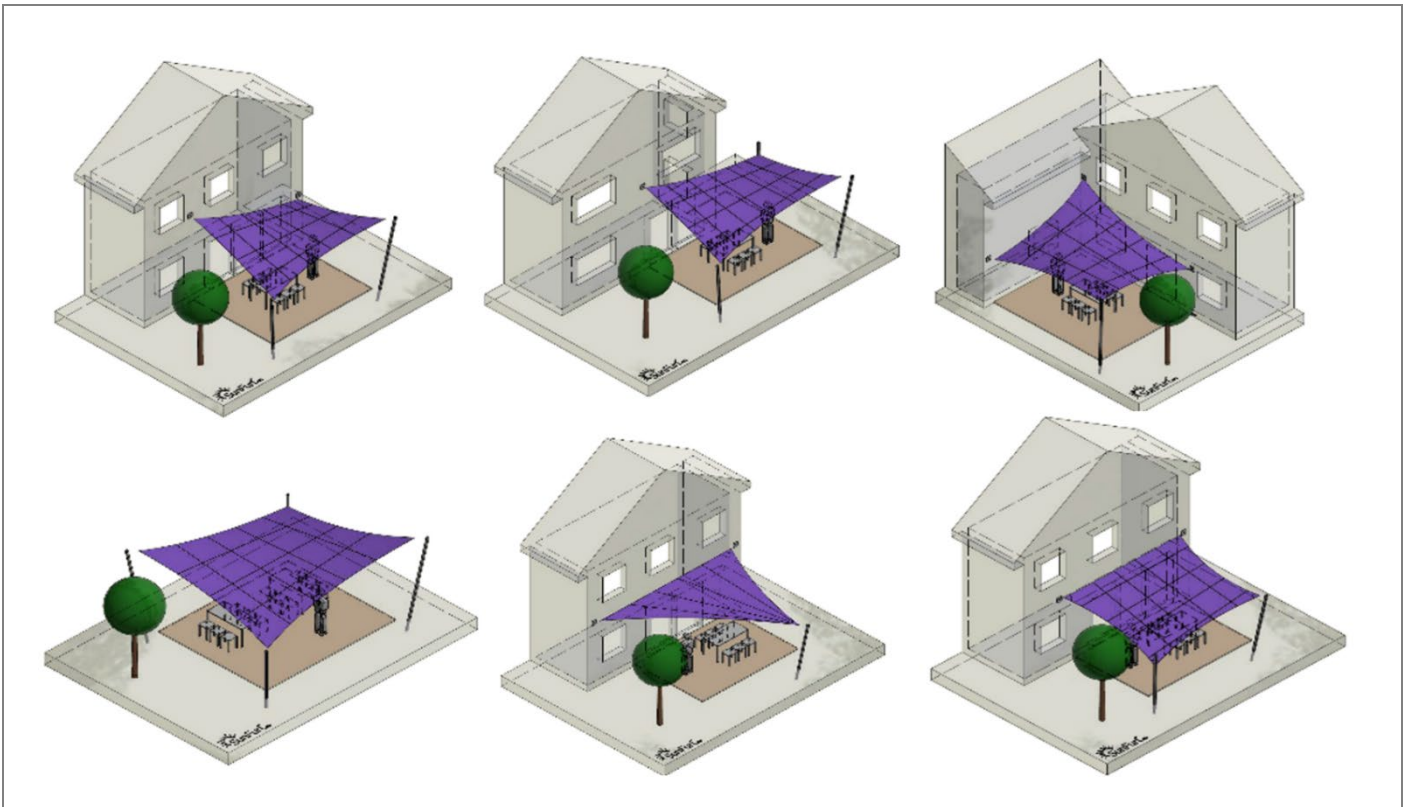


Operating/assembly instructions SunFurl[®] FX -- Status 01/2023 --

Sun sail I fixed



imprint

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www.bartels.eu

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2 General

2.1 The product (sunshade system SunFurl® FX)



SunFurl® stands for high-quality and individually planned sun sail systems. Each SunFurl® sun sail system is planned individually by trained specialist dealers according to the customer's wishes and the structural conditions.

The system type FX is a firmly tensioned sun sail that can only be used as sun protection in the summer months. The system can be installed/set up in different variants depending on the conditions at the installation site (see system renderings below)

