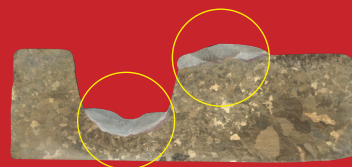


Unique turnout resurfacing technology*



* PATENTED BY JINPO PLUS & KMT INTERNATIONAL, CZECH REPUBLIC

**RAIL
HOPPER**™

Five reasons why to choose our technology



Rail Hopper

1

Comprehensive resolution of rail resurfacing with technological background allowing repair work independent of external power supply.

2

Multiple cost reduction of rail resurfacing and the possibility of repeated repair.

3

New patented technology of submerged arc welding without preheating.

4

Weld hardness corresponds to that of the rail. In addition, higher hardness can be achieved, if required.

5

Any rail surface can be repaired while the geometric shape of original rail is kept.

Certificate of the Czech Welding Institute

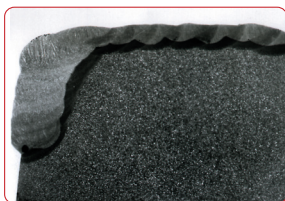


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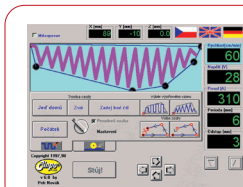
Comprehensive resolution of the rail resurfacing problems - **this is what we offer**

1 Technology

The flux-cored welding technology has been designed for rail resurfacing, characterized in that welding is carried out without preheating and the weld hardness corresponds to that of the base material. As per the operation requirements, even higher hardness can be achieved. Providing welding parameters and combination of additive material and flux are given, highly efficient reconstructions of rail turnout components can be carried out. Repairs can be done by welding of worn rails on the top and side surfaces, in curves and straight sections of any length, while keeping the original geometric shapes of rail crown, high quality of weld layer of parameters close to those of the base material being taken for granted. It is a continuous process with the minimum risk of human factor error input. The equipment and new technology have been tested successfully both in laboratory and have proved to be worthy in operation.



Macrostructure of top and side rail weld



Trajectory setting on touch screen & resulting weld deposit

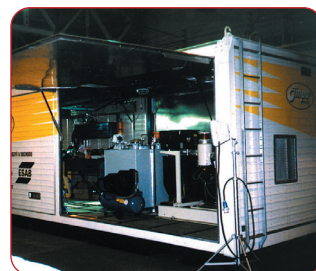


2 Trolley design

The trolley is equipped with the welding head moving in longitudinal and cross direction based on digital positioner impulses controlled by microprocessor. By synchronizing both motors (cross and longitudinal), the welding head can oscillate according to a given trajectory. This is used for repairs of surface defects of turnout components and rail crowns. The trajectory is given by nodal points (32,000 as a maximum). The nodes copy the shape of the original component. The welding head can be set in three degrees of freedom which allows for very precise and quality welding irrespective of the type, shape and scope of the rail defects. Using the supplementary equipment, graphic reports of welding parameters time behaviour can be recorded.

3 Technical background

A comprehensive resolution of technical equipment in the form of mobile container allows for concentrating of all needed technology into a closed compact unit. After the container has been transported to the worksite (on the platform, undercarriage, wagon, etc.), repair work can be carried out independently of the external power supply.



Mobile container with accessories



Mobile container at site

Technical data

Welding trolley

dimensions:	2600x1550x1400 mm
weight:	148 kg
max speed (longitudinal):	550 cm/min
max speed (cross):	250 cm/min
max oscillation width:	226 x 1500 mm
Welding equipment:	90 mm

Welding equipment

max welding current:	630 A
welding wire diameter:	1,6 - 4,0 mm
wire feeding speed:	9 m/min
wire weight, max:	30 kg
flux tank volume:	10 l
vertical slide motion:	90 + 50 mm
horizontal slide motion:	330 mm
pressure air for flux recycling:	4 at 175 l/min, 5 at 225 l/min, 6 at 250 l/min

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