



TROLLEY-BUS OVERHEAD CONTACT LINE SYSTEMS

VETRA SYSTEM



Data sent by the vehicle are detected by the control unit. Whole process of switch setting runs fully automatically.



Switches are automatically set by VETRA system. Driver is only informed about actual status of the switch.



Light signalling informs driver of actual status of switches - direction, blocking and possible incorrect throw over.



Transceiver receives data from the passing vehicles below.

Driver just sets the destination code on the keyboard unit.



Using this code the vehicle pass automatically through all switches until its final destination.



2.4 GHz VETRA system is a reliable data transmission system developed for high vehicle's operation speed.



CANTILEVERS & CROSS-WIRE SUSPENSIONS



We usually supply GRP (glass-fiber reinforced plastic) cantilevers, but our production includes aluminium cantilevers as well.

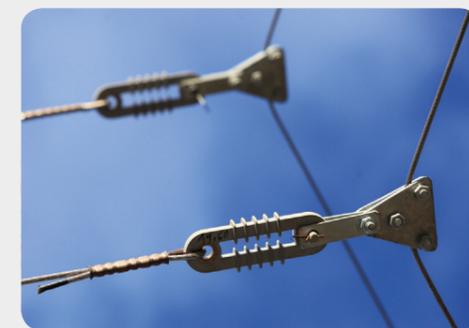


For longer lengths or higher load of cantilever we offer double cantilever with all needed armatures.



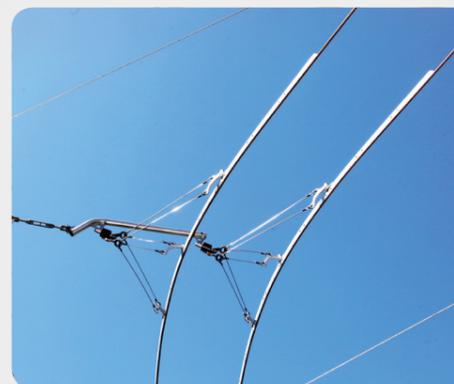
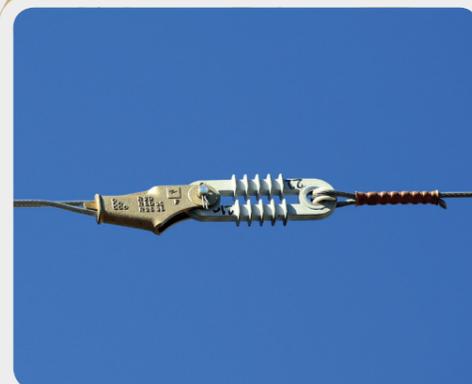
Curve clamps fixed on GRP cantilever

Three-way connection of supporting overhead net made from stainless steel rope.



Cross-wire suspensions are fixed to the poles by the various hinge types.

We use special 3kV loop insulators to reach second level of insulation within the cross-wire suspensions.



The curve clamps are designed for high-speed operation of vehicles.

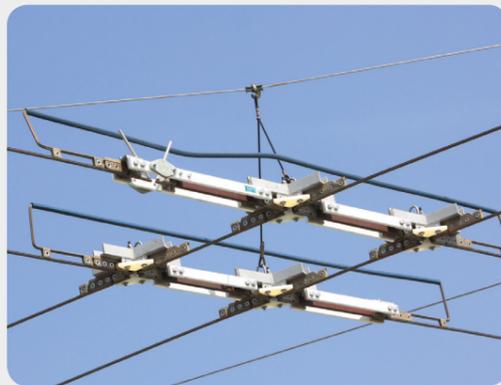
Our solution of GRP cantilevers is safe for maintenance, longlife and have aesthetic appearance.



