTURE)

The first step is to measure 1.5 cm from both ends of the sail connection rail towards the centre of the rail and to mark these points. The distance between these two points is therefore 3 cm less than the width of the system, as well as being equal to the distance between the two tension cable apertures on the two tensioning elements.

**(Example:** Width of system = 500 cm; the distance between the two tension cable apertures would be 497 cm.)

In the second step, a measurement is made at the points described above, at a right angle from the sail connection rail and towards the direction in which the system will be extended. The straight line distance between the sail connection rail and the two tensioning elements (measured from the cable apertures on the tensioning elements) should be:

- no shorter than the extension length of the Twister-Sail
- no longer than the extension length of the Twister-Sail plus 100 cm
- a similar length on both sides (between left and right, the difference in this distance should be no more than 30 cm)

(If this is measured while horizontal, the relevant horizontal distance should be determined according to the planned incline of the fabric screen.)

**(Example:** Fabric screen extension length: 500 cm, incline: 14% (= 8°): Minimum horizontal distance from cable aperture = 495 cm; or maximum horizontal distance from cable aperture = 594 cm)



This then provides the points for the tension cable apertures on the tensioning elements. In accordance with the previous steps, the distance between these points must be equal to <the width of the system minus 3 cm>!

Now that the two tension cable aperture points have been established, the exact mounting positions of the two tensioning elements can be determined, according to the type of tensioning elements being used.

(See diagram below regarding measuring and positioning the Twister-Sail.)

### **Version using columns (INOX) with mounting plates:**

Using mounting fittings that are appropriate for the supporting surface, install the columns in the relevant positions (hand-tight only).



Position the floor-mounting screws as centrally as possible in the slots because the tensioning columns may need to be re-positioned more precisely during the course of the installation.



### Version using columns without mounting plates (INOX, e.g. when mounting to balcony railings):

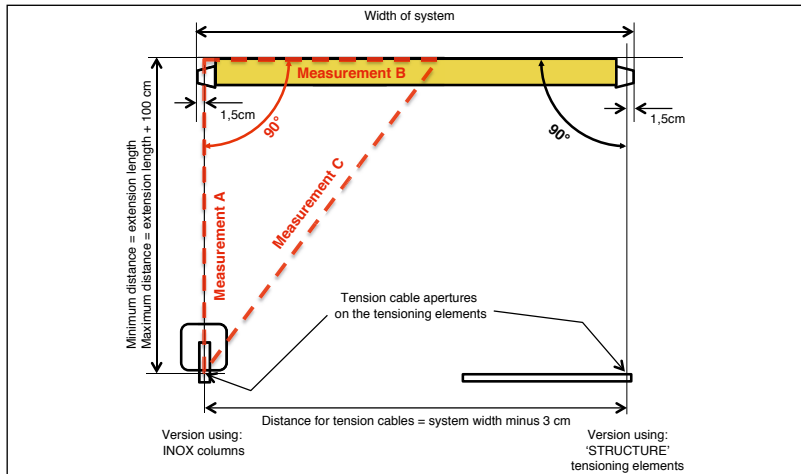
By using mounting fittings that are adapted for the scenario (specially-designed pipe clips, U-bolts or other fittings), the column is mounted in such a way that it has an incline of  $0^\circ$  to  $5^\circ$  away from where the system is mounted to the wall. Up until the step entitled 'Fine adjustments to the tensioning elements' it should be possible to push the column in directions that are transverse to the extension direction of the system.

### Version using the STRUCTURE tensioning element:

The STRUCTURE tensioning element is attached, either **horizontally** or **vertically**, to the two relevant mounting brackets using two hex head bolts with washers ( $\varnothing$  8 mm, type of thread and length suited to the supporting surface) and screwed (hand-tight only) into the supporting surface at the planned height. (Note: Take into account clearance height and recommended incline.)



Position the mounting screws as centrally as possible in the slots, since the STRUCTURE tensioning element may need to be re-positioned more precisely during the course of the installation.



Measuring and positioning the Twister-Sail

The 3:4:5 ratio can be used to calibrate a right angle ( $90^\circ$ ). For example, measurement A might represent the extension length. Measurement B can be calculated by multiplying measurement A by  $3/4$  ( $= 0.75$ ), and measurement C can be calculated by multiplying measurement A by  $5/4$  ( $= 1.25$ ).

**Example:** Measurement A = 2 m, therefore measurement B is 1.5 m ( $2 \text{ m} \times 0.75$ ), and measurement C is 2.5 m ( $2 \text{ m} \times 1.25$ ). Mark the lines for measurements A, B and C, as shown in the diagram. The line along the extension length intersects at an angle of  $90^\circ$ .

## 2.7 ATTACHING THE TENSION CABLE



Before attaching the tension cable to the cable taper, carefully turn the tensioning unit **clockwise** using a crank (or, alternatively, a 7 mm hex key) in order to run the adjustment units in both tensioning elements to their limits so that the longest possible distance will subsequently be available for tensioning.

First, uncoil the two restraint cables that are coiled up at the cable apertures on the tensioning elements (plastic cable, black coating, standard length: around 70 cm), ensuring that there are no tangles or knots. They should hang loose for the time being (to be installed later) and care should be taken that the ends of the restraint cables do not completely disappear into the cable apertures during the following steps.



Alternatively, for tensioning elements where there are no pre-installed restraint cables, the restraint cables will be supplied the accessory box for assembly at a later point.

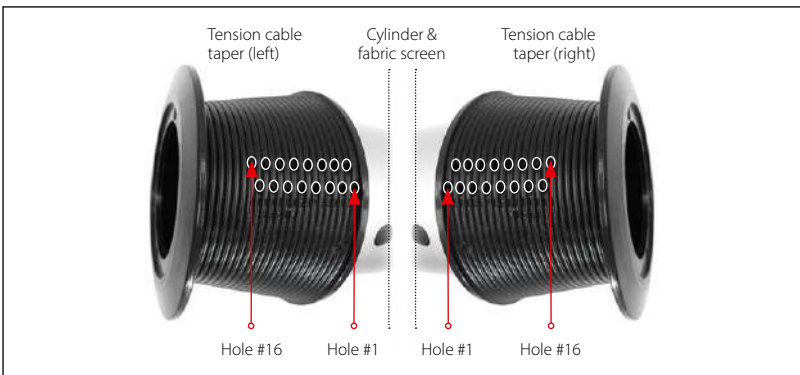
Now open and uncoil the tension cables that are coiled up together at the cable apertures on the tensioning elements (stainless steel, uncoated or with black coating, standard length: around 7 m), ensuring that there are no tangles or knots. On each side, thread the end of the tension cable through the cable hole in the tension cable taper that is correct for the extension length. The hole number relates to the extension length of the fabric screen.

