



**Connecting  
Globally**

# **MARINE AND OFFSHORE CABLES**



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# PICTOGRAMS

Description of pictograms used in catalogue



Positive result for vertical flame spread test acc. to IEC 60331-1-2



Positive result for vertical flame spread test acc. to IEC 60332-3 (vertically-mounted bunched wires or cables)



No smoke density acc. to IEC 61034



No harmful gases emission acc. to 60754



Pass circuit integrity acc. to IEC



Maintaining the function of electrical cable during the fire, defined as the concept of cable systems acc. to DIN 4102-12 (classes E30, E60 or E90)



Pass circuit integrity acc. to BS 6387 (Category C)



Pass fire and water resistance test acc. to BS 6387 (Category W)



Pass fire resistance and mechanical stroke test acc. to BS 6387 (Category Z)



Pass fire resistance and mechanical stroke test acc. to EN 50200



Pass fire resistance and mechanical stroke test acc. to EN 50200 during minimum 30 minutes



Pass fire resistance and mechanical stroke test acc. to EN 50200 during minimum 120 minutes



Pass fire and mechanical test acc. to BS 7846 (Category F2)



Pass fire, mechanical and water test acc. to BS 8491 during minimum 120 minutes (Category F120)



Minimum and maximum exploitation temperature



Maximum conductor operating temperature



UV resistant



# TELE-FONIKA Kable

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**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, TFK.Group acquired 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.**

The portfolio of TFK.Group includes many specialized cables: copper and fiber optic, telecommunications, rubber-insulated, including mining and crane, and control cables for data transmission and for security. As well as umbilicals and IWOCs systems, subsea power cables, inter-array, dynamic and export cables, which are used in the construction and operation of offshore and onshore wind farms. The maintenance and control services provided by TFK.Group are

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.



28th September 2021, JDR has confirmed its intention has plans to open a new state-of-the-art subsea cable manufacturing facility in Cambois, near Blyth, Northumberland, with construction expected to begin in 2022 ahead of a 2024 opening, creating 170 high-quality local jobs in the UK. The initial project investment will be part-funded by a grant from the BEIS Offshore Wind Manufacturing Investment Support (OWMIS) scheme.

The new facility is the first stage of JDR's plans to expand its product portfolio to support the growing global renewable energy market, adding high voltage export and long length array cables to its existing capacity and product capabilities. When complete, the facility will include a new catenary continuous vulcanization (CCV) line, making it the only facility in the UK capable of full start-to-finish manufacturing of high voltage subsea cables for offshore wind farms to support the growing global.

# TFK.GROUP Production & distribution – locations

## **Kraków - Wielicka Plant, Poland**

one of the biggest cable factories in Poland. It manufactures power cables and wires, including rubber insulated cables and wires applicable in the mining industry and in the offshore and onshore wind farms. As one of the few European manufacturers, the plant is a supplier for mines located in the US, Canada, South America, and Africa. Its offer also includes specialized cables for applications in the railway and shipbuilding industry.

## **Bydgoszcz Plant, Poland**

the oldest cable and wire factory in Poland and the biggest production center of medium, high and extra-high voltage cables in Europe. Together with the plants in Littleport and Hartlepool, it belongs to the elite group of direct suppliers of complete solutions for the offshore electricity industry.

## **Myślenice Plant, Poland**

production of fiber optic and telecommunication cables, computer cables and car cables.

## **Zajecar Plant, Serbia**

production of Al and Cu wires, low and middle voltage cables, signaling and control cables, telecommunication cables, as well as halogen-free cables and wires and car cables

## **Waste Recycling Facility in Bukowno, Poland**

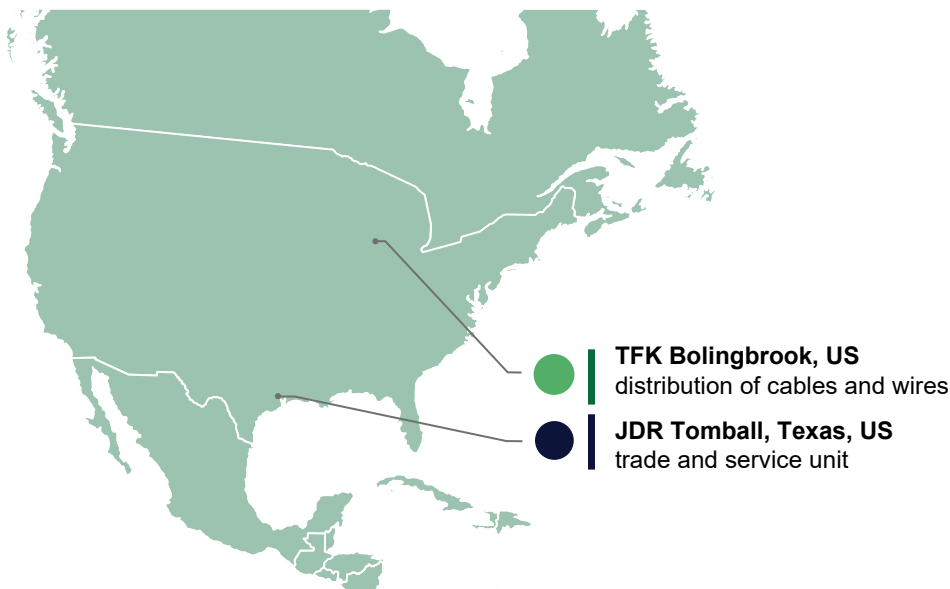
it has the recycling capacity of approx. 10 thousand tons of cable waste per year. This allows for the recovery of fractions from individual materials with purity of over 99.5%

## **Littleport Plant, UK**

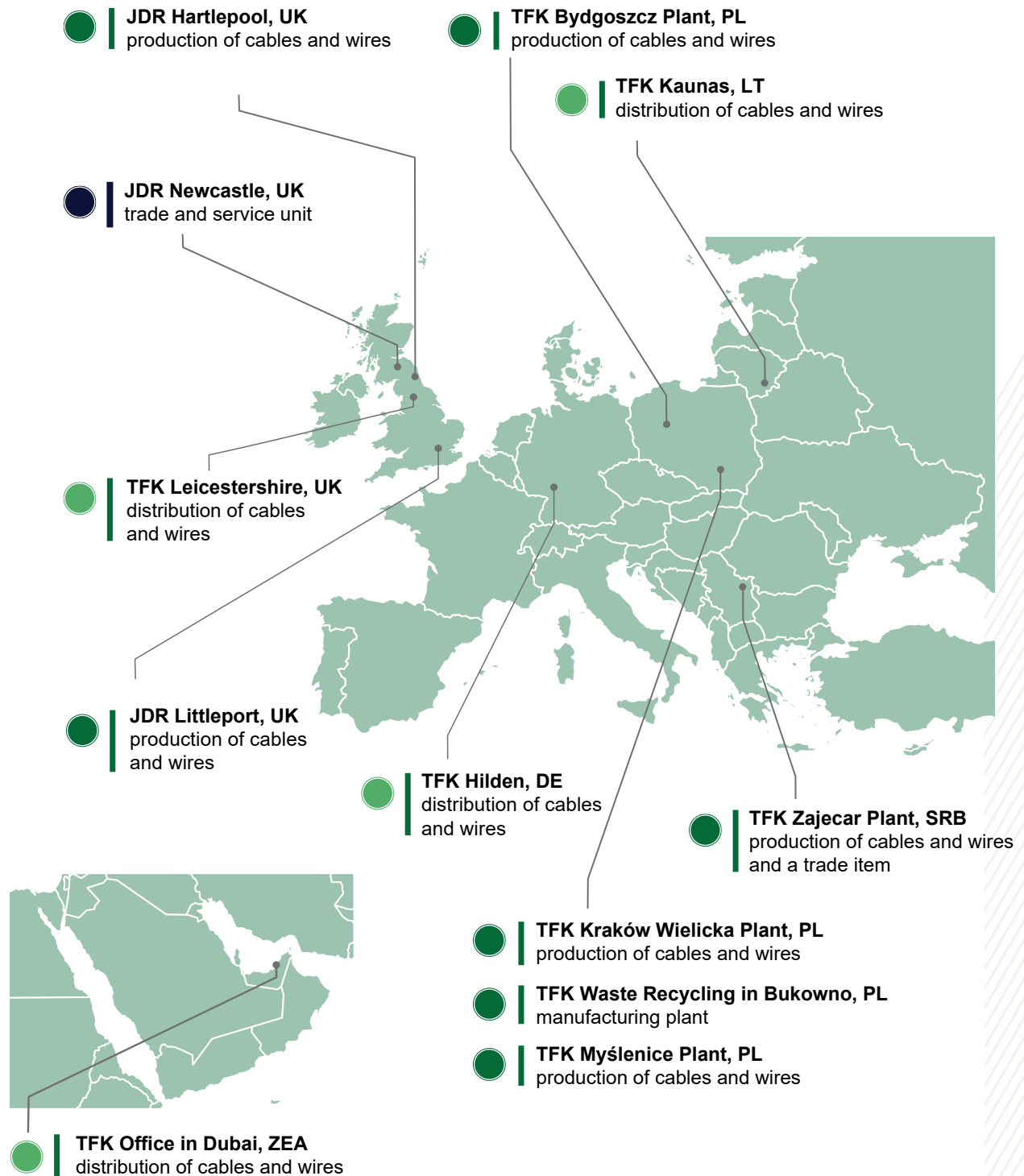
design and engineering services, IWOC, Subsea Production Umbilicals and Power Cables up to 100 t production. The plant has specialized research facilities.