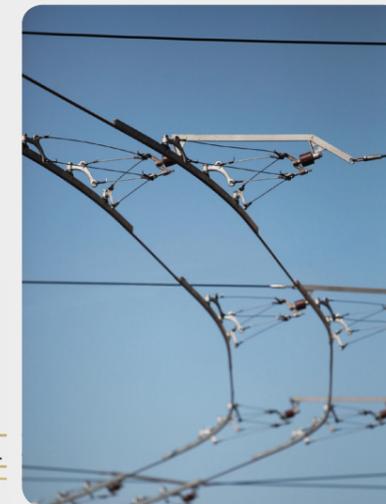
TROLLEY-BUS CROSSINGS & CURVE CLAMPS



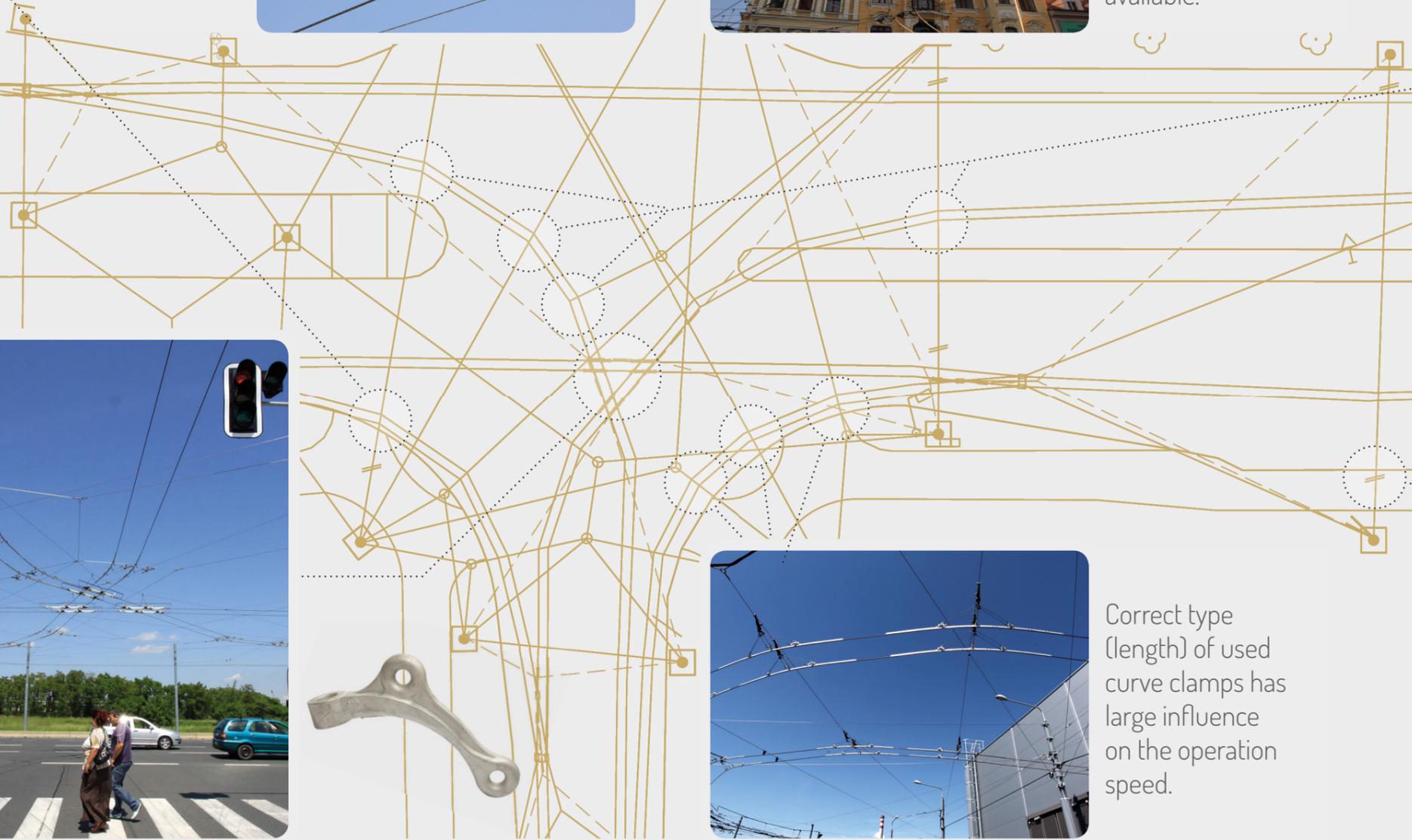
Trolley-bus crossings and switches allow a transit speed of up to 50 km/hour.



