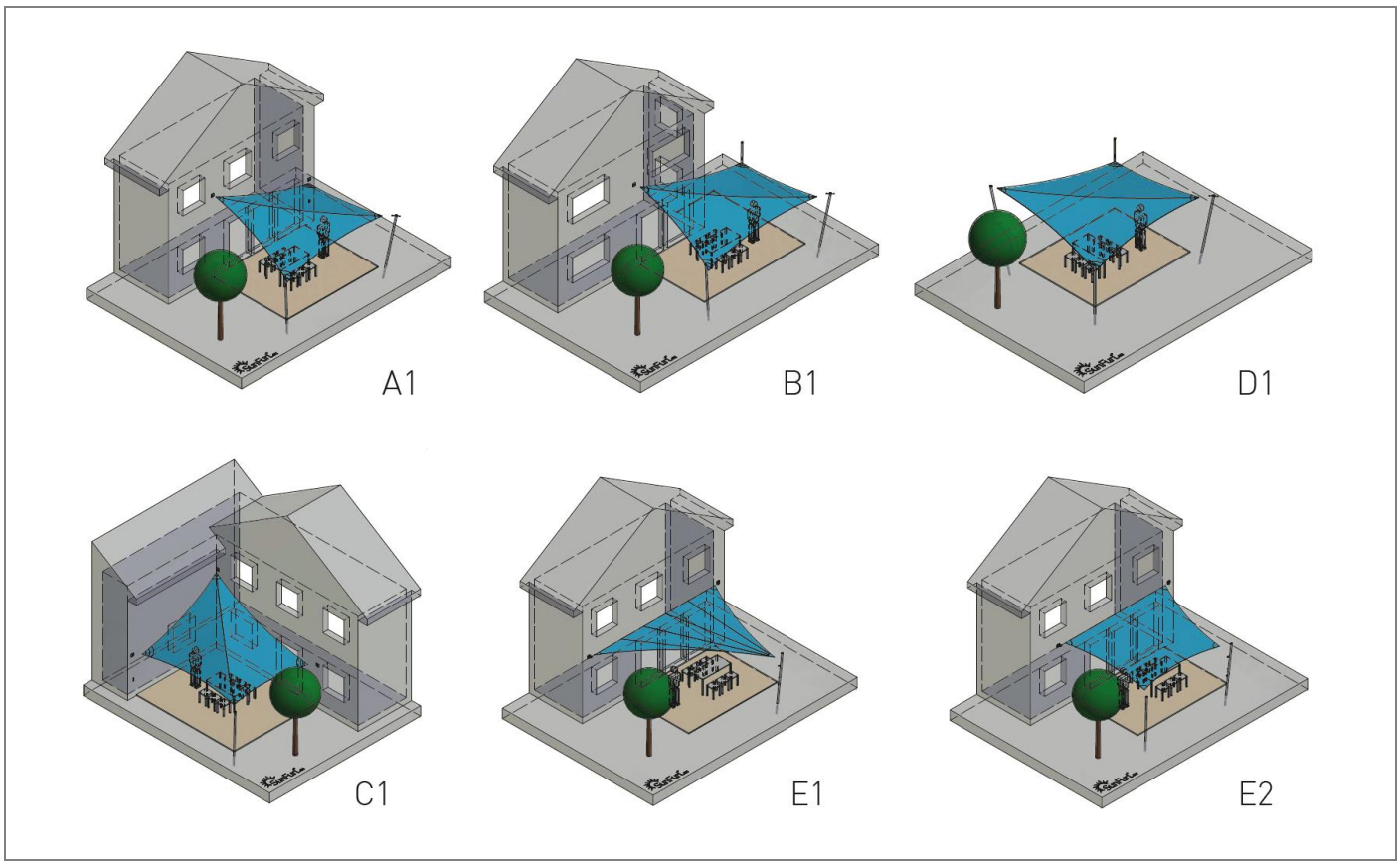
Operating and installation instruction
SunFurl® RM-light *-- Stand 02/ 2021 --*

Awning System I Type RM-light Manual



Imprint

Responsible for the content:

BARTELS GmbH
Bergheimer Straße 26
88677 Markdorf - GERMANY

Tel: +49 (0) 7544/ 95860-0
Fax: +49 (0) 7544/ 95860-60
E-mail: info@bartels.eu
Web: www.bartels.eu

