COMMON MONOBLOCK CROSSING
"EHZ CENTRO MN13" PRE-HARDENED

Description
The complete central part of the crossing is cast in one block from high-manganese steel. This part corresponds to a monoblock crossing, with the only exception of the length of the fishing table. Closure rails are flash-butt welded to the four ends of the central block using a special flash-butt welding technique (intermediate piece welding). The bearing surfaces (seat of the plates) as well as the complete area of the running and head surfaces are milled and/or planed. The thus achieved manufacturing accuracy facilitates optimal wheel overrun and interchangeability of crossings on existing sets of plates.

Advantages
» Can be thermit welded into the track
» Requires low maintenance (no bolting)
» Excellent wear resistance through work-hardening process of the high-manganese steel during operation
» Optimised wheel overrun
» Guaranteed interchangeability
» Can be used for curved turnouts
» Repair and built-up welding possible without pre-heating
» Suitable for all types of rail fastenings
» Reduced maintenance expenditure, due to pre-hardened running surfaces

Materials and Quality inspection
» Rail in line with rails steel within turnout
» Crossing: High-manganese steel (13% Mn) according to EN 15689
» Visual and geometric check
» Penetration test: Flash-butt weld
» Radiography test: Prototypes

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EXPLOSIVE PRE-HARDENING OF RUNNING SURFACES

Description
Process for increasing the surface hardness of manganese crossings. The hardness of the entire running surface of the crossing is raised through a targeted explosion hardening. In the area of the running surfaces and running head, blasting mats are placed and detonated. Through this procedure, the high-manganese steel is subjected to work-hardening, which corresponds in principle to the work-hardening process during train operation. This explosive hardening provides in advance some of the work-hardening which occurs during train operation and increases the hardness in the wheel contact area to 321 - 350 HB, depending on the requirement. As this procedure is applied not only in the overrunning area but the whole length of the crossing, a constant hardness curve is guaranteed.

Added value
» Particularly in case of heavier loads, work-hardening of high-manganese steel can lead to premature deformations in the overrunning area, which can be prevented by this procedure.
» Significant improvement of wear resistance

Quality Inspection
» Visual and geometric check
» Penetration test - crack test: Complete running surface