

Connecting Globally

## FLAMEBLOCKER 3PLUS 2XSLCHK-J FLAMEBLOCKER 2XSLCHK-J

INVERTER CABLES A NEW QUALITY IN INDUSTRIAL AUTOMATION



# Halogen-free, highly flexible cables

for frequency converters and motors with increased load capacity, 0.6/1kV

Meeting the high demands of the latest technology markets, TELE-FONIKA Kable S.A. expands its product range with 2XSLCHK-J inverter cables. These cables are designed to meet industry standards and customer needs, ensuring not only functionality but also high quality, enhanced electrical, and mechanical properties.

#### The construction of 2XSLCHK-J inverter cables meets the highest standards through the use of:

- Halogen-free materials, including a halogen-free LSOH sheath made from a special compound that does not spread fire, emit smoke, or release corrosive acids in the event of a fire-key hazards in fire-related emergencies.
- Flexible class V conductors with high purity copper level of 99.99%, characterized by excellent electrical properties and resistance to mechanical stress while maintaining high structure flexibility coefficient significantly facilitating installation work.

- An outer sheath with high resistance to UV radiation
- A specially designed dual electromagnetic compatibility (EMC) shield, providing additional protective functions. The required shielding level is achieved through an aluminum-polyester tape wrap (100% coverage) and a tinned copper wire braid with up to 80% coverage. This dual shielding prevents interference with other devices and ensures the cable does not pick up unwanted signals from nearby systems. The high EMC performance makes it particularly effective in servo drive applications.

## A special flexible XLPE compound used as an insulating material

increases the load capacity of XLPE-insulated cables by approximately 20% compared to PE insulation



= +90°C =0 -40°C		
U	XLPE insulation	
Type/Size	Conductor operating temperature	Current rating
3 × 185 + 3 × 35	90°C	456 [A]

PE insulation Conductor operating Current rating temperature 70°C 382 [A]



Number and cross- section area of conductor	Nominal thickness of insulation	Nominal thickness of outer covering	Approximate overall diameter	Screen cross-section	Approx. weight per 1 km	Current rating*
n × mm²	mm	 		mm²	kg/km	A
3x2,5+3G0,5	0,7/0,6	1,8	12,7	3	219	32
3x4+3G0,75	0,7/0,7	1,8	14,1	3	283	42
3x6+3G1	0,7/0,7	1,8	14,9	3	352	54
3x10+3G1,5	0,7/0,7	1,8	16,5	4	494	75
3x16+3G2,5	0,7/0,7	1,8	18,9	5	705	100
3x25+3G4	0,9/0,7	1,8	22,6	14	1135	127
3x35+3G6	0,9/0,7	1,8	24,8	15	1490	158
3x50+3G1	1,0/0,7	1,8	28,9	20	2083	192
3x70+3G10	1,1/0,7	1,9	33,6	26	2782	246
3x95+3G16	1,1/0,7	2,1	38,8	32	3664	298
3x120+3G1	1,2/0,7	2,2	41,5	32	4405	346
3x150+3G25	1,4/0,9	2,3	46,6	36	5581	399
3x185+3G35	1,6/0,9	2,5	52,6	42	6904	456
3x240+3G50	1,7/1,0	2,6	56,5	45	8917	538
4G1,5	0,7	1,8	11,3	2	176	23
4G2,5	0,7	1,8	12,5	3	228	32
4G4	0,7	1,8	13,6	3	294	42
4G6	0,7	1,8	15,0	3	383	54
4G10	0,7	1,8	17,2	4	560	75
4G16	0,7	1,8	20,0	5	808	100
4G25	0,9	1,8	24,9	14	1306	127
4G35	0,9	1,8	27,2	17	1691	158
4G50	1	1,9	32,2	26	2383	192
4G70	1,1	2	37,2	29	3277	246
4G95	1,1	2,2	42,9	33	4232	298
4G120	1,2	2,3	45,9	36	5221	346
4G150	1,4	2,5	51,8	41	6489	399
4G185	1,6	2,6	58,3	46	7882	456
4xG240	1,7	2,9	63,6	68	10233	538

\* acc. to VDE 0298-4

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The design of 2XSLCHK-J inverter cables includes materials specifically selected for flame resistance and reaction to fire. Positive test results confirming flame spread resistance and fire behavior classification have allowed these cables to be classified as Dca under CPR (Construction Products Regulation) standards. Additionally, the cable design ensures high chemical safety by eliminating cadmium, silicone, and other harmful substances from the manufacturing process.

