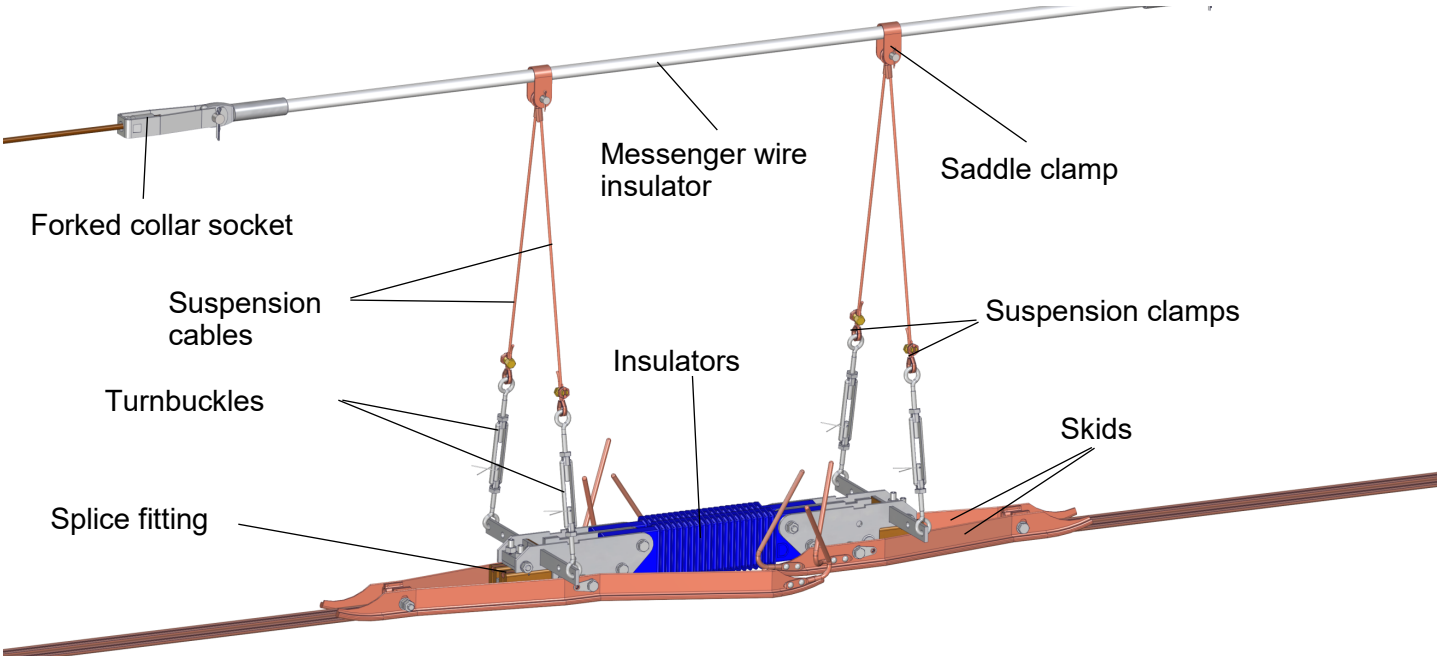
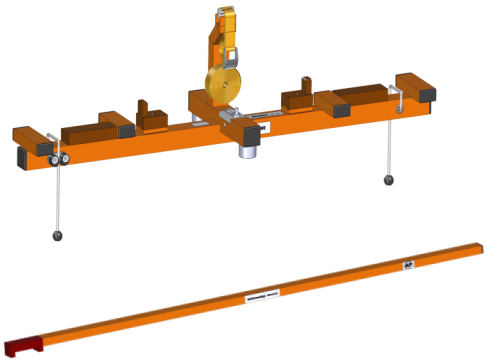
Section insulator FOD/FSD/FDD with 2 insulators

V 2022/06



Optional supplies:

Installation(JIG)
Art. no. 655.301.001



Alignment bar
Art. no. 696.016.010

Index

RISK OF DEATH
Before start working in the overhead line: Make sure that the overhead line is switched off and correctly grounded on both sides and the working platform is insulated.

A) Tools

- 1 Ring open-end wrench 17 mm .....Art. no. 656.000.001
- 1 Torque wrench 17 mm (50 Nm).....Art. no. 655.114.000
- 1 Adjustable spirit level.....Art. no. 655.141.000
- 1 Bolt cutter
- 1 Torque wrench with hexagonal pin
- 1 Copper hammer .....Art. no. 656.000.009
- 1 Spring scale .....Art. no. 655.181.000
- 1 Flach– oder Universalzange.....Art. no. 656.000.004
- 1 Straightening wood.....Art. no. 656.000.005

Additionally for:
Messenger wire insulator installation or replacement of a section insulator

- 1 pulley block with 2 cable clamps

B) Preparation

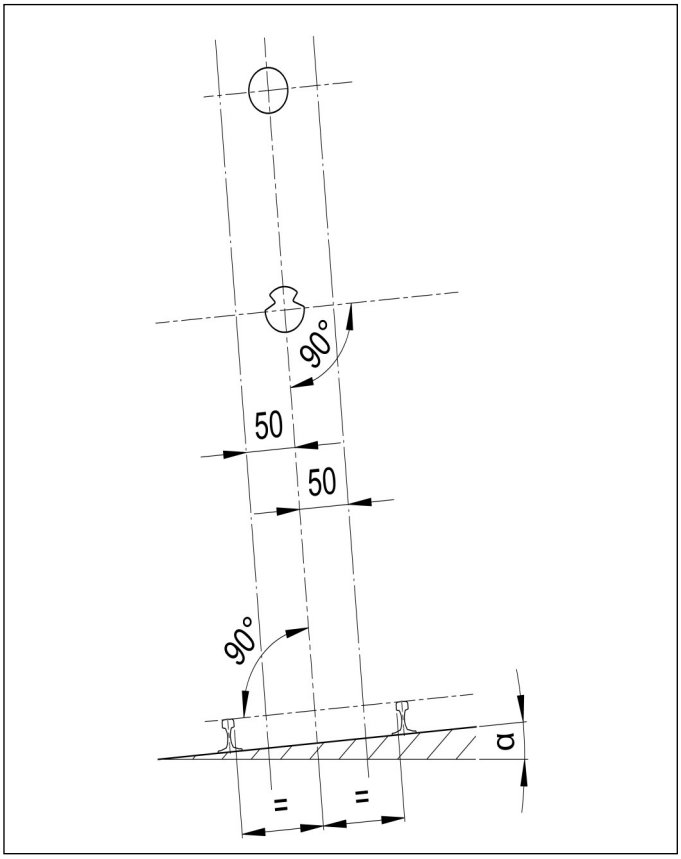
1. Preparation of contact and messenger wire