**When ordering a Twister-Sail, the following informations are taken into consideration:**

Extension length of the fabric screen: \_\_\_\_\_ cm

This information is used to determine which cable hole should be used (see image for numbering sequence).

Cable hole number: \_\_\_\_\_



*Tension cable taper with numbered tension cable holes (16 holes per tension cable taper)*





The hole numbering always begins at the end of the taper with the largest diameter, which is closest to the fabric screen (begins with cable hole #1), and the values increase towards the narrower end of the taper (ends with: cable hole #16)!



When inserting the tension cable into the correct cable hole, this should **always** take place from **the upper side** of the tension cable taper into the cable hole and **never** from the bottom side! Proceeding from the relevant cable hole, the tension cables should run along the respective cable groove on the tension cable taper towards the top, without skipping over any cable grooves.

Disregarding this instruction could mean that full extension or retraction is not possible when operating the Twister-Sail.

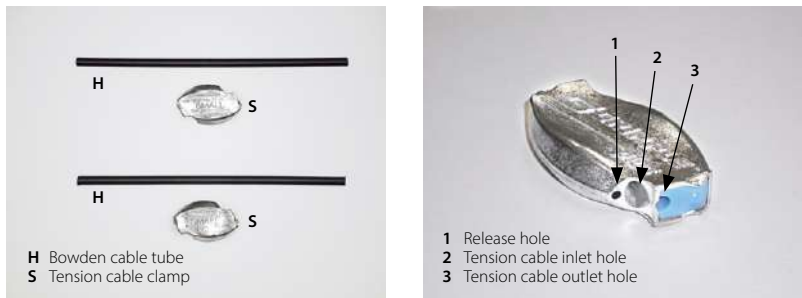


*Correct and incorrect insertion of the tension cable, for wall mounting (above) and ceiling mounting (below)*

## 2.8 PRETENSIONING AND SECURING THE TENSION CABLES IN THE TENSION CABLE TAPERS

Two Bowden cable tubes and two tension cable clamps are used to secure the tension cables in the tension cable taper.

The tension cable clamps are self-securing and each have two sides with a total of three hole openings (release hole, tension cable inlet hole, tension cable outlet hole)



*Image showing Bowden cable tube and tension cable clamp; explanation of tension cable clamp holes*

In preparation for the pretensioning, the Bowden cable tube is pushed onto the tension cables that have been inserted into and guided out of the inside of each of the tension cable tapers. At each end, the tension cable is then pushed into the designated tension cable inlet hole in the tension cable clamp.



*Pushing the Bowden cable tube and the tension cable clamp onto the tension cable*

### 2.8.1 PRETENSIONING A TENSION CABLE BY HAND

- (1) First keep pushing the tension cable clamp up until the Bowden cable tube is touching the inside of the tension cable taper, right where the hole is.
- (2) Then, use one hand to tighten the tension cable between the tensioning element and the section close to the tension cable taper – in the direction of the tension cable taper. Use the other hand to re-tighten the area of the tension cable that is protruding from the front opening of the cable taper.
- (3) Now, keep the cable tense with this second hand and let go of the cable with the first hand. Use the first hand to push the tension cable clamp up towards the Bowden cable tube until the clamp meets it.
- (4) Repeat steps (2) + (3) on both sides until the tension cable is no longer slack and is slightly tense.
- (5) Trim the excess length of the tension cable to a remaining length of no longer than 50 cm. Coil it up and push it into the hollow area inside the taper, along with the Bowden cable tube and the tension cable clamp (see image). At the end of this process, nothing should be protruding from the front opening of the tension cable taper!



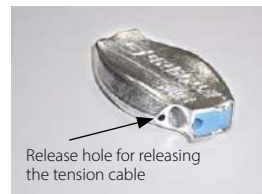
### 2.8.2 RELEASING THE TENSION CABLE CLAMP



#### The tension cable clamp can be released again at any time

To do this, the tension cable in front of the tension cable clamp must first be **completely relieved of strain**. This can, for example, be achieved by turning the tensioning unit in each of the tensioning elements in a clockwise direction, or by rolling the system out by about 30 cm and pulling the wound up tension cable from the tension cable taper. Additionally, the tension cable clamp should be moved towards the Bowden cable tube a little (at this point,

pliers and the use of some force may be necessary), without the tension cable clamp then being placed under strain again. After this, use a piece of rigid  $\varnothing$  1.5 mm wire (e.g. steel wire, a paperclip, etc.) to activate the release of the tension cable clamp by pushing all the way through the release hole. The tension cable clamp can then be pulled off the tension cable.





## 2.9 INSTALLING THE OPERATING UNIT

The first operating cord pulley is already installed on the sail connection rail or the console rail (approx. 7 cm from the outside edge).

If the operating cord has to be attached at another position other than the right or left end of the system, it is possible to mount additional operating cord pulleys at the appropriate points. (Recommendation: no more than three operating cord pulleys in total.)

Unroll all of the operating cord (12 m long as standard) and pull the end of the cord through the original operating cord pulley to start with and then through the additional, optional operating cord pulleys.



For safety reasons, the operating cord clamp must be **permanently and robustly** mounted onto the supporting surface. It must be mounted in a vertical position, below the operating cord pulley that the operating cord passes through last. It must be at the operator's shoulder height.



For safety reasons, the operating cord holder must be mounted at least 20 cm below the operating cord clamp and it must also be out of the reach of children (risk of strangulation due to operating cord hanging down).