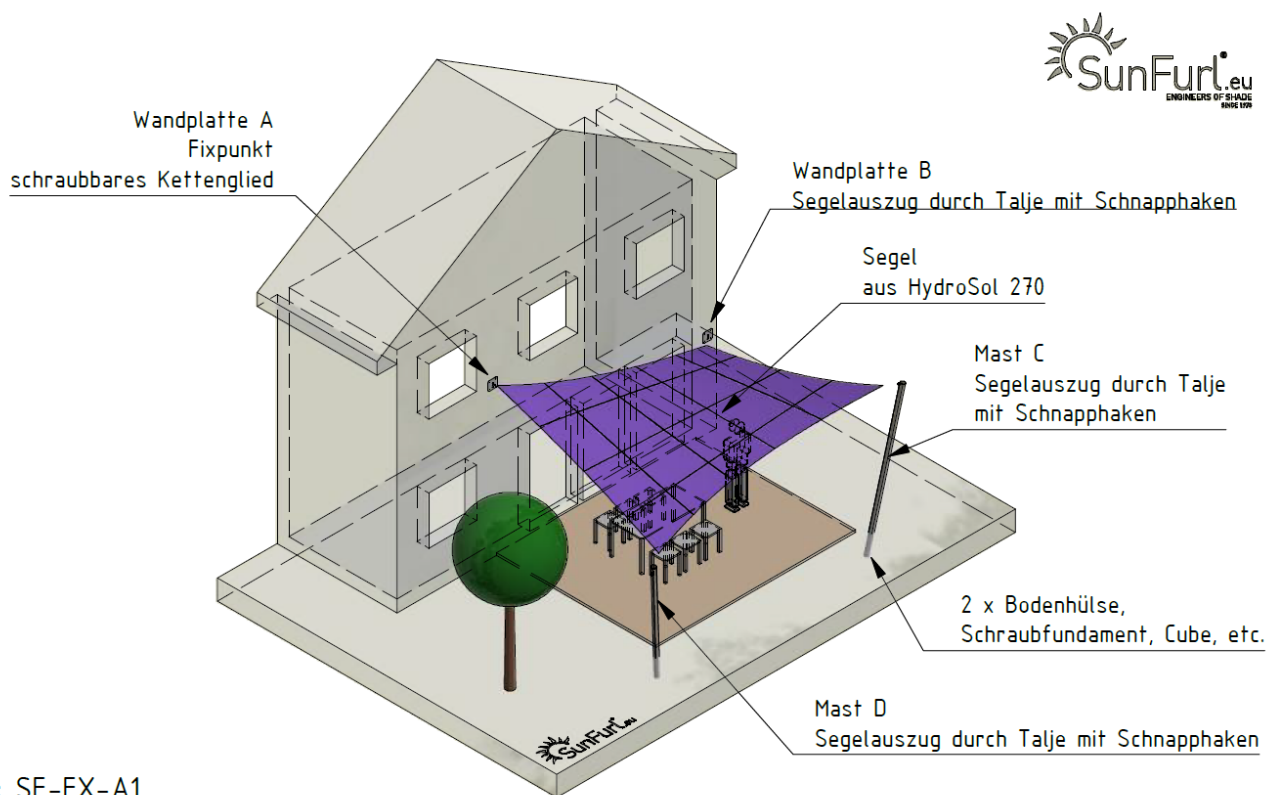


All BARTELS products are characterized by a robust design and extremely high-quality workmanship. Only weather-resistant materials (stainless steel, aluminum, bronze) are used. The sails are individually made by experienced sailmakers from high-quality materials.

SunFurl® FX

- Firmly tensioned sun sail system
- Tension of the sail via 4-fold tackles (pulleys)
- Manual hanging and unhooking of the sail (fastening via snap hooks, screwable chain links)
- Optional height adjustment of the sail extensions via eyelets

The following illustrations show typical installation variants



Wandplatte A
Fixpunkt
schraubbares Kettenglied

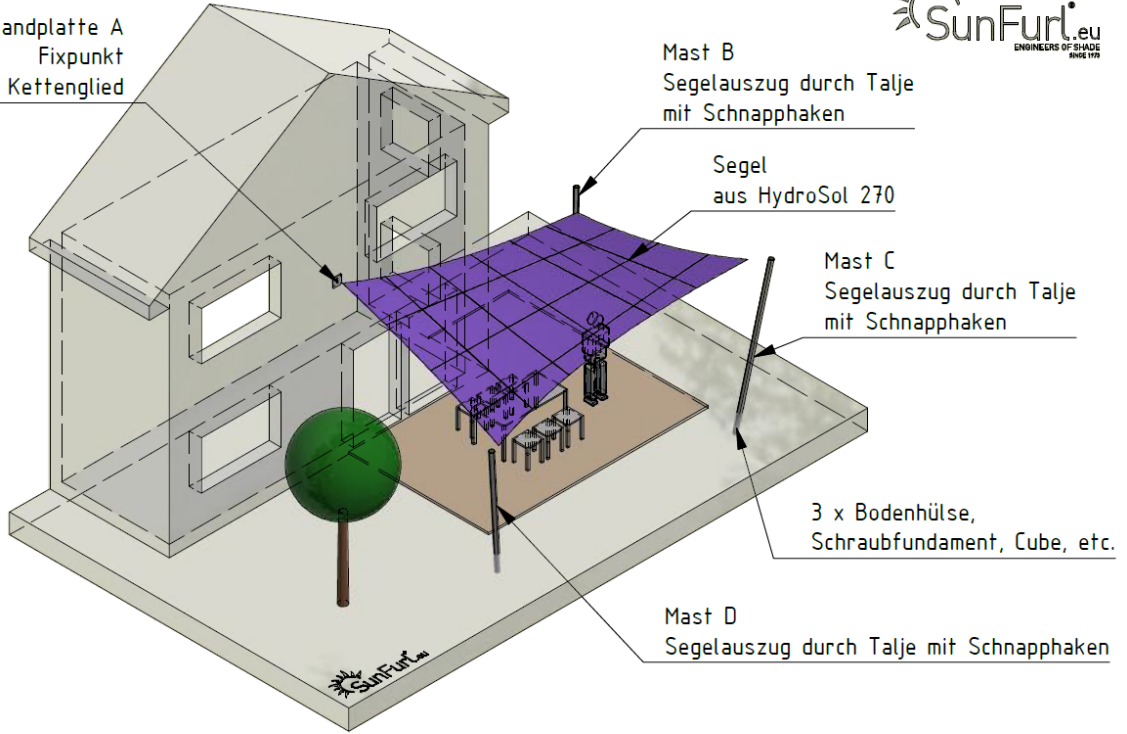
Mast B
Segelauszug durch Talje
mit Schnapphaken

Segel
aus HydroSol 270

Mast C
Segelauszug durch Talje
mit Schnapphaken

3 x Bodenhülse,
Schraubfundament, Cube, etc.

