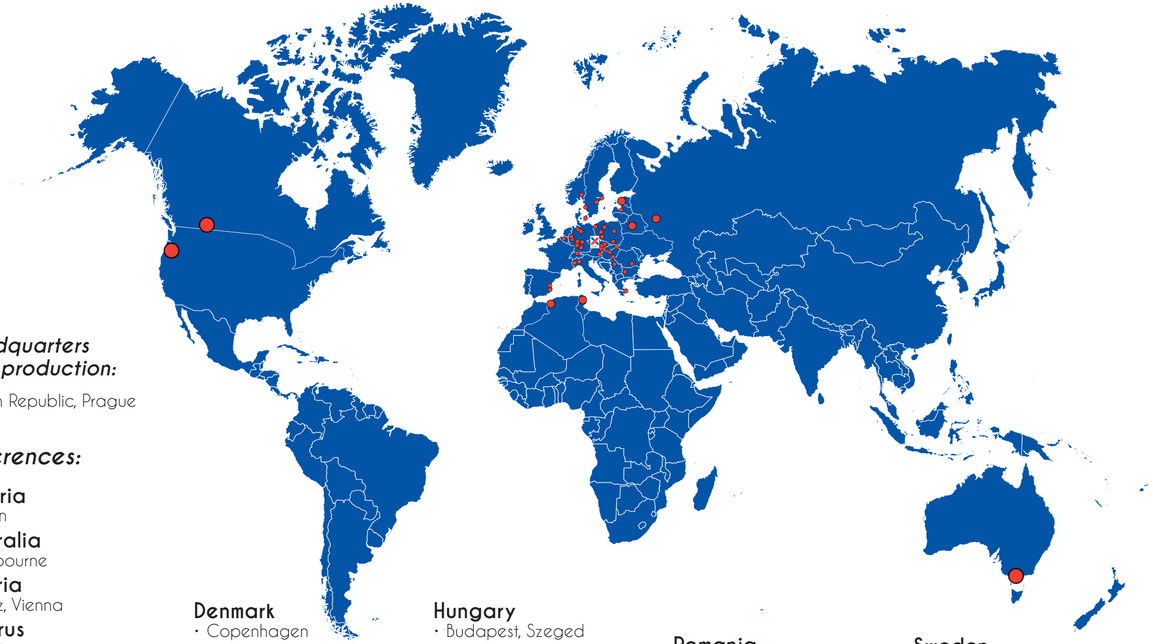


Headquarters and production:

Czech Republic, Prague

References:

Algeria
- Oran

Australia
- Melbourne

Austria
- Graz, Vienna

Belarus
- Minsk

Belgium
- Brussels

Bulgaria
- Sofia

Canada
- Calgary

Czech Republic
- Brno, Liberec, Litvinov, Most, Olomouc, Pilsen, Prague

Denmark
- Copenhagen

Estonia
- Tallin

Germany
- Bonn, Braunschweig, Bremen, Darmstadt, Essen, Frankfurt am Main, Hannover, Karlsruhe, Köln, Ludwigshafen, Mülheim, Ulm, Würzburg

Greece
- Athens

Hungary
- Budapest, Szeged

Italy
- Milano, Torino

Latvia
- Riga

Norway
- Oslo

Poland
- Bydgoszcz, Krakow, Poznan, Szcecin, Toruń, Warsaw, Wroclaw

Romania
- Bucharest

Russia
- Moscow

Serbia
- Belgrade

Slovakia
- Bratislava, Kosice

Spain
- Alicante, Valencia

Sweden
- Göteborg, Norrköping, Stockholm

Switzerland
- Zurich

Tunisia
- Tunis

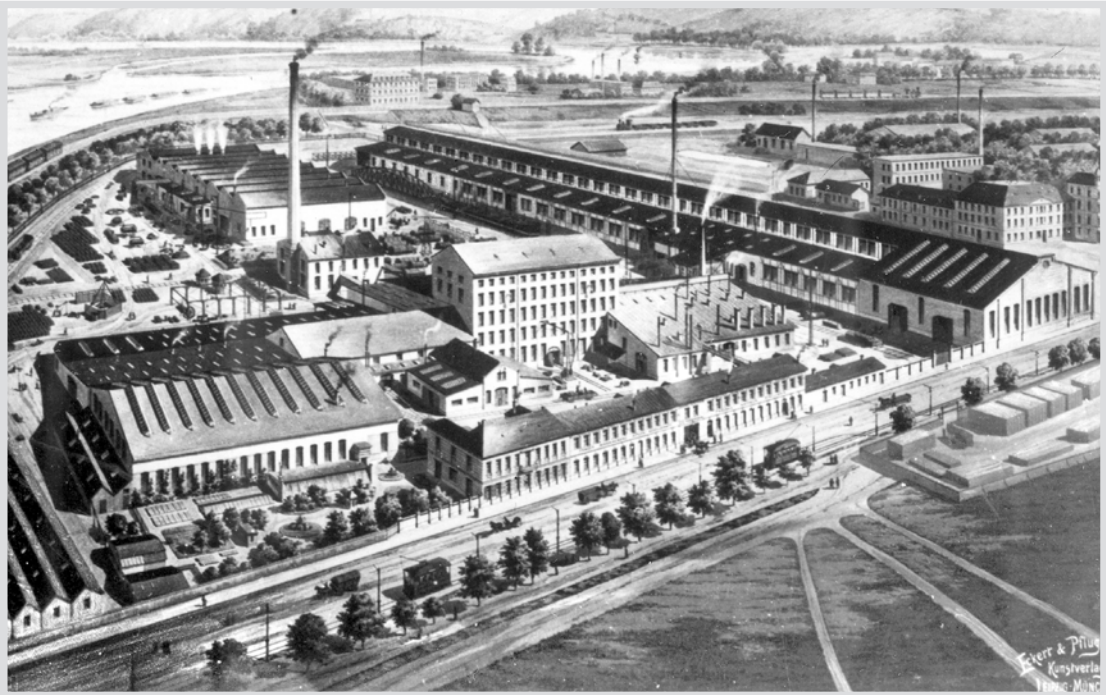
United States of America
- Portland

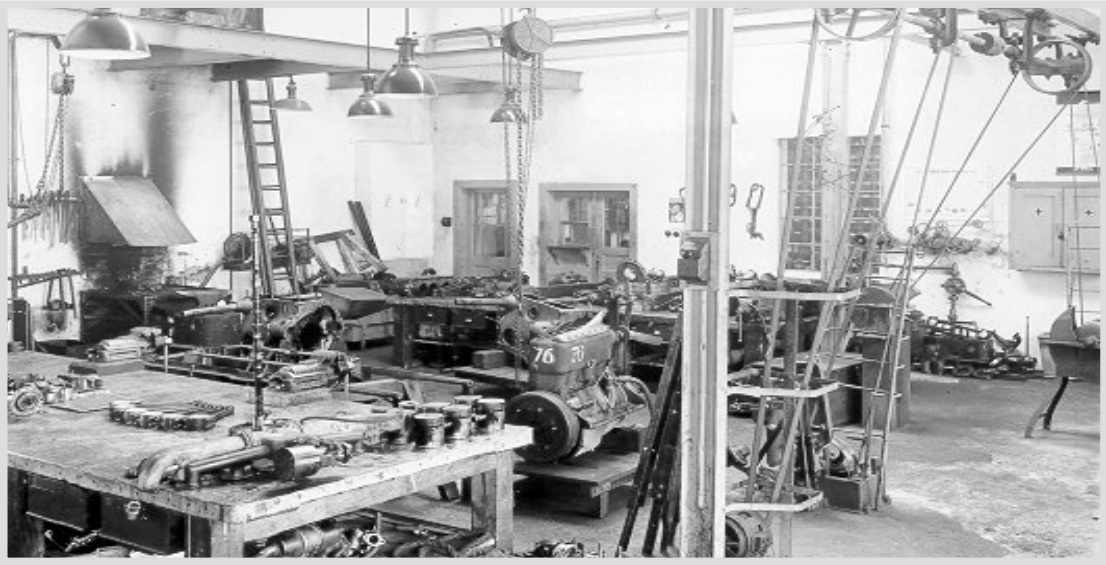
PRAŽSKÁ STROJÍRNA a.s.

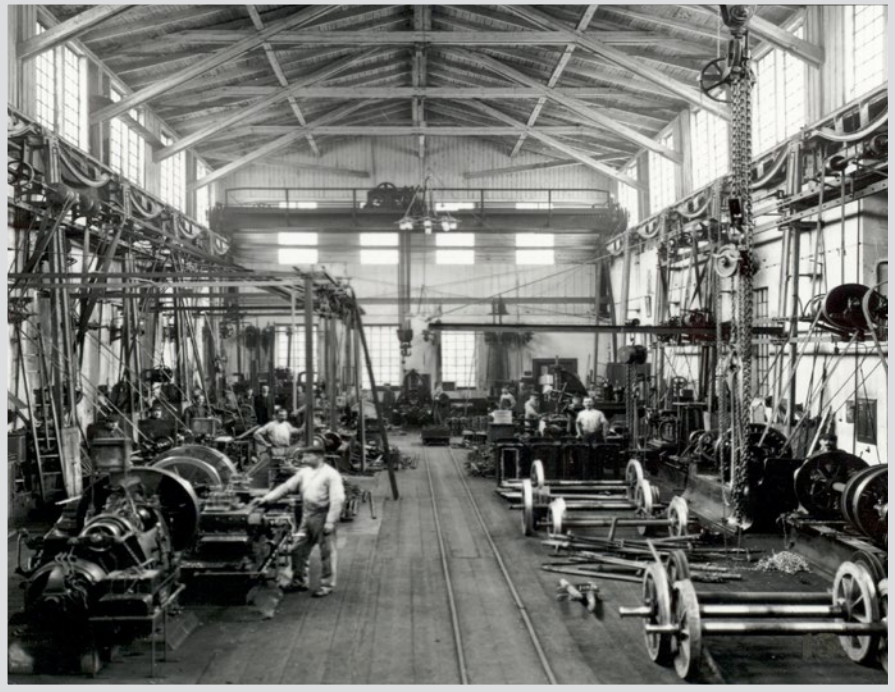
Product portfolio

PRAŽSKÁ
STROJÍRNA a.s.

Contents







Company profile

Pražská strojírna a.s. has a long tradition in mechanical engineering.

1820

- Joseph John Ruston, an experienced manufacturer of ships and steam machines, acquired the engineering workshop.

1869

- Ruston's engineering workshop became a joint stock company under ownership of Prager Maschinenbau A.G.

1911

- The shipyard ceased to exist and Electric enterprises refurbished facilities to central workshops for Prague public transport. This step has historically opened a dynamic and exciting field of manufacturing components for repairs and construction of tramway track infrastructure.

1994

- Prague public transport authority transforms its engineering department into a company and registers Pražská strojírna a.s. as manufacturer of components for tramway infrastructure. This company started a new age of engineering works and continues the 50 year tradition in manufacturing of tramway track components.

2007

- Relocated to new workshop. The new workshop with more space, provided the opportunity for development and increased production capacity to undertake most complicated demands of urban and sub-urban transportation in accordance with ISO quality management system.

Main activity of Pražská strojírna a.s. is development and manufacturing of tramway track components and setting devices. It now has customers in most major cities that operate Tram (light rail) Networks. The main components are designed and manufactured for universal engineering functions for tram systems, however we also include a very versatile production system where we can design and produce custom design components tailor-made to meet your needs.

Prague | Czech Republic

Reconstruction | Prague
Czech Republic

Reconstruction | Prague
Czech republic

Prague | Czech Republic

Realizations around the world

References

Pražská strojírna a.s. utilizes more than 100 years of experience in its design of modern tramway track constructions. Our team of engineers uses many of the most modern graphic design and analytic software. All of our products are manufactured from high quality, certified materials by high precision machines at approved machining centers. All company operations are sructured under the regulations of international standarts ISO. Flexible design and process operations allow for the maximum satisfaction of customers, even in urgent situations.

Algeria
- Oran

Australia
- Melbourne

Austria
- Graz, Vienna

Belarus
- Minsk

Belgium
- Brussels

Bulgaria
- Sofia

Canada
- Calgary

Czech Republic
- Brno, Liberec, Litvinov, Most, Olomouc, Pilsen, Prague

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- Copenhagen

Estonia
- Tallin

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- Milano, Torino

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- Riga

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- Oslo

Poland
- Bydgoszcz, Krakow, Poznan, Szcecin, Toruń, Warsaw, Wroclaw

Romania
- Bucharest

Russia
- Moscow

Serbia
- Belgrade

Slovakia
- Bratislava, Kosice

Spain
- Alicante, Valencia

Sweden
- Göteborg, Norrköping, Stockholm

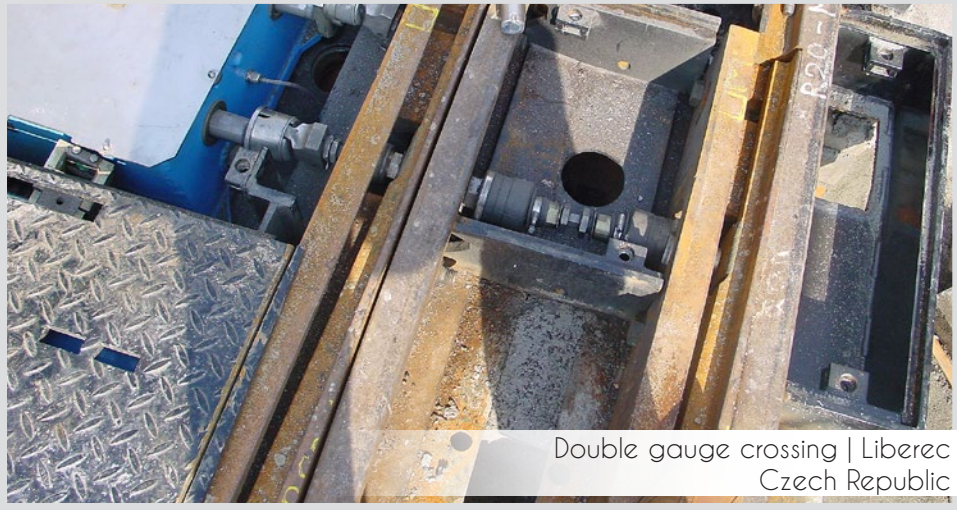
Switzerland
- Zurich

Tunisia
- Tunis

United States of America
- Portland

Double gauge crossing | Liberec
Czech Republic

Diamond crossing | Bratislava | Slovakia



Double gauge crossing | Liberec
Czech Republic

Diamond crossing | Bratislava | Slovakia

Realizations around the world

Gauntlet turnout with crossing | Stockholm Sweden

Gauntlet turnout with crossing | Stockholm Sweden

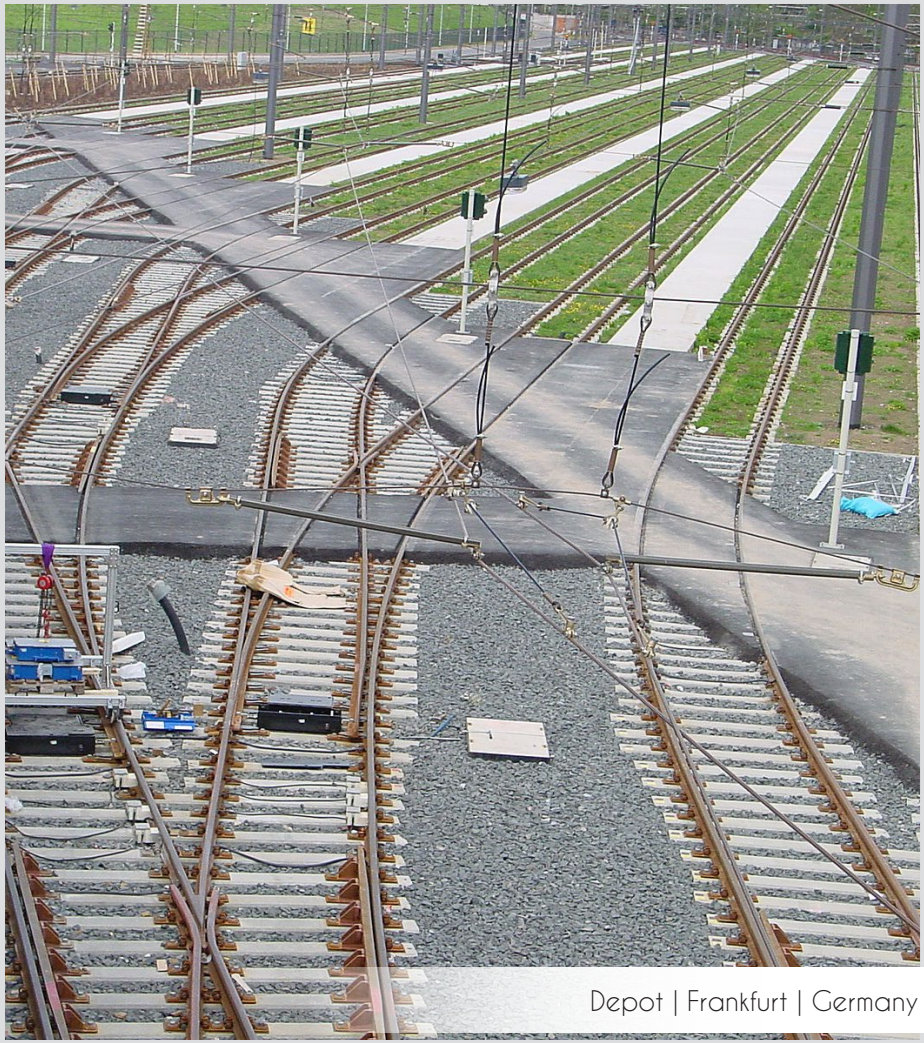
Special transition joint | Portland | USA

