With its new Exzhellent Solar range of cables for photovoltaic solar energy installations

GENERAL CABLE IS CONTRIBUTING TO THE DEVELOPMENT OF CLEAN ENERGIES

General Cable is contributing to the development of clean energies with the launch of a new range of cables for photovoltaic solar energy installations. The Exzhellent Solar range has been designed to provide maximum efficiency in these types of installations.

The cables in the Exzhellent Solar range are suitable for a maximum direct current voltage of 1.8 kV, which is the type of current generated by the installation. The range has been designed for the installation's direct current circuits, which run from the photovoltaic panels to the inverter, although they may also be used in alternating current circuits up to a voltage of 0.6/1 kV.
Exzhellent Solar cables have been designed with exceptional specifications to guarantee a minimum useful life of 30 years, even when operating in the extreme environmental conditions undergone by photovoltaic installations, whether they are fixed or mobile, on the roof or form part of the architecture.
There are two basic models:

1. **ZZ-F type** for mobile service, with a class 5 (-F) tinned copper conductor and halogen-free, heat-stable insulation and jacket (Z). The tinned conductor improves connection resistivity, which is crucial because the high number of connections influences the installation's electrical performance considerably.

2. **XZ1FA3Z-K type** for fixed service, with a class 5 copper conductor (-K), reticulated polyethylene insulation (X), halogen-free polyolefin bedding (Z1), corrugated aluminium armour (FA3) and halogen-free heat-stable jacket (Z).

Resistance to extreme temperatures

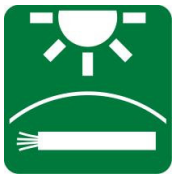
The insulation and jacket materials of Exzhellent Solar ZZ-F cables withstand a maximum conductor temperature of 120º C for 20,000 hours (IEC 60216-1 standard). Such excellent thermal endurance allows the materials to function perfectly despite the high temperatures reached by the solar panels and the surrounding environment when the installation is working at full capacity, with no deterioration or reduction in performance. Exzhellent Solar cables can withstand minimum environmental temperatures of 40º below zero without any impact on their mechanical properties. Their installation and performance in icy environments is therefore guaranteed. This extremely broad range of operating temperatures ensures that the cables perform optimally regardless of the site chosen for the photovoltaic installation.

MAXIMUM: 120 ºC IEC 60216-1
MINIMUM: -40 ºC IEC 60811-1-4

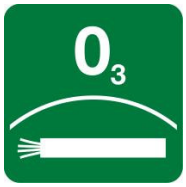
Weather resistance

Exzhellent Solar cables also offer protection against other environmental conditions other than atmospheric temperature. Photovoltaic installations are, by definition, installed in the open air. The materials must therefore be resistant to weather, with changing cycles and occasionally intense contrasts, for a very long period of time. These cables therefore come with a jacket that is highly resistant to the impact of ultraviolet radiation (UVA), which is the most harmful for plastic materials. They may therefore be installed without protection, even in places at high altitude where UVA radiation intensity is considerably greater than at lower levels. The materials are also resistant to the presence of the gas ozone and absorb very little water. These features guarantee proper cable performance even in a combination of the most adverse environmental conditions.

WEATHER RESISTANCE



RESISTANCE TO ULTRAVIOLET RAYS (UV) UL 1581



OZONE RESISTANCE IEC 60811-2-1

WATER ABSORTION RESISTANCE IEC 60811-1-3

Excellent mechanical resistance

The mechanical characteristics of Exzhellent Solar cable jackets provide efficient protection against forces exerted while the cable is being laid and installed, thus preventing possible deterioration of the insulation, which could give rise to incidents in the future. The jacket also guarantees service in the event of incidences that may occur during its useful life, because of its exceptional resistance to abrasion (UNE-EN 50305) and wear (UNE-EN 60811).

Exzhellent Solar XZ1FA3Z-K cables for fixed service also feature corrugated aluminium armour that combines high-resistance to the impact of rodents with a very low cable weight and size. These cables, which run from the connection boxes to the inverters, tend to feature a large section for the evacuation of the energy generated. Their integrity must therefore be guaranteed in order to optimise installation performance, because any incident could render inactive a significant section of the installation and give rise to consequent economic loss.

PROTECTION AGAINST RODENTS

HIGH MECHANICAL PROTECTION

High Safety Cables

The typical structure of large photovoltaic installations involves an accumulation of cables in some zones, particularly at connection boxes. These accumulations can cause overheating and increase the risk of fire. Exzhellent Solar cables therefore comply with all the anti-fire specifications of the High Safety (HS) range of cables. They combine non-flame propagation properties (in accordance with UNE-EN 60332-1-2) and non-fire propagation properties (in accordance with UNE-EN 50266-2-4), and thus minimise both the risk of a fire spreading from one place to another in the installation, and the resulting costs of damage. The risks associated with the toxic effects of combustion of the cable materials are also reduced. These materials are halogen free (in accordance with UNE-EN 50267-2-1), and have both low acid and corrosive gas emissions (in accordance with UNE-EN 50267-2-2), and low smoke opacity emissions (in accordance with UNE-EN 61034-2).

NON-FIRE PROPAGATION

NON-FLAME PROPAGATION

HALOGEN-FREE

LOW SMOKE EMISSION

LOW ACID AND CORROSIVE GAS EMISSION

The High Safety features minimise risks for people and equipment in the event of fire; both those hazards associated with propagation, and the harmful effects of the combustion of their materials.

The magnificent features of General Cable's Exzhellent Solar cables ensure maximum efficiency in these types of photovoltaic installations, as they guarantee a useful life of 30 years and optimum integrity of service in the installation. Their launch is yet another example of General Cable's commitment to innovation in power cables through its determined support for environmental respect and renewable energies. It is also another step forward in the company's policy of social responsibility, by providing technology to contribute towards the sustainable development of society.

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