Mast D
Segelauszug durch Talje mit Schnapphaken



Typ: SF-FX-B1

Wandplatte A
Fixpunkt
schraubbares Kettenglied

Wandplatte D
Segelauszug durch Talje
mit Schnapphaken

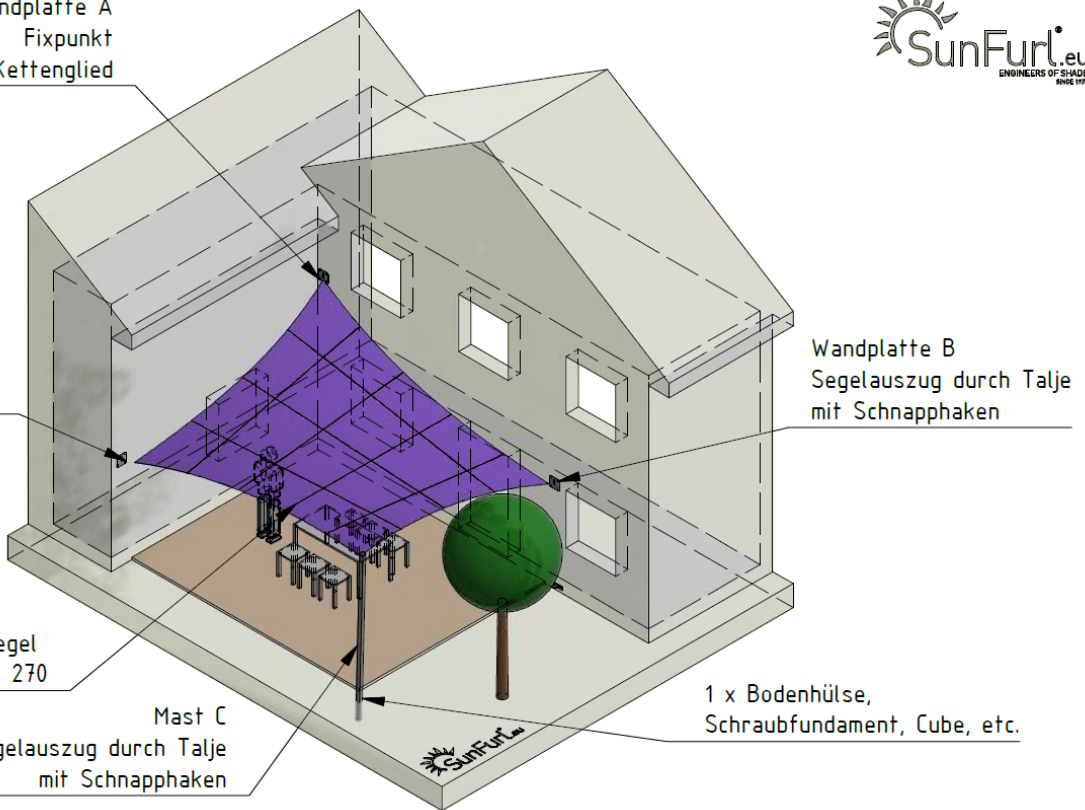
Wandplatte B
Segelauszug durch Talje
mit Schnapphaken