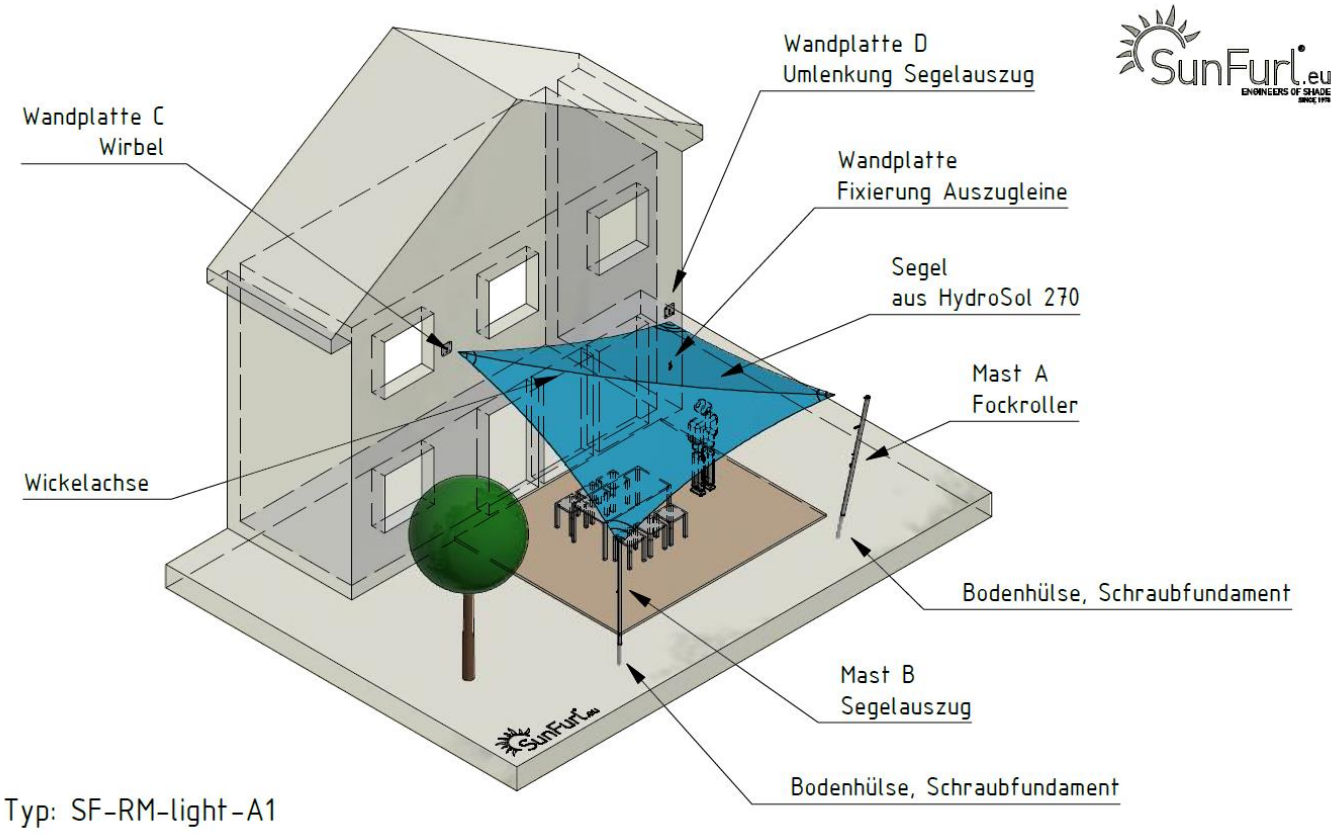
www.bartels.eu

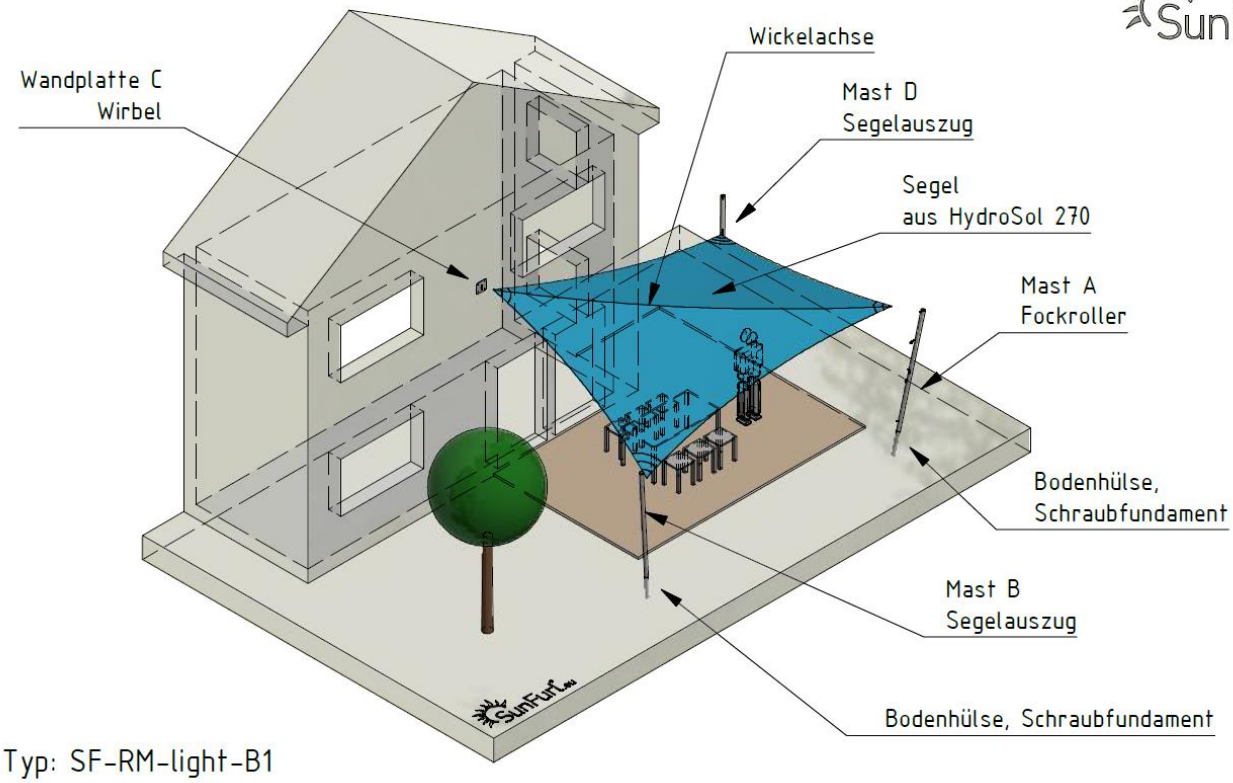
1 Table of contents

2 General

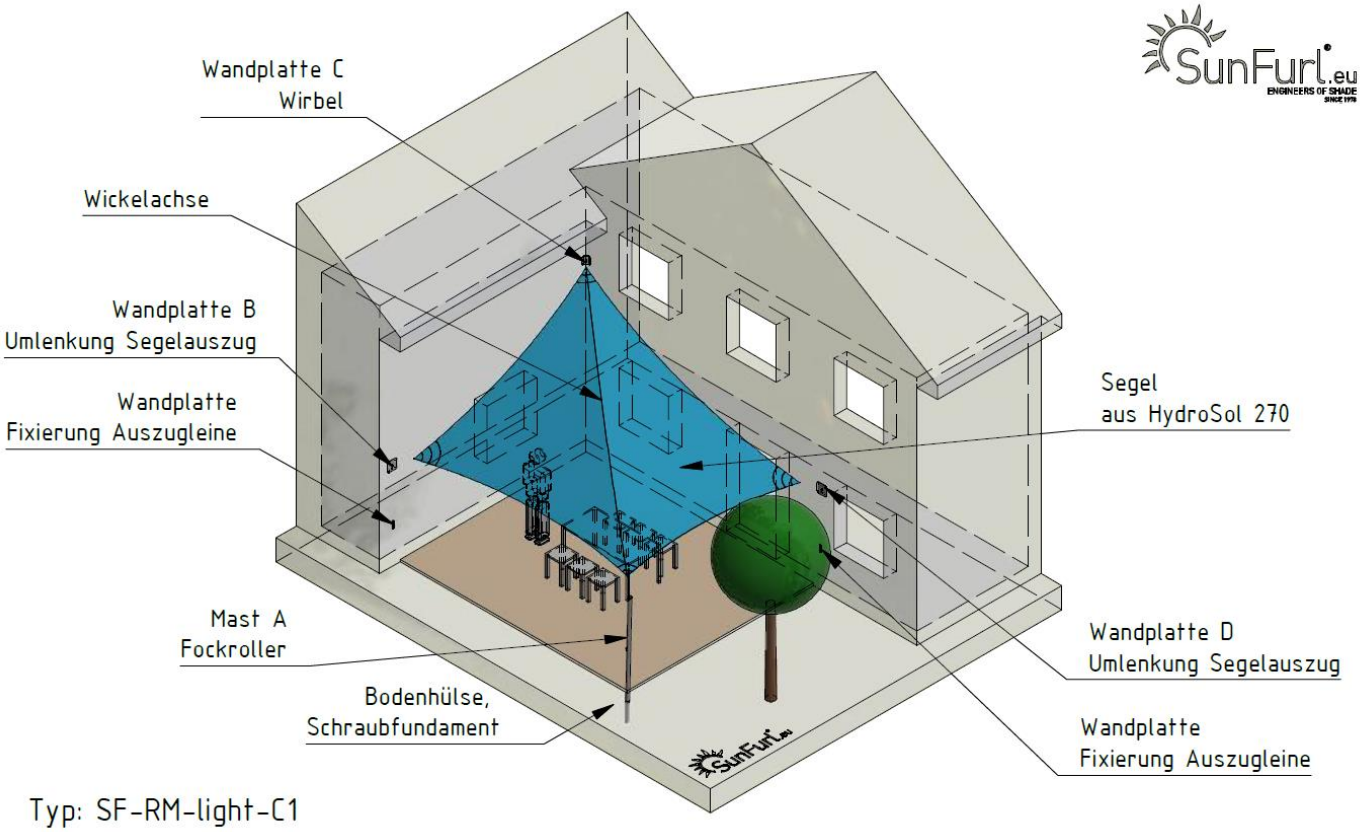
2.1 The Product *(Awning system SunFurl® RM-light)*

	This product is a sun sail system. Consisting of sun sail, winding mechanism, fastening elements (wall plates, supports, tensioning elements). For area of application, see section 2.2 This is an assembly set (assembly only by trained SunFurl® specialist companies). The specialist company is responsible for the safe fastening of wall panels and supports to the wall and floor. In case of insufficient expertise, a specialist must be consulted!
	The end customer is responsible for the safe operation of the system! The system must be protected from overloading by wind, water, snow, objects/animals/persons. Area of application see section2.2
	The following illustrations show typical installation variants