Diamond monoblock | Portland | USA

Monoblock crossing | Portland | USA

Turnout | Portland | USA

Realizations around the world

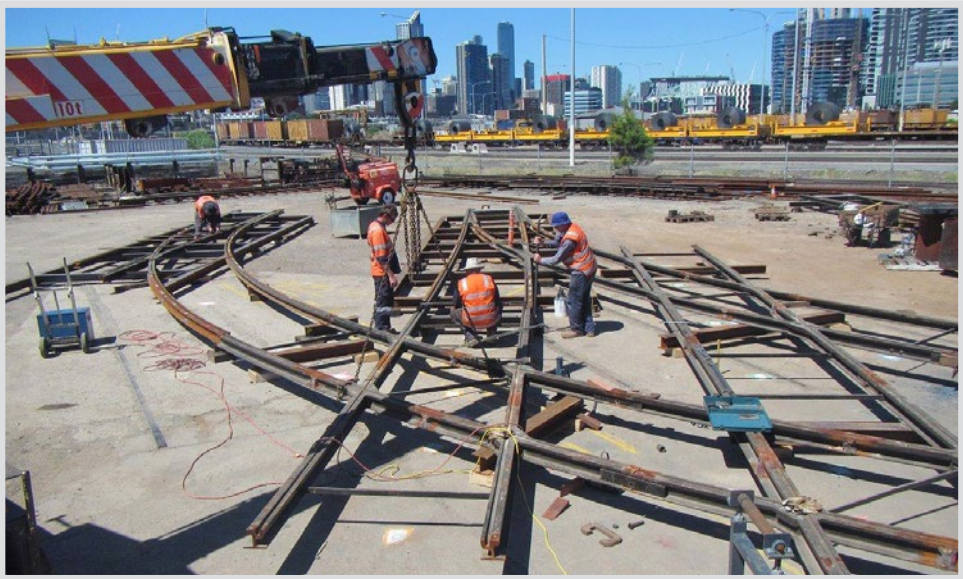


Depot | Frankfurt | Germany

Turnout | Hannover | Germany

Turnout | Braunschweig | Germany


04/03/2013

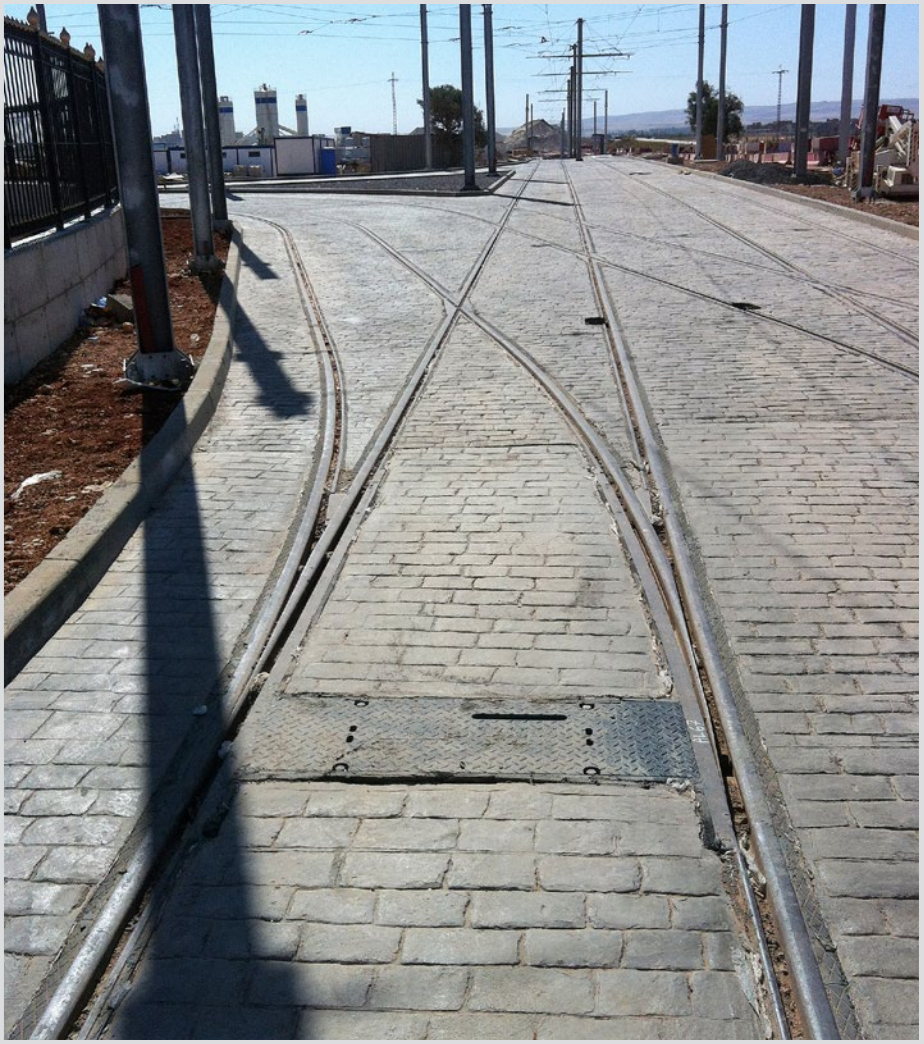


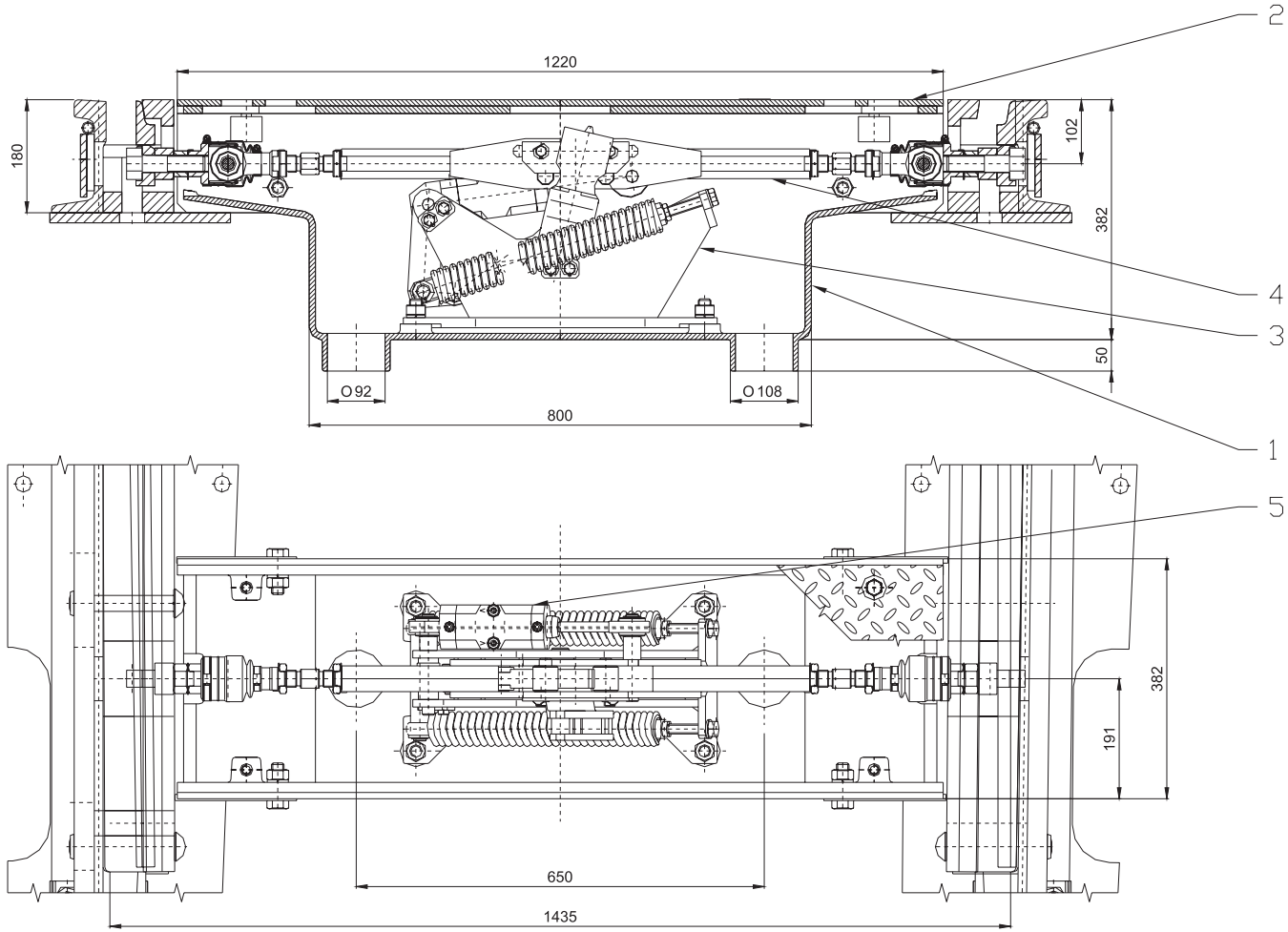

10/12/2012

Realization | Melbourne | Australia


TRAMORAN

Realization | Oran | Algeria





Description:

1 - Earth case
2 - Earth case cover
3 - Patented pointing mechanism Z-71
4 - Setting rod
5 - Damper DD-100

Device can be equipped by adaptor set with position sensors.
All used materials garantee high reliability and moisture resistance.
Two drainage outlets in earth case allow connection to track drainage system.

Manual pointing machine VS-20

Setting device VS-20 is designed for holding blades of trailing direction turnouts in end positions. The standard setup secures blades in position that is given by the last tramway passage. Reversible adjustment reverses blades after the tram passage back to a preselected position, which is done by the position of the setting pocket.

VS-20 is ecologically friendly, guarantees noiseless function, and features a long life with minimum maintenance requirements.
A Setting system can also be supplied in the design for single blade turnouts in alternatives for placement inside or outside to the track assembly.

The Setting system can be extended by the optional set of the blade position signaling sensors.

Technical parameters:

Minimum track gauge	1000 mm
Lift of changeable switch blades	36 to 70 mm
Press-down force of flexible mechanism	0.85 to 3.17 kN (normal connection)
Press-down force of spring mechanism	1 to 3.2 kN (reversible connection)
Connection setting rod/tongue	according turnout type
Manual setting moment	170 to 420 Nm
Permitted axle load on earthcase cover	12000 kg
Earth case cover weight	58 kg
Overall weight approx.	approx. 250 kg

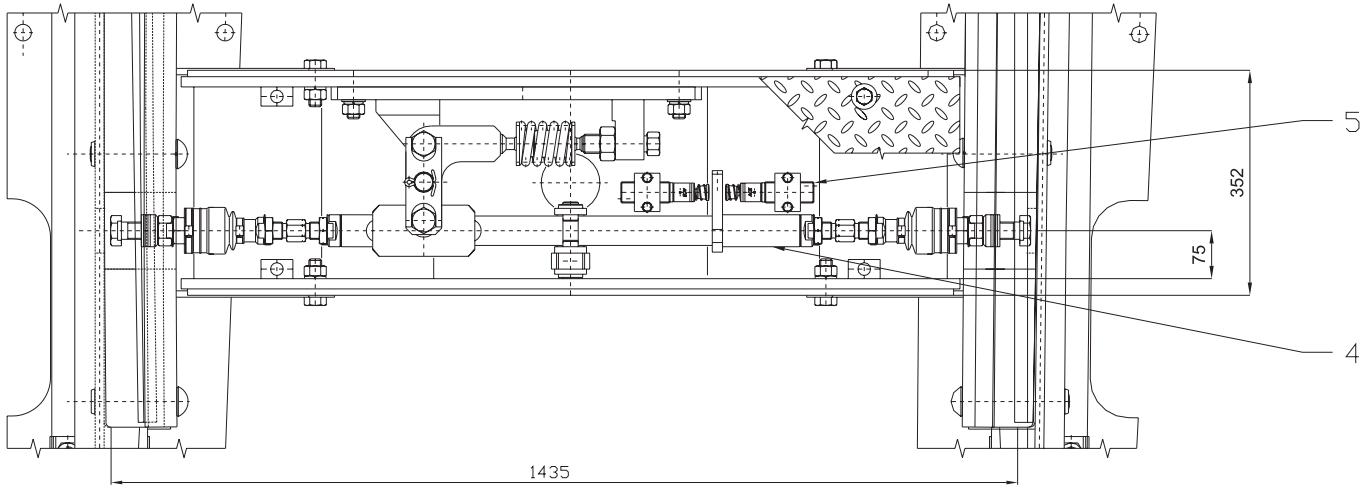
Securing:

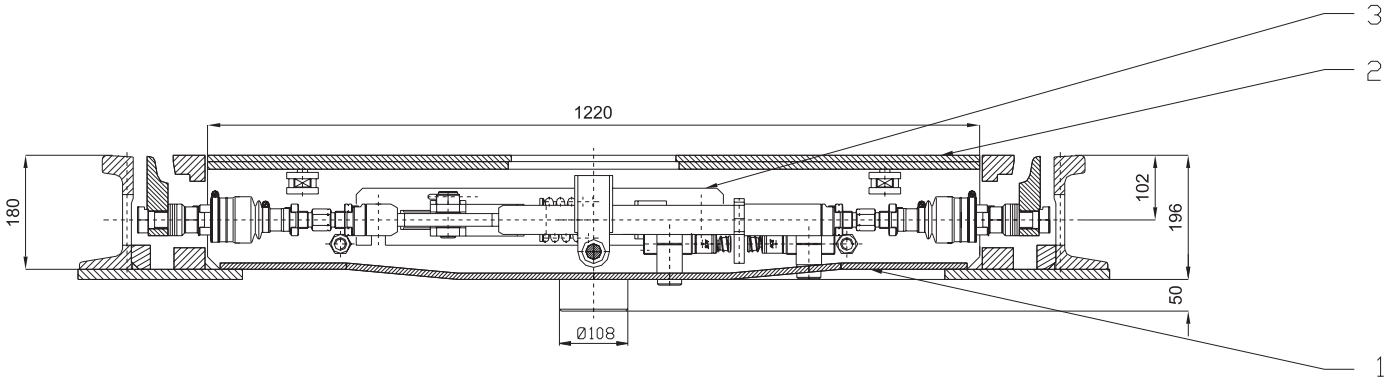
in normal connection

- down-pressure of the setting rod into position given by the last passage

in reverse connection

- down-pressure of the setting rod into position preselected by resetting the setting pocket





Description:

1 - Earth case
2 - Earth case cover
3 - Patented pointing mechanism Z-60
4 - Setting rod
5 - Two impact dampers

Device can be equipped by adaptor set with position sensors. All used materials garantee high reliability and moisture resistance. Central drainage in earth case allow connection to track drainage system.

Manual pointing machine VS-21

Setting device VS-21 is designed for holding blades of trailing direction turnouts in end positions.

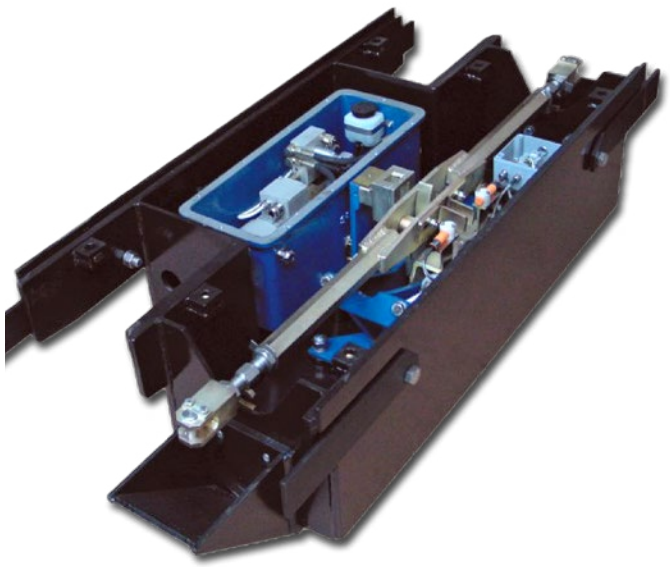
VS-21 is ecologically friendly, guarantees noiseless function and features long life with minimum maintenance demands.

