

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