Typ: SF-RM-light-B1



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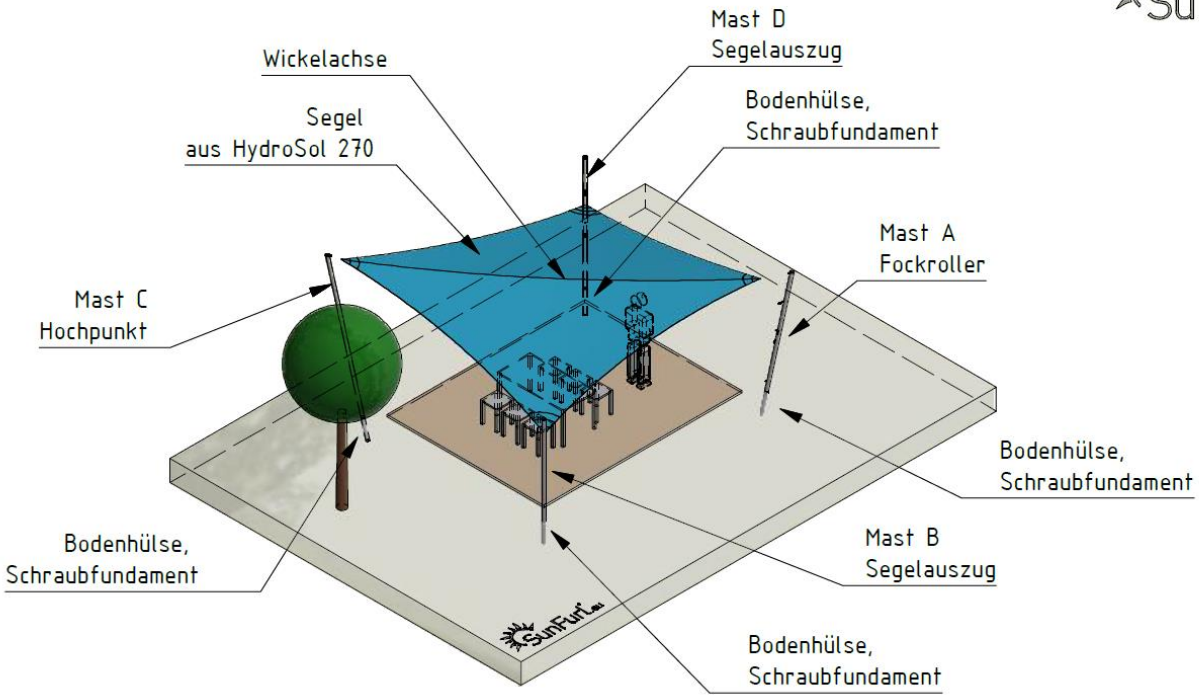
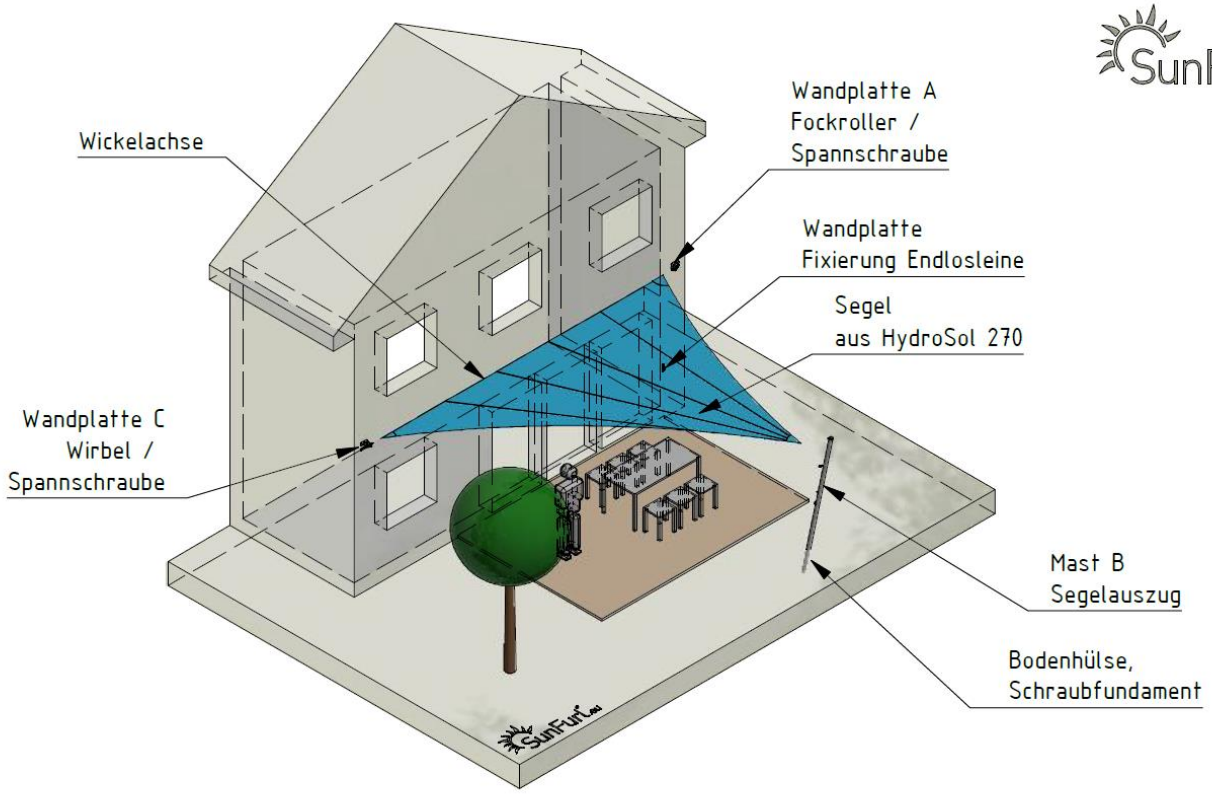
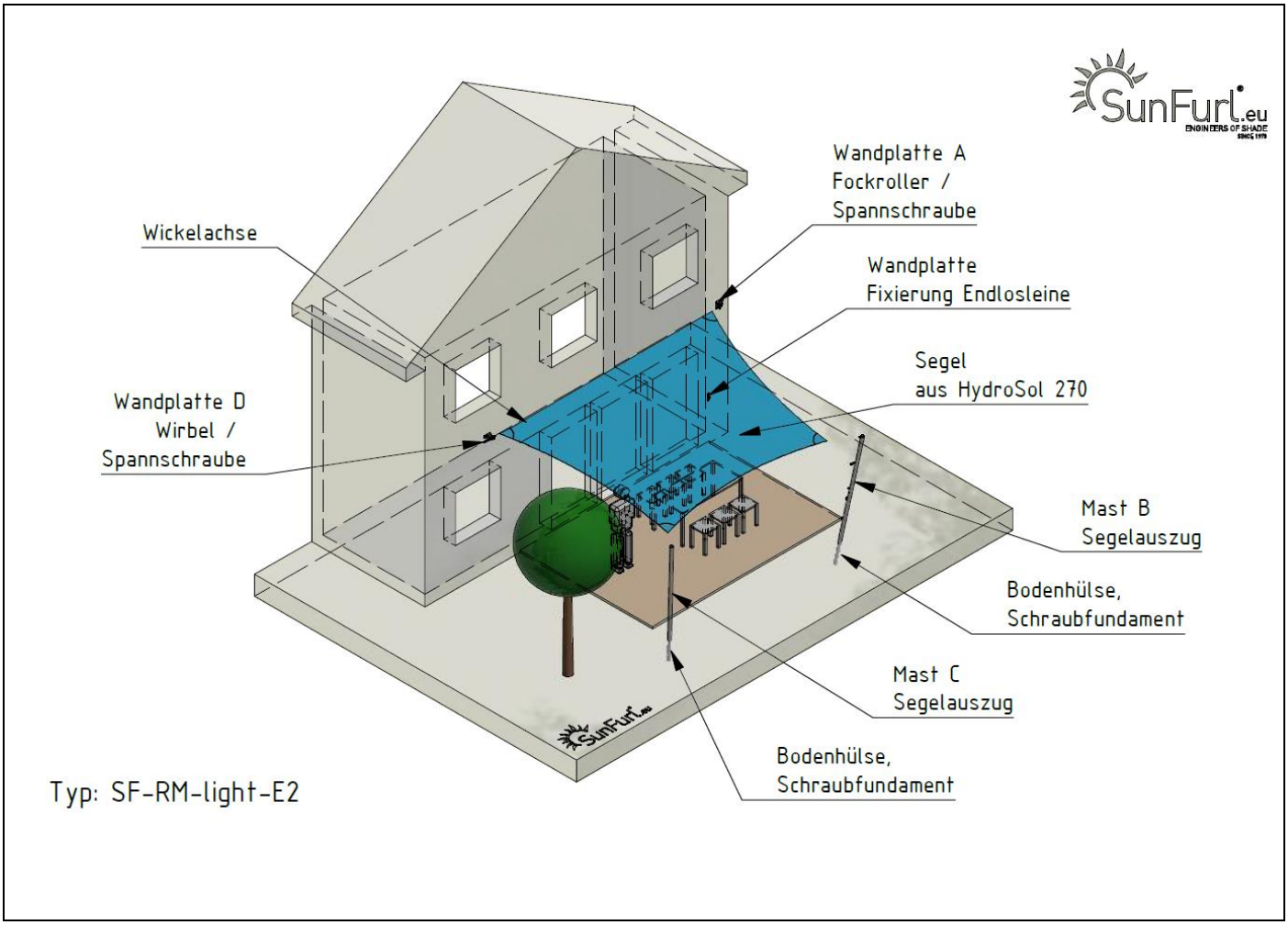


