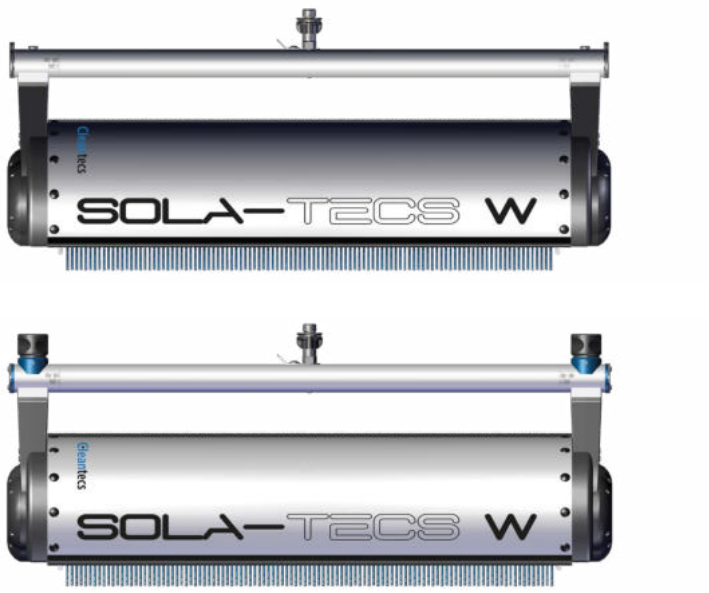
SOLA-TECS W

Operating Instructions

BJ 2010 …
SN 0300 …
W800 | W1000 | W800 PRO | W1000 PRO
BA 0304029 R01 2021-01

Operating instructions for the
Sola-Tecs W cleaning system.



MADE
IN
GERMANY

Cleantecs

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Table of contents

Notes

It is **IMPORTANT** that you read these operating instructions **CAREFULLY BEFORE USE** and **RETAIN THEM FOR FUTURE REFERENCE**.

Visit our homepage at regular intervals and check for the latest version of the operating instructions.

The operating instructions are intended for...

the Sola-Tecs W manufactured from 2010, serial number 0300.
The revision version of the operating instructions is R00.

Components and functions of the Sola-Tecs W and W Pro

Here you will find information about:
Components of the system, tools for maintenance

Explanation of notices

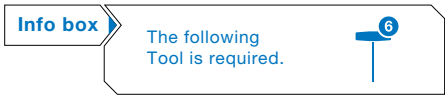
Safety notices

The notices are for your safety. The notices can be found in the general safety section and are always accompanied by an action that requires specific attention.

⚠ DANGER	Failure to comply will lead to serious injury or death.
⚠ WARNING	Failure to comply may lead to serious injury or death.
⚠ CAUTION	Failure to comply may lead to injuries.
NOTICE	Failure to comply may lead to material damage and impair the function of the product.
Please note: ...	Additional information about product operation.

Information about tools required

You will always find this information box in the header of the page. The box specifies the tool required in relation to the adjoining text.



Information about tool

Reference to additional information.

Explanatory information

This information can be found in the grey shaded illustration area. It helps you to find the right illustration for the heading in the text, to understand the details better, follow steps, complete movements and identify the position in the room.

W / W Pro
Sola-Tecs W...

Here we specify the Sola-Tecs W type to which this explanation relates.

Image title

The title of the image indicates the **text** to which the figure belongs.

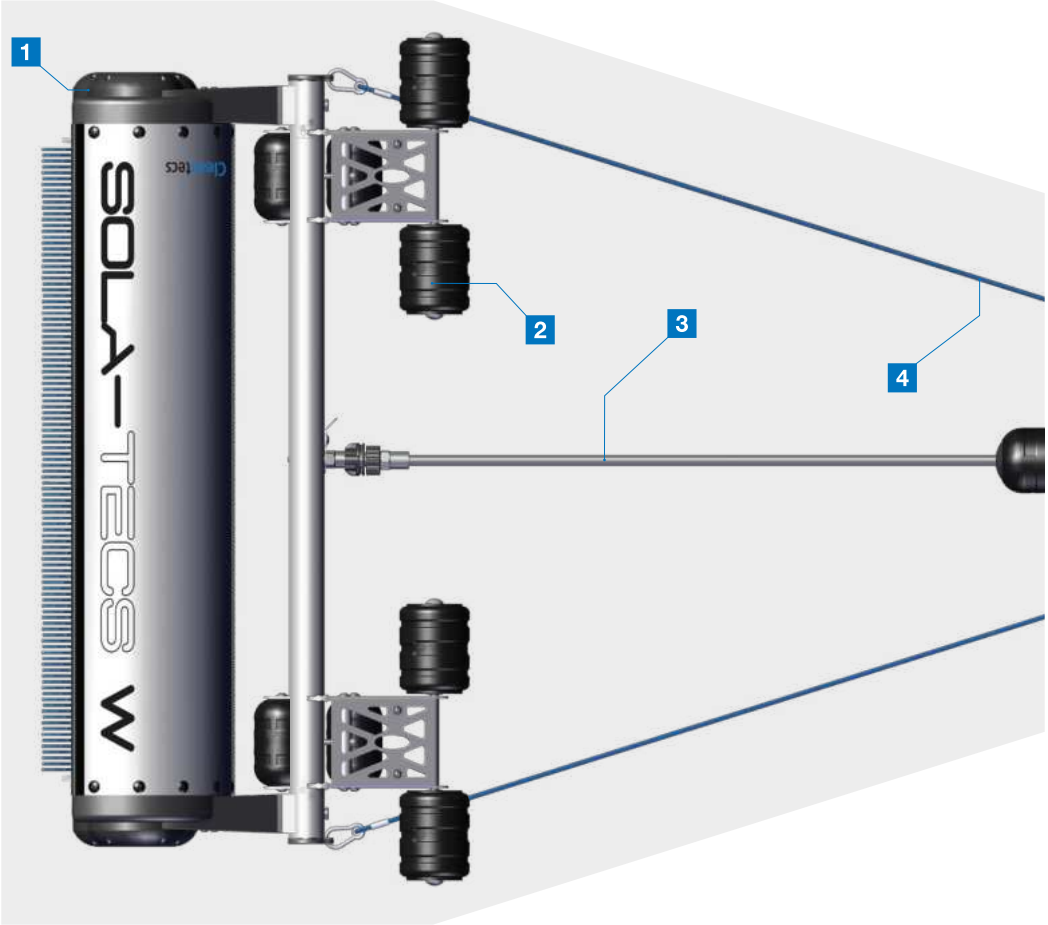
The detailed view highlights areas that are important.

The numbers on the figures are associated with the steps in the explanatory text. They always start again from [1] on each double page.

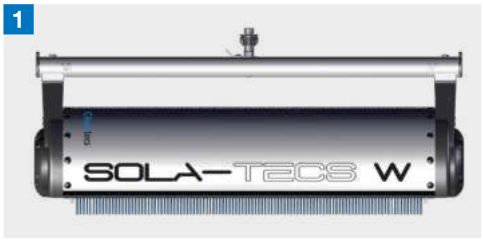
The red arrows always indicate a movement.

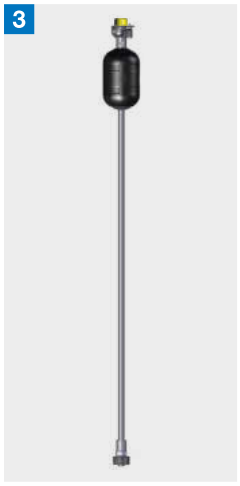
The blue double arrow refers to the position on the illustration.

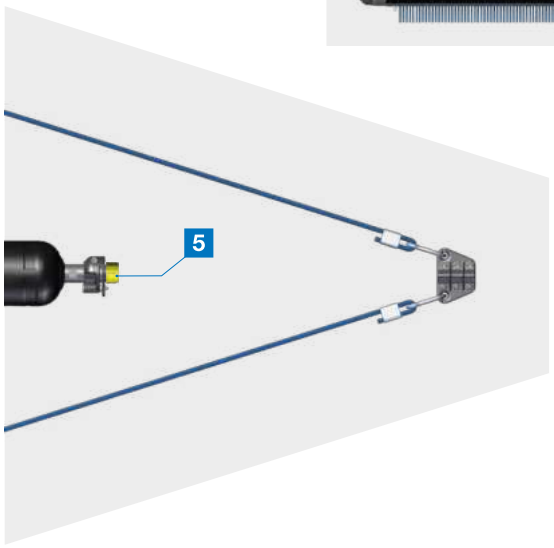
Overview of the cleaner components

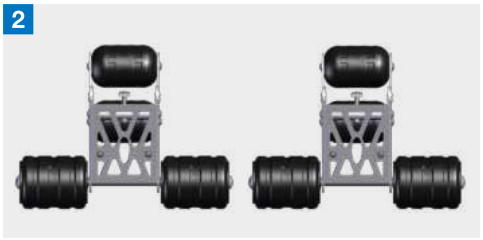


Included with the cleaner









1 Sola-Tecs W basic device
2 Guide rollers
3 Pendulum tube
4 Guying system
5 Protective screw cap

Types of Sola-Tecs W

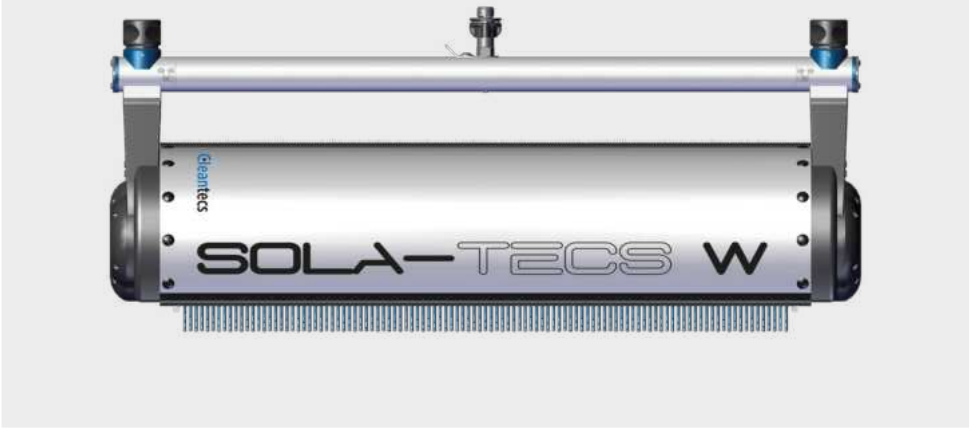
1

2

1 Sola-Tecs W800

2 Sola-Tecs W1000

3



4

3 Sola-Tecs W800 Pro

4 Sola-Tecs W1000 Pro

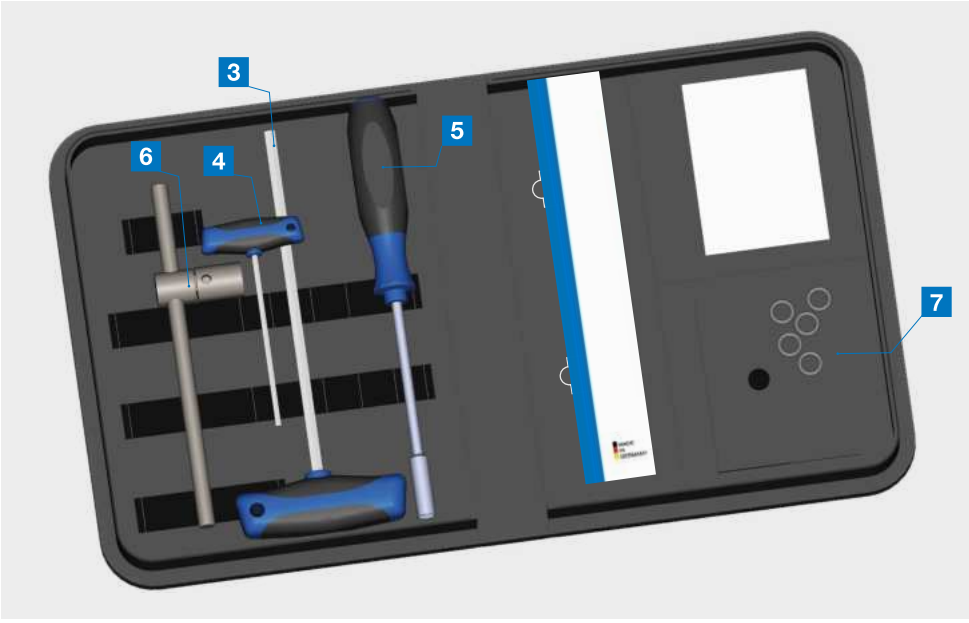
Accessories required for operation

The Sola-Tecs W belongs to a cleaning system. The accessories listed here are required for operation.

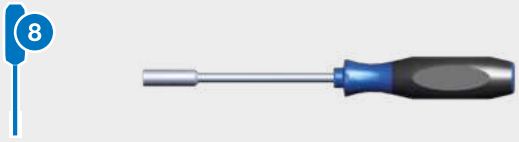
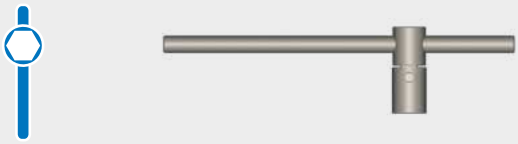
1 High-pressure cleaner

2 High-pressure hose NW8

Your tool bag



Tool

3	Hex key size 6	
4	Hex key size 4	
5	Socket wrench size 8	
6	Socket wrench set*	
7	O-rings	

** The socket wrench set is needed for repairs, e.g. for loosening the clamping nut on the nozzle needle. The repair work is described with the delivery of the spare parts.*

How does the Sola-Tecs W work?

