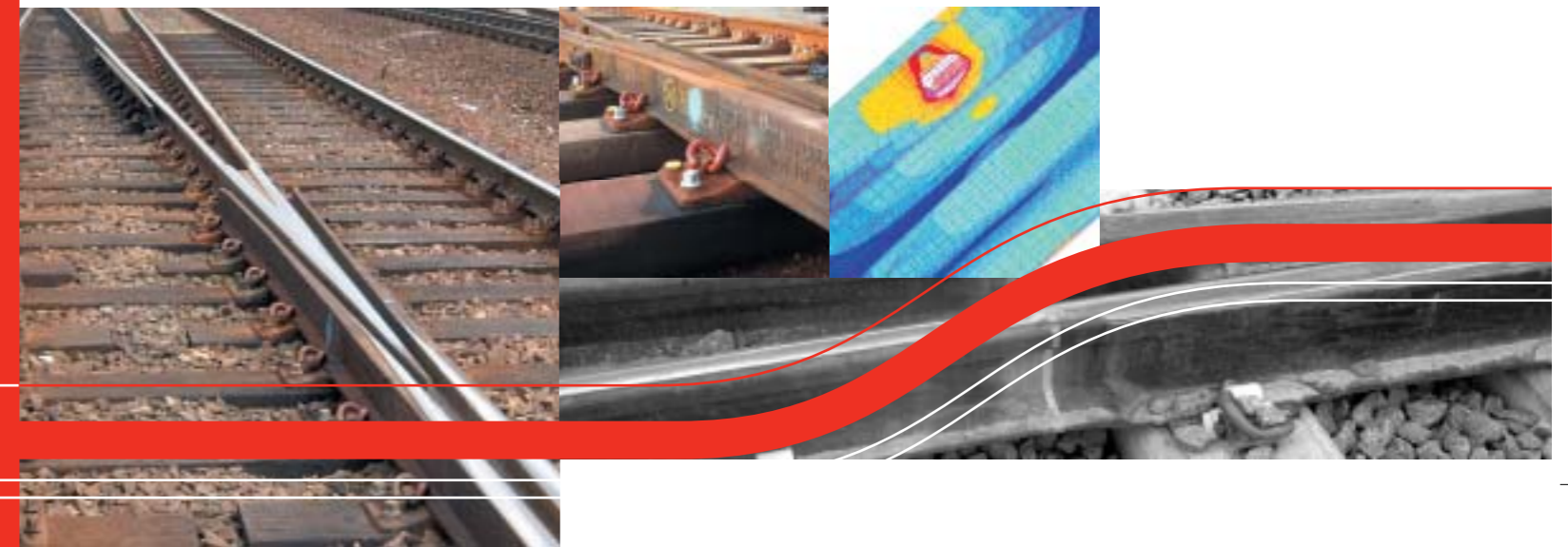


## Range and Application

Angle	Straight Vee (Splay)	Curved Vee (Splay)	LHPW	RHPW	DPW
1 in 9.25	■	■	■	■	■
1 in 10.75	■	■	■	■	■
1 in 13	■				
1 in 15	■				
1 in 18.5	■				
1 in 21	■				
1 in 24	■				
1 in 28	■				

# BS113A Weldable Cast Manganese



**Vertex**™ Crossing



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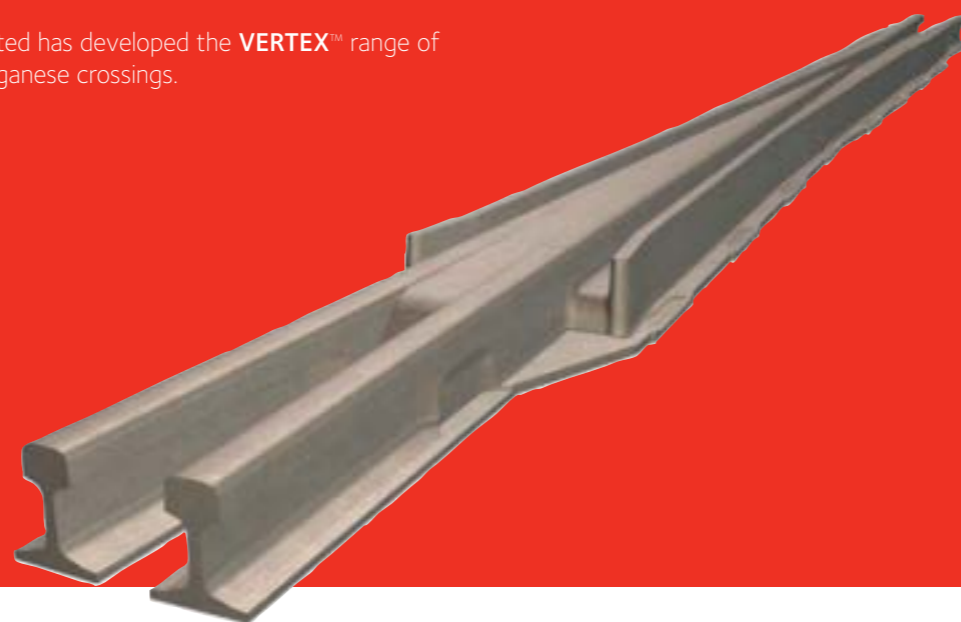
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# Vertex™

