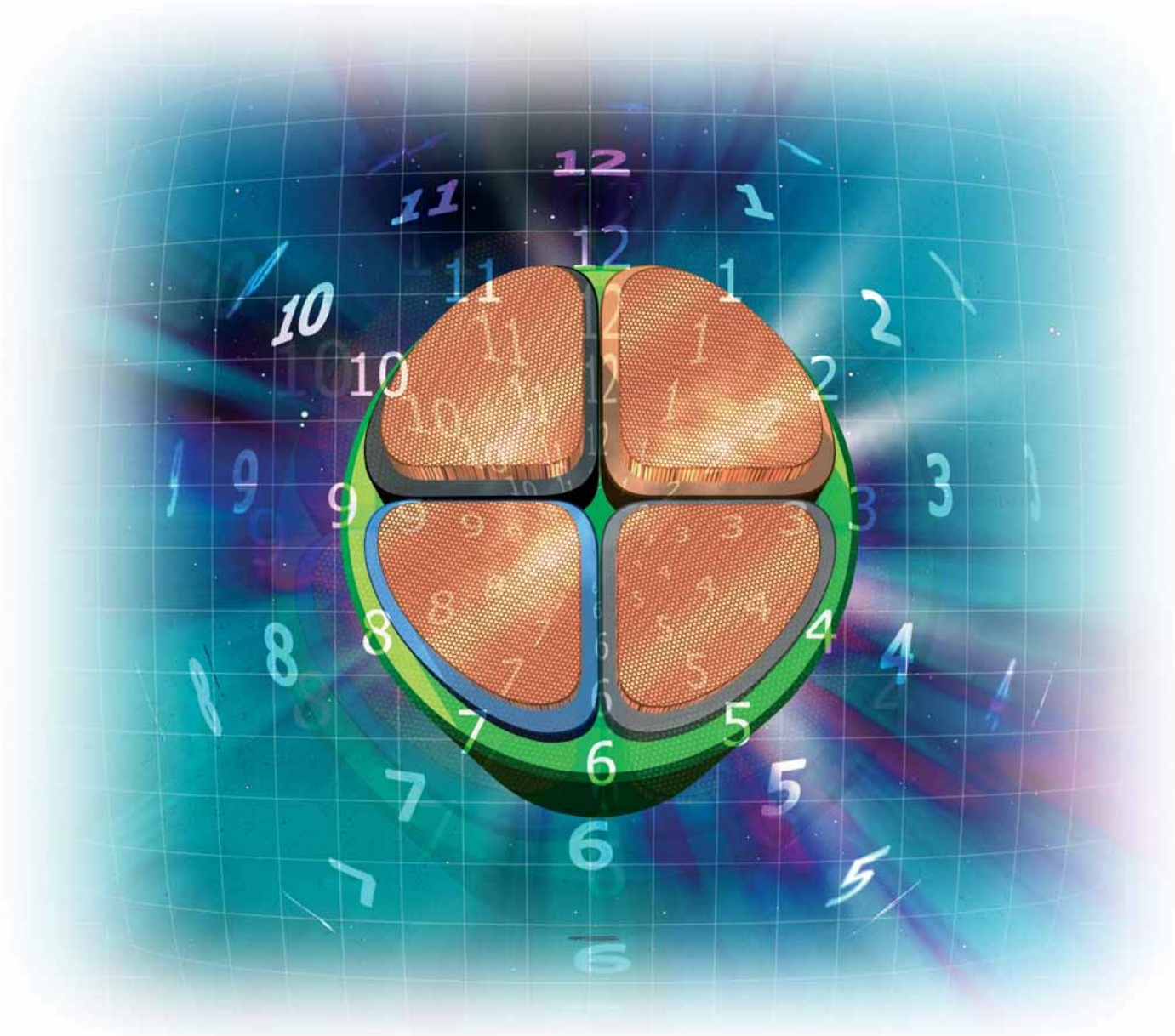


S A V I N G S P A C E A N D T I M E



RESEARCH, DEVELOPMENT & INNOVATION SERVING OUR CUSTOMERS

In a constant effort to make life as easy as possible for the product users and operators, GENERAL CABLE R, D & I Departments have developed the SECTORFLEX® solution.