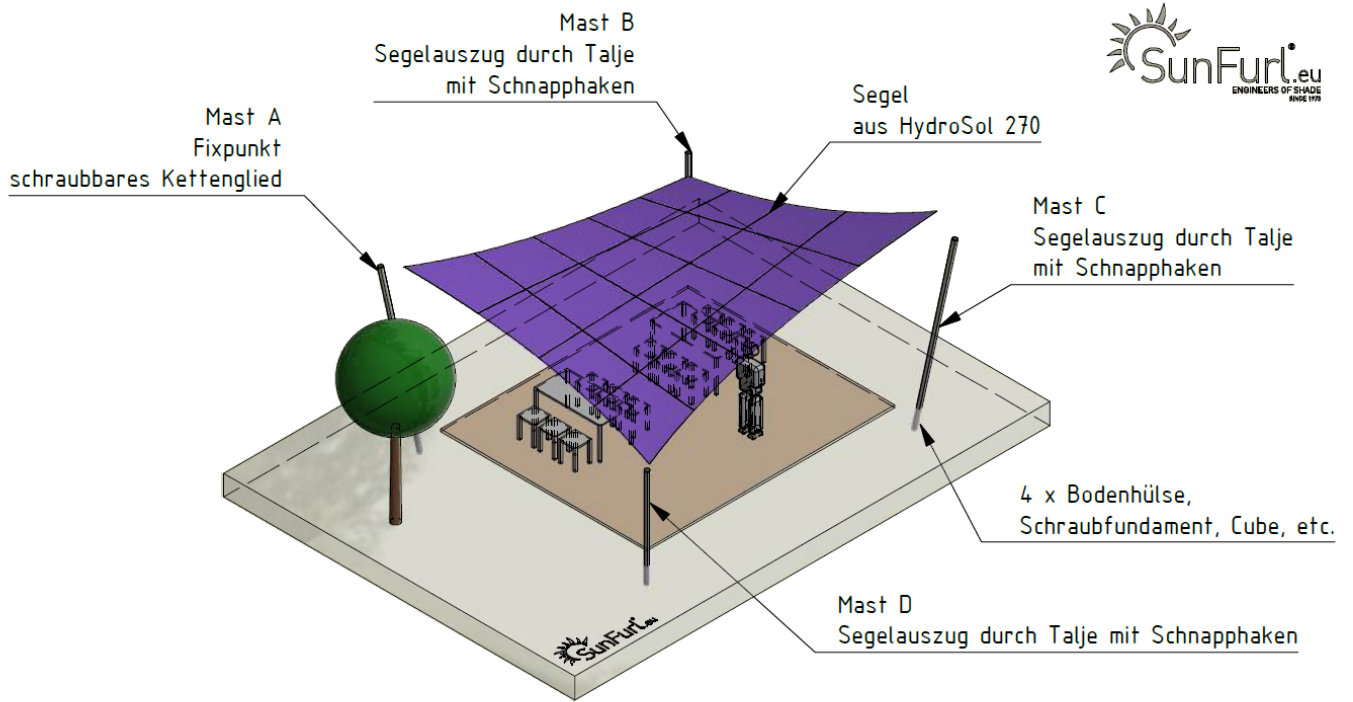
Segel
aus HydroSol 270

Mast C
Segelauszug durch Talje
mit Schnapphaken

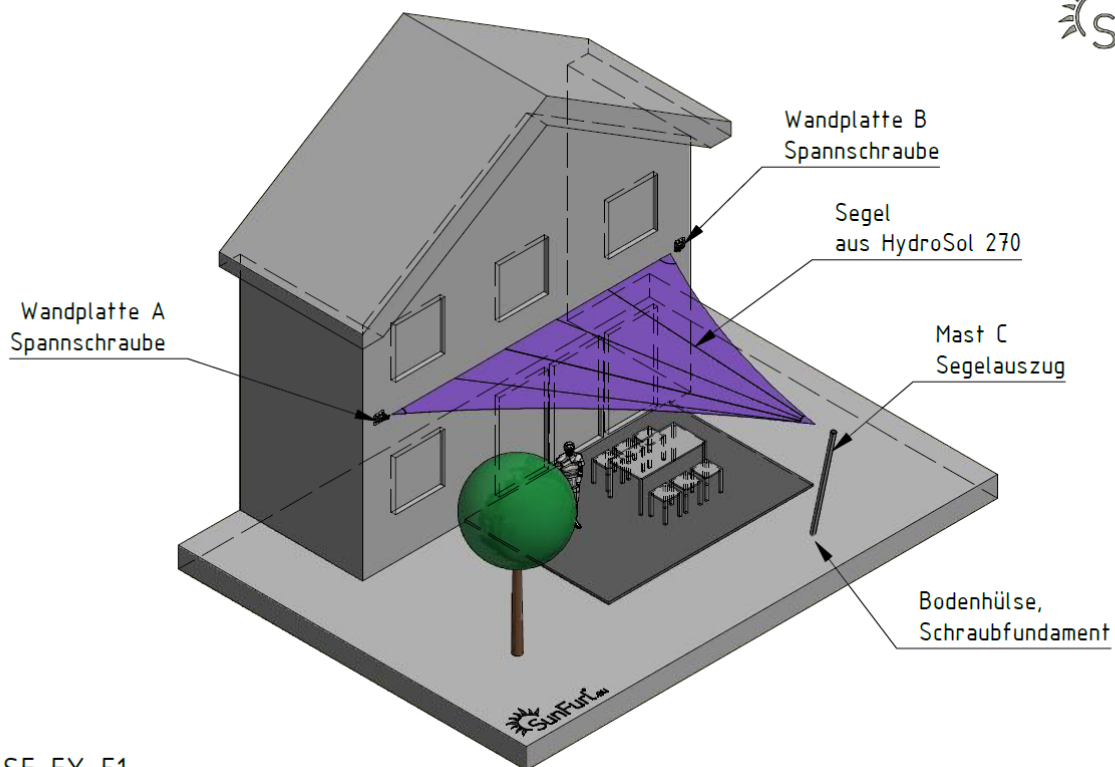
1 x Bodenhülse,
Schraubfundament, Cube, etc.

Typ: SF-FX-C1

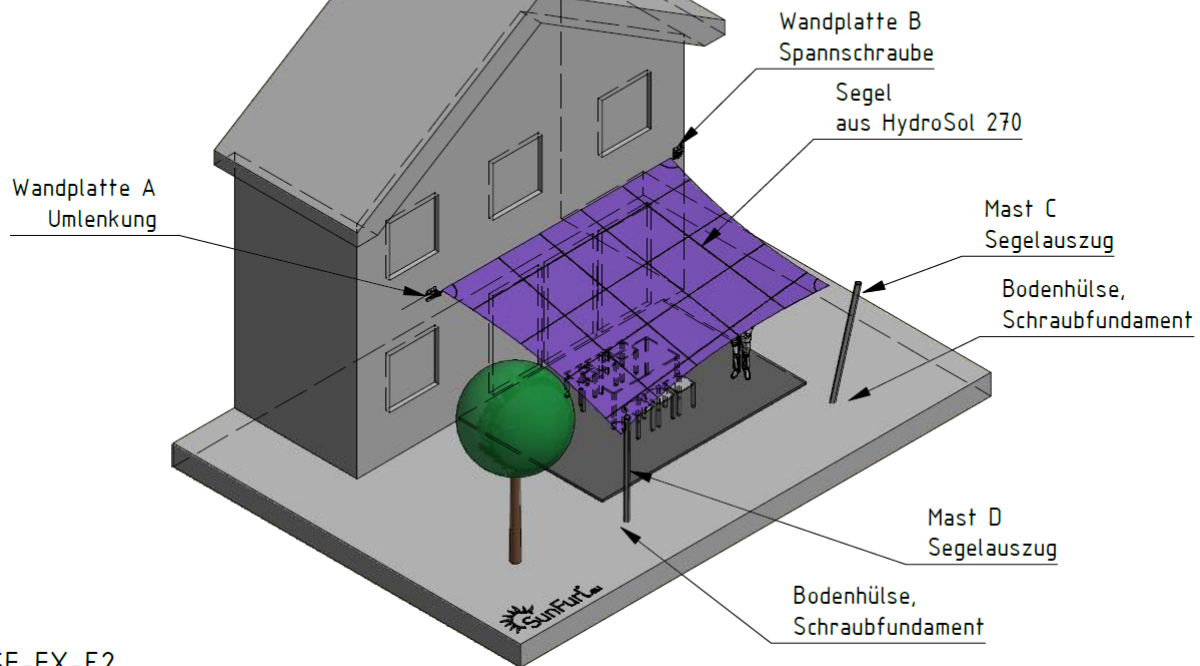




Typ: SF-FX-D1



Typ: SF-FX-E1

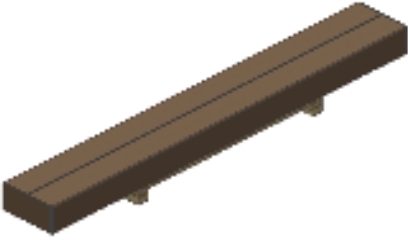
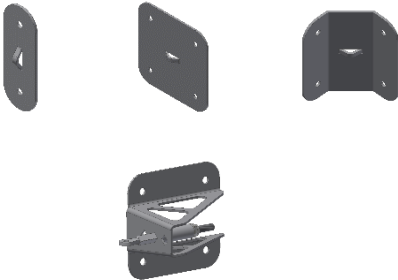
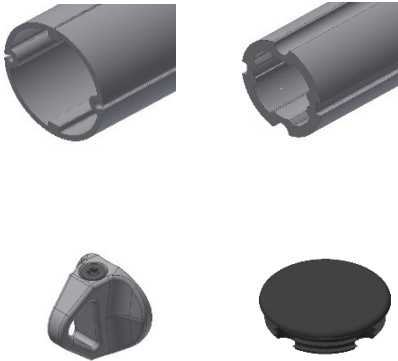
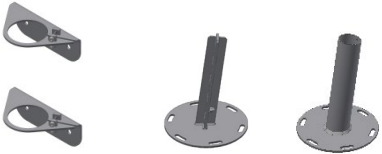