You can choose different geometrical solution (20° - 90°) of TBUS x TBUS crossings. Left and right option is available.



Curve clamps guarantee smooth passage and higher vehicle speed as well as its easy installation.



Correct type (length) of used curve clamps has large influence on the operation speed.



ELECTRICAL & MECHANICAL SWITCHES FOR TROLLEY-BUSES



The latest design of our electrical switches is light and airy and it makes the switches less visible overhead.

The passage over the Elektroline mechanical switches are quick, perfectly smooth and silent.



Our 20 years experience in switches production makes them highly reliable and in top quality.

We offer all types of switches in 10° or 20° narrow-angle design and in left/right option.



For roundabout solution is suitable use of double switch point controlled by VETRA system with fully automatic operation.

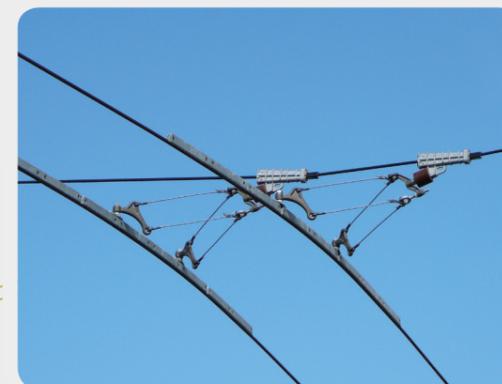


Signal lamp informs the driver about actual status of the switch position.

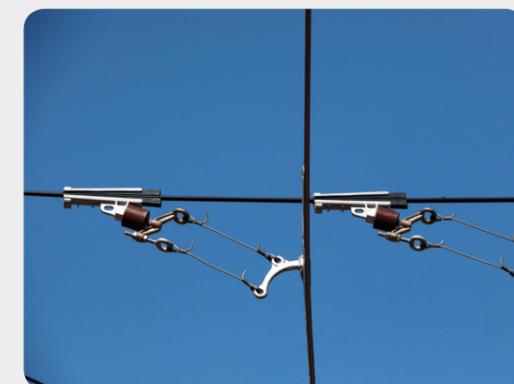
TRAM X TBUS CROSSINGS & KEVLAR ROPES



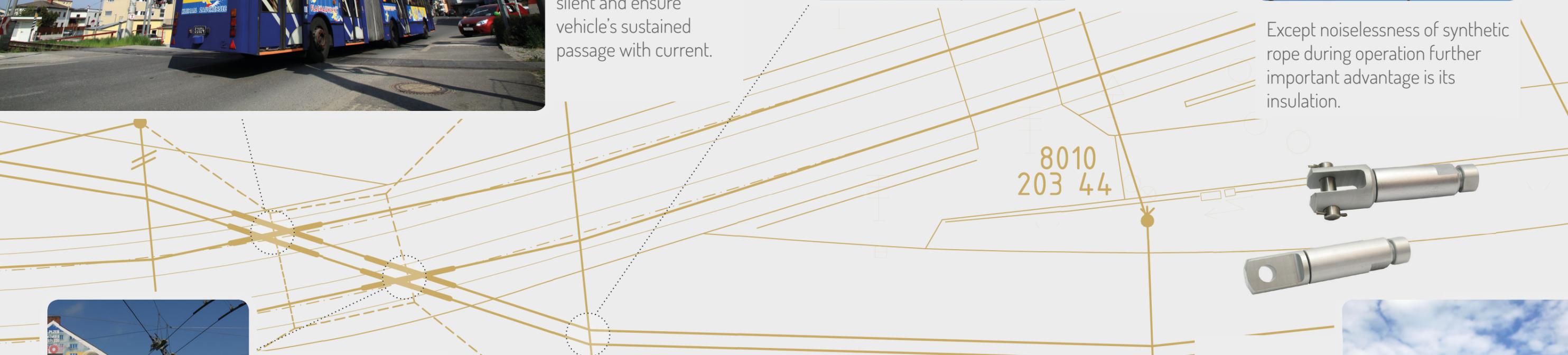
New type of TBUSxTRAM (15° -65°) crossings without interruption of electrical supply is perfectly silent and ensure vehicle's sustained passage with current.



