

Railway applications:

HARTING connectors meet new fire protection standard



The standard EN 45545-2 “Railway applications - Fire protection on railway vehicles” means that, for the first time, a mandatory European requirement for the fire behavior of components and materials used in rail vehicles is now in place. The standard also takes into account installation situations.

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The new standard specifies test methods and limit values and establishes requirement sets (R1 to R26) for components. Hazard levels HL1 to HL3 indicate the testing severity.

Small electrical components like electronic connectors must demonstrate a material certification rating of “V 0”, which represents very low flammability. No obligation to demonstrate certification exists for flammable materials under 10g in weight unless they are installed adjacent to components for which no certification exists. In such cases, the requirements depend on grouping rules. HARTING plastic housings and inserts in connectors fulfill “V 0” requirements.

Depending on the installation situation, the same requirements may be in effect for heavy connectors as for the switch cabinet on which they are mounted. If the cabinet wall acts as a fire resistance zone, depending on its size the cabinet must exhibit a fire resistance of E10 or E15. The number represents the minutes that a connector must withstand as a physical barrier in case of fire. If the requirements are fulfilled, the components in the interior are exempt from the obligation to demonstrate certification.

HARTING housings in the Han® B, Han® M and Han® HPR series meet the requirements of E15. Most HARTING housings even resist fire for more than 30 minutes. Additionally, their surface coating meets the requirements for flame spread.

For the materials in connectors, R22/R23 are the maximum applicable requirement sets. The sets prescribe the parameters, procedures and limits for tests. Specifically, R22/R23 mandate tests and limit values for oxygen content, smoke density and toxicity. The polycarbonate used by HARTING in its connectors and special electronics products conforms to the limit values. ■

➔ IN BRIEF

- EN 45545-2
- Uniform pan-European requirements
- HARTING products meet the strictest requirements



Model Class

Operating Class	N: Standard vehicles	A: Vehicles for automatic drive operation which do not have trained emergency personnel on board	D: Double decker vehicles	S: Sleeper car and couchette car
1	HL1	HL1	HL1	HL2
2	HL2	HL2	HL2	HL2
3	HL2	HL2	HL2	HL3
4	HL3	HL3	HL3	HL3

Test Method	Parameter	Unit	Internal	External	
Oxygen index	EN ISO 4589-2	OI	%	R22	R23
Smoke density	EN ISO 5659-2	Ds max.	No unit	R22	R23
Smoke toxicity	NF X 70-100-1/-2	CITNLP	No unit	R22	R23

Test Method	Parameter	Unit	Threshold (R 22)			HARTING (polycarbonate)
Oxygen index	OI	%	HL1: 28	HL2: 28	HL3: 32	R22, R24 = HL3
Smoke density	Ds max.	No unit	HL1: 600	HL2: 300	HL3: 150	R22 = HL3
Smoke toxicity	CITNLP	No unit	HL1: 1,2	HL2: 0,9	HL3: 0,75	R22 = HL3