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1. Safety notes, warnings and mounting information:

1.1. Explanation of the safety notes:

Safety notes and important information are integrated in the text as appropriate. The following symbols are used to alert the reader/user of the instructions.



This symbol means that the relevant note is important for the safety of persons or for the function of the awning.



This symbol highlights important product information for the installation engineer.

1.2. General safety information:



The WO&WO TopLine/TopLine Plus awnings have been designed and manufactured in conformity with DIN EN 13561. However, when the awning is mounted or operated, the persons involved in the respective activity may be put at risk if the relevant instructions are not observed.



Only qualified and duly specialised companies or trained specialist personnel may be permitted to mount the awning.



-  Always observe the information and notes in the Mounting and Operation Instructions. A failure to observe the relevant information will render the manufacturer's liability null and void.
-  The safety-at-work and accident prevention regulations specific to each country must be complied with. In particular, a person performing special work at height must be suitably secured. The notes on the product and its packaging must be observed.

2. Installation:

2.1. Tools, resources and materials:

- (Percussion) drilling machine
- Drill bits, suitable for the drilling substrate and the mounting pieces
- Ratchet (catrake) with extension, SW 13 and SW 17 sockets (if M12: SW 19)
- SW 4, SW 5 and SW 10 Allen keys
- SW 13 fork spanner
- Flat SW 17 ring spanner (if with tilting device)
- Slotted screwdriver
- Crosshead screwdriver No. 2
- Spirit level and string for alignment
- String to align the brackets
- Blind rivet pliers (for coupled systems)
- Test cable, resp. adjustment set (for initial operation)

2.2. Preparing the installation:

 Transport the awning to the site of installation, ensuring that the orientation is correct. The location of the drive side is indicated on the packaging.

Secure the installation zone (the secured zone must be at least equivalent to the size of the fully deployed awning).

If the awning is hoisted to higher installation positions with ropes, the awning must be removed from the packaging.

When attaching the hoisting ropes, ensure that the awning is properly fastened, but not damaged. Hoist the awning exclusively in horizontal position and evenly.

Before commencing the installation, please verify whether the type and number of brackets is in conformity with the order and whether the mounting substrate is the same as that stated on your order.

If significant differences make the safe installation of the awning seem doubtful, please consult the manufacturer of the system and a mounting/installation specialist.

 If the information above is not observed, the awning system may fall down and put the health of persons at risk!

2.3. Wind resistance classes:

Definition:

DIN EN 13561 Item 4.3. defines different wind resistance classes for awnings. The classification depends on the quality of the product. The higher the class, the better the quality of the product.

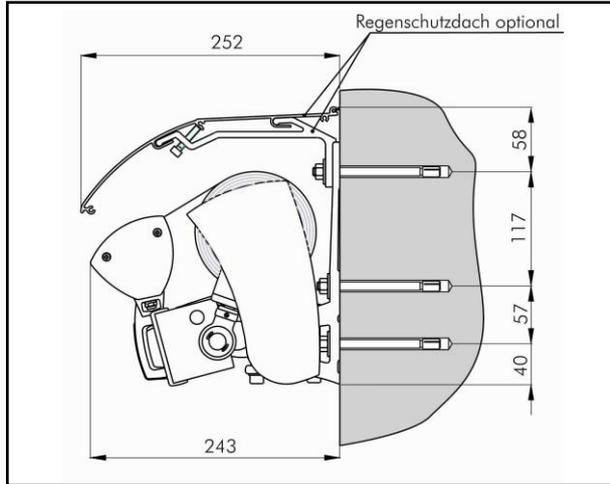
Wind resistance class	Wind force	Wind speed
Class 0	undefined, product not tested or unsuitable	
Class 1	4 (according to Beaufort wind scale)	20 - 27 km/h
Class 2	5 (according to Beaufort wind scale)	28 -37 km/h
Class 3	6 (according to Beaufort wind scale)	38 -48 km/h

Classification of the Topline / TopLine Plus awnings:

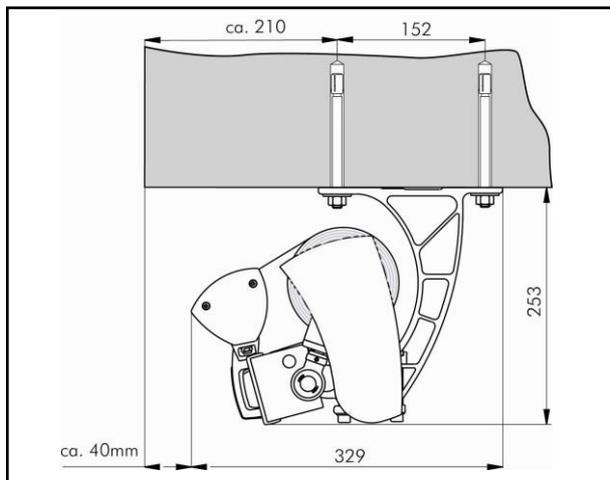
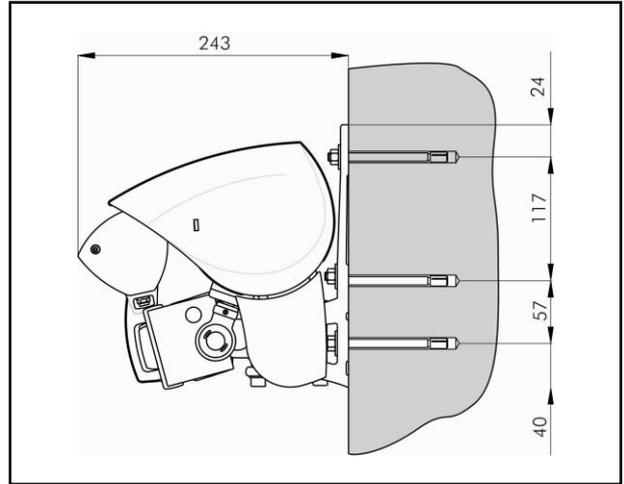
Version / extended length	TLS/ TLP 1500mm	TLS/ TLP 2000mm	TLS/ TLP 2500mm	TLS/ TLP 3000mm	TLS/ TLP 3500mm	TLS/ TLP 4000mm
Wind class without VarioVolant	3	3	3	3	3	3
Wind class with VarioVolant	3	3	3	3	3	2

2.4. Mounting situations:

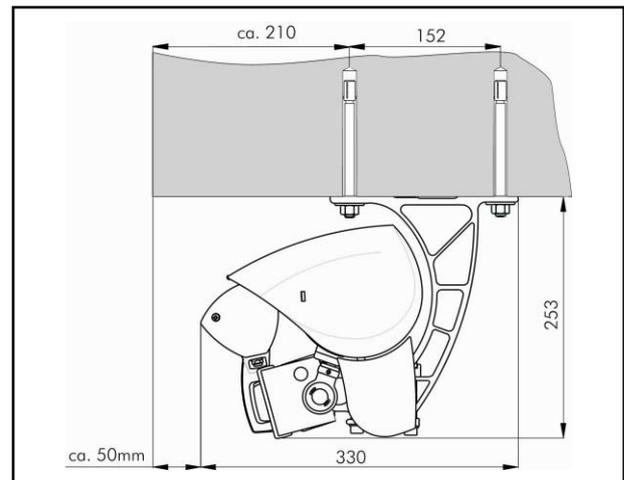
Wall mounting with TopLine rain pelmet



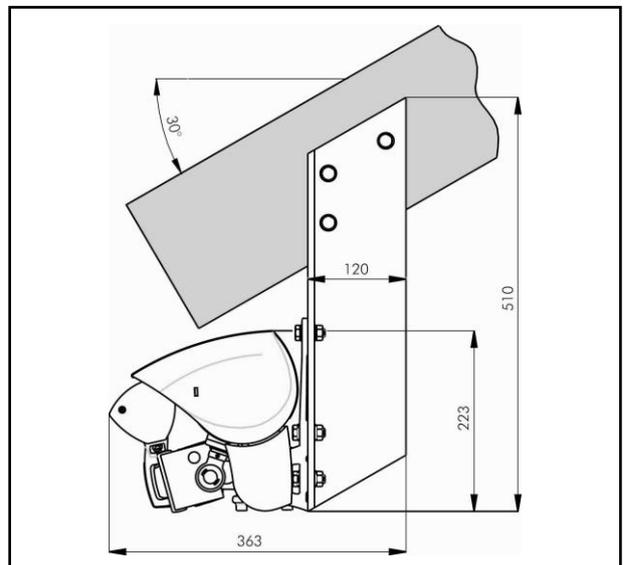
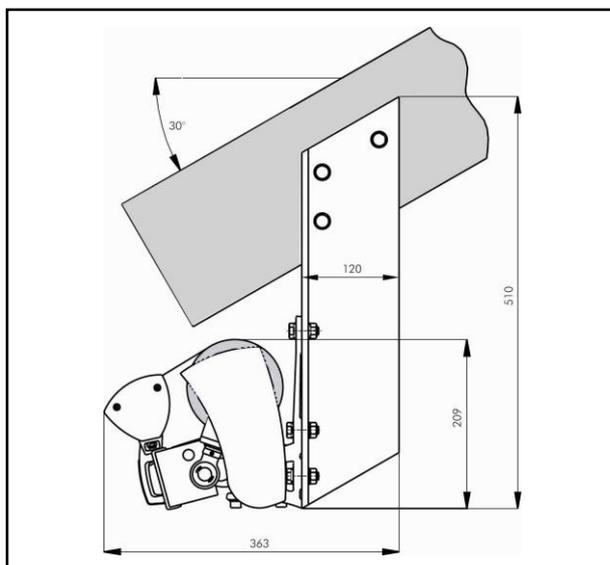
Wall mounting TopLine Plus



Ceiling mounting TopLine
Rafter mounting TopLine



Ceiling mounting TopLine Plus
Rafter mounting TopLine Plus



If you plan to mount the awning on a ceiling or rafter, ensure that the front edge of the awning will be located at least 50mm behind the edge of the balcony or eaves gutter when you choose the position of the brackets (see installation detail - ceiling mounting). This protects the awning more effectively against the weather.

