

Type Approval - Electrical

Approval Number	EL 00032
Manufacturer	DEHN + SÖHNE GmbH + Co.KG
Manufacturing Plant	Hans-Dehn-Str.1, D-92318 Neumarkt, Germany
Product Description	Rail spark gap with SDS1 spark gap unit (part number 923110) and associated MA SDS M12 mast adapter
Technical Properties	<ul style="list-style-type: none">- DC spark-over voltage: 600 V dc \pm 20%- Impulse spark-over voltage: approximately 1400 V (1 kV/μs)- Lightning current discharge capacity (10/350 μs): 5 kA- Lightning current withstand capability (10/350 μs): 25 kA
Approved for	Unrestricted use on the RailCorp 1500V dc network for both new and existing installations
Drawing	EL 0573512
Application	Bonding-to-rail of: <ul style="list-style-type: none">- Overhead contact line support structures including footbridges and overline road bridges carrying overhead contact lines- Horizontal safety screens
Recommendation for use	<ul style="list-style-type: none">- Use in locations with high frequency of lightning flashes causing frequent operation of traditional rail spark gaps- Use in locations where signalling equipment malfunction due to operation of traditional rail spark gaps- Use in lieu of traditional rail spark gaps where upgrade projects are carried out, particularly, if the upgrade works impact the bonding-to-rail arrangement- Replace existing traditional rail spark gaps that are due for renewal because of reaching their end-of-life

Background

In electrified railway networks, the function of rail spark gaps is to connect the conductive parts that may become live with hazardous touch voltages to the traction return circuit.

The rail spark gaps operate at a defined voltage threshold; which may also be exceeded by over voltages caused by lightning flashes. In other words, all rail spark gap operations are not due to failures in the electrified railway network.

The traditional rail spark gaps have to be replaced once operated because they form a permanent short-circuit. Thus, a regular inspection regime is required to identify the operated surge arresters for replacement to avoid corrosion of protected structures due to electrolysis and to reinstate the insulation to earth. Moreover, operation of traditional rail spark gaps may cause malfunction of signalling equipment due to their impact on track circuits.

Advantage of approved product

Dehn SDS1 spark gap unit is capable of discharging surges caused by lightning flashes without forming a permanent short-circuit, and returning to its initial state.

A permanent connection is made only if the lightning impulse current exceeds the lightning current withstand capability of the spark gap unit. In such cases, the spark gap unit has to be replaced.

Conditions

Nil

Supplier

At the time of approval, IPD Industrial Products of 25 Princes Road, Regents Park NSW 2143

Approved:

Date:

Neal Hook

Lead Electrical Engineer