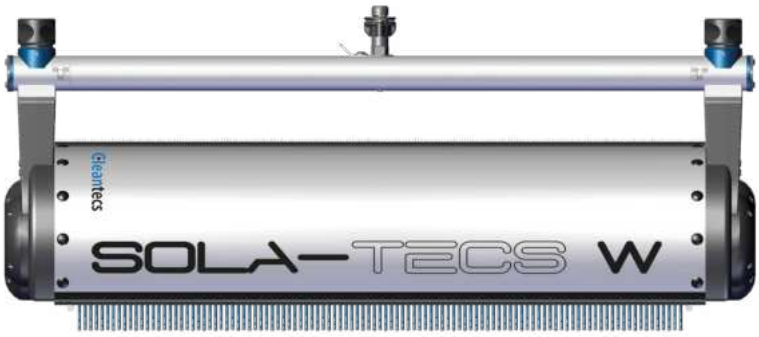
The Sola-Tecs W system consists of a brush roller with a gearbox housing on the right and left, a water turbine drive, a pendulum tube that reduces vibrations from the cleaner to the operator, and a guying system which, together with the guide rollers, enables safe and precise control of the cleaner. The Sola-Tecs W is available in cleaning widths of 800 millimetres and 1,000 millimetres.

A high-pressure hose with a nominal diameter of 8 is absolutely necessary for operation. This high-pressure hose is used to lower the Sola-Tecs W from the roof ridge and pull it back up again.

The energy is supplied by high-pressure water generated by a high-pressure cleaner. The high-pressure water is sprayed onto the turbine wheel on the right and left via a ceramic nozzle in the gearbox housing. This converts the impact energy into mechanical work.

After the drive work, the water is used to moisten and wash off the surface to be cleaned. The water used to operate the cleaner must be ultra-pure. This water must be largely free of any minerals. The quality of the water can be determined using a TDS meter. The maximum conductivity of the water must not exceed 30 µS/cm (20 ppm).

This is important in order not to create deposits on the cleaned surface and to avoid damage to the water turbine drive due to grinding effects.



How does the Sola-Tecs W Pro work?

The Sola-Tecs W Pro system consists of a brush roller with a gearbox housing with left and right **switchable direction of rotation**, a water turbine drive, a pendulum tube that reduces vibrations from the cleaner to the operator, and a guying system that, together with the guide rollers, enables safe and precise control of the cleaner. The Sola-Tecs W is available in cleaning widths of 800 millimetres and 1,000 millimetres.

A high-pressure hose with a nominal diameter of 8 is absolutely necessary for operation. This high-pressure hose is used to lower the Sola-Tecs W from the roof ridge and pull it back up again.

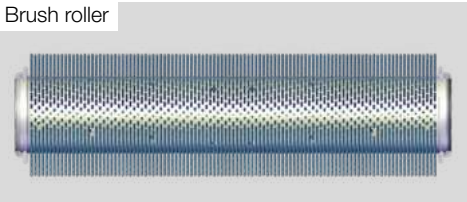
The energy is supplied by high-pressure water generated by a high-pressure cleaner. The high-pressure water is sprayed onto the turbine wheel on the right and left via a ceramic nozzle in the gearbox housing. This converts the impact energy into mechanical work.

After the drive work, the water is used to moisten and wash off the surface to be cleaned. The water used to operate the cleaner must be ultra-pure. This water must be largely free of any minerals. The quality of the water can be determined using a TDS meter. The maximum conductivity of the water must not exceed 30 µS/cm (20 ppm).

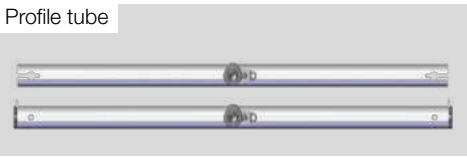
This is important in order not to create deposits on the cleaned surface and to avoid damage to the water turbine drive due to grinding effects.

Gearbox housing right and left

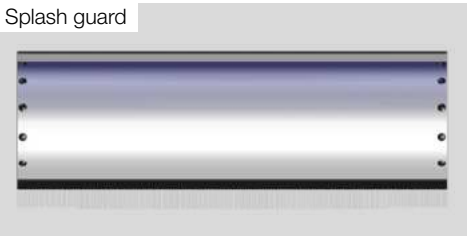
Brush roller



Profile tube



Splash guard



Guide roller

Components and their function

W / W Pro

The gearbox housing is the drive unit of the cleaner. All components necessary for the drive of the brush rollers are installed here. The drive force is transmitted from the gearbox housing to the brush roller via a drive gear wheel.

W / W Pro

The brush roller is the component of the cleaner that carries out the mechanical cleaning work. The rubbing of the brushes loosens dirt particles from the modules.

W / W Pro

The profile tube is the cleaner's chassis. It holds the cleaner together and is the connection through which the high-pressure water is fed into the gearbox housing.

W / W Pro

The splash guard protects the user from splashing water. It reduces water loss from spray water and increases the wash-off effect.

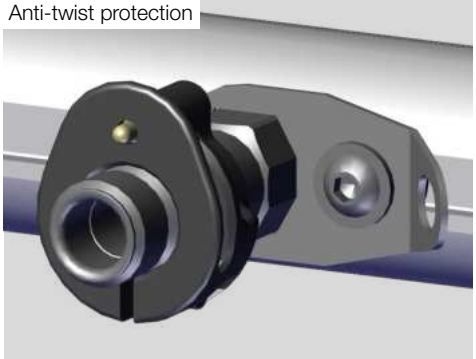
W / W Pro

The guide rollers stabilise the cleaner's direction of travel as it is lowered and raised. They ensure controllability even when the cleaner is lowered at a slight angle. The retraction aid makes it easier to pull up again after passing over the lower edge of the module.

Pendulum tube

Guying system

Anti-twist protection



W / W Pro

The pendulum tube reduces the transmission of vibrations and movements from the cleaner to the high-pressure hose, thereby reducing work fatigue.

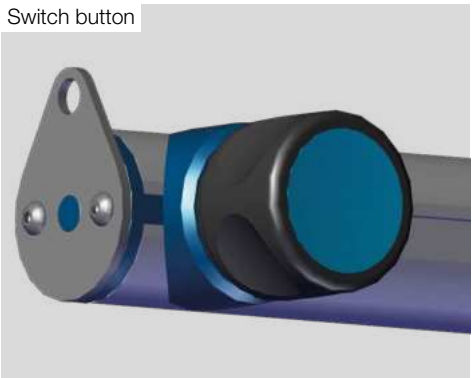
W / W Pro

The guying system reinforces the connection between the high-pressure hose and the cleaner. This allows the cleaner to be controlled more precisely.

W / W Pro

The anti-twist protection fixes the union nut of the high-pressure quick-action screw connection with a spring-loaded locking pin so that it cannot come loose easily during work.

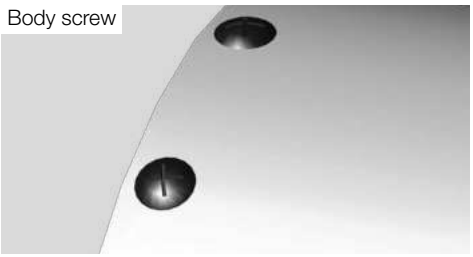
Switch button



Brush on the splash guard

Edge protector

Body screw



W Pro

The switch button changes the point of impact of the high-pressure water on the turbine wheel, thereby enabling the direction of rotation of the brush roller to be changed. In this way, the cleaner is pushed away from the operator or back towards him.

W / W Pro

The brush on the splash guard is a flexible barrier for the splash water. It holds back the water and adapts to possible obstacles.

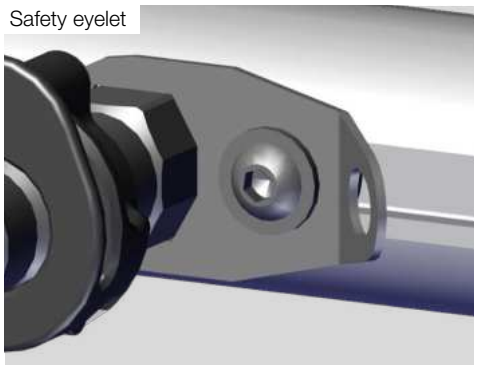
W / W Pro

The edge protector allows the cleaner to be placed on the splash guard in order to protect the bristles during breaks. This will prevent the modules from being scratched.

W / W Pro

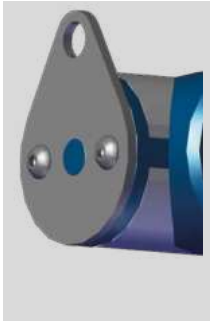
The body screws fix the splash guard to the gearbox housings. Together with the edge protector, they also ensure that the modules are not scratched during breaks.

Safety eyelet

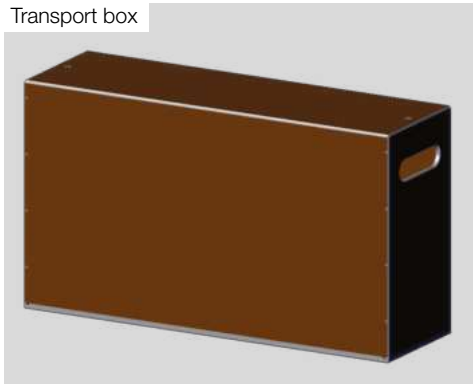


Eyelet on the profile tube

Eyelet on the profile tube pro



Transport box



W / W Pro

The safety eyelet on the connection pin is for attaching the safety rope, which is used to secure the cleaner to an anchor point to prevent it from falling off the roof.

W / W Pro

The eyelets on the profile tube are for attaching the guying system to the cleaner. These eyelets are reinforced to offer added fall protection.

W / W Pro

The transport box is for safely housing the cleaner. The box can be used to ship the cleaner to the place of use or to the Service department or for storing the cleaner during winter.

Intended use

Here you will find the following information: What is the cleaner to be used for, where can the cleaner be used, who can use the cleaner?

Intended use

The SOLA-TECS W and the SOLA-TECS W PRO are designed for cleaning photovoltaic modules in the commercial sector.

Requirements of the photovoltaic surfaces to be cleaned

The cleaning systems must be installed flat and with no elevation.

Requirements of the system user

Operator: The operator must be instructed by the plant operator in the assigned tasks and possible dangers in case of improper behaviour. The operator may only carry out tasks that go beyond normal operation if this is indicated in this manual and the plant operator has expressly instructed them to do so.

Qualified personnel: Due to their technical training, knowledge, experience and familiarity with the relevant standards and regulations, qualified personnel are able to carry out the work assigned to them, to recognise possible dangers and to avoid risks independently.

The following groups of people are not allowed to operate the Sola-Tecs W + W Pro:

- Persons with limited physical, sensory or mental abilities
- Children and young people under 18 years of age
- Persons who have not been trained

Space requirement

- Space requirements for storage: 1.4 metres x 0.31 x 0.59 metres.
- The following work surface is necessary:
  - W800 + W800 Pro: 1.0 x 1.5 metres
  - W1000 + W1000 Pro: 1.3 x 1.5 metres
- Aspace of 2 x 2 metres is required to assemble the system.
- Room for movement around the operator: 5 m^2.
- There must be at least a 30 metre gap from the nearest obstacle in the working direction.
- To prevent accidents, a safety area of 20 metres around the work area must be closed against access by others.

Performance data in normal operation

The Sola-Tecs W + W Pro drive units have the following performance data:

- Working pressure between 100 and 120 bar, approx. 400-500 revolutions per minute.
- Noise level in normal operation 95 decibels.
- The Sola-Tecs W + W Pro generate a maximum surface load of 850 New tons per square centimetre.

Working width and weight

- Working widths with safety roller:
  - W800 > 1.1 metres
  - W1000 > 1.3 metres
  - W800 Pro > 1.1 metres
  - W1000 Pro > 1.3 metres
- Weight of cleaner, safety roller, pendulum tube, guying system:
  - W800 > 20.3 kg
  - W1000 > 22.8 kg
  - W800 Pro > 21.0 kg
  - W1000 Pro > 23.6 kg

Performance limits for operation

- The Sola-Tecs W + W Pro may be operated at a maximum of 140 bar.
- The Sola-Tecs W + W Pro require a volume flow of 10 litres per minute.
- The water temperature must not rise above 40 °C at its peak.

Water quality for operation

- The Sola-Tecs W + W Pro are operated with ultra-pure water.
- The maximum conductivity of the water must not exceed 30 µS/cm (20 ppm).

Requirements of the high-pressure cleaner

- The high-pressure cleaner must provide an operating pressure of 100-120 bar and a flow rate of at least 10 l/min.

EC Declaration of Conformity

Der Hersteller / Inverkehrbringer

TEV Jäger mbH
Grundweg 10
89250 Senden

erklärt hiermit, dass folgendes Produkt

Produktbezeichnung:	Photovoltaikreiniger
Modellbezeichnung:	SOLA-TECS W, SOLA-TECS W PRO
Typbezeichnung:	W800, W1000, W800 PRO, W1000 PRO
Seriennummer:	0300-xxxx
Handelsbezeichnung:	Solar,- Photovoltaikreiniger
Baujahr:	ab 2012

Beschreibung:
Angetriebene Rotationsbürste für die Reinigung und Pflege von Solar und Photovoltaikanlagen.

allen einschlägigen Bestimmungen der angewandten Rechtsvorschriften (nachfolgend) - einschließlich deren zum Zeitpunkt der Erklärung geltenden Änderungen - entspricht. Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller. Diese Erklärung bezieht sich nur auf die Maschine in dem Zustand, in dem sie in Verkehr gebracht wurde; vom Endnutzer nachträglich angebrachte Teile und/oder nachträglich vorgenommene Eingriffe bleiben unberücksichtigt.