This innovation arises out of the need to derive greater productivity from all the processes involved in today's economic activities. Electrical equipment has not escaped these dynamics with higher quality and safety requirements which are even more significant since the introduction of the new Low Voltage Electrical Engineering Regulations 2002.

Added to this comes increased pressure to bring down costs, especially those related to direct labour, such as the handling and installing of equipment.

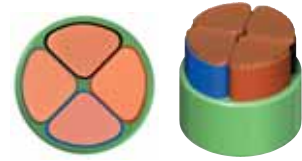
Being a fundamental component of electrical equipment, the cable is included in this trend and GENERAL CABLE offers the SECTORFLEX® solution as an innovation in this field.

SECT**R***FLEX*

 **General Cable**

What is a SECTORFLEX® cable?

SECTORFLEX® cables have flexible conductors in sections over 35 mm² which are sectorial rather than circular in shape, as can be seen from the figures here which represent the four-pole cable viewed from two aspects: cross-section and in perspective.



In fact, the sectorial configuration had already been developed for class 2 rigid cables, but this type of solution led to accessories being duplicated for the connection depending on whether the conductor was circular or sectorial, making it necessary to use non-standardised tools. The SECTORFLEX®-type cables solve this problem since they are compatible with conventional accessories and, consequently, have the following stated advantages:

Smaller in diameter

Lighter

Easier to install and lay

Longer continuous lengths

Use of conventional terminals and accessories

Greater manoeuvrability

Cables with a longer working life

Identical electrical cross-section and performance

More environmentally-friendly



energy RV-K FOC



SEGURFOC-331



ex Zhellent XXI

Smaller in diameter

Due to the SECTORFLEX® design, the issue of filling the interstices is no longer an issue and the result is a substantial reduction in the final diameter of the cable.



The average resulting reduction in the diameter of the different compositions and sections of the SECTORFLEX®-type cables is **10%**.

Lighter

The diameter reduction with the SECTORFLEX®-type cables also brings with it a reduction in their weight which, in respect of the different cable compositions and sections, involves an average reduction of **11%**.

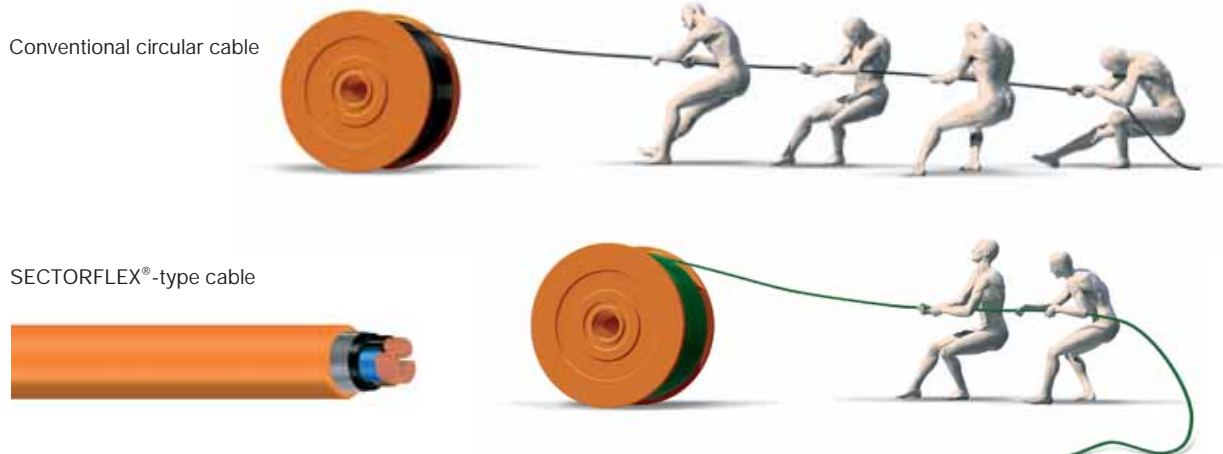


Average reduction of **11%** in weight.