2.5. Mounting height, number and position of the brackets:

⚠ Mounting height: The awning can produce crushing forces and shear stresses, for instance between the drop profile and the housing, on the articulated arms and at the point where different profiles meet.

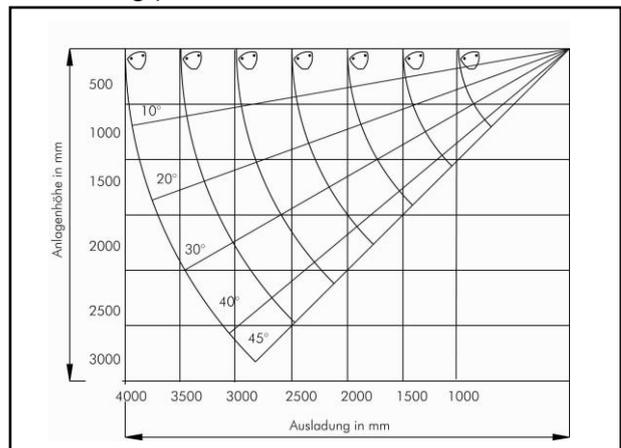
⚠ In the interest of human safety, the mounting height must be at least 2.50m. If the situation requires a mounting height less than the stated minimum height, it is necessary to operate the awning manually or with a switch mounted at a location from where the moving parts can be observed.

Determination of the mounting height for wall-mounted awnings:

The mounting height depends on the extended length and inclination of the awning. Please refer to the drawing on the right for basic orientation. Always ensure that there is sufficient headroom. The use of the awning as a means of protection against rain is limited. In any event, the minimum inclination for such applications must be 14°. The limitations of the use are defined in the relevant operating instructions.

Required minimum number of brackets TLS/TLP:

The following table specifies the minimum number of brackets (= standard scope of delivery) if the TLS/TLP awning is mounted in concrete.

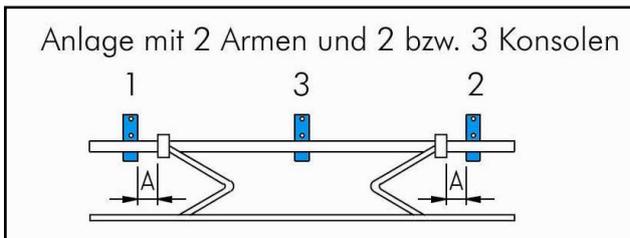


Extended length (mm)	Width (mm)												
	1250-2000	2001-2250	2251-2500	2501-3000	3001-3750	3751-4000	4001-4250	4251-5000	5001-6000	6001-6500	6501-7000	7001-7250	7251-8000
1500	2	2	2	2	2	2	2	3	3	3	3	3	3
2000	2	2	2	2	2	3	3	3	3	3	5	5	5
2500	2	2	2	2	2	3	3	5	5	5	5	5	5
3000	2	2	2	2	4	4	4	5	5	5	6	6	6
3500	-	4	2	4	4	4	4	5	7	7	6	6	6
4000	-	-	4	4	4	4	5	7	7	7	6	6	6

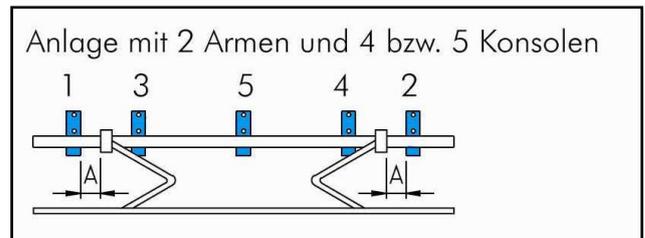
Position of the brackets:

 The brackets should be located as closely as possible to the arm connection points. The following drawings show the ideal distribution of the brackets. Dimension **>A<** should be maximum 300mm.