Folgende Rechtsvorschriften wurden angewandt:
Maschinenrichtlinie 2006/42/EG

Folgende harmonisierte Normen wurden angewandt:

EN 60335-2-79:2012	Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Teil 2-79: Besondere Anforderungen für Hochdruckreiniger und Dampfreiniger (IEC 60335-2-79:2012 (modifiziert))
EN ISO 11161:2007/A1:2010	Sicherheit von Maschinen - Integrierte Fertigungssysteme - Grundlegende Anforderungen (ISO 11161:2007)
EN ISO 12100:2010	Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risikominderung (ISO 12100:2010)

Name und Anschrift der Person, die bevollmächtigt ist, die technischen Unterlagen zusammenzustellen:
Patrick Geiger

Ort: Senden
Datum: 26.10.2020

(Unterschrift)
Geschäftsführer

(Unterschrift)
Bevollmächtigter

General safety instructions

Important instructions for safe use of the system and for establishing safe cleaning operations.

For your safety

Important instructions for safe use of the system. This allows you to protect yourself and others from dangerous situations and injuries.

⚠ DANGER

Danger to life due to thunderstorms

- Avoid using the machine during thunderstorms.

This protects you from injury caused by lightning and from hypothermia.

⚠ DANGER

Risk of death from electric shock and high-voltage cables

- The safety distance from the cleaning device to the high-voltage cable must not be less than 20 meters (65,6 ft).

Failure to maintain the safety distance puts your life and health at risk.

⚠ WARNING

Risk of injury from falling

- Use a fall-arrest system.

This will protect you from injuries from falling off the roof.

⚠ CAUTION

Illness and hypothermia caused by bad weather

- In bad weather, wear suitable protective clothing.

This will protect you from illness caused by hypothermia.

⚠ CAUTION

Risk of injury when lifting heavy parts

- When lifting the machine, lift it ergonomically correctly.

This will protect you from back-strain injuries.

⚠ CAUTION

Risk of injury from overloading/strain

- Take regular breaks.

This will prevent injuries caused by physical and mental overload and fatigue.

⚠ CAUTION

Risk of injury due to parts being flung away

- Check the surface to be cleaned for objects before starting cleaning.

This will protect you from injuries caused by parts being flung away.

⚠ CAUTION

Risk of injury from flying dirt and parts

- Wear safety goggles when working.

This will protect you from injuries caused by flying dirt and loose parts.

⚠ CAUTION

Damage to hearing on account of too much noise

- Wear hearing protection while working.

This will protect your hearing from damage caused by excessive noise.

NOTICE

Risk of damage due to frost

- Prevent the machine from freezing up. Otherwise this could cause damage to the components.

This will protect the machine from frost damage.

Safe cleaning operation

Here you will find information about: choosing a safe cleaning location, hazards in the working area, hazards when working.

Working safely

This section describes how to work safely with the Sola-Tecs W system.

Selecting a safe starting point

‣ Essentially the place of use and its accessibility determine the starting point for the cleaning work.

‣ Before setting up the system, carry out an inspection and consider how and where you want to work safely.

‣ The starting point for cleaning must be easily accessible.

Awareness of hazards in the working area

‣ There must be **no high-voltage** conductive equipment (cables, switch cabinets, etc.) in the immediate working environment.

Checking the safety of the modules to be cleaned

‣ Check for defects in the system when you inspect it.

e.g.
- broken/defective solar modules
- exposed cables
- loose fastenings
- etc.

Safety when cleaning

‣ When cleaning, make sure that you do not damage any components or lines.

Checking and preparing high-pressure equipment

‣ Check the high-pressure connections for damage before starting work.
‣ Check the high-pressure hose for damage before starting work.

⚠ DANGER

Risk of death from electric shock and high-voltage cables

‣ The safety distance from the cleaning device to the high-voltage cable must not be less than 20 meters (65,6 ft).

Failure to maintain the safety distance puts your life and health at risk.

⚠ WARNING

Risk of injury from falling

‣ Use a fall-arrest system.

This will protect you from injuries from falling off the roof.

⚠ WARNING

Electric shock from photovoltaics

- Cables and components of photovoltaic installations are always live during incidence of light.

Touching live parts can lead to electric shock and is prohibited.

⚠ WARNING

Electric shock due to defective photovoltaics

- Check the modules for damage (cracks, scratches, leaks, etc.) prior to cleaning.

Damaged modules must not be cleaned. There is a risk of injury due to electric shock.

⚠ CAUTION

Risk of injury due to slippery surface

- Check the surface for any situations that may facilitate slipping.

This will protect you from falling and injuring yourself.

⚠ CAUTION

Risk of injury due to falling

- Check your working area for unevenness and obstacles.

This will protect you from injuries resulting from a fall.

⚠ CAUTION

Risk of injury due to defective hoses and connections

- Check all high-pressure hoses and connections for damage.

In this way you will protect yourself from injuries caused by a hard water jet that splashes out.

⚠ CAUTION

Risk of injury due to incorrect installation of the joints

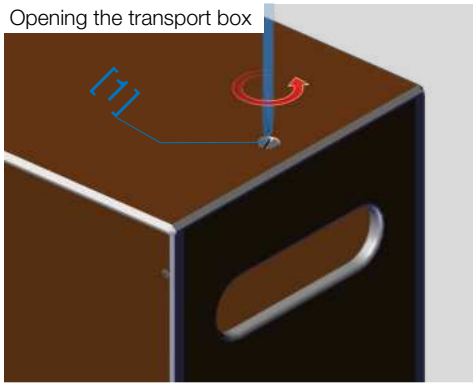
- Always hand-tighten and check the joints.

This will protect you from injuries caused by uncontrolled flying joints.

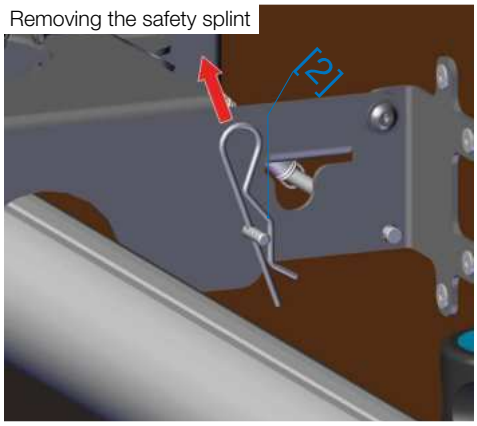
Commissioning the Sola-Tecs W and W Pro

Here you will find information about how to prepare the cleaner for work.

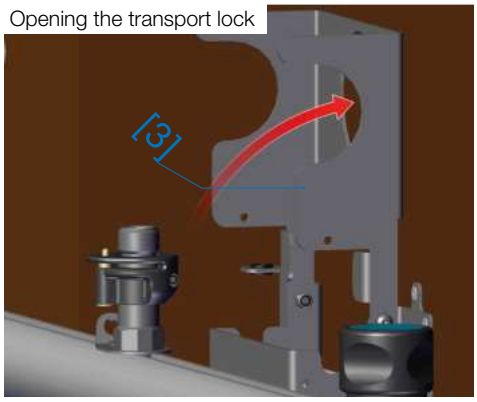
Opening the transport box



Removing the safety splint



Opening the transport lock



Preparing to connect the cleaner

In this step, the Sola-Tecs W and W Pro are prepared for connection.

W / W Pro

Unpacking out of the shipping box

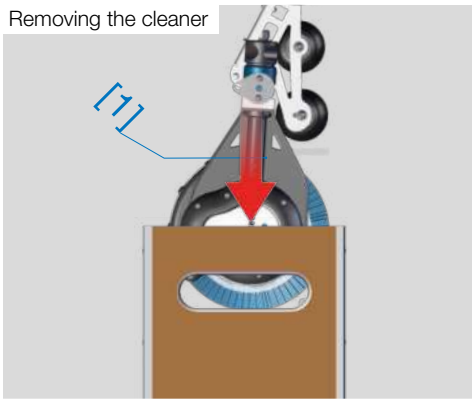
- Open the turn-lock fasteners [1] on the lid of the transport box with a screwdriver.
- Remove the [2] safety splint.
- Open the transport lock [3].

⚠ CAUTION

Risk of injury during disassembly

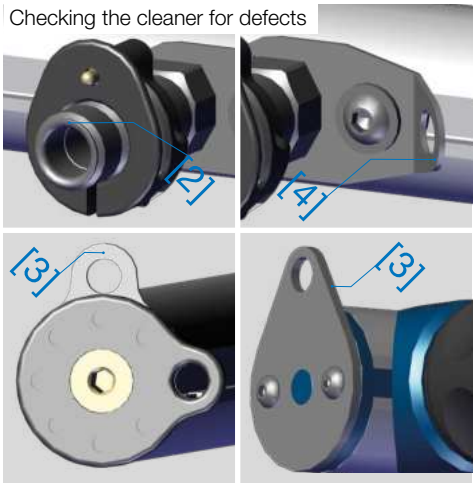
- Wear gloves during disassembly. This will protect your skin from abrasions and pinching.

Removing the cleaner



Putting the cleaner down

Checking the cleaner for defects



- Remove the cleaner [1].
- Position the cleaner on a clean surface with the brush facing downwards.

W / W Pro

Checking cleaner for defects

- Check the following for damage:
  - the connection pin [2]
  - the eyelets on the profile tube [3]
  - the safety eyelet [4] on the connection pin

⚠ CAUTION

Risk of injury during installation

- Wear gloves during installation.

This will protect your skin from abrasions and pinching.

⚠ CAUTION

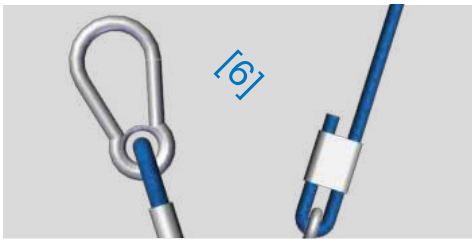
Risk of injury from defective hoses and connections

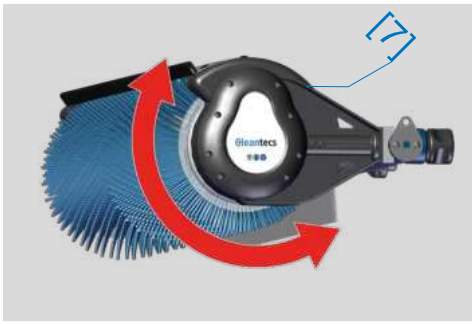
- Check all high-pressure hoses and connections for damage.

This will protect you from being injured by escaping hard water jets.

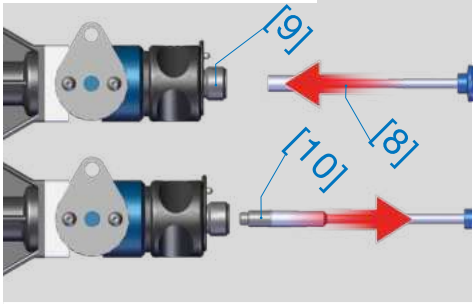
Info box

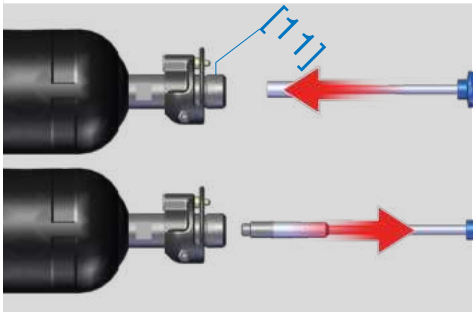
The following Tool is required





Checking the high-pressure filter





Also check:

- the ropes and carabiners [6] of the guying system
- the drive, by lifting the cleaner by the gearbox housing and turning [7] the brush roller (chopping noise)
- visual inspection of the bristles on the brush roller

W / W Pro

Checking the high-pressure filter in the connection pin of the cleaner and pendulum tube

- Pick up the socket wrench [8]. Insert the socket wrench into the connector pin [9] until it is positioned on the high-pressure filter [10]. Turn the socket wrench until it locks in place. Turn the screw to the left until the high-pressure filter [10] can be loosened. Check the high-pressure filter for contamination. Clean or replace the high-pressure filter if necessary. Screw the high-pressure filter back into place by hand in a clockwise direction.

Repeat the entire process with the pendulum tube [11].

NOTICE

Risk of damage due to impurities in the water

- Never operate the cleaner without a high-pressure filter.

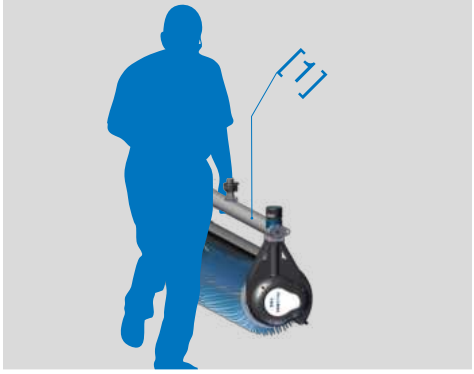
This prevents damage caused by impurities in the water.

Info box

The following Tool is required.