Typ: SF-RM-light-D1



Typ: SF-RM-light-E1

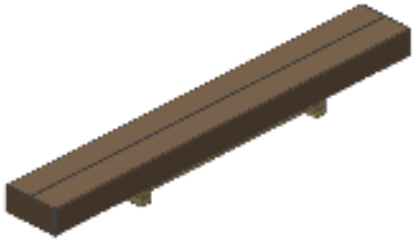

Wandplatte A
Fockroller /
Spannschraube
Wickelachse
Wandplatte
Fixierung Endlosleine
Segel
aus HydroSol 270
Wandplatte D
Wirbel /
Spannschraube
Mast B
Segelauszug
Bodenhülse,
Schraubfundament
Mast C
Segelauszug
Bodenhülse,
Schraubfundament
Typ: SF-RM-light-E2

2.2 Intended use / Operation

	The SunFurl® RM-light sun sail system (winding system, supports, wall fixings, ropes + rope guide, sail) is designed for use as a sun sail which can be manually rolled in or out as required.
	
	• Max. Span of the winding system (AT line) 8 m
	• Max. Sail area 35 m² with standard AL mast plus internal bracing (thick-walled AL profile tube)
	• The system must be closed when the wind picks up (furl the sail).
	• The following wind limits apply:
	  ○ Up to 20 m² sail area >> 6 Bft (max. 13,8 m/s)
	  ○ Up to 35 m² sail area >> 5 Bft (max. 10,7m/s)
	• No rain (with sail unfurled) if the slope is < 15°.
	• No snow (with sail extended)
	• No operation at temperatures < 5°C (danger of frost / possible damage to the sail).

	The winding core and the sail **must not** be subjected to external forces. These are for example: • Load from persons/animals (hanging, sitting, running). • Load from objects (buildings, plants, laundry, supporting/ hanging/ pulling) • Loads caused by water and hail/snow • Wind loads above the permissible wind speed (corresponding to sail area)

2.3 Scope of delivery

	SunFurl® RM-light awning systems are standardised sets or are planned individually. The scope of delivery is determined individually (see parts list on delivery note and/or installation plan). Typical components are: • Winding system (jib furler, swivel, AT line, endless rope) • Wall plates (for fastening the winding core and for the rope guide) • Masts (optionally with height adjustment) • Ropes, curry clamps, winches, deflection blocks • Ground sleeves, screw foundations for masts • Individually manufactured sail • Assembly instructions / planning sketch (installation plan)
	Winding axle (size I) 1 x jib furler with shackle 1 x swivel with shackle 2 x thimble (aluminium) 1 x AT-line assembled (pressed) to length 4 x trim rope 1 x endless rope D6mm with deflection block and rubber stopper (length of endless line in standard 1.7m or 2.2m)

	Wall plates for winding core or rope linkage Hole spacing: 125 mm Edge distance: 25 mm Material: stainless steel, surface ground + electropolished (satin gloss)
	Security option for controls (optional) Sheet metal adapter with combination lock for comb clamp For kindergarten / school / public areas Prevents unintentional operation
	**<u>Aluminium masts</u>** Pole D76.1 / aluminium / surface anodised Standard length, 2.5m, 3m, 3.5m High points from a mast length of 4m are designed in D102 plus corresponding bracing (details see order forms) <u>Mast Variants</u> • Winding axle with and without height adjustment • Sail extension with height adjustment • High point with ring eye for free-standing systems Masts must be partially reinforced with stiffeners (to be ordered separately). For necessary stiffeners see order forms SF-RM. <u>Note:</u> With AL masts, all components are movably mounted via grooves and can be individually placed / changed during assembly.
	**<u>Operating elements:</u>** • rope block with swivel (for line linkage to a wall plate) • Ropes with snap hooks for guiding / tensioning the sail extensions • Comb clamp with roller for fixing to post or wall plate

	**Foundations** Ground socket for setting in concrete Length approx. 850mm / insertion stop at approx. 500mm / safety screw / material stainless steel / mounting in concrete foundation (see mounting instructions in Chapter 4.2. Screw foundations
	Individually made sail Material HydroSol 270

3 Safety

3.1 General safety

	Observe all instructions and guidelines in this documentation. In addition, accident prevention regulations and instructions for the area of use must be observed.

3.1.1 Signal words and warning symbols used

	**Attention!** This symbol indicates an imminent or potential danger to the life and health of persons. Failure to follow these instructions can have serious effects on health or life-threatening injuries. Significant damage to persons and equipment can occur as a result.
	**Attention!** Crushing hazard - indicates a hazard of mechanical injury to body parts and warns of imminent danger to the life and health of persons who come into contact with the hazardous area.
	**Attention!** Expertise required - the work may only be carried out by trained persons with appropriate specialist knowledge. In case of ambiguity a specialist of the BARTELS GmbH must be consulted!
	**Important information:** Information that must be observed during installation and use of the product to avoid process interruptions or malfunctions.
	**Hint:** Gives the user the information needed to reach a task / target directly and without problems.
	**Further detailed information:** Indicates to the user that more information is available on this topic (e.g., separate instruction manuals of built-in components or other guidance aids / documentation)

3.2 Safety instructions for the operator

3.2.1 Occupational safety

	• Wear protective equipment during installation work (safety shoes, gloves, safety goggles, safety helmet). • Always carry out installation work in pairs (sometimes high weight of components or for safety when working on ladders or lifting platforms). • When installing large/ bulky/ heavy components, it is mandatory to secure the component (against falling down) with a rope.

3.2.2 Technical condition of the product

	The operator of the solar sail system is responsible for the regular maintenance of the entire system! For details, see the maintenance plan in chapter 7. **Particular attention should be paid regularly to the condition of the attachment points on walls, the condition of foundations in the ground and the condition of the lines and the sail!**

3.3 Safety instructions for the operating personnel

3.3.1 Personnel to be assigned and qualification

	The rolling system may only be operated by instructed persons! Children under the age of 14 and mentally handicapped persons may only operate the rolling system under the supervision of an instructed person.

3.3.2 Danger points and possible accident hazards

	**Danger due to overloading of fastening points** The system must not be overloaded to prevent consequential damage! The operator and operating personnel are obliged to protect the system from damaging influences! • Wind speed **The system must be closed when the wind picks up (furl the sail).** The following wind limits apply: ○ Up to 30m² sail area >> 6 Bft (max. 13,8 m/s) • **Rain/ hail/ snow (the sail must be furled manually in case of rain, hail, snow)** • **Icing (the sail must not be operated at temperatures < 5°C)** • **Objects (branches, parts of buildings, etc.)** • **People (sitting, hanging, etc.)**
	**Danger of crushing on rollers/ and rope guide (rope fixation).** **Never reach into the danger zone of moving parts with limbs during operation!** • Curry clip, winch, winch handle • Deflection block on sliders (mounted on rail on supports) • Never move slides under load • Deflection block on wall • Furler/ swivel / winding axle
	**Danger of hair being drawn into the area of moving parts.** **Never reach into the danger zone of moving parts with hair during operation!** • Curry clip, winch, winch handle • Deflection block on sliders (on supports) • Never move slides under load • Deflection block on wall • Furler/ swivel / winding axle
	**Danger of falling components or assemblies due to insufficient fastening.** • Fastening elements (screws/ dowels) must be carefully selected according to the substrate! • Foundations must be sufficiently heavy/stable! • All fastening screws must be tightened firmly and checked regularly. • Ropes, shackles, deflection blocks must be checked regularly for damage and replaced if necessary.