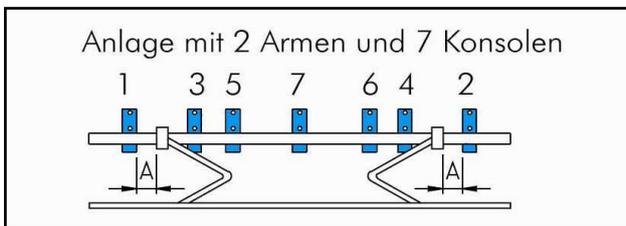
System with 2 arms and 2 or 3 brackets



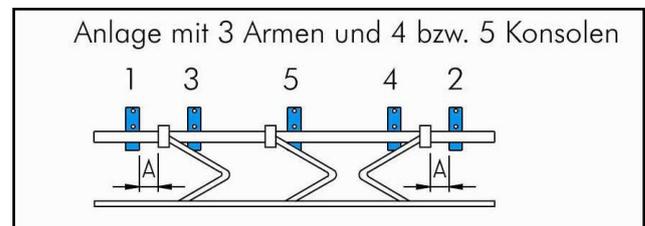
System with 2 arms and 4 or 5 brackets



System with 2 arms and 7 brackets



System with 3 arms and 4 or 5 brackets



If the system width is 6501- 6700mm and the extended length 4000mm, the outermost brackets (1 and 2) must also be positioned inside the arms (next to 3 and 4, respectively).

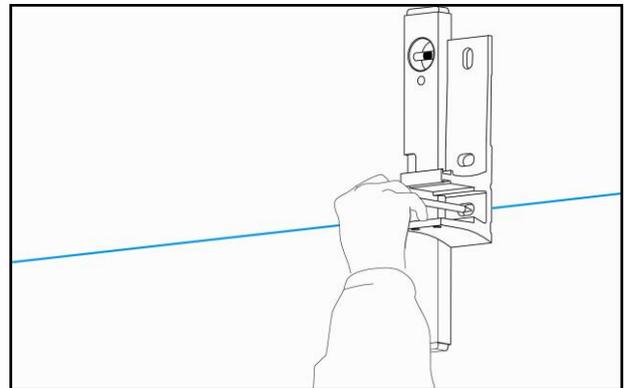
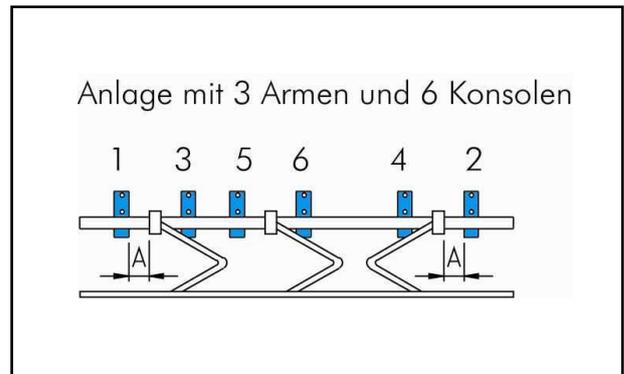
 If the system is a coupled system, bear in mind that the systems must be moved towards each other by approximately 7cm after they have been hooked into the brackets.

 If the system is a coupled system with gap cover, the brackets in the coupling zone (1 and 2) must be mounted at least 300mm from the dividing line between the systems to leave enough space for the spring roller.

Drilling holes for the brackets:

Transfer the drilling outlines of the brackets to the determined bracket positions.

 For static reasons, insert attaching elements (e.g. screws) in each bracket bore hole. Select the appropriate drill bit for the respective base material and mounting method.



2.6. Mounting technique:

- Due to the own weight of the awning and the maximum wind load of the corresponding wind class, the dowels can be subjected to pulling forces up to 3.900N (approximately 400 kg) in the case of wall installation, respectively up to 5.120N (approximately 520kg) in the case of ceiling installation.

The following table defines the maximum dowel forces depending on the size of the awning, the type of bracket, the number of brackets and the wind class (according to Table, Item 2.3):

TLS/TLP Maximum pulling forces depending on the system width [N]								
Installation	Width	Variant	Extended length [mm]					
		VarioVolant	1500	2000	2500	3000	3500	4000
WALL	4500 mm	without	1.490	2.390	1.770	2.450	3.290	2.800
		with	1.840	2.860	2.070	2.800	3.700	2.130
	5500 mm	without	1.770	2.860	2.120	2.930	2.620	3.350
		with	2.200	3.430	2.480	3.360	2.960	2.520
	6500 mm	without	2.060	3.320	2.460	3.410	3.050	3.900
		with	2.570	4.000	2.890	3.920	3.450	2.920
CEILING	4500 mm	without	1.900	3.060	2.270	3.130	4.210	3.580
		with	2.360	3.670	2.650	3.590	4.740	2.720
	5500 mm	without	2.270	3.650	2.710	3.750	3.360	4.280
		with	2.820	4.390	3.170	4.300	3.790	3.230
	6500 mm	without	2.630	4.250	3.150	4.370	3.900	4.990
		with	3.280	5.120	3.700	5.020	4.410	3.740

... grey cells: only Wind Class 2 is available

The standard number of supplied brackets (see Table, Item 2.5) is appropriate for these values if mounted in concrete.

If the supporting capacity of the base material is less than that of concrete and if injection anchors are used, please consult a qualified mounting engineer.