6

Transporting to place of use

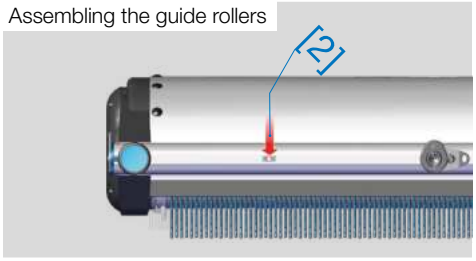


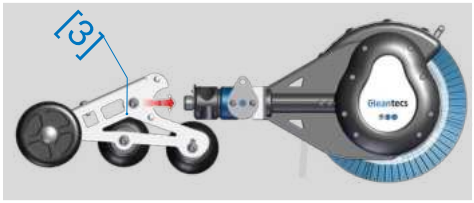
W / W Pro

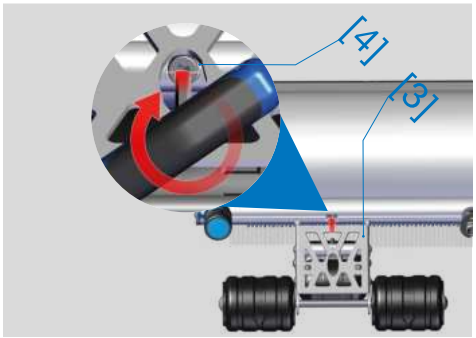
Transporting the cleaner to the place of use

- Plan in advance how you will transport the cleaner to its place of use.
- Consider using possible transport aids to assist safe transport and to prevent putting yourself or the cleaner at risk.
- When carrying the cleaner, hold the machine only by its [1] profile tube.

Assembling the guide rollers







W / W Pro

Assembling the guide rollers

The cleaners are delivered with the guide rollers attached. For initial commissioning, the guide rollers only need to be moved to the working position. To assemble the two guide rollers, carry out the steps described below for each guide roller.

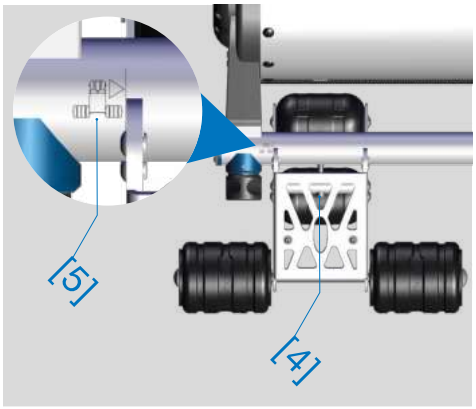
- Check that the slot nuts are in the profile tube.
- Slide the slot nut [2] approximately to the centre between the connection pin and the inflow mandrel or switch button.
- Position the guide roller [3] on the profile tube as illustrated.
- Align the guide roller with the fixing screw over the slot nut.
- Take the hex key and screw the guide roller [3] with the fixing screw [4] so that it can still be moved.

Slide to the working position:

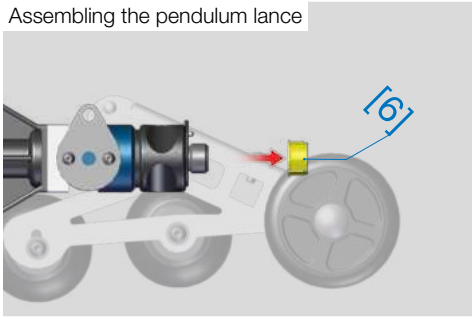
- Slide the guide roller [3] to the mark [5].
- Screw the fixing screw [4] tight.

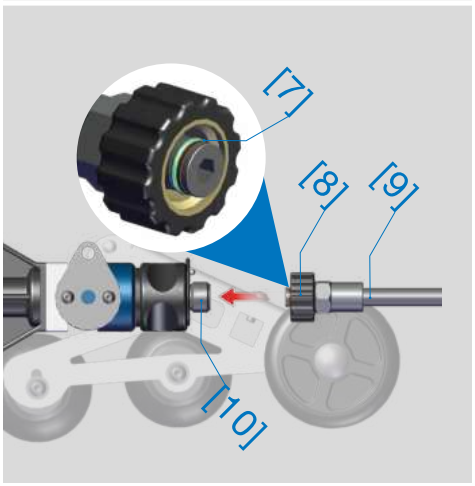
The following Tool is required.

6



Assembling the pendulum lance





W / W Pro

Assembling the pendulum lance

- Remove the yellow protective screw cap [6] from the connection pin of the cleaner.
- Grease the O-ring [7] on the quick-action screw connection [8] of the pendulum lance[9] .
- Position the pendulum lance with the quick-action screw connection on the connection pin [10].

⚠ CAUTION

Risk of injury when lifting heavy parts

- When lifting the machine, make sure to lift it in an ergonomically correct way.

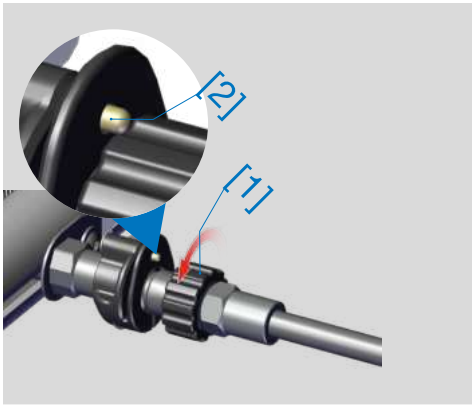
This will protect you from injuries caused by overloading your back.

NOTICE

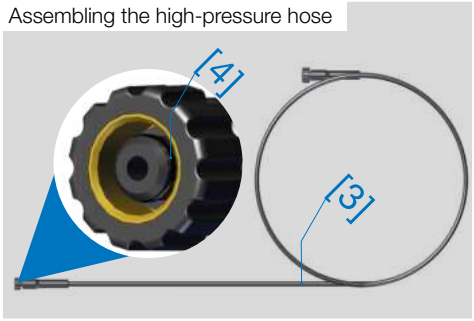
Risk of damage due to jamming of threads and heavy wear of O-rings

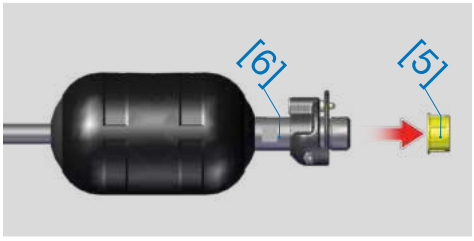
- Grease high-pressure connections such as threads, O-rings and connections with a lubricating grease (DIN 51502: KP2G-30) before assembly.

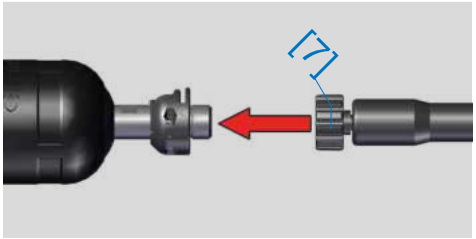
Lubrication reduces the risk of jamming, heavy wear and the resultant damage.



Assembling the high-pressure hose







▸ Screw the union nut [1] of the quick-action screw connection onto the connection pin so that the union nut clicks into place on the anti-twist protection [2].

W / W Pro

Assembling the high-pressure hose

▸ Unroll the high-pressure hose [3].
▸ Grease the O-ring on the quick-action screw connection [4].
▸ Remove the yellow protective screw cap [5] from the pendulum lance [6].
▸ Screw the union nut [7] of the quick-action screw connection [1] onto the pendulum lance connection so that the union nut [7] clicks into place on the anti-twist protection [2].

⚠ CAUTION

Risk of injury due to incorrect installation of the joints

▸ Always hand-tighten and check the joints.

This will protect you from injuries caused by uncontrolled flying joints.

⚠ CAUTION

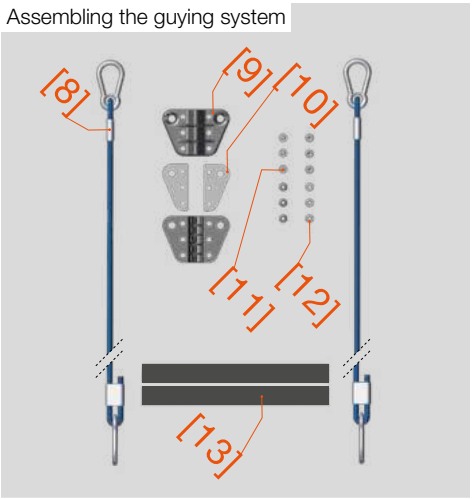
Risk of injury from defective hoses and connections

▸ Check all high-pressure hoses and connections for damage.

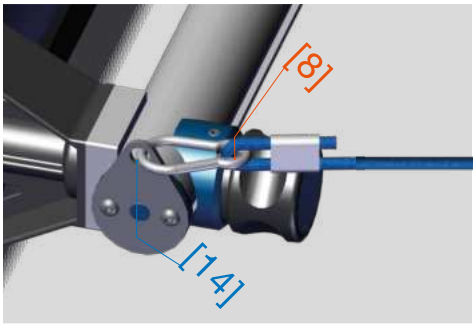
This will protect you from being injured by escaping hard water jets.

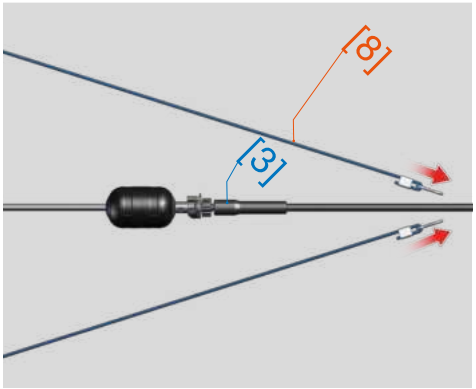
Info box

The following
Tool is required



Assembling the guying system





W / W Pro

Assembling the guying system

- Lay the components out ready.
  - 2 x rope with carabiner [8]
  - 2 x hose clamp [9]
  - 2 x inlay sheet [10]
  - 6 x cylinder-head screw [11]
  - 6 x locking nut [12]
  - 2 x hose protection tape [13]

The two halves of the hose clamp and the inlay sheet are the same. There is no “top” or “bottom”.

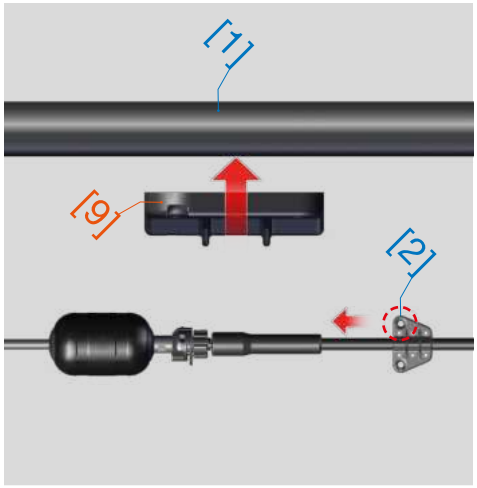
- Hook the rope with the carabiner [8] onto the eyelet [14] on the profile tube.
- Pull the rope with the carabiner back along the high-pressure hose [3].

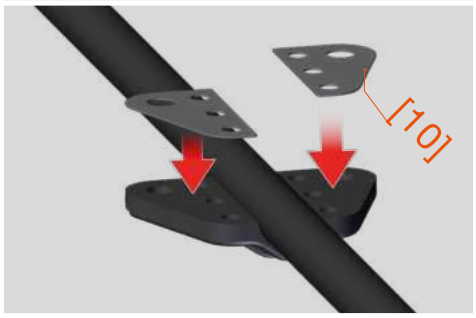
⚠ CAUTION

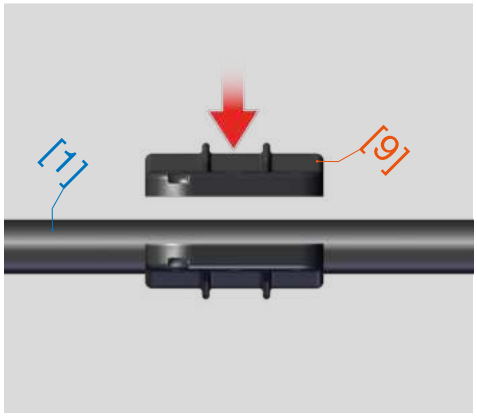
Risk of injury during installation

- Wear gloves during installation.

This will protect your skin from abrasions and pinching.



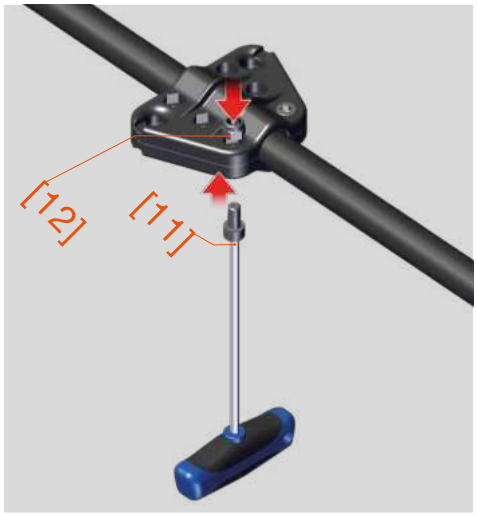


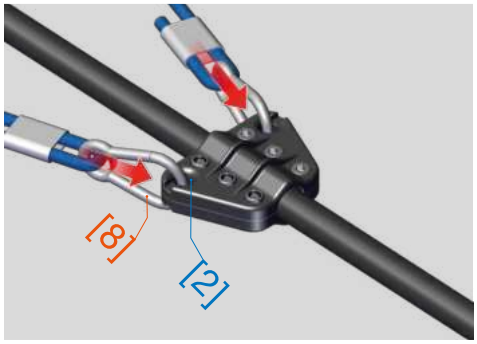


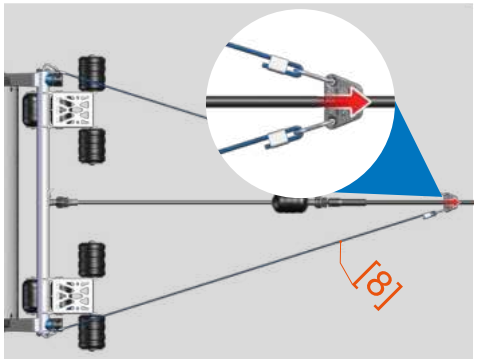
- Attaching the hose clamp:
  - Place the high-pressure hose[1] in one half of the hose clamp [9]. The two eyelets [2] must face towards the cleaner.
  - Position one inlay sheet [10] on the right wing and one on the left wing in the same way.
  - Position the other half of the hose clamp [9] in the same way, so that the high-pressure hose [1] runs through the hose clamp.