## **Hartlepool Plant, Victoria Dock, UK**

the biggest JDR production plant with specialized designed teams. Strategically located on the quay, next to the port on the North Sea. A plant with an area of 20.000 m<sup>2</sup>, commissioned in 2009, supplying and producing Subsea Production Umbilicals, Subsea Power Cables and Inter-array Cables. Modern infrastructure of the machine park provides flexibility of the large-size cables production process



# TFK.GROUP Production & distribution – locations



- MANUFACTURING PLANTS
- SUBSIDIARIES
- SERVICE UNITS



# Shipbuilding





## Marine cables

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Being offered by the TELE-FONIKA Kable since the early 90's, marine cables have always been held as an important product in cables portfolio. Years of experience, resulting from frequent contacts with European and Far Eastern shipyards, led to the development of light and compact cable designs characterised by high flexibility facilitating allow for easy installation in severely limited spaces.

The ability of being able to provide cables that can operate reliably in extreme conditions, to ensure the safety of those aboard sea vessels, is very important for our company. Therefore, all marine cables from our portfolio are halogen-free, flame retardant and do not emit harmful gases when burning. For example, for safety devices such as emergency power lighting escape routes, you can be assured that our fire resistant cables will provide the highest standards of safety and will continue to function in the harshest of environments.

Cable tests are carried out in state-of-the-art Fire Tests Laboratory (Kraków-Wielicka Plant) for testing in accordance with current international standards (IEC 60331 – Fire test for circuit integrity, IEC 60332 – Test for flame spread, IEC 61034 – Smoke density test, IEC 60754 – Gases emission test, etc.). Our Cable Design Engineers and Process Managers work continuously to develop our designs, which has resulted in the development of optimum low weight cables and minimal achievable outer diameter, ensuring ease of installation in the most challenging vessel installation projects.

To ensure that our products meet the highest quality standards, our cables are subjected to third party certification testing such as: Lloyd Register, Det Norske Veritas, Polski Rejestr Statków, Registro Italiano Navale, American Bureau of Shipping, ClassNK, Bureau Veritas.

You can be assured of performance when marine cables, manufactured by TELE-FONIKA Kable, are installed onboard the numerous naval vessels operating around the world.



# Shipboard power cables











# FLAMEBLOCKER

KONS 0.6/1 kV

Cu/LSOH

IEC 60092-353

Halogen-free switchboard wire.

## CONSTRUCTION

Conductors:	Stranded flexible bare or tinned copper class 5 acc. to IEC 60228
Insulation:	Halogen-free polyolefin compound type HF 90 acc. to IEC 60092-360
Colour of insulation:	Black, red, blue, white, green/yellow Other colors available on request

## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C	
Lowest ambient temperature for fixed installation:	-40°C	
Lowest installation temperature:	-15°C	
Maximum short-circuit conductor temperature:	+250°C	
Minimum bending radius for cable with overall diameter (D):	D ≤ 25 mm	4 D
	D > 25 mm	6 D

## Fire performance

Flame retardant:	IEC 60332-1-2 (test for single cable)
Smoke emission:	IEC 61034-1
	IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr
	IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>



# FLAMEBLOCKER

## KONS 0.6/1 kV

### Cu/LSOH

## Applications

For fixed wiring in switchboards, control panels and other enclosures

## Approvals

DNV-GL, ABS

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate

Standard length cable packing:

500 or 1 000 m on drums

Other forms of packing and delivery are available on request

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Current rating in open air	Bare copper		Tinned copper	
				Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C
<b>n × mm<sup>2</sup></b>	<b>mm</b>	<b>kg/km</b>	<b>A</b>	<b>Ω/km</b>	<b>Ω/km</b>	<b>Ω/km</b>	<b>Ω/km</b>
1 × 0.75*	2.5	12	14	26.0	33.2	26.7	34.1
1 × 1	2.6	14	18	19.5	24.9	20.0	25.5
1 × 1.5	2.9	19	23	13.3	17.0	13.7	17.5
1 × 2.5	3.6	30	40	7.98	10.2	8.21	10.47
1 × 4	4.1	44	51	4.95	6.3	5.09	6.49
1 × 6	4.6	62	52	3.30	4.2	3.39	4.32
1 × 10	6.0	105	72	1.91	2.4	1.95	2.49
1 × 16	7.1	159	96	1.21	1.5	1.24	1.58
1 × 25	8.7	244	127	0.78	0.995	0.795	1.014
1 × 35	9.9	337	157	0.554	0.706	0.565	0.720
1 × 50	11.8	479	196	0.386	0.492	0.393	0.501
1 × 70	13.6	664	242	0.272	0.347	0.277	0.353
1 × 95	16.1	879	293	0.206	0.263	0.210	0.268
1 × 120	17.2	1103	339	0.161	0.205	0.164	0.209

\* Base of norm



# FLAMEBLOCKER

NKOXS 0.6/1 kV

Cu/XLPE/LSOH

**IEC 60092-353**

Halogen-free shipboard power cables with cross-linked polyethylene insulation and halogen-free sheath.

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## CONSTRUCTION

<b>Conductors:</b>	<ul style="list-style-type: none"> <li>▪ Circular stranded bare or tinned copper class 2 (RM) 1 to 6 mm<sup>2</sup></li> <li>▪ Circular compacted stranded bare or tinned copper class 2 (RM) 10 to 300 mm<sup>2</sup></li> <li>▪ Circular stranded bare or tinned copper class 5 (RF)</li> <li>▪ Sector compacted stranded class 2 (SM) 35 to 300 mm<sup>2</sup> or sector stranded flex (SF) 70 to 150 mm<sup>2</sup></li> </ul> <p>Acc. to IEC 60092-350 and IEC 60228</p>	
<b>Insulation:</b>	<p>≤ 35 mm<sup>2</sup>: cross-linked polyethylene XLPE acc. to IEC 60092-360</p> <p>&gt; 35 mm<sup>2</sup>: cross-linked polyolefin compound HF 90 acc. to IEC 60092-360</p>	
<b>Inner covering:</b>	Bedding tape or/and extruded layer special flame-retardant, halogen-free compound	
<b>Sheath:</b>	Halogen-free thermoplastic compound type SHF 1 acc. to IEC 60092-360	
<b>Colour of sheath:</b>	Black, grey or other agreed	
<b>Core identification:</b>		
	<b>Without green-yellow</b>	<b>With green-yellow</b>
<b>HD 308 S2:</b>		
<b>2-core:</b>	Blue, brown	–
<b>3-core:</b>	Brown, black, grey	Green-yellow, blue, brown
<b>4-core:</b>	Blue, brown, black, grey	Green-yellow, brown, black, grey
<b>5-core:</b>	Blue, brown, black, grey, black	Green-yellow, blue, brown, black, grey
<b>6 and more:</b>	Numbered cores	Green-yellow, blue, brown, black, grey
	Other colors available on request	Green-yellow, other cores numbered
		Other colors available on request





# FLAMEBLOCKER

## NKOXS 0.6/1 kV

### Cu/XLPE/LSOH

## CHARACTERISTIC

Rated voltage $U_o/U/ U_m$ :	AC 0.6/1 (1.2) kV DC 0.9/1.5 kV
Test voltage:	3.5 kV
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius for cable with overall diameter (D):	D ≤ 25 mm      4 D D > 25 mm      6 D

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## Fire performance

Flame retardant:	IEC 60332-1-2 IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-1 IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>

## Applications

For fixed marine installations in all areas and open deck in ships

## Approvals

DNV-GL, ABS, LR, PRS, BV, RINA

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate

Standard length cable packing:	1 000 m on drums Other forms of packing and delivery are available on request
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# FLAMEBLOCKER

