STEMMANN-TECHNIK

Fandstan Electric Group

# eRTG

## DRIVE IN / OUT System

# STEMMANN - APPLICATIONS

ELECTRIFICATION OF RUBBER-TYRED GANTRY CRANES

## Retrofitting for Rubber-Tyred Gantry Cranes

Due to constantly rising fuel prices, the time needed to refuel the crane, increased maintenance costs for the diesel-electric drives, the resulting standstill periods and increasing environmental obligations crane manufacturers and port operators are rethinking the power supply for RTGs.

To achieve this the aim is to produce as little as possible of the power RTGs need for normal in-port operation with the combustion engine and for it to only be used when the crane has to leave its normal working area.The diesel-electric drive therefore needs to be replaced with flexible power transmission.

### Economic Advantages:

- Tremendous savings in diesel
- Reduced maintenance and operating costs
- Savings in costs and work through reduction in fuelling stops
- Investment with a high yield
- Fast amortisation

### Ecological Advantages:

- Reduced $CO^2$ emission
- Less exhaust gas pollution
- Low-noise operation

**eRTGs equipped by STEMMANN-TECHNIK**

## Drive In / Out System

STEMMANN-TECHNIK drive in / out systems serve for the retrofitting of these diesel-driven rubber-tyred gantry cranes to an electrified design. In this system, the eRTG is supplied with electrical energy via the STEMMANN-TECHNIK current collector in conjunction with the conductor bar system that is arranged on the side of the travelling track.

**eRTG APPLICATION**

## The System

When the vehicle goes into another block or yard, the RTG can be automatically uncoupled through the drive in/out zone of the conductor bar system.
This drive in / out process is controlled through the operation of the touch panel in the the crane operator's cabin.

**PANTOGRAPH & CURRENT COLLECTOR**

### System advantages:

- Improved ergonomics for the driver through auto drive in / out
- Changing of the tracks is possible without tedious replugging and the deployment of ground personnel
- Greater safety for the operations personnel when changing tracks
- Drive in / out < 20 sec. at 30 m / min
- High reliability

A long duration test on our test field contributed to the optimisation of the system and the individual components. The maintenance-free operation of more than 30,000 executed drive in / outs on this system confirms its reliability.

## eRTG current collector

STEMMANN-TECHNIK can look back upon more than 60 years of experience in manufacturing pantographs. Our pantographs are in action all over the world in local commuter trains, long-distance trains and high-speed trains. Based on this experience, we developed the eRTG current collector-pantograph, which uses proven developments from this field.

### Advantages of the eRTG-current collector:

- Tension spring / spindle drive combination with high availability. Expensive and failure-susceptible electronics hardware like e. g. frequency converters are not required for providing the drive.
- The proven „Kinematic System“ from STEMMANN-TECHNIK´s single-arm collector, which has been in use since the beginning of the seventies.
- A constant pressing force on the track profile allows safe guidance even with high load changes.
- Ergonomic operation via a touch panel.

| TECHNICAL DATA | |
|---|---|
| Stroke | 1500 mm<br>(higher stroke possible) |
| Drive | ▪ spindle drive (drive in)<br>▪ spring drive (drive out) |

| TOLERANCES | |
|---|---|
| Height tolerance | +/- 400 mm |
| Width tolerance | +/- 150 mm |
| Angular tolerance | +/- 3° |

## P40 Conductor Bar System

The conductor bar system used for the STEMMANN-TECHNIK drive in / out system is the insulated busbar P40, which has proven itself for decades. This conductor bar is designed for currents up to 2200 Ampere. The one-below-the-other arrangement, which is called the "2+2 Design“, facilitates the narrow construction already described.

**eRTG TESTTRACK**

## Steel Construction

The steel design for the installation of the conductor bar system or the travelling track distinguishes itself because of its extremely narrow construction. This makes it possible to fit even narrow container lanes with a conductor bar system. The simple segment structure of bolted square pipes in combination with the STEMMANN-TECHNIK track supports allows fast and efficient installation thanks to standardised threaded joints and push-fit constructions. The design, being a cost-effective rectangular construction, makes for an economic procurement price.

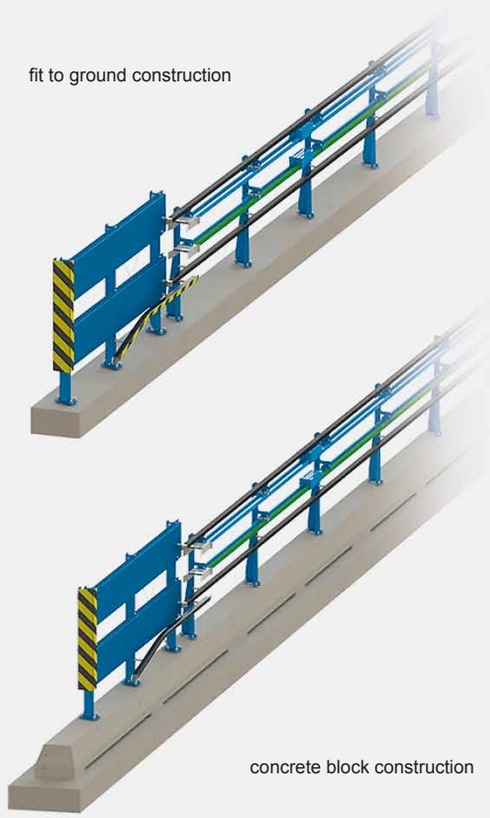
### Advantages of the steel construction:

- Modern design
- Narrow construction of the conductor bar structure and hence also suitable for narrow travelling tracks
- Cost-effective per-metre rate
- Fast and easy installation thanks to simple square pipe construction (partially push-fit)
- Can be installed without heavy equipment
- Use of steel components with good availability (DIN square pipes)
- Can be delivered as a version for floor mounting or for installation on concrete base

**TECHNICAL DATA**

| | |
|---|---|
| Height | 1700 mm up to 3000 mm |
| Width | approx. 500 mm |
| Segment length | 6000 mm |
| Pillar distance | 2000 mm (6000 mm) |
| Profile | tube, 60 mm x 60 mm |
| Construction | 4 poles, 2+2 design |
| Coating | hot dip galvanized (varnishing possible) |

**CONDUCTOR LINE CONSTRUCTIONS**




## Retrofitting by STEMMANN-TECHNIK

Take advantage of our expertise in the electrification of rubber-tyred gantry cranes. STEMMANN-TECHNIK offers complete retrofitting including all the components:

### Steel work:

- Installation of the conductor bar construction
- Installation of the drive in / out area including fastening frame.
- Installation of the feeding line
- Connection work and wiring up to the transformer

### Retrofitting of the RTG:

- Connection of the current collector to the RTG
- Integration of the current collector system in the PLC of the RTG
- All the necessary wiring work on the RTG

# eRTG

## electrification by STEMMANN-TECHNIK


- **Drive in / out systems**
- **Plug in / out systems**
- **Cable reel systems**

QUALITY MADE IN GERMANY

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STINGER SYSTEMS
STINGER SYSTEME


**STEMMANN-TECHNIK** GmbH
Fandstan Electric Group

Niedersachsenstr. 2
48465 Schüttorf · Germany
PO-Box · Postfach : 1460
Phone : +49 5923 81 - 0
Fax : +49 5923 81 - 100
info@stemmann.de


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