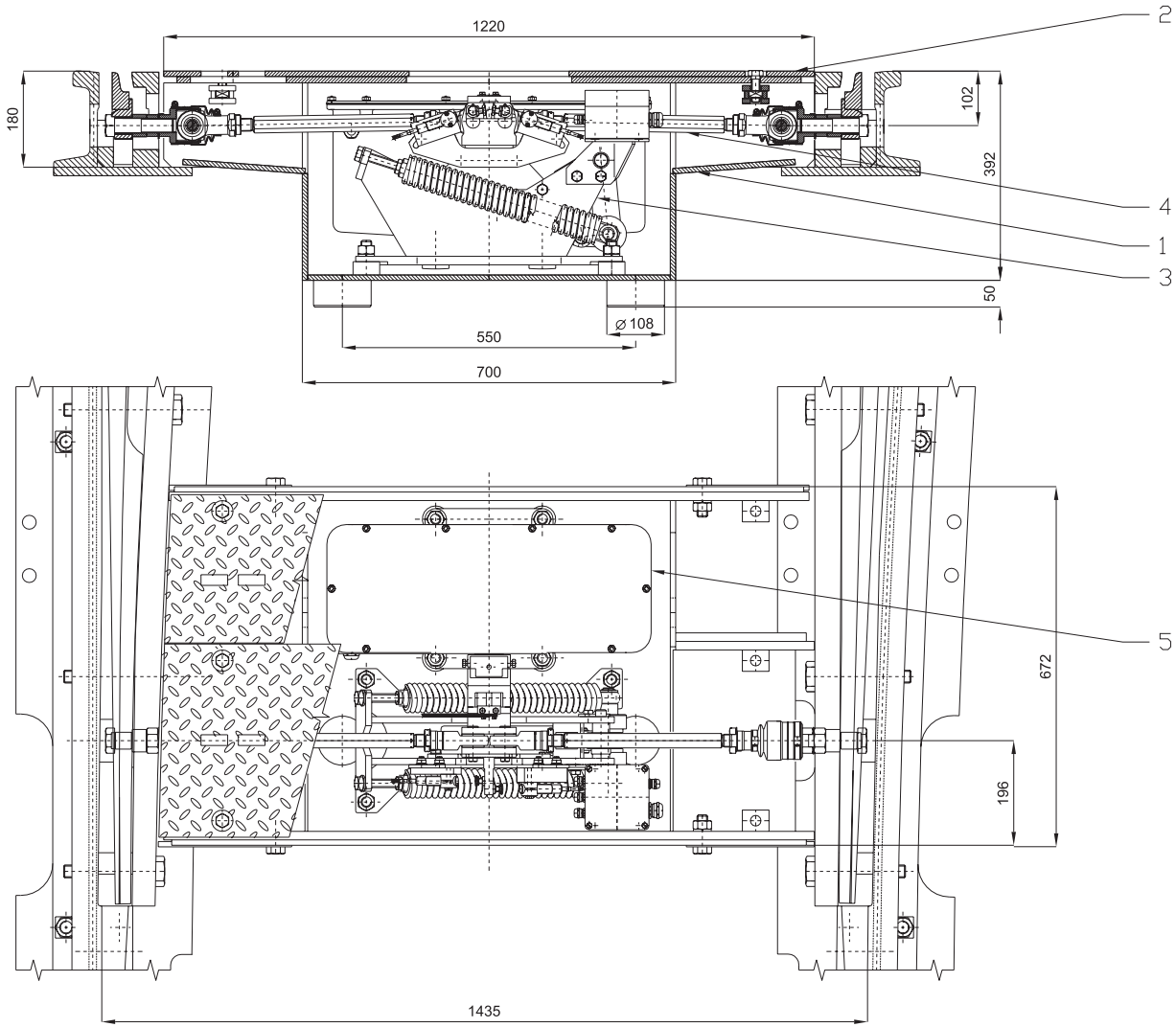
Technical parameters:

Minimum track gauge	1000 mm
Lift of changeable switch blades	36 to 60 mm
Press-down force of flexible mechanism max.	4 kN
Connection setting rod/tongue	according turnout type
Manual setting moment	100 to 250 Nm
Permitted axle load on earthcase cover	12000 kg
Earth case cover weight	40 kg
Overall weight approx.	200 kg

Securing:

- down-pressure of the setting rod to the position given by the last passage
- the setting device can be completed by signalling the position of the blades





Description:

1 - Earth case
2 - Earth case covers
3 - Patented pointing mechanism Z-75-R
4 - Setting rod
5 - Electro-magnetic power device EMP-44 with damper DD-100 or Electro-hydraulic EHP-40 power device

Device can be equipped by adaptor set with position sensors.
All used materials garantee high reliability and moisture resistance.
Central drainage in earth case allow connection to track drainage system.

Motorized pointing machine VSP-20

Setting device VSP-20 is designed for mechanized or manual resetting of the turnouts with flexible blades to required end positions.

VSP-20 is ecologically friendly, guarantees noiseless function and features long life with minimum maintenance demands.

A setting system can be supplied also in design for single blade turnouts in alternatives for placement inside or sideway to the track gauge.

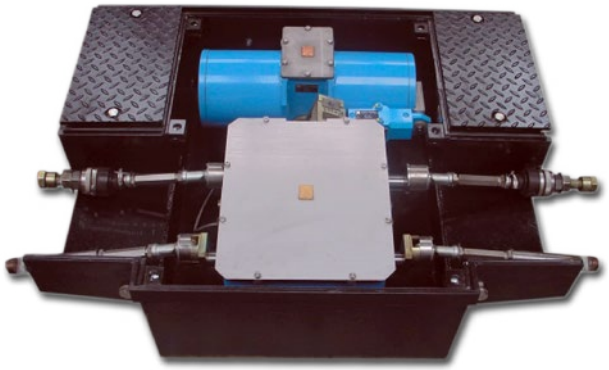
The setting system can be extended by optional set of blade position signaling sensors.

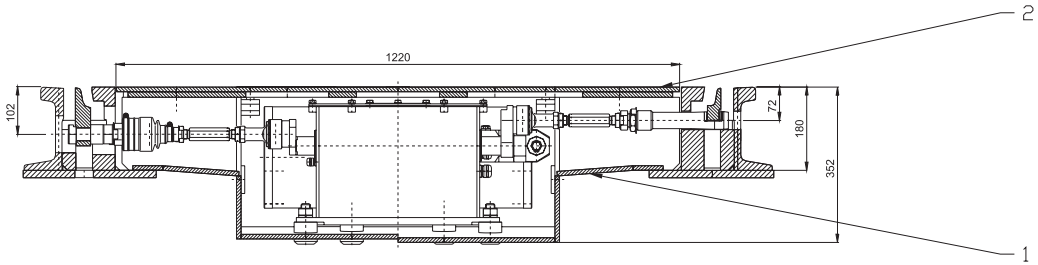
Technical parameters:

Minimum track gauge	1000 mm
Lift of changeable switch blades	36 to 70 mm
Press-down force of spring mechanism	0.5 to 4kN
Connection setting rod/tongue	according turnout type
Setting force on the rod	approx. 5 kN
Manual setting moment	80 to 350 Nm
Time of mechanized setting	0.6 to 1.5 s
Operational voltage of electro-magnetic power device EMP-44	400 to 800 V DC
Operational voltage of electro-hydraulic power device EHP-40	230/400 V AC
Normal current at 600 V DC	max. 10.5 A
Control voltage (control-free position sensors)	24 V DC
Permitted axle load on earthcase cover	12000 kg
Earth case cover weight	50 kg
Overall weight	approx. 450 kg

Securing:

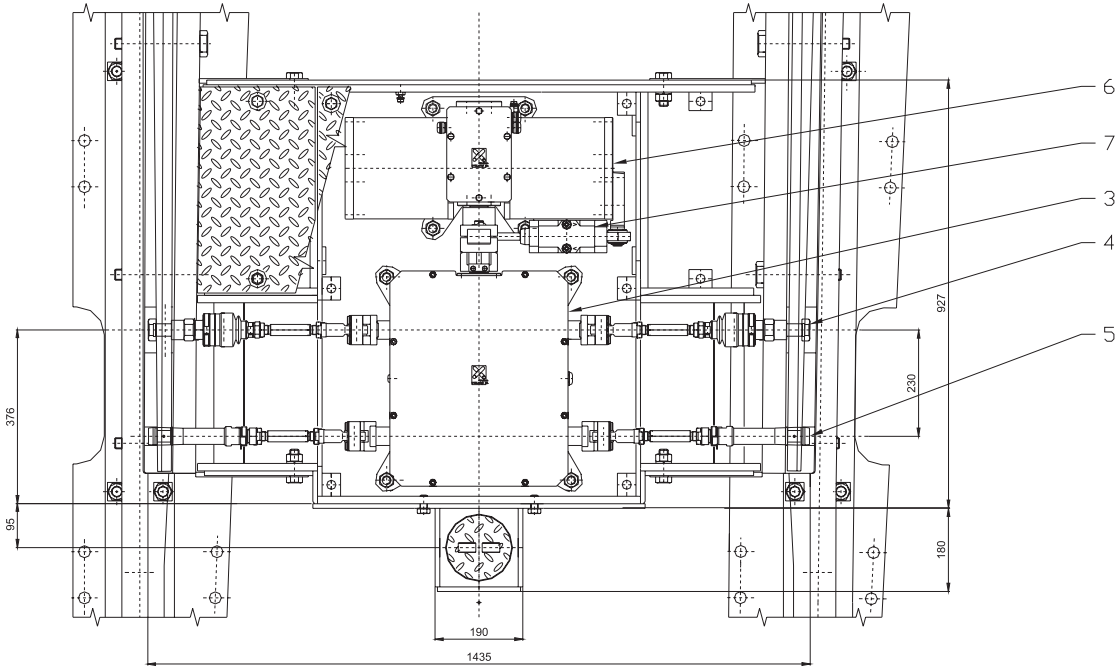
- down-pressure of the setting rod to the position given by the last passage
- the setting device can be completed by signalling the position of the blades





Electro-hydraulic drive

Electro-magnetic drive



Description:

1 - Earth case
2 - Earth case covers
3 - Patented pointing mechanism ZK-75
4 - Setting rods
5 - cecking rods
6 - Electro-magnetic power device EMP-44 with damper DD-100 or Electro-hydraulic EHP-40 power device
7 - Damper DD-100

Device is waterproof

All used materials garantee high reliability and moisture resistance. Central drainage in earth case allow connection to track drainage system. This device may be equipped by including diagnostic elements for monitoring hydraulic pressure, hydraulic oil level, flood, throw-over time, throw-over events, temperature in the turnout system and others that communicates with automatic diagnostic system.

Automatic pointing machine VSP-1-K

Setting device VSP-1-K is designed for mechanized resetting of the turnouts with flexible blades to required end positions.

VSP-1-K is ecologically friendly, meets high level of cross-over safety (SIL 3 requirements for safety integrity according to EN 61508) and features long life with minimum maintenance demands.

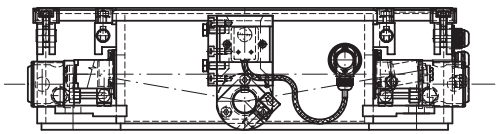
A setting system can be adapted to needs and requirements of individual customers.

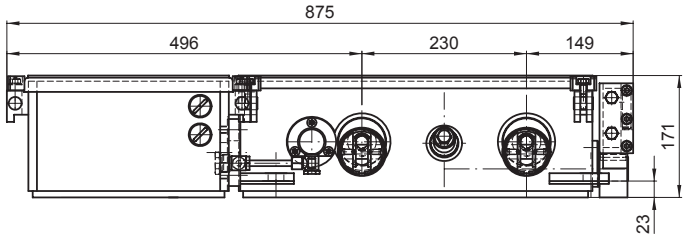
Technical parameters:

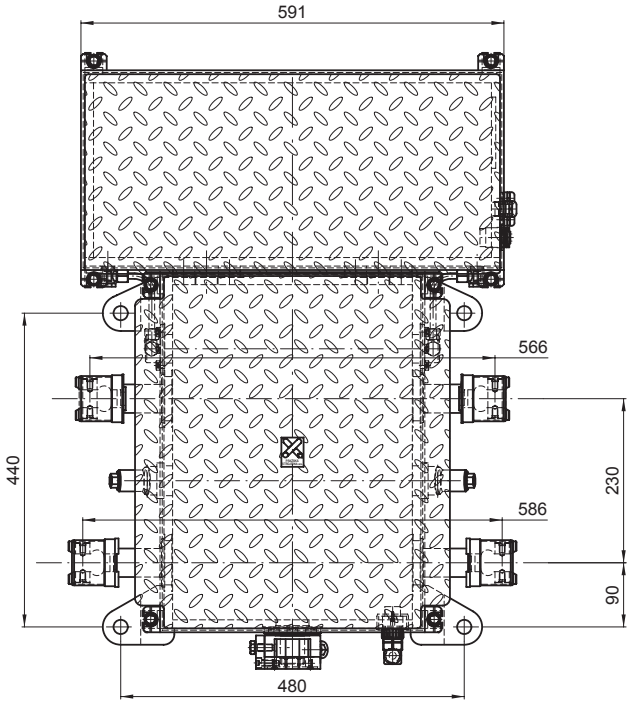
Minimum track gauge	1000 mm
Lift of changeable switch blades	36 to 75 mm
Press-down force of spring mechanism	1.3 to 2.2 kN
Connection setting rod/tongue	according turnout type
Setting force on the rod	approx. 5 kN
Minimum setting moment	150 to 250 Nm
Time of mechanized setting (adjustable)	0.6 to 1.5 s
Operational voltage of electro-magnetic power device EMP-44	400 to 850 V DC
Operational voltage of electro-hydraulic power device EHP-40	230/400 V AC
Normal current at 600 V DC	max. 10.5 A
Control voltage (control-free position sensors)	24 V DC
Permitted axle load on earthcase cover	12000 kg
Earth case cover weight	70 kg
Overall weight	approx. 630 kg

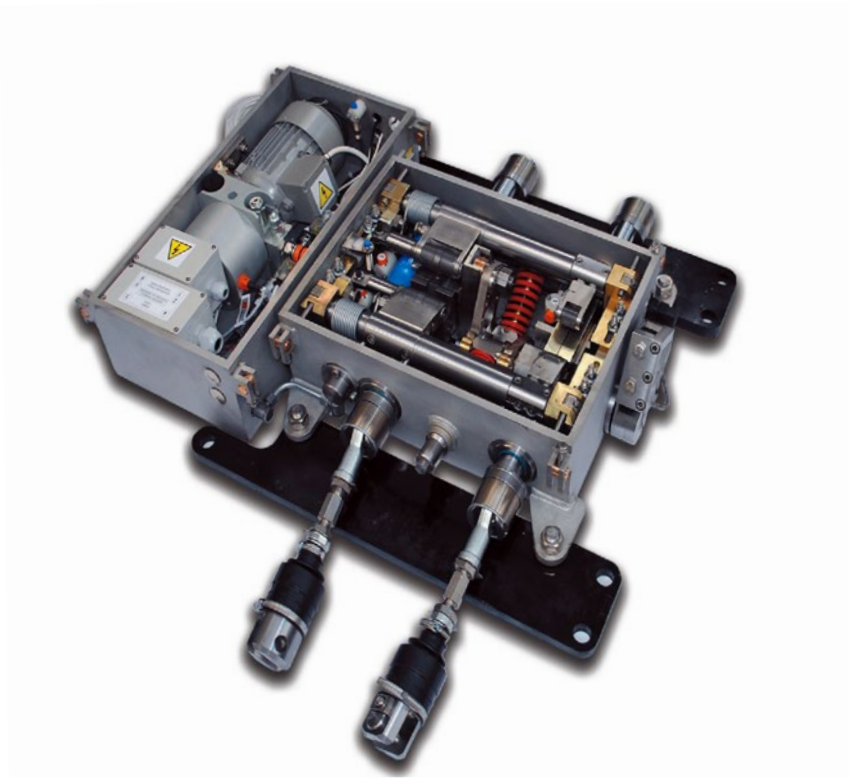
Securing:

- down-pressure of the setting rod in both extreme positions
- locking the setting rod in both extreme positions
- signalling both extreme positions of both checking rods
- signalling of blocking the command for resetting when inserting the key into setting pocket
- deformation-free force resetting ("force open")
- optionally, the turnout system includes diagnostic elements (oil pressure and oil level measurement, turnout system, flooding sensor and other options as ordered by the user)









Description

The VSP-12-K switch system consist of the ZZKP-100-RO switch box, the JH-3-400-M waterproof separate electro-hydraulic unit, and the control system for the positioning and checking rods. The switch box can be fitted either with a standard split release or a split across the distant switch blade. The switch system can be installed loosely within an open line or it can be installed in an embedded box with drainage and lid capacity of 12 tonnes to allow passage of road vehicles.

Upon request, Pražská Strojírna a.s. supplies the turnout system including diagnostic elements to measure current oil pressure; record its maximum in collaboration with the control system; measure the throwing-over time in collaboration with control system; mease temperature in the turnout system; install a turnout system flooding sensor and other diagnostic options as ordered by the user.

Automatic pointing machine VSP-12-K

Setting device VSP-12-K is designed for mechanized resetting of the turnouts with flexible blades to required end positions.

VSP-12-K is ecologically friendly, meets high level of cross-over safety (SIL3 requirements for safety integrity according to EN 61508) and features long life with minimum maintenance demands.

Main advantage of this setting device is combination of low installation depth (only 170mm) and long lifting of turnout blades (up to 100mm).