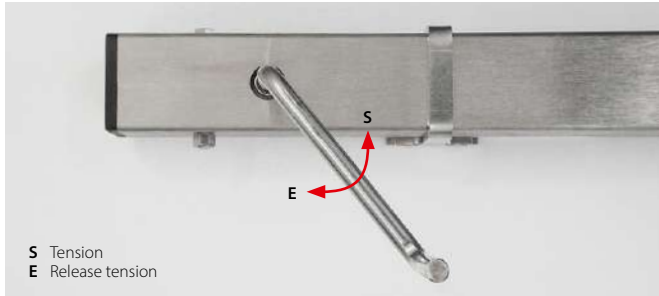


Pull the operating cord taut and secure it in the operating cord clamp so that the cylinder cannot roll out uncontrollably during the next step.



## 2.10 TENSIONING THE TWISTER-SAIL:

Pre-tension the tension cable by using a tensioning crank (or a 7 mm hex key) to turn it **anti-clockwise** (approx. 100 turns).



*Tensioning crank plugged into tensioning-hole of STRUCTURE tensioning element*

**Do not use** a cordless screwdriver for the tensioning as this could risk destroying the tensioning system!

Remove the two cylinder clamps by unscrewing the relevant screws – one from the tension cable taper and one from the sail connection rail.



Keep the cylinder clamps and their screws – they **must be re-attached** to the tension cable taper and the sail connection rail on both sides before a tension cable can be removed from the tension cable taper and before the fabric screen unit can be disassembled!

Release the operating cord from the operating cord clamp and extend the fabric screen in a controlled manner until the cylinder stops rolling of its own accord. Let enough of the additional operating cord fall freely so that the cylinder can be rolled out completely without being halted by the operating cord.



Beginning with the hole for the cable, the two tension cables on the tension cable taper must run continually in their grooves, winding outwards towards the outside edge of the taper – no grooves should be skipped over!

If the cylinder is not horizontal, apply additional tension (at the tensioning element where the end of the cylinder is lower than the other) in order to make it sit horizontally (parallel to the sail connection rail).

Finally, by re-tensioning the tensioning elements in turn, tighten the tension cables enough to bring the cylinder into a horizontal position where it can independently roll out completely (= no fabric screen rolled around the cylinder) and whereby there is very little slackness in the fabric screen.

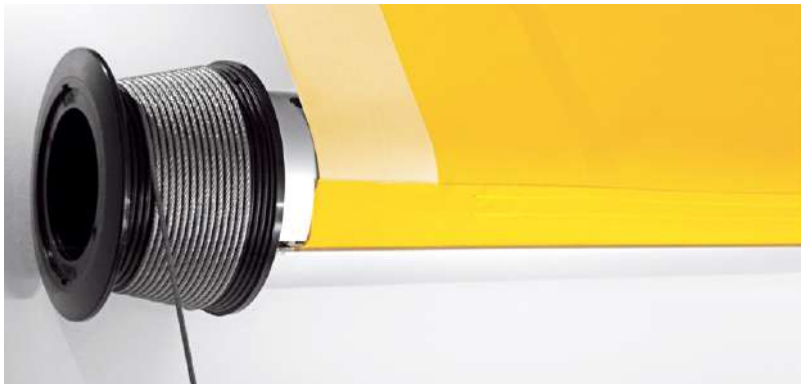


**Please observe the maximum number of crank turns!**

Values for maximum number of crank turns, depending on the type of tensioning element (INOX columns or the STRUCTURE tensioning element):

- max. 200 turns → STRUCTURE tensioning element (mounted into fixed supporting surface)
- max. 200 turns → INOX stainless steel columns

After this, roll the system out and back again two or three times. If the cylinder does not independently roll out completely after this (so that there is no fabric screen rolled around the cylinder), re-tension the columns INOX or the STRUCTURE tensioning element(s) until the cylinder rolls out completely.



*Once rolled out completely, none of the fabric screen is rolled around the cylinder.*

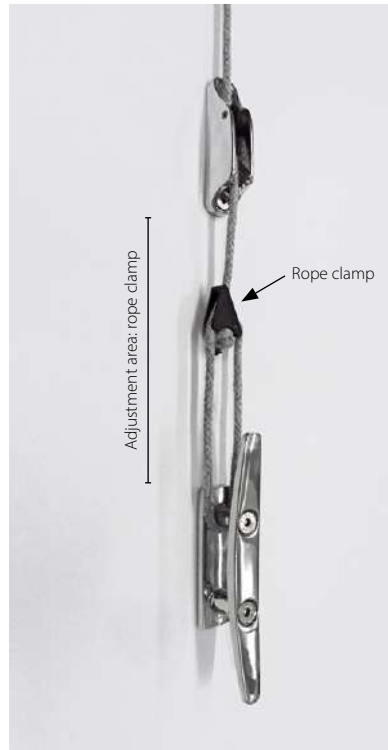


## 2.11 FINAL ADJUSTMENT TO OPERATING CORD

For the final adjustment to the length of the operating cord, the Twister-Sail should be rolled out completely. The operating cord is pulled taut and secured in the operating cord clamp.

Then, the free end of the operating cord is first pulled through the upper hole in the adjustable rope clamp (supplied) and then through the opening in the cord holder back up towards the operating cord clamp. Cut the cord about 15 cm above the cord holder and use a heat source to melt the end of the cord. Pull the cut end of the operating cord through the second opening of the rope clamp from the outside and tie a simple (overhand) knot. Using the adjustable rope clamp, it is then possible to make fine adjustments to the operating cord and, if necessary, to the final position of the cylinder. These can then be corrected at any time.

After performing these final adjustments to the operating cord, tighten the tensioning unit at each of the tensioning elements by approximately a further 20 turns.

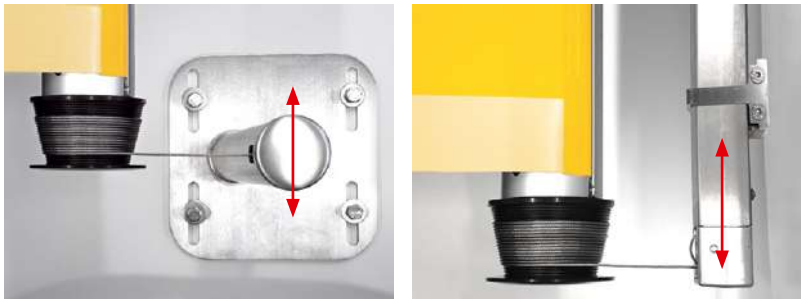


## 2.12 FINE ADJUSTMENTS TO THE COLUMNS (INOX) OR THE TENSIONING ELEMENT (STRUCTURE):

Now, fine adjustments are also made to the tensioning elements. By gently pushing the tensioning elements in directions that are transverse to the extension direction of the system, ensure that the tension cable is running as straight as possible (when extended, without changing direction to the left or right) from the point at which it leaves the tension cable taper until it reaches the pulley in the INOX column or in the STRUCTURE tensioning element.



