

DIN EN 16839:2018-02 (E)

Railway applications - Rolling stock - Head stock layout

Contents		Page
European foreword		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
4	Free spaces	7
4.1	General	7
4.2	Berne rectangle	9
4.3	Free spaces for coupling of passenger vehicles	9
4.4	Climb protection	9
5	Buffers	10
5.1	General	10
5.2	Position of buffers on the headstock	10
5.2.1	Distance between buffers	10
5.2.2	Height of buffers above top of the rail	10
5.3	Buffer fixing	11
5.3.1	Vehicles without crashworthy buffer systems	11
5.3.2	Vehicles with crashworthy buffer systems	11
5.4	Interaction coupling/buffer	12
5.4.1	General	12
5.4.2	Mounting of buffers	12
5.5	Requirements to avoid buffer locking	13
5.5.1	Boundary dimensions	13
5.5.2	Calculation of width of buffer heads	14
5.5.3	Verification	16
6	Screw coupling	16
6.1	General	16
6.2	Position of draw gear on the headstock	17
6.2.1	Height of the draw gear above top of the rail	17
6.2.2	Position of the device to hang the screw coupler when not in use	17
6.3	Clearances around the draw hook	17
6.4	Draw gear fixing	19
7	Brake pipe connections	19
8	Pneumatic half couplings	21
9	Electrical connections	21
Annex A (normative) Calculation of the width of buffer heads		27
A.1	General	27
A.1.1	Introduction	27
A.1.2	Comments on the preparation of the formulae in this annex	27
A.1.3	Track	27
A.1.4	Vehicle	27
A.2	Data used in the calculation	28

A.3	Calculation	28
A.4	Return Value	29
Annex B (normative)	Validation of the calculated width of buffer heads by drawing methodology.....	30
B.1	General	30
B.2	Methods.....	30
B.2.1	General	30
B.2.2	Drawing method	32
B.2.3	Simulation Method.....	33
Annex C (informative)	Example of location of rest for unplugged half couplings.....	34
Annex D (normative)	Special national conditions.....	37
Annex E (informative)	Examples for permissible arrangement of brake pipe connections.....	38
Annex ZA (informative)	Relationship between this European Standard and the requirements of EU Directive 2008/57/EC aimed to be covered	48
Bibliography	50

Figures	Page
Figure 1 — Free spaces	8
Figure 2 — Free spaces for coupling passenger vehicles	9
Figure 3 — Buffer and drilling template for wagon	11
Figure 4 — Mounting of buffers with non-metallic insert or head (top view).....	13
Figure 5 — Boundary dimensions and minimum surface of buffer heads.....	14
Figure 6 — Relative position between buffers and draw hook.....	17
Figure 7 — Clearances around the draw hook.....	18
Figure 8 — For information interface of rescue coupler (example) and free spaces	19
Figure 9 — End cock arrangement - 3D-View (example)	20
Figure 10 — End cock arrangement (example)	21
Figure 11 — Electrical connections.....	22
Figure 12 — Electrical power supply connection.....	23
Figure 13 — Electrical connection.....	24
Figure 14 — Electro pneumatic brake connection (EP-Brake)	26
Figure B.1 — The positions of the bogie vehicles in the track.....	31
Figure B.2 — The positions of the other vehicles (non-bogie vehicles) in the track.....	32
Figure B.3 — Buffer head interaction – Drawing method (example)	33
Figure C.1 — Location of rest for unplugged half coupling for brake pipe and main reservoir pipe	34
Figure C.2 — Details of rest (Figure C.1, Item 3) – example.....	35
Figure C.3 — Example of rest used in conjunction as pipe holder	36
Figure E.1 — Permissible arrangement only for vehicles (coaches, vans, wagons) fitted at 1.1.1969 with a continuous brake	39

Figure E.2 — Permissible arrangement only for vehicles (coaches, vans, wagons) fitted at 1.1.1969 with a continuous brake or only a train pipe	40
Figure E.3 — Permissible arrangement of air brake pipe connections for wagons.....	41
Figure E.4 — Permissible arrangement for vehicles (coaches, vans, wagons bearing the marks S and SS) fitted at 1.1.1969 with a continuous brake or only a train pipe.....	42
Figure E.5 — Obligatory arrangement only for vehicles (coaches, vans, wagons bearing the marks S and SS) fitted at 1.1.1969 with a continuous brake	43
Figure E.6 — Permissible arrangement only for vehicles (coaches) fitted at 1.1.1969 with a continuous brake or only a train pipe	44
Figure E.7 — Obligatory arrangement only for vehicles (wagons) fitted at 1.1.1969 with a continuous brake with two cocks at each side	45
Figure E.8 — Obligatory arrangement only for vehicles (wagons) fitted at 1.1.1969 with a continuous brake with one cock at each side for wagons only.....	46
Figure E.9 — Obligatory arrangement only for vehicles (wagons) equipped with a continuous brake and where relevant a main feed pipe with a chassis prepared for automatic couplers.....	47

Tables	Page
Table 1 —Track gauge and distance between buffer centrelines.....	10
Table 2 —Height of buffers above top of the rail	10
Table 3 — Standard widths of buffer heads for freight wagon	15
Table 4 — Widths of buffer heads for coaches.....	15
Table 5 — Vehicle specification and valid methodology	16
Table 6 — Distances for the arrangement of cocks.....	20
Table A.1 — Compensation value X and validation.....	29
Table ZA.1 — Correspondence between this European Standard, EU Regulation 321/2013 of the Commission dated 13 March 2013 relative to the technical interoperability specification relating to the sub-system “rolling stock – freight wagons” for rail systems within the European Union, abrogating Decision 2006/861/EC (published in JOUE L 104, 12.4.2013, p.1) and Directive 2008/57/EC.....	48
Table ZA.2 — Correspondence between this European Standard,, the Commission Regulation n°1302/2014 of 18 November 2014 concerning the technical specification for interoperability relating to the ‘rolling stock locomotives and passenger rolling stock’ of the rail system in the European Union (published in the Official Journal L 356, 12.12.2014, p.228) and Directive 2008/57/EC.....	49