

# ***TECHNICAL DESCRIPTION***



## **VARISOL *T500***

### **TERRACE AWNING**

## **A. General**

The VARISOL *T500* has especially been developed for an installation above terraces of hotels, restaurants, cafes or private houses.

An intelligent tensioning system provides an optimum fabric tension when the awning is retracted and extended. If the awning has a sufficient inclination, it may also be used as a protection from modest rain.

The awning is designed for a trouble-free, silent and safe operation.

Optionally, the awning frame is white (RAL9016) or dark brown (RAL 8022) and is plastic-coated.

As an option, a coating in a special color according to RAL is also possible.

## **B. Construction of the awning**

### **1. Awning case**

The awning case consists of two extruded aluminum sections. The wall thickness of the sections is 2.5 mm.

The case bottom and the roof section are connected in the rear area, using engaging grooves. The case is laterally closed by stable end caps of cast aluminum.

The case height is 193 mm. The case roof has depth of 243 mm and covers the extension rod in its retracted condition.

In the rear area both side caps provide a support which can be used to hook in the case and to wall brackets simply and safely.

In the upper area a rubber lip seal can be inserted into the rear side of the case as a wall termination.

### **2. Guide rails**

The guide rails consist of thick extruded aluminum sections with a wall thickness of up to 3.0 mm.

The generous sizing of the guide rails of (W x H) 60 x 120 mm ensures best loading capacity over an extension of 6,000 mm. In case of an inclined extension above 7,000 mm the guide rails are coupled.

On the sides the guide rails have C-shaped running chambers so that the extension rod cannot fall down. On the upper edge of the running chambers a brush seal is drawn in for the pulling belt as a wind protection. A slot below the running chamber houses a most simple retraction of the pulling belts.

On their upper and lower side the guide rails have special groove chambers for supporting fabric guide tubes, wind protection tubes and holders for the gutters.

### **3. Rail supports**

If the extension exceeds 6,000 mm and the guide rails are coupled, the use of a rail support is necessary, consisting of an extruded aluminum section with the dimensions (W x H) of 60 x 120 mm. On its upper end the rail support has an articulated head part for a connection to the lower support groove of the guide rail. A mounting base for fastening the bottom mounting plate is the lower termination of the rail support.

### **4. Canvass roller**

The canvass roller is made of galvanized steel cleated tube with the dimensions 90 x 1.25 mm.

### **5. Front rail**

The front rail consists of an extra strong extruded aluminum section. Wall thickness of up to 4.0 mm as well as the sizing of (W x H) 120 x 68 mm ensure a single-piece awning width of 5,000 mm.

On the sides the extension rod is closed by aluminum side caps supporting the running rollers on flying stainless steel bolts.

### **6. Intermediate roller**

Depending on the width, extension and inclination of the awning, the use of one or more intermediate roller is necessary. Refer to table 1 for the valid limiting dimensions. The intermediate rolls are pivotably installed in special supports which are attached to the lower groove of the guide rails, consisting of stable aluminum tubes with a diameter of 60 mm and thus preventing and excessive deflection of the awning fabric.

## 7. Wind protection tubes

Depending on the awning size and the wind effects on the site of application, an installation of the awning with one or more wind protection tubes is recommended, consisting of an aluminum tube with a diameter of 60 mm and installed in holders above the guide rails. If they are attached above the awning fabric, the wind protection tubes prevent the fabric from moving upwards in case of a stronger wind.

## 8. Drive

Awning drive is effected via a 230 V tubular motor. To switch off the movement of the awning precisely, the motor is equipped with an external end-stop limit switch.

## 9. Canvassing

The canvassing consists of a woven ACRYLIC material with a weight of approximately 300 g/m<sup>2</sup>. The awning fabric is sown together from sheets of material up to 120 cm in width.

The material features highest light fastness, resistance to tearing and an impregnation against dirt, oil and rottenness.

As an option, a special impregnation with higher water tightness is possible (limited design selection).

## 10. Tension system

Two independently acting spring units with torsion springs are installed into the canvass roller.