Straighten the contact wire at the installation location and make sure it is not twisted.

Each section insulator should be well centred and aligned parallel to the track. The carbon strip of the pantograph must run centered over the section insulator.

Align the contact wire and the messenger wire in the middle of the track (+/- 50 mm).

The contact wire and messenger wire must be positioned vertically within 50 mm above each other.

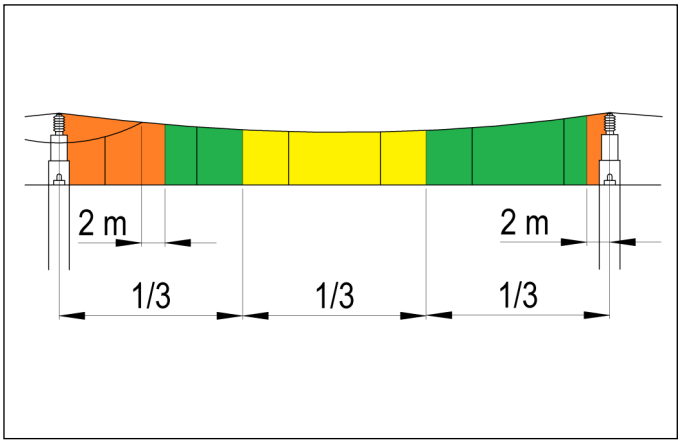


2. Installation location

The section insulator is preferably installed in the green zone, at least 2 m away from the guide arm or stitch wire.

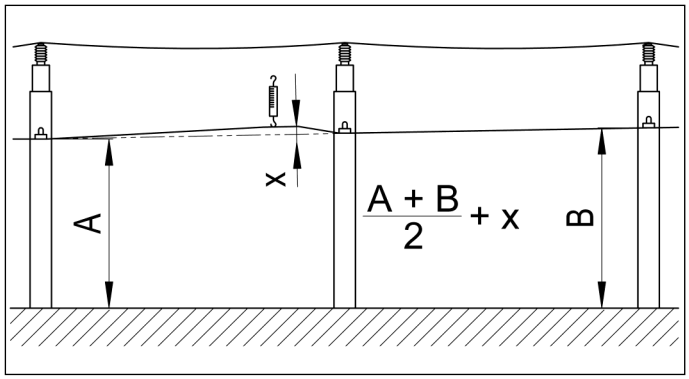
The yellow zone is less optimal and the orange zone is least recommendable.

The sloping angle of the messenger wire insulator should ot exceed 5° if saddle clamps are able to glide.



3. Determine the hogging

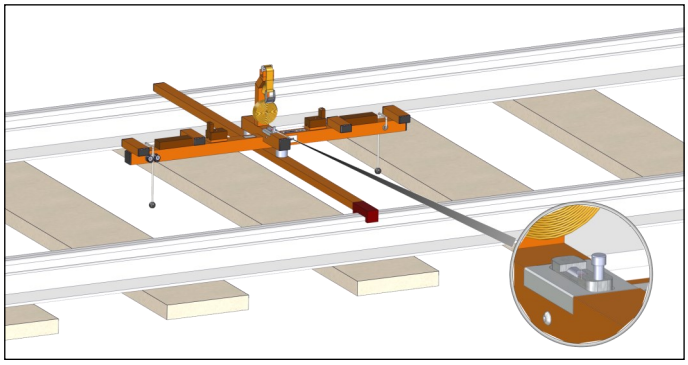
If the section insulator is installed at a new location, use a spring balance to pull up the contact wire with 120 N - 150 N (dynamic pantograph pressure). The elevation of the contact wire should correspond to the optimal hogging (value X). When replacing an existing section insulator measure the height of the contact wire at masts A and B and calculate the average value. The hogging value should be at least X = 70 mm and is added to the average value.
Height of section insulator = original contact wire height + hogging.



4. Measure the inclination of the track by using the JIG

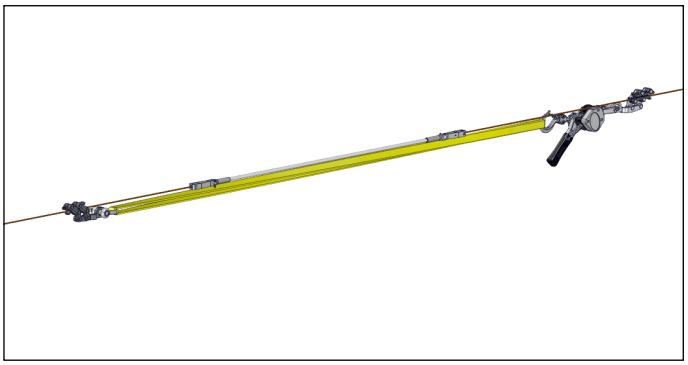
Place the installation JIG at the installation site on the alignment bar as shown and adjust the integrated spirit level.

The orientation of the JIG can be chosen freely and must be maintained during installation.