Info box

The following Tool is required



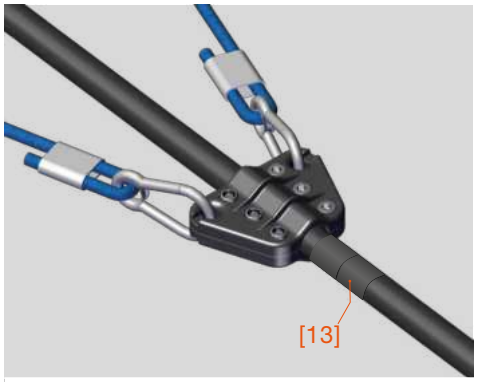


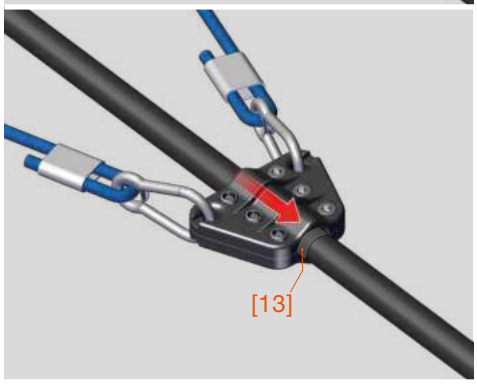


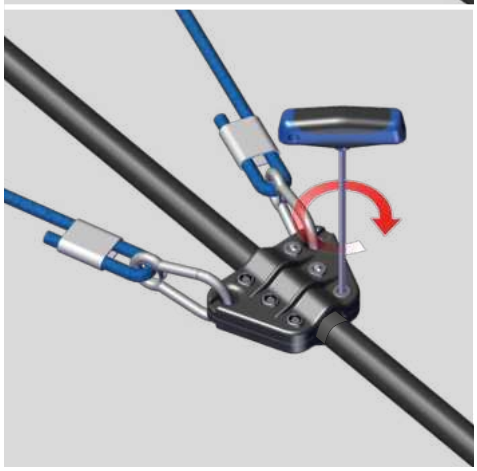
- Insert the cylinder head screws [11] in the hose clamp. Make sure that there are round and hexagonal holes: round for the head of the cylinder head screw and hexagonal for the lock nut [12].
- Tighten the cylinder head screws [11] only slightly, so that the hose clamp is only loosely held together.
- Take the ropes with the carabiners [8] and hook them into the eyelets [2] on the hose clamp.
- Pull the hose clamp away from the cleaner until the ropes [8] are tight.

Info box

The following Tool is required







- Remove the protective film from the hose protection tape [13] and attach the hose protection tape [13] directly behind the hose clamp on the high-pressure hose.
- Pull the hose clamp over the hose protection tape [13].
- Screw the hose clamp tight.

The resulting bend in the high-pressure hose ensures constant tension on the ropes and relieves the quick-action screw connection.

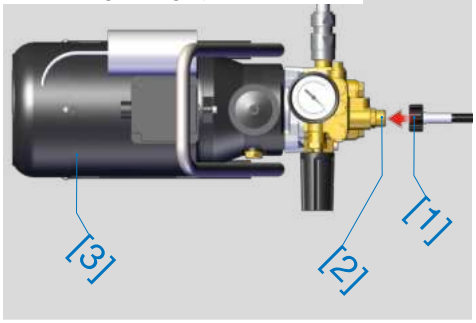
⚠ CAUTION

Risk of injury due to defective hoses and connections

- Check all high-pressure hoses and connections for damage.

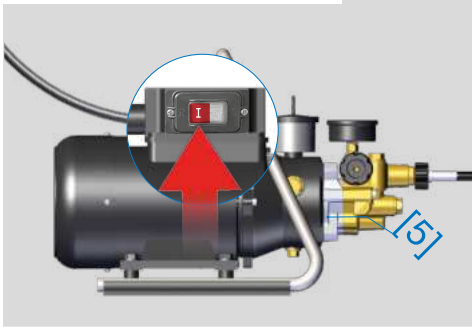
In this way you will protect yourself from injuries caused by a hard water jet that splashes out.

Connecting the high-pressure cleaner

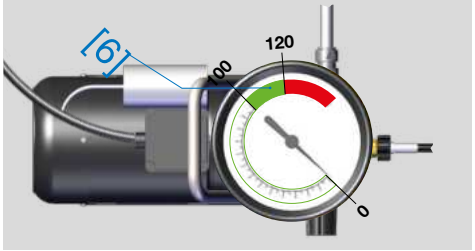


Cleaner in park position

Switching on high-pressure cleaner



Setting the operating pressure



W / W Pro

Connecting the high-pressure hose to the high-pressure cleaner

- Take the already greased free end of the high-pressure hose and use the quick-action screw connection [1] to position it on the high-pressure outlet [2] of the high-pressure cleaner [3].
- Tighten the high-pressure hose using the union nut of the quick-action screw connection.

W / W Pro

Setting the pressure on the high-pressure cleaner

- Put the connected cleaner in the park position [4] (p. 51).
- Open the water supply and wait until the system is flooded.
- Switch on the high-pressure cleaner [5].
- Set the operating pressure [6] in the range of 100-120 bar.
- Switch the high-pressure cleaner [5] off again.

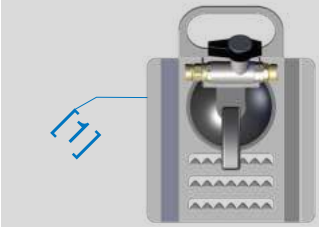
⚠ WARNING

Risk of injury due to excessive operating pressure

- Do not operate the machine above the specified maximum operating pressure.

In this way you protect yourself from injuries caused by connecting parts being flung away in an uncontrolled manner.

Water stop



Radio remote control

W / W Pro

Switching the high water pressure on/off

We offer two optional products for switching the high water pressure on/off. These products are briefly presented here. For the exact operation, please refer to the respective operating instructions.

▸ Switching the high water pressure on/off with the water stop [1].

Using the water stop, you can switch the high water pressure on and off near the work area via a ball valve.

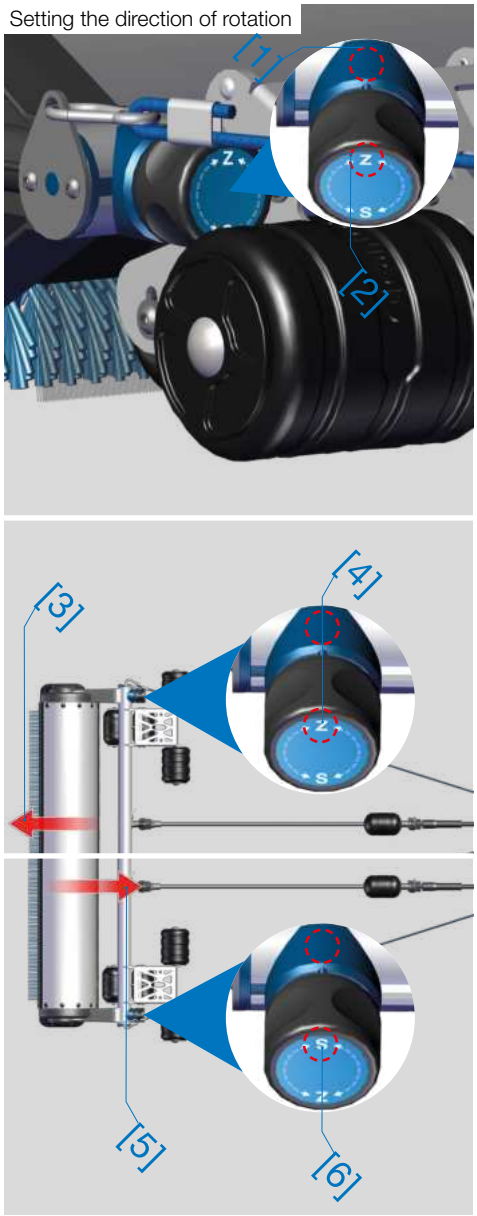
▸ Switching the high water pressure on/off by radio remote control [2].

You can switch the high-pressure cleaner on and off directly with our radio remote control.

Working with the Sola-Tecs W and W Pro

Here you will find information about working with the cleaning system.

Setting the direction of rotation



Working with the Sola-Tecs W

Working with the cleaning system is described here:

- How do I switch the direction of rotation on for the W PRO?
- How do I position the SOLA-TECS W and W PRO on the surface to be cleaned?
- How do I start the cleaning process?
- How do I work on the photovoltaic modules?

W Pro

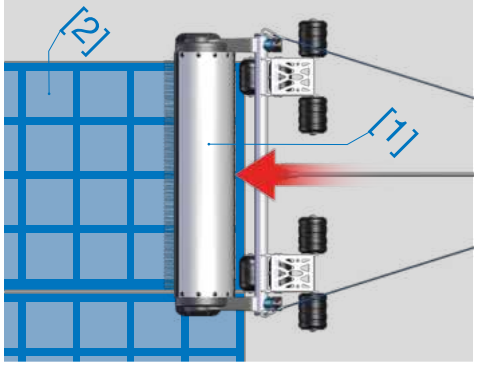
Setting the direction of rotation on the Sola-Tecs W Pro

To set the direction of rotation, the cleaner must be switched off. The switching position is marked by a line [1], which has a letter [2] (Z or S) opposite it.

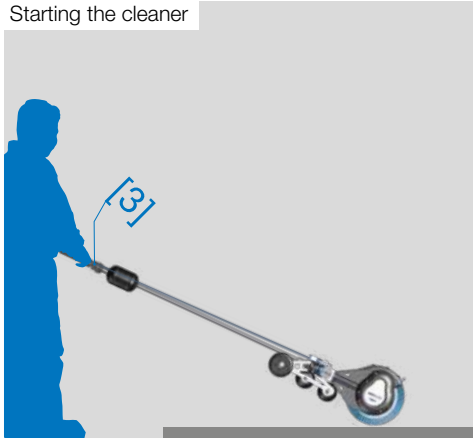
- If you want the driving force to move away from you [3], turn both selection buttons to Z [4] (pull).
- If you want the driving force to move toward you [5], turn both selection buttons to S [6] (push).

*Please be aware that the **S** setting is only permitted on roof pitches of 20° and over.*

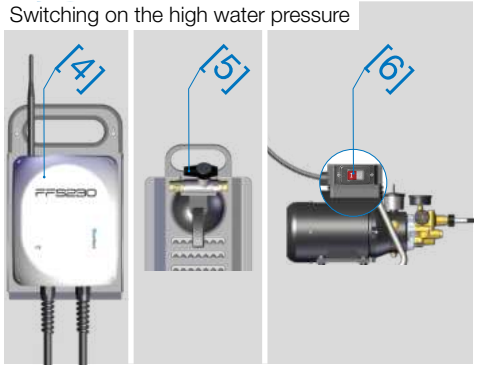
Positioning the cleaner



Starting the cleaner



Switching on the high water pressure



W / W Pro

Positioning the cleaner at the starting point

- Position the cleaner [1] on the first module [2] of the surface to be cleaned.
- Make sure that the Sola-Tecs W Pro is set with the correct direction of rotation.

W / W Pro

Starting the cleaner

- Hold the cleaner at the quick-action screw connection [3] of the high-pressure hose.
- Hold the quick-action screw connection at waist height so that the cleaner is at an angle.
- Use the radio remote control [4] or water stop [5] or high-pressure cleaner to switch the high water pressure [6] **ON** (you may require another person to assist).

⚠ CAUTION

Risk of injury due to falling

- Check your working area for unevenness and obstacles.

This will protect you from injuries resulting from a fall.

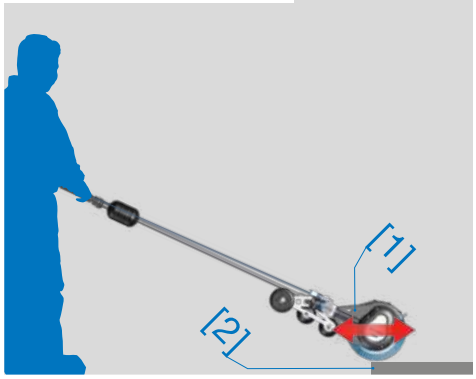
⚠ CAUTION

Risk of injury due to slippery surface

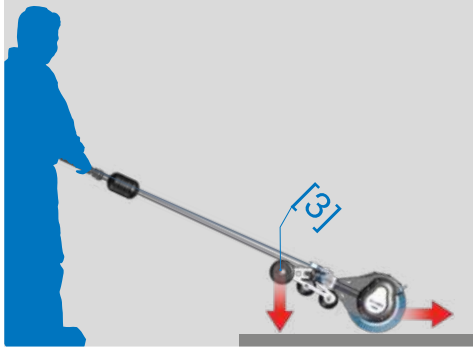
- Check the surface for any situations that may facilitate slipping.

This will protect you from falling and injuring yourself.

