

Safe cables lead the way.

Our N2XH and N2XCWH cables save lives.



Prysmian
Group

Our LSOH cables protect people and property.



Our N2XH and N2XCWH cables save lives.

In case of a fire in crowded constructions such as hospitals, high-rise municipal buildings and schools, it's crucial to have cables with low toxic gas emission and smoke density in order to facilitate the evacuation process. Our Low Smoke Zero Halogen N2XH and N2XCWH cables are B2_{ca} classified in accordance with the EU Construction Products Regulation (CPR). Hence, a safe choice that won't add fuel to the fire.

N2XH AND N2XCWH

Application

N2XH with copper conductors and N2XCWH with aluminium conductors are both Low Smoke Zero Halogen (LSOH) cables. These flame-retardant cables develop much less and lighter smoke than traditional PVC-cables. And the smoke developed is a lot less toxic.

Owing to the fact that the cables have improved properties under fire, they are recommended for fixed installations in public buildings frequented by large amounts of people, for industrial complexes, electric power plants, transformer stations, municipal facilities, hotels, shopping malls, hospitals, schools, airports as well as underground railways.

MAIN FEATURES

- ✓ CPR class B2_{ca}
- ✓ Low Fire Hazard Cable – limited flame spread and less heat
- ✓ Low Smoke Zero Halogen – less toxic smoke and corrosive acids
- ✓ Approved for high and medium risk facilities
- ✓ Contains our own reliable flame-retardant compound

LSOH-cables	PVC-cables
Reduced smoke formation.	Heavy smoke formation.
Light smoke, easy to find exits.	Black smoke, hard to find exits.
Fewer toxic gases, easier to evacuate.	Lots of toxic gases, obstruct evacuation.
Creates a white harmless powder, spare metals and electronic devices.	Creates hydrochloric acid that destroys electronics and corrodes metals.
Easier to sanitise, shorter production interruption.	Inhibits sanitation, longer break.
Better for the environment, contain no phthalates and dioxin.	Harmful to the environment, contain phthalates and dioxin.

A SAFE AND SOUND CHOICE

In case of a fire there are three critical factors that will influence the possibility to find an escape way: smoke development, visibility and the amount of toxic substances in the air. LSOH flame retardant cables develop much less and lighter smoke than traditional PVC-cables. And the smoke developed is a lot less toxic. All in all, you'll have better visibility and more time to find an escape way in a burning area with LSOH-cables installed – and thus increase the chance of surviving.

A fire often means large economical losses due to damages on electronic devices, machines and buildings. When PVC is burning it develops hydrochloric acid, which penetrates surrounding materials and cause metals to corrode. The acid penetrates and ruin electrical equipment, computers, and machines – including alarms and safety systems. And, the corrosion continues after the fire, causing reinforcement bars in walls, stairs and elevator shafts to disintegrate and collapse long after the fire has been extinguished. Burning LSOH-cables on the other hand create a white harmless powder that minimizes the damages. In addition, the scene of fire will be much easier and less expensive to sanitise, which in turn means that the production can be resumed much faster.

CPR – REGULATES FIRE PERFORMANCE

Since 2017, cables designed for fixed installation within domestic, residential and commercial buildings are subject to the Construction Products Regulation (CPR), covered by the standard EN 50575. All cables sold on the European market must be CE marked and comprise a Declaration of Performance (DoP) including a CPR classification regarding the cables' performance during a fire.

The main goal with the regulation is to increase people's safety inside buildings in case of a fire – and a cables behaviour during a blaze can be pivotal, as they run between rooms and floors as well as above ceilings.

You can always count on the fact that our cables are fully compliant with European CPR requirements. Each cable that we produce comes with a Declaration of Performance (DoP) and carries the CE marking confirming compliance with fire resistance regulations set out in the EN 50575 standard.

Classifications

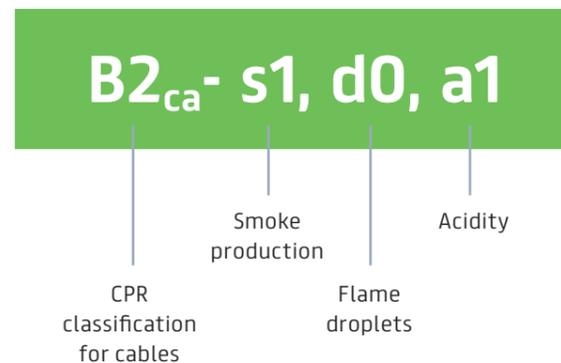
There are seven different classes of fire performance where heat release and flame spread are the main classification criteria:



A_{ca} class defines non-flammable cables (no reaction), whereas F_{ca} class contains cables not fulfilling E_{ca} class requirements (i.e. with undetermined performance).