3.4 Specific life cycles of the product (Safety instructions)

3.4.1 Transport

	• Suitable safety equipment must be worn for transport and unpacking! (Safety shoes, gloves, helmet, safety goggles). • Heavy, can fall on feet • Sharp-edged, rough • Screws, nails • Never carry heavy parts alone!

3.4.2 Installation/ Assembly

 	• Installation must be carried out by persons with sufficient expertise in the installation of heavy objects on buildings. • Installation work must be carried out by at least two persons • Heavy, can fall on feet • Risk of falling when working on ladders/ platforms/ lifting platforms • All screws connections must be secured with **Loctite 243** screw protection.

3.4.3 Service and maintenance

	• Service and maintenance must be carried out by a trained person. • Suitable safety equipment must be worn for maintenance! (gloves, safety goggles) • A maintenance interval of max. one year must be observed • Details on maintenance are described in chapter 7.

3.4.4 Disassembly and Disposal

	• Dismantling must be carried out by persons with sufficient expertise for dismantling heavy objects on buildings. • Appropriate safety equipment must be worn for dismantling and removal! (Safety shoes, gloves, helmet, safety goggles). • Installation work must be carried out by at least two people • Heavy, can fall on feet • Never carry heavy parts alone

3.5 Safety instructions for materials and supplies

3.5.1 Materials used and surface coatings

	• Stainless steel • Aluminium • POM plastic • Optional powder coating as decorative layer

3.5.2 Oils / Greases

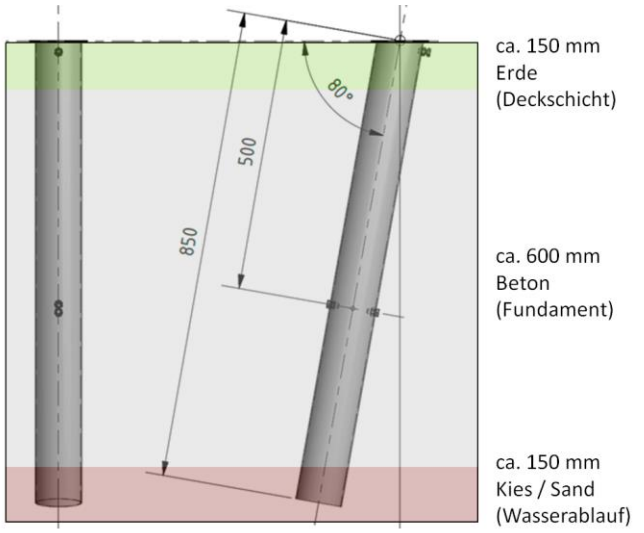
	• Lubricant **WÜRTH HHS 2000** (reduction of cold welding tendency in threads) • Threadlocker **Loctite 243**

4 Installation

4.1 Wall plates

	**Mounting the fixed point wall panel on a wall** Make sure that the fixed point is mounted at a sufficient height to obtain a slope of at least 15° later (winding core and sail). A typical mounting height is in the range of 4 m height. For mounting height see individual installation plan. For suitable mounting material see Chapter 9.2.3
	**Mounting the wall plate with clamping screw on a wall (Winding axis parallel to a wall)** For mounting height, see individual installation plan. A typical installation height is in the range of 1.8 - 2.1 m height. For suitable mounting material see Chapter 9.2.3
	**Mounting the rope linkage wall plate on a wall.** For mounting height, see individual installation plan. A typical mounting height is in the range of 1,8m - 2 m height. For suitable mounting material see Chapter 9.2.3
	**Mounting the occupancy plate on a wall (below the rope linkage).** Make sure that the wall plate is placed approx. 0.8-1.2 m above the floor for comfortable operation. For suitable mounting material see Chapter 9.2.3

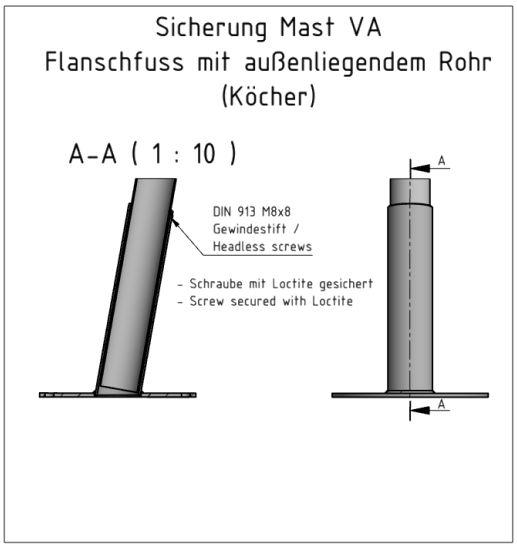
4.2 Ground sleeve



Positioning / Aligning / Fixing the ground sleeve

- Insert the ground sleeve into an excavation (min 800x800x800 mm).
- Align the ground sleeve (10° falling against later direction of force). The locking screw points against the direction of force (in the direction of fall of the support).
    - Winding core Mast falls 10° in bearing with later winding core (bearing between prop and wall plate)
    - Sail extension Mast falls by 10° in bearing of the angle bisector of the two associated outer leeches of the sail (bearing centre between winding core attachments).
- The top edge of the ground sleeve is bevelled by 10°, which allows alignment with a conventional spirit level.
- Fix the ground sleeve stably in the aligned position so that it remains in position when filling with concrete (check position again after filling and correct if necessary)
- The top edge of the concrete should end approx. 50-100 mm below the surrounding level.
- The ground socket should protrude approx. 50-100 mm from the concrete so that the securing screw can still be operated later (the upper edge of the ground socket should correspond to the ambient level).

4.3 Mast securing



Secure mast to flange feet

- Secure the mast to the flange foot with a screw as shown in the drawing (screw included in delivery).

