

DIN EN 14198:2021-07 (E)

Railway applications - Braking - Requirements for the brake system of trains hauled by locomotives (includes Amendment :2021)

Contents		Page
European foreword		4
1	Scope	5
2	Normative References	5
3	Terms and definitions	7
4	Symbols and abbreviations	9
5	Requirements	9
5.1	General requirements of the train braking system	9
5.2	General safety requirements	9
5.2.1	Design principles	9
5.2.2	Fire protection	11
5.2.3	Environmental condition	11
5.3	Requirements of the main brake system	11
5.3.1	General requirements	11
5.3.2	General functions on train level	12
5.3.3	Additional requirements at the vehicle level	18
5.4	"EN-UIC" brake system - based on air brake system	19
5.4.1	Foreword	19
5.4.2	General architecture	20
5.4.3	Additional brake systems	21
5.4.4	Functional requirements at train level	21
5.4.5	Design requirements	35
5.4.6	Brake functions at vehicle level	36
5.5	Direct EP brake control	41
5.6	Additional brake systems	41
5.6.1	Dynamic brakes	41
5.6.2	Direct brake	44
5.6.3	Magnetic Track brake	46
5.7	Brake management	46
5.7.1	Brake blending at vehicle level	46
5.7.2	Manual mode	46
5.7.3	Brake blending at train level	46
5.7.4	Jerk / ramps	47
5.8	Wheel slide protection	48
5.9	Compressed air supply	48
5.9.1	General requirements	48
5.9.2	Capacity	49
5.9.3	Air quality	49
5.10	Enhancement of wheel/rail adhesion	49
6	Performances	50
6.1	General aspects	50
6.2	Performance calculation	51
6.2.1	General	51
6.2.2	Calculations for nominal mode	52
6.2.3	Equivalent response and delay time	52
6.2.4	Calculations for degraded mode	53

6.2.5	Calculations for degraded conditions	53
6.3	Relevant load conditions	53
6.3.1	Locomotives	53
6.3.2	Coaches	53
6.3.3	Wagons	54
6.4	Service braking	54
6.5	Thermal capacity	54
6.6	Adhesion	55
6.6.1	General requirements	55
6.6.2	Emergency brake application	55
6.6.3	Service brake application	55
6.7	Parking brake performance	56
Annex A(normative) Vehicle requirements		57
Annex B(informative) Train related brake performance categories		59
Annex C(informative) Explanation of "proven design" concept		63
Annex D(informative) Corresponding standards EN - UIC		64
Annex E(normative) Brake pipe pressure control system		66
E.1	General requirements	66
E.2	Release position	67
E.3	Service brake application	68
E.4	Emergency brake application	68
E.5	Overcharge function	69
E.6	Quick release function	70
Annex F(normative) Venting performance of Emergency Valves		74
F.1	Purpose	74
F.2	General rules	74
F.3	Test procedure	74
Annex ZA(informative) Relationship between this European Standard and the Essential Requirements of Directive (EU) 2016/797 aimed to be covered		76
Bibliography		80