

TECHNICAL DATA SHEET

GENERAL RECOMMENDATIONS FOR THE USE OF CONTACT STRIPS AND CCD SHOES

This technical data sheet gives recommendations on the inspection of contact strips and CCD shoes in use, whatever the grade. **Great attention should be paid to the defects occurring in use** as they could damage the carbon or the assembly joint of the contact strip and, by extension, potentially the infrastructure (overhead wires). On self-supported contact strips, the inspection must also include the metal carrier.

These are recommendations based on the experience and knowledge of Mersen's experts. They apply in standard conditions, but could have to be adapted to each specific case and conditions. For example, due to climatic conditions, it is not rare to see an increase of defects due to ice or frost during winter.

01 – HANDLING AND STORAGE

The contact strips and CCD shoes must be handled with caution in order to avoid any defect. It is strictly **forbidden to hit them**. They must be stored in such a way to avoid any mechanical damage, and **away from silicone-content products**.

02 – MAINTENANCE

The maintenance and replacement of these parts must be done in accordance with the maintenance plan and procedure of the pantograph.

In the case of **pantograph with multiple strips**, Mersen recommends **not to mix strips with different grades**. They should also be all **replaced at the same time**.

At the first installation, it is advised to:

- Check the integrity of the part. In case of doubt, report to the TDS-27 which defines the visual criteria for the acceptance of unused strip.
- Use new screws and bolts if not provided with the strip or the shoe.
- Clean with a wire brush the metal parts of the connections of the pantograph which cannot be replaced.
- Use conductive grease for the electrical connections.
- Use a torque wrench for fastening. The maximal torque should be defined on the maintenance procedure or the Mersen drawing.
- Check the gap between strip and horns.
- Check the contact force is within the acceptable range for the pantograph.

MERSEN PROPERTY

At each maintenance shift, we recommend to:

- Measure the **remaining thickness**. A wear indicator is used on some parts to quickly check whether there is enough carbon to reach the next shift.
- Check the **integrity** of the part based on the list of visual defects in section 4 or in-house specific criteria.
- Check the **gap** between strip and horns.
- Check the **contact force** is within the acceptable range for the pantograph.

03 – WEAR LIMIT

On Mersen drawings of contact strips the **maximal wear limit** is usually identified. It is given by the design and dimensions of each strip. This is the maximal point that the catenary can reach without damage.

Afterwards, it could slide on metal parts or activate the ADD (Automatic Dropping Device). So, in standard operations, the strips must be replaced before this point is reached.

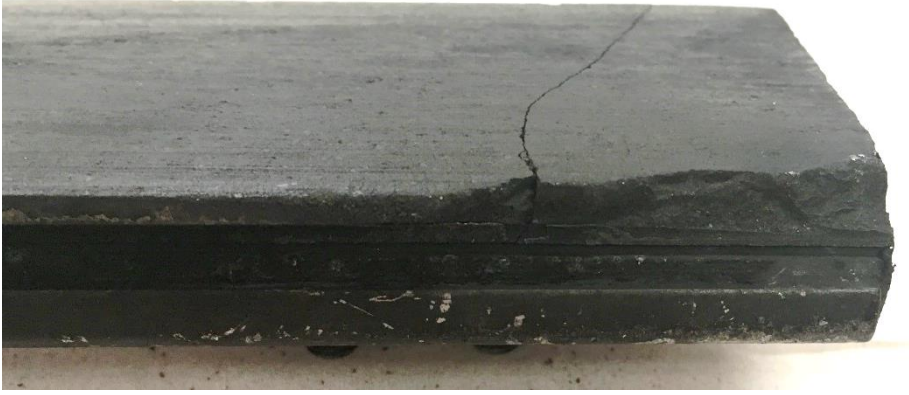

To do so, each operator has to evaluate the **operating wear limit** ensuring that there will remain enough thickness to wear until the next maintenance shift. It depends on the conditions of use, including weather, speed, current, distance between each maintenance shift... Consequently, Mersen is not able to provide such operating wear limits.

Once it is defined, it is possible to make it visible thanks to a wear limit indicator in order to allow operators to check it easily and quickly.



MERSEN PROPERTY

04 – VISUAL DEFECTS

Nature of the defect	Recommendation
CRACKS	
Crack which doesn't reach the assembly joint	To be monitored over time. If more than one, it should be considered to replace the part.
Crack which reaches the assembly joint	Strip to be replaced
	
Superficial crack	None
CHIPS	
Chip	Width to be checked: <ul style="list-style-type: none"> ▪ For 30 to 42mm wide strips, not more than 10mm ▪ For 50 to 60mm wide strips, not more than 20mm
	

Nature of the defect	Recommendation
ELECTRICAL ARCS	
Small sports of sparks on the carbon strip and/or the carrier	To be monitored



Melted carrier	Strip to be replaced
Constant sparking in operation	To be monitored
OTHER	
Change in color of the carbon	Strip to be replaced
Uneven wear	To be monitored



In the case of carbon strips made of several segments, it must be checked whereas the gap between the fragments remains of an acceptable range.

In case of an unknown defect on the carbon or the rest of the strip, it is recommended to replace it with an unused one.

The specifications or data contained in present document are only given for information and do not create any undertakings whatsoever. Any copy, reproduction or translation, either partially or fully, of these information is subject to the Mersen's prior written consent. In addition, due to the continuing improvement of techniques and change of applicable standards, Mersen is entitled to modify at any time the characteristics and specifications of its products as described in present catalogue. Our Customer Technical Assistance Service is at your disposal for any questions. E-mail: info.ptt@mersen.com

PTT-TDS26-EN-1809

Contact: info.ptt@mersen.com

MERSEN PROPERTY