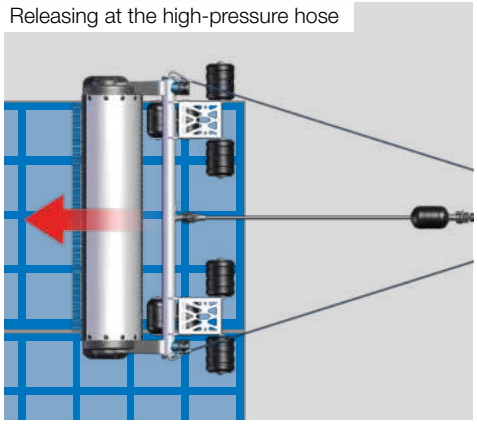
Starting the cleaning process



Lowering the cleaner onto the module



Releasing at the high-pressure hose



W / W Pro

The cleaning process

- Pull the cleaner [1] up to the top edge of the module [2] to clean it.
- Push the cleaner to about the middle of the first module.
- Lower the cleaner until the guide rollers [3] are resting on the module.

⚠ WARNING

Risk of injury from falling

- Use a fall-arrest system.

This will protect you from injuries from falling off the roof.

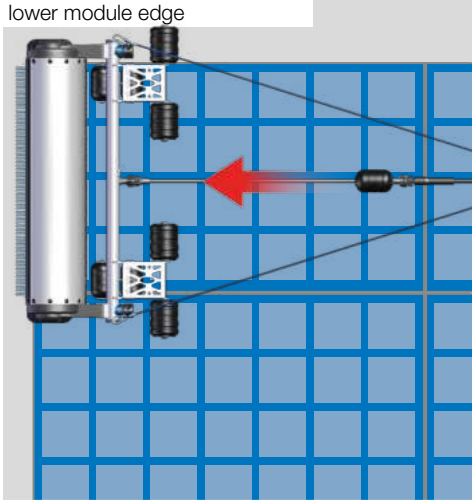
⚠ WARNING

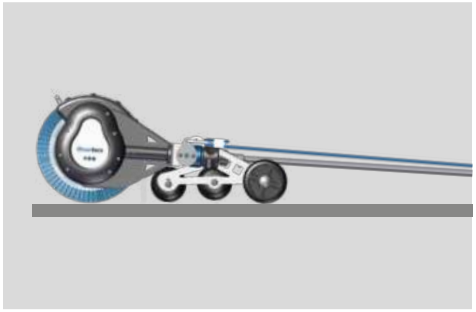
Risk of injury from falling parts

- Check the surface to be cleaned for parts that could fall.

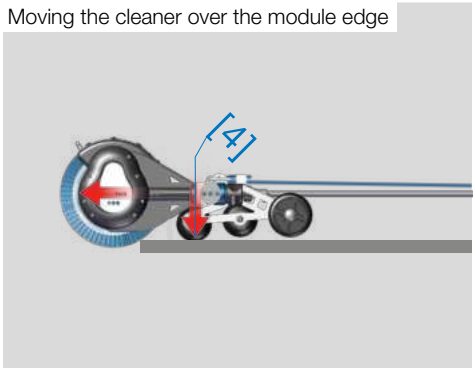
In this way you will protect yourself and other persons from injury from falling parts.

Stopping the cleaner before the lower module edge





Moving the cleaner over the module edge



- Slowly release the cleaner at the high-pressure hose to just before the lower edge of the module strip.
- Allow the cleaner to slide slowly over the lower edge of the module until it rests on the retraction aid [4].

⚠ WARNING

Risk of injury from falling cleaner

- When working at the edge of the work area, be careful not to go too far over the edge.

In this way you will avoid personal injury and damage to property caused by a falling cleaner.

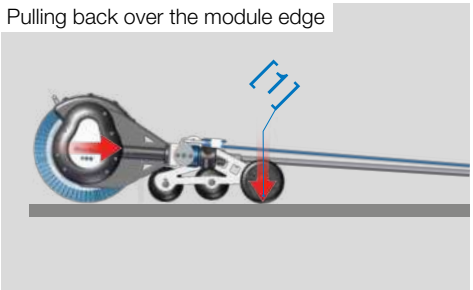
⚠ CAUTION

Risk of injury from falling machine

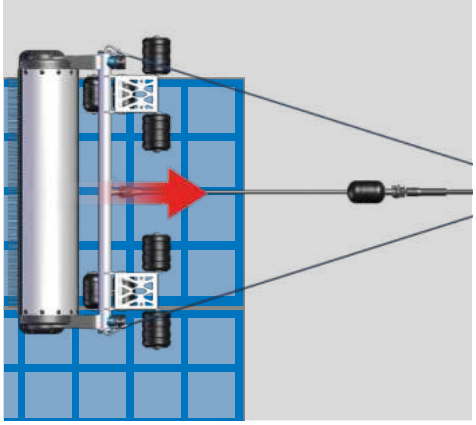
- Check the correct position of the machine.

This will protect you from injuries caused by the machine falling.

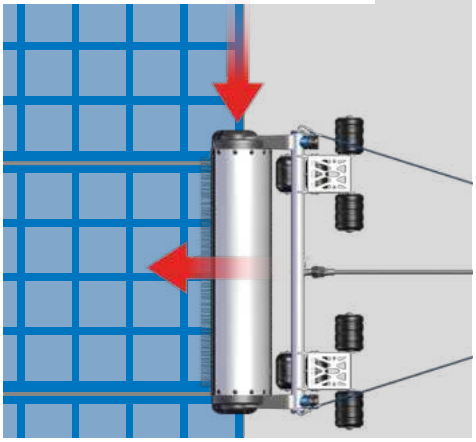
Pulling back over the module edge



Pulling the cleaner up



Moving the cleaner to the next module



‣ Pull the cleaner back over the edge of the module until the guide roller [1] rests on the module again.
‣ Pull the cleaner to the upper edge of the module strip.

In the case of heavy soiling, you may need to clean a module strip again before you can move the cleaner to the next module.

‣ Move the cleaner by the width of the brush roller.
‣ Repeat this process until you have cleaned your surface.

In the case of heavy soiling, it may be better to move the brush roller by only half the width. This will increase the cleaning effect.

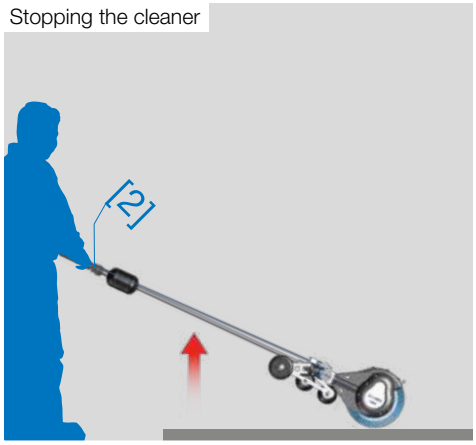
⚠ CAUTION

Risk of injury when lifting heavy parts

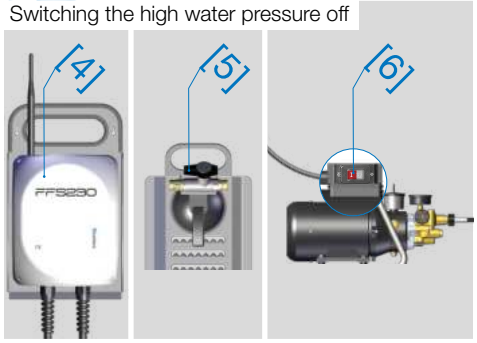
‣ When lifting the machine, make sure to lift it in an ergonomically correct way.

This will protect you from injuries caused by overloading your back.

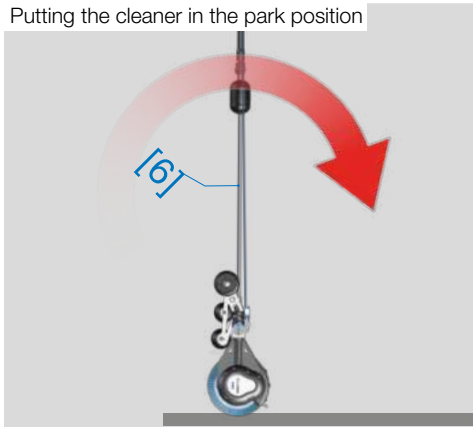
Stopping the cleaner



Switching the high water pressure off



Putting the cleaner in the park position



W / W Pro

Switching off the cleaner

- Hold the cleaner at the connection of the high-pressure hose.
- Lift the quick-action screw connection [2] back up to waist height so that the cleaner is at an angle.
- Use the radio remote control [3] or water stop [4] or the high-pressure cleaner [5] to switch the high water pressure **OFF** (you may require another person to assist).

W / W Pro

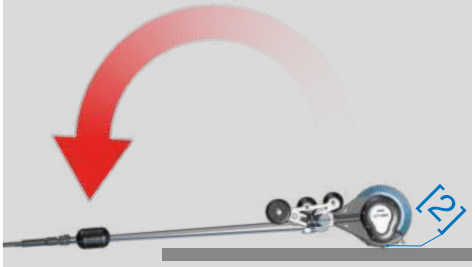
Parking the cleaner for pressure adjustments and breaks

To protect the cleaner's brush roller when setting the operating pressure and during breaks (dirt, pressure marks):

- Lift the cleaner by the pendulum tube [6].

Turning the cleaner 180°

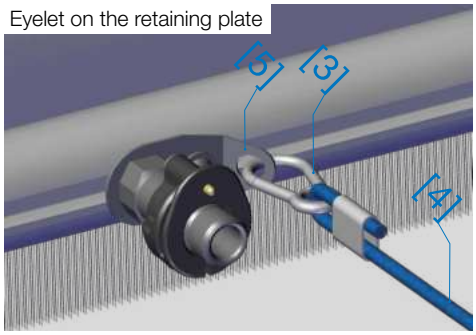
Positioning the cleaner on the splash guard



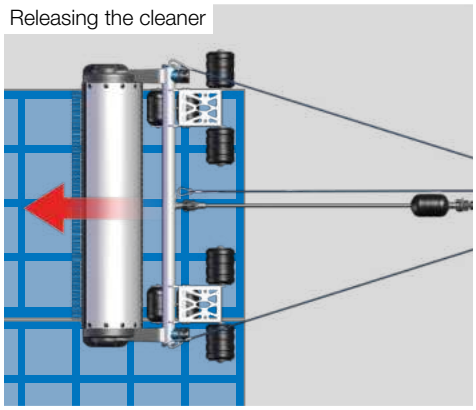
- Turn the cleaner 180° [1].
- Position the cleaner on the splash guard [2].

The splash guard is attached with plastic body screws. The cleaner sits in the park position on these body screws. This way you can also park the cleaner on a module without it causing any damage.

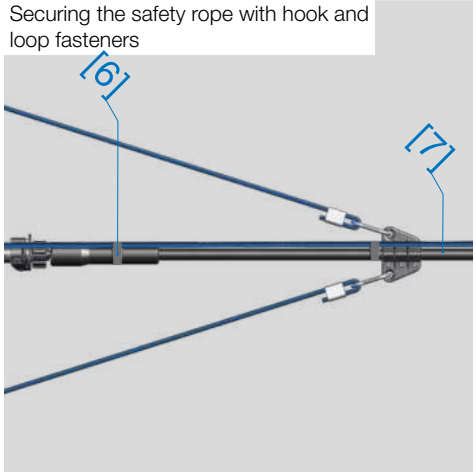
Eyelet on the retaining plate



Releasing the cleaner



Securing the safety rope with hook and loop fasteners



W / W Pro

Additional option to prevent the cleaner from falling

- Hook the carabiner [3] of the safety rope [4] onto the eyelet of the connection pin retaining plate [5].
- Release the cleaner on the module strip.
- Attach the Velcro strips [6] to the high-pressure hose at regular intervals [7].

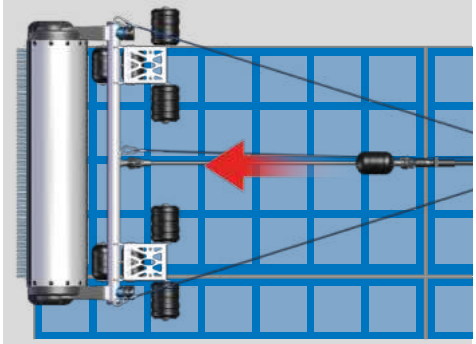
⚠ WARNING

Risk of injury from falling cleaner

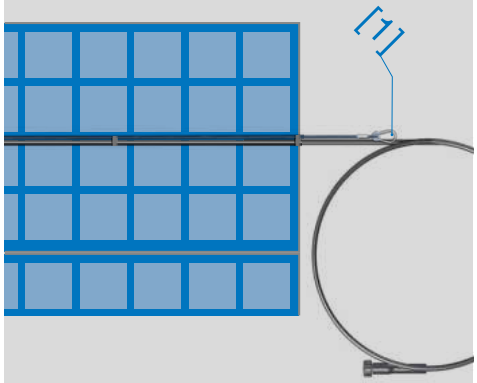
- When working at the edge of the work area, be careful not to go too far over the edge.

In this way you will avoid personal injury and damage to property caused by a falling cleaner.

Releasing the cleaner



Attaching the end of the safety rope



▸ Release the cleaner all the way to the end of the module strip.
▸ Attach the end of the safety rope to a suitable anchor point [1] with an allowance of approx. 1-2 metres.

A suitable anchor point must provide sufficient stability.

▸ Move the anchor point after each cleaned module strip.