As drawing medium, a protruding textile belt, made of Kevlar-reinforced Polyester, is applied. When the awning is retracted, this drawbelt is hooked with low spring tension onto the front rail. The belts are cut to length and are premounted so that no measurements or cutting are necessary.

The changing coil diameters of the drawbelt and canvassing relative to each other are compensated by the spring units. As a consequence the front rail is always pulled forward uniformly and jamming is, therefore, virtually eliminated.

In the retracted position, the awning is under low spring pressure of only 7 - 10 kg per spring unit. The spring tension is continuously increased during extension movement to a maximum value of approx. 50 kg per spring unit. In this way, the tension system guarantees an optimal coiling of the awning canvassing and prevents an overstretching of the canvassing seams and side border.

## 11. Tracking and guide rollers

The tracking and guide rollers are made of low-friction nylon with Teflon bushings and run on strong stainless steel pins. In conjunction with the textile drawbelt, they add to the extreme silent operation of the awning.

## 12. Angle joints

With its angle joints of aluminum with internal belt routing rollers, VARISOL T500 offers an additional vertical extension for better shading.

The angle joints each consist of two arc segments. Sawing the individual segments allows a deflection angle of 150 to 90 degrees.

The arc segments are interconnected by stainless steel bolts. These stainless steel bolts are designed as bearing studs for an aluminum fabric deflection roller with a diameter of 80 mm at the same time.

For an optimization of the deflection movement another deflection roll of aluminum with a diameter of 80 mm is used in front of and behind the deflection bow.

## 13. Mounting brackets

For a proper installation of the awning case mounting holders of plastic-coated stainless steel are attached to the house wall (on the case end). These mounting holders can be used to hook in the awning case simply and safely, using the supports in the side caps.

#### 14. Bottom mounting plates

For mounting the vertical guide rails to the bottom, mounting plates of stainless steel are used, providing a support for an installation of a mounting base on the lower end of the guide rails. The insertion part on the mounting basis provides oblong holes so that the height of the guide rails can be readjusted by 30 mm.

The attachment of the bottom plates to a concrete foundation (B25) with the dimensions (60 x 60 x 60 cm) is recommended.

#### 15. Gutters

To prevent water from leaking between the fabric end and the guide rail or between the fabrics for series installation, gutters may be installed at the guide rails. These gutters consist of aluminum profiles which are powder-coated in the awnings color.

### C. TECHNICAL POSSIBILITIES

Minimum awning width	:	1350 mm
Maximum awning width		
- without angle joint	:	6000 mm
- with angle joint	:	5000 mm
Max. working length	:	6500 mm freely supported, beyond that with additional rail supports
Maximum extension	:	9000 mm
Maximum fabric area	:	45 m <sup>2</sup>

**Table 1 Determination of the extension in dependence of the awning slope, as an example for a working length = 5.000 mm + additional vertical extension (H3) = 2.000 mm**

Slope in degrees	Slope in mm for each meter of working length	Additional factor for the slope	Working range, measured horizontally (example)	Inclined extension (working length x additional factor)	Vertical extension (example)	Total extension (example)
5	86	1.005	5,000	5,025	2,000	7,025
10	173	1.017	5,000	5,085	2,000	7,085
15	263	1.037	5,000	5,185	2,000	7,185
20	356	1.066	5,000	5,330	2,000	7,330
25	455	1.104	5,000	5,520	2,000	7,520
30	562	1.154	5,000	5,770	2,000	7,770
35	680	1.217	5,000	6,085	2,000	8,085
40	814	1.297	5,000	6,485	2,000	8,485
45	967	1.400	5,000	7,000	2,000	9,000

**Table 2 Use of intermediate rolls**

Fabric quality	Working length	Number of intermediate rolls (recommendation)
ACRYL with standard impregnation	up to 3,000 mm	0 piece
	up to 4,500 mm	1 pieces
	up to 6,000 mm	2 pieces
	up to 7,500 mm	3 pieces
	up to 8,500 mm	4 pieces
ACRYL with increased water tightness (special impregnation)	up to 2,000 mm	0 piece
	up to 3,500 mm	1 pieces
	up to 5,000 mm	2 pieces
	up to 7,000 mm	3 pieces
	up to 8,500 mm	4 pieces