

DIN EN 15611:2023-01 (E)

Railway applications - Braking - Relay valves (includes Amendment :2022)

Contents	Page
European foreword	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Symbols and abbreviations	10
5 Design and manufacture	10
5.1 General	10
5.2 Functional requirements	12
5.2.1 General	12
5.2.2 Minimum output pressure	12
5.2.3 Accuracy of the output pressure and changeover	12
5.2.4 Control signal characteristics (types B1, B2, C1, C2, C1D, C2D, E)	13
5.2.5 Enabling of a change of relay valve ratio during brake application of a relay valve of type B1	14
5.2.6 Prevention of a change of relay valve ratio during brake application of a relay valve of type B2 and a variable load relay valve, types C1, C2, C1D, C2D, E	14
5.2.7 Kinked characteristic of a variable load relay valve (type E)	14
5.2.8 Interaction of a relay valve and a distributor valve	15
5.2.9 Hysteresis	16
5.2.10 Sensitivity	16
5.2.11 Flow	17
5.2.12 Tightness	17
5.2.13 Change of relay valve ratio	17
5.3 Shock and vibration	17
5.4 Environmental conditions	17
5.4.1 General	17
5.4.2 Temperature	17
5.4.3 Other environmental conditions	18
5.5 Compressed air quality	19
5.6 Service life	19
5.7 Fire behaviour	20
5.8 External appearance	20
5.9 Design requirements regarding pressure stress	20
5.10 Interface	20
5.10.1 General	20
5.10.2 Mechanical	20
5.10.3 Pneumatic	20
5.10.4 Electrical	20
6 Materials	21
7 Type tests	21
7.1 General	21
7.2 Type test of an individual relay valve	21
7.2.1 Test bench for individual relay valves	21
7.2.2 Sampling for type tests	24
7.2.3 Test temperature and air quality	24

7.2.4	Procedure for type tests	24
8	In-service assessment	48
9	Designation	48
10	Identification and marking	48
Annex A (informative) In-service assessment		
A.1	General	49
A.2	Test set-up and sampling	49
A.3	Procedure	49
A.4	Pass/fail criteria	49
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of Directive (EU) 2016/797 aimed to be covered		50
Bibliography		51