Supporting net made from KEVLAR synthetic ropes decline undesirable noise which is characteristic for vehicle's moving.



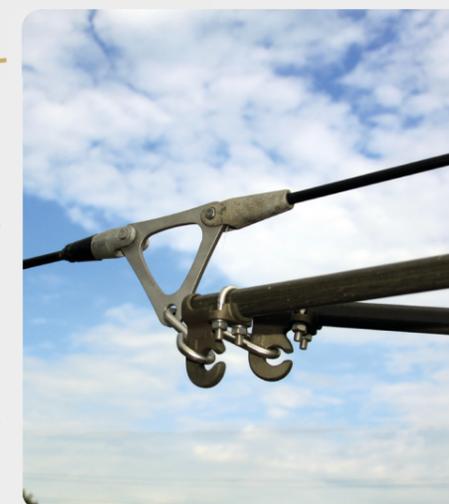
Except noiselessness of synthetic rope during operation further important advantage is its insulation.



Vehicle of any direction can stop wherever within passage of this crossing type and easily start driving again.



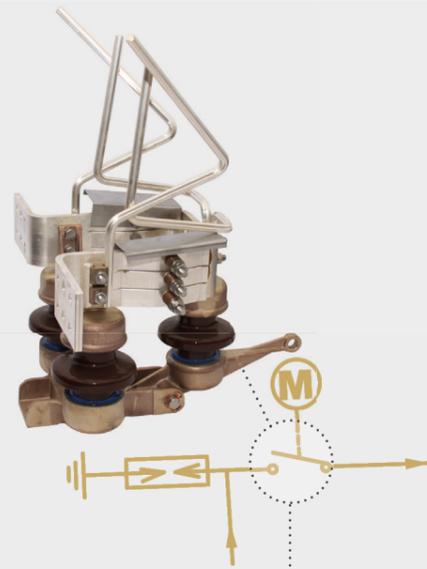
We produce wide assortment of KEVLAR clamps and fitting material adjusted for insulated synthetic ropes.



