

Selection & use of CPR Classified Cables

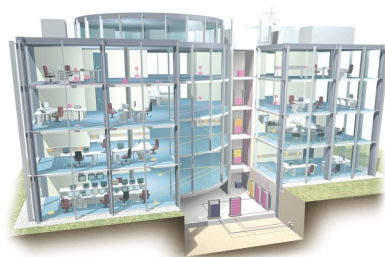
The selection and use of classified cables should comply with European and national standards. In the UK, BS6701 states;

5.1.3.1 Fire performance of telecommunications cables

For new installations and the refurbishment or extension of existing installations, cables installed in the spaces bounded by the external fire barriers of buildings and other structures shall meet the following requirements:

- installation cables (as defined in Clause 3) shall, as a minimum, meet the requirements of EuroClass **Cca-s1b,d2,a2**, in accordance with BS EN 13501-6;
- all other cables shall, as a minimum, either:
- meet the requirements of EuroClass Eca, in accordance with BS EN 13501-6;
- or • meet the recommended requirements of BS EN 60332-1-2.

However, this is just a guide, as different buildings (e.g. a hospital) and sub areas within a building (e.g. escape routes) will have differing fire safety challenges and require a different level of cable classification[#].



A building's overall risk level can generally be determined by its type and use;

- Low occupancy & difficult evacuation e.g. high-rise buildings
- High occupancy & simple evacuation e.g. schools, theatres, cinemas, malls
- Very High Risk: High occupancy & difficult evacuation e.g. hospitals, airports, tunnels ([#]recommend: Bca cables)

Please contact us to find out more or to discuss your specific application.



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Quick Guide to the Construction Product Regulation (CPR)



Don't gamble with safety!

Find out more about CPR cable fire classifications

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What is the CPR?

The Construction Products Regulation* (CPR) was introduced in 2013. It aims to clarify product performance levels for construction products being sold across Europe (removing technical trade barriers) and make CE marking mandatory for applicable items.



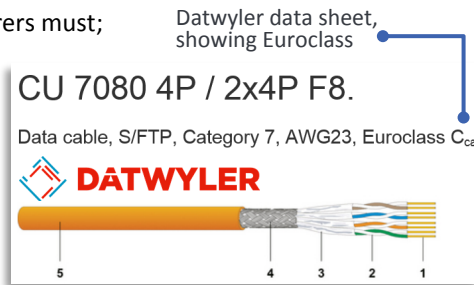
How does it apply to cabling?

For the first time at European level this Regulation stipulates that cables must be classified and marketed as construction products in terms of fire safety behaviour. It covers 'Clear Labelling of Cable Fire Safety Classes' - which applies to energy, control and communications cables intended for permanent installation.

As of the 1st July 2017 only cables tested and classified in accordance with the new standards can be marketed in Europe.

To comply with the CPR cable manufacturers must;

- Define level of performance in terms of reaction to fire (Euroclass)
- Obtain appropriate 3rd party testing by a qualified body
- Provide a Declaration of Performance (DOP)
- Place the required CE label on cable packaging



Datwyler data sheet, showing Euroclass

Fire Performance 'Euroclasses'

The Construction Products Regulation utilises several standards and test methods to determine the Euroclass of a product;

- **Gross heat combustion** – EN ISO 1716
- **Heat release** – EN 50399
- **Flame spread** – EN 50399 & EN 60332-1-2
- **Smoke production** – EN 61034-2
- **Flame droplets** – EN 50399 & EN 60754-2
- **Acidity** – EN 50399 & EN 60754-2

There are seven main classes from A to F (Euroclass Aca is outside the scope of data cables). These are assigned on the basis of heat release and flame propagation criteria. Further fire behaviour classification is made for the additional requirements of smoke production (s), flaming droplets or particles (d) and acidity of combustion gases (a) - see table opposite. These additional classifications may be used to provide more options when specifying products for your infrastructure design.

*"Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC."



The cable's Euroclass is represented by a series of letters & numbers

Heat & Flame

Euro Class	Test procedure	Classification criteria	Additional requirements
A _{ca}	EN ISO 1716	PCS ≤ 2.0 MJ/kg	
B1 _{ca}	EN 50399 (30 kW burner) THR _{200s} ≤ 10MJ and FIGRA ≤ 120 W s ⁻¹	FS ≤ 1.75 m and flaming droplets / particles Peak HRR ≤ 20 kW and H ≤ 425 mm	smoke production and acidity
B2 _{ca}	EN 50399 (20.5 kW burner) THR _{200s} ≤ 15 MJ and FIGRA ≤ 150 W s ⁻¹	FS ≤ 1.5 m and flaming droplets / particles Peak HRR ≤ 30 kW and H ≤ 425 mm	smoke production and acidity
C _{ca}	EN 50399 (20.5 kW burner) THR _{200s} ≤ 30 MJ and FIGRA ≤ 300 W s ⁻¹	FS ≤ 2.0 m and flaming droplets / particles Peak HRR ≤ 60 kW and H ≤ 425 mm	smoke production and acidity
D _{ca}	EN 50399 (20.5 kW burner) THR _{200s} ≤ 70 MJ and FIGRA ≤ 1300 W s ⁻¹	flaming droplets / particles Peak HRR ≤ 400 kW and H ≤ 425 mm	smoke production and acidity
E _{ca}	EN 60332-1-2	H ≤ 425 mm	
F _{ca}	EN 60332-1-2	H ≤ 425 mm	
F _{ca}	does not fulfil Euro Class E _{ca}		



tested according to EN 50399 classified according to EN 13501-6			
S (smoke)	Peak SPR max. value of smoke produc.	Transmission factor tested according to EN 61034-2	TSP _{1200s} total smoke production
s1	≤ 0.25 m ² /s		≤ 50 m ²
s1a	≤ 0.25 m ² /s	≥ 80%	≤ 50 m ²
s1b	≤ 0.25 m ² /s	≥ 60% < 80%	≤ 50 m ²
s2	≤ 1.5 m ² /s		≤ 400 m ²
s3	neither s1 nor s2		



tested according to EN 50399 classified according to EN 13501-6	
d (droplets)	flaming droplets / particles during 1200 seconds
d0	without
d1	with - but no longer than 10 seconds
d2	neither d0 nor d1



tested according to EN 60754-2 classified according to EN 13501-6		
a (acidity)	Conductance (µS/mm)	Acid value (pH)
a1	< 2.5	> 4.3
a2	< 10	> 4.3
a3	neither a1 nor a2	
not stated	= no performance determined	