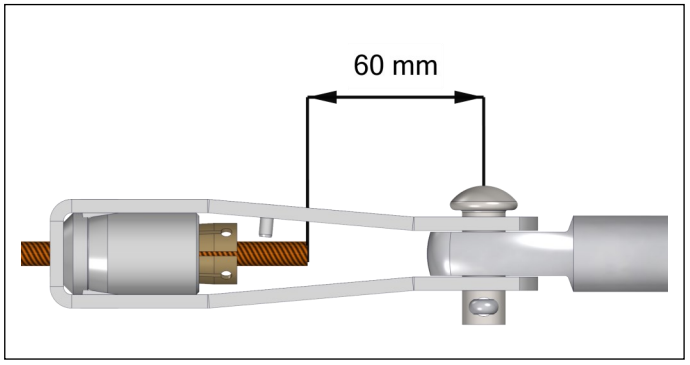


5. Installation of messenger wire insulator

Tighten the pulley block and mount the insulator on the messenger wire.

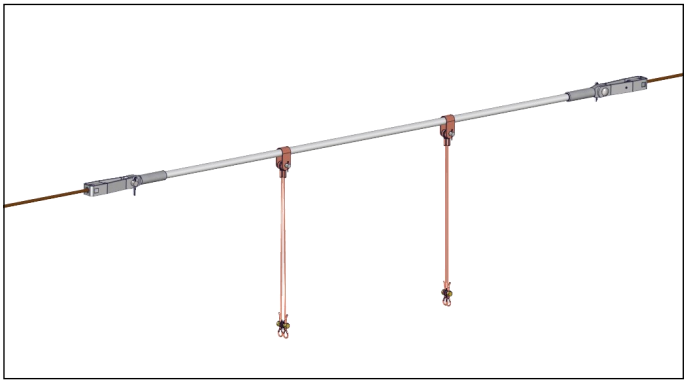


Correct forked collar socket installation.



Install the messenger wire insulator and attach the saddle clamps and suspension cables to it.

Remove the pulley block after installing the messenger wire insulator.

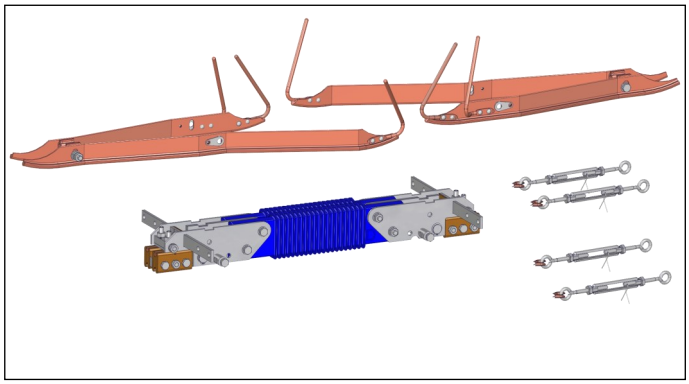


6. Removing the skids

Remove the skids from the insulator body and all nuts and safety wires from the turnbuckles. Keep the removed parts.

Loosen the bolts of the splice fittings and open the turnbuckles completely.

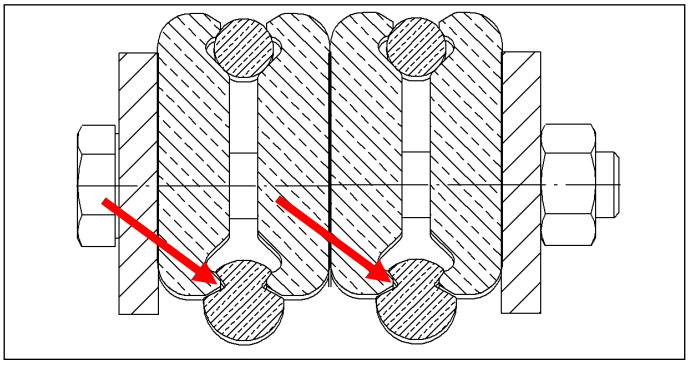
Re-installation: Loosen the pretension.



C) Installation

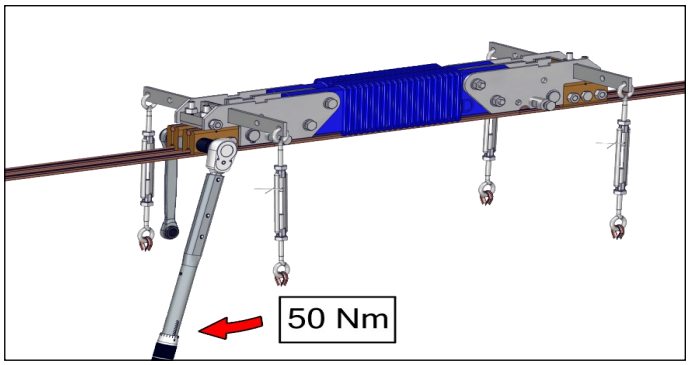
7. Installation of the insulator body on the contact wire

Place the section insulator on the contact wire with slightly spread splice fittings and check that the splice fittings are correctly placed on the contact wire groove.



Warning: The teeth of the splice fittings must grip in the contact wire groove over the full length of the splice fittings.

Tighten the bolts of the splice clamps one after the other with a torque wrench to **50 Nm**.

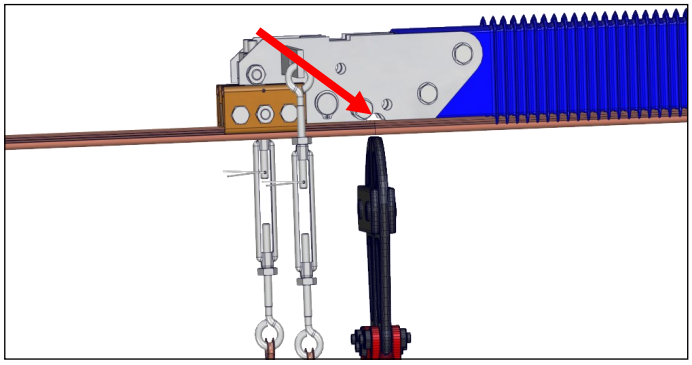


Start with the bolt in the middle then tighten the two outer bolts of the splice clamps.

Repeat this process twice until each bolt has been tightened a total of three times.

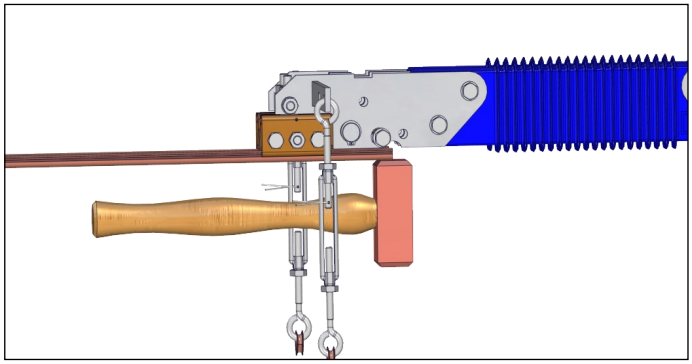
8. Cut the contact wire

Cut the contact wire on both sides of the insulator body with a bolt cutter.



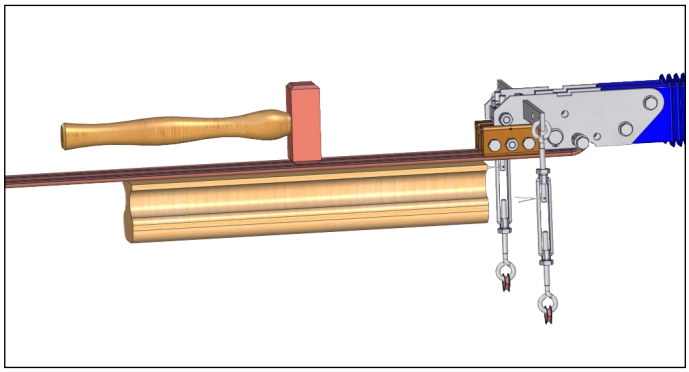
9. Bend up the contact wire ends

Bend up the contact wire ends by hitting them with a hammer.



10. Straighten the contact wire

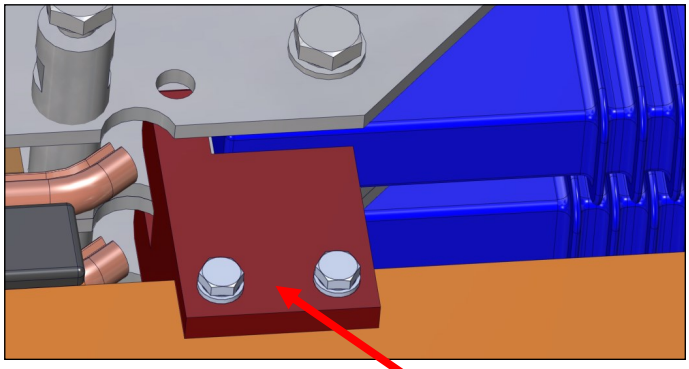
Straighten the contact wire on both sides of the section insulator by using a hammer and a straightening wood.



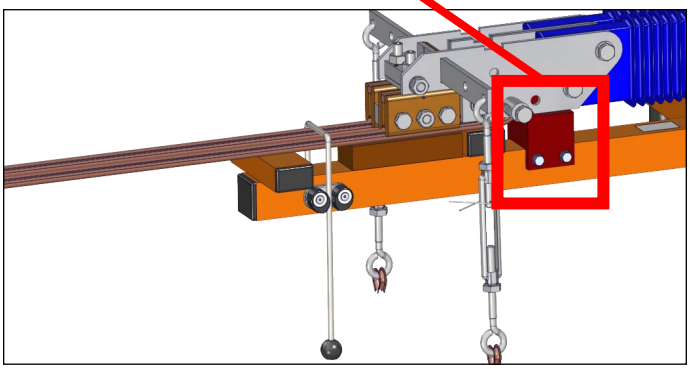
11. Mounting of the installation JIG

Fasten the installation JIG below the section insulator as indicated.

Observe the driving direction.

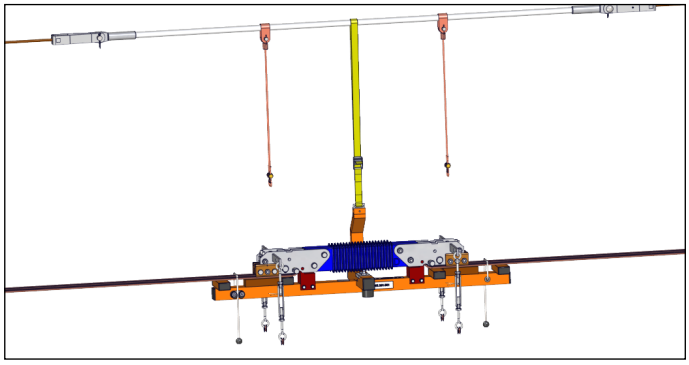


Fasten the ropes of the installation JIG to the contact wire.



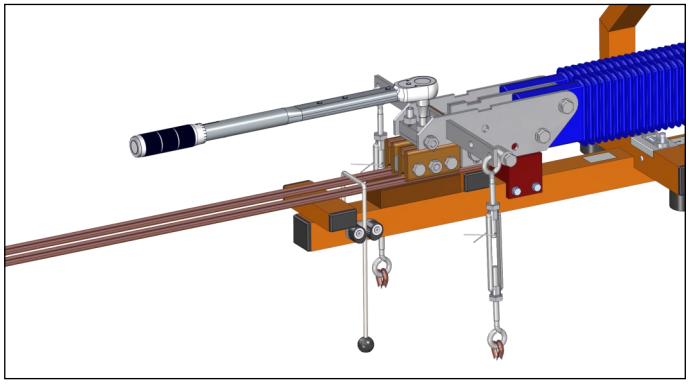
12. Fix the hogging

Final section insulator height = standard height + hogging. The standard height is the original contact wire height before installation of the section insulator. Attach the rope of the installation JIG to the messenger wire insulator and adjust the hogging of the section insulator by the value X according to the hogging instruction (point 3 of these instructions). If the hogging value is not known, increase the height of the section insulator by at least 70 mm.



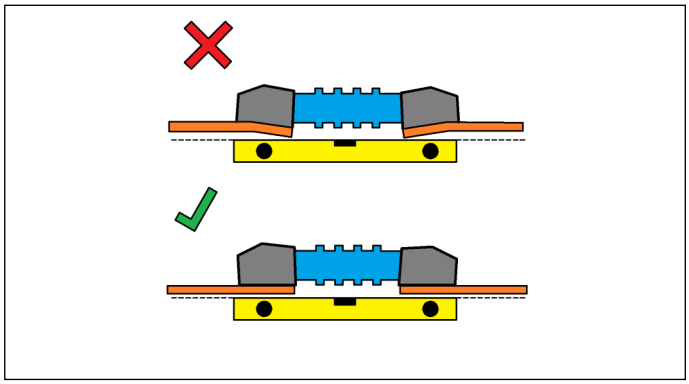
13. Adjust the pretension

Adjust the pretension (horizontal position) with the four adjustment screws above the splice fittings.



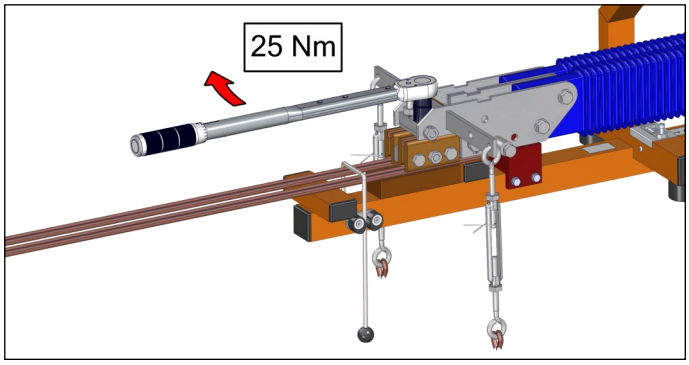
14. Check the pretension

Check the alignment with the installation JIG. Adjust the pretension so that the splice fittings hold the contact wire without deflection towards the bottom and parallel to the installation JIG or spirit level.



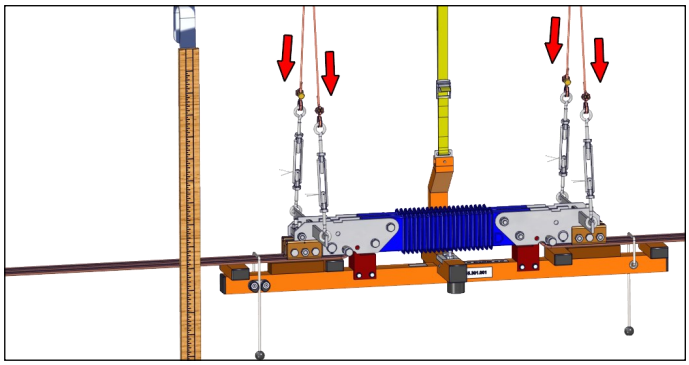
15. Secure the adjusting screws

Secure the adjusting screws with the counter nuts (**25 Nm**).



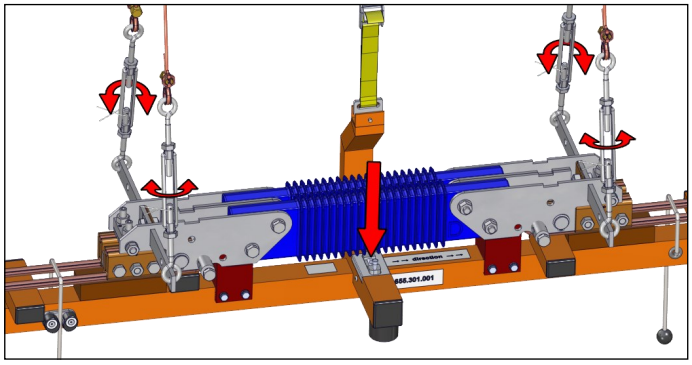
16. Fix the suspension

Tension the suspension until the tension is taken over by the suspension cables.



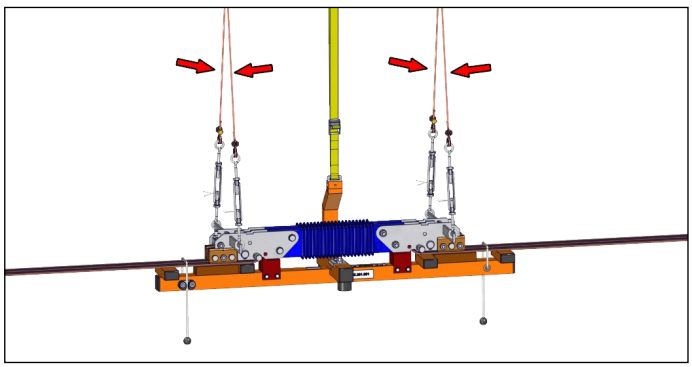
17. Adjust the inclination of the section insulator

Adjust the inclination of the section insulator with the turnbuckles and check it with the spirit level of the installation JIG according to point 4 of these instructions.



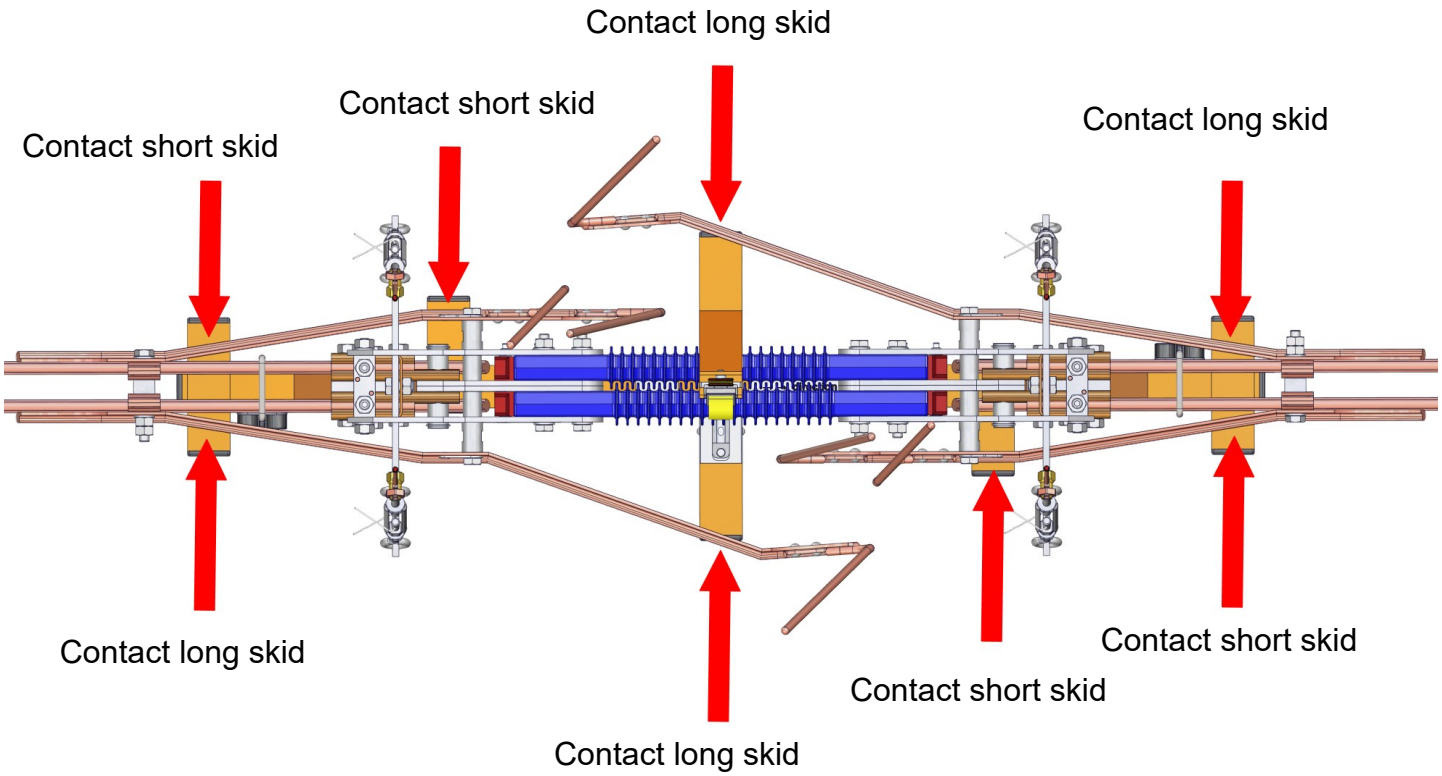
18. Check the tension of the suspension cables

The tension of the suspension cables must be identical.

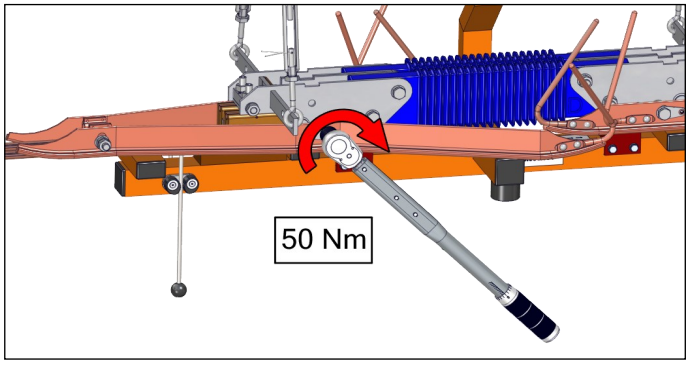


19. Attachment of the skids

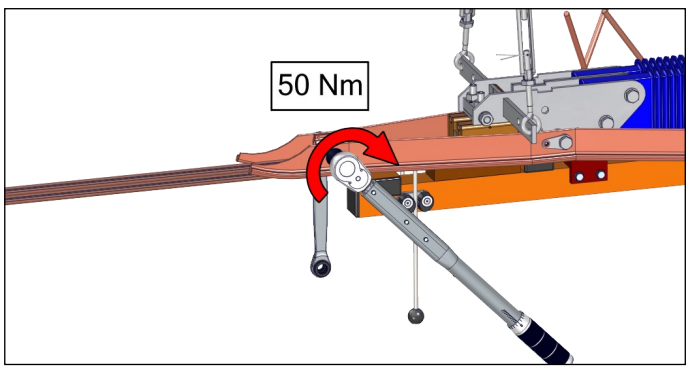
Mount the skids and washers and tighten the nuts by hand.
The skids must rest on the installation JIG.



Tighten the nuts of the skids with **50 Nm**.



Tighten the nuts to **50 Nm** and lock them with the counter nut.

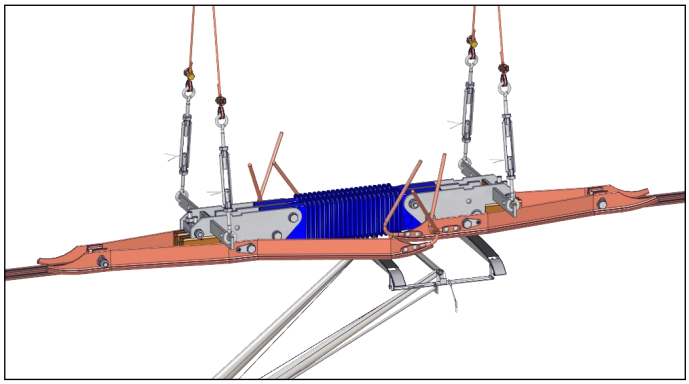


Remove the installation JIG from the insulator body.

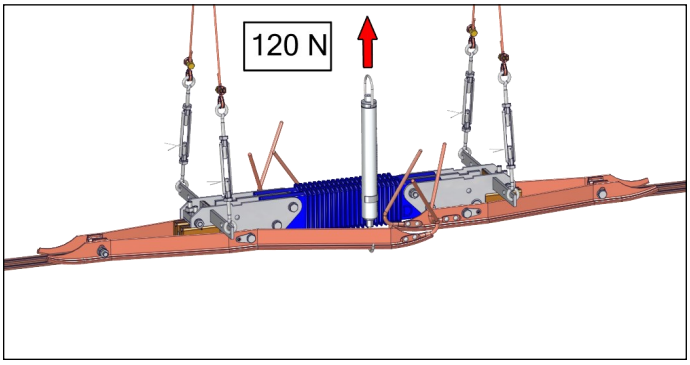
20. Check gliding and inclination

Check with spirit level or dummy pantograph for optimal gliding.

The transition between contact wire - skids - contact wire must be smooth. The skids must be aligned parallel to the track.

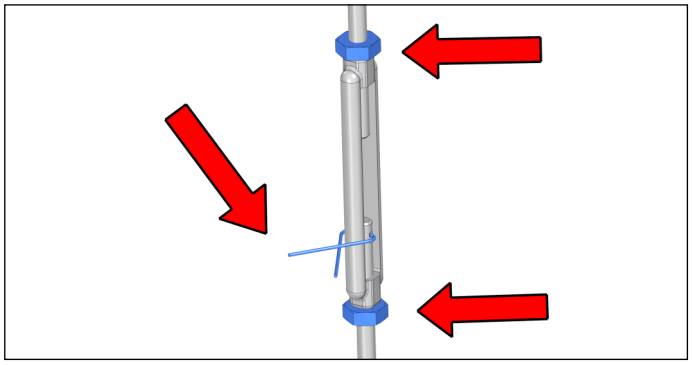


A well adjusted section insulator can be lifted with 120 N using a spring balance attached to the skid ends with arcing horns without inclining or the suspension cables becoming loose. If the suspension cables are no longer tight when raised, the section insulator must be raised gradually (by 10 mm) until the suspension cables are tight again.



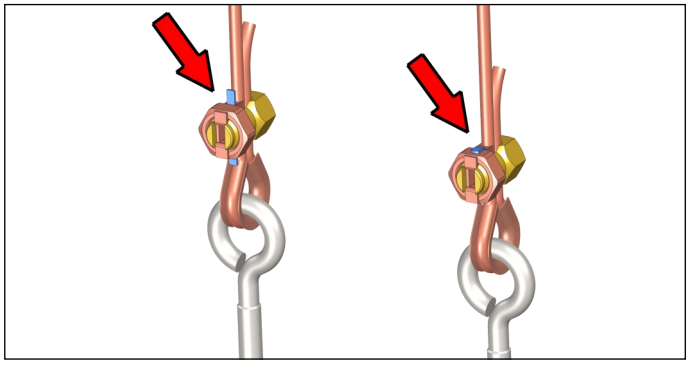
21. Secure the turnbuckles

Tighten all counter nuts of the turnbuckles and lock the turnbuckles with a safety wire.



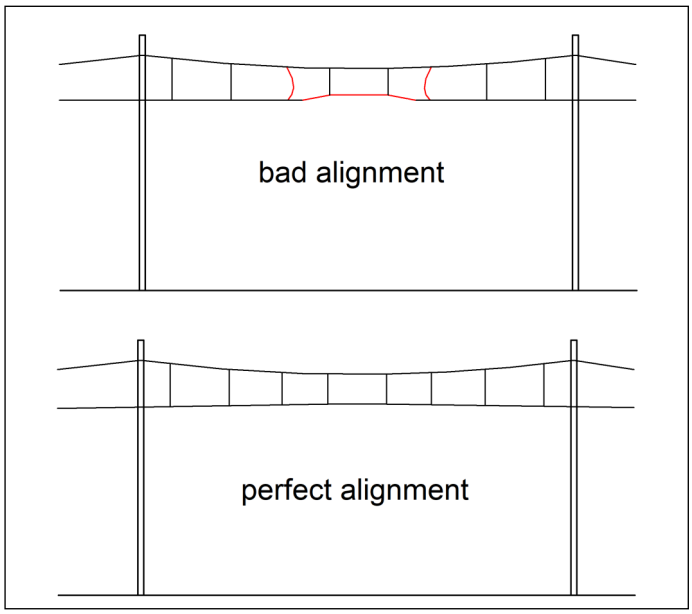
22. Secure the suspension clamps

Secure the suspension clamps with the locking device. After raising and fine-tuning, shorten the suspension cables.



23. Check the alignment

Check the next three droppers in both directions and adjust as needed.



D) Maintenance

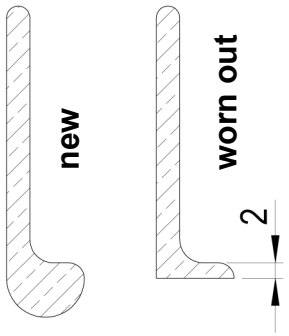
A correctly adjusted Arthur Flury AG section insulator requires no maintenance over a long period of time.