## NKOXS 0.6/1 kV

### Cu/XLPE/LSOH

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
<b>n × mm<sup>2</sup></b>	<b>mm</b>		<b>kg/km</b>	
1 × 1 RF	–	4.6	–	29
1 × 1 RM	–	4.7	–	31
1 × 1.5 RF	–	4.9	–	35
1 × 1.5 RM	–	5	–	37
1 × 2.5 RF	–	5.4	–	47
1 × 2.5 RM	–	5.4	–	49
1 × 4 RF	–	5.9	–	62
1 × 4 RM	–	5.9	–	65
1 × 6 RF	–	6.4	–	82
1 × 6 RM	–	6.5	–	87
1 × 10 RF	–	7.4	–	123
1 × 10 RM	–	7.2	–	126
1 × 16 RF	–	8.7	–	184
1 × 16 RM	–	8.4	–	188
1 × 25 RF	–	10.5	–	276
1 × 25 RM	–	10.3	–	289
1 × 35 RF	–	11.7	–	373
1 × 35 RM	–	11.6	–	389
1 × 50 RF	–	13.6	–	533
1 × 50 RM	–	13.1	–	527
1 × 70 RF	–	15.8	–	739
1 × 70 RM	–	14.8	–	738
1 × 95 RF	–	18.1	–	959
1 × 95 RM	–	17	–	1000
1 × 120 RF	–	19.4	–	1197
1 × 120 RM	–	18.6	–	1243
1 × 150 RF	–	21.8	–	1494
1 × 150 RM	–	20.6	–	1532
1 × 185 RF	–	24.7	–	1825
1 × 185 RM	–	22.9	–	1907
1 × 240 RF	–	26.6	–	2347
1 × 240 RM	–	25.8	–	2458

# FLAMEBLOCKER

## NK0XS 0.6/1 kV

### Cu/XLPE/LSOH

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
1 × 300 RF	–	30.6	–	2926
1 × 300 RM	–	28	–	3053
2 × 1 RF	8	8.8	93	67
2 × 1 RM	8.1	8.9	96	70
2 × 1.5 RF	8.8	9.6	115	85
2 × 1.5 RM	8.9	9.7	120	88
2 × 2.5 RF	9.8	10.6	151	109
2 × 2.5 RM	9.8	10.6	154	113
2 × 4 RF	10.7	11.5	194	140
2 × 4 RM	10.8	11.6	202	147
2 × 6 RF	12.1	12.9	258	189
2 × 6 RM	12.1	12.9	269	198
2 × 10 RF	13.9	14.7	374	273
2 × 10 RM	13.6	14.4	374	279
2 × 16 RF	16.4	17.2	546	443
2 × 16 RM	15.8	16.6	541	447
2 × 25 RF	20.7	20.7	834	667
2 × 25 RM	20.4	20.4	852	690
2 × 35 RF	23	23	1088	885
2 × 35 RM	22.7	22.7	1110	912
2 × 50 RF	27	27	1545	1268
2 × 50 RM	25.9	25.9	1494	1239
3 × 1 RF	8.4	9.2	103	82
3 × 1 RM	8.6	9.4	108	86
3 × 1.5 RF	9.2	10	130	104
3 × 1.5 RM	9.4	10.2	136	109
3 × 2.5 RF	10.3	11.1	173	138
3 × 2.5 RM	10.3	11.1	179	143
3 × 4 RF	11.5	12.3	233	188
3 × 4 RM	11.6	12.4	245	199
3 × 6 RF	12.7	13.5	307	249
3 × 6 RM	12.8	13.6	322	263
3 × 10 RF	14.9	15.7	462	379



# FLAMEBLOCKER

## NKXS 0.6/1 kV

### Cu/XLPE/LSOH

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
3 × 10 RM	14.6	15.4	467	389
3 × 16 RF	17.4	18.2	672	583
3 × 16 RM	16.8	17.6	676	595
3 × 25 RF	22.2	22.2	1046	896
3 × 25 RM	21.8	21.8	1079	933
3 × 35 RF	24.6	24.6	1380	1199
3 × 35 RM	24.3	24.3	1419	1242
3 × 50 RF	28.9	28.9	1970	1725
3 × 50 RM	27.7	27.7	1922	1695
3 × 70 RF	33.6	33.4	2725	2380
3 × 70 RM	31.4	31.2	2655	2356
3 × 70 SF	27.8	29.2	2654	2233
3 × 70 SM	26.3	27.7	2563	2217
3 × 95 RF	38.5	38.3	3544	3103
3 × 95 RM	36	35.8	3581	3198
3 × 95 SF	30.8	32.2	3414	2895
3 × 95 SM	29.6	31	3465	3000
3 × 120 RF	41.5	41.3	4378	3879
3 × 120 RM	39.7	39.5	4449	3991
3 × 120 SF	34.7	36.1	4371	3665
3 × 120 SM	32.7	34.1	4340	3747
3 × 150 RF	47.2	46.6	5537	4853
3 × 150 RM	44.5	43.9	5534	4931
3 × 150 SF	38.9	40.3	5524	4616
3 × 150 SM	36.8	38.2	5424	4639
3 × 185 RF	53.2	52.4	6807	5935
3 × 185 RM	49.4	48.6	6870	6117
3 × 240 RF	57.4	56.6	8610	7612
3 × 240 RM	55.8	55	8858	7919
4 × 1 RF	9.3	10.1	125	103
4 × 1 RM	9.4	10.2	130	107
4 × 1.5 RF	10	10.8	152	125
4 × 1.5 RM	10.1	10.9	160	132

# FLAMEBLOCKER

## NKXS 0.6/1 kV

### Cu/XLPE/LSOH

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
4 × 2.5 RF	11.2	12	205	169
4 × 2.5 RM	11.2	12	213	176
4 × 4 RF	12.5	13.3	279	234
4 × 4 RM	12.6	13.4	294	247
4 × 6 RF	13.9	14.7	372	313
4 × 6 RM	14	14.8	392	332
4 × 10 RF	16.3	17.1	565	481
4 × 10 RM	15.9	16.7	573	494
4 × 16 RF	19.3	20.1	838	747
4 × 16 RM	18.6	19.4	846	761
4 × 25 RF	24.5	24.3	1304	1132
4 × 25 RM	24.1	23.9	1351	1183
4 × 35 RF	27.2	27.2	1729	1536
4 × 35 RM	26.8	26.8	1782	1597
4 × 50 RF	32	32	2474	2218
4 × 50 RM	30.6	30.6	2421	2185
4 × 70 RF	37.4	37.2	3444	3087
4 × 70 RM	35	34.8	3376	3062
4 × 70 SF	32.2	33.6	3390	2973
4 × 70 SM	30.2	31.6	3296	2949
4 × 95 RF	42.7	42.5	4455	4004
4 × 95 RM	39.9	39.7	4538	4139
4 × 95 SF	35.3	36.7	4370	3834
4 × 95 SM	33.8	35.2	4457	3974
4 × 120 RF	46.5	45.9	5599	5029
4 × 120 RM	44.5	43.9	5715	5192
4 × 120 SF	39.8	41.2	5558	4867
4 × 120 SM	37.9	39.3	5597	4989
4 × 150 RF	52.4	51.8	6997	6293
4 × 150 RM	49.4	48.8	7037	6407
4 × 150 SF	44.4	45.6	7029	6104
4 × 150 SM	42.2	43.4	6940	6141
4 × 185 RF	58.9	58.3	8557	7687

# FLAMEBLOCKER

## NKXS 0.6/1 kV

### Cu/XLPE/LSOH

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
4 × 185 RM	54.7	54.1	8710	7957
4 × 240 RF	63.8	63	10904	9879
4 × 240 RM	62	61.2	11266	10297
5 × 1 RF	10	10.8	147	123
5 × 1 RM	10.2	11	154	129
5 × 1.5 RF	10.8	11.6	181	152
5 × 1.5 RM	11	11.8	190	161
5 × 2.5 RF	12.3	13.1	251	214
5 × 2.5 RM	12.4	13.2	262	224
5 × 4 RF	13.6	14.4	337	289
5 × 4 RM	13.8	14.6	356	306
5 × 6 RF	15.4	16.2	459	397
5 × 6 RM	15.5	16.3	483	420
5 × 10 RF	18	18.8	698	610
5 × 10 RM	17.6	18.4	709	626
5 × 16 RF	21.4	22.2	1039	913
5 × 16 RM	20.5	21.3	1047	933
5 × 25 RF	26.8	26.8	1609	1380
5 × 25 RM	26.3	26.3	1667	1446
5 × 35 RF	30	30	2154	1875
5 × 35 RM	29.6	29.6	2222	1950
5 × 50 RF	35.5	35.3	3111	2705
5 × 50 RM	34	33.8	3042	2669
5 × 70 RF	41.3	41.1	4305	3764
5 × 70 RM	38.6	38.4	4216	3744
6 × 1.5 RF	11.9	12.7	217	186
6 × 1.5 RM	12.1	12.9	228	196
6 × 2.5 RF	13.3	14.1	294	253
6 × 2.5 RM	13.4	14.2	306	265
7 × 1 RF	10.8	11.6	174	149
7 × 1 RM	11	11.8	183	156
7 × 1.5 RF	11.9	12.7	223	192
7 × 1.5 RM	12.1	12.9	235	203