Typ: SF-FX-E2

2.2 Intended use / operation

	<p>The SunFurl® FX sun sail system (supports, wall panels, foundations, lines, tensioning system, sails) is designed for use as a firmly tensioned sun sail for use during the summer months. The operator must observe/comply with the following limit values/exclusions.</p> <ul style="list-style-type: none"> • The sail must be taken down when the wind picks up. The following wind limits apply: <ul style="list-style-type: none"> ○ Up to 20m² sail area >> 7 Bft (max. 17.1 m/s) ○ Up to 40m² sail area >> 6 Bft (max. 13.8 m/s) • For the sail areas specified above in conjunction with the maximum wind strengths, internal stiffeners must be used depending on the mast length <ul style="list-style-type: none"> ○ Max. free mast length for D100 AL masts >> L 2,500 mm • No exposure to rain (when the sail is stretched) if the gradient is < 15° or if reliable rainwater drainage cannot be guaranteed (formation of water pockets). • No exposure to hail / snow (when the sail is open)
	<p>The sail must not be subjected to additional external forces.</p> <p><u>These include:</u></p> <ul style="list-style-type: none"> • Exposure to people/animals (hanging, sitting, walking) • Load from objects (buildings, plants, laundry, supporting/ hanging/ pulling) • Exposure to water and hail/snow • Wind loads greater than the wind speeds described above depending on the sail sizes

2.3 scope of delivery

	<p>SunFurl® sun sail systems are standardized sets or are planned individually. The scope of delivery is determined individually (see parts list on the delivery note and/or details on the installation plan).</p> <p><u>Typical components are:</u></p> <ul style="list-style-type: none"> • Wall panels • Masts including bracing • Lines, tackles • Ground sleeves / screw foundations / cubes • Custom-made sail • Tackle covers • Winter protection bag • assembly Instructions
	<p>Wall plates with eyelet for line control / tension screws (for E1 & E2)</p> <p>W x H: 230 x 230 mm W x H: 230 x 80 mm</p> <p>Hole spacing: 150 mm Edge distance: 40 mm Material: stainless steel, surface ground + electropolished (satin matt finish)</p>
	<p>Masts Ø 100 mm / Ø 86 mm</p> <p>Material: aluminum, anodized surface (natural) Connection parts to masts via clamping parts, stainless steel Masts are available in lengths up to 5 m in 0.25 m increments Bracing is available in lengths up to 3m in 0.5m increments</p> <ul style="list-style-type: none"> • Profile mast with grooves (various lengths available) • Bracing for profile mast (various lengths available) • Clamp eye for deflection (for connection shackle or snap hook) • Cover for profile mast
	<p>Mast foundations</p> <p>Ground sleeve for encasing in concrete Length approx. 850mm / insertion stop at approx. 500mm / locking screw / material stainless steel / installation in concrete foundation (see installation instructions in section Error! Reference source could not be found.)</p> <p>Screw foundations</p>
	<p>Mast connections</p> <ul style="list-style-type: none"> • Parapet flange for attachment to a parapet/wall (always required in pairs) • Floor flange with tube for fixing to floor / foundation plate



sail

Custom made sail
Material HydroSol 270



Tackle

4-fold tackle with line fixation
Double-sided stainless steel snap hook L70mm / BL 4kN



Chain link / 90° shackle

Screwable stainless steel chain link D6mm
90° shackle



Leech / diagonal wire (required for sails with 3D roof geometry)



Rope bag

Canvas with eyelets
For the safe stowage of the free tackle line



Tackle bag


Canvas bag with velcro closure
For the safe covering of the tackle and for securing the free tackle line









Height adjustment of sail extension via eyelets on the mast

3 Safety instructions

3.1 General information on safety


	<p>Follow all instructions and guidelines in this documentation. In addition, accident prevention regulations and instructions for the area of application must be observed.</p>
---	--

3.1.1 Signal words and warning symbols used


	<p>Danger! This symbol indicates an imminent or possible danger to the life and health of people. Failure to observe these instructions can have serious consequences for health or lead to life-threatening injuries. Significant damage to people and equipment can result as a result.</p>
	<p>Danger! Danger of crushing - indicates a risk of mechanical injury to body parts and warns of imminent danger to the life and health of persons who come into contact with the danger area.</p>
	<p>Danger! Expert knowledge required - the work may only be carried out by trained persons with appropriate specialist knowledge. In case of any uncertainty, a specialist from BARTELS GmbH must be consulted!</p>
	<p>Important information: Information that must be strictly observed during installation and use of the product in order to avoid process disturbances or malfunctions.</p>
	<p>Tip: Gives the user the information needed to accomplish a task/goal directly and without hassle.</p>
	<p>Further detailed information: Indicates to the user that further information is available on this topic (e.g. separate operating instructions for installed components or other advisory aids/documentation)</p>

3.2 Safety instructions for the operator

3.2.1 Osh


	<ul style="list-style-type: none">• Wear protective equipment during installation work (safety shoes, gloves, safety glasses, safety helmet)• Always carry out installation work in pairs (partly heavy components or for safety reasons when working on ladders or lifting platforms)• When installing large/bulky/heavy components, it is essential that the component is secured with a rope (to prevent it from falling down).
---	--