## SELECTION TABLE FOR INVERTER CABLES **BASED ON CONVERTER POWER**

POWER	2XSLCHK	-J XLPE - INSULATED	2YSLCYK-	2YSLCYK-J PE - INSULATED		
	Number and CSA of conductor	Approximate overall diameter	Number and CSA of conductor	Approximate overall diameter		
kW	mm²	mm	mm²			
15	4x10	17,2	4x10	17,2		
18,5	4x10	17,2	4x16	20,0		
22	4x16	20,0	4x25	24,7		
30	4x25	24,4	4x25	24,4		
37	4x25	24,4	4x35	27,2		
45	4x35	27,2	4x35	27,2		
55	4x35	27,2	4x50	32,2		
75	4x70	37,2	4x70	37,2		
90	4x70	37,2	4x95	42,9		
110	4x95	42,9	4x120	45,9		
132	4x120	45,9	4x150	51,8		
160	4x150	51,8	4x185	58,3		
200	4x185	58,3	4x240	63,4		

Bold numbers - XLPE - insulated cross-sections that can replace larger PE-insulated cross-sections for a given power [kW].

## SPECIAL PROPERTIES



**Enchanced Double** Electromagnetic Protection

The dual shielding with increased coverage provides enhanced protection against electromagnetic interference (EMI), ensuring stable operation of connected systems.



**Easier Installation** Process

The cables feature special high-flexibility conductors that improve overall flexibility, making installation easier and increasing resistance to movement and mechanical stress.



Higher Operating Temperature for Conductor

Thanks to special mix of XLPE insulation, these cables have an increased maximum conductor operating temperature from 70°C to 90°C, providing a higher safety margin for electrical performance under high load conditions.



**High Fire Safety** Standards

The cables offer increased fire safety due to their special mix LSOH outer sheath, which drastically reduces smoke and corrosive gas emissions while ensuring high flame resistance and non-propagation of fire. These properties are confirmed by the required CPR classification.

# **TFKable Products Meet 100%** of the CPR Requirements



We have appointed a team of specialists, who will provide the necessary explanations and answer any questions that may arise in connection with the changes resulting from the CPR regulation. More information: cpr@tfkable.com

Since 2019, TFKable, together with members associated in Europacable, is leading an educational and information campaign "Fire safety is our responsibility. Yours Too!" related to the Construction Products Regulation (CPR). In the summer of 2020, another edition of the campaign began - "Inside CPR". In addition to educational resources the site at cpr.europacable.eu/pl also contains a free training program "My CPR coach"



Implementantion of new labels in accordance with the requirements of the **CPR Directive** 

Over several hundred



Reduction in use of PVC material in higher class products



Introduction of a uniform classification of cables and wires produced by TFKable

#### Fire Test Laboratory in Krakow-Wielicka Plant

Has the possibility of testing flame propagation, fire resistance, resistance of electrified cable to flame spreading with mechanical impact/ or water, measurement of density of fumes generated during combustion of a cable/wire burning, flaming droplets. The laboratory also conducts tests for determining fire class of wires and cables.

# Leading manufacturer of cables and wires

**TFK.Group** is one of the global market leaders of wires and cable systems, with numerous trading companies and production plants located in many countries, as well as service units and research and development centers.

In August 2017, the British company JDR Cable Systems - a leading manufacturer of submarine cables and provider of offshore and onshore services for the global wind energy industry joined TFK.Group.

TFK.Group belongs to a small group of a few most specialised and technologically advanced suppliers of high and extra high voltage cable systems.

The maintenance and control services provided by TFK.Group is dedicated to oil and gas and renewable energy extraction systems subsea and on land. In addition, the extensive infrastructure of research and development centers allows for qualification tests, routine tests, technological tests and fire tests.

Our experience is confirmed not only by continuous supplies to electricity distribution network operators or as part of ongoing investment projects for conventional and wind farms, but also by positive results of production process audits carried out by the most renowned certification bodies.

**JDR Cable Systems** is a global leader in subsea production umbilicals, subsea power cables and Intervention Workover Control Systems for the offshore oil and gas industry. JDR operates in harsh, dynamic, subsea environments and is a pioneer in the development of cutting-edge inter-array power cables for offshore wind, wave and tidal energy projects. Additionally, JDR supports customers in the renewable energy sector throughout project planning, mobilisation, installation, commissioning and maintenance, providing total lifecycle support.

## **Sales Sectors**

#### Unique features of the TFK.Group's products

#### Mining

- safe and reliable operation in a challenging
  environment
- resistant to high temperature, humidity, UV radiation
- resistant to tearing and abrasion, twisting, bending, water, oils and other chemical substances
- flame retardant
- ensuring the continuity of underground work and on the surface
- visible from a considerable distance (reflective cables)

#### Construction

- flexible
- · non-spreading flames, gases and fumes
- very good identification (spatial-graphic marking)
- easy to process separating thread
- durable high-quality insulation
- anti-rodent barrier
- torsion resistant and able to work in low temperatures

#### High voltage

- security
- error-free energy transmission
- · reliable water blocking design, sealing
- meeting the requirements of high current carrying capacity



#### Telecommunication

- wide application to be installed in cable ducts or directly in the ground
- reinforced construction preventing mechanical damage
- high-performance
- durable
- · resistant to flame spreading

#### **Energy and Railway**

durable

| | | |

- resistant to extreme working conditions
- guaranteeing safe operation
- · resistant to mechanical damage
- · resistant to flame spreading and gas emissions

#### Offshore wind energy

- Subsea MV/HV power cables (static/dynamic)
- · Subsea control and power umbilicals
- IWOC Systems, flying leads & topside cables
- product and installation suport
- engineering services







## **Production & Distribution**

## - Locations



#### Kraków - Wielicka Plant, PL

One of the largest cable factories in Europe. The plant manufactures power cables and wires, including rubber insulated cables and wires, used in the mining industry and wind farms, both onshore and offshore. As one of the few European manufacturers, the plant supplies mines in the United States, Canada, South America and Africa. It also offers specialised cables for railway and shipbuilding applications.

- Mixers of gmm01 and gmm02 rubber mixes
- Rubber Cable Insulation Lines

#### **Bydgoszcz Plant, PL**

The oldest cable and wire factory in Poland and the largest medium, high and extra high voltage cable manufacturing centre in Europe. Along with the JDR plants in Hartlepool and Littleport, it is one of the elite direct providers of offshore electricity transmission solutions. The plant hosts specialised research facilities, including the Extra High Voltage Laboratory, which develops prototypes and process guidelines for the production of HVAC and HVDC cables.

- 10-500kV voltage range
- CCV lines for XLPE insulation application (including high voltage cable production lines)

#### **Myślenice Plant, PL**

Manufacture of telecommunication and fibre optic cables and computer cables.

- 432 fibres in fibre optic cables that we manufacture
- Classes 1, 2, 5, 6

#### **Zajecar Plant, SRB**

Manufacture of copper and aluminium wires, low and medium voltage cables, signalling and controlling cables, telecommunication cables, halogen-free wires and cables.

Up to 35kV – voltage range

#### Littleport Plant, UK

Engineering design, design management, research and development, IWOC production and production of specialised components and subsea production umbilicals, as well as power cables up to 100 tons. The plant operates its own specialised research facilities. The plant specialises in:

- Engineering Works and Design Services
- IWOCS
- SSIV (Subsea Isolation Valve) Umbilicals
- Subsea Production Umbilicals
- Power Cables up to 100 tonnes.

#### Hartlepool Plant, Victoria Dock, UK

Hartlepool is a world-class manufacturing plant strategically located on the North Sea coast. With its flexible configuration of the manufacturing process, the plant specialises in production of long sections of cables and umbilicals. JDR recently upgraded its vertical lay-up machine (VLM), nearly doubling product loading capacity. This enhances cable section manufacturing, enabling longer single-length cables for floating and stationary offshore wind farms. The investment supports the development of 66kV, 132kV, and 150kV cables. The plant specialises in:

- Subsea Production Umbilicals
- Subsea Power Cables
- Inter-Array Cables.

### Cambois Plant (near Blyth), UK - under construction

In September 2021, JDR Cable Systems announced an investment in a state-of-the-art subsea cable manufacturing facility in Cambois, near Blyth, Northumberland, supported by the UK government's DESNZ Offshore Wind Manufacturing Investment Support Scheme.Opening in 2025, the facility will expand offshore wind infrastructure, supporting larger, more remote wind farms and strengthening North East England as a renewable energy hub.

#### **Key Enhancements**

- Longer high-voltage subsea cables for next-generation turbines.
- HV and EHV cables for onshore power transmission.
- Increased production capacity and modernized processes.

#### Advanced Technology

- 45m CCV (Continuous Catenary Vulcanization) tower.
- 47m VLM (Vertical Lay-up Machine).

These systems will enable 275kV cable production, expandable to 525kV, supporting next-generation renewable energy projects.

## **Think Quality**



On a yearly basis our Technology Department We have 330 quality certificates granted by 38 certification centers from around the world.



We provide innovative and safe solutions for industry on the local and international markets.

We cooperate with significant industrial and scientific partners – with their help we provide reliability.

Europacable, BCA, ICF, PSEW, CIGRE, PIGE, BSI, CMPS, LEA, ACI, PPC, PIMEW, Cooper Mark, GWEC, Energy Coast, United Nations Global Compact, EDA, GUH, PEMA, AWEA, IPF, British Polish Chamber of Commerce, Wind Europe, UMF, OWGP, Renewable UK, OWIC, NBOC, ACP

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