

DIN EN 16273:2015-03 (E)

Railway applications - Track - Forged rail transitions

Contents		Page
Foreword		4
Introduction		5
1 Scope		6
2 Normative references		6
3 Terms and definitions		6
4 Information to be supplied for approval		8
4.1 By the purchaser		8
4.2 By the manufacturer		8
5 Approval of the manufacturer		8
6 Requirements for the forging process		9
6.1 General		9
6.2 Forging parameters		9
6.3 Post heat treatment		9
6.4 Profile finishing		9
6.5 Cutting to length		9
6.6 Identification		9
7 Procedure approval		9
7.1 General		9
7.2 Test specimen preparation		10
7.3 Number of specimens		10
7.4 Non-destructive approval tests		10
7.4.1 Geometry and dimensions		10
7.4.2 Visual inspection		13
7.4.3 Surface finish		13
7.4.4 Dye penetrant (DPI) or magnetic particle inspection (MPI)		13
7.4.5 Ultrasonic testing (UT)		13
7.5 Destructive approval tests		14
7.5.1 Hardness distribution		14
7.5.2 Switch rails: hardness distribution in the rail head		16
7.6 Test report		18
7.7 Validity of approval		18
8 Production tests		18
8.1 Switches		18
8.1.1 General		18
8.1.2 Geometry and dimensions		19
8.1.3 Hardness testing		19
8.2 Transition rails		20
8.2.1 General		20
8.2.2 Hardness		20
Annex A (informative) Ultrasonic testing		22
A.1 Reference line (DAC) generation - reference block		22

A.2	Reference line (DAC) generation and acceptance criteria	23
Annex B (informative) Documentation of approval tests	24	
B.1	Forged switch rails	24
B.1.1	General information	24
B.1.2	Geometry and dimensions	24
B.1.3	Dye penetrant (DPI) or magnetic particle inspection (MPI)	27
B.1.4	Ultrasonic testing (UT)	27
B.1.5	Hardness distribution on the surface	28
B.1.6	Test results of hardness distribution on the rail head	28
B.1.7	Test results of hardness distribution on the rail foot	30
B.2	Forged transition rails	32
B.2.1	General information	32
B.2.2	Geometry and dimensions	33
B.2.3	Dye penetrant (DPI) or magnetic particle inspection (MPI)	34
B.2.4	Ultrasonic testing (UT)	34
B.2.5	Hardness distribution on the surface	35
B.2.6	Test results of hardness distribution on the rail head	36
B.2.7	Test results of hardness distribution on the rail foot	36
Bibliography	38	