Easier to install and lay

In view of the difficulties that often arise when installing cables as a result of the restricted space available, the reductions in diameter and weight of the SECTORFLEX®-type cables may be critical for improving both productivity and quality in terms of installation. The cables will take up less space in the trays, will pass through the tubes and pipes more easily, will tolerate a smaller curve diameter and will require less tractive effort.

In addition, the greater space available will help encourage more effective dissipation of the heat generated by the losses in the cable, improving its operating conditions as well.



Longer continuous lengths

We can produce longer continuous runs in the manufacturing process, this in turn reduces the number of joints/terminations compared with conventional circular cables. It also decreases the number of coils that have to be used to complete an installation. The result is a significant cost reduction.

Coil requirements



Use of conventional terminals and accessories

The sectorial configuration is already being used in the manufacture of electrical cables with class I or II rigid conductors, but is not accepted on the Spanish market due to the difficulty experienced in connecting them up with the circular cables. This difficulty vanishes with the SECTORFLEX®-type cables, since, when the insulation points are being prepared, the flexible sectorial conductor, stripped of the insulation, naturally returns to the circular arrangement, making it possible to use the same conventional terminals and accessories as for the circular cables.



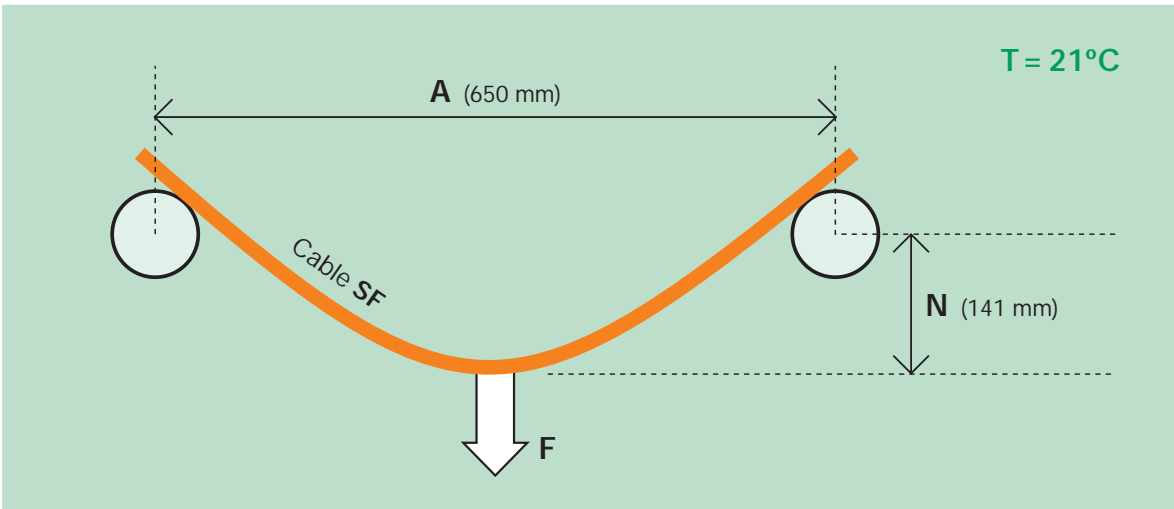
The picture sequence above demonstrates that the same tools can be used to terminate the SECTORFLEX cable as those used to terminate the circular cables.

Greater manoeuvrability

As well as the advantages described above with regard to installation and laying as a result of their reduced diameter and weight, it should be added that the SECTORFLEX®-type cables also provide greater manoeuvrability compared with the conventional circular conductor flexible cables.

By way of example, the following manoeuvrability test – UNIPEDE Technical Report 270 – was carried out on a SECTORFLEX® EXZHELLENT-XXI 1000V SF RZ1-K 4x120 cable, comparing the results with those obtained from an EXZHELLENT-XXI 1000V RZ1-K 4x120 circular conductor cable, identical in terms of materials, insulation thicknesses and sheath.

This test, shown in diagrammatic form in the figure below, measures the force necessary to bend the cable and assesses the cable's spring-back when the force is removed.