# FLAMEBLOCKER

## NKOXS 0.6/1 kV

### Cu/XLPE/LSOH

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
7 × 2.5 RF	13.3	14.1	306	265
7 × 2.5 RM	13.4	14.2	320	279
8 × 1.5 RF	12.6	13.4	247	214
8 × 1.5 RM	12.8	13.6	261	226
9 × 1.5 RF	13.7	14.5	292	244
9 × 1.5 RM	13.9	14.7	307	258
10 × 1 RF	13.6	14.4	250	209
10 × 1 RM	13.9	14.7	263	219
10 × 1.5 RF	15	15.8	320	270
10 × 1.5 RM	15.2	16	337	285
10 × 2.5 RF	16.9	17.7	441	374
10 × 2.5 RM	17	17.8	460	393
12 × 1 RF	14	14.8	275	236
12 × 1 RM	14.3	15.1	289	248
12 × 1.5 RF	15.4	16.2	353	306
12 × 1.5 RM	15.7	16.5	374	325
12 × 2.5 RF	17.6	18.4	500	438
12 × 2.5 RM	17.7	18.5	523	461
14 × 1.5 RF	16.2	17	394	346
14 × 1.5 RM	16.5	17.3	417	367
16 × 1 RF	15.6	16.4	347	306
16 × 1 RM	15.9	16.7	365	322
16 × 1.5 RF	17.2	18	448	398
16 × 1.5 RM	17.5	18.3	475	423
16 × 2.5 RF	19.5	20.3	629	563
16 × 2.5 RM	19.5	20.3	658	593
19 × 1 RF	16.4	17.2	387	344
19 × 1 RM	16.8	17.6	409	364
19 × 1.5 RF	18.1	18.9	503	451
19 × 1.5 RM	18.4	19.2	533	479
19 × 2.5 RF	20.7	21.5	720	652
19 × 2.5 RM	20.8	21.6	756	688
20 × 1 RF	17.3	18.1	435	384

# FLAMEBLOCKER

## NKXS 0.6/1 kV

### Cu/XLPE/LSOH

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
20 × 1 RM	17.8	18.6	460	406
20 × 1.5 RF	19	19.8	554	492
20 × 1.5 RM	19.3	20.1	587	522
20 × 2.5 RF	21.7	22.5	791	709
20 × 2.5 RM	21.8	22.6	829	747
24 × 1 RF	19.1	19.9	491	433
24 × 1 RM	19.6	20.4	519	458
24 × 1.5 RF	21.2	22	638	568
24 × 1.5 RM	21.6	22.4	677	604
24 × 2.5 RF	24.3	25.1	914	822
24 × 2.5 RM	24.3	25.1	958	866
27 × 1 RF	19.5	20.3	529	473
27 × 1 RM	20	20.8	559	500
27 × 1.5 RF	21.6	22.4	689	622
27 × 1.5 RM	22	22.8	732	662
27 × 2.5 RF	24.8	25.6	992	904
27 × 2.5 RM	24.9	25.7	1043	954
30 × 1 RF	20.4	21.2	582	525
30 × 1 RM	20.9	21.7	615	555
30 × 1.5 RF	22.4	23.2	747	678
30 × 1.5 RM	22.8	23.6	794	723
30 × 2.5 RF	25.9	26.7	1091	1002
30 × 2.5 RM	25.9	26.7	1146	1057
37 × 1 RF	21.9	22.7	683	623
37 × 1 RM	22.5	23.3	724	660
37 × 1.5 RF	24.3	25.1	895	822
37 × 1.5 RM	24.7	25.5	952	876
37 × 2.5 RF	27.9	28.7	1296	1201
37 × 2.5 RM	27.9	28.7	1364	1269

# FLAMEBLOCKER

## NKXS 0.6/1 kV

### Cu/XLPE/LSOH

## Electrical data

Cross-section of conductor	Conductor class 2				Conductor class 5			
	Bare copper		Tinned copper		Bare copper		Tinned copper	
	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C
	R <sub>20</sub>	R <sub>90</sub>	R <sub>20</sub>	R <sub>90</sub>	R <sub>20</sub>	R <sub>90</sub>	R <sub>20</sub>	R <sub>90</sub>
mm <sup>2</sup>	Ω/km	Ω/km	Ω/km	Ω/km	Ω/km	Ω/km	Ω/km	Ω/km
1	18.1	23.1	18.2	23.2	19.5	24.9	20.0	25.5
1.5	12.1	15.4	12.2	15.6	13.3	17.0	13.7	17.5
2.5	7.41	9.45	7.56	9.64	7.98	10.2	8.21	10.47
4	4.61	5.88	4.70	5.99	4.95	6.3	5.09	6.49
6	3.08	3.93	3.11	3.97	3.30	4.2	3.39	4.32
10	1.83	2.33	1.84	2.35	1.91	2.4	1.95	2.49
16	1.15	1.47	1.16	1.48	1.21	1.5	1.24	1.58
25	0.727	0.927	0.734	0.936	0.78	0.995	0.795	1.014
35	0.524	0.668	0.529	0.675	0.554	0.706	0.565	0.720
50	0.387	0.493	0.391	0.499	0.386	0.492	0.393	0.501
70	0.268	0.342	0.270	0.344	0.272	0.347	0.277	0.353
95	0.193	0.249	0.195	0.249	0.206	0.263	0.210	0.268
120	0.153	0.195	0.154	0.196	0.161	0.205	0.164	0.209
150	0.124	0.158	0.126	0.161	0.129	0.164	0.132	0.168
185	0.0991	0.1264	0.100	0.128	0.106	0.135	0.108	0.138
240	0.0754	0.0961	0.0762	0.0972	0.0801	0.1021	0.0817	0.1042
300	0.0601	0.0766	0.0607	0.0774	0.0641	0.0817	0.0654	0.0834

## Current ratings

Current ratings acc. to IEC 60092-352 based on ambient air temperature of 45°C

Nominal cross-sectional area	Insulation class temperature 90°C		
	1-core	2-cores	3-cores & 4-cores
mm <sup>2</sup>	A	A	A
1	18	15	13

# FLAMEBLOCKER

## NKXS 0.6/1 kV

### Cu/XLPE/LSOH

Nominal cross-sectional area	Insulation class temperature 90°C		
	1-core	2-cores	3-cores & 4-cores
1.5	23	20	16
2.5	40	26	21
4	51	34	28
6	52	44	36
10	72	61	50
16	96	82	67
25	127	108	89
35	157	133	110
50	196	167	137
70	242	206	169
95	293	249	205
120	339	288	237
150	389	331	272
185	444	377	311
240	522	444	365
300	601	511	421

Current ratings for more than 4-core cables:

Number of cores	Nominal cross-sectional area of conductor		
	1 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
	<b>A</b>	<b>A</b>	<b>A</b>
5	10.5	12	16
7	9	10	15
10	8	9	13
12	8	9	12
16	7	8	11
19	7	7	10
20	7	7	10
24	6	6.5	9.5
27	6	6.5	9
30	6	6	9
37	5	6	8



# FLAMEBLOCKER

## NKOXS 0.6/1 kV

### Cu/XLPE/LSOH

## Correction factors for different ambient air temperatures

The ambient temperature of 45°C, on which the current ratings are based, is considered as a standard value for the ambient air temperature, generally applicable for any kind of ship and for navigation in any climate.

## Correction factors for various ambient air temperatures

Maximum conductor temperature	90°C									
Ambient temperature °C	35	40	45	50	55	60	65	70	75	80
Correction factors	1.10	1.05	1.00	0.94	0.88	0.82	0.74	0.67	0.58	0.47

## Correction factors for cable grouping

Where more than six bunched cables on cable trays, in cable conduits, pipes or trunking are expected to operate simultaneously full rated capacity, a correction factor of 0.85 should be applied

## Short circuit ratings

Cross-section in mm <sup>2</sup>	Maximum short circuit current rating for 1 s, in kA	Maximum short circuit current rating for 3 s, in kA	Maximum short circuit current rating for 5 s, in kA
1	0.14	0.08	0.06
1.5	0.21	0.12	0.1
2.5	0.36	0.21	0.16
4	0.57	0.33	0.26
6	0.86	0.5	0.38
10	1.43	0.83	0.64

# FLAMEBLOCKER

## NKXS 0.6/1 kV

### Cu/XLPE/LSOH

Cross-section in mm <sup>2</sup>	Maximum short circuit current rating for 1 s, in kA	Maximum short circuit current rating for 3 s, in kA	Maximum short circuit current rating for 5 s, in kA
16	2.29	1.32	1.02
25	3.58	2.06	1.6
35	5.01	2.89	2.24
50	7.15	4.13	3.2
70	10.01	5.78	4.48
95	13.59	7.84	6.08
120	17.16	9.91	7.67
150	21.45	12.38	9.59
185	26.46	15.27	11.83
240	34.32	19.81	15.35
300	42.9	24.77	19.19

For 0.6/1 kV cable and maximum normal operating temperature +90°C, short circuit temperature up to 250°C



# FLAMEBLOCKER NKOXSekw FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

## IEC 60092-353

Halogen-free shipboard power cables with cross-linked polyethylene insulation, halogen-free sheath and screen ensuring full electromagnetic compatibility (EMC).

