

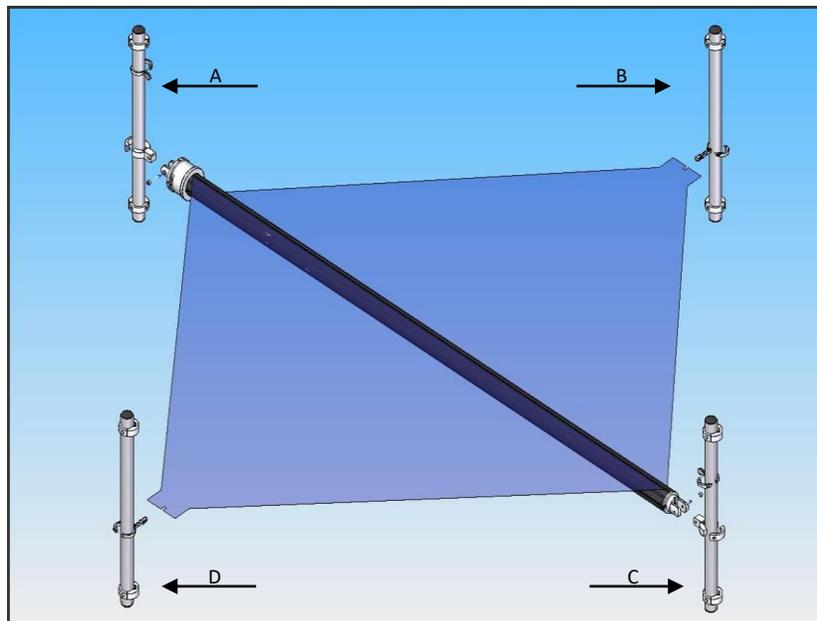
# SASSUS Retractable shade sail awnings

## Design and Installation guidelines

Retractable shade sail awnings always require 4 supports, designated A, B, C and D. Supports A and C are designated to support the central mast on which the shade sails are mounted and that can be folded/unfolded through a rope and pulley system. Supports B and D are designated for mounting the pulley through which a rope system pulls at the sails. The shade sails are available in different designs, of which the most common consists of a central mast with two triangular sails.

The following components make up a shade sail system:

- Mast with tension system, blocks and cables
- 4 anchoring points, of which 1 or more can be fixed at a wall, an existing structure or free standing.
- Manual or remote with sun/wind control
- Sail configuration custom made or standard



There are a few important points to keep in mind when designing a retractable shade sail system:

1. The drive side (electrical motor or manual gear), designated Support A, should always be at the high side of the mast to allow any water to drain away from the drive. About 50 cm above the drive side there should be enough space to mount a block for the line that will be winched on the mast.
2. The shade sail itself should be positioned such that rainwater will drain from the sail without creating water sags. In general a slope of 20 % will be sufficient to provide good drainage.

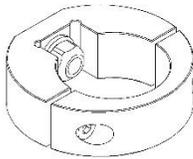
3. The fixation points should be chosen such that the shade sail geometry results in a well aligned sail that can be properly folded on the mast without creating creases. If the distance between the projection of the sail tip on the mast and the middle of the mast is less than 25% of the mast length the sail geometry will be good. If the distance is greater, please consult Sassus.

The forces on the supports of retractable shade sails are quite lower than for fixed shade sails, because the forces are limited by the springs of the shade sail system. Below is an overview of the various forces on the four supports for our different shade sail systems:

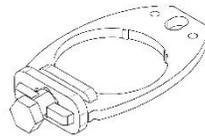
	A&C		B&D	
	vertical	horizontal	vertical	horizontal
<b>Delux</b>	+1200 N / -400 N	800 N	+/- 800 N	800 N
<b>Basic</b>	+600 N / -400 N	500 N	+/- 500 N	500 N
<b>Classic</b>	+600 N / -400 N	500 N	+/- 500 N	500 N

+ = upward force  
- = downward force

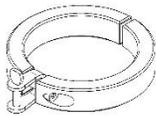
We offer various type of supports for the shade sail systems, but one can of course design its own custom made supports yourself. We can provide special clamps for connecting the mast with 60,3 mm stainless steel tubes.



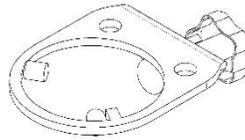
Large Clamp (BE)



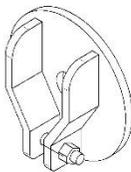
Universal Clamp(BKE)



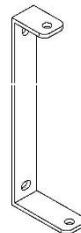
Small Clamp (KE)



Manual clamp for height adjustment of sailtip (KE-M)



Wallfixture for sailline and block



Wall bracket for Basic & Classic



Stainless steel pipe D60 L=1000,  
incl. 2x large clamps (BE)

Sail cut options:

- Radial cut. With this type of cut the fabric is cut into radial panels that are then welded together to form the shade sail. It is the ideal cut for a shade sail, because it best aligns the forces on the textile along the warp fibers. Particularly for large and/or strongly tapered sails this cut is the only one that can avoid creases and sagging.
- Parallel cut. With this cut the full width of the fabric is used to cut panels which are subsequently stitched together. It takes less cutting and stitching time and therefore is less costly than the radial cut.

Shade sail system sizes and limits:

Shade Sail	Mast length	Sail Projection	Shade Sail Area	Wind
	maximum	maximum	maximum	maximum
DELUX	12 m	6.5 m	70 m <sup>2</sup>	50 kmh
BASIC	8 m	5 m	40 m <sup>2</sup>	30 kmh
CLASSIC	7.5 m	5 m	35 m <sup>2</sup>	30 kmh

The shade sail systems are installed in a 2 step process.

First step is to design/plan and install the supports. Then the actual measurements between the four support points will be taken and submitted to the factory.

The second step is installing the mast and shade sail, which have been custom made according to the actual measurements. Delivery time of custom cut sail and mast is typically 3 to 4 weeks.