The resulting values are as follows:

SAMPLE	Force (Kg)	Spring-back (%)
Sectoral (SF)	22,8	76 %
Circular	37,6	83 %

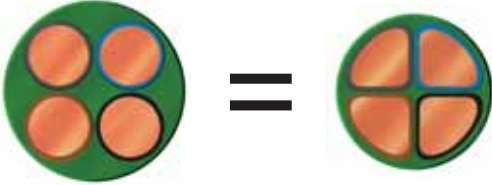
From the data obtained, we are able to see a substantial improvement in the cable manoeuvrability, especially with regard to the force needed to bend it, this being reduced by **39%**. Similarly, the spring-back or "spring effect" shows a reduction of more than **8%**. Both factors contribute to a very considerable improvement in the conditions under which the cable is used, as far as installation, laying and their working life are concerned.

Cables with a longer working life

Thanks to improved manoeuvrability as a result of their reduced diameter and weight, and to the gentler bending stress and reduced spring effect enjoyed by the SECTORFLEX®-type cables, they suffer less damage when being laid and installed, and consequently have a longer working life than other cables.

Identical electrical cross-section and performances

The electrical performances and cross-section of the SECTORFLEX®-type cables are identical to those of the Class 5 flexible circular cables.



More environmentally-friendly

General Cable has issued action guidelines as far as on-going improvement of the environment is concerned. The SECTORFLEX® type cables assist in this objective, since these cables retain all their properties and performances whilst consuming fewer resources, both in terms of materials and production.

The development of the SECTORFLEX® type cables by GENERAL CABLE R, D, I & Manufacturing Departments shows that the advantages brought to the products through this innovation contribute towards improving the environment and society in general.



Installations using SECTORFLEX®



Installation of EXZHELLENT XXI and SEGURFOC-331 SECTORFLEX® type, 4x120 mm² composite cables.

HEADQUATERS

Casanova, 150 - 08036 BARCELONA
Ph.: 93 227 97 00 - Fax: 93 227 97 22
info@generalcable.es

PORTUGAL

Av. Marquês de Pombal, 36-38 Morelena
2715-055 PÊRO PINHEIRO
Ph.: +351 219 678 500 - Fax: +351 219 271 942
info@generalcablecelcat.com
www.generalcablecelcat.com

BRANCHES IBERIA

ANDALUCÍA

Averroes, 6, Edificio Eurosevilla, planta 3ª, Mod. 8 y 9
41020 SEVILLA
Ph.: 95 499 95 18 - 902 23 91 80 - Fax: 95 451 10 13
alaguna@generalcable.es

CENTRO

Ávila, Badajoz, Cáceres, Ciudad Real,
Guadalajara, Madrid, Segovia y Toledo
Avda. Ciudad de Barcelona, 81 A, 4º A - 28007 MADRID
Ph.: 91 309 66 20 - 902 23 91 82 - Fax: 91 309 66 30
rvalencia@generalcable.es
Burgos, León, Palencia, Salamanca, Valladolid y Zamora
Ph.: 609 15 45 94 - Fax: 983 24 96 32
aastorgano@generalcable.es

LEVANTE

Albacete, Comunidad Valenciana, Cuenca y Murcia
Cirilo Amorós, 27 - 6º C - 46004 VALENCIA
Ph.: 96 350 92 58 - 902 23 91 81 - Fax: 96 352 95 53
rfabra@generalcable.es

NORDESTE

Andorra, Aragón, Baleares y Cataluña
Casanova, 150 - 08036 BARCELONA
Ph.: 93 227 97 00 - 902 23 91 60 - Fax.: 93 227 97 27
gcallau@generalcable.es

NORTE

Álava, Asturias, Cantabria y Vizcaya
Juan de Ajuriaguerra, 26 - 48009 BILBAO
Ph.: 94 424 51 76 - 902 23 91 58 - Fax: 94 423 06 67
thortiguela@generalcable.es
Guipúzcoa, La Rioja, Navarra, Soria
Ph. 629 34 85 22 - Fax 948 23 46 05
plopez@generalcable.es
Representación GALICIA
BESIGA COMERCIAL, S.L.
Av. Tierno Galván, 112
15178 MAIANCA - OLEIROS (La Coruña)
Ph.: 981 61 71 94 - Fax: 981 61 74 78
comercial@besiga.com