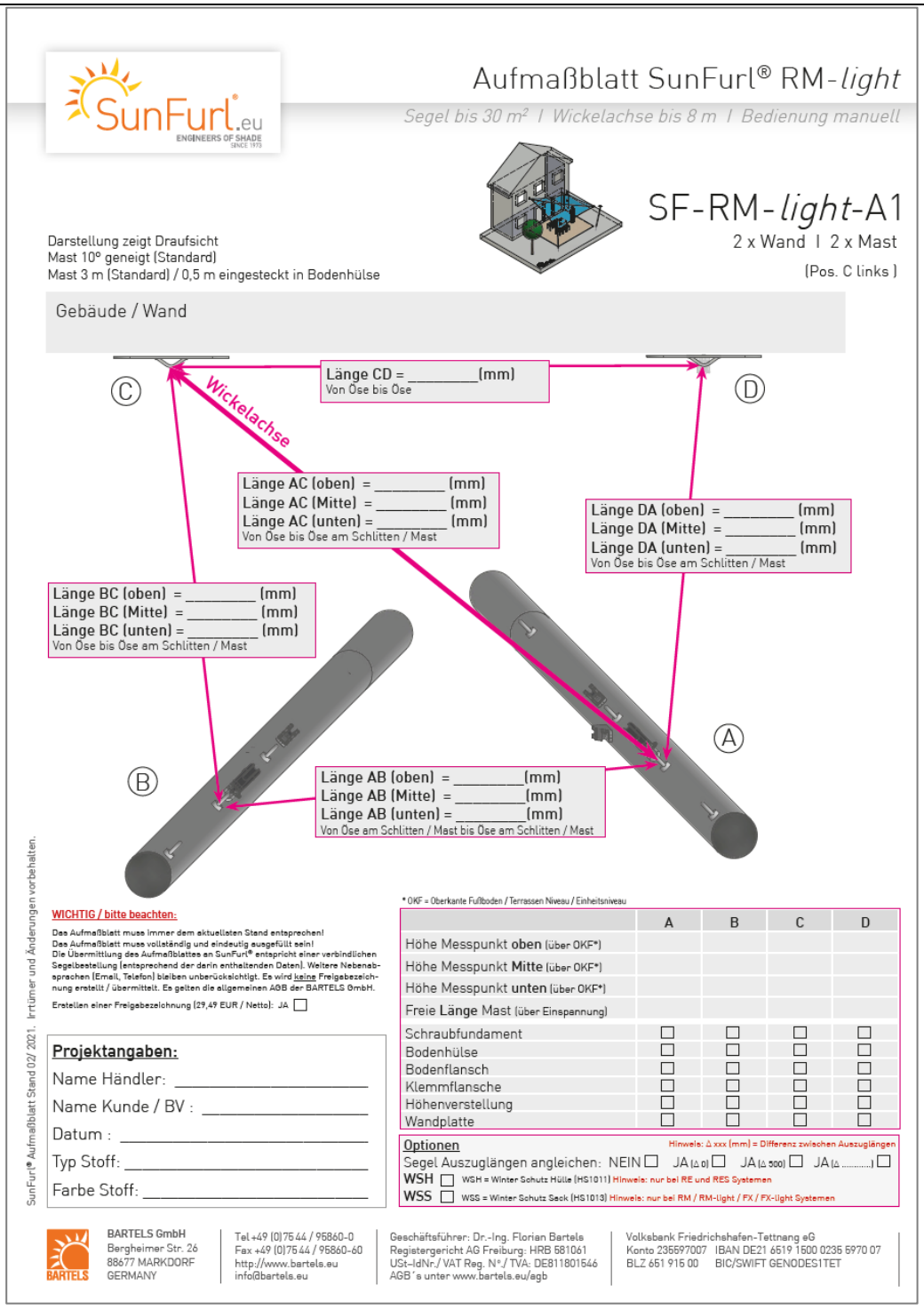
In the case of very strong or oblique forces, drill a hole in the mast and create a tight fit by screwing in the screw

4.4 Fill out the measurement sheet

Procedure:

- Select dimension sheet >> see dimension sheets in the login area of sunfur.eu.
- If no suitable standard dimension sheet fits the individual arrangement, please create a clear sketch (similar to the standard dimension sheets) and enter all dimensions there.
- If anything is unclear, please contact your sales partner or BARTELS directly!!!
- Determine dimensions with a metal tape measure (2 persons required)
- Enter the dimensions in the measurement sheet
- Enter the mast heights in the dimension sheet
- Enter name / BV + date on dimension sheet
- Indicate desired color (if necessary, fabric type)
- Check measurements (2nd measurement)

Scan or photograph the measurement sheet with the entered measurements and send it to your SunFurl by e-mail.



Aufmaßblatt SunFurl® RM-*light*

Segel bis 30 m² I Wickelachse bis 8 m I Bedienung manuell

SF-RM-*light*-A1

2 x Wand I 2 x Mast

(Pos. C links)

Darstellung zeigt Draufsicht
Mast 10° geneigt (Standard)
Mast 3 m (Standard) / 0,5 m eingesteckt in Bodenhülse

Gebäude / Wand

Wickelachse

Länge CD = _____(mm)
Von Öse bis Öse

Länge AC (oben) = _____ (mm)
Länge AC (Mitte) = _____ (mm)
Länge AC (unten) = _____ (mm)
Von Öse bis Öse am Schlitten / Mast

Länge DA (oben) = _____ (mm)
Länge DA (Mitte) = _____ (mm)
Länge DA (unten) = _____ (mm)
Von Öse bis Öse am Schlitten / Mast

Länge BC (oben) = _____ (mm)
Länge BC (Mitte) = _____ (mm)
Länge BC (unten) = _____ (mm)
Von Öse bis Öse am Schlitten / Mast

Länge AB (oben) = _____(mm)
Länge AB (Mitte) = _____(mm)
Länge AB (unten) = _____(mm)
Von Öse am Schlitten / Mast bis Öse am Schlitten / Mast

* OKF = Oberkante Fußboden / Terrassen Niveau / Einheitsniveau

	A	B	C	D
Höhe Messpunkt **oben** (über OKF*)				
Höhe Messpunkt **Mitte** (über OKF*)				
Höhe Messpunkt **unten** (über OKF*)				
Freie **Länge** Mast (über Einspannung)				
Schraubfundament	☐	☐	☐	☐
Bodenhülse	☐	☐	☐	☐
Bodenflansch	☐	☐	☐	☐
Klemmflansche	☐	☐	☐	☐
Höhenverstellung	☐	☐	☐	☐
Wandplatte	☐	☐	☐	☐

WICHTIG / bitte beachten:

Das Aufmaßblatt muss immer dem aktuellsten Stand entsprechen!
Das Aufmaßblatt muss vollständig und eindeutig ausgefüllt sein!
Die Übermittlung des Aufmaßblattes an SunFurl® entspricht einer verbindlichen Segelbestellung (entsprechend der darin enthaltenden Daten). Weitere Nebenabsprachen (Email, Telefon) bleiben unberücksichtigt. Es wird keine Freigebezeichnung erstellt / übermittelt. Es gelten die allgemeinen AGB der BARTELS GmbH.

Erstellen einer Freigabezeichnung (29,49 EUR / Netto): JA ☐

Projektangaben:

Name Händler: _____
Name Kunde / BV : _____
Datum : _____
Typ Stoff: _____
Farbe Stoff: _____

Optionen Hinweis: Δ xxx (mm) = Differenz zwischen Auszuglängen

Segel Auszuglängen angleichen: NEIN ☐ JA (Δ 0) ☐ JA (Δ 500) ☐ JA (Δ .....) ☐

WSH ☐ WSH = Winter Schutz Hülle (HS1011) Hinweis: nur bei RE und RES Systemen

WSS ☐ WSS = Winter Schutz Sack (HS1013) Hinweis: nur bei RM / RM-light / FX / FX-light Systemen

SunFurl® Aufmaßblatt Stand 02/ 2021. Irrtümer und Änderungen vorbehalten.

BARTELS GmbH
Bergheimer Str. 26
88677 MARKDORF
GERMANY

Tel +49 (0)7544 / 95860-0
Fax +49 (0)7544 / 95860-60
http://www.bartels.eu
info@bartels.eu

Geschäftsführer: Dr.-Ing. Florian Bartels
Registergericht AG Freiburg: HRB 581061
USt-IdNr./ VAT Reg. N°./ TVA: DE811801546
AGB´s unter www.bartels.eu/agb

Volksbank Friedrichshafen-Tettnang eG
Konto 235697007 IBAN DE21 6519 1500 0235 6970 07
BLZ 651 915 00 BIC/SWIFT GENODES1TET

4.5 Installing / Uninstalling the sail

	After submitting the maximum measurements between the attachment points, the sail will be individually made and sent to you. The AT line with thimbles is part of the sail delivery.
    	• Attach deflection block to wall plate via shackle • Attach the deflection block to the mast with a snap hook (middle ring eye). • Attach a deflection block to both sail extensions via shackles (through ring) • Pass the pull-out lines through the deflection blocks and the comb clamps with pulleys. • Temporarily tie a knot at the ends of the line (this will be added later).
 	• Attach the swivel to the fixed-point using screw shackles. • Attach jib furler to diagonally opposite support via snap hooks in screw shackle.

- Spread out the sail on a clean surface (in the area under the winding axle).
- Align the sail (note marking on sail corners)
- Winding core pocket must be on top
- Attach thimbles to swivel and furler via quick-release bolts

Note:
Do not pull sail over the ground (stains and damage to fabric and seams can result!).