In addition to how much heat the cable releases and how much flames it spreads, three supplementary classification criteria for classes B_{1ca}, B_{2ca}, C_{ca} and D_{ca}: smoke emissions, flame droplets and acidity.

Overview using the CPR classification for our N2XH/NA2XH as an example:



SMOKE EMISSIONS (EN 61034-2)

- s1** Low smoke emission
- s1a** s1 with > 80% emission
- s1b** s1 with > 60% < 80% emission
- s2** Medium smoke emission
- s3** None of the above

FLAME DROPLETS (EN 50399)

- d0** No flammable drops/particles
- d1** 10 sec. flammable drops/particles
- d2** None of the above

ACIDITY (EN 60754-2)

- a1** Low acidity < 2.5 µS/mm, pH > 4.3
- a2** Acidity < 10 µS/mm, pH > 4.3
- a3** None of the above

EUROPACABLE RECOMMENDATIONS

Taking into consideration many concerns that arose, Europacable letter to the European Commission and Directorate-General for Mobility and Transport, highlights three important criteria for cables used in railway tunnels and other high-risk buildings:

- 1) Cables of class D_{ca} shall not be used, as they – equal to class F_{ca} and E_{ca} – do not meet the requirement for “low fire spread”.
- 2) Cables need to comply with additional classifications s1a, s1b, s1 or s2 to meet the agreed requirement for “low smoke density”.
- 3) Cables need to comply with additional classification a1 or a2 to meet the agreed requirement for “low toxicity”.

You will find more information at:
<https://www.prysmiangroup.com/en/markets/construction-and-infrastructures/construction-products-regulation>



WHAT CABLE GOES WHERE

Buildings can be sorted by usage groups, for which the associated fire risks are the basis for the cable selections. The higher the category to the right is, the higher classification the cable should have:

- occupants' density
- difficulty of escape routes
- complexity for rescue teams to intervene
- vulnerability of the population
- relevance of heritage preservation

Choose the right cable		
Construction	Characteristics	Criterion/Classifications
Railway, metro stations, airports and high-rise buildings	Crowded premises lodging people from all over the world speaking different languages who are not familiar with the fire alarms and escape routes.	High risk B2 _{ca}
Health, rehab and long-term care facilities	Buildings where speed of evacuation is critical, housing people that need assistance and activities that cannot be interrupted (e.g. surgical operations).	Medium risk B2 _{ca} and C _{ca}
Cultural and entertainment facilities	Crowded and often older, buildings not built to enable a quick escape of people. Many times including valuable artefacts needed to be protected from smoke and acid gases.	Medium risk B2 _{ca} and C _{ca}
Offices, schools and recreational premises	Commonly crowded with people with limited knowledge of fire precautions and alarms.	Medium risk B2 _{ca} and C _{ca}
Accommodation facilities	Hotels, motels, tourist villages or B&Bs tending to be crowded with people who are not familiar with the exit ways.	Medium risk B2 _{ca} and C _{ca}
Shopping centres	Buildings designed to hold large numbers of people, often families, who are not familiar with the building's fire alarms and escape routes.	Medium risk B2 _{ca} and C _{ca}
Residential buildings, small markets, shops and restaurants	Facilities harbouring people who lives there and know the escape routes and/or smaller establishments with easy-to-find emergency exits.	Low risk D _{ca}

As recommended by Europacable and in other various European descriptions. More details on www.europacable.eu