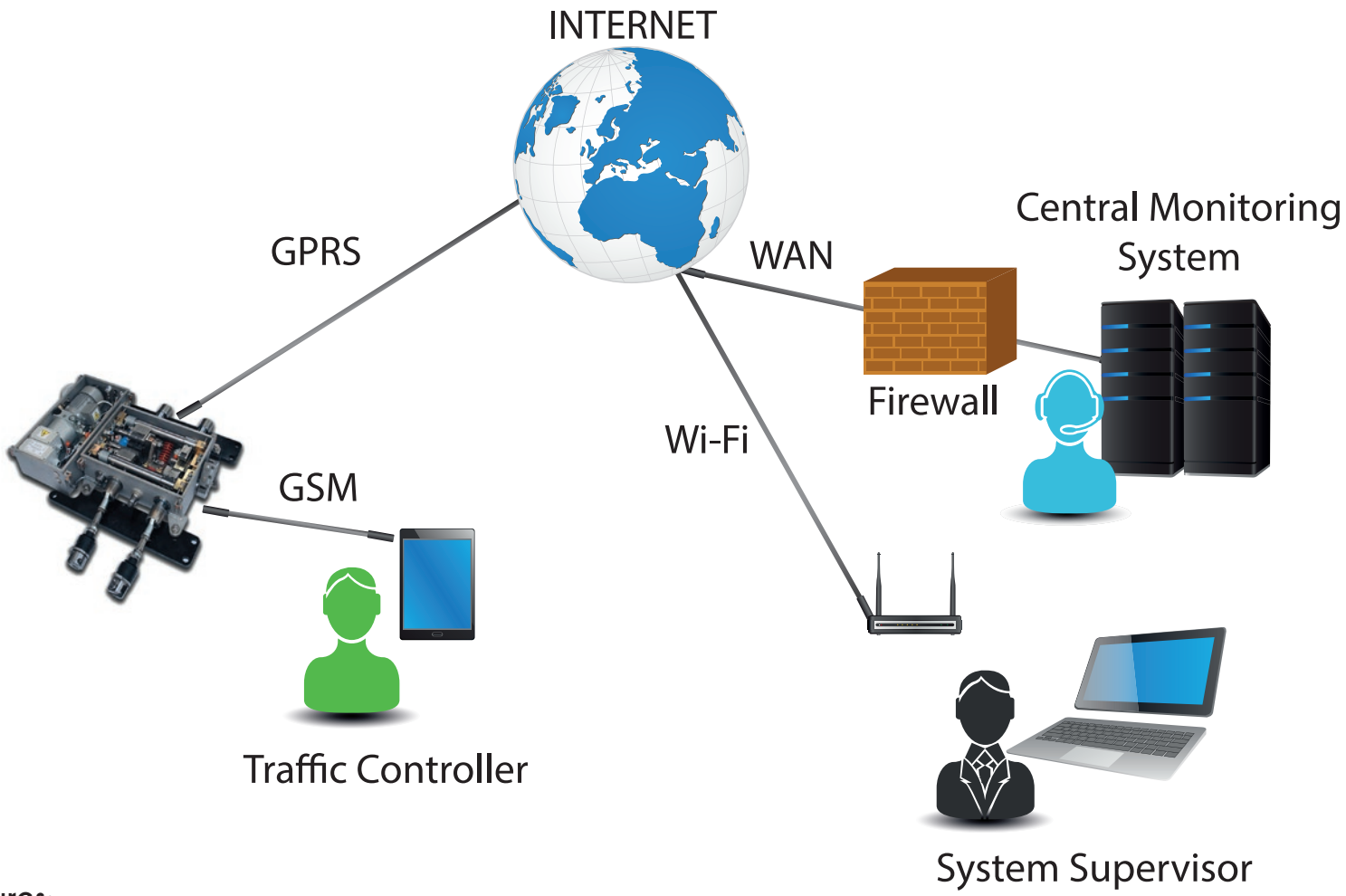
This type of switch mechanism is designed as two-box system – detachable box modules (mechanical and electro-hydraulic power box) with variable power requirements – 600V DC, 400V AC, 230V AC, 110V AC or 24V DC.

Technical parameters:

Minimum gauge	from 1000 mm
Switch blade travel	36 to 100 mm
Positioning rod connection to blade	M27 bolt or special blade hinge
Check rod connection to blades	check, or special blade hinge
Rod ositioning force	approx. 5 kN
Spring assembly thrust	1.3 to 3 kN
Manual positioning torque	150 to 300 Nm
Mechanical positioning time	max. 1.2 s
Standart splitting force; Alternative A	10 kN +30%
Splitting force force on distant blade; Alernetive B	6 kN
Check rod splitting force od distant blade; Alt. B	1.3 kN
Switch-operating mechanism voltage, standard	230, 400 V AC 50 Hz
Switch-operating mechanism voltage, USA	110 V AC 60 Hz
Switch-operating mechanism voltage, DC	24, 600, 750 V DC

Securing

- down pressure of the setting rod i both extreme positions
- locking the setting rod in both extreme positions
- signalling of locking the setting rod
- locking both checking rods in extreme positions
- signalling both extreme positions of both checking rods
- signalling of blocking the command for resetting when inserting the key into the setting pockets
- deformation-free forced resetting("open force") with a standard split release or only via the distant blade
- optionally, the turnout system includes diagnostic elements (oil pressure and oil level measurement in the tank of the electrohydraulic system, temperature measurement, turnout system flooding sensor and othe options as ordered by the user)



Security features:
The position of the pointing machine lids is monitored by inductive sensors. After opening the top cover, the service technician must perform a pre-set period check in by authorization card and validate the opening status. If there is no valid authentication by the technician during the pre-set validation time, the monitoring center automatically signals an alert with a graphic localization of the intrusion.

All diagnostic statuses and security intrusions are stored in the event log of the monitoring center.

Maintenance planning:
Each point machine and turnout has a necessary cycle of maintenance activities. The monitoring center, in addition to on-line diagnostic records, provides schedules and keeps track of planned inspections or maintenance.
Workplace monitoring provides a general service plan that, in addition to a text description, also displays the position of turnout in the map of the track network.

Remote diagnostics

System for remote diagnostics and service scheduling of turnouts

Diagnostic device TU12 is designed for communication with turnouts equipped by an automatic pointing machine VSP-12-K.

This system is able to provide remote communication with a central operation server that monitors and evaluates the situation status of various sensors in turnout, and then communicates event information to responsible service technicians.

Available equipment of diagnostic unit:

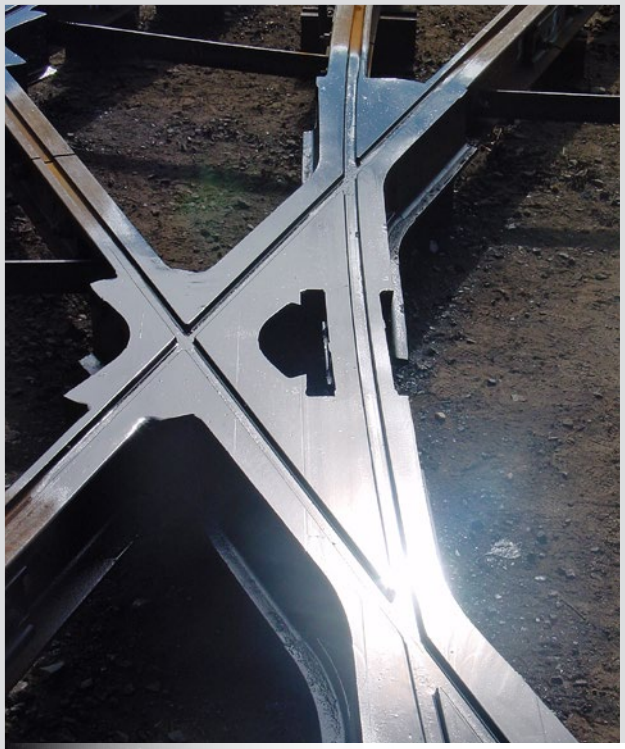
- Hydraulic oil pressure in pointing machine
- Hydraulic oil level
- Flooding sensors
- Inductive sensors for main and inner lid
- Proximity card reader for the authorization of a service technician
- Wireless communication module (GSM, Tetra, Matra ...)
- Temperature sensors
- Other sensors according to project needs

Diagnostic functions:

Sensors in turnout and pointing machines transmit through communication unit TU12 status information to a central server and monitoring station. Diagnostic software provides an evaluation of the sensor status and sends a corresponding event report, message, or alarm that is transmitted to a responsible member of the service or maintenance staff.

A special sandwich frog with functional part of abrasive resistant sheet metal HARDOX® 450

Double gauge tramway crossing in the Liberec city



Tramway crossing

Rail crossing in the production hall

Disassembled crossing before expedition to customer

Diamond crossing with continuous curved section

Tramway crossing

Pražská strojírna a.s. manufactures and supplies rail crossings, complete tramway crossovers, crossings of tramway track with railway siding, and other special tramway track constructions designed according to the customers' specifications and standards (Czech national standards, German VDV standards, Swedish Banstandard Göteborg and many others).

Description:

For the production of crossings and crossroads, Pražská strojírna a.s. uses its own standard and special turnouts, switches, pointers, heating, and drainage components. Thanks to our own applied research, Pražská strojírna a.s. can solve special and demanding requirements such as the usage of special abrasion-resistant materials like Hardox and Dillidur, for production of frogs at extremely exposed areas etc. All constructed materials are welded in accordance with approved technologies and standards.

The technical specification of rail construction is an inseparable part of its definition (courses and shapes of grooves in crossings, production clearances, inspection, description of the rail construction, transport units, technical documentation supplied with product, etc.)

As basic material for manufacturing of tramway rail crossings, grooved rails are used with required profile (NT1, NT3, 60R1, 59R1, 55R1, 57R1...) and required quality (R200, R220, R260, R290, R290GHT-CL, etc.). Shallow or narrow grooved crossings and frogs are made from full-head rail profiles and steel blocks in quality UIC800, as standard in accordance with German VDV standards. Any exposed surfaces can be treated by hard-weld overlay.

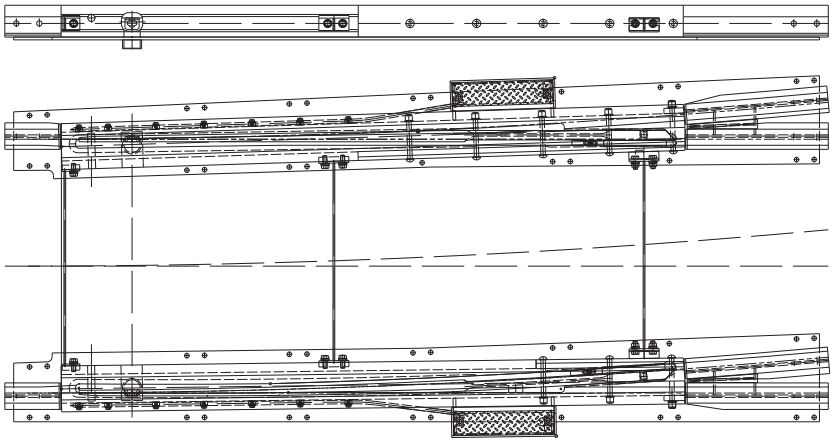
Pražská strojírna a.s. also carries out guarantee and post-guarantee services for all of its products upon agreement.

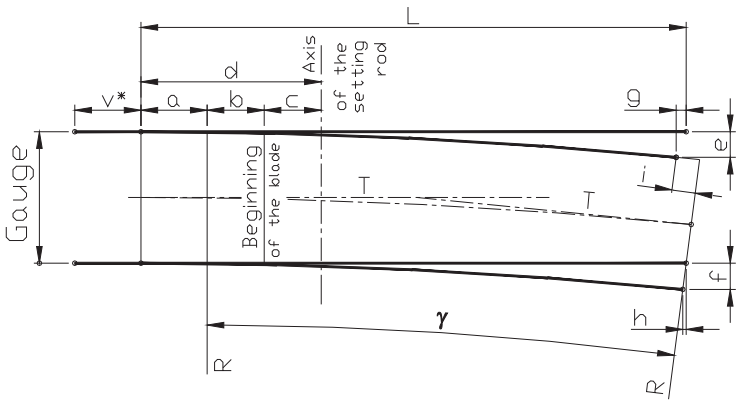
Technical parameters:

Track gauge	upon request
Rail profile	upon request

Secures:

- Safety and smooth operation
- Maximum reduction of noise
- Long life time with possible overhaul
- Design for standard and special turnouts





	R = 20 m				R = 25 m		R = 30 m		R = 50 m				R = 100 m		R = 150 m	
Rail	59R1, 59R2, 60R1, 60R2		NT1, NT3		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		NT1, NT3		59R1, 59R2, 60R1, 60R2, NT1,NT3		59R1, 59R2, 60R1, 60R2, NT1, NT3	
Gauge	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435
L	4500	4500	3400	3400	4500	4500	4000	4000	5000	5000	4660	4660	7000	7000	8500	8500
v *	500	500	0	0	500	500	500	500	350	350	0	0	200	200	0	0
γ	11° 45' 11"	11° 53' 08"	9° 45' 18"	9° 45' 18"	9° 21" 16'	9° 26" 18'	7° 46" 06'	7° 49" 36'	5° 47' 14"	5° 48' 48"	5° 16' 25"	5° 16' 25"	4° 01' 51"	4° 02' 23"	3° 15" 27'	3° 15" 44'
	13,0589 g	13,2062 g	10,8390 g	10,8390 g	10,3938 g	10,4869 g	8,6322 g	8,8963 g	6,4305 g	6,4589 g	5,8595 g	5,8595 g	4,4787 g	4,4885 g	3,6196 g	3,6249 g
a	500	500	130	130	500	500	0	0	0	0	130	130	0	0	0	0
b	0	0	280	280	0	0	400	400	650	650	280	280	800	800	1000	1000
c	500	500	310	310	500	500	400	400	350	350	310	310	400	400	400	400
d	1000	1000	720	720	1000	1000	800	800	1000	1000	720	720	1200	1200	1400	1400
e	389	385	259	259	313	311	262	260	247	247	203	203	243	243	240	240
f	409	413	279	279	326	329	271	273	253	253	209	209	246	246	242	242
g	25	25	7	7	16	16	11	11	8	8	3	3	6	6	4,5	4,5
h	28	29	3	3	18	18	12	12	9	9	0	0	6	6	4,5	4,5
i	205	298	244	244	163	236	166	196	101	145	132	132	70	101	57	82
T	2059	2082	1707	1707	2045	2064	2037	2052	2527	2539	2303	2303	3519	3527	4255	4272

v * is only in case of using electric heating type VDV

- **Advantages:**
- Safe and smooth tramway train passage in a straight or branching direction, in cooperation with a manual or automated facing or trailing setting system.
- Construction enables the use of modern unified setting devices with setting and checking rods.
- Minimal maintenance requirements.
- Simple operation by replacing blades.

Switches and turnouts

Tramway block switches - Mono Block

Tramway block switches are manufactured for left and right branching. Our special design allows for uses such as trailing or facing in the most demanding conditions of tramway track.

Sophisticated design guarantees a high degree of safe passage, smooth and quiet functionality, combined with a long life and minimal maintenance requirements. Block switches are also ecologically friendly.

Description:

Switches are available in standard grooved profiles required by the customer (NT1, NT3, 60R1, 60R1N, 59R1, 59R2, Ph37, NP4 ...). Each switch consists of two half-switches set into the track gauge by means of distance rods. Half-turnout is welded from a steel block section with switch leg ends from facing rails of the required section and quality. After the welding process, the block is machined at high precision machining center to final design of required switch.

Replaceable blades are machined from equivalent rail material or abrasion-resistant steel sheets. Blades are fastened in the block body by a self-locking wedge secured against accidental loosening with a screw joint.

Switches are supplied and welded on a 16mm steel sheet for direct fastening to sleepers or adapted for a standard spring fastening system.

Both half-switches are prepared for heating and are equipped by cases and stainless heating element protectors. Switches are also equipped by covering wedges for easy application in pavement or other final surface modifications.

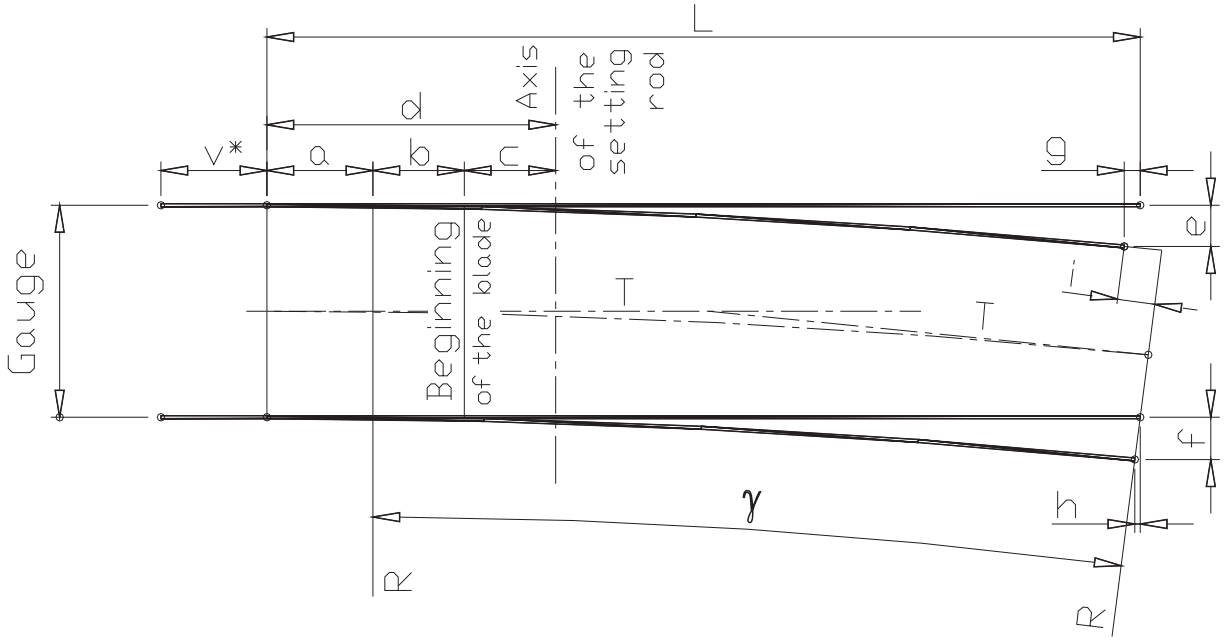
Technical parameters:

Track gauge	according customer needs
Rail profile	according project requirement
Branching radius	standard 25m, 30m, 50m, 100m

(Modifications according exact project needs are available)

	R = 50 m				R = 100 m		R = 150 m	
Rail	59R1, 59R2, 60R1, 60R2		NT1, NT3		59R1, 59R2, 60R1, 60R2, NT1,NT3		59R1, 59R2, 60R1, 60R2, NT1, NT3	
Gauge	1000	1435	1000	1435	1000	1435	1000	1435
L	5000	5000	4660	4660	7000	7000	8500	8500
v *	350	350	0	0	200	200	0	0
γ	5° 47' 14"	5° 48' 48"	5° 16' 25"	5° 16' 25"	4° 01' 51"	4° 02' 23"	3° 15" 27'	3° 15" 44'
	6,4305 g	6,4589 g	5,8595 g	5,8595 g	4,4787 g	4,4885 g	3,6196 g	3,6249 g
a	0	0	130	130	0	0	0	0
b	650	650	280	280	800	800	1000	1000
c	350	350	310	310	400	400	400	400
d	1000	1000	720	720	1200	1200	1400	1400
e	247	247	203	203	243	243	240	240
f	253	253	209	209	246	246	242	242
g	8	8	3	3	6	6	4,5	4,5
h	9	9	0	0	6	6	4,5	4,5
i	101	145	132	132	70	101	57	82
T	2527	2539	2303	2303	3519	3527	4255	4272

v * is only in case of using electric heating type VDV



Switches and turnouts

Tramway switches with flexible blades

Tramway switches with flexible blades are constructed for application in the most demanding conditions of tramway tracks as trailing or facing for right and left branching.