OPORTO

R. Gonçalo Cristovão, 312 - 4º B e C
4000-266 PORTO
Ph.: +351 223 392 350 - Fax: +351 223 323 878

Representación CANARIAS

Ángel Guerra, 23 - 1º
35003 LAS PALMAS DE GRAN CANARIA
Ph.: 928 36 11 57 - Fax: 928 36 44 73

EXPORT

Casanova, 150 - 08036 Barcelona (SPAIN)
Ph.: + 34 - 93 227 97 24 - Fax: + 34 - 93 227 97 19
export@generalcable.es

Av. Marquês de Pombal, 36-38 Morelena
2715-055 PÊRO PINHEIRO (PORTUGAL)
Ph.: +351 219 678 500 - Fax: +351 219 271 942

FACTORIES

ABRERA (Spain)

Carrer del Metall, 4 (Polígon Can Sucarrats)
08630 ABRERA (Barcelona)
Ph.: 93 773 48 00 - Fax: 93 773 48 48

MANLLEU (Spain)

Ctra. Rusiñol, 63
08560 MANLLEU (Barcelona)
Ph.: 93 852 02 00 - Fax: 93 852 02 22

MONTCADA I REIXAC (Spain)

Ctra. de Ribas, Km. 13,250
08110 MONTCADA I REIXAC (Barcelona)
Ph.: 93 227 95 00 - Fax: 93 227 95 22

MORELENA (Portugal)

Av. Marquês de Pombal, 36-38 Morelena
2715-055 PÊRO PINHEIRO (PORTUGAL)
Ph.: +351 219 678 500 - Fax: +351 219 271 942

VITORIA (Brazil)

Rua Anchieta, 275 Prédio-Carapina
29165-825 Bairro Carapina-Serra
ESPIRITU SANTO (BRASIL)
Ph.: +55 273 13 88 200 - Fax: +55 273 38 25 88

LUANDA (Angola)

CONDEL - Fábrica de Condutores Eléctricos de Angola, SARL
5ª Av Nº9, Zona Industrial do Cazenga, Caixa Postal nº 3043
LUANDA (ANGOLA)
Ph.: +244 2 380076/7/8/9/17 - Fax +244 2 33 78 12,
condel@snet.co.ao

INTERNATIONAL

VITORIA (Brazil)

Rua Anchieta, 275 Prédio-Carapina
29165-825 Bairro Carapina-Serra
ESPIRITU SANTO (BRASIL)
Ph.: +55 273 13 88 200 - Fax: +55 273 38 25 88

NORWAY

Randemfaret 17
1540 VESTBY
NORWAY
Ph.: +47 649 55 900 - Fax: +47 649 55 910

UNITED KINGDOM

28 Railway Road
Leigh WN7 4 AU - LANCASHIRE (UNITED KINGDOM)
Ph.: +44 1942 684308 - Fax: +44 1942 605000

AGENCIES

ARGENTINA

Francisco Beiré 1490
Florida Este 1602
BUENOS AIRES (ARGENTINA)
Ph.: +54 11 4760 6088
SBuscemi@generalcable-ar.com

FRANCE

Z.I. de la Haie Passart - 9, rue Galilée - Cedex N° 30
77257 BRIE COMTE ROBERT (FRANCE)
Ph.: +01 60 62 51 40 - Fax: +01 64 05 41 30
generalcable@wanadoo.fr

ITALY

Salvaneschi E.e.R.&C.S.A.
Via Pelizza da Volpedo, 20
20092 CINISELLO BALSAMO
Milano (ITALY)
Ph.: +39 02 660 49494 - Fax: +39 02 660 49489

CUSTOMER SERVICE SPAIN
PH.: +34 93 227 97 24
FAX: +34 93 227 97 19
CUSTOMER SERVICE PORTUGAL
PH.: +351 219 678 500
FAX: +351 219 271 942
www.generalcable.es

ISO 14001



ISO 9001