/ˈv :teks/noun (plural-tices/-t si:z/or -texes) 1 highest point; top, apex. 2 meeting-point of lines that form an angle.

As part of our ongoing programme of product development and in response to Network Rail's policy which specifies that cast manganese crossings installed in Track Categories 1A, 1 and 2 lines above 55mph will have weldable legs and will be welded in.

Corus Cogifer Switches and Crossings Limited has developed the VERTEX™ range of BS113A fully weldable cast 11-14% manganese crossings.



The VERTEX™ crossing is manufactured within the Vossloh Cogifer Group of Companies who have been making cast manganese crossings for the European and Worldwide railway industry for over 50 years. Around 2000 cast crossings with weldable legs are made each year to suit a wide variety of track geometries and conditions.

This technology is now available to the UK rail network through Corus Cogifer Switches and Crossings in the form of the VERTEX™ 113A crossings.

The VERTEX™ 113A is specifically aimed at the maintenance market. Corus Cogifer also supply a growing range of approved (cert PA05/1027) crossing angles to suit the new RT60 specification for layout renewals.

## Technical Development

The VERTEX™ crossing is manufactured and tested in accordance with the latest Network Rail line specification RT/CE/S/012 which calls for higher levels of quality and resistance to fatigue. The crossing has been designed using sophisticated finite element modelling techniques to ensure extended crossing life cycle and adherence to Network Rail's current specifications and standards.

Like the successful RT60 equivalent crossing and other crossings manufactured for the passenger freight applications, the VERTEX™ crossing uses Cogifer's own double flash-butt welding technology to form a rigid tri-metallic weld between the manganese steel and the adjoining rail leg extension.

The welding process is carried out in specialist factory conditions using modern welding flash-butt welding technology and processes which ensure perfect alignment of the welded joints and adherence with the Network Rail welding specification RT/CE/S/001. The welded joints have been successfully fatigue tested in laboratory conditions to Network Rail requirements and are now approved for use in the UK.

## Extended Life Benefits

Welded leg cast manganese steel crossings have already been shown to offer operational work hardening leading to increased life span and lower life cycle cost. Now as a result of the data obtained from the finite element analysis work carried out the internal design of the VERTEX™ cast crossing has been optimised to provide a considerably longer fatigue life span than those currently in service in the UK. The external design of the crossing has also been enhanced to optimise the wheel transfer, thereby improving safety and increasing passenger comfort.

Other benefits of installing weldable cast manganese crossings are also clear as evidenced by the reduced levels of maintenance required and the elimination of fishplated rail joints which reduces track circuit failures and improves ride safety and comfort.

## Product Range & Flexibility

The crossing has been developed to act as a maintenance replacement to an already extensive range and variety of cast manganese crossings in service in the UK. The decision was taken that the optimum footprint for the casting should closely reflect the cast manganese monobloc crossings shown in the Track Design handbook (RT/CES/049). A specialist approach to the design of the patterns was taken which like the RT60 cast crossings allows for splay, left/right hand parallel wing and double parallel wings to be provided on some crossing angles.

The highly ductile nature of austenitic manganese steel allows the crossing to be cold pressed during the manufacturing process to suit a varying range of track alignments.

The welded legs on the crossing can also be manufactured to suit specialist requirements for curvature and length. The leg extension pieces can also be drilled or pressed to accommodate 4 or 6 hole insulated joints and twists offering increased flexibility in choice of casting.

The initial phase of the crossing development has been focused on producing a range of common (acute) crossings which reflects the predominant angles and types of crossings currently in service in the UK. This range of crossings will be continuously expanded to meet the developing requirements of the rail industry.