*Tension cable lead-off, correct/incorrect*



*Cable running with correctly positioned tensioning elements; direction for adjustment if correction is needed*

When the tension cable is running correctly, secure the tensioning elements.

If it is calibrated correctly, the Twister-Sail can be extended and rolled up without the need to apply much force and without making much noise. The fabric screen will also roll up onto the cylinder without veering diagonally.

Then, degrease and clean the end faces of the tension cable taper and stick on the cover plates, as well as sealing the tensioning crank opening holes on the tensioning elements with the relevant cover caps.

## 2.13 ATTACHING RESTRAINT CABLES TO THE TENSION CABLES

There are two different options for restraint cables:

- Restraint cables that are built into the tensioning element
- Restraint cables that are supplied in the accessory box

### 2.13.1 VERSION USING: RESTRAINT CABLES BUILT INTO THE TENSIONING ELEMENT

For this step, the Twister-Sail is rolled out completely. This means that the cylinder is closest to the tensioning element and the tension cables have retracted into the tensioning elements as much as they can.

The two halves of the egg-shaped cable clamps – each half has two internal linear grooves for two cords – are clamped together with a screw. Loosen this screw so that there is a gap of around 2 mm between the two halves. Push the egg-shaped cable clamp onto the tension cable from above, so that the front end is around 5–6 cm from the tension cable outlet of the tensioning element. This fills the **lower** linear groove. Hold the cable clamp onto the tension cable using one hand. Use the other hand to take the restraint cable that is hanging slack from the cable outlet and, ensuring it is straight, push it into the **upper** linear groove egg-shaped cable clamp (see images).



#### In doing so, it is important that

- the restraint cable is not taut – it should be easy to insert a finger between the tension cable and the restraint cable, without exerting any force
- the restraint cable does not get tangled with the tension cable
- the tension cable and the restraint cable precisely follow the linear grooves and do not stray from the linear grooves

The egg-shaped cable clamp can now be screwed together using a screwdriver. When both cables are correctly positioned inside the cable clamp, a pair of pliers is used in combination with the screwdriver to tighten the rope clamp to a very high degree. (see image)

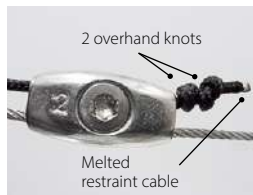


**Important:** The more tightly the clamp is screwed together, the heavier the load the restraint cable will be able to bear.

### Checking functionality::

Now roll the Twister-Sail out and back again completely at least once. This should work without any limitations. Afterwards, check that the restraint cable is still not taut – if required, open the cable clamp again and repeat the previous steps.

After this, on the side towards the cylinder, two overhand knots are tied in each of the restraint cables immediately behind the egg-shaped cable clamps. Approx. 1 cm after the second knot, the excess restraint cable is cut with scissors or a knife and the end of the cable is melted to prevent fraying.



*Restraint cable with overhand knots and end that is cut and melted after the cable clamp*

### 2.13.2 VERSION USING: RESTRAINT CABLES SUPPLIED IN THE ACCESSORY BOX

The restraint cables from the accessory box are to be mounted as described in the enclosed restraint cable installation guide.



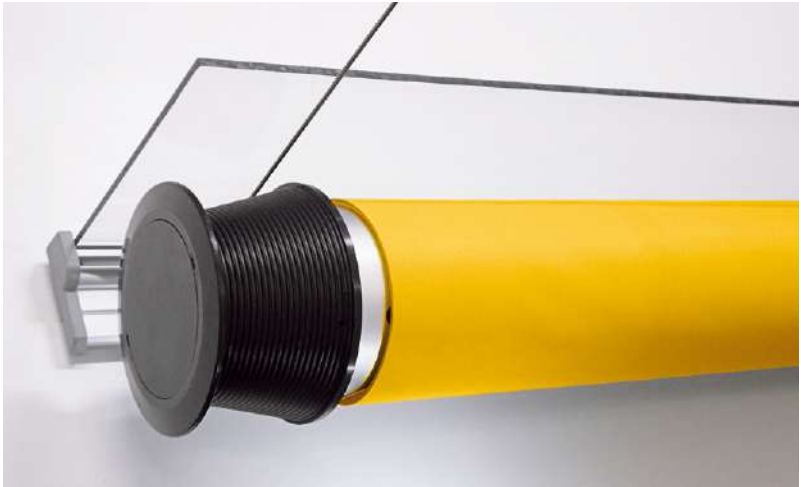
## 2.14 INSTALLATION OF THE PLEXIGLAS PROTECTIVE ROOF (OPTIONAL, ONLY POSSIBLE WITH WALL MOUNTING)

Depending on the width of the system, the protective roof is delivered in one piece or in two pieces with connection components.

Before taking the next steps, completely remove the protective film from the protective roof element(s).

At one end of the sail connection rail, a protective roof element is inserted into the groove for the protective roof, which runs all the way along the sail connection rail and is 12 mm deep. The set screws on the upper side of the sail connection rail are then screwed in tightly.

For a protective roof in two pieces, the second protective roof element is then inserted at the other end of the sail connection rail and secured using the set screws. Finally, the connection component is inserted between the two protective roof elements.



*Rolled up Twister-Sail with protective roof*



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### 3. COMMISSIONING



Before commissioning the Twister-Sail, remove all items (e.g. ladders, tools, etc.) that are in or below the Twister-Sail's range of movement. During the test runs, nobody should be in this area due to the danger caused by potential malfunctions.