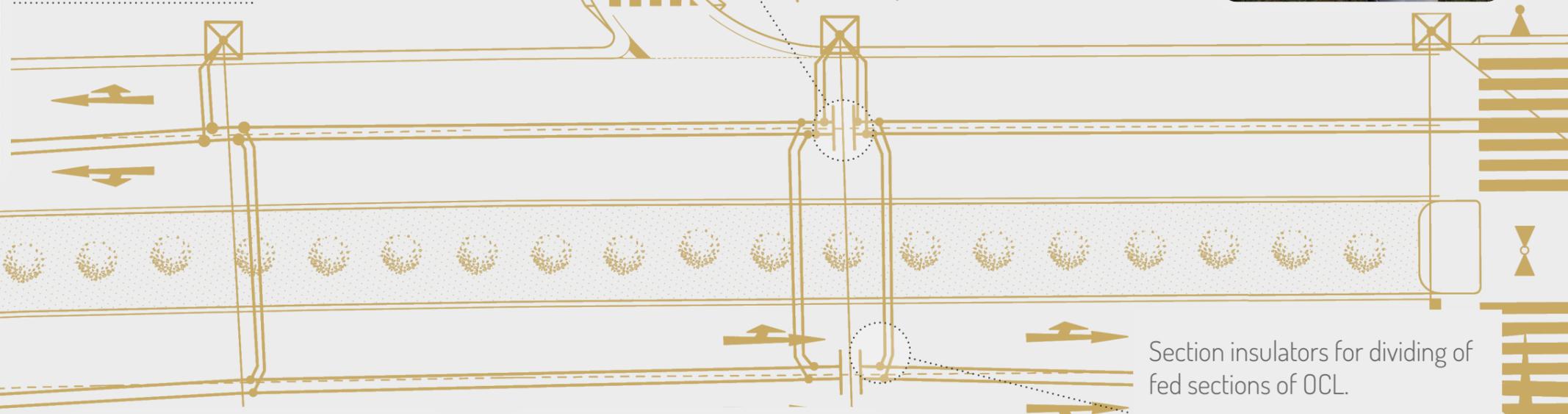
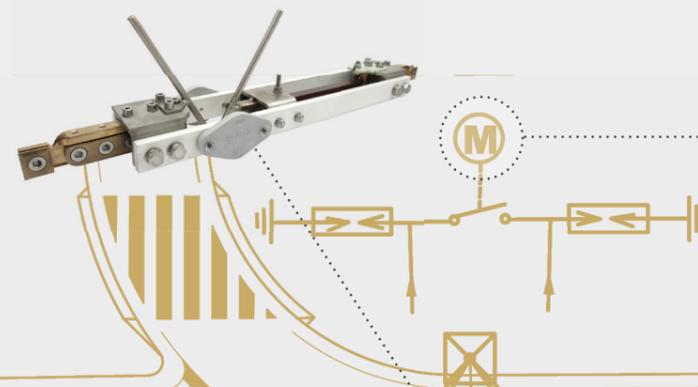


FEEDING & DISCONNECTORS

Special assembly of insulating rods together with disconnector and motor drive allows simultaneous control of both (plus - minus) polarities.



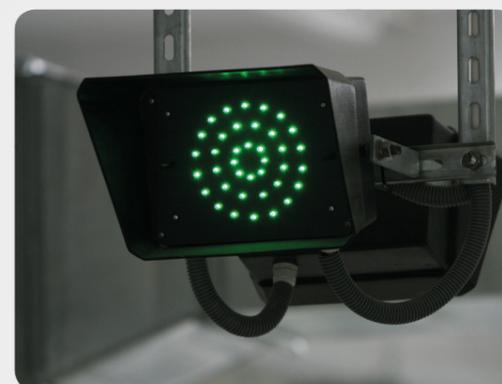
Motor drives are suitable for control of disconnectors which are in everyday operation. The control of motor drive can be local or remote.



Section insulators for dividing of fed sections of OCL.



We offer complex solution of depot control including remote control and no-voltage status alerting.



Green color of lamp informs operators about no-voltage status and about the possibility of maintenance close to OCL.



CHOSEN REFERENCE PROJECTS



ITALY

Milan, Piazza Bottini

Delivery and assembly of TBUSx-TRAM crossings and OCL and OCL material and of TBUS electrical and mechanical switches - Piazza Bottini



USA

Dayton

Centralized transfer station where trolleybuses can overtake each other at stops, with electrical controlling of switches and signalization of current direction of the switch. Total amount:

- complete sets of electrical switches
- complete sets of mechanical switches
- TBUS crossings
- material supply plus supervision during assembly



CZECH REPUBLIC

Plzeň, New TBUS Depot

We carried out delivery and installation of overhead contact systems for new trolleybus depot, as well as delivery and installation of automatic system for switches operation (VETRA) including all related software and computer for dispatching room. The project include e.g.:

- 26 sets of electric switches
- 26 sets of mechanical switches
- 102 pcs of section insulators
- 44 pcs of disconnectors



NETHERLANDS

Arnhem

Assembly of single track bus line in length of 1.5km including end loop at Burgers' ZOO entry area. We also designed and delivered one complete set of tbus crossing 85° with insulation in both passing directions. Assembly of two complete sets of disconnectors including automatic power supply disconnecting control and further we also delivered the signalling of no voltage status.





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