TECHNICAL DATA

	N2XH	N2XCWH
Global data		
Type designation	N2XH-0(J)	N2XCWH
Standard	VDE 0276-604	VDE 0276-604
Construction parameters		
Conductor	Copper	Copper
Conductor shape	R (RE – round single wire or RM – round stranded) S (SE – sector single wire or SM – sector stranded)	RM – round stranded SM – sector stranded
Insulation	XLPE	XLPE
Core identification	Colours of cores acc. to VDE 0293-308	Colours of cores acc. to VDE 0293-308
Filler	-	LSOH
Separation tape	-	Flame-retardant tape applied
Inner covering (filling)	Extruded halogen free polymer (LSOH)	Extruded halogen free polymer (LSOH)
Concentric conductor	-	Copper wires in wave form
Outer sheath	Halogen-free (LSOH), flame-retardant compound	Halogen-free (LSOH), flame-retardant compound
Outer sheath colour	Black	Black
Electrical parameters		
Rated voltage	0.6/1 kV	0.6/1 kV
Max. permissible operating voltage AC	1.2 kV	1.2 kV
Max. permissible operating voltage DC	1.8 kV	1.8 kV
AC test voltage	4 kV	4 kV
Cable characteristics		
Cable flexibility	Rigid	Rigid
Min bending radius at inst.	12xD (multicore), 15xD (single core)	12xD (multicore), 15xD (single core)
Silicone free	Yes	Yes
Lead free	Yes	Yes
Chemical resistance	No	No
UV resistance	Yes	Yes
Max. operating temperature	90 °C	90 °C
CPR class	B2 _{ca}	B2 _{ca}
RoHS/REACH compliant	Yes	Yes
Weather resistance	Yes	Yes
Properties under fire		
Flame propagation in single insulated wire or cable	EN 60332-1-2	EN 60332-1-2
Flame propagation in bunched wires or cables	EN 50399	EN 50399
Smoke density	EN 61034-2	EN 61034-2
Halogen-free	EN 60754-1	EN 60754-1
Corrosively of fumes	EN 60754-2	EN 60754-2
Thermal parameters		
Max. permissible temp. at conductor	90 °C	90 °C
Max. short circuit temperature	250 °C	250 °C
Min. temperature at installation	-5 °C	-5 °C
Types of installation		
In air (indoor and outdoor)	Yes	Yes
In channels	Permitted – where there is no water penetration	Permitted – where there is no water penetration
In tubes	Permitted – where there is no water penetration	Permitted – where there is no water penetration



N2XH		
No. of cores × cross-section (mm ²)	Cable diam. approx. (mm)	Cable weight approx. (kg/km)
Round single core		
1×10 R	14.4	322
1×16 R	15.3	395
1×25 R	16.5	504
1×35 R	17.5	610
1×50 R	18.7	747
1×70 R	20.6	975
1×95 R	22.2	1242
1×120 R	23.9	1498
1×150 R	25.7	1786
1×185 R	27.7	2170
1×240 R	30.3	2748
1×300 R	32.7	3346
1×400 R	35.9	4200
1×500 R	39.6	5272
1×630 R	43.6	6686
Round multicores		
3×16 R	24.2	975
3×25 R	26.8	1308
3×35 R	28.9	1629
4×16 R	26.0	1127
4×25 R	28.9	1531
4×35 R	31.3	1928

N2XH		
No. of cores × cross-section (mm ²)	Cable diam. approx. (mm)	Cable weight approx. (kg/km)
4×50 R	34.2	2450
4×70 R	38.7	3336
4×95 R	42.7	4371
5×16 R	27.9	1358
5×25 R	31.1	1865
5×35 R	33.8	2365
5×50 R	37.1	3028
5×70 R	42.2	4119
5×95 R	46.6	5418
5×120 R	51.1	6664
5×150 R	55.9	8073
Sector + Round multicores		
3×35 S / 16 R	29.5	1735
3×50 S / 25 R	31.4	2194
Sector multicores		
3×70 S / 35 S	34.7	2929
3×95 S / 50 S	38.3	3843
3×120 S / 70 S	41.4	4764
3×150 S / 70 S	45.4	5643
4×35 S	30.2	1924
4×50 S	32.7	2431
4×70 S	36.9	3288
4×95 S	40.5	4325

Other configurations available. Cables also available in CPR classification E_{ca}. Contact us for details.



N2XCWH		
No. of cores × cross-section (mm ²)	Cable diam. approx. (mm)	Cable weight approx. (kg/km)
Round multicores		
3×16 R / 16	24.7	1087
3×25 R / 16	26.8	1370
3×35 R / 16	26.0	1259
4×25 R / 16	28.8	1656
Sector multicores		
3×35 S / 16	26.8	1612
3×50 S / 25	29.5	2085
3×70 S / 35	33.5	2864
3×95 S / 50	37.1	3774

N2XCWH		
No. of cores × cross-section (mm ²)	Cable diam. approx. (mm)	Cable weight approx. (kg/km)
3×120 S / 70	39.9	4701
3×185 S / 95	47.9	6964
4×35 S / 16	30.2	2014
4×50 S / 25	33.5	2639
4×70 S / 35	37.8	3591
4×95 S / 50	41.8	4750
4×120 S / 70	45.9	5968
4×150 S / 75	49.9	7098
4×240 S / 120	60.7	11378

Other configurations available. Cables also available in CPR classification E_{ca}. Contact us for details.

Linking the future

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Prysmian Group

Prysmian MKM Kft.

Ph: +361 382 2222

E-mail: infocables-hu@prysmiangroup.com

www.prysmiangroup.hu

Prysmian
Group