⚠ WARNING

Risk of injury from falling cleaner

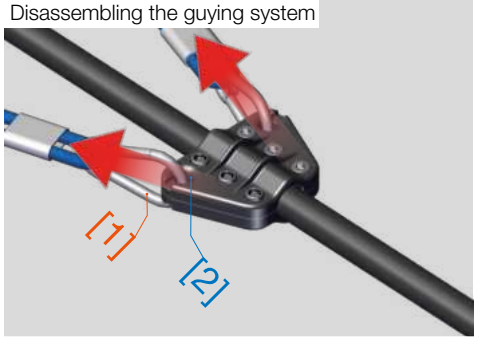
▸ When working at the edge of the work area, be careful not to go too far over the edge.

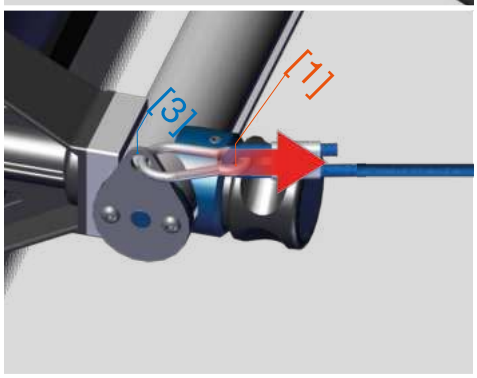
In this way you will avoid personal injury and damage to property caused by a falling cleaner.

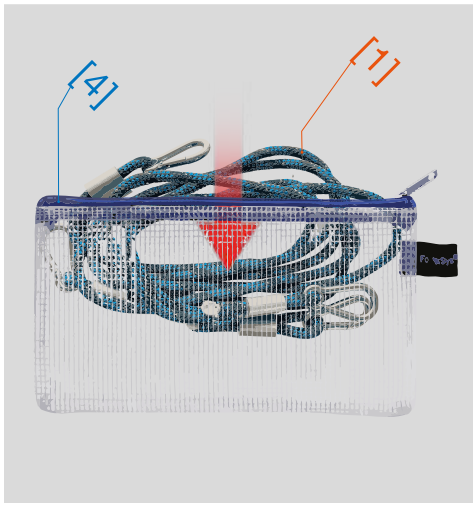
Taking the Sola-Tecs W and W Pro out of operation

Information about disassembling the cleaning system can be found here.

Disassembling the guying system







W / W Pro

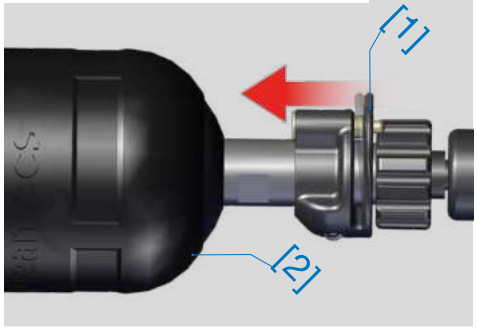
Disassembling the guying system

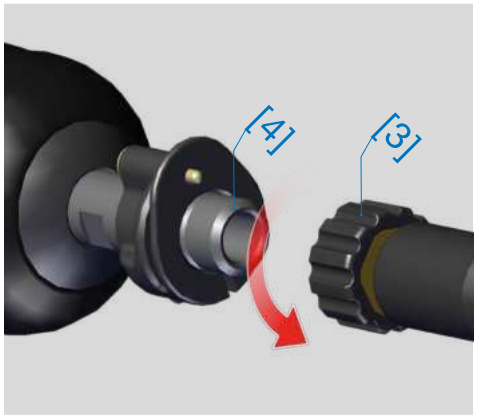
Components that are disassembled:
- 2 x rope with carabiner [1]

Only the ropes with the carabiners are unhooked. The mounted hose clamp can remain on the high-pressure hose.

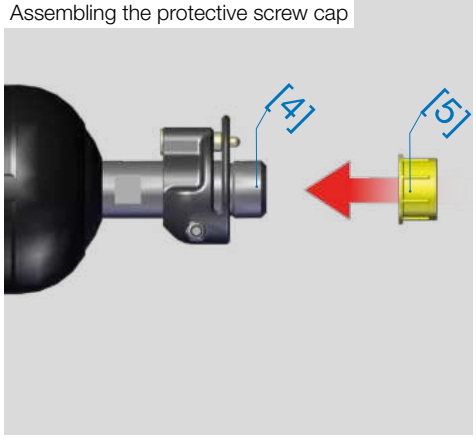
Disassembly:
- Unhook the carabiners [1] from the hose clamp [2].
- Unhook the carabiners [1] from the cleaner [3].
- Check the carabiners and the rope for damage.
- Pack the ropes [1] with the carabiners back into the bag provided [4].

Disassembling the high-pressure hose





Assembling the protective screw cap



W / W Pro

Disassembling the high-pressure hose

▸ Pull the locking tab [1] of the screw-on lock towards the rubber buffer [2].
▸ Unscrew the union nut [3] of the quick-action screw connection from the connection [4] on the pendulum tube.
▸ Close the connection [4] of the pendulum tube with the protective screw cap [5].

⚠ CAUTION

Risk of injury from defective hoses and connections

▸ Check all high-pressure hoses and connections for damage.

This will protect you from being injured by escaping hard water jets.

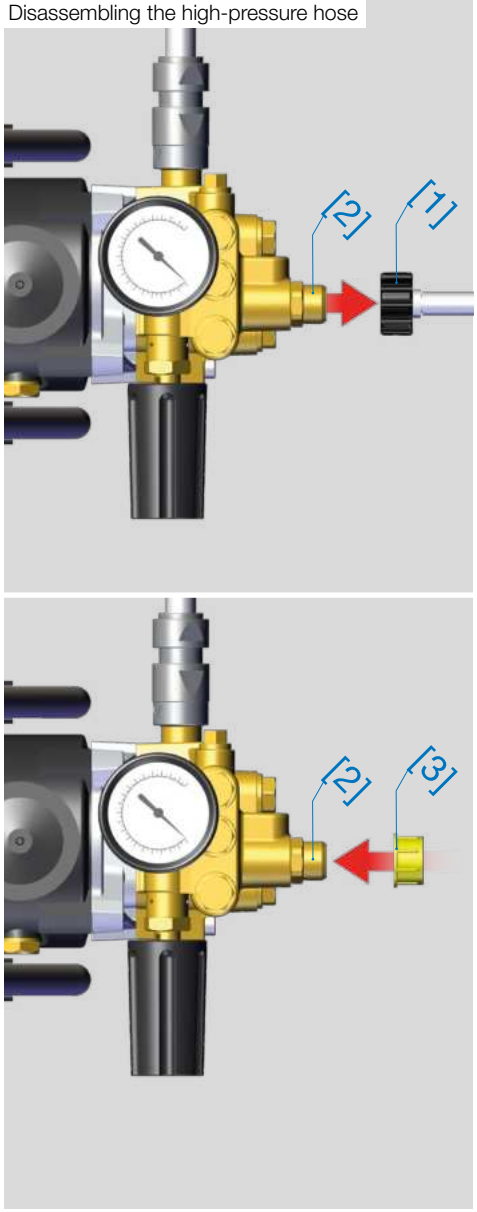
⚠ CAUTION

Risk of injury during disassembly

▸ Wear gloves during disassembly.

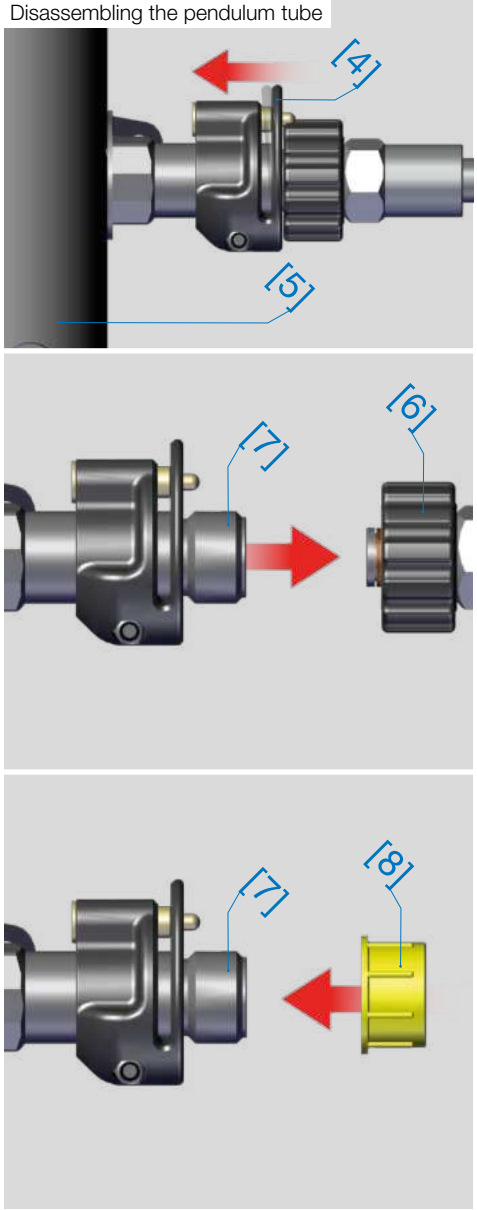
This will protect your skin from abrasions and pinching.

Disassembling the high-pressure hose



- Unscrew the union nut [1] of the quick-action screw connection from the connection [2] on the high-pressure cleaner.
- Close the connection [2] of the pendulum tube with the protective screw cap [3].
- Wind the high-pressure hose up.
- In doing so, make sure that the end of the high-pressure hose is protected from dirt.

Disassembling the pendulum tube



W / W Pro

Disassembling the pendulum tube

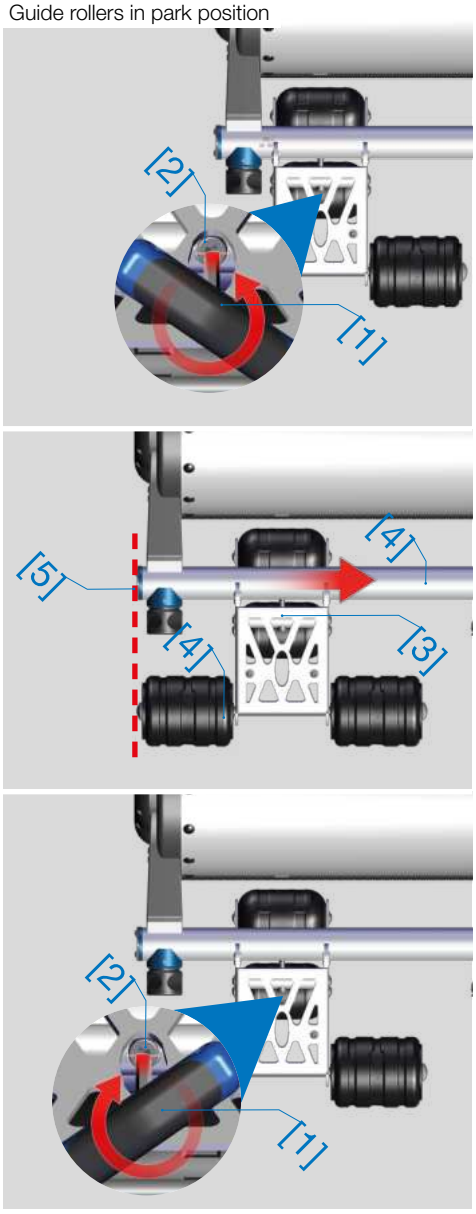
- Pull the locking tab [4] of the screw-on lock towards the profile tube [5].
- Unscrew the union nut [6] of the quick-action screw connection from the connection [7] on the cleaner.
- Close the connection [7] on the cleaner with the protective screw cap [8].

Info box

The following Tool is required.

6

Guide rollers in park position



W / W Pro

Pushing guide rollers into the park position

- Use hex key 6 [1] to open the cylinder head screw [2].
- Slide the guide roller [3] inwards.
- Position the outer roller [4] parallel to the outer edge [5] of the profile tube [6].
- Use hex key 6 [1] to tighten the cylinder head screw [2].

Removing from the roof

W / W Pro

Removing the cleaner from the roof

- Plan in advance how you will transport the cleaner from its place of use.
- Consider using possible transport aids to assist safe transport and to prevent putting yourself or the cleaner at risk.
- When carrying the cleaner, hold the machine only by its [1] profile tube.

⚠ CAUTION

Risk of injury when lifting heavy parts

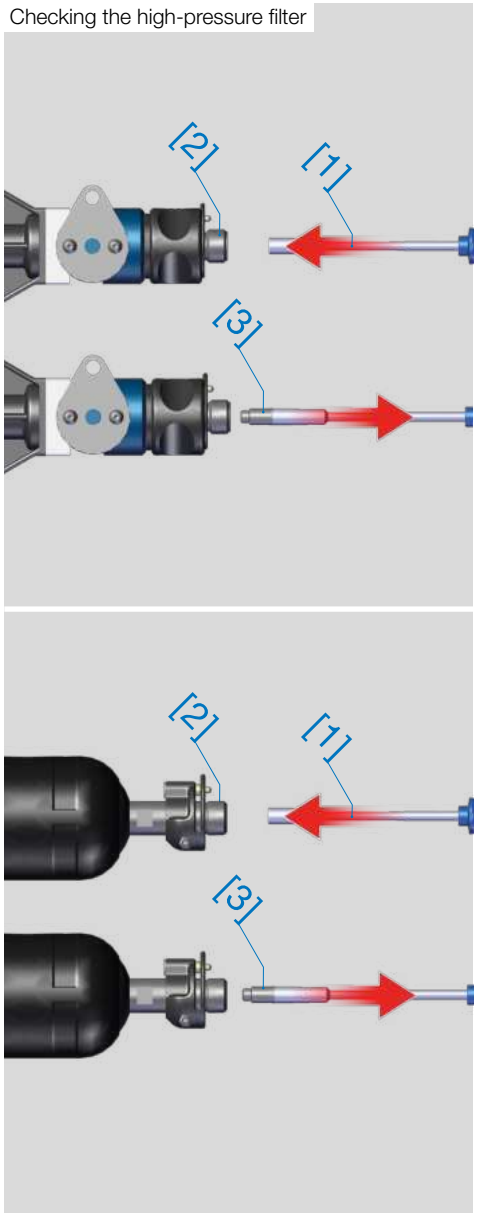
- When lifting the machine, make sure to lift it in an ergonomically correct way.