## CONSTRUCTION

<b>Conductors:</b>	<ul style="list-style-type: none"> <li>▪ Circular stranded bare or tinned copper class 2 (RM) 1 to 6mm<sup>2</sup></li> <li>▪ Circular compacted stranded bare or tinned copper class 2 (RM) 10 to 300 mm<sup>2</sup></li> <li>▪ Circular stranded bare or tinned copper class 5 (RF)</li> <li>▪ Sector shaped compacted stranded class 2 (SM) 35 to 300 mm<sup>2</sup> or sector stranded flex (SF) 70 to 150 mm<sup>2</sup></li> </ul> <p>Acc. to IEC 60092-350 and IEC 60228</p>	
<b>Insulation:</b>	<p>≤ 35 mm<sup>2</sup>: cross-linked polyethylene XLPE acc. to IEC 60092-360</p> <p>&gt; 35 mm<sup>2</sup>: cross-linked polyolefin compound HF 90 acc. to IEC 60092-360</p>	
<b>Inner covering:</b>	Bedding tape or/and extruded layer special flame-retardant, halogen-free compound	
<b>Screen:</b>	<p>NKOXSekw: Copper wire braiding</p> <p>NKOXSekw EMC: Copper/polyester tape (coverage 100%) &amp; copper wire braid</p> <p>Acc. to IEC 60092-350</p>	
<b>Sheath:</b>	Halogen-free thermoplastic compound type SHF 1 acc. to IEC 60092-360	
<b>Colour of sheath:</b>	Black, grey or other agreed	
<b>Core identification:</b>		
	<b>Without green-yellow</b>	<b>With green-yellow</b>
<b>HD 308 S2:</b>		
2-core:	Blue, brown	–
3-core:	Brown, black, grey	Green-yellow, blue, brown
4-core:	Blue, brown, black, grey	Green-yellow, brown, black, grey
5-core:	Blue, brown, black, grey, black	Green-yellow, blue, brown, black, grey
6 and more:	Numbered cores	Green-yellow, other cores numbered
	Other colors available on request	Other colors available on request



# FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

## CHARACTERISTIC

Rated voltage $U_o/U/ U_m$ :	AC 0.6/1 (1.2) kV DC 0.9/1.5 kV
Test voltage:	3.5 kV
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius for:	NKOXSekw: $6 \times D$ for cables with circular copper conductors and $8 \times D$ for cables with sector shaped copper conductors NKOXSekw EMC: $8 \times D$ D – overall diameter of the cable

## Fire performance

Flame retardant:	IEC 60332-1-2 IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-1 IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH $\geq 4.3$ ; conductivity $\leq 10 \mu\text{Smm}^{-1}$

## Applications

For fixed marine installations. Available is also version with EMC (Electro Magnetic Compatibility) protection

Standard length cable packing:	1 000 m on drums Other forms of packing and delivery are available on request
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## Approvals

DNV-GL, ABS, LR, PRS, BV, RINA

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

# FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables		
	Extruded bedding	Tape bedding	Extruded bedding EMC	Extruded bedding	Tape bedding	Extruded bedding EMC
<b>n × mm<sup>2</sup></b>	<b>mm</b>			<b>kg/km</b>		
1 × 1 RF	6.2	7	7.6	66	73	95
1 × 1 RM	6.3	7.1	7.7	68	75	97
1 × 1.5 RF	6.5	7.3	7.9	73	79	103
1 × 1.5 RM	6.6	7.4	8	75	81	105
1 × 2.5 RF	7	7.8	8.4	91	91	123
1 × 2.5 RM	7	7.8	8.4	93	93	125
1 × 4 RF	7.5	8.3	8.9	107	113	141
1 × 4 RM	7.5	8.3	8.9	110	116	144
1 × 6 RF	8	8.8	9.6	128	133	174
1 × 6 RM	8.1	8.9	9.7	133	138	180
1 × 10 RF	9.2	10	10.6	181	186	222
1 × 10 RM	9	9.8	10.4	184	188	223
1 × 16 RF	10.3	11.1	11.7	246	250	291
1 × 16 RM	10	10.8	11.4	250	254	294
1 × 25 RF	12.9	13.1	13.7	377	357	416
1 × 25 RM	12.7	12.9	13.5	390	370	428
1 × 35 RF	13.9	14.1	14.7	481	459	514
1 × 35 RM	13.8	14	14.6	496	474	528
1 × 50 RF	16.6	16.8	17.4	716	689	753
1 × 50 RM	16.1	16.3	16.9	688	663	744
1 × 70 RF	18.8	19	19.6	931	900	994
1 × 70 RM	17.8	18	18.6	926	897	966
1 × 95 RF	20.9	21.1	21.7	1171	1134	1219
1 × 95 RM	19.8	20	20.6	1208	1174	1253
1 × 120 RF	22.4	22.6	23.2	1443	1404	1495
1 × 120 RM	21.6	21.8	22.4	1467	1429	1536
1 × 150 RF	24.8	25	25.6	1750	1726	1827
1 × 150 RM	23.6	23.8	24.4	1784	1742	1838
1 × 185 RF	27.5	27.7	28.5	2100	2078	2207
1 × 185 RM	25.7	25.9	26.7	2175	2129	2247
1 × 240 RF	29.4	29.6	30.2	2658	2604	2727



# FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables		
	Extruded bedding	Tape bedding	Extruded bedding EMC	Extruded bedding	Tape bedding	Extruded bedding EMC
1 × 240 RM	28.6	28.8	29.4	2766	2714	2833
1 × 300 RF	33.4	33.6	34.2	3281	3217	3359
1 × 300 RM	30.8	31	31.6	3369	3312	3441
2 × 1 RF	9	9.8	10.4	128	117	168
2 × 1 RM	9.1	9.9	10.5	131	119	172
2 × 1.5 RF	9.6	10.4	11	151	130	194
2 × 1.5 RM	9.7	10.5	11.1	156	133	198
2 × 2.5 RF	10.6	11.4	12	184	160	236
2 × 2.5 RM	10.6	11.4	12	188	163	240
2 × 4 RF	11.7	12.5	13.1	236	203	286
2 × 4 RM	11.8	12.6	13.2	244	210	303
2 × 6 RF	12.9	13.7	14.3	297	254	355
2 × 6 RM	12.9	13.7	14.3	307	264	365
2 × 10 RF	15.3	16.1	16.7	461	387	537
2 × 10 RM	15	15.8	16.4	462	392	537
2 × 16 RF	17.8	18.6	19.2	643	535	730
2 × 16 RM	17.2	18	18.6	641	543	706
2 × 25 RF	22.1	22.1	22.9	975	842	1026
2 × 25 RM	21.8	21.8	22.6	974	846	1044
2 × 35 RF	24.4	24.4	25.2	1224	1062	1300
2 × 35 RM	24.1	24.1	24.9	1246	1089	1322
2 × 50 RF	28.6	28.6	29.4	1719	1498	1786
2 × 50 RM	27.5	27.5	28.3	1643	1439	1737
3 × 1 RF	9.4	10.2	10.8	140	132	187
3 × 1 RM	9.6	10.4	11	150	135	193
3 × 1.5 RF	10	10.8	11.4	167	155	211
3 × 1.5 RM	10.2	11	11.6	173	160	218
3 × 2.5 RF	11.1	11.9	12.7	213	195	268
3 × 2.5 RM	11.1	11.9	12.7	219	200	273
3 × 4 RF	12.3	13.1	13.7	277	246	333
3 × 4 RM	12.4	13.2	13.8	289	265	345
3 × 6 RF	13.5	14.3	15.5	357	315	455
3 × 6 RM	13.6	14.4	15.6	372	329	471
3 × 10 RF	16.1	16.9	17.5	545	505	625

# FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables		
	Extruded bedding	Tape bedding	Extruded bedding EMC	Extruded bedding	Tape bedding	Extruded bedding EMC
3 × 10 RM	15.8	16.6	17.2	552	514	630
3 × 16 RF	18.8	19.6	20.2	776	707	866
3 × 16 RM	18.2	19	19.6	781	720	869
3 × 25 RF	23.4	23.4	24.4	1180	1064	1246
3 × 25 RM	23	23	24	1214	1100	1279
3 × 35 RF	25.8	25.8	26.8	1528	1387	1601
3 × 35 RM	25.5	25.5	26.5	1568	1430	1640
3 × 50 RF	30.5	30.5	31.3	2152	1960	2224
3 × 50 RM	29.3	29.3	30.1	2107	1929	2176
3 × 70 RF	35.2	35	36.2	2922	2648	3051
3 × 70 RM	33	32.8	34	2860	2623	2953
3 × 70SF	31	30.8	32	2603	2470	2690
3 × 70 SM	29.5	29.3	30.5	2571	2452	2654
3 × 95 RF	39.9	39.7	41.1	3777	3394	3911
3 × 95 RM	37.4	37.2	38.6	3786	3480	3911
3 × 95SF	33.8	33.6	35	3302	3148	3414
3 × 95 SM	32.6	32.4	33.8	3396	3253	3504
3 × 120 RF	43.5	43.3	44.5	4741	4341	4864
3 × 120 RM	41.7	41.5	42.7	4767	4401	4937
3 × 120SF	38.3	38.1	39.3	4262	4074	4369
3 × 120 SM	36.3	36.1	37.3	4270	4102	4424
3 × 150 RF	49.2	48.6	50.2	5924	5373	6063
3 × 150 RM	46.5	45.7	47.5	5883	5375	6067
3 × 150SF	42.9	42.1	43.9	5347	5061	5467
3 × 150 SM	40.8	40	41.8	5293	5033	5407
3 × 185 RF	55	54.4	56.2	7194	6510	7378
3 × 185 RM	51.2	50.6	52.4	7228	6640	7399
3 × 240 RF	59.2	58.4	60.6	8981	8166	9219
3 × 240 RM	57.6	56.8	59	9233	8474	9457
4 × 1 RF	10.1	10.9	11.5	162	154	207
4 × 1 RM	10.2	11	11.6	167	158	212
4 × 1.5 RF	10.8	11.6	12.4	195	176	248
4 × 1.5 RM	10.9	11.7	12.5	202	183	255
4 × 2.5 RF	12.2	13	13.6	257	232	312

# FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables		
	Extruded bedding	Tape bedding	Extruded bedding EMC	Extruded bedding	Tape bedding	Extruded bedding EMC
4 × 2.5 RM	12.2	13	13.6	264	239	320
4 × 4 RF	13.3	14.1	15.3	332	300	429
4 × 4 RM	13.4	14.2	15.4	346	313	444
4 × 6 RF	15.3	16.1	16.7	468	426	544
4 × 6 RM	15.4	16.2	16.8	487	464	564
4 × 10 RF	17.7	18.5	19.1	676	616	762
4 × 10 RM	17.3	18.1	18.7	685	629	750
4 × 16 RF	20.7	21.5	22.1	962	874	1060
4 × 16 RM	20	20.8	21.4	973	893	1048
4 × 25 RF	25.7	25.7	26.5	1467	1345	1527
4 × 25 RM	25.3	25.3	26.1	1514	1395	1573
4 × 35 RF	28.4	28.4	29.2	1919	1771	1986
4 × 35 RM	28	28	28.8	1974	1832	2040
4 × 50 RF	33.6	33.6	34.4	2709	2509	2788
4 × 50 RM	32.2	32.2	33	2656	2474	2732
4 × 70 RF	38.8	38.6	39.8	3685	3403	3795
4 × 70 RM	36.4	36.2	37.4	3621	3373	3724
4 × 70 SF	35.2	35	36.2	3452	3302	3582
4 × 70 SM	33.2	33	34.2	3322	3192	3416
4 × 95 RF	44.7	44.5	45.7	4882	4518	5009
4 × 95 RM	41.9	41.7	42.9	4956	4589	5074
4 × 95 SF	40.3	40.1	41.3	4708	4525	4821
4 × 95 SM	37.4	37.2	38.4	4530	4372	4635
4 × 120 RF	48.3	47.7	49.5	6035	5581	6196
4 × 120 RM	46.3	45.7	47.5	6104	5687	6310
4 × 120 SF	43.6	43	44.8	5836	5580	5983
4 × 120 SM	41.7	41.1	42.9	5592	5369	5783
4 × 150 RF	54.2	53.6	55.4	7479	6915	7659
4 × 150 RM	51.2	50.6	52.4	7472	6968	7643
4 × 150 SF	48.2	47.6	49.4	7141	6843	7305
4 × 150 SM	46	45.4	47.2	6856	6595	7009
4 × 185 RF	60.9	60.3	61.9	9084	8379	9268
4 × 185 RM	56.7	56.1	57.7	9221	8616	9382
4 × 240 RF	65.8	65	67	11469	10636	11701
4 × 240 RM	64	63.2	65.2	11818	11028	12043

# FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables		
	Extruded bedding	Tape bedding	Extruded bedding EMC	Extruded bedding	Tape bedding	Extruded bedding EMC
5 × 1 RF	10.8	11.6	12.4	190	174	243
5 × 1 RM	11	11.8	12.6	197	186	250
5 × 1.5 RF	11.8	12.6	13.2	228	215	288
5 × 1.5 RM	12	12.8	13.4	243	223	298
5 × 2.5 RF	13.1	13.9	14.5	297	280	356
5 × 2.5 RM	13.2	14	14.6	316	289	366
5 × 4 RF	15	15.8	16.4	435	402	511
5 × 4 RM	15.2	16	16.6	454	419	530
5 × 6 RF	16.6	17.4	18.2	566	522	637
5 × 6 RM	16.7	17.5	18.3	591	546	662
5 × 10 RF	19.2	20	20.8	819	756	901
5 × 10 RM	18.8	19.6	20.4	812	772	912
5 × 16 RF	22.6	23.4	24	1171	1079	1256
5 × 16 RM	21.7	22.5	23.1	1163	1099	1265
5 × 25 RF	28.2	28.2	29	1796	1612	1862
5 × 25 RM	27.7	27.7	28.5	1855	1678	1920
5 × 35 RF	31.2	31.2	32	2320	2095	2423
5 × 35 RM	30.8	30.8	31.6	2389	2171	2462
5 × 50 RF	37.1	36.9	38.1	3334	3005	3439
5 × 50 RM	35.6	35.4	36.6	3241	2939	3371
5 × 70 RF	43.3	43.1	44.3	4666	4229	4788
5 × 70 RM	40.6	40.4	41.6	4537	4155	4651
6 × 1.5 RF	12.7	13.5	14.1	264	252	321
6 × 1.5 RM	12.9	13.7	14.3	275	262	333
6 × 2.5 RF	14.7	15.5	16.1	394	366	449
6 × 2.5 RM	14.8	15.6	16.2	406	378	481
7 × 1 RF	11.8	12.6	13.2	222	212	282
7 × 1 RM	12	12.8	13.4	237	219	291
7 × 1.5 RF	12.7	13.5	14.1	270	258	328
7 × 1.5 RM	12.9	13.7	14.3	282	269	340
7 × 2.5 RF	14.7	15.5	16.1	406	378	461
7 × 2.5 RM	14.8	15.6	16.2	420	392	494
8 × 1.5 RF	14	14.8	15.4	348	326	400
8 × 1.5 RM	14.2	15	15.6	362	339	415
9 × 1.5 RF	14.9	15.7	16.3	383	350	459

# FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables		
	Extruded bedding	Tape bedding	Extruded bedding EMC	Extruded bedding	Tape bedding	Extruded bedding EMC
9 × 1.5 RM	15.1	15.9	16.5	399	364	475
10 × 1 RF	15	15.8	16.4	350	322	426
10 × 1 RM	15.3	16.1	16.7	363	333	439
10 × 1.5 RF	16.2	17	17.8	431	396	500
10 × 1.5 RM	16.4	17.2	18	448	411	518
10 × 2.5 RF	18.3	19.1	19.7	556	529	645
10 × 2.5 RM	18.4	19.2	19.8	576	548	664
12 × 1 RF	15.4	16.2	16.8	375	369	452
12 × 1 RM	15.7	16.5	17.1	389	381	468
12 × 1.5 RF	16.8	17.6	18.2	473	440	535
12 × 1.5 RM	17.1	17.9	18.5	493	459	557
12 × 2.5 RF	18.8	19.6	20.2	608	584	699
12 × 2.5 RM	18.9	19.7	20.3	631	607	722
14 × 1.5 RF	17.6	18.4	19	513	480	599
14 × 1.5 RM	17.9	18.7	19.3	536	502	623
16 × 1 RF	17	17.8	18.4	467	440	531
16 × 1 RM	17.3	18.1	18.7	486	457	550
16 × 1.5 RF	18.4	19.2	19.8	559	544	647
16 × 1.5 RM	18.7	19.5	20.1	585	569	675
16 × 2.5 RF	20.9	21.7	22.3	765	720	864
16 × 2.5 RM	20.9	21.7	22.3	794	749	893
19 × 1 RF	17.8	18.6	19.2	508	479	594
19 × 1 RM	18.2	19	19.6	529	518	617
19 × 1.5 RF	19.5	20.3	20.9	642	607	715
19 × 1.5 RM	19.8	20.6	21.2	672	635	747
19 × 2.5 RF	21.9	22.7	23.5	866	818	960
19 × 2.5 RM	22	22.8	23.6	902	854	996
20 × 1 RF	18.5	19.3	19.9	532	516	621
20 × 1 RM	19	19.8	20.4	575	538	647
20 × 1.5 RF	20.4	21.2	21.8	674	631	771
20 × 1.5 RM	20.7	21.5	22.1	706	661	804
20 × 2.5 RF	23.1	23.9	24.5	922	864	1029
20 × 2.5 RM	23.2	24	24.6	959	901	1067
24 × 1 RF	20.5	21.3	21.9	629	590	726



# FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables		
	Extruded bedding	Tape bedding	Extruded bedding EMC	Extruded bedding	Tape bedding	Extruded bedding EMC
24 × 1 RM	21	21.8	22.4	657	634	756
24 × 1.5 RF	22.6	23.4	24	794	745	880
24 × 1.5 RM	23	23.8	24.4	833	782	920
24 × 2.5 RF	25.7	26.5	27.1	1086	1021	1184
24 × 2.5 RM	25.7	26.5	27.1	1130	1065	1228
27 × 1 RF	20.9	21.7	22.3	668	630	766
27 × 1 RM	21.4	22.2	22.8	697	677	798
27 × 1.5 RF	23	23.8	24.4	846	799	933
27 × 1.5 RM	23.4	24.2	24.8	889	840	997
27 × 2.5 RF	26.2	27	27.6	1165	1103	1294
27 × 2.5 RM	26.3	27.1	27.7	1216	1153	1345
30 × 1 RF	21.6	22.4	23.2	711	692	823
30 × 1 RM	22.1	22.9	23.7	763	722	857
30 × 1.5 RF	23.8	24.6	25.2	904	876	1014
30 × 1.5 RM	24.2	25	25.6	951	921	1062
30 × 2.5 RF	27.1	27.9	28.5	1252	1219	1384
30 × 2.5 RM	27.1	27.9	28.5	1307	1273	1439
37 × 1 RF	23.3	24.1	24.7	842	801	950
37 × 1 RM	23.9	24.7	25.3	882	858	992
37 × 1.5 RF	25.7	26.5	27.1	1071	1021	1169
37 × 1.5 RM	26.1	26.9	27.5	1128	1076	1256
37 × 2.5 RF	29.3	30.1	30.7	1499	1432	1610
37 × 2.5 RM	29.3	30.1	30.7	1566	1500	1678

## Electrical data

Cross-section of conductor	Conductor class 2				Conductor class 5			
	Bare copper		Tinned copper		Bare copper		Tinned copper	
	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C
mm <sup>2</sup>	R <sub>20</sub> Ω/km	R <sub>90</sub> Ω/km	R <sub>20</sub> Ω/km	R <sub>90</sub> Ω/km	R <sub>20</sub> Ω/km	R <sub>90</sub> Ω/km	R <sub>20</sub> Ω/km	R <sub>90</sub> Ω/km
1	18.1	23.1	18.2	23.2	19.5	24.9	20.0	25.5
1.5	12.1	15.4	12.2	15.6	13.3	17.0	13.7	17.5
2.5	7.41	9.45	7.56	9.64	7.98	10.2	8.21	10.47

# FLAMEBLOCKER NKOXSekw FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

Cross- -section of conductor	Conductor class 2				Conductor class 5			
	Bare copper		Tinned copper		Bare copper		Tinned copper	
	Maximum resistance at 20°C R <sub>20</sub>	Maximum resistance at 90°C R <sub>90</sub>	Maximum resistance at 20°C R <sub>20</sub>	Maximum resistance at 90°C R <sub>90</sub>	Maximum resistance at 20°C R <sub>20</sub>	Maximum resistance at 90°C R <sub>90</sub>	Maximum resistance at 20°C R <sub>20</sub>	Maximum resistance at 90°C R <sub>90</sub>
4	4.61	5.88	4.70	5.99	4.95	6.3	5.09	6.49
6	3.08	3.93	3.11	3.97	3.30	4.2	3.39	4.32
10	1.83	2.33	1.84	2.35	1.91	2.4	1.95	2.49
16	1.15	1.47	1.16	1.48	1.21	1.5	1.24	1.58
25	0.727	0.927	0.734	0.936	0.78	0.995	0.795	1.014
35	0.524	0.668	0.529	0.675	0.554	0.706	0.565	0.720
50	0.387	0.493	0.391	0.499	0.386	0.492	0.393	0.501
70	0.268	0.342	0.270	0.344	0.272	0.347	0.277	0.353
95	0.193	0.249	0.195	0.249	0.206	0.263	0.210	0.268
120	0.153	0.195	0.154	0.196	0.161	0.205	0.164	0.209
150	0.124	0.158	0.126	0.161	0.129	0.164	0.132	0.168
185	0.0991	0.1264	0.100	0.128	0.106	0.135	0.108	0.138
240	0.0754	0.0961	0.0762	0.0972	0.0801	0.1021	0.0817	0.1042
300	0.0601	0.0766	0.0607	0.0774	0.0641	0.0817	0.0654	0.0834

## Current ratings

Current ratings acc. to IEC 60092-352 based on ambient air temperature of 45°C

Nominal cross-sectional area mm <sup>2</sup>	Insulation class temperature 90°C		
	1-core	2-cores	3-cores & 4-cores
	A	A	A
1	18	15	13
1.5	23	20	16
2.5	40	26	21
4	51	34	28
6	52	44	36
10	72	61	50
16	96	82	67
25	127	108	89
35	157	133	110
50	196	167	137

# FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

Nominal cross-sectional area mm <sup>2</sup>	Insulation class temperature 90°C		
	1-core A	2-cores A	3-cores & 4-cores A
70	242	206	169
95	293	249	205
120	339	288	237
150	389	331	272
185	444	377	311
240	522	444	365
300	601	511	421

Current ratings for more than 4-core cables:

Number of cores	Nominal cross-sectional area of conductor		
	1 mm <sup>2</sup> A	1.5 mm <sup>2</sup> A	2.5 mm <sup>2</sup> A
5	10.5	12	16
7	9	10	15
10	8	9	13
12	8	9	12
16	7	8	11
19	7	7	10
20	7	7	10
24	6	6.5	9.5
27	6	6.5	9
30	6	6	9
37	5	6	8

## Correction factors for different ambient air temperatures

The ambient temperature of 45°C, on which the current ratings are based, is considered as a standard value for the ambient air temperature, generally applicable for any kind of ship and for navigation in any climate.

## FLAMEBLOCKER NKOXSekw

## FLAMEBLOCKER NKOXSekw EMC

Cu/XLPE/LSOH/CWB/LSOH 0.6/1 kV

Cu/XLPE/LSOH/CWB/LSOH EMC 0.6/1 kV

### Correction factors for various ambient air temperatures

Maximum conductor temperature	90°C									
Ambient temperature°C	35	40	45	50	55	60	65	70	75	80
Correction factors	1.10	1.05	1.00	0.94	0.88	0.82	0.74	0.67	0.58	0.47

### Correction factors for cable grouping

Where more than six bunched cables on cable trays, in cable conduits, pipes or trunking are expected to operate simultaneously full rated capacity, a correction factor of 0.85 should be applied.

### Short circuit ratings (non-adiabatic)

Cross-section in mm <sup>2</sup>	Maximum short circuit current rating for 1 s, in kA	Maximum short circuit current rating for 3 s, in kA	Maximum short circuit current rating for 5 s, in kA
1	0.14	0.08	0.06
1.5	0.21	0.12	0.1
2.5	0.36	0.21	0.16
4	0.57	0.33	0.26
6	0.86	0.5	0.38
10	1.43	0.83	0.64
16	2.29	1.32	1.02
25	3.58	2.06	1.6
35	5.01	2.89	2.24
50	7.15	4.13	3.2
70	10.01	5.78	4.48
95	13.59	7.84	6.08
120	17.16	9.91	7.67
150	21.45	12.38	9.59
185	26.46	15.27	11.83
240	34.32	19.81	15.35
300	42.9	24.77	19.19

For 0.6/1 kV cable and maximum normal operating temperature +90°C, short circuit temperature up to 250°C.



# FLAME-X 950

NKOGs 0.6/1 kV

Cu/SiR/LSOH 0.6/1 kV

## IEC 60092-353

Halogen-free, fire resistant shipboard power cables with cross-linked insulation and halogen-free sheath.

