

# Schunk-Service for Your Success

Overhauling for Pantographs, Grounding Contacts and more



**Schunk Bahn- und Industrietechnik GmbH**



# Complete Service – Pantograph



## In need of repair

### Overhauling Service – It Pays to Go with Schunk

Schunk overhauling service is offered specially for transportation and transit authorities, and complies with OEM Standards. Our services range from the reconditioning of pantographs through the overhauling of 3<sup>rd</sup> rail current collectors, the renewal of various components up to and including overhead wire measurements and the optimal adjustment of contact pressure.

By taking advantage of Schunk-Service, you can eliminate a number of expensive shop and servicing activities and thus reduce your costs.

Your benefits:

- flexible delivery times
- cost savings for reconditioning work
- no down time
- no storage costs
- reconditioning of other manufacturer's products as well
- complete service management

With our processing centers, we have numerous test rigs in addition to diverse production facilities at our disposal. Our specially trained service technicians are well acquainted with the demands and the implementation of all aspects of optimal quality assurance. Your pantograph is in the best of hands with us.



*Broken pantograph drive spindle, caused by heavy external interference*



*Coupling hinge damaged by the overhead wire*



*Torn current connectors on pantograph*

## **Pantograph like new – you can really save here**

When overhauling pantographs, the following activities are carried out:

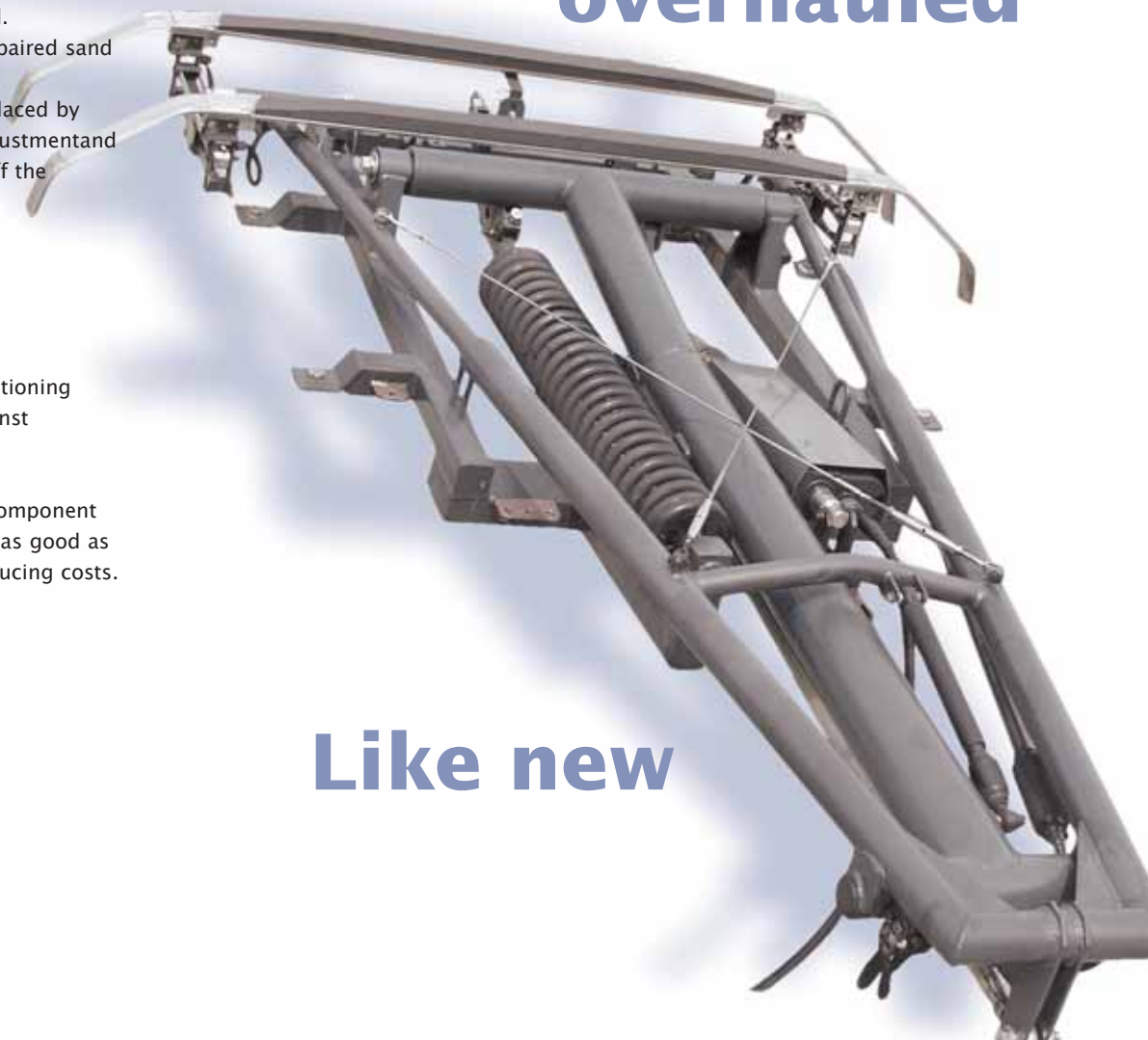
- The pantographs are cleaned and completely disassembled.
- All parts are checked, repaired and sand blasted and coated.
- Irreparable parts are replaced by new ones. Assembly, adjustment and final inspection round off the overhauling.