Our many years of experience in designing track components result in a high degree of safe passage, smooth and quiet function, and a long life with minimal maintenance requirements.

All components are ecologically friendly.

Description:

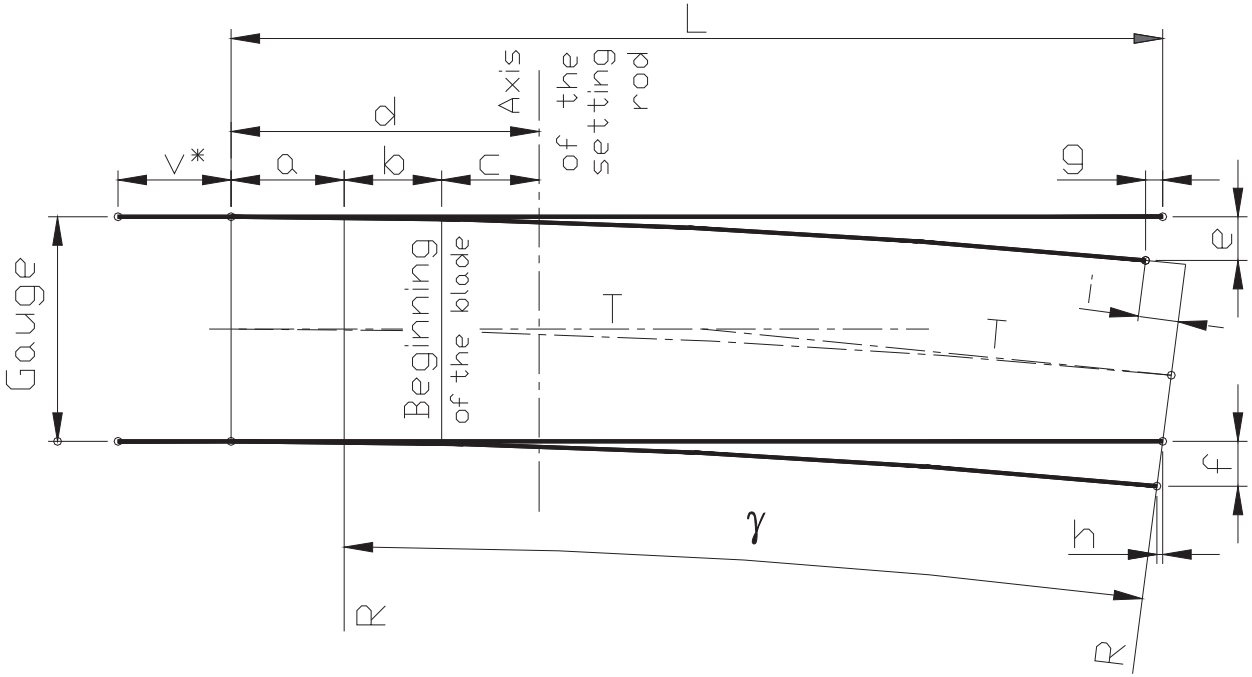
- Switches are manufactured from rails in the required profile.
- Both tongue blades are welded and steel quality is defined by the customer.
- The flexible part is according to defined quality (R260 or other).
- Rail and flexible parts are welded by flash-but process.
- Half-switch frame welded together and are further supported by welding it to a steel underlay plate
- The upper plate of half-switch frame is used as a tongue sliding surface.
- Stock rail is bolted to a half-switch frame side and support the plate by M24 bolts.
- The tongue rail part is bolted to an underlay steel sheet by M24 bolts.

Technical parameters:

Track gauge	upon request
Rail profile	upon request

Advantages:

- Safe and smooth tramway train passage in a straight or branching direction, in cooperation with a manual or automated facing or trailing setting system.
- Construction enables the use of modern unified setting devices with setting and checking rods.
- Minimal maintenance requirements.



	R = 20 m				R = 25 m		R = 30 m		R = 50 m			
Rail	59R1, 59R2, 60R1, 60R2		NT1, NT3		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		NT1, NT3	
Gauge	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435
L	4500	4500	3400	3400	4500	4500	4000	4000	5000	5000	4660	4660
v *	500	500	0	0	500	500	500	500	350	350	0	0
γ	11º 45' 11"	11º 53' 08"	9º 45' 18"	9º 45' 18"	9º 21" 16'	9º 26" 18'	7º 46" 06'	7º 49" 36'	5º 47' 14"	5º 48' 48"	5º 16' 25"	5º 16' 25"
	13,0589 g	13,2062 g	10,8390 g	10,8390 g	10,3938 g	10,4869 g	8,6322 g	8,8963 g	6,4305 g	6,4589 g	5,8595 g	5,8595 g
a	500	500	130	130	500	500	0	0	0	0	130	130
b	0	0	280	280	0	0	400	400	650	650	280	280
c	500	500	310	310	500	500	400	400	350	350	310	310
d	1000	1000	720	720	1000	1000	800	800	1000	1000	720	720
e	389	385	259	259	313	311	262	260	247	247	203	203
f	409	413	279	279	326	329	271	273	253	253	209	209
g	25	25	7	7	16	16	11	11	8	8	3	3
h	28	29	3	3	18	18	12	12	9	9	0	0
i	205	298	244	244	163	236	166	196	101	145	132	132
T	2059	2082	1707	1707	2045	2064	2037	2052	2527	2539	2303	2303

v * is only in case of using electric heating type VDV

Switches and turnouts

Tramway switches with replaceable flexible blades

Tramway switches with flexible blades are constructed for application in most demanding conditions of tramway tracks as trailing or facing for right and left branching.

Our many years of experience in design of track components engage high degree of passage safety, smooth and quiet function and long life time with minimum maintenance demands.

All components are ecologically friendly.

Description:

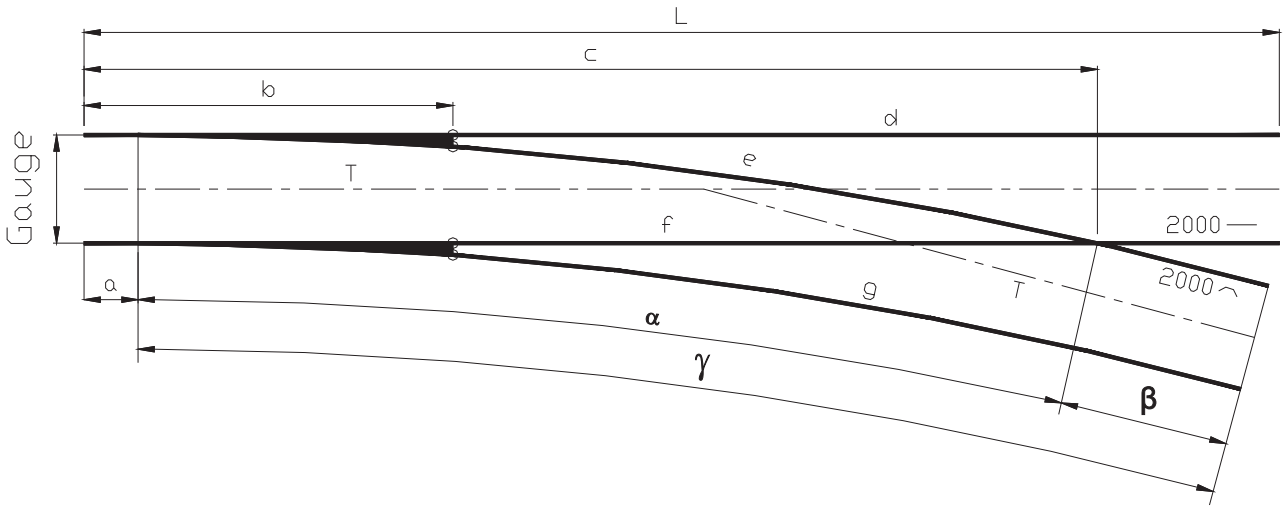
- Switches are manufactured from rails in required profile.
- Both replaceable tongue blades are fastened by four M20 secured bolts.
- Flexible blades are according defined quality (R260 or other).
- Rail and flexible part are welded by flash-but (resistor) technology.
- Half-switch frame weldments are welded to steel support underlay plate
- Upper plate of half-switch frame is used as tongue sliding surface.
- Stock rail is bolted to half-switch frame side and support plate by M24 bolts.
- Tongue rail part is bolted to underlay steel sheet by M24 bolts

Technical parameters:

Track gauge	upon request
Rail profile	upon request

Securing:

- Safe and smooth tramway train passage in straight or branching direction - in cooperation with manual or automated facing or trailing setting system.
- Construction enables use of modern unified setting devices with setting and checking rods.
- Minimum maintenance demands.



	R = 20 m		R = 25 m		R = 30 m		R = 50 m		R = 100 m		R = 150 m	
Rail	59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2	
Gauge	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435
L	8825	10076	9571	10970	9746	11279	12000	13979	16142	18941	19320	22748
v *	500	500	500	500	500	500	350	350	200	200	0	0
α	17º 58' 11,2"	21º 27' 01,2"	16º 05' 56,2"	19º 13' 49,6"	14º 42' 44"	17º 34' 56"	11º 25' 16,3"	13º 39' 43,1"	8º 05' 21,7"	9º 41' 00"	6º 36' 31"	7º 54' 46"
	19,96642 g	23,8337 g	17,88771 g	21,36716 g	16,3470 g	19,5359 g	12,69022 g	15,17997 g	8,98818 g	10,75926 g	7,3429 g	8,7919 g
β	5º 35' 23,4"	5º 31' 52,1"	4º 29' 37,6"	4º 27' 21"	3º 45' 25,6"	3º 43' 49,8"	2º 16' 08,9"	2º 15' 33,9"	1º 08' 24,8"	1º 08' 16"	0º 45' 41"	0º 45' 37"
	13,0589 g	13,2062 g	4,99309 g	4,95093 g	4,17456 g	4,1450 g	6,4305 g	6,4589 g	4,4787 g	4,4885 g	0,8460 g	0,8448 g
γ	23º 33' 34,6"	26º 58' 53,3"	20º 35' 33,8"	23º 41' 10,6"	18º 28' 12"	21º 18' 48"	13º 41' 25,2"	15º 55' 17"	9º 13' 46,5"	10º 49' 16"	7º 22' 12"	8º 40' 23"
	13,0589 g	13,2062 g	22,88080 g	26,31809 g	20,5223 g	23,6816 g	6,4305 g	6,4589 g	4,4787 g	4,4885 g	8,1889 g	9,6367 g
a	500	500	500	500	0	0	0	0	0	0	0	0
b	4500	4500	4500	4500	4000	4000	5000	5000	7000	7000	8500	8500
c	6825	8076	7571	8970	7746	9279	10000	11979	14142	16941	17320	20748
d	4325	5576	5071	6470	5746	7279	7000	8979	9142	11941	10820	14248
e	2430	3756	3165	4632	3831	4526	5067	7093	7189	10022	8859	12315
f	2325	3576	3071	4470	3746	5279	5000	6979	7142	9941	8820	12248
g	4018	5080	4805	6038	5509	6892	6828	8695	9028	11751	10730	14097
T	4171	4798	4542	5242	4878	5645	6002	6992	8072	9471	9661	11375

v * is only in case of using electric heating type VDV

Switches and turnouts

Turnouts with curved section in branch line

Tramway turnouts with a curved section in the branch line are constructed for application in the most demanding conditions of tramway tracks as trailing or facing for right and left branching.

Our many years of experience in designing track components results in a high degree of safe passage, smooth and quiet function, and a long life with minimal maintenance requirements.

All components are ecologically friendly.

Description:

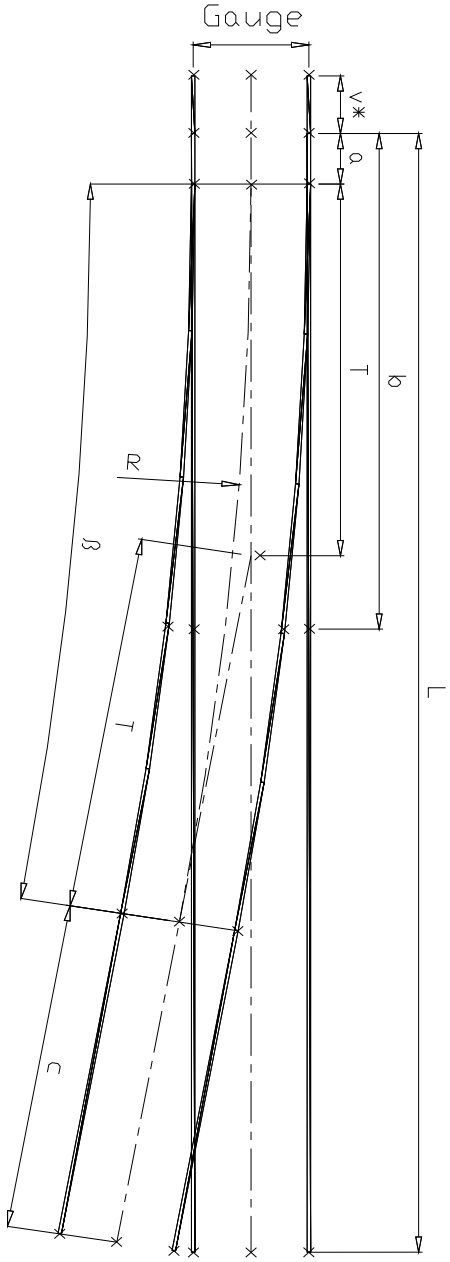
- Turnouts are manufactured from rails in the required profile.
- Standard "rail-assembled" construction meets VDV requirements.
- The frog section is machined from a welded section of steel block with full-head rail profile end to match various rail sections (105C1, 73C1, etc.) in quality R260 with optional hard-weld inserts.
- Flexible blades are according to defined quality (R260 or other).
- The support rail at the crossing part is machined from full-head rail profile or grooved rail with a pressed groove.
- The tongue rail part is bolted to an underlay steel sheet by M24 bolts.

Technical parameters:

Track gauge	upon request
Rail profile	upon request

Advantages:

- Safe and smooth tramway train passage in a straight or branching direction, in cooperation with a manual or automated facing or trailing setting system.
- Construction enables the use of modern unified setting devices with setting and checking rods.
- Minimal maintenance requirements.



	1:4		1:6		1:7		1:9	
Rail	59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2	
Gauge	1000	1435	1000	1435	1000	1435	1000	1435
R	25 m	25 m	50 m	50 m	100 m	100 m	150 m	150 m
L	9640	11406	12372	15000	16439	19500	19465	23650
v *	500	500	350	350	200	200	0	0
β	14º 02' 10"	14º 02' 10"	9º 27' 44"	9º 27' 44"	8º 07' 48"	8º 07' 48"	6º 20' 24,7"	6º 20' 24,7"
	15,5958 g	15,5958 g	10,5137 g	10,5137 g	9,0334 g	9,0334 g	7,0447 g	7,0447 g
a	500	500	0	0	0	0	0	0
b	4500	4500	5000	5000	7000	7000	8500	8500
c	2984	4750	4096	6724	2225	5286	3149	7034
T	3078	3078	4138	4138	7107	7107	8308	8308

v * is only in case of using electric heating type VDV

Turnouts with straight section in branching direction

Tramway turnouts with a straight section in the branch line are constructed for application in the most demanding conditions of tramway tracks as trailing or facing for right and left branching.

Our many years of experience in designing track components results in a high degree of safe passage, smooth and quiet function, and a long life with minimal maintenance requirements.

All components are ecologically friendly.

Description:

- Turnouts are manufactured from rails in the required profile.
- Standard "rail-assembled" construction meets VDV requirements.
- The frog section is machined from a welded section of steel block with full-head rail profile end to match various rail sections (105C1, 73C1, etc.) in quality R260 with optional hard-weld inserts.
- Flexible blades are according to defined quality (R260 or other).
- The support rail at the crossing part is machined from a full-head rail profile or a grooved rail with a pressed groove.

