INCREASED TRACK PERFORMANCE

Excellence in Rail Welding

The portfolio

All questions, starting with definition of the proper welding procedure to the exchange of the parts or the whole track can be covered by Railway Systems.

That said, Railway Systems is capable of providing products and services for the whole Life Cycle of any rail or switch product.

With our experts in rail welding, we are your partner in training and consulting, to get the best track performance possible.

The customer benefit

- For the first time in history, it is possible to get the full portfolio from one company, from one partner.
- One customer, one partner, one mission:
- To increase track performance. Together.
- Railway Systems experts for any product or question are at your service.

voestalpine
ONE STEP AHEAD.

TRACK PERFORMANCE MANAGEMENT

The portfolio

Within the railway systems, all welding issues are addressed.

Our welding companies, offering all welding services, from MMA joint-welding to flash butt welding, Railway Systems can offer the full portfolio of rail welding.

Not only services in track, but also the training and consulting in the field of rail welding is covered.

The customer benefit

» Integrated welding solutions from the rail and switch producer
» Deposit welding of grooved rails and switches
» Stick and filler wire joint welding of rails
» Flash butt welding of rail strings and switches
» Aluminothermic welding of rails and switches
» Grinding and milling
» NDT
» Training and Consulting

WELDING IN TRACK – BEST PRACTICE

Repair welding of Manganese crossings

Manganese steel is used, amongst others, preferably in track, because it becomes harder as a result of the stress, which has a deleterious effect on the components
If the components are well-maintained, the life expectancy can be increased by factor of 3 (compared to conventional points)
Manganese steel is easy to weld, but has a very high thermal expansion coefficient due to its microstructure with low thermal conductivity.

The life cycle of manganese steel components can be extended with good maintenance. Components of manganese steel have low-wear, but are not wear-free.

If, however, a welding process is necessary, a special procedure must be followed. With arc welding, the welder has the possibility of precisely controlling the energy supply into the weld metal. This is done by using thin electrodes (welding with cored wire is also possible). The welding consumables are melted with the lowest current specified by the welding additive manufacturer (care must be taken, however, to ensure that no binding defects occur).

The welding layers are in a line-up structure, max. 100 mm long, and additionally cooled with water.

Deposit welding for grooved rails

The welding prolongs the life cycle of the rail and switch point components by the original operational profile being restored.

Furthermore, some more improvements:

Reduction of operational noise
Improvement of driving comfort
Extension of the wheel LCC due to improved wheel-rail contact

After locking the line and inserting a securing post, the extended groove rail is pre-ground in the first step to produce a clean machining surface.

Subsequently, one or more welding layers are applied using the deposit welding automat. The settings of the deposit welding automat must be adjusted according to the ambient conditions (temperature, steel grade of the rail, ...).
The minimum length of the welding area must be 10 m, so that the rail has sufficient cooling time between the individual welding layers.

After welding, the rail is ground with a hand-guided grinding machine. In the case of edge welding, e.g. the rail flank is ground first, followed by the driving surface and then finally the driving edge.

Finally the track gauge is measured, then the route is released for traffic again.