



 **V-Tram**

A full range of turnouts for modern tramways

The turnout specialist for all your tramway projects

Vossloh is a world-leading specialist in the design and manufacture of switches for all urban and interurban guided transport systems.

Our teams design and build complete solutions for trams, whatever the technique or rail profile. For maximum comfort, safety, and reliability, we have developed monobloc switches that are machined in the mass, thereby optimizing the total cost of ownership of switches (LCC: Life Cycle Cost).

Thanks to multiple areas of competence and experience, Vossloh has made a major contribution to the development of modern tram systems, which combine in particular:



- ▶ Adaptation to rolling stock
- ▶ Line geometry (NF F52-131 alignment)
- ▶ Rail profile type
- ▶ Various types of laying (EN 13146): concrete sleepers, slab track, etc.
- ▶ Reduction of maintenance
- ▶ Harmonious integration into city centres
- ▶ Compliance with environmental constraints.

We produce all types of turnouts using flat bottom rails or grooved rails: connection turnouts, diamond crossings, single or crossed scissors crossovers, double junctions, combs, adjustment switches, californian turnouts and others, in accordance with the various tangents and usual radii.

Our turnouts adapt perfectly to specific geometrical constraints, permitting tramway traffic movements in optimum conditions of safety and comfort for passengers. They also take account of environmental constraints in order to reduce the noise levels to a minimum to protect the well-being of residents.

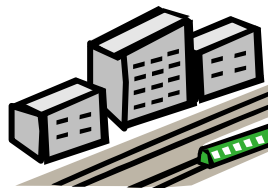
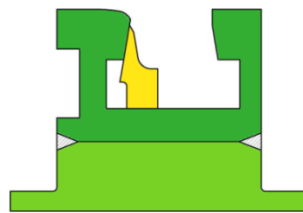
Depending on the network, geographical installation site of the turnout and customer choice, a wide range of solutions is available:

- ▶ Installation of a manual or motorised drive system
- ▶ Building up by arc welding to combat wear and screeching
- ▶ Heating of switches with the possibility of regulation
- ▶ Switch rail temporary locking device
- ▶ Drainage and water flow (EN 124D400)
- ▶ Ground power supply system with no catenary

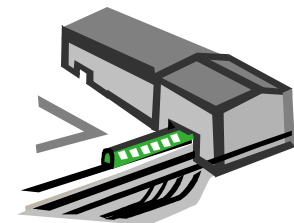
A full range of turnouts to meet all your needs

We recommend to our customers the switch type that is the most suitable for their needs according to use, location on the network and the criteria adopted for maintenance. Grooved rail turnouts are produced using Monobloc technology, which has been developed by Vossloh over the past 34 years.

Depending on the degree of stress undergone by the turnouts, Monobloc version technology is necessary. Switch areas are key points. The crossings of our turnouts are systematically produced in the Monobloc version.



Turnouts
for the line



Turnouts in depots
and low-stressed lines

High profiles:

59R1 (Ri59), 59R2 (Ri59N)
60R1 (Ri60), 60R2 (Ri60N)

Low profiles rails:

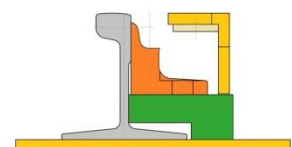
55G1 (35GP10), 55G2 (41GP10)
35GP13, 35GPU, 41GP13
41GPU, 41GPI, 54G2

Extra Low profiles:

53R1 (Ri53R13)
51R1 (Ri52R13)
according to standard EN14811

- To meet all the specifications of the international market, a **mechanically welded version** has been **developed** and adapted to the latest technical improvements.

BASIC
MW-200T



The range of turnouts for tramways from Vossloh very significantly improves comfort and safety, as well as reduces costs related to laying and maintenance works.

A full range of services for all rail projects

We offer a comprehensive range of services:

- ▶ **Project**
Installation studies, alignment recommendations, choice of turnouts
- ▶ **Production**
Pre-assembly, assistance with laying, on-site commissioning and in-track acceptance, inspection of turnouts and signalling systems
- ▶ **Maintenance and after-sales service**
Inspection, diagnostics, maintenance, renovation, technical assessments
- ▶ **Training**
Installation or maintenance of turnouts or signalling systems



Proven experience in European tramway networks, competence that is recognised throughout the world



Vossloh has equipped European tramways and other major networks in the world with turnouts using all technologies and rail profiles.

More than 150 cities across all countries of the world ...

Austria, Argentina, Australia, Belgium, Bulgaria, Canada, China, Czech Republic, Egypt, Finland, France, Germany, Hong Kong, India, Italy, Great Britain, Greece, Luxembourg, Mexico, Morocco, Netherlands, Norway, Philippines, Poland, Portugal, Qatar, Slovakia, Spain, Switzerland, Sweden, United States etc.