Pantographs overhauled by Schunk ensure:

- optimal operating safety
- flawless mechanical functioning
- excellent protection against corrosion

You get a fully functional component for safe operation which is as good as new, while significantly reducing costs.

# Completely overhauled



# Like new



*Renew main bearing, new current connectors: optimal, operating safety*



*Completely re-straightened frame*



*New drive, including the spindle, for flawless operation*

# 3<sup>rd</sup> Rail Current Collector

## Complete overhaul

Schunk overhauls 3<sup>rd</sup> rail current collectors for you. Using the overhaul option can save you approximately 50 percent as compared to the cost of a new current collector.

Some components merely need a thorough cleaning. Other parts must be straightened, reconditioned or repainted.

Your advantage:

- significantly lower costs with the same operating safety
- As a rule, 85% of the components are reconditioned. Only some 15% of the components need to be replaced by new ones.

On demand, we also recondition products of other manufacturers – worldwide.



## Necessary inspection



*Complete disassembly and inspection of all individual parts*



*Dependent upon length of use and operational demands: worn out bearings connections and current conducting parts*



*Safety comes first: changing of broken, open insulation*

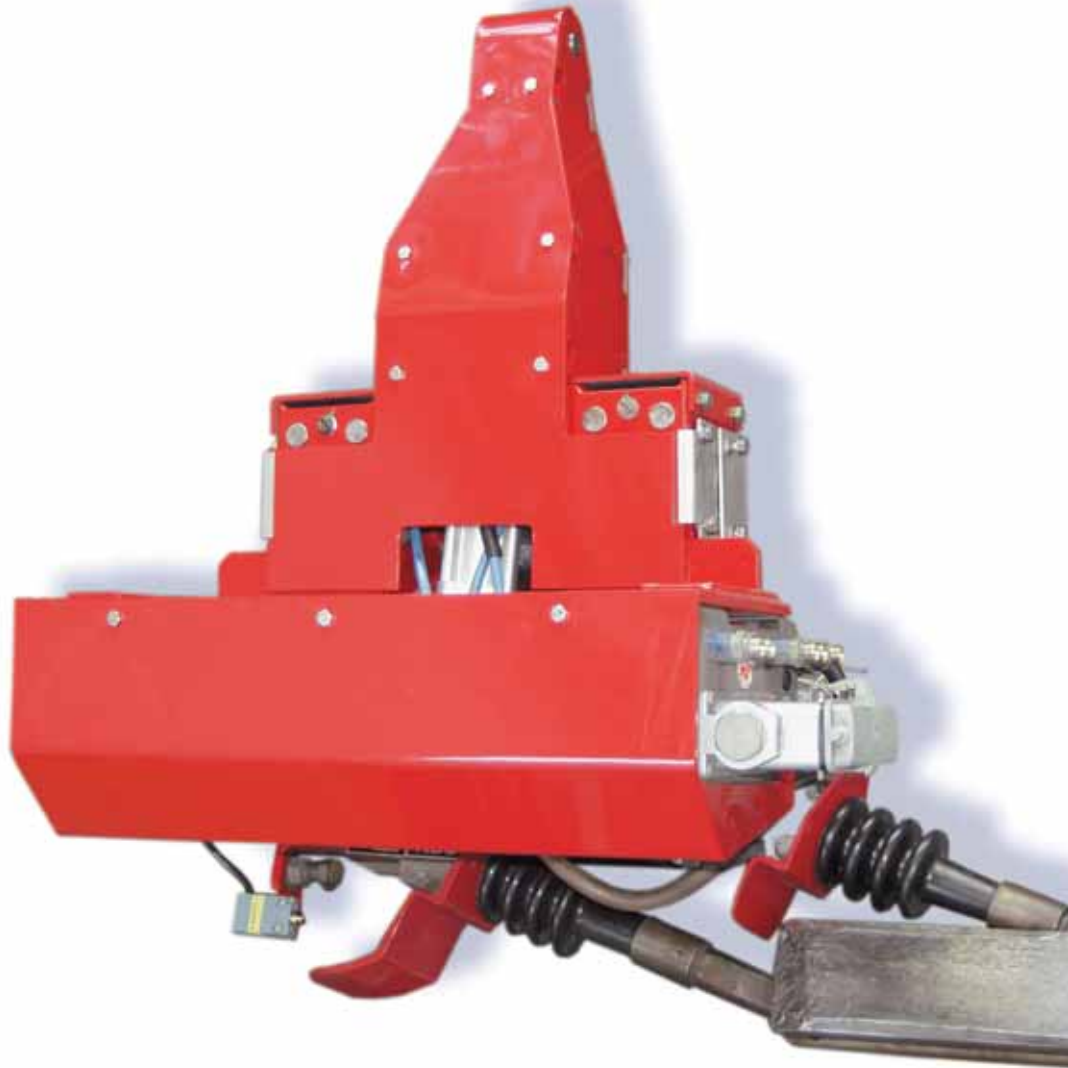
## Almost as good as new

The 3<sup>rd</sup> rail current collectors are thoroughly examined and tested after a complete overhaul. For this purpose, we have not only the usual testing technology but also special test rigs at our disposal. All 3<sup>rd</sup> rail current collectors only leave our factory with comprehensive test reports. We pay particular attention to:

- optimally adjusted spring resiliency
- the quality of the slide bearings
- interaction between mechanical and electrical components
- complete inspection of the functioning and positions of all cam switches
- electrical insulation
- paint/appearance

Overhauling of 3<sup>rd</sup> rail current collectors offers you optimal operating safety in accordance with OEM Standards for significantly lower costs. We also apply the same quality standards when overhauling other manufacturer's products.

# Like new and safe to use



*For a perfect result: replacement of individual parts such as pressure springs*



*Special Schunk 3<sup>rd</sup> rail test rig: precise setting of spring pressure and switching point including the test report*