3.2.2 Technical condition of the product



	<p>The operator of the sun sail system is responsible for regular maintenance of the entire system! For details, see the maintenance plan in section 6 .</p> <p>A notice: Particular attention should be paid regularly to the condition of the fastening points on walls, the condition of foundations in the ground and the condition of the lines and sails!</p>
---	--

3.3 Safety instructions for operating personnel

3.3.1 Personnel to be deployed and qualifications


	<p>The system may only be operated by trained persons! Children under 14 years of age and mentally disabled persons may only operate the rolling system under the supervision of a trained person.</p>
---	--

3.3.2 Dangerous areas and possible accident hazards



	<p>Danger due to overloading of fastening points</p> <p>The system must not be overloaded to prevent consequential damage! Operators and operating personnel are obliged to protect the system from harmful influences!</p> <ul style="list-style-type: none">• Wind speed (table in section 8.2.1) The system must be removed when the wind picks up. The following wind limits apply:<ul style="list-style-type: none">○ Up to 20m² sail area >> 7 Bft (max. 17.1 m/s)○ Up to 40m² sail area >> 6 Bft (max. 13.8 m/s)• Rain/ hail/ snow (the sail must be removed in case of rain, hail, snow)• Objects (branches, parts of buildings, etc.)• People / Animals (sitting, hanging, etc.)
	<p>Danger of falling components or assemblies due to inadequate fastening</p> <ul style="list-style-type: none">• Fastening elements (screws/dowels) must be carefully selected according to the substrate! (Responsibility of installation company)• Foundations must be sufficiently heavy/stable/load-bearing!• All fastening screws must be tightened, secured and checked regularly

3.4 Specific product life cycles (safety instructions)


3.4.1 transport

	<ul style="list-style-type: none">• Suitable safety equipment must be worn for transport and unpacking! (Safety shoes, gloves, helmet, safety glasses)• Heavy, can fall on feet• Sharp-edged, rough• Screws, nails• Never carry heavy parts alone!
---	--


3.4.2 Installation/ Assembly

 	<ul style="list-style-type: none">• The installation must be carried out by persons with sufficient expertise in installing heavy objects on buildings.• Installation work must be carried out by at least two people• Heavy, can fall on feet• Risk of falling when working on ladders/platforms/lifting platforms• All screw connections must be secured with Loctite 243 threadlocker
--	---

3.4.3 service and maintenance

	<ul style="list-style-type: none">• Service and maintenance must be carried out by a trained person• Suitable safety equipment must be worn for maintenance! (Gloves, safety glasses)• A maintenance interval of max. one year must be observed• Maintenance details are described in section 6
--	--

3.4.4 Dismantling and disposal

	<ul style="list-style-type: none">• Dismantling must be carried out by persons with sufficient expertise in dismantling heavy objects on buildings.• Suitable safety equipment must be worn for dismantling and removal! (Safety shoes, gloves, helmet, safety glasses)• 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 operating fluids

3.5.1 Materials and surface coatings used


	<ul style="list-style-type: none">• stainless steel• Aluminium with anodised coating• POM plastic• Optional powder coating as decorative layer
--	---

3.5.2 Oils/Fats


	<ul style="list-style-type: none">• Lubricant WÜRTH HHS 2000 (reduces the tendency to cold welding in threads)• Threadlocker Loctite 243
--	---

4 Assembly


4.1 Unpacking/transporting /assembling the product

	<p>The safety instructions in section 3.4 must be observed.</p>
	<p>If possible, transport the system in the shipping packaging to the installation site to avoid damage to the product.</p>
	<p>The safety instructions in section 3.4 must be observed.</p> <p>When attaching to walls, ceilings, parapets, etc., these must be sufficiently stable and suitable screws and dowels must be used. If necessary, seek advice from a specialist store about suitable screws/dowels.</p> <p>See also further documents and recommendations on fasteners in section 8.2 . See also further description of expected forces in section 8.2 .</p>

4.2 Wall panels

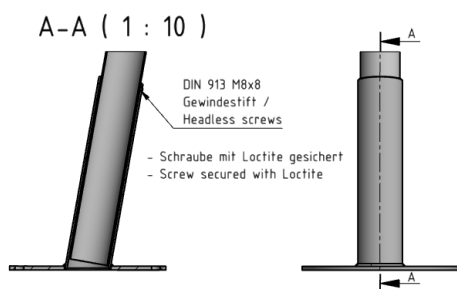
	<p>Install wall panels</p> <p>Wall panels Fasten with M12 adhesive anchors in masonry Fasten into wood with 12 mm wood screws</p> <p>Notes on fastening devices see section 8.2 Notes on forces see section 8.2</p>
---	--

4.3 Mast mountings

	<ul style="list-style-type: none"> • Concrete the ground sleeve. Foundation dimensions approx. 750x750x750 mm. For large sail areas and/or soft ground, the foundation should be larger. Concrete must always be poured in "natural ground", not in rubble or sand! Soil class greater than 3 required. • Screw in the screw foundation. e.g. Krinner screw foundation <i>KSF E140x1300-E76-100</i> with eccentric set <i>E100</i>) • Clamp flanges on wall/ parapet/ facade • Floor flanges on floor, on ceiling <p>Notes on fastening devices see section 8.2 Notes on forces see section 8.2</p>
---	--

4.4 Mast securing

Sicherung Mast VA Flanschfuß mit außenliegendem Rohr (Köcher)

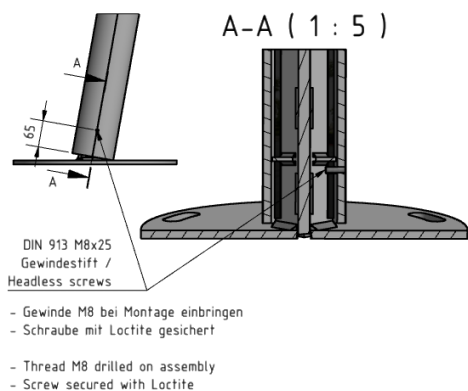


Secure masts to flange feet

- Secure mast with screw to flange base as per drawing (screw included)

In case of very strong or oblique forces, drill into the mast and create a positive connection by screwing in the screw.