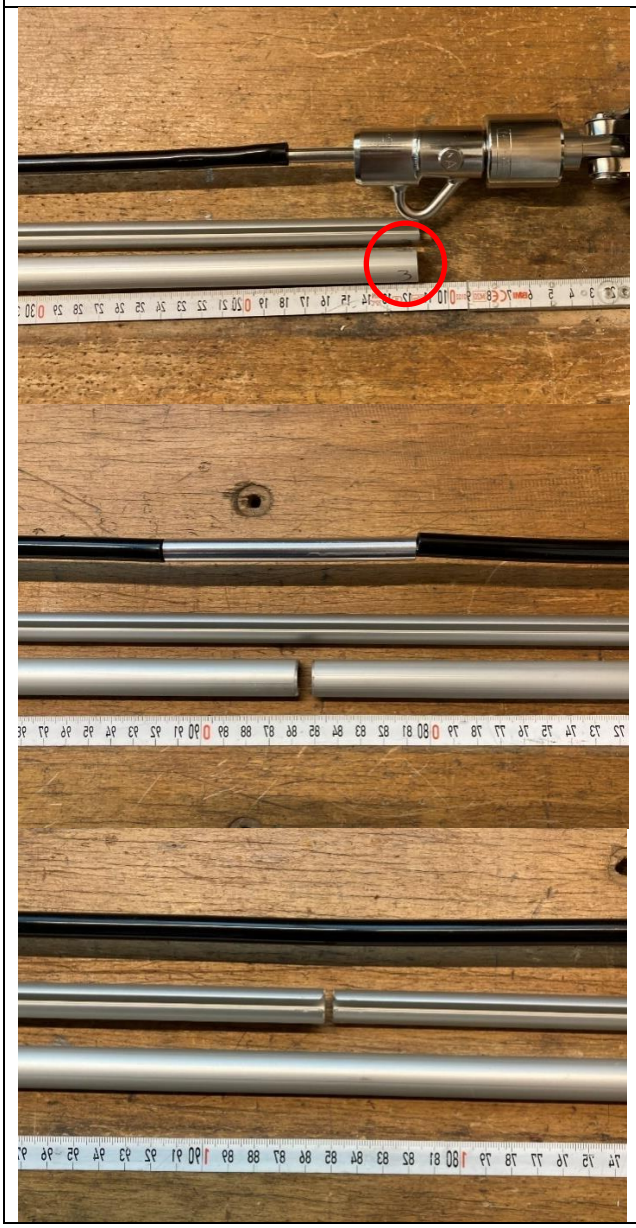
- Attach the lines to the sail extensions with snap hooks.
- Tighten the ropes and fix them in the comb clamp
- Apply tension evenly on both sides

Reel in the sail

- Release both lines from the comb clamp
- Furl the sail over the jib furler (note the clockwise rotation of the jib furler).
- Fix the endless line of the jib furler in the furled state in the comb clamp.
- Now adjust the knots of the two extension lines on the com clamp so that they both come under equal tension when the sail is furled.
- Repeat the furling and unfurling procedure several times until the length of the extension lines on the sail and on the opposite side are aligned.

Note:
When the sail is furled, both lines of the sail extension should be under tension as evenly as possible (see picture opposite). The sail is rolled up over the endless line until both lines are taut (the rolled sail can be tightened by turning it further). Unnecessary rope protrusions can be cut off after successful testing and adjustment.

4.5.1 Install / Uninstall the Sail (E1/E2-System)

	State of delivery Wire rolled with swivel and jib furler. The profile separately tied.
	Wire and profile laying next to each other. There is a little writing on the profile, which says „Wirbel“(marked in the picture). Start with this profile and the wire side with the swivel. The sail feeder is always on the site of the jib furler. The outer part of the profile is always 1 metre displaced to attach. The aluminium hulls must be on the edges of the outer part of the profile (the hulls are already attached on the wire).

	
	Remove bolt of the swivel and jib furler Start on the side of the swivel the fit the profile around the wire. First you put the outer part on the wire and then put the inner part in the nut of the outer part until they both fit. Now you must start on the jib furler site with the next outer part until those close up with the other ones. Repeat this procedure until all profiles are installed. The last inner part is the on with the sail feeder.

Put the foil shoe over the profile on the side of the jib furler. After that, you can put the fork from the furler onto the eye terminal. To secure those two components from moving, put the bolt through both.

It is the same procedure on the other side. If necessary, you can use a screwdriver to get the eye terminal into the right place (photo).

Put the splints into the bolt and twist them. Please be sure that those do not stick out (risk of injury).

Montage between the clamping screw

Screw out the clamping screw.

Mount the axle with the bolt on the side of the jib furler on the clamping screw (be assure that the endless line is already on the jib furler).
Mount the axle on the swivel side with the bolt on the clamping screw.
If the axle is long, be assure that she does not bend! A second person is needed to secure the axle in the mid.
Start to tighten both clamping screws simultaneously until the axle is tighten up.

Be aware that there can be a high pressure on the axle. Make sure, that the Wallplate or the underground of it is not Overloaded.

	Insert the sail Insert the sail trough the sail feeder (on the jib furler side). Use the trim lines on both sides to get the sail under pressure. Pull the sail extension to the mast and strain the sail (winch or 2:1 reduction).
	Montage glass fibre reinforced plastic pole (Only RM-E2!) Connect the to the sail adjusted glass fibre reinforced plastic poles with the connectors (glue). Put the pole into the sail and mark the cutting area. Cut the pole with the right safety appliance onto the fitting length. Put the whole pole into the bag in the sail and seal both sides with the lids. This pole is just for straining and should not be under pressure.
	Specialties RM-E2 Systems Please remember not to role the sail completely because of the Pole and the folding of the concave sail. Trim die lines so that the rolling-up of the Sail will stop. E2 Systems are automatically harder to roll in than diagonal tensed ones. That’s because there is no pressure from the sail extensions.

5 Operation / Handling

5.1 Rolling in / Unrolling / Securing

Unfurling the sail / tightening the sail

- Release the endless line from the comb clamp at the support and unroll the sail slightly in an anti-clockwise direction.
- Go to one side of the sail and unroll the sail completely over the line and secure the line in the comb clamp.
- On the second side, pull the sail over the line and also place it in the comb clamp.
- Pull through both sail extensions so that the sail is taut. Secure ropes in curry cleat
- Excess line can be shot up and clamped behind the line above the tack clamp.
- Furling procedure

Furling procedure

- Release both sail extractions from the comb clamps.
- Furl the sail using the endless line on the jib furler **(note the clockwise direction of rotation for furling).**
- When furled, fix the endless line in the comb clamp on the right-hand side of the jib furler mast (both extension lines should be under as much tension as possible in this state).




6 Fault states

6.1 Errors / error causes / trouble shooting

Errors	Error causes	Trouble shooting
Sail doesn´t fit	Orientation observed Pocket has to be on top	Change orientation
Sail rolls in with difficulty	Tension on the winding axis too low	Increase tension on the winding axle

7 Maintenance

7.1 Maintenance activities

	The system is maintenance-free! However, we recommend that you carry out a visual inspection once a year in order to detect and rectify any changes/damage.
	Checking all ropes of the sail guide • Wear and tear • Scuffing • We reccoment to exchange the ropes after 5 years (UV damage)
	Fastening elements Stability Fixing points (on walls, parapets, etc.)
	Check mast foundations • Damage to concrete foundations (ground sockets) • Stability of ground anchors / ground sockets • Securing screws on ground sockets • Insertion depth of mast tubes (have the mast changed the insertion depth of at least 500 mm due to vibrations / external forces) • Buckling points on mast tubes (especially at the upper edge of ground anchors or ground sleeves)
	Check sails for damage • Cracks • Scuff marks • Stains can be removed by sail cleaning as required. Sails may only be processed by a professional cleaner. Contact your sales partner or BARTELS GmbH for a recommendation.