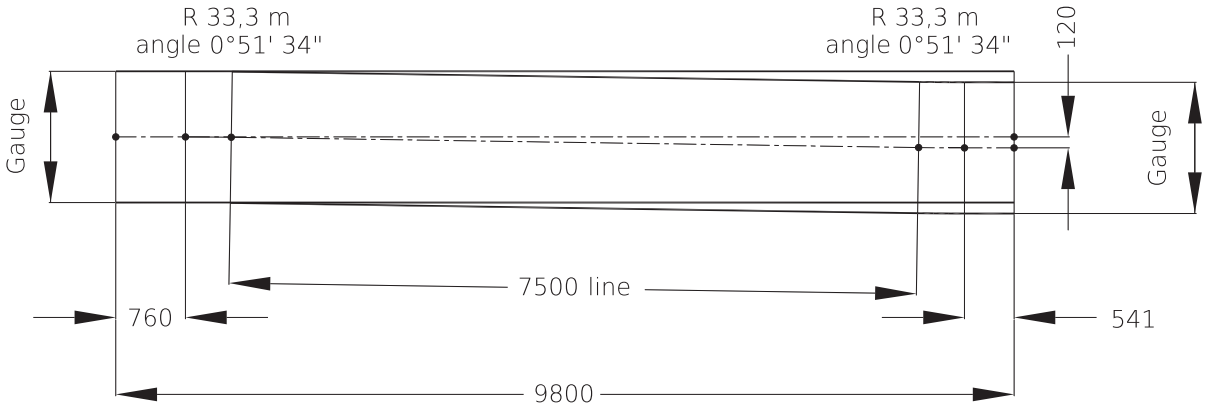
Technical parameters:

Track gauge	upon request
Rail profile	upon request

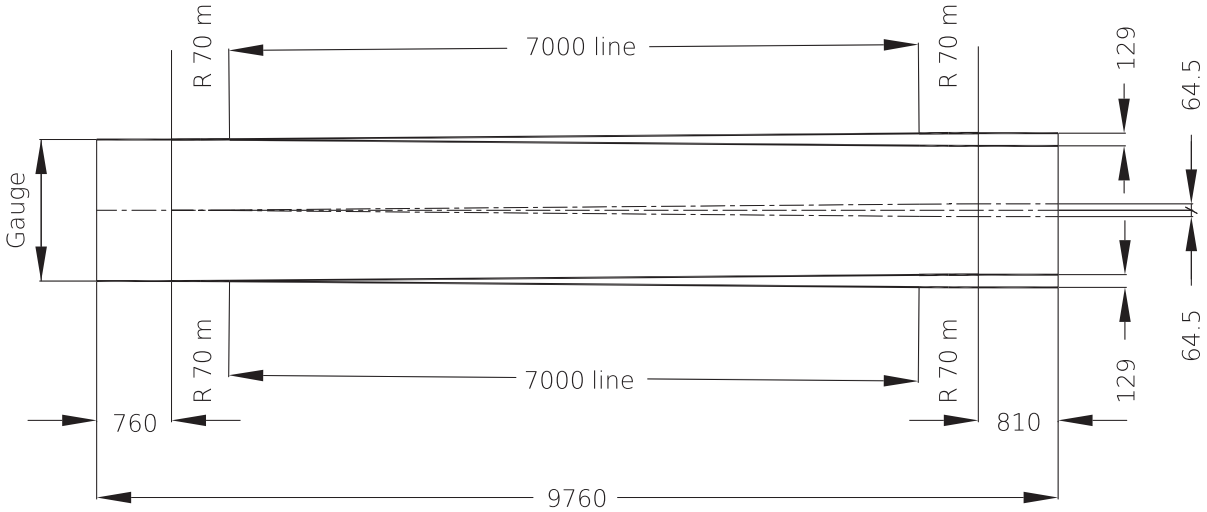
Advantages:

- Safe and smooth passage in a straight or branching direction, in cooperation with a manual or automated facing or trailing setting system.
- Construction enables the use of modern unified setting devices with setting and checking rods.
- Minimal maintenance requirements.

Single - angle switch



Symmetric switch



Angle of R70 m = 0° 29' 13"

Switches and turnouts

Gauntlet tramway turnouts

Gauntlet tramway turnouts can be used as trailing or facing for left or right branching. This special design allows the tram/train in taking the gauntlet runs over a set of switch points onto the parallel rails, passes through the gauntlet area, and passes over another set of switch points to return to the original line.

Axial distance of both branch travel edges at the switch end is 129mm (distributed symmetrically from the initial straight direction) and 120mm from the right and left turnout. This sort of linked axial distance section is available for any required length.

Lining-up turnouts are constructed for application in the most demanding conditions of tramway tracks as trailing or facing for right and left branching.

Our many years of experience in designing track components results in a high degree of safe passage, smooth and quiet function, and a long life with minimal maintenance requirements.

All components are ecologically friendly.

Technical parameters:

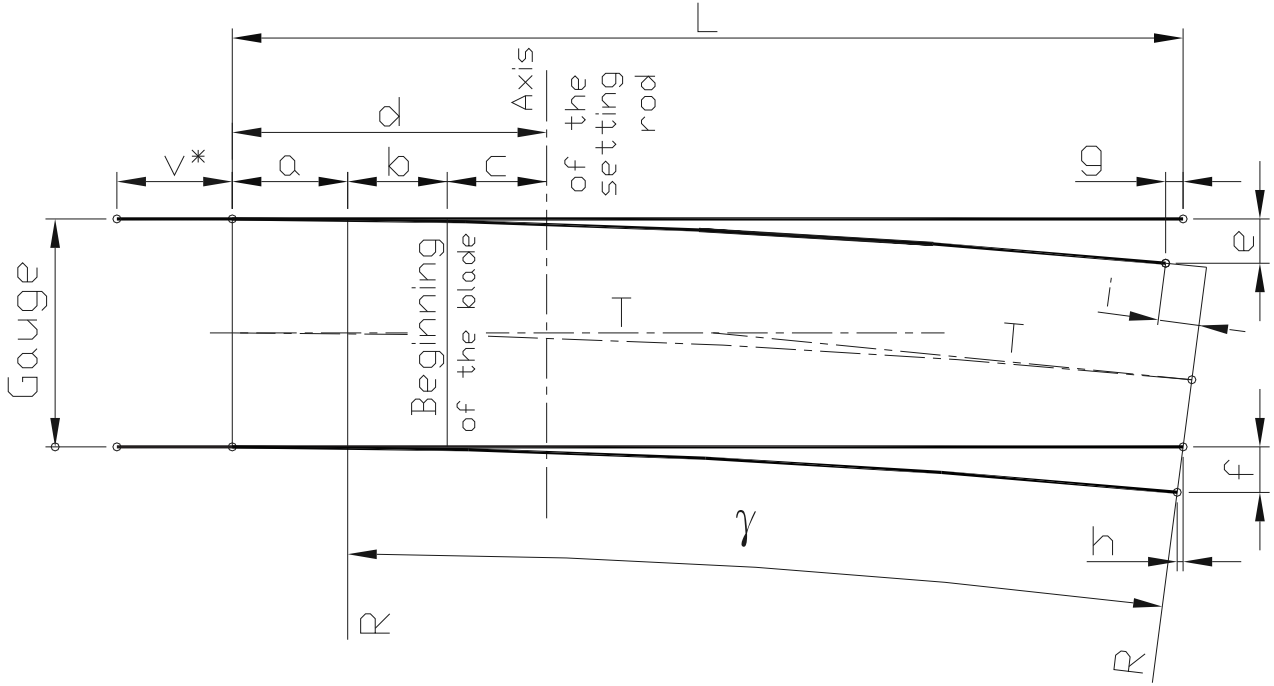
Track gauge	upon request
Rail profile	upon request

Description:

- Turnouts are manufactured from rails in the required profile.
- Standard "rail-assembled" construction meets VDV requirements.
- The frog section is machined from a welded section of steel block with full-head rail profile end to match various rail sections (105C1, 73C1, etc.) in quality R260 with optional hard-weld inserts.
- Flexible blades are according to defined quality (R260 or other).
- The support rail at the crossing part is machined from a full-head rail profile or a grooved rail with a pressed groove.

Advantages:

- Safe and smooth tramway train passage in a straight or branching direction, in cooperation with a manual or automated facing or trailing setting system.
- The construction enables the use of modern unified setting devices with setting and checking rods.
- Minimal maintenance requirements.



	R = 20 m				R = 25 m		R = 30 m		R = 50 m			
Rail	59R1, 59R2, 60R1, 60R2		NT1, NT3		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		59R1, 59R2, 60R1, 60R2		NT1, NT3	
Gauge	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435	1000	1435
L	4500	4500	3400	3400	4500	4500	4000	4000	5000	5000	4660	4660
v*	500	500	0	0	500	500	500	500	350	350	0	0
γ	11º 45' 11"	11º 53' 08"	9º 45' 18"	9º 45' 18"	9º 21" 16'	9º 26" 18'	7º 46" 06'	7º 49" 36'	5º 47' 14"	5º 48' 48"	5º 16' 25"	5º 16' 25"
	13,0589 g	13,2062 g	10,8390 g	10,8390 g	10,3938 g	10,4869 g	8,6322 g	8,8963 g	6,4305 g	6,4589 g	5,8595 g	5,8595 g
a	500	500	130	130	500	500	0	0	0	0	130	130
b	0	0	280	280	0	0	400	400	650	650	280	280
c	500	500	310	310	500	500	400	400	350	350	310	310
d	1000	1000	720	720	1000	1000	800	800	1000	1000	720	720
e	389	385	259	259	313	311	262	260	247	247	203	203
f	409	413	279	279	326	329	271	273	253	253	209	209
g	25	25	7	7	16	16	11	11	8	8	3	3
h	28	29	3	3	18	18	12	12	9	9	0	0
i	205	298	244	244	163	236	166	196	101	145	132	132
T	2059	2082	1707	1707	2045	2064	2037	2052	2527	2539	2303	2303

v* is only in case of using electric heating type VDV

Switches and turnouts

Single blade tramway switches

Single blade switches are constructed for application in the most demanding conditions of tramway tracks as trailing or facing for right and left branching.

Our many years of experience in designing track components results in a high degree of safe passage, smooth and quiet function, and a long life with minimal maintenance requirements.

Description:

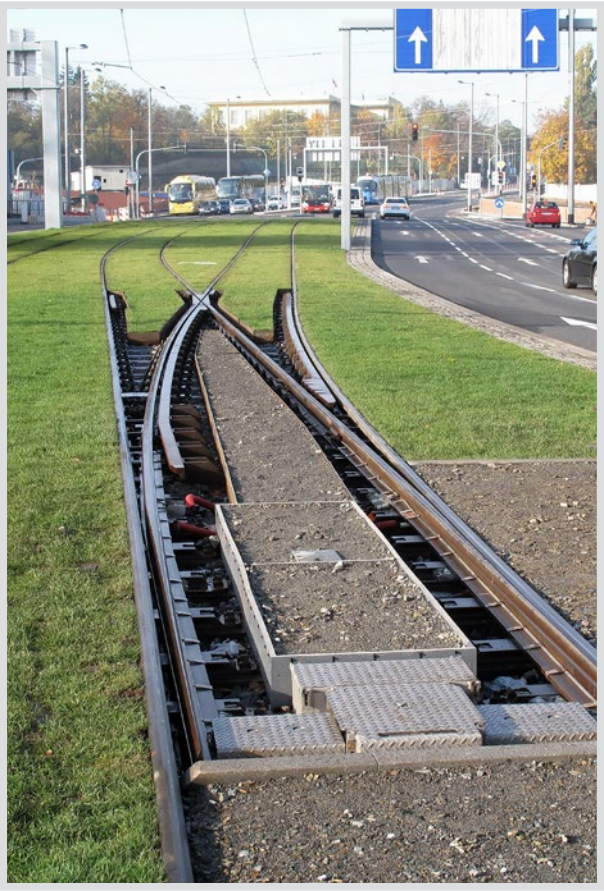
- Blade half-switch is manufactured from rails in the required profile.
- The replaceable tongue blade is fastened by four M20 secured bolts.
- Flexible blades are according to defined quality (R260 or other).
- Rail and flexible parts are welded by flash-but (resistor) technology.
- Half-switch frame welded together and is further supported by welding it to a steel underlay plate.
- The upper plate of the half-switch frame is used as a tongue sliding surface.
- Stock rail is bolted to a half-switch frame side and a support plate by M24 bolts.
- The tongue rail part is bolted to an underlay steel sheet by M24 bolts.
- Blade-free half switch is constructed as weldment of rail section with a steel block, 180/260 in quality R260, or as special weldment in more complicated constructions.

Technical parameters:

Track gauge	upon request
Rail profile	upon request

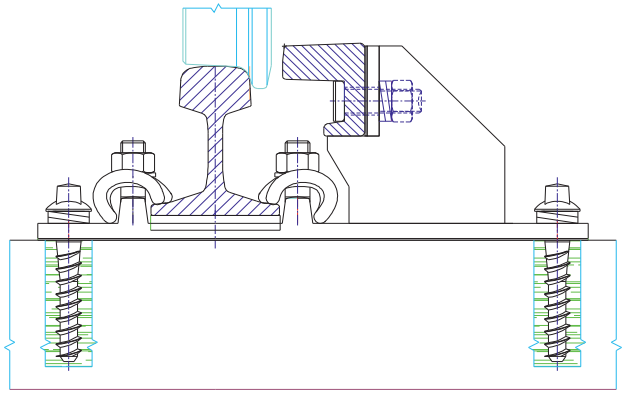
Advantages:

- Safe and smooth passage in a straight or branching direction, in cooperation with a manual or automated facing or trailing setting system.
- Construction enables the use of modern unified setting devices with setting and checking rods.
- Minimal maintenance requirements.

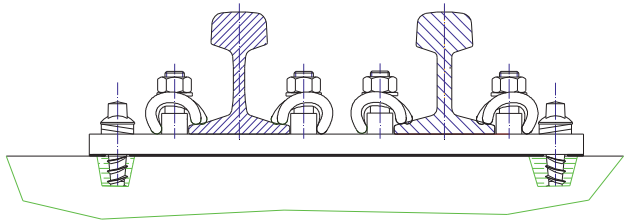


Type	1:6	1:7,5	1:6,6	1:7,5	1:9	1:9	1:11	1:12	1:14	1:18,5
Radius	R150	R150	R190	R190	R190	R300	R300	R500	R760	R1200
Rail	49E1	49E1	49E1	49E1	49E1	49E1	49E1	49E1	49E1	49E1
Gauge	1435	1435	1435	1435	1435	1435	1435	1435	1435	1435
a	12414,5	9956	14312	12611	10523	16615,5	13608,5	20797	27108	32409
b	12414,5	9956	14312	12611	10523	16615,5	13608,5	20797	27108	32409
c	12414,5	12944	15727	12611	16615	16615,5	20000	20797	27108	32409
d	-	2988	1415	-	6092	-	6391,5	-	-	-
e	20748,5	20766	23356	23352	23478	29343	29426	37881	46704	58686
L	24829	22900	30039	25222	27138	33231	33608,5	41594	54216	64818
Alpha	9° 27' 44,45"	7° 35' 40,72"	8° 36' 56,33"	7° 35' 40,72"	6° 20' 24,69"	6° 20' 24,69"	5° 11' 39,94"	4° 45' 49,11"	4° 05' 08,22"	3° 05' 38,61"

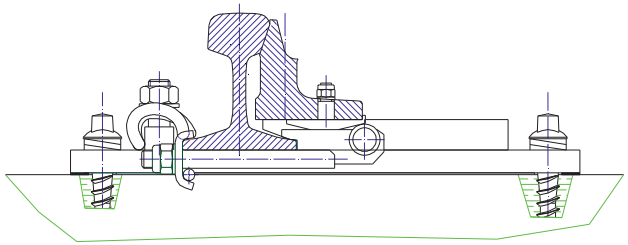
Section in area of guide-rail location



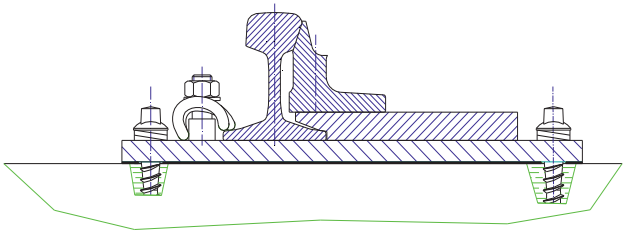
Section in area of switch end



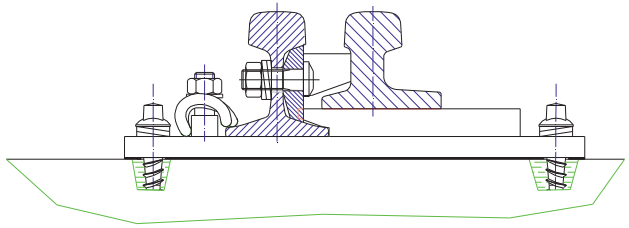
Section of the switch in area of roller idler



Section of the switch at the beginnig of the tongue



Section in area of tongue support



Switches and turnouts

Flat bottom LRT turnouts - T rail

The flat bottom turnouts are designed for high-speed tramway tracks and LRT tracks. Turnouts are manufactured from rails in the profile and the quality required by customer in Left and Right configurations. Modern design results in a high level of safety, silent and environmentally friendly operation, and a long life with minimal maintenance requirements.

Description:

Turnouts are in a standard design that is compliant with VDV regulations. Stock rails are manufactured from 49E1 rails, grade R260, tongues from 49E1A1, grade R260, and guide rails from 33C1 profile. Tongues are placed on sliding phosphate stools and roller idlers SCHWIHAG that are mounted to sleepers. Stock rails are fixed in a flexible manner along the entire length using SkI12KTL and flexible SSb2 braces SCHWIHAG that pass through the internal part of the idlers. Between stock rails and tongues tongue supports and locks are placed to avoid mutual movement. Both turnout branches are electrically wired using copper rope with a conical pin and a M16 bolt. Switch heating is provided by 8 heating elements consisting of resistive conductors in 11 x 5,5 mm oval stainless pipe. Heating elements are fixed to stock rails and tongues by flexible stainless clips and fix braces at the beginning.