Sicherung Mast Alu-Profil D102 Flanschfuß mit Kreuzblech



4.5 Fill out the measurement sheet


Once all attachment points (masts, wall panels) have been installed, the basic dimensions for sail production can be determined. To determine the dimensions, please only use the standardized measurement sheets that are available for each system type and installation variant.

Proceed:

- Select measurement sheet >> see measurement sheets in the login area of sunfur.eu
- If there is no suitable standard dimension sheet for the individual arrangement, please create a clear sketch (similar to the standard dimension sheets) and enter all dimensions there.
- If you have any questions, please contact your sales partner or BARTELS directly!!!
- Measure with a metal tape measure (2 people required)
- Enter dimensions in dimension sheet
- Enter mast heights in dimension sheet
- Enter name / BV + date on measurement sheet
- Specify desired colour (if applicable, fabric type)
- Check dimensions (2nd measurement)

Scan or photograph the measurement sheet with the dimensions entered and send it by email to your SunFurl.

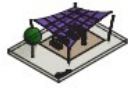
Example of SunFurl FX-D1 measurement sheet:



Aufmaßblatt SunFurl® FX

Segel bis 40 m² | Segel feststehend

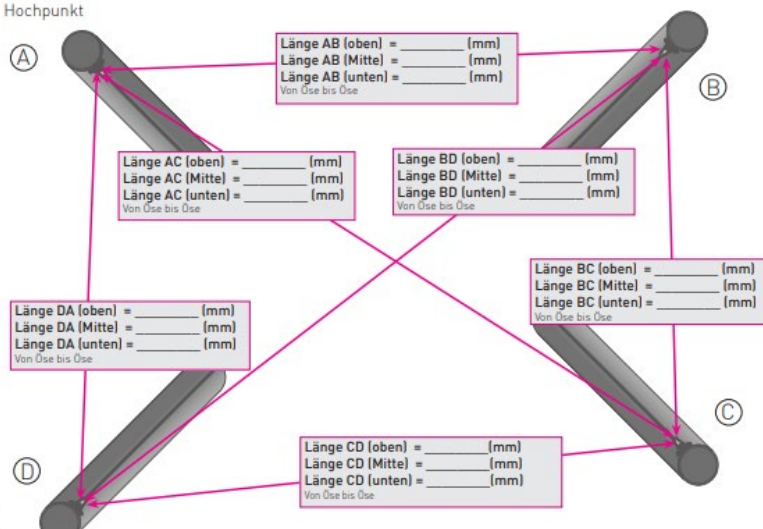
Beim Messen zu beachten:
 Abstände zu Masten unter leichter Vorspannung ermitteln
 Metallmaßband verwenden (o.ä. ohne Längendehnung)
 Maße leserlich und eindeutig in Aufmaßblatt eintragen
 Maße mit zweiter Messung überprüfen



SF-FX-D1

0 x Wand | 4 x Mast

Hochpunkt



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® ermöglicht einer verbindlichen Segelbestellung korrespondierend der darin enthaltenen Daten. Weitere Nebensprachen (Email, Telefon) bleiben unberücksichtigt. Es wird keine Freigabezeichnung 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: _____

	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bodenhülse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bodenflansch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Klemmflansche	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Höhenverstellung	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wandplatte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Optionen
 Segel Auszugslängen angleichen: NEIN JA (s. 0) JA (s. 500) JA (s. 1000)
 WSH WSH = Winter Schutz Halle (HS1011) Hinweis: nur bei RE und RES Systemen
 WSS WSS = Winter Schutz Sack (HS1013) Hinweis: nur bei RM / RM-light / FX / FX-light Systemen

* OKF = Oberkante Fußboden / Terrassen Niveau / Einheitsniveau

Hinweis: 0,00 (mm) = Differenz zwischen Auszugslängen



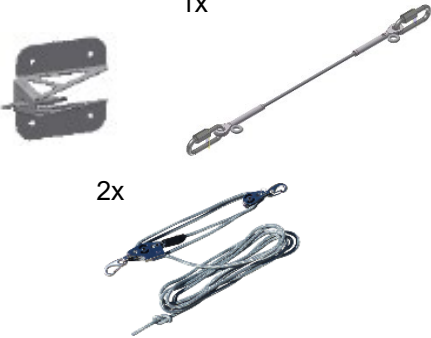

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Volksbank Friedrichshafen-Tuttlingen eG
 Konto 232597007 IBAN DE21 6519 1500 0235 9970 07
 BLZ 651 915 00 BIC/SWIFT GENODE33TET

4.6 Install / uninstall sails

	<p>After communicating the maximum dimensions between the attachment points, the sail is made individually.</p> <p>The scope of delivery includes the individual sail (optionally in a winter protection bag) with at least one corner designation (see installation plan for the correct assignment of the sail corner). The SunFurl logo stickers, which must always point downwards, can also be used as a guide for aligning the sail.</p>
 <p>1x</p> <p>3x</p>	<p>Sail attachment for A1 / B1 / C1 / D1 systems</p> <p>Attach the anchor point of the sail to the eyelet of a wall plate or the eyelet of a mast using a screwable chain link (see individual installation plan for details).</p> <p>The other sail corners are attached to eyelets on wall panels or eyelets on masts using pulleys and snap hooks and are evenly tensioned.</p>
 <p>2x</p> <p>1x</p> <p>2x</p>	<p>Special feature of E1 and E2 systems with straight leech (along a house wall) between two wall panels:</p> <ul style="list-style-type: none"> • The wall plate with tension screw/wire from the sail is hooked directly into it and the leech wire is clamped in. • Masts are tensioned with tackle
	<p>Height adjustment sail extension</p> <p>Optionally, the masts have several eyelets for individual height adjustment of the sail. Procedure: carefully loosen the flange pull, move the snap hook to another eyelet on the mast, tighten the pulley again and fix the line securely.</p>
	<p>The sail is removed in the reverse order to its assembly.</p> <p>The sail may only be stored over the winter months if it is completely dry and free from contamination. It should be stored in a dry place.</p> <p>If the sail is only removed for a short time (< 8 days) then this can also be done when it is wet (e.g. over the weekend, during a short holiday, during a weather front).</p>