 A reduction of the dowel forces can be achieved by increasing the number of brackets in the vicinity of the arm and by using appropriate (larger) mounting plates. For dimensioning information in dependence on the mounting base, please consult any qualified installation engineer or contact the system manufacturer.

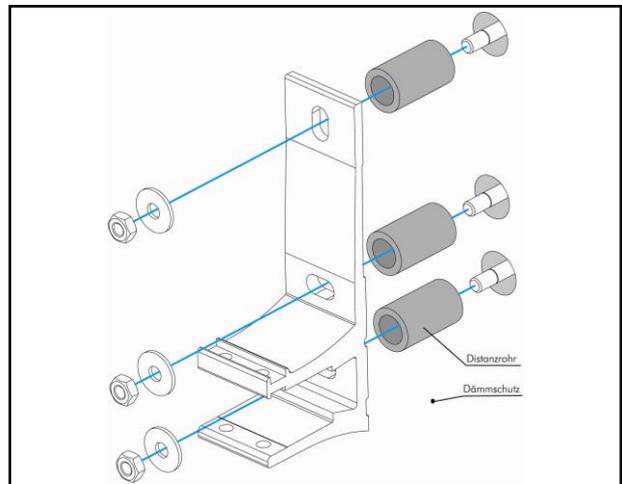
Downgrading of the wind class on the grounds of bad mounting conditions is permissible only in limit cases and subject to the agreement of the final user.

Mounting on thermally insulated facades:

Insulating plaster and full multi-layer thermal insulation are not pressure stable.

Therefore, it is necessary to use backing for the entire surface, or at least distancers for the area around the screws.

The picture on the right illustrates one possible variant:



Bracket mounting:

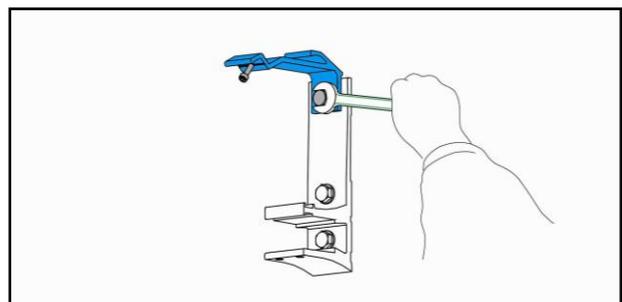
Fasten and align the two outermost brackets first. With the aid of a string, bring all other brackets in true alignment with the outer brackets.

Even out irregularities of the base by using suitable spacers. Then tighten all screws and check that brackets are firmly attached.

Applications with rain pelmet:

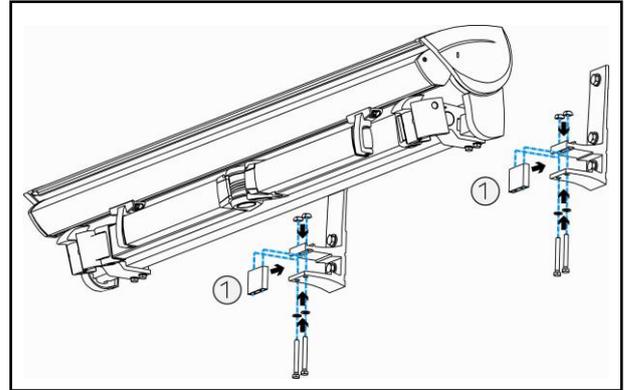
Pre-mount the holders on the wall brackets and align vertically before firmly tightening the screws.

(Final installation of the rain protection roof – see item 3.4.)



2.7. Fastening the awning:

-  Ensure that sufficient personnel is available to lift the awning. The awning weighs up to 110kg; the weights are defined on the packaging.
- Lift awning with the mounting tube into the brackets (from the front) and insert the clamping parts at the side.
 - Slightly grease the thread of the screws and insert into the bores from below. Secure screws with square nuts.
 - Perform lateral alignment of the awning.
 - Firmly tighten all bracket screws.

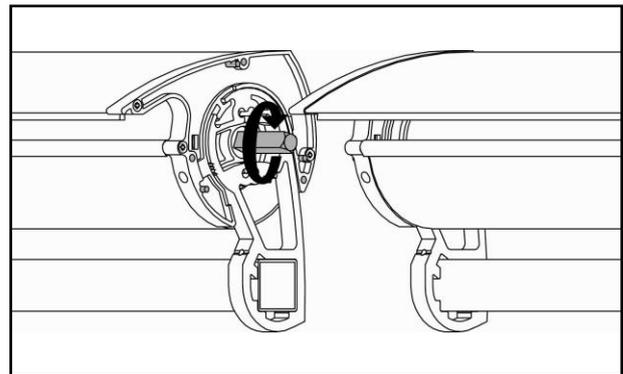
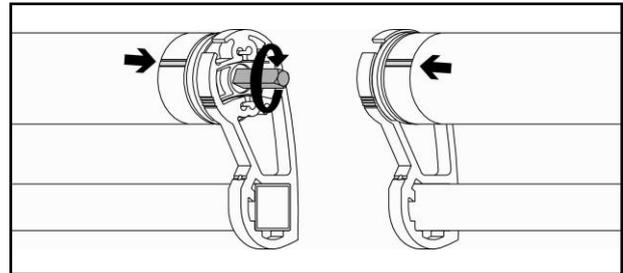


2.8. Coupled systems:

! Factory part-mounted awnings (coupled systems without drive): the spring-loaded parts must be secured against unintentional opening.

! Do not remove this securing element until both systems have been coupled successfully (risk of injuries).

- At first fasten the system with the driving gear (as described in Item 2.7).
- Using the test cable, extend system approximately 50mm.
- Hook passive coupled system (without driving gear) into the brackets first and secure (clamping parts, screws).
- Turn square pin of the passive coupled system with SW 13 fork spanner in the direction of the arrow (i.e. against extension direction) until it is possible to engage it in the square hole of the system with driving gear.



i Ensure that the positions of the insert grooves of the two cloth rollers coincide. Push systems fully together and tighten bracket screws.

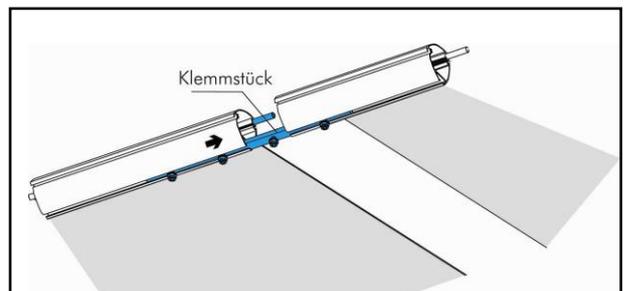
When *TopLine Plus* is pushed together, ensure that the roof inclination of the two awnings is identical (pins at the side end engage).

Drop profile coupling:

If no cloth gap covering is to be used, extend the coupled system at least 100cm.

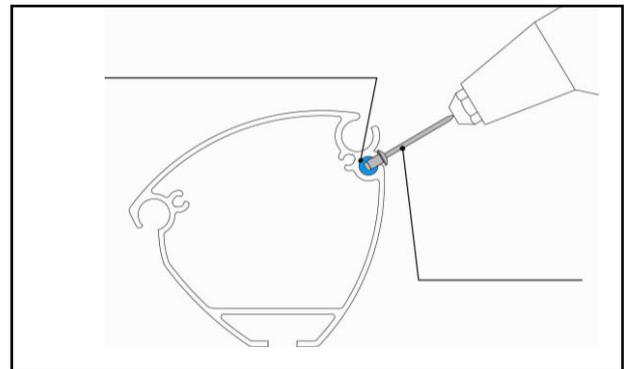
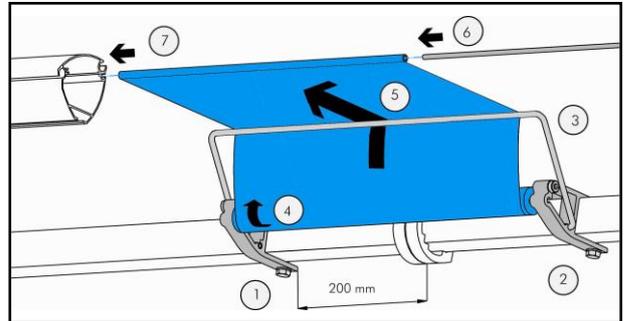
Connect both drop profiles with the coupling profile (pre-mounted in one of the two drop profiles) and tighten the nuts with SW 13 fork spanner.

Ensure that no gap remains between the two drop profiles.



2.9. Cloth gap covering:

- In identically extended state, mount the left holder (1) of the cloth gap covering (part without bearing bush) 200mm away from the dividing line between the systems.
- Hook in cloth shaft (4) and mount right holder (2).
- Hook in guide bracket (3) so that it rests on the screw heads.
- Turn spring roller (4) up to 10 revolutions in the direction of the arrow.
- Pull end of the cloth forward over the guide bracket to the drop profile.
- Push insert (6) into the loop of the fabric (7).
- Push drop profiles apart and insert the loop of the fabric including insert into the small channel of the drop profile.
- Connect both drop profiles with the clamping piece (pre-mounted in one of the two drop profiles) and tighten the nuts with SW 13 fork spanner.
- Bring channel fabric into parallel alignment with covering.
- Secure insert in the channel on both sides with blind rivets (blind rivet with flat head 3x6mm).



3. Initial operation:

-  Before the initial operation of the awning, remove all objects (e.g. ladders, tools etc.) from the full travel range (in/out) of the awning and from underneath the awning. During the trial operation, ensure that nobody is in this area – there is a risk of injury in case of a malfunction.

3.1. with hand crank:

Insert hook of the hand crank in the eye of the driving gear and fully extend awning.

The end position of the awning (fully out) is factory set, but adjustments may be possible (please contact the system manufacturer).

In fully extended condition, the awning is optimally stretched.

When winding up the awning for the first time, check that the covering is wound up properly and that the articulated arms fold correctly (parallel).

-  When the end positions (in and out) are reached, do not force hand crank further. Otherwise the gearing may be damaged.

3.2. with driving gear:

-  For trial operation, always use the test cable (no automatic control units etc.). In addition, the operator must be able to see the awning.

If the test cable has not yet been connected, connect to the cable of the driving gear.

-  The end position switches of the motor are factory set. If corrections are necessary on location, these can be carried out in accordance with the "Driving Gear Instruction Manual".

Fully extend awning and check switch-off point.

In fully extended condition, the awning is optimally stretched.

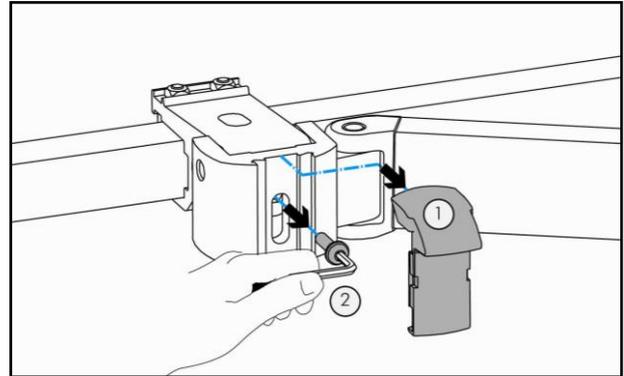
When winding up the awning for the first time, check that the covering is wound up properly and that the articulated arms fold correctly (parallel).

-  Electrical installation work and connections to the mains must be carried out exclusively by a licensed electrical company.

3.3. Setting the inclination of the awning:

Adjustment of the arm inclination:

- Extend awning approximately half way.
- Remove cover (1) from the arm holder with a slotted screwdriver.
- Remove securing screw (2) with SW 5 Allen key.

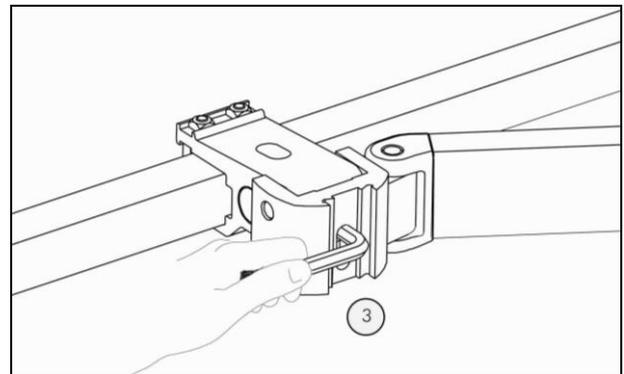


- Lift arm slightly to relieve the load on the arm and adjust the inclination by turning the screw with SW 10 Allen key (3).

 **To raise the awning, turn counter-clockwise**

 **To lower the awning, turn clockwise**

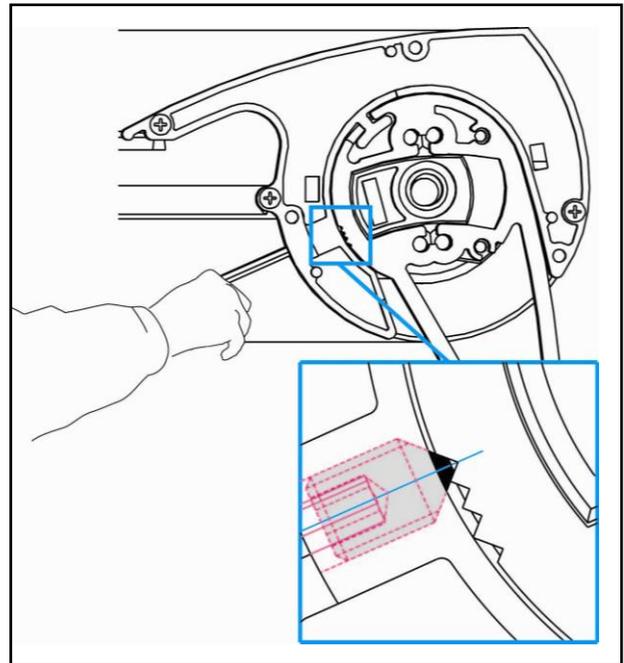
- In the event of a significant change of the inclination setting (more than 10°), the arms must be adjusted alternately.
- With the securing screw (2), secure the arm inclination and refit the cover(s) (1).



 *TopLine Plus*: Check the closing behaviour and, if applicable, reset the roof inclination.

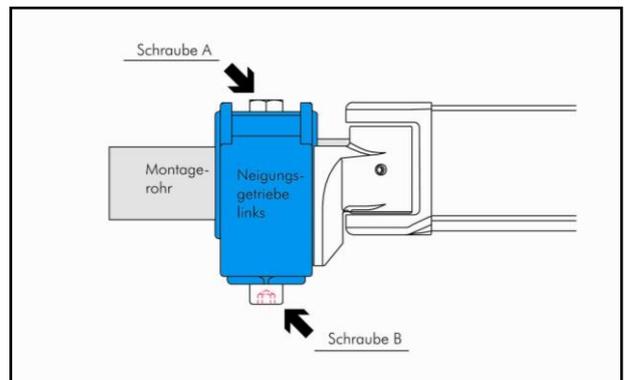
Adjustment of the roof inclination:

- Extend awning approximately ½ metre.
- press a narrow slotted screwdriver into the opening of the side covers and push backwards (towards the wall) to loosen the side covers.
- Loosen the threaded pin with Allen key SW 4.
- Adjust roof inclination to the retracted drop profile.
- **Slightly** fix threaded pin. Ensure that the same setting (mesh pattern) is chosen on either side.
- Apply side covers.



Alignment of the arm inclination in systems with tilting device:

- Fully extend the awning.
- With SW 17 ring spanner, loosen screw **A** on the left tilting gear (holding screw **B**).
- Turn screw **B** with SW 10 Allen key to bring the articulated arm into parallel alignment with right arm.
- Now retighten screw **A** (holding screw **B**).

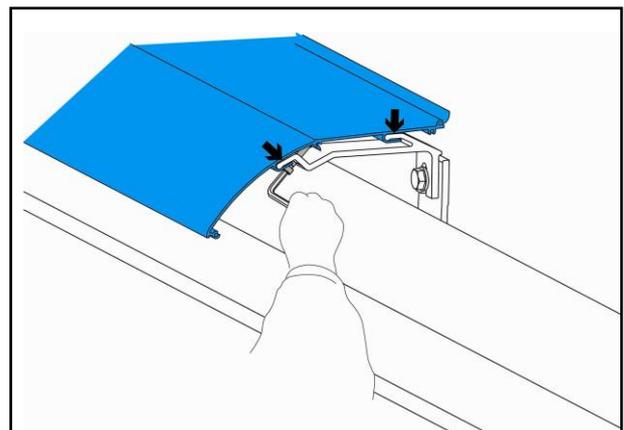


 *TopLine Plus* with tilting gear: the roof inclination must remain in the topmost position.

3.4. Mounting the rain protection roof:

The holders for the rain protection roof were already aligned vertically when the brackets were mounted and fixed in their position with the upper screw. (Item 2.6.).

- After the installation of the system, push the rain protection roof with both grooves onto the holders from the front (the flexible sealing lip that rests against the wall must point upwards so that the rain water cannot get behind the awning) and align sides.





- Tighten the Allen screws with SW 5 Allen key.
- Fasten the side parts of the rain protection roof in the screw channels of the profile with the crosshead screws (from the side).

Follow the same method to install the coupling of coupled rain protection roofs. One half of the coupling is in engagement with each of the two profiles.

3.5. Completing the installation / Transfer to the client:

- Clear site. Remove packaging materials from site and dispose according to local regulations.
 - The installation engineer is requested to enter the WO&WO order number and the product name in the "Product Identification" item of the Instruction Manual so that future questions can be answered more efficiently.
 - Hand over to client all instructions concerning the installation and operation of the awning as well as the instructions for the electrical connections of control units and switches.
- i** Give client comprehensive instructions about the operation of the awning. Failure to observe the instructions and incorrect operation can result in damages to the awning and accidents. Notify client of the wind resistance class of the awning.

4. Dismounting the awning:

- i** Ensure that the area around the awning is free of unauthorised personnel. De-energise awnings with driving gear and secure against accidental switch-on.
- Dismount the awning exclusively in retracted condition.
 - Dismounting of the awning is the reverse of the mounting procedure.
- i** Caution: In coupled systems, the passively driven system (without driving gear) must be secured to prevent accidental extension before the systems are uncoupled.

5. Troubleshooting:

Type of defect	Cause	Remedy
Driving gear does not work	No power	Check connection (specialised company)
	Driving gear not correctly connected	Check connection (specialised company)
	Thermal protection of the driving gear activated	Wait for 15-20 mins, then operate again
	Remote control batteries empty	Check light signal on sending unit, replace batteries
	Higher-level control unit prevents manual operation	Wait until higher-level signal is not activated any more.
System does not extend or retract fully	End positions of the driving gear changed, or incorrect end position setting	Reset or re-program end positions (see instructions about driving gear adjustment)
Awning makes grating noises	Insufficient lubrication	Spray arm articulation bearing with a suitable lubricant (e.g. Teflon spray)
System does not close on one side	Fabric unevenly sewn	Line covering on this side by applying fabric tape to cloth roller