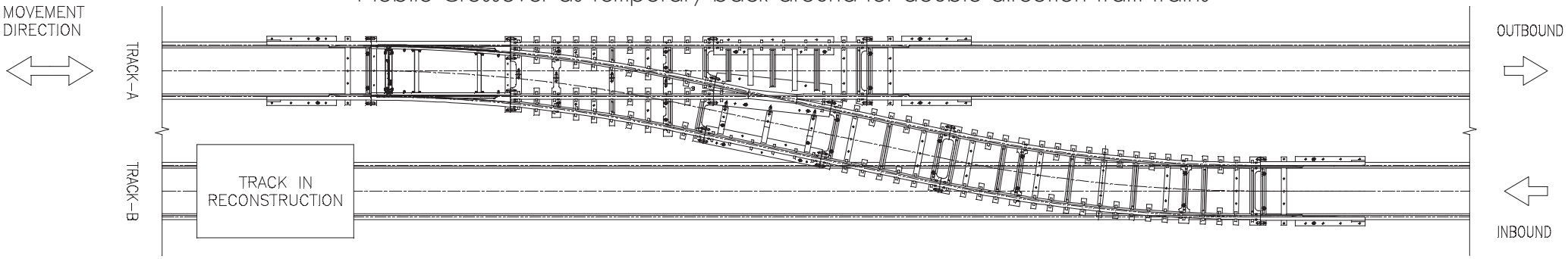
Heating Elements:

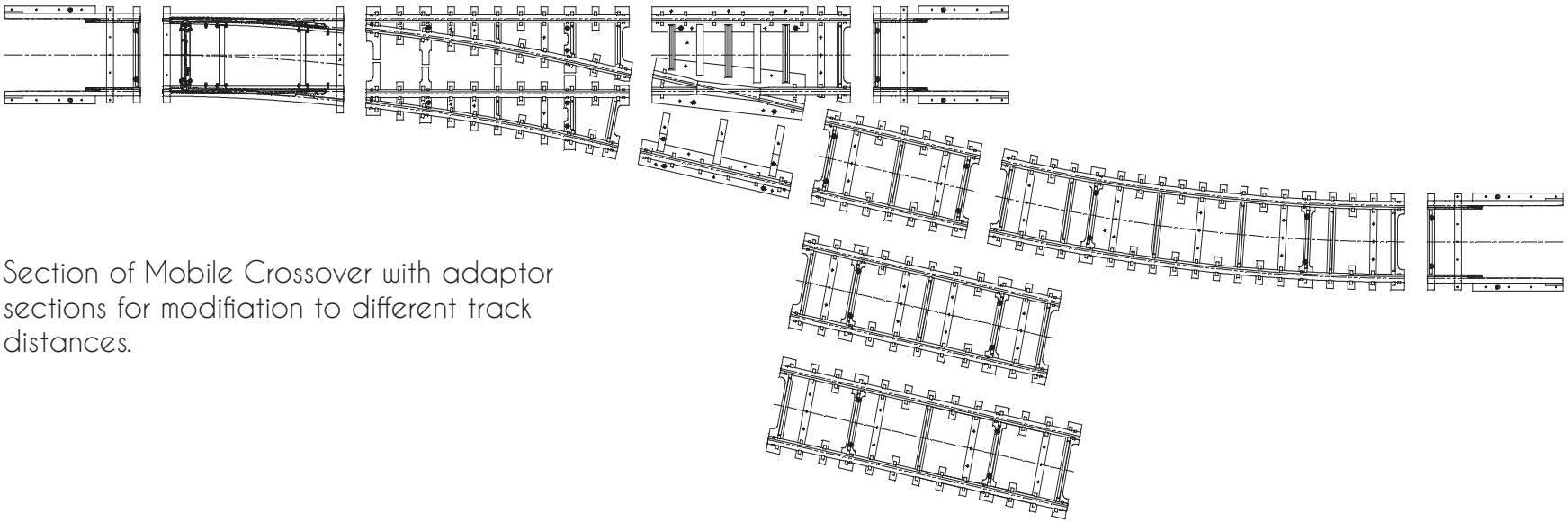
Length	3975 mm
Power supply	600 V DC
Output	300 W/m
Total input	5 kW
Gauge	upon request

Advantages:

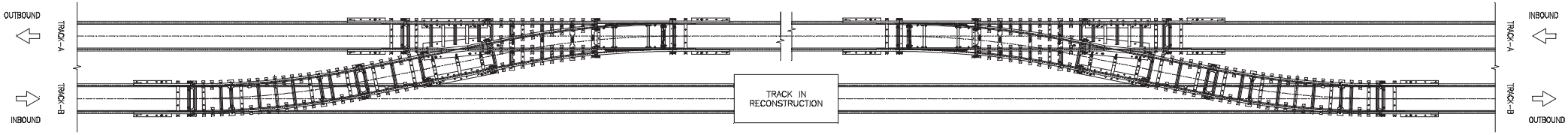
- Safe and smooth passage in a straight or branching direction, in cooperation with a manual or automated facing or trailing setting system.
- Construction enables the use of modern unified setting devices with setting and checking rods.
- Minimal maintenance requirements.

Mobile Crossover as temporary back-around for double direction tram trains





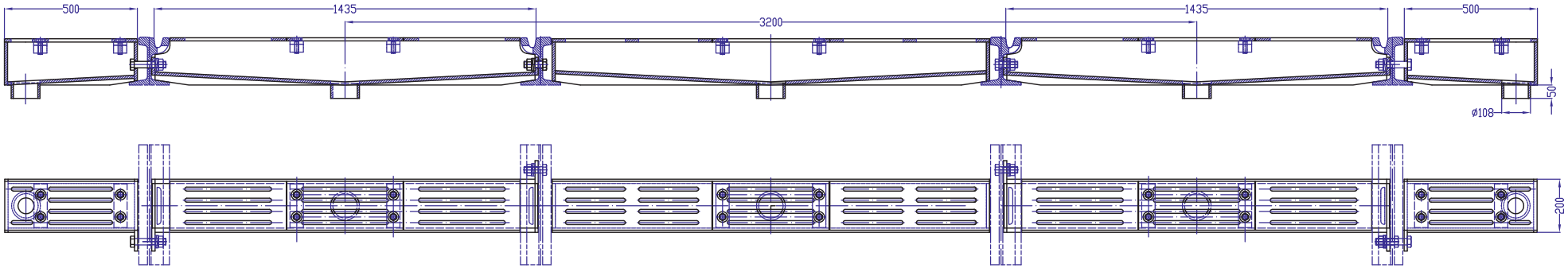
Section of Mobile Crossover with adaptor sections for modifiation to different track distances.



Mobile Crossover - temporary transmission of traffic to one line at reconstruction

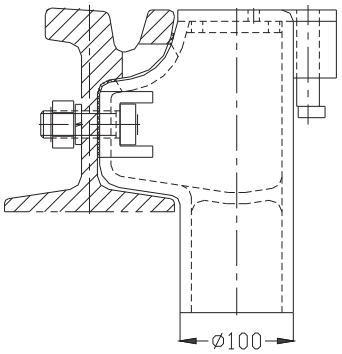
Portable cross over – Californian

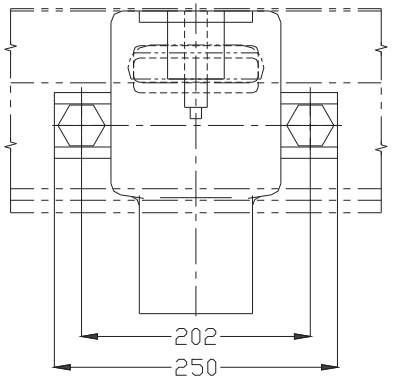
Portable crossover is designed for use at current embedded double line tramway tracks in straight sections without ground waves as a temporary turn-around for double direction trams or for temporary transmission of traffic to one of the lines during track construction.
It is flexible and can easily be modified by adaptor section to different track centers.

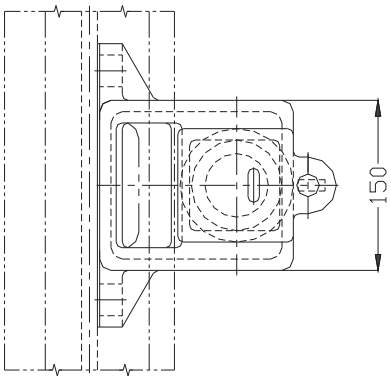


Box drainage into gauge

Solution for tracks where drainage is embedded into grass layer





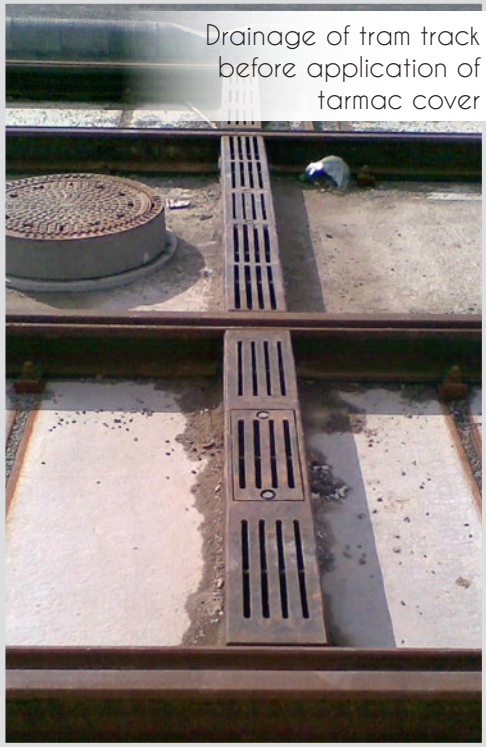


Tramway drainage system

Comprehensive approach to tramway track drainage makes it able to drain water from sections of track passed by traffic or at grassy sections.

Description:

- Complex self-supporting section system – side drainage – in-gauge drainage – intermediate drainage.
- Each section allows independent application.
- In-gauge section allows collection of water from track surface and rail grooves.
- Solid welded construction.
- Easy application to existing track with no need to remove rails.
- Noise-less in road traffic.
- Available in lengths according project needs.
- Easy connection to track central drainage system.



Drainage of tram track before application of tarmac cover

Special groove drainage for grassy sections:

- Casted body with removable cover
- Fitted to rail by two bolts with rubber spacers
- 100 mm outlet for drainage hose

Expansion joints, transition joints and other track components

Pražská strojírna a.s. manufactures:

- Transition joints grooved profile/grooved profile
- Transition joints groove profile/T rail profile
- Expansion joints for common use in tramway tracks with +/- 35 mm expansion travel
- Bridge expansion joints wilt long expansion travel that allow tramway sets to cross from rigid earth bed to bridge and back. Expansion step is given by magnitude of bridge expansion. Common travel is +/- 200 mm.

Rubber insulation

Encapsulation of tramway constructions in elastic insulating antivibration recycled rubber coat.

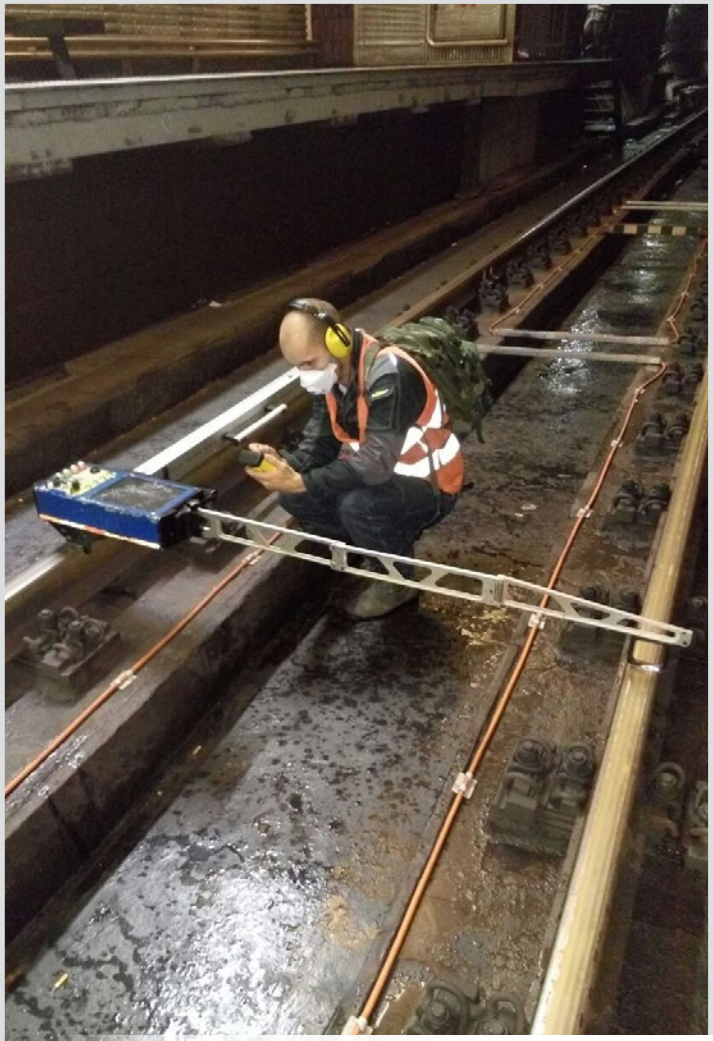
Recycled elastic rubber encapsulation features:

- Absorbs noise and vibrations
- Made from 100% recycled material
- No toxic additives
- Non porous – does not absorb moisture
- Non corrosive
- Does not conduct electricity
- Long lasting
- Electric insulation capability
- Fire retardants available
- 100% ready for track installation

Available conditions:

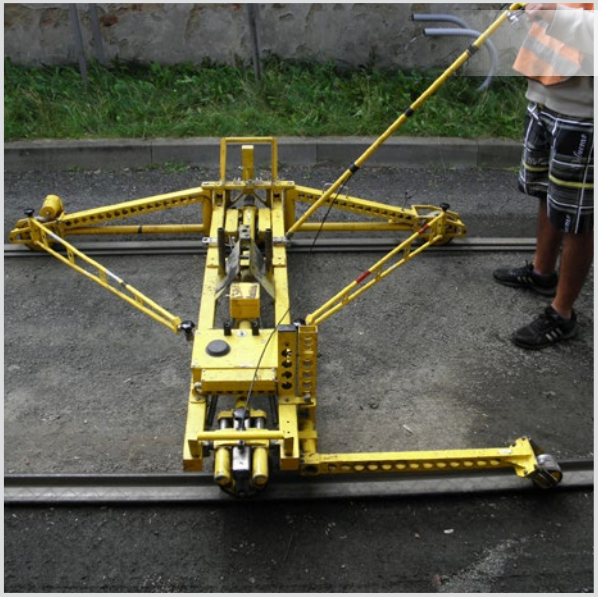
- Full factory pre-installation to ordered constructions
- Full switch and crossing sets including special track components
- Available for all types of construction embedding

Metrology



Rail profile measuring with Railmonitor

Rail surface measuring



„Krab“ instrument for geometry measuring

Service

Metrology

- Supervision of installation proces
- Control measuring before commissioning
- Geometry inspection
- Rail profile measuring
- Rail surface measuring

Welding

- Welding of rail crossing parts
- Weld renewal
- Rail welding
- Rail welding of side wear down

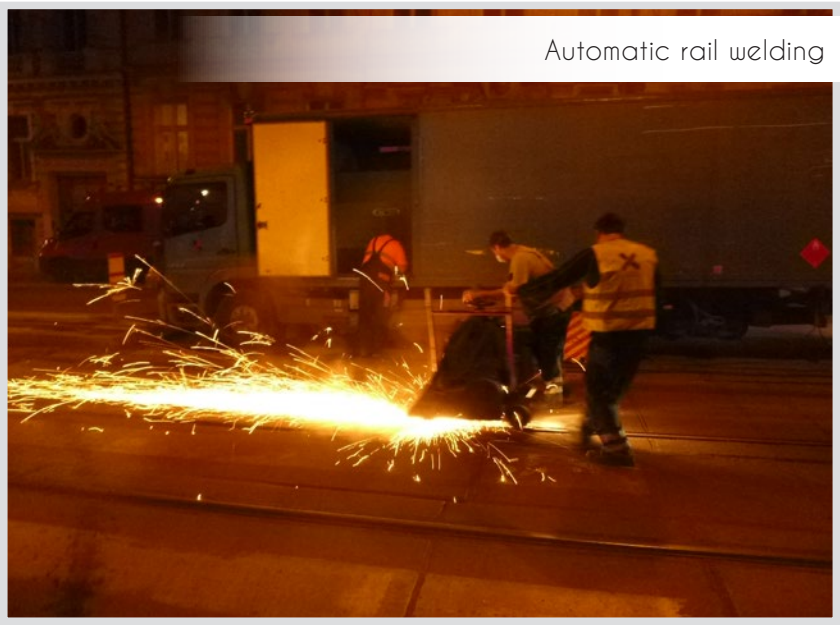
Grinding

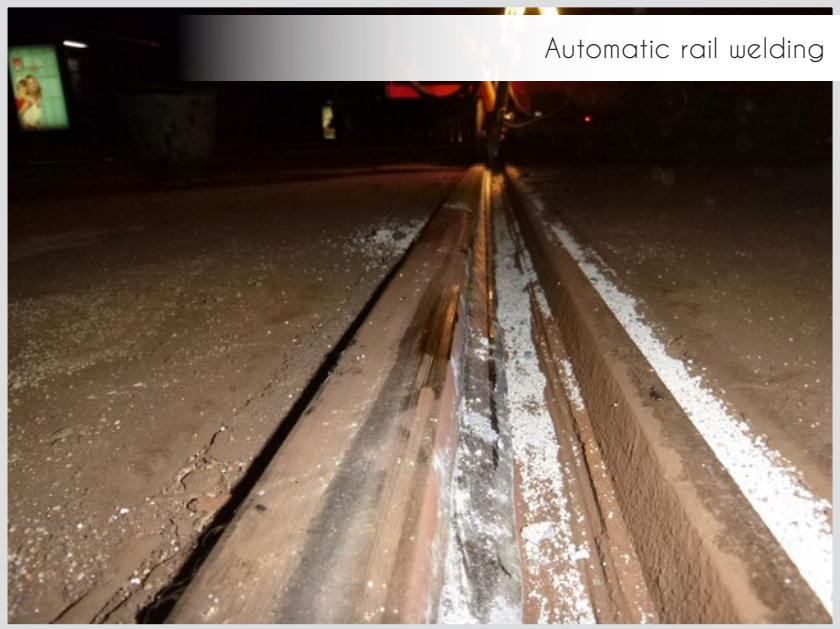
- Grinding of corrugations
- Reprofilation

Welding


Automatic rail welding


Automatic rail welding machine


Automatic rail welding


Automatic rail welding

Grinding

Grinding with BS2 machine

Grinding with BS2 machine

BS2 machine

DOM - ZO 13, s.r.o., Technická inspekce COV
Litomyšlská 1637, CZ 560 02 Česká Třebová, IČ: 252 61 908

Certifikační orgán č. 3148 akreditovaný Českým institutem pro akreditaci, o.p.s. dle ČSN EN 45011 vydává

CERTIFIKÁT

č. ZCV-13-310/C01

kterým osvědčuje, že subjekt

Pražská strojírna a.s.