8 Warranty

8.1 Warranty Period

	• The warranty period begins on delivery of the product (date of delivery note) • The warranty only applies to the components supplied by BARTELS (delivery note) • The warranty period for all mechanical components is 36 months (excluding wearing parts and electrical components - see also section **Fehler! Verweisquelle konnte nicht gefunden werden.**) • The warranty on wearing parts (ropes, sails) is 12 months

8.2 Wear Parts

	• Ropes • Sail

8.3 Disclaimer

	**Excluded from the warranty** • Assembly errors and their consequences • Damage resulting from improper use of the product • Damage resulting from overloading the product Damage caused by unauthorized modifications to the product

8.4 Processing of a warranty claim

	In the case of warranty claims within the warranty period, please contact your SunFurl® sales partner (and / or BARTELS GmbH) to plan the processing. For contact details see delivery note or imprint of this document

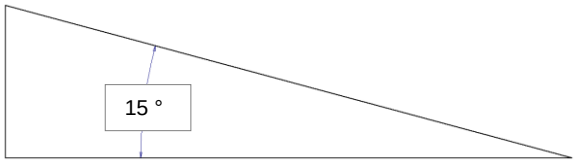
9 Attachment

9.1 Arrangement plan

	Most roller systems are individually adapted to the structural conditions. An exact installation plan must be provided by the planning company/person (sailmaker, awning builder, architect, etc.). In any case, a detailed plan should be drawn up before the start of construction to determine where fastening points must be placed (wall fastenings, ground anchors, bracing, concrete foundations, etc.). The condition of the wall, floor, etc. must be suitably load-bearing for the fastening of the foundations! The fastening elements (screws, dowels, etc.) must be selected appropriately for the substrate!

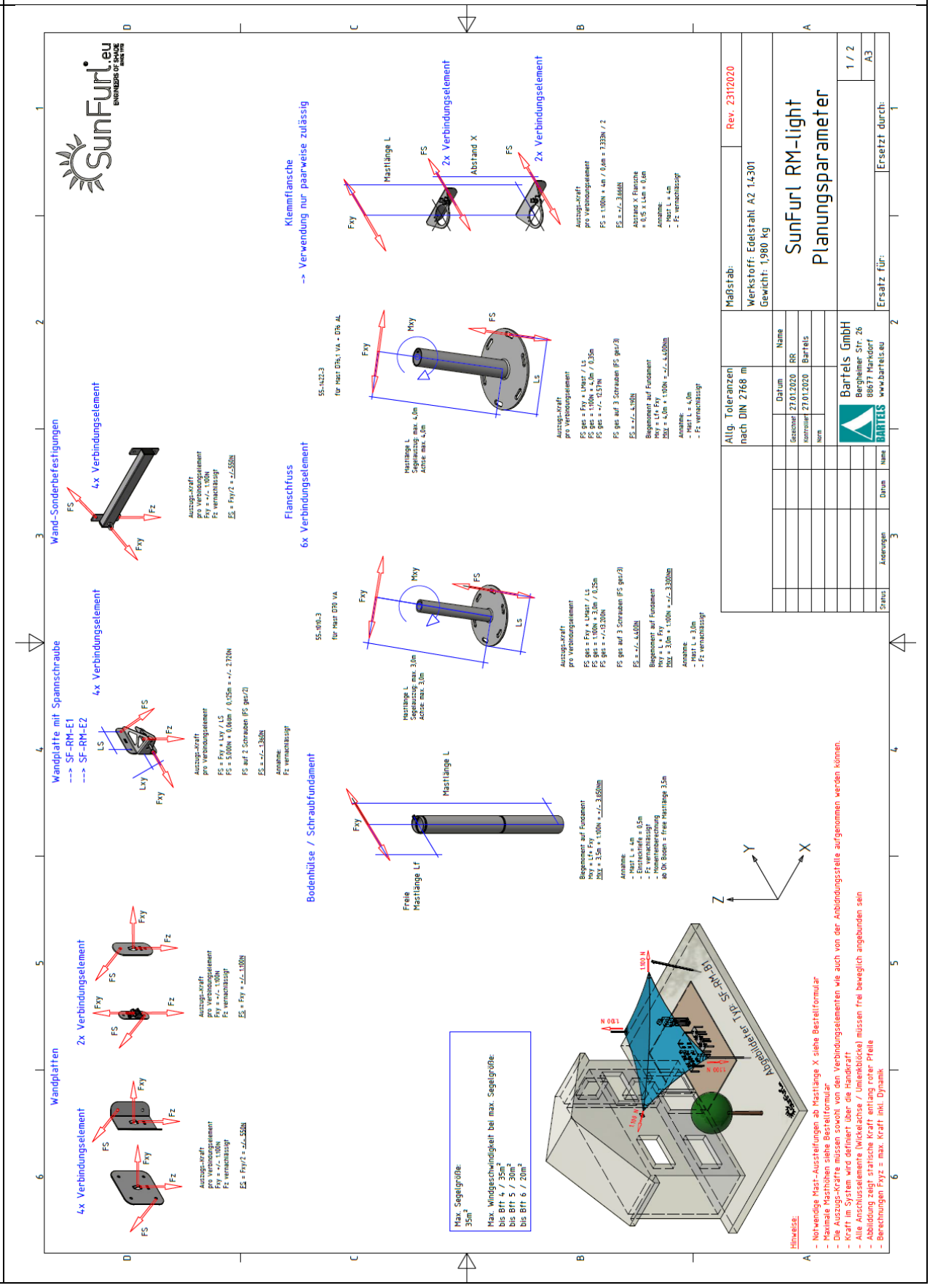
9.2 Forces / Fasteners

9.2.1 Forces / General

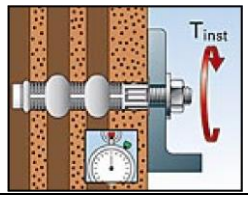
	ATTENTION: Forces (on wall panels, ground foundations, winding core, lines) increase strongly with freshening wind, which can fall into the extended sail. If the permissible wind speed is exceeded, the sail must be furled manually! The system must be closed when the wind picks up (furling the sail). The following wind limits apply: ○ Up to 20 m² sail area >> 6 Bft (max. 13,8 m/s) ○ Up to 35 m² sail area >> 5 Bft (max 10,7 m/s)
	ATTENTION: The sun awning must not be operated in the rain. Water pockets in the sail can overload/damage the system. Exceptions are installations where sufficient slopes have been provided for safe drainage. For safe drainage, a high tension of the sail and a continuous slope of min. 15° is required. 
	ATTENTION: The sun awning must not be operated at temperatures below 5°C. Ice and snow can overload/damage the system.

9.2.2 Forces on wall panels, foundations

The system-specific forces on the wall panel and foundations can be found in the respective system statics. The system statics are available for dealers / planners in the SunFurl login area (or will be sent to you by email on request).



9.2.3 Select Dowels and srews for wall fixing corretly

	ATTENTION: The distributor / installer is responsible for the choice of suitable fasteners, which are adapted to the substrate. Screws and dowels are **not included** with BARTELS **Action:** • Determine the base (wall, floor) to which the foundations are to be fastened (concrete, stone, solid stone, hollow stone, insulating layer, etc.) • Find out about suitable fastening solutions in a specialized market (you will find information on fasteners typically used by BARTELS below) • Follow the manufacturer's instructions for using the screws / dowels / foundation systems
	**<u>Cracked concrete / hollow brick / solid brick (without insulation)</u>** **ATTENTION:** The fastener described below is an example! The sales partner or installer is solely responsible for the selection of the suitable fastener (adapted to the conditions at the installation site) and the installation according to the manufacturer's specifications! z.B. FISCHER **FIS H K** Injektions-Ankerhülsen FISCHER **FIS A** Ankerstange (Ausführung in A4) FISCHER **FIS V** Hochleistungsmörtel 
	**<u>Cracked concrete / hollow brick / solid brick (with thermal insulation)</u>** **ATTENTION:** The fastener described below is an example! The sales partner or installer is solely responsible for the selection of the suitable fastener (adapted to the conditions at the installation site) and the installation according to the manufacturer's specifications! z.B. FISCHER **Thermax** (Ausführung in A4) FISCHER **FIS V** Hochleistungsmörtel FISCHER **KD** Multi Kleb- und Dichtstoff