# Schunk-Service in accordance with OEM Standards

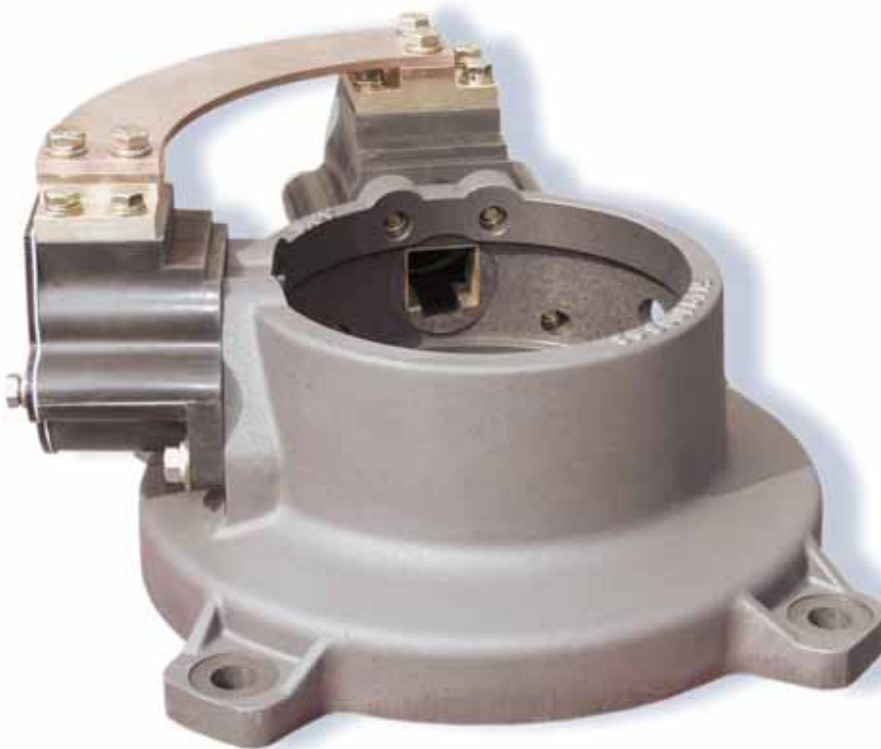
## Renewed from the ground up – working like new

In addition to pantographs and 3rd rail current collectors, Schunk also reconditions diverse complex components such as:

- grounding contacts
- traction brush holders
- rockers rings
- disconnecting main switches
- cam switches

Components are completely disassembled into individual parts. After thorough cleaning and removal of all corrosion, all reusable parts are reconditioned and provided with a new painting. Grounding contacts, brushholders and rocker rings are provided with new wear parts and are subsequently both machine and manually tested for flawless function.

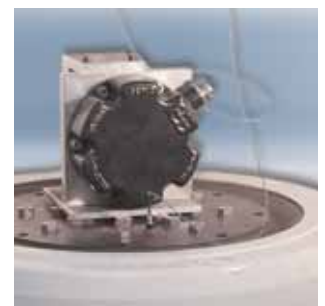
Every batch of these reconditioned parts receives its own inspection certificate.



## Grounding contacts and other components



*Test rig for grounding contacts. Measurement of the heat development of the carbon brushes*



*Vibration test rig. Vibrations over long periods of time provide information about the condition of the components*

# Overhead wire measurements and optimal adjustments

## Optimizing the network with mobile measuring equipment

With overhead wire measurements offered by Schunk-Service, transit companies and authorities can update their overhead wire networks to the state of the art. The problem: defective spots on the overhead wire lead to significantly higher wear rates for wear parts. In addition, a poorly set overhead wire itself has a reduced usable life. Excessive contact pressure leads to mechanical wear to the overhead wire and the collector strips. Too little contact pressure on the other hand, causes sparking and therefore increased electrical wear as well as damages of the overhead wire. Using mobile measuring equipment and overhead wire measurement, including camera runs for visual inspection, the condition of the entire system can be precisely examined. Among the tests are:

- measurement of the static and dynamic contact pressure
- position of the overhead wire
- zigzag movements
- electrical arcing

The data are registered, evaluated and documented. Your advantage as the operator of the transit system: you recognize minor defects at an early stage before they develop into costly disruptions. You reduce your failure rate and increase your general operating safety. Costs incurred for Schunk-Service are recovered very quickly, due to savings achieved on wear parts.



Detailed view of a test pantograph. Easily visible on the left and right under the collector strips: pitot tube for measuring wind speed



Using the camera mounted on the measuring train, the performance of the pantograph is observed during operation. Defect spots are recognized early



Live transmission during operation. Live pictures appear on the screen in the measuring train: position and behavior of the overhead wire, contact pressure etc.

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