Mladoboleslavská 133, Praha 9, Česká republika IČ: 601 93 298

prokázal shodu

procesu svařování

s normou – certifikačním schématem

ČSN EN ISO 3834-2:2006

v následujícím rozsahu:

Svařování a navařování součástí kolejového svršku a dílů kolejových vozidel.

Organizační jednotky/provozovny subjektu, spadající do rozsahu certifikace:
Mladoboleslavská 133, Praha 9, Česká republika

Další informace týkající se rozsahu certifikace jsou uvedeny v přílohách tohoto certifikátu.

Platnost certifikátu je podmíněna plněním norem, podle kterých je proces certifikován a plněním ustanovení smlouvy o dozoru č. ZCV-13-310/D01 uzavřené mezi certifikovaným subjektem a certifikačním orgánem.
Nahrazuje certifikát č. ZCV-08-026/C02 ze dne 24.08.2008

Subjekt certifikován od: 29.07.2008
Platnost certifikátu do: 17.05.2018
V Ostravě, dne: 17.05.2013

V 3148

Ing. Stanislav Šimčík
vedoucí Certifikačního orgánu

DOM - ZO 13, s.r.o., Technická inspekce COV
Litomyšlská 1637, CZ 560 02 Česká Třebová, IČ: 252 61 908

Certifikační orgán certifikující produkty č. 3148 akreditovaný ČIA vydává
jako nedílnou součást certifikátu č. ZCV-13-310/C01 ze dne 17.05.2013

Přílohu č.1

Pražská strojírna a.s.

Adresa: Mladoboleslavská 133, Praha 9, Česká republika IČ: 601 93 298

Předepsaný svařovací postup alternativně svařovací (viz EN ISO 3834-4):	Předpis T 1/2 TNŽ / MHD 050715

Metoda svařování (EN ISO 4063)	Nazýmo základního materiálu (CEN ISO/TR 15608)	Rozměry základního materiálu (mm)	Poznámka
111	UIC 900 A	---	Včetně kombinace s UIC 860 V a s 42 2711.5
114	UIC 900 A	návary	V kombinaci s UIC 860 V
135	UIC 900 A	---	V kombinaci s UIC 860 V
136	1	3 až 24	---
71	UIC 900 A	---	Svařování kolejnic
121	UIC 700.0	---	Návar hrany kolejnice
123	UIC 700.0	---	Návar hrany kolejnice

Pracovníci svářečského dozoru: pracovní funkce a kvalifikační stupeň (EN ISO 14731, čl. 6.2)	Jméno, datum narození	Kvalifikace
odpovědný svářečský dozor: A)	**Ing. Antonín Šmíd, 08.12.1950**	IWE/CZ 06002 EWE/CZ 01026
zástupce: B)	**Lada Šimčáková, 26.01.1968**	IWT/CZ 06008 EWT/CZ 01212

Nahrazuje Přílohu č. 1 ze dne 17.05.2013

Subjekt certifikován od: 29.07.2008
Platnost certifikátu do: 17.05.2018
V Ostravě, dne: 23.07.2014

V 3148

Ing. Stanislav Šimčík
vedoucí Certifikačního orgánu

European Scheme for the Education and Qualification of Welding, Joining and Cutting Personnel

EUROPEAN FEDERATION FOR WELDING, JOINING AND CUTTING

Having satisfied the requirements of the EWF Manufacturer Certification System for the following Scheme(s):

Welding Quality Management Scheme EN ISO 3834 Part 2

The Unit: **Pražská strojírna a.s.**
Located in: **Mladoboleslavská 133**
Company: **190 17 Praha 9 – Vinoř, Czech Republic**
is certified for the product(s):

The railways and the rail vehicles.

with the scope of work stated in the attached Schedule

Certificate number and revision status: **CC/CZ 08004 / 2**

Issue date: **07.08.2008**
Renewal date: **07.08.2013**
Date of expiry: **07.08.2018**

Chairman
ANBCC Governing Board
Doc.Ing.Rudolf Dubenský,CSc.

Scheme Manager
Ing.Václav Minařík,CSc.

Czech Welding Society ANB
Czech Welding Society ANB is Authorised National Body for Company Certification by EWF and Acredited Certification Body No.3111 by Czech Accreditation Institute
This certificate is subject to the rules established by EWF for the certification of Companies

EWF PARTICIPATING COUNTRIES

EWF Manufacturer Certification System

SCHEDULE

Extent of validity of EWF Certificate N° CC/CZ 08004 Rev. 2-A

Product standard(s):

Alternative Standard(s) (refer to EN ISO 3834 – 5)

EN 287-1

Welding process (ISO 4063)	Parent material groups (CEN ISO/TR 15608)
111, 114	UIC 900 A
136	UIC 900 A
135	1
71	UIC 900 A
121, 123	UIC 700.0

Responsible Coordination Personnel:

Scheme**	Name	Qualification	Job function and level***
EN ISO 3834	Ing. Antonín Šmíd	IWE/CZ 06002 EWE/CZ 01026	Welding Coordinator EN ISO 14731, 6.2 a)
EN ISO 3834	Lada Šimčáková	IWT/CZ 06008 EWT/CZ 01212	Welding Coordinator EN ISO 14731, 6.2 b)

**Specify EN ISO 3834, EWS or SWS
*** In the case of EN ISO 3834 scheme, the level must be stated in order to comply with EN ISO 14731

ANBCC Governing Board Representative
Doc. Ing. Rudolf Dubenský, CSc.

Scheme Manager
Ing. Václav Minařík, CSc.

Prague Czech Republic

04 July 2014

SDRUŽENÍ DOPRAVNÍCH PODNIKŮ ČR
Drahobejlova 2215/8, 190 00 Praha 9

Č.j.: 11/63/SDP TT/04 evidenční číslo: **11/15**

Sdružení dopravních podniků ČR
na základě výsledků prověrky odborné způsobilosti
pro svářečské práce na součástech kolejového svršku MHD (Předpisu T ½, čl. 8.2.1 až 8.2.5)
vydává

Oprávnění ke svařování součástí kolejového svršku MHD

organizaci: **Pražská strojírna a.s.**
Mladoboleslavská 133
190 17 Praha 9 - Vinoř

v rozsahu: **svařování a navařování součástí kolejového svršku MHD**
metodou: **- řezání plamenem a plazmou**
- svařování a navařování elektrickým obloukem (podle předpisu T ½)

TPS 1: Svařování kolejnic ručně el. obloukem do zápusky v kolejišti se střednědepozitním přídavkovým
TPS 2: Svařování stejnorodých kolejnic ručně el. obloukem v kolejišti bez předehřevu
TPS 3: Svařování litokových kolejnic ručně el. obloukem v kolejišti bez předehřevu
TPS 4: Svařování spětlivové kolejnice ručně el. obloukem do zápusky v kolejišti s předehřevem a zřetelná teplotním přídavkovým
TPS 5: Opravné svařování stejnorodých kolejnic ručně el. obloukem v kolejišti bez předehřevu
TPS 6: Opravné svařování stejnorodých kolejnic ručně el. obloukem v kolejišti bez předehřevu s přídavkovým
TPS 7: Opravné svařování litokových kolejnic ručně el. obloukem v kolejišti bez předehřevu
TPS 8: Přivařovací příčkových a podélných propojek pro zpětné vedení proudu a pomocných zařízení ručně el. obloukem
TPS10: Svařování srdcovek z Mn-ocelí s C kolejnicemi ručně elektrickým obloukem mimo kolejiště
TPS 11: Navařování C - Mn srdcovek ručně el. obloukem v kolejišti
TPS 12: Navařování kolejnic ručně el. obloukem bez předehřevu a s mezivrstvou
TPS 13: Navařování srdcovek ručně el. obloukem v kolejišti bez předehřevu a s mezivrstvou
TPS 14: Navařování srdcovek ručně el. obloukem v kolejišti s nízkodepozitním předehřevem a mezivrstvou
TPS 15: Navařování srdcovek ručně el. obloukem v kolejišti se střednědepozitním předehřevem bez mezivrstvy
TPS 16: Navařování srdcovek poloautomatický hrdlíčkovým drátem s nízkodepozitním předehřevem bez mezivrstvy
TPS 17: Navařování jazyků výhybek ručně el. obloukem se střednědepozitním předehřevem bez mezivrstvy
TPS 23: Svařování kolejnic plamenem s kyslíkem a propanem - Gasmo 5A + Weguesta Flux 960
TPS 24: Svařování kolejnic plamenem elektrickou technologií/demontáž
TPS 27: Navařování srdcovek, jazyků výhybek a kolejnicových části výměn plamenem elektrickou ESAB OK Tubevular 15.60 technologií Pražská strojírna a.s.

Oprávnění je vydáno na základě:
- Oprávnění ke svařování č.j. 11/13 Pražské strojírny a.s. a 12/14 PS - renovace s.r.o. ze dne 06.06.2013
- Žádosti o prodloužení platnosti oprávnění ke svařování ze dne 10.01.2015
- Protokolu o následné prověrce odborné způsobilosti a závěrečné komise ze dne 15.01.2015

Platnost oprávnění do: **15. 01. 2018**

V Praze dne: 02. 02. 2015

Sdružení dopravních podniků ČR
SDRUŽENÍ DOPRAVNÍCH PODNIKŮ ČR
Drahobejlova 2215/8, 190 00 Praha 9
IČO: 41693848

GSI SLV
Hannover

Bescheinigung

zum Nachweis der Eignung für Schweißarbeiten an Schienenwerkstoffen/Oberbauteilen als Schweißwerk nach DB AG RiLi (826.1021)

Dem Unternehmen: **Prazská strojírna a.s.**

wird für den Betrieb **Mladoboleslavská 133**
190 17 Praha 9 - Vinoř

bescheinigt, daß er geeignet ist, Schweißarbeiten für den Geltungsbereich auszuführen in der

Klasse 2

SchweißverfahrenDB Netz AG	Schweißverfahren NE und übrige
	OEV, DEVMF 114+ MAG 135+ E-Hand 111+ UP 121, 123

verantwortliche Schweißaufsichtsperson: Antonin Smid, geb. am: 08.12.1950
IWE

Vertreter: -

weitere Schweiß-aufsichtsperson(en): siehe Anlage 1

Bemerkungen: siehe Rückseite

Bescheinigung Nr.: GSIHa/826/KI2/157/OA1/16

gültig bis: **11.02.2017**

ausgestellt am: 26.04.2016
Dräger

Allgemeine Bestimmungen (siehe Rückseite)

Siegel

Unterschrift

iiw

INTERNATIONAL INSTITUTE OF WELDING

Having satisfied the requirements of the IIW Manufacturer Certification Scheme for the Management of Quality in Welding

The Unit: **Pražská strojírna a.s.**
Located in: **Mladoboleslavská 133**
Company: **190 17 Praha 9 – Vinoř, Czech Republic**
is certified in accordance with

ISO 3834 Part 2 – Doc. IAB - 340

for the product(s):
The railways and the rail vehicles.

with the scope of work stated in the attached Schedule

Certificate number and revision status: **CC/CZ 08004 / 2**

First issue date: **07.08.2008**
Current issue date: **07.08.2013**
Date of expiry: **07.08.2018**

ANBCC Governing Board Representative
Doc.Ing.Rudolf Dubenský,CSc.

Scheme Manager
Ing. Václav Minařík, CSc.

Czech Welding Society ANB
Czech Welding Society ANB is Authorised National Body for Company Certification by EWF and Acredited Certification Body No.3111 by Czech Accreditation Institute

This Certificate is subject to the rules established by IIW for the certification of Companies

iiw

IIW Manufacturer Certification Scheme

SCHEDULE

Extent of validity of IIW Certificate No CC/CZ 08004 / 2 Rev.

Product standard(s):

Alternative Standard(s) (refer to ISO 3834 – 5):

EN 287-1

Welding processes (ISO 4063)	Parent material groups (ISO/TR 15608)
111	UIC 900A
114	UIC 900A
135	UIC 900A
136	1
135	UIC 900A
71	

Welding Coordination Personnel:

Name	Qualification	Job function and level***
Ing.Antonín Šmíd	IWE/CZ 06002,EWE/CZ 01026 CEWE/CZ 01026/4	Welding Coordinator EN ISO 14731 6.2 a)
Lada Šimčáková	IWT/CZ 06008,EWT/CZ 01212 CEWT/CZ 01212/4	Welding Coordinator EN ISO 14731 6.2 b)

*** The level must be stated in order to comply with ISO 14731

ANBCC Governing Board Representative
Doc.Ing.Rudolf Dubenský,CSc.

Scheme Manager
Ing. Václav Minařík, CSc.

Prague Czech Republic

07 August 2013

The standards and documents referred in the certificate and schedule are those valid at the time of certification

Certifications

Pražská strojírna a.s. implemented integrated management systems for the purpose of meeting its responsibilities as accredited tramway track component manufacturer.

Outcomes of this process have also included Quality, Environmental and OHSAS accreditation.

Certificate of Registration

This certificate has been awarded to

Pražská strojírna a. s.

Mladoboleslavská 133, 190 17 Praha 9 - Vinoř, Česká republika

in recognition of the organization's Quality Management System which complies with

ISO 9001:2008

The scope of activities covered by this certificate is defined below

Design, Manufacture, Assembly and Renovation of Rail Structures Including Accessories Thereof, Structural Steel Work and the Systems for the Control of Points. Manufacture and Renovation of Spare Parts for Tramway Rolling Stock. Metal Working

Certificate Number:	Date of Issue: (Original)	Date of Issue:
32557/A/0001/UK/En	29 December 2008	29 December 2013
Issue No:	Expiry Date:	
4	28 December 2016	

Issued by: On behalf of the Schemes Manager

Certificate of Registration

This certificate has been awarded to

Pražská strojírna a. s.

Mladoboleslavská 133, 190 17 Praha 9-Vinoř, Česká republika

in recognition of the organization's Health and Safety Management System which complies with

OHSAS 18001:2007

The scope of activities covered by this certificate is defined below

Design, Manufacture, Assembly and Renovation of Metal Work for Rail Structures and Accesories, Structural Steel and Renovation of Spare Parts for Tramway Rolling Stock.

Certificate Number:	Date of Issue: (Original)	Date of Issue:
33026/B/0001/UK/En	27 December 2012	13 January 2016
Issue No:	Expiry Date:	
2	12 January 2019	

Issued by: On behalf of the Schemes Manager

Certificate of Registration

This certificate has been awarded to

Pražská strojírna a. s.

Mladoboleslavská 133, 190 17 Praha 9-Vinoř, Česká republika

in recognition of the organization's Environmental Management System which complies with

ISO 14001:2004

The scope of activities covered by this certificate is defined below

Designing, Manufacture, Assembly and Renovation of Rail Structures Including Accessories Thereof, Structural Steel Work and the Systems for the Control of Points. Manufacture and Renovation of Spare Parts for Tramway Rolling Stock. Metal Working.

Certificate Number:	Date of Issue: (Original)	Date of Issue:
33026/A/0001/UK/En	25 December 2008	23 December 2014
Issue No:	Expiry Date:	
3	22 December 2017	

Issued by: On behalf of the Schemes Manager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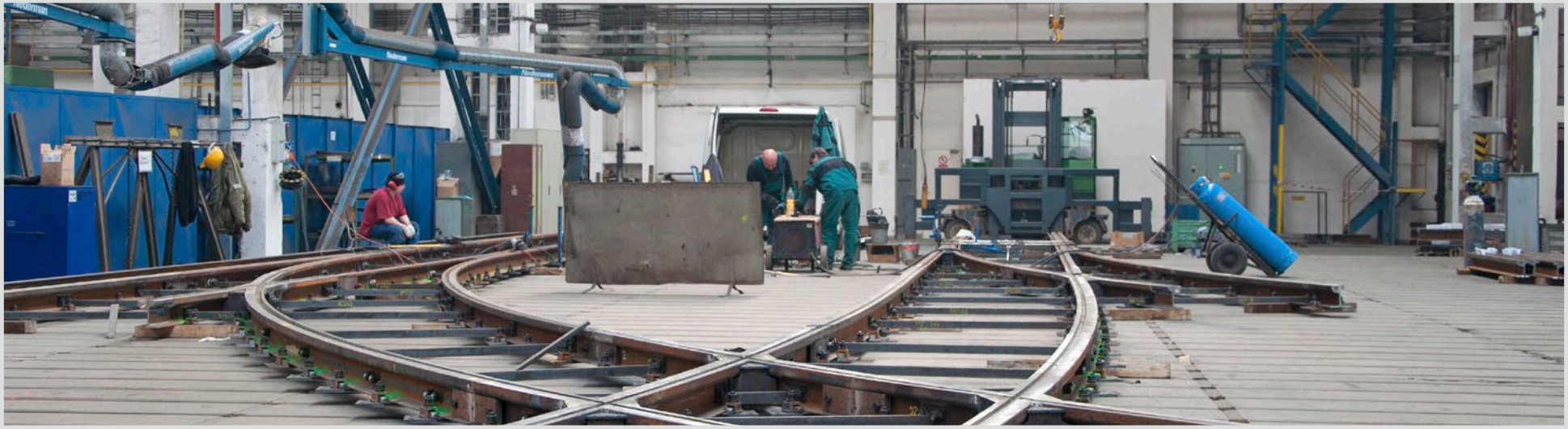
Workshop background



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