Insulator
The insulators with blue silicone coating are usually sufficiently cleaned by rain. In the case of extreme soiling (e.g. due to regular use of diesel engines or when installed in a tunnel, etc.), we recommend cleaning the section insulator annually with water and commercially available soap (without the addition of cleaning agents or solvents). After rinsing, no soap residue should remain on the surface of the insulator.

If there is visible damage to the insulator cover, the insulator must be replaced immediately.

Skids
If the skids show increased wear at the entry, it indicates that they have not been adjusted accurately enough. The skids must be readjusted according to the installation instruction. Well adjusted skids show even wear over the entire length.

Should the wear have reached the maximum value (bulb only 2 mm) the skids must be replaced.



Performance
Observe the section insulator and the suspension during pantograph passage. The section insulator must remain stable during the passage. If the installation vibrates strongly or even becomes loose, this is a sign that the pantograph is creating too much pressure on the section insulator. In this case the section insulator must be positioned higher (increase hogging) so that the suspension remains stable when being passed.

E) Legal information

The product must only be operated by trained specialists.

The product can be permanently damaged by loads that exceed the maximum values. If the product is exposed to absolute maximum loading for an extended period, it may impair the product's reliability and life. Arthur Flury AG will not accept any liability in this case.

Arthur Flury AG will not accept any liability for incorrect use and use for applications other than those specified in these instructions.

If damage to the product is suspected, any use or operation must be stopped immediately. Arthur Flury AG will not accept any liability in the event of continued use despite suspected damage.

Due to the diverse ways in which this product can be used, the instructions for use represent a general guide only and do not constitute a guarantee of the product's suitability for use in a specific application. The user is responsible for checking the full product data and clarifying the product's suitability for the intended use. The user is responsible for the choice of product and compliance with all the safety regulations and warnings. Please contact Arthur Flury AG if you require additional product information.

Our products comply with the current legal requirements and regulations (including RoHS, REACH, WEEE) in the markets where we operate. Please refer to Arthur Flury AG's Code of Conduct, available on our website, for further information.

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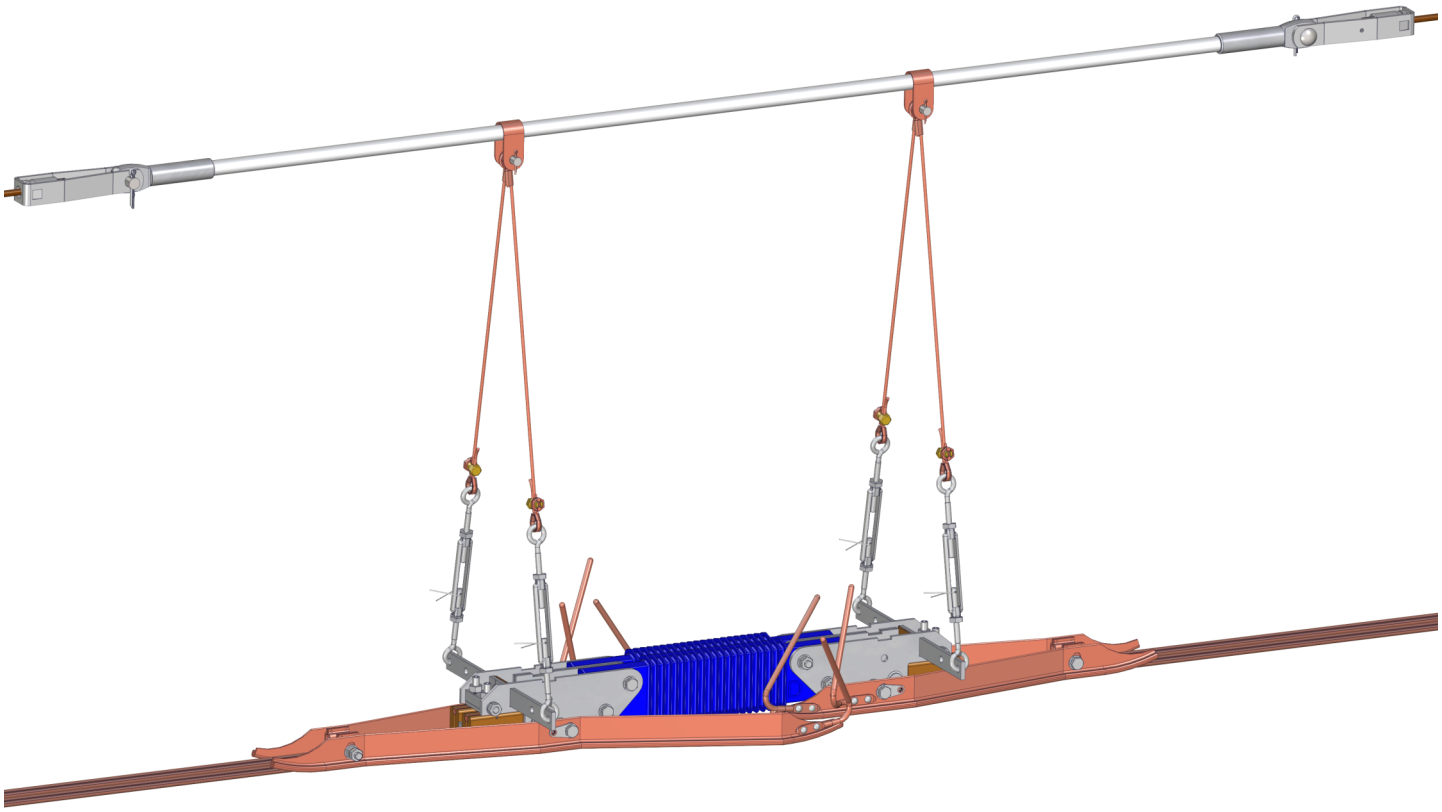
Quality products for modern overhead contact lines



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