5 Error conditions

5.1 Errors / Causes of errors / Troubleshooting

Mistake	Cause of error?	Troubleshooting
Sail wrinkles	Tensile stress too low	Tighten evenly on all sides of the sail
Masts bend	Tensile stress too high	Reduce tension evenly on all sides of the sail

6 maintenance

6.1 Maintenance activities

	<p>The system is maintenance-free!</p> <p>It is recommended to carry out a visual inspection once a year to identify and repair any changes/damage.</p>
	<p>Checking all lines of the sail guidance</p> <ul style="list-style-type: none">• wear• Scraping points• After about 5 years we recommend replacing lines (UV damage)
	<p>Fasteners</p> <ul style="list-style-type: none">• Stability fixing points (on walls, parapets, etc.)
	<p>Check post foundations</p> <ul style="list-style-type: none">• Damage to concrete foundations (ground sleeves)• Stability of ground anchors / ground sleeves• Securing screws on ground sleeves• Insertion depth of post tubes (have the posts changed the insertion depth of at least 500 mm due to vibrations / external forces)• Kinks on post tubes (especially at the upper edge of ground anchors or ground sleeves)
	<p>Check sails for damage</p> <ul style="list-style-type: none">• Cracks• Scraping points• Stains can be removed by cleaning the sails if necessary. Sails may only be cleaned by a professional cleaner. Contact your sales partner or BARTELS GmbH for a recommendation.

7 Warranty


7.1 Warranty period

	<ul style="list-style-type: none">• The warranty period begins upon 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)• The warranty on wearing parts such as sails and lines is 12 months
--	---

7.2 Wear parts

	<ul style="list-style-type: none">• ropes• sail
---	--

7.3 Warranty exclusions


	<p>The warranty excludes</p> <ul style="list-style-type: none">• 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
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7.4 Handling the warranty claim

	<p>In the event of warranty claims within the warranty period, please contact your sales partner (and/or BARTELS GmbH) to plan the process.</p> <p>For contact details see delivery note or imprint of this document</p>
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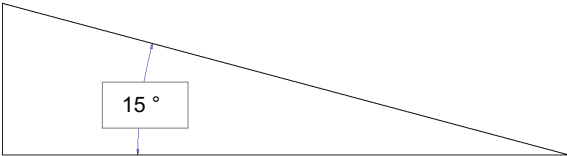

8 Attachment

8.1 Layout plan




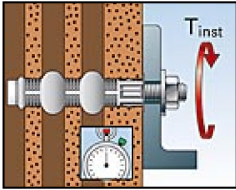

	<p>Most systems are individually adapted to the structural conditions. An exact installation plan must be provided by the planning company.</p> <p>In any case, before construction begins, a detailed plan should be drawn up showing where fastening points are to be placed (wall fastenings, ground sleeves, screw foundations, etc.).</p> <p>The condition of the wall, floor, etc. must be sufficiently strong to support the foundations! The fastening elements (screws, dowels, etc.) must be selected to suit the subsurface!</p>
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8.2 Forces / Fasteners

8.2.1 Forces on wall panels and columns

	<p>ATTENTION: Forces (on wall panels, floor foundations, lines) increase significantly when the wind picks up and can hit the extended sail. If the permissible wind speed is exceeded, the sail must be manually pulled in / taken down!</p> <p>The sail must be taken down when the wind picks up (haul in the sail). The following wind limits apply:</p> <ul style="list-style-type: none">○ Up to 20m² sail area >> 7 Bft (max. 17.1 m/s)○ Up to 40m² sail area >> 6 Bft (max. 13.8 m/s)
	<p>ATTENTION: The sun sail must not be used in the rain. Bags of water/puddles in the sail can overload/damage the system. Exceptions are installations where sufficient gradients have been provided for safe drainage. For safe drainage, the sail must be highly tensioned and have a continuous gradient of at least 15°.</p> 
	<p>ATTENTION: The sunshade must not be operated at temperatures below 5°C. Ice and snow can overload/damage the system.</p>

8.3 Choosing the right dowels and screws for wall fixings

 	<p>DANGER: The sales partner/installer is responsible for selecting suitable fastening materials that are adapted to the substrate! Screws and dowels are not included in the scope of delivery from BARTELS.</p> <p>Proceed:</p> <ul style="list-style-type: none"> • Determine the substrate (wall, floor) to which the foundations are to be attached (concrete, stone, solid brick, hollow brick, insulation layer, etc.) • Find out about suitable fastening solutions in a specialist store (information on fastening materials typically used by BARTELS can be found below) • Follow the manufacturer's instructions for using the screws/ anchors/ foundation systems
	<p>Cracked concrete / hollow brick / solid brick (without insulation)</p> <p>DANGER: The fastening device described below is an example! The sales partner or installer is solely responsible for selecting the appropriate fastening material (adapted to the conditions at the installation site) and for installation in accordance with the manufacturer's specifications!</p> <p>e.g. FISCHER FIS HK injection anchor sleeves (not necessary for concrete and solid bricks >> follow manufacturer's instructions) FISCHER FIS A anchor rod (version in A4) FISCHER FIS V high-performance mortar</p> 
	<p>Cracked concrete / hollow brick / solid brick (with thermal insulation)</p> <p>DANGER: The fastening device described below is an example! The sales partner or installer is solely responsible for selecting the appropriate fastening material (adapted to the conditions at the installation site) and for installation in accordance with the manufacturer's specifications!</p> <p>e.g. FISCHER Thermax (version in A4) FISCHER FIS V high-performance mortar FISCHER KD Multi adhesive and sealant</p> 