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### 4. DISASSEMBLY



Ensure that there are no unauthorised persons in the area around the Twister-Sail. Disassemble the Twister-Sail by following the assembly instructions in reverse.  
**(Important: Use the cylinder clamps!)**



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## 5. **FAQS, THE CAUSES OF FAULTS AND HOW TO RECTIFY THEM**

### **THE SAIL CONNECTION RAIL CANNOT BE COMPLETELY INSERTED INTO THE WALL CONSOLES OR THE CONSOLE RAIL**

Check to see if there are any set screws protruding into the groove(s) for the sail connection rail. If there are, the relevant set screws should be unscrewed as necessary.

### **THE TWISTER-SAIL IS NOT ROLLING OUT COMPLETELY**

First, check whether there is a positive incline rather than a negative one between the height of the wall-mounted section and the tensioning element. If necessary, correct this issue. (Twister-Sails will not roll upwards!) Otherwise, increase the tension of the tension cables. If you have already used all of the permitted tension and the sail is still not rolling out, slacken the system and then go down by one or two hole numbers on both of the tension cable tapers.

### **THE TWISTER-SAIL IS NOT ROLLING OUT FROM THE 'PARKED' POSITION**

First, check that there is not a positive incline between the height of the wall-mounted section and the tensioning element. If necessary, correct this issue. Otherwise, check whether the edges of the fabric shade are sticking to each other due to residue. Remove any residue. Otherwise, slacken the system and go up by one to two numbers on the tension cable taper on both sides.

### **WHEN IT IS ROLLING OUT, THE FABRIC SHADE VEERS TO ONE SIDE**

Check that the lateral positioning of the tensioning elements is correct. In most cases, it is possible to push one or even both of the tensioning elements in the same direction towards which the whole fabric screen moves as it is rolled out.

(Example: If the whole fabric screen is veering left while it is being rolled out, the tensioning elements should be pushed slightly to the left.)

Another possible cause is that one tension cable is looser than the other. Increase the tension on the side towards which the whole fabric screen moves as it is rolled out.

**WHEN THE TWISTER-SAIL IS ROLLED OUT, THE CYLINDER IS VERY LOW AND THE TENSION CABLES HANG MUCH LOWER**

If you have not yet used all of the permitted tension, increase the tension of the tension cables on both sides.

**THE TENSION CABLES ARE NOISY WHEN THE SYSTEM IS ROLLED OUT**

One or both tensioning elements are too close to the opposite tensioning element (causing the tension cables to rub on each other while the system is rolled out). In this case, the incorrect positions of the tensioning elements need to be corrected.

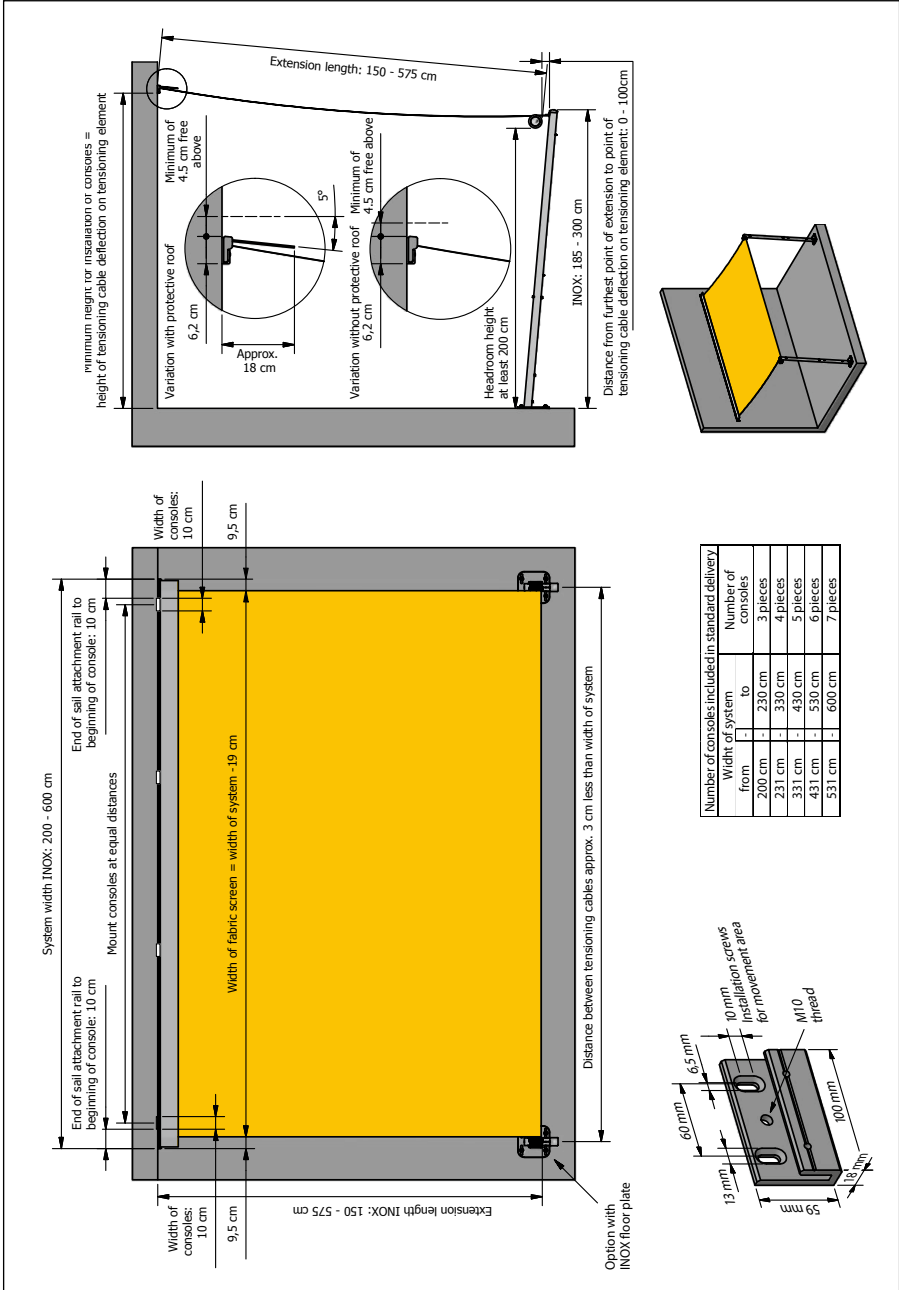
**IT IS NOT POSSIBLE TO FULLY INSERT THE PROTECTIVE ROOF (PLEXIGLAS) INTO ITS GROOVE IN THE SAIL CONNECTION RAIL**

Check to see if there are one or more set screws protruding into the groove for the protective roof. If there are, the relevant set screws should be unscrewed as far as necessary.