This will protect you from injuries caused by overloading your back.

Transport and storage

Here you will find information about transporting and storing the system.

Checking the high-pressure filter



Transporting and storing the cleaner

This section explains how to transport and store the cleaner safely and without damage.

W / W Pro

Checking the high-pressure filter in the connection pin of the cleaner and pendulum tube

▸ Take the socket wrench [1] and insert it into the connector pin [2] until it is positioned on the high-pressure filter [3]. Turn the socket wrench until it locks in place. Turn the screw to the left until the high-pressure filter [3] can be loosened. Check the high-pressure filter for contamination. Clean or replace the high-pressure filter if necessary. Screw the high-pressure filter back in (in reverse order) until it is “hand-tight” (6 Newton metres).

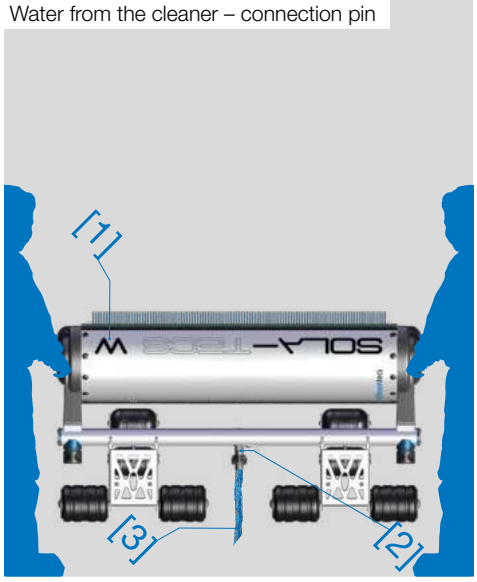
NOTICE

Risk of damage due to impurities in the water

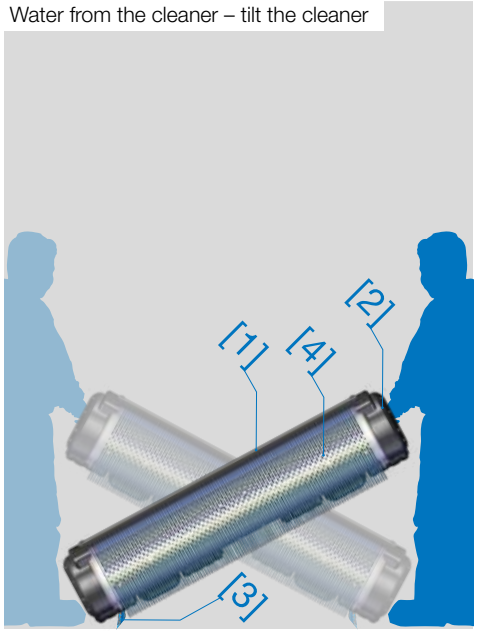
▸ Never operate the cleaner without a high-pressure filter.

This prevents damage caused by impurities in the water.

Water from the cleaner – connection pin



Water from the cleaner – tilt the cleaner



W / W Pro

Allow water to run out of the cleaner

- Hold the cleaner [1] with the opening of the connection pin [2] facing downwards. Let the water [3] drain until it is only just dripping.
- Lift the cleaner [1] alternately at the gearbox housing [2], until no more water [3] comes out of the brush roller [4].

W / W Pro

Component check

Check all components for damage. Check all the components that are part of the high-pressure water supply with particular care. Replace defective components. This will allow you to restart operations without delay at next commissioning.

W / W Pro

Maintaining the cleaner

Clean the system thoroughly to remove dirt that collects in day-to-day operation.

Cleaning:
- Use solvent-based cleaners (brake cleaners) for aluminium and plastic surfaces.
- Use a soap solution as a bath for brushes. Let the brushes soak in the bath and then rinse them off in clean water after cleaning.

W / W Pro

Preserving the cleaner

To protect and maintain the system over the storage period, preserve the components before storing them.

Preservation:
- Use a spray oil for aluminium surfaces.
- Use a silicone oil for plastic surfaces.
- Do not use preservative on the brushes as it will affect the cleaning results on recommissioning.

W / W Pro

Lubricating components

The following parts must be lubricated:
- Lubricate the connection pin according to DIN 51502: KP2G-30.
- Grease all the O-rings and threads of the quick-action screw connections on the high-pressure hoses and plugs.

⚠ CAUTION

Risk of injury due to defective hoses and connections

- Check all high-pressure hoses and connections for damage.

In this way you will protect yourself from injuries caused by a hard water jet that splashes out.

⚠ CAUTION

Risk of injury when lifting heavy parts

- When lifting the machine, make sure to lift it in an ergonomically correct way.

This will protect you from injuries caused by overloading your back.

⚠ CAUTION

Risk of injury from defective hoses and connections

- Check all high-pressure hoses and connections for damage.

This will protect you from being injured by escaping hard water jets.

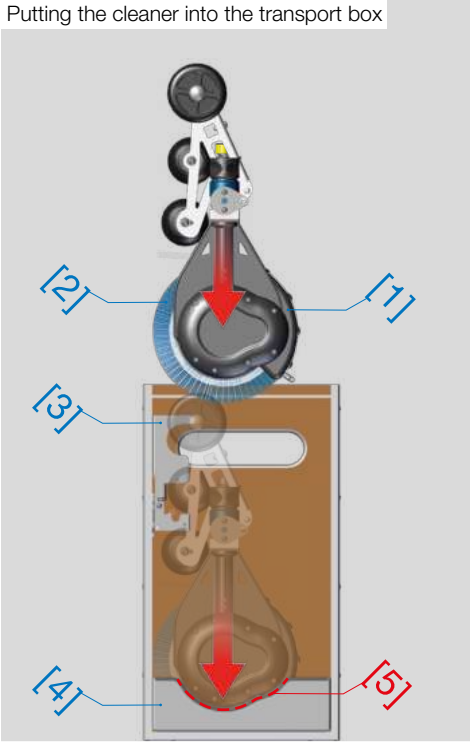
NOTICE

Risk of damage due to impurities in the water

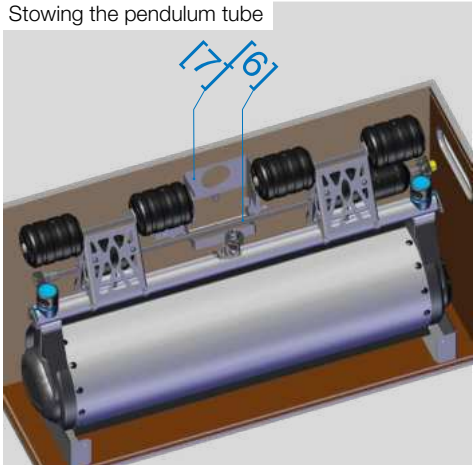
- Never operate the cleaner without a high-pressure filter.

This prevents damage caused by impurities in the water.

Putting the cleaner into the transport box



Stowing the pendulum tube



W / W Pro

How to stow the cleaner correctly in the transport box

To stow the cleaner in the transport box, proceed as follows:

- Turn the cleaner [1] and the brush roller [2] towards the transport lock [3].
- Place the cleaner on the retaining plates [4] on the floor.
- Check the fit: The gearbox housing must sit neatly in the contour [5] of the bottom plates.

W / W Pro

Stowing the pendulum tube

- Position the pendulum tube [6] in the transport lock [7].
- Make sure that the rubber buffer on the pendulum tube is not behind a guide roller.
- If necessary, you must correct the position of the guide roller.

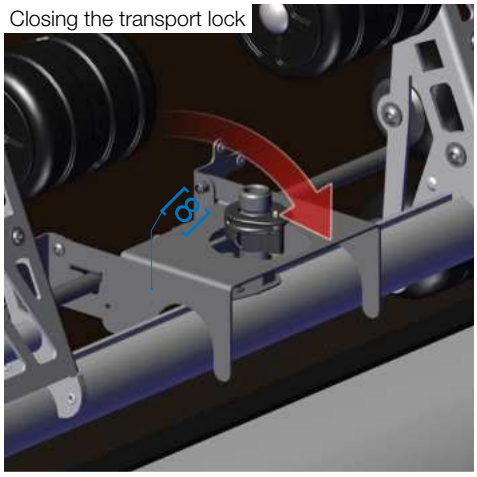
⚠ CAUTION

Risk of injury when lifting heavy parts

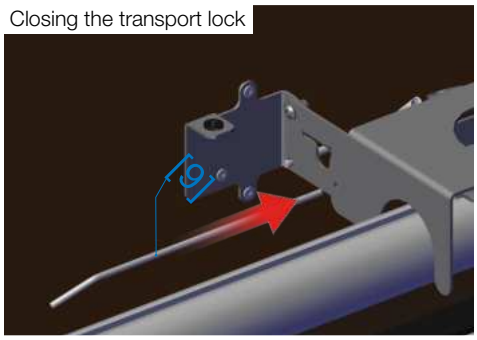
- When lifting the machine, make sure to lift it in an ergonomically correct way.

This will protect you from injuries caused by overloading your back.

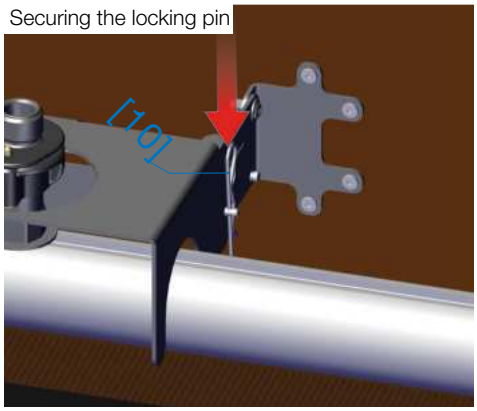
Closing the transport lock



Closing the transport lock



Securing the locking pin



W / W Pro

Closing the transport lock

- Fold the transport lock [8] down.
- Insert the locking pin [9] into the locking holes.
- Secure the locking pin with the spring pin [10].

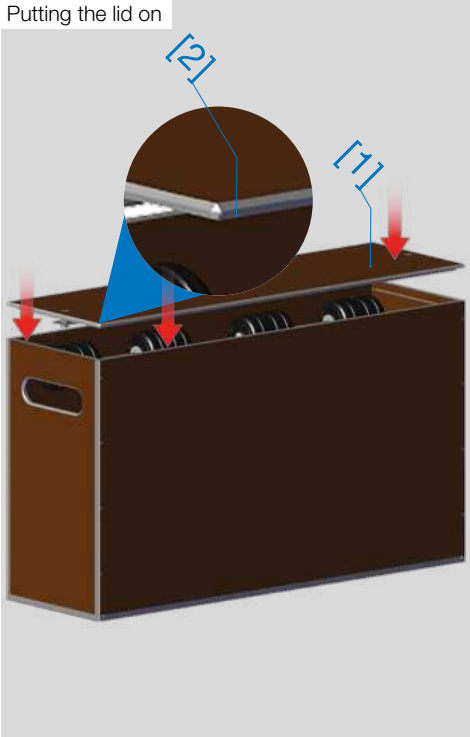
⚠ CAUTION

Risk of injury during installation

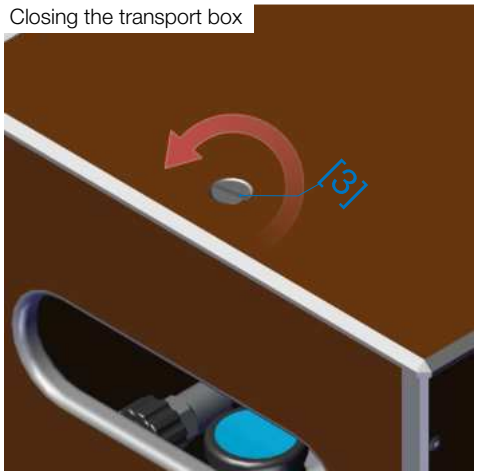
- Wear gloves during installation.

This will protect your skin from abrasions and pinching.

Putting the lid on



Closing the transport box



W / W Pro

How to seal the box

- Put the lid [1] on.
- Make sure that the rim of the lid [2] rests in the body of the box.
- Turn the lock [3] by 90° on each side.

W / W Pro

Making the cleaner winterproof

- Remove the water inside as described on **page 62**.
- Preserve the cleaner as described on **page 63**.
- Store the cleaner in the transport box in a frost-proof place.

⚠ CAUTION

Risk of injury during installation

- Wear gloves during installation.

This will protect your skin from abrasions and pinching.

Notes

Disposing of the system

Information about disposal of the product and the associated components can be found here.

What happens with the waste?

Packaging

▸ The packaging is made of wood and metal and can be recycled.

Resin for ultra-pure water production

▸ Please refer to the safety data sheet for disposal regulations.

Gearbox housing, gearbox parts, plastic parts, guying system and brush roller

▸ These components can be disposed of with non-recyclable waste.

Profile tube, splash guard, pendulum tube and connection nipple

▸ These components can go into metal recycling.

⚠ CAUTION

Risk of injury during disassembly

▸ Wear gloves during disassembly. This will protect your skin from abrasions and pinching.

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