## CONSTRUCTION

Conductors:	Circular or circular compacted stranded bare or tinned copper class 2 (RM) acc. to IEC 60092-350 and IEC 60228	
Insulation:	Special cross-linked compound S 95 acc. to IEC 60092-360	
Inner covering:	Bedding tape or/and extruded layer special flame-retardant, halogen-free compound	
Sheath:	Halogen-free thermoplastic compound type SHF 1 acc. to IEC 60092-360	
Colour of sheath:	Orange, black or other agreed	
Core identification:		
	<b>Without green-yellow</b>	<b>With green-yellow</b>
HD 308 S2:		
2-core:	Blue, brown	–
3-core:	Brown, black, grey	Green-yellow, blue, brown
4-core:	Blue, brown, black, grey	Green-yellow, brown, black, grey
5-core:	Blue, brown, black, grey, black	Green-yellow, blue, brown, black, grey
7 and more:	Numbered cores	Green-yellow, other cores numbered
	Other colors available on request	Other colors available on request



## CHARACTERISTIC

Rated voltage $U_0/U_m$ :	AC 0.6/1 (1.2) kV DC 0.9/1.5 kV
Test voltage:	3.5 kV
Maximum conductor operating temperature:	+95°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Maximum short-circuit conductor temperature:	+350°C <sup>1)</sup>

# FLAME-X 950

NKOGs 0.6/1 kV

Cu/SiR/LSOH 0.6/1 kV

Minimum bending radius for cable with overall diameter (D):	D < 25 mm	4D
	D > 25 mm	6D

<sup>1)</sup> temperature applicable only to power cables and is not appropriate for tinned conductors

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## Fire performance

Fire resistant :	IEC 60331-21: for cable diameters ≤ 20 mm, IEC 60331-1: for cable diameters > 20 mm
Flame retardant:	IEC 60332-1-2 IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-1 IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>

## Applications

For fixed marine installations, where circuit integrity is required under fire conditions

## Approvals

DNV-GL, ABS, LR, PRS, BV, RINA

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
<b>n × mm<sup>2</sup></b>	<b>mm</b>		<b>kg/km</b>	
1 × 1 RM	–	5.3	–	39
1 × 1.5 RM	–	5.6	–	46
1 × 2.5 RM	–	6	–	58



# FLAME-X 950

NKOGs 0.6/1 kV

Cu/SiR/LSOH 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
1 × 4 RM	–	6.5	–	76
1 × 6 RM	–	7.1	–	99
1 × 10 RM	–	8.2	–	147
1 × 16 RM	–	9.2	–	208
1 × 25 RM	–	11.1	–	316
1 × 35 RM	–	12.2	–	413
1 × 50 RM	–	14.1	–	555
1 × 70 RM	–	15.4	–	755
1 × 95 RM	–	18	–	1034
1 × 120 RM	–	19.6	–	1279
1 × 150 RM	–	21.6	–	1564
1 × 185 RM	–	23.7	–	1941
1 × 240 RM	–	26.8	–	2507
1 × 300 RM	–	29.2	–	3116
2 × 1 RM	9.5	10.3	128	92
2 × 1.5 RM	10.1	10.9	150	107
2 × 2.5 RM	11	11.8	187	134
2 × 4 RM	12.2	13	244	177
2 × 6 RM	13.3	14.1	308	225
2 × 10 RM	15.2	16	431	324
2 × 16 RM	18	18.2	636	460
2 × 25 RM	21.8	21.8	819	756
2 × 35 RM	24.1	24.1	1056	986
2 × 50 RM	27.7	27.7	1398	1316
3 × 1 RM	10	10.8	144	114
3 × 1.5 RM	10.7	11.5	171	135
3 × 2.5 RM	11.8	12.6	222	178
3 × 4 RM	12.9	13.7	288	232
3 × 6 RM	14.1	14.9	370	300
3 × 10 RM	16.1	16.9	527	438
3 × 16 RM	19	19.2	783	631
3 × 25 RM	23.1	23.1	1075	1007
3 × 35 RM	25.6	25.6	1401	1326

# FLAME-X 950

NKOGs 0.6/1 kV

Cu/SiR/LSOH 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
3 × 50 RM	29.6	29.6	1879	1791
3 × 70 RM	32.9	32.7	2553	2436
3 × 95 RM	38.4	38.2	3488	3351
3 × 120 RM	41.6	41.4	4264	4114
3 × 150 RM	46.6	46	5281	5060
3 × 185 RM	51.1	50.5	6519	6276
3 × 240 RM	58	57.2	8425	8115
4 × 1 RM	10.9	11.7	169	138
4 × 1.5 RM	11.8	12.6	207	171
4 × 2.5 RM	12.8	13.6	264	219
4 × 4 RM	14.1	14.9	346	290
4 × 6 RM	15.6	16.4	456	386
4 × 10 RM	17.8	18.6	654	565
4 × 16 RM	21	21.2	974	818
4 × 25 RM	25.5	25.5	1365	1290
4 × 35 RM	28.3	28.3	1787	1703
4 × 50 RM	33	32.8	2419	2302
4 × 70 RM	36.4	36.2	3279	3149
4 × 95 RM	42.5	42.3	4478	4325
4 × 120 RM	46.5	45.9	5547	5326
4 × 150 RM	51.8	51.2	6820	6573
4 × 185 RM	57	56.2	8463	8159
4 × 240 RM	64.6	63.8	10926	10580
5 × 1 RM	12	12.8	206	174
5 × 1.5 RM	12.8	13.6	247	209
5 × 2.5 RM	14	14.8	318	271
5 × 4 RM	15.6	16.4	428	369
5 × 6 RM	17.3	18.1	564	491
5 × 10 RM	19.4	20.2	798	705
5 × 16 RM	23	23.2	1191	1026
5 × 25 RM	28.2	28.2	1657	1574
5 × 35 RM	31.2	31.2	2172	2079
5 × 50 RM	36.4	36.2	2937	2806

# FLAME-X 950

NKOGs 0.6/1 kV

Cu/SiR/LSOH 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
5 × 70 RM	40.4	40	4008	3844
6 × 1.5 RM	13.9	14.7	290	249
6 × 2.5 RM	15.4	16.2	382	331
7 × 1 RM	13	13.8	247	211
7 × 1.5 RM	13.9	14.7	299	257
7 × 2.5 RM	15.4	16.2	398	347
8 × 1.5 RM	14.9	15.7	338	294
9 × 1.5 RM	16	16.8	391	327
10 × 1 RM	16.5	17.3	355	297
10 × 1.5 RM	17.8	18.6	438	371
10 × 2.5 RM	19.6	20.4	573	490
12 × 1 RM	17	17.8	392	338
12 × 1.5 RM	18.4	19.2	486	424
12 × 2.5 RM	20.4	21.2	650	573
14 × 1.5 RM	19.3	20.1	543	479
16 × 1 RM	19	19.8	497	440
16 × 1.5 RM	20.5	21.3	618	553
16 × 2.5 RM	22.6	23.4	820	739
19 × 1 RM	20.2	21	566	507
19 × 1.5 RM	21.6	22.4	695	627
19 × 2.5 RM	24	24.8	939	856
20 × 1 RM	21.1	21.9	604	533
20 × 1.5 RM	22.9	23.7	754	671
20 × 2.5 RM	25.1	25.9	1001	900
24 × 1 RM	23.6	24.4	717	637
24 × 1.5 RM	25.4	26.2	883	790
24 × 2.5 RM	28.1	28.9	1191	1077
27 × 1 RM	24.1	24.9	774	697
27 × 1.5 RM	26.1	26.9	968	880
27 × 2.5 RM	29	29.8	1310	1201
30 × 1 RM	25	25.8	838	760
30 × 1.5 RM	27	27.8	1050	960
30 × 2.5 RM	30	30.8	1425	1315

# FLAME-X 950

NKOGs 0.6/1 kV

Cu/SiR/LSOH 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
37 × 1 RM	27.1	27.9	1001	919
37 × 1.5 RM	29.3	30.1	1258	1163
37 × 2.5 RM	32.7	33.3	1730	1595

## Current ratings (non-adiabatic)

Current ratings acc. to IEC 60092-352 based on ambient air temperature of 45°C

Nominal cross-sectional area mm <sup>2</sup>	Insulation class temperature 90°C		
	1-core	2-cores	3-cores & 4-cores
1	18	15	13
1.5	23	20	16
2.5	40	26	21
4	51	34	28
6	52	44	36
10	72	61	50
16	96	82	67
25	127	108	89
35	157	133	110
50	196	167	137
70	242	206	169
95	293	249	205
120	339	288	237
150	389	331	272
185	444	377	311
240	522	444	365
300	601	511	421



# FLAME-X 950

NKOGs 0.6/1 kV

Cu/SiR/LSOH 0.6/1 kV

Current ratings for more than 4-core cables:

Number of cores	Nominal cross-sectional area of conductor		
	1 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
	A	A	A
5	10.5	12	16
7	9	10	15
10	8	9	13
12	8	9	12
16	7	8	11
19	7	7	10
20	7	7	10
24	6	6.5	9.5
27	6	6.5	9
30	6	6	9
37	5	6	8

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## Correction factors for different ambient air temperatures

The ambient temperature of 45°C, on which the current ratings are based, is considered as a standard value for the ambient air temