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# Elastic support up to 25 kV AC

**Sicat 8WL4200 for overhead contact line systems in tunnels and under structures**

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The elastic supports of product line Sicat® 8WL4200 are designed for providing an elastic suspension of fixed terminated or auto-tensioned overhead contact lines with one or two contact wires and without catenary wire. They are suitable for installation in low and narrow structures. The elastic supports attenuate contact line oscillations that occur during the passage of trains. Thus they provide a dynamic behaviour of the contact wire similar to that of a catenary suspension system.

**Features**

- Easy adjustable to the geometry of the structure and variable fastening
- Extremely space-saving in narrow spaces
- No sinking of cantilever arm into vehicle clearance gauge and no falling below minimum distance to ceiling due to stops in friction element
- Low wear of contact line and of current collector
- High service life and reliabilty
- Low-maintenance due to use of breakage resistant composite insulator and corrosion resistant materials

# Design

The cantilever arm with the contact wire clip is movable horizontally and vertically due to two jointed positions (in the articulation joint and in the torsion element).
Due to the laminar clamping of the torsion element into the articulation joint, a very precise adjustment is possible.

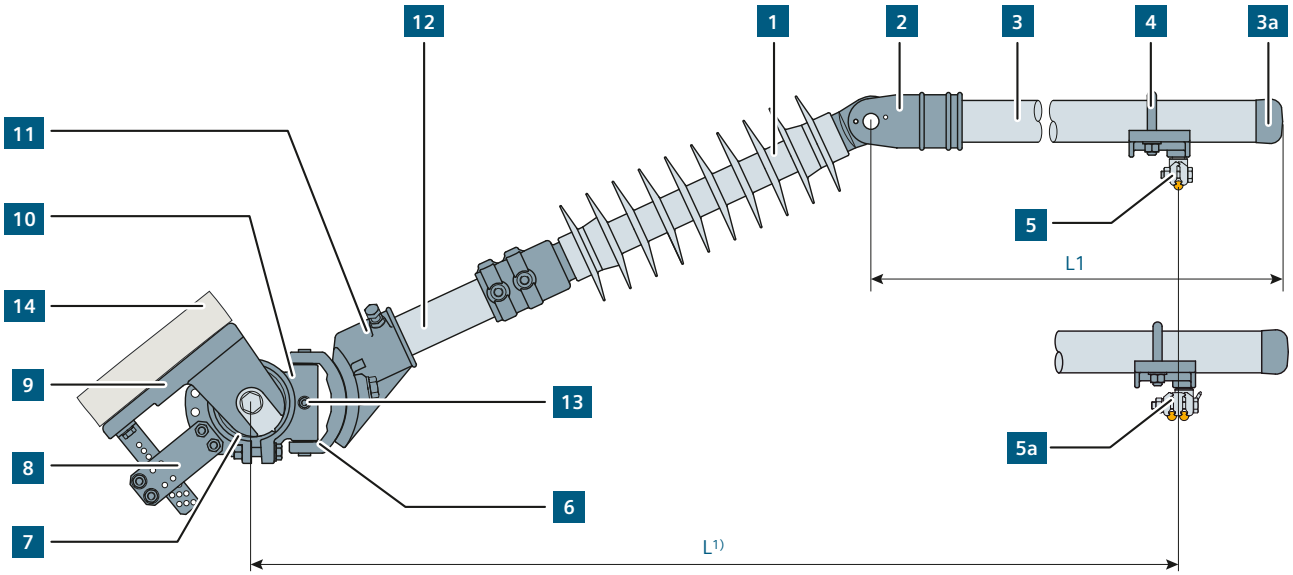
The adjustment of the cantilever arm at the insulator enables an extremly compact mounting of the elastic support adapted to the structure profile.

## Variants

The following variants are available:

- Elastic support with contact wire clip for single contact wire
- Elastic support with twin contact wire clip for twin contact wire

| Type | | 8WL4200-0 | 8WL4200-0C | 8WL4200-0A | 8WL4200-0B | 8WL4200-0D |
|---|---|---|---|---|---|---|
| Variant for<br>– single contact wire<br>– twin contact wire | | ■ | ■ | ■ | ■ | ■ |
| L | [mm] | 1,400 | 1,530 | 1,420 | 1,570 | 1,740 |
| L1 | [mm] | 665 | 795 | 695 | 845 | 1,045 |
| Weight | [kg] | 18.38 | 18.70 | 18.55 | 18.93 | 19.14 |




L1)

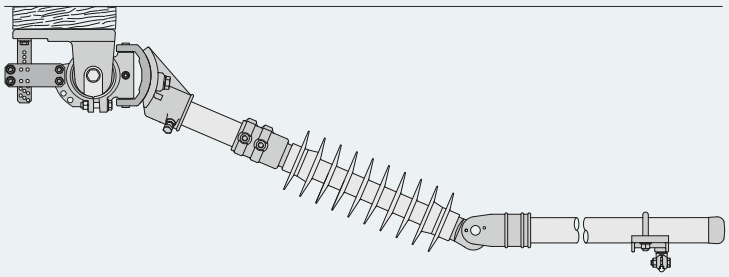
1 Composite insulator
2 Tube clamp cap
3 Cantilever arm
3a End cap
4 Clamp holder
5 Contact wire clip
5a Twin contact wire clip
6 Clevis end fitting
7 Rubber-bonded metal bushing (torsion element)
8 Friction element
9 Basic frame
10 Central joint
11 Insulator cap
12 Tube 55x6
13 M12 locking bolt
14 Mounting bracket (not included in delivery)
1) Length for setting angle of ±25°

Design of elastic support Sicat 8WL4200

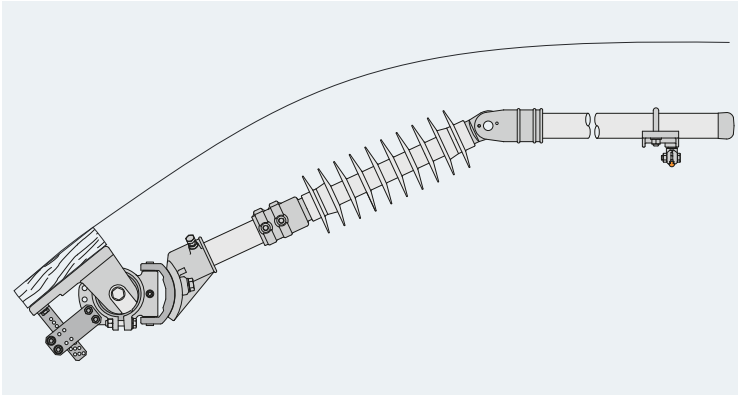
# Fastening variants

The contact wire height and stagger can be independently and steplessly adjusted. Any differences in height can be compensated with a mounting bracket (not included in delivery). If the height difference is great, a soffi t post can be used for mounting.

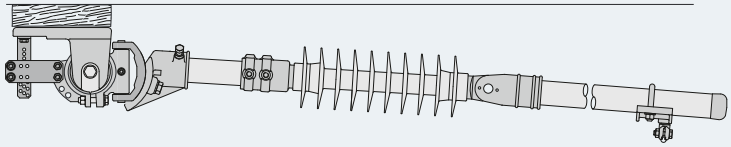
All variants are suitable for installation in structures with circular cross section and with fl at ceilings.



Fastening in rectangular tunnel or underpasses



Fastening to a structure with circular cross section



Fastening in rectangular tunnel or underpasses with limited space

# Function

The elastic, damped guidance of the contact wire is realized in the torsion element via balance of moments. When the pantograph passes the elastic support, the rubber-bonded metal bushing generates a counter-torque corresponding to the pantographs contact force.

The vehicle pantograph lifts the contact wire and thus the complete cantilever when passing. The resulting oscilla-tions are absorbed by the elastic support and compensated until entire abating due to the harmonized interaction of torsion shackle and torsion element.

At a defect on the torsion element the limit stop above the friction element on the basic frame prevents the sinking of the cantilever arm into the load gauge of a vehicle.

Another stop below the friction element prevents, that the minimum distance between the cantilever arm and the tunnel ceiling from being violated in the event of excessive lifting of the contact wire.

The variation of contact wire lengths due to temperature changes are absorbed by the horizontal movement of the elastic support.

# Technical data

| Technical data | | |
|---|---|---|
| Nominal voltage | [kV AC] | 25 |
| Maximum running speed (for tensioned contact line) | [km/h] | 130 / 160* |
| Maximum bending moment | [Nm] | 500 |
| Torsion constant | [Nm/ degree] | 60 |
| Minimum creepage distance | [mm] | 1,200 |
| Contact wire acc. to EN 50149** | | AC-80 to AC-150, Cu-ETP<br>AC-80 to AC-150, CuAg0.1<br>AC-100 to AC-120, CuMg0.5 |

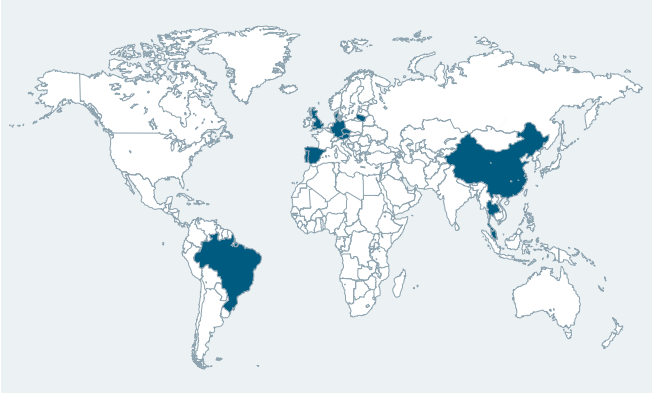
* depending on number of supports in sequence
** others on request

| Materials | |
|---|---|
| Basic frame, articulation joint, clevis end fitting, tube end caps, clamp holder | cast aluminium alloy |
| Composite insulator | glass-fibre reinforced plastic, silicone |
| Torsion element | stainless steel, rubber |
| Cantilever arm (tube 55x6) | aluminium |
| Contact wire clip | copper aluminium alloy |
| End cap | plastic, soft |
| Standard parts | stainless steel |

| Accessories | |
|---|---|
| Adjusting spanner | Sicat 8WL4203-2 |

# References

Since the market introduction of the Sicat 8WL4200 type elastic supports in 1994 Siemens delivered in total more than 2,160 units worldwide (status as of September 2017).



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