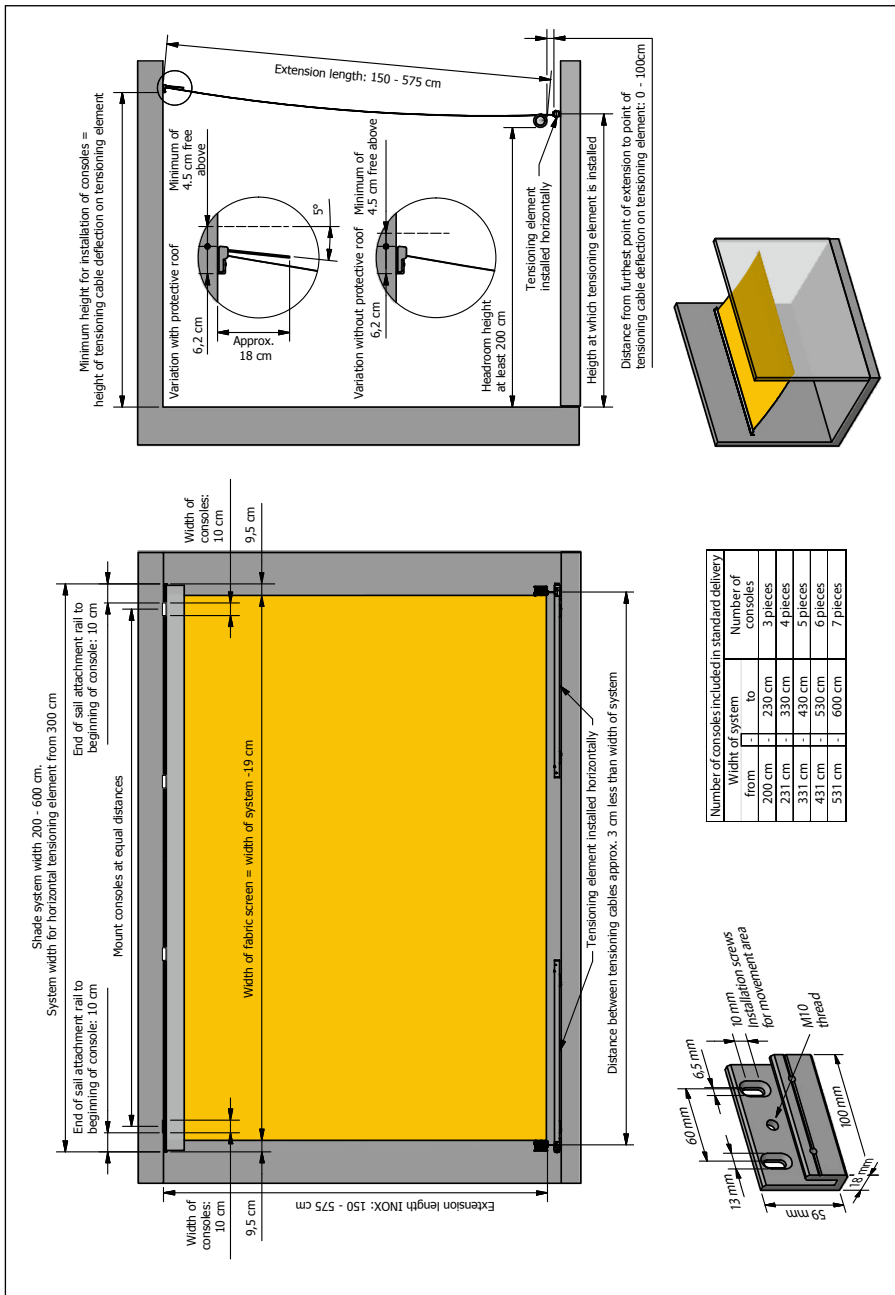


## 6. DIMENSIONED SKETCH OF INSTALLATION SITUATIONS

INOX COLUMNS

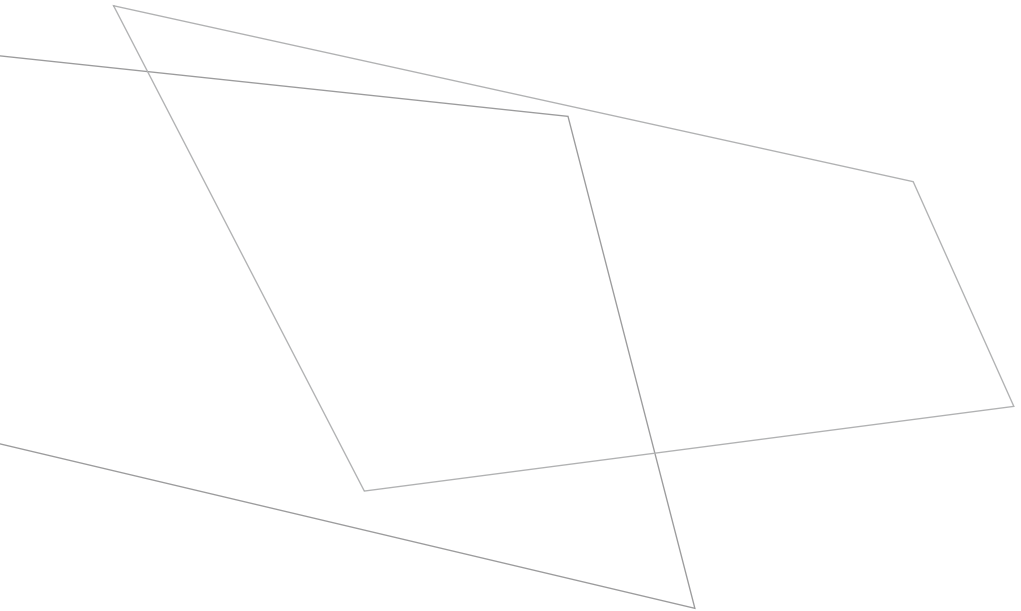


**DIMENSIONED SKETCH OF INSTALLATION SITUATIONS**    STRUCTURE TENSIONING ELEMENT



**SHADEONE**® Twister-Sail

# Operating Instructions



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## 7. BASIC INFORMATION

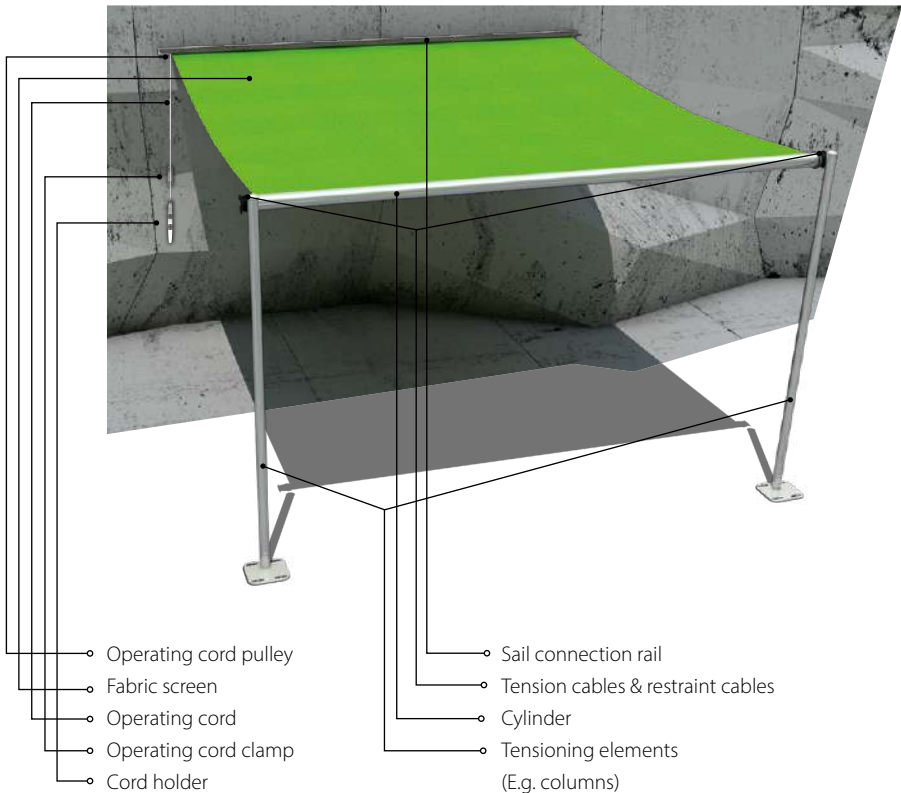
Thank you for buying a **SHADEONE®** Twister-Sail from shadesign.

In order for your product to operate for a long time and without any faults, careful attention must be given to these operating instructions. It is important to follow the instructions in this booklet in order to ensure the safety of everyone involved. It is important that the instructions in the operating instructions document are observed. Disregarding these instructions absolves the manufacturer of liability. Please also observe any instructions provided on the product and its packaging.

We request that you retain these instructions for the Twister-Sail's installation, operation, maintenance and care, and that you pass them on to the new owner if you should happen to sell it.

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## 8. OVERVIEW OF TWISTER-SAIL COMPONENTS



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## 9. SAFETY



If the relevant instructions are disregarded when operating the system, it could endanger the individuals involved and/or could result in damage being caused to the product or to other property.



The product may only be used if it has no technical defects. It must be used for its intended purpose, in a safety-conscious and risk-conscious way that takes into account these operating instructions. Any faults that could pose a danger to safety must be remediated immediately.

### 9.1 GENERAL SAFETY INSTRUCTIONS



Disregarding the applicable instructions for installation and/or operation could endanger the individuals involved.



It is very important that the installation and operating instructions are observed. Disregarding these instructions absolves the manufacturer of liability.



Country-specific legal requirements regarding occupational health and safety and accident prevention must be observed. In particular, work undertaken at great heights calls for specialised personal protection. The instructions provided on the product and its packaging must be observed.



## 9.2 INTENDED USE

The **SHADEONE**® Twister-Sail is first and foremost intended to provide protection from solar radiation and to provide privacy and glare protection. If an incline of at least 14% (8°) is observed, or if at least one height-adjustable column is used when the fabric screen is extended, the Twister-Sail is self-draining and can therefore also be used to provide rain protection. Any different or additional uses shall be deemed as contrary to the intended use. The manufacturer assumes no liability for damages resulting from such uses.

No modifications, additions or alterations may be made to the system without the permission of the manufacturer.

Defective system components must be replaced immediately. Only the manufacturer's original replacement parts may be used. There is no guarantee that components from other manufacturers have been designed and manufactured to bear sufficient loads and comply with safety standards.

Placing additional loads on the Twister-Sail by hanging objects onto it can lead to the system being damaged or falling down and is therefore not permitted.

Installation and maintenance work must only be carried out by qualified specialists.

The manufacturer assumes no liability for damages resulting from uses that are contrary to the intended use.



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## 10. IMPORTANT OPERATING INFORMATION & OPERATING INSTRUCTIONS

### 10.1 OPERATING INSTRUCTIONS



The **SHADEONE®** Twister-Sail may only be operated by people who have been briefed or who have read and understood these operating instructions. Particular caution is required regarding people who are unable to properly assess the risks arising from incorrect use. Never let children play with the operating units! If required, mount the operating cord fitting somewhere they will not be able to reach.



**SHADEONE®** Twister-Sails should only be operated if checks have been made to ensure that there are no obstacles in the Twister-Sail's range of movement.



Do not touch the tension cable while the **SHADEONE®** Twister-Sail is rolling out! Things can become trapped in moving parts, which poses a risk of injury.



The system's surfaces and individual system components can become very warm (e.g. due to the heat of the sun). Touching them directly could cause burns.



Only use appropriate and approved ladders or other climbing aids when maintaining, repairing and cleaning the system. Climbing aids must not be leaned against or secured to any Twister-Sail components. Ensure that any climbing aids are stable and have sufficient grip. Never hold onto the system – this could result in injuries and falls! The **SHADEONE®** Twister-Sail fabric screen and the tension cable are flexible and can buckle and/or give way.



For safety reasons, please ensure that the system is not accidentally operated while work is underway on the system. It should be made clear – by placing an appropriate sign next to the operating cord fitting – that work is underway on the system and that it must not be operated.



In frosty conditions, there is the danger that the formation of ice will cause the rolled up fabric screen to freeze solid. If this happens, the system should never be violently tugged! The system should only be operated again if all it takes for the cylinder to roll down is the slackening and raising of the operating cord.



Foreign bodies or heavy soiling on the fabric screen must be removed immediately, since they risk causing damage to or ruining the Twister-Sail.



If the weather is windy, very rainy or snowy, the **SHADEONE®** Twister-Sail must be rolled up in order to protect it from potential damage. For this reason, the Twister-Sail should not be left rolled out during periods of absence either.



If the **SHADEONE®** Twister-Sail is being uninstalled or replaced, please refer to the applicable disposal regulations.



If the fabric screen gets wet or damp, the Twister-Sail should be rolled out as soon as possible so that it can dry (risk of formation of mould and black spots, which risks damaging the fabric and its seams).



If you should happen to give away or sell the **SHADEONE®** Twister-Sail, it is important that you also pass on the instructions for its installation, operation, maintenance and care.

### **10.2 UNROLLING THE SHADEONE® TWISTER-SAIL:**

The Twister-Sail is unrolled by releasing the secured operating cord and allowing the fabric screen to roll out in a controlled manner. The operating cord should be held in one hand and it is important not to completely let go of the cord while the fabric screen is being rolled out.



In order for it to function at its best (both technically and visually), the Twister-Sail should always be rolled out completely and secured in this position. The operating cord must be secured using the operating cord clamp.

### **10.3 ROLLING UP THE SHADEONE® TWISTER-SAIL:**

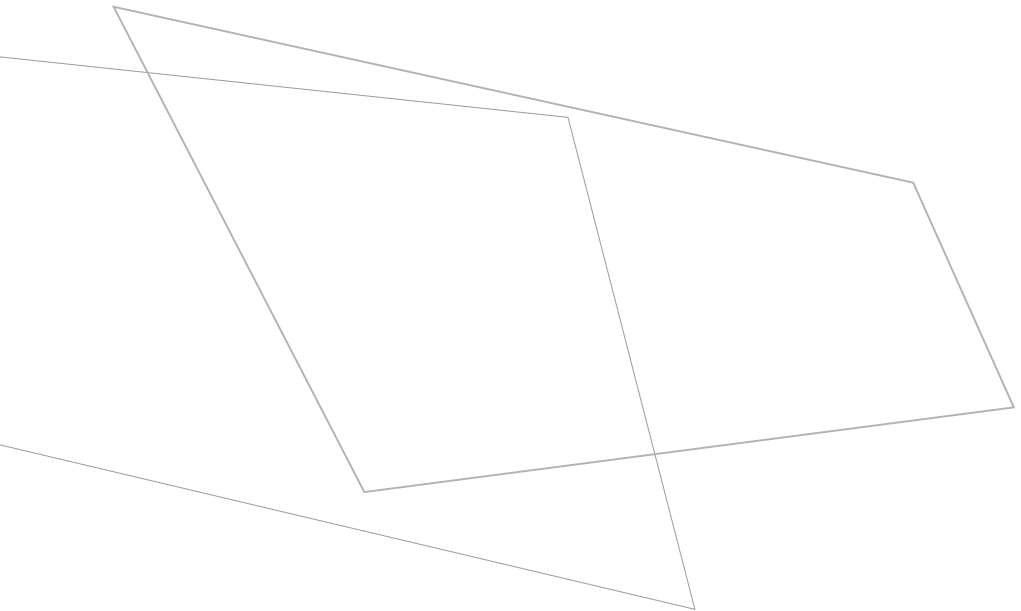
The Twister-Sail is rolled up by pulling on the operating cord and rolling up the fabric screen in a controlled manner.

When the Twister-Sail has been rolled up completely, the operating cord should be secured using the operating cord clamp. After this, the loose operating cord should be wound into several loops and hung up on the cord holder.



**SHADEONE**<sup>®</sup> Twister-Sail

# Guide to care and maintenance



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## 11. CLEANING AND CARE



Use appropriate climbing aids!



No Twister-Sail system components or cover plates should be opened or removed during cleaning and care. If necessary, contact a company specialising in sun protection.



Severe accumulation of dirt can lead to the system becoming stiff or being damaged, and it reduces the lifespan of the product. You should therefore regularly remove any dirt adhering to the fabric screen.



Do not use pressure washers, scouring agents or scouring sponges for cleaning the fabric screen! Do not use solvents such as alcohol or petrol!

### **Cleaning the product:**

A soft brush or a hand brush can be used to remove dirt from the Twister-Sail. Clean the fabric screen with a mild liquid detergent and rinse thoroughly with cold water. The Twister-Sail frame can be cleaned with a standard cleaning product and wiped down with a damp cloth. The fabric screen must be allowed to dry after being cleaned.



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## 12. MAINTENANCE AND REPAIR



Safe use of the **SHADEONE®** Twister-Sail is only possible if the system is regularly inspected and maintained.



No lubricants or sprays are to be used near the cylinder or near any plastic components.

The Twister-Sail has restraint cables at both tensioning elements. A restraint cable temporarily prevents any loss of function and the associated consequences that would arise if the Twister-Sail's tension cable snapped (e.g. due to mechanical damage or wear).

If the tension cable were to snap, the restraint cable would assume its load-bearing function until it was possible to replace the defect tension cable.



You can tell that a tension cable has snapped if the restraint cable has assumed the load and if the cylinder is suddenly hanging unusually low.

The Twister-Sail should now be immediately rolled up and should not be used until it has been repaired by a specialist. Both the tension cable and the restraint cable that was used must be replaced!



The Twister-Sail must be regularly inspected for signs of wear and damage to the fabric screen, operating cord, tension cable and restraint cable. If any damage is identified, the Twister-Sail should be rolled up immediately and should not be used until it has been repaired by a specialist or a suitable service supply company.





*All weather protection systems!*

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