

DIN EN 15624:2010-06 (E)

Railway applications - Braking - Empty-loaded changeover devices

Contents		Page
Foreword		4
1	Scope	5
2	Normative references	5
3	Terms, definitions and symbols	5
3.1	Terms and definitions	5
4	Design and manufacture	6
4.1	General	6
4.2	Functional requirements	7
4.2.1	General	7
4.2.2	Automatic empty-loaded changeover device	7
4.2.3	Pneumatic device characteristics	8
4.2.4	Automatic hydraulic to pneumatic converter	9
4.2.5	Automatic elastomeric to pneumatic converter	9
4.2.6	Components for operation of the manual empty-loaded changeover device	9
4.3	Vibrations and shock	10
4.4	Environment	10
4.4.1	General	10
4.4.2	Temperature	10
4.4.3	Other environmental conditions	11
4.5	Compressed air quality	12
4.6	Service life	12
4.7	Fire behaviour	13
4.8	External appearance	13
4.9	Design requirements regarding pressure stress	13
4.10	Leakage	13
4.11	Interfaces	13
4.11.1	Mechanical	13
4.11.2	Pneumatic	14
5	Materials	14
6	Type tests	14
6.1	General	14
6.2	Individual automatic empty-loaded changeover device type tests	14
6.2.1	Test bench for individual automatic empty-loaded changeover device type tests	14
6.2.2	Sampling for type tests	15
6.2.3	Test requirements	15
6.2.4	Check of physical and geometrical characteristics	16
6.2.5	Leakage	16
6.2.6	Changeover operation - empty to loaded	17
6.2.7	Changeover operation - loaded to empty	18
6.2.8	Response time - empty to loaded	19
6.2.9	Response time - loaded to empty	20
6.2.10	Shock and vibration tests	20
6.2.11	Operation at extreme temperatures	21
7	Routine test and inspection	21

8	Type validation	21
9	Manual empty-loaded changeover device installation validation	22
9.1	Equivalent handle movement	22
9.2	Changeover plate alignment	22
10	Documentation	22
11	Designation	22
12	Identification and marking	23
12.1	Identification plate	23
12.2	Changeover plate for the manual empty-loaded changeover device	23
Annex A (informative) Assessment of an empty-loaded changeover device when fitted to a vehicle		25
A.1	Vehicle assessment - Testing set up	25
A.2	Design acceptance testing set up	25
A.3	Single vehicle static testing	25
A.3.1	Vehicle requirements	25
A.3.2	Test procedures	25
A.4	Running tests	26
A.4.1	General	26
A.4.2	Pneumatic empty-loaded changeover device - Air consumption	26
A.4.3	Pneumatic empty-loaded changeover device - Output signal variation	27
Annex B (informative) Examples of manual empty-loaded changeover device handles and changeover plates		28
Annex C (informative) Test bench diagram		30
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2001/16/EC, as amended by EU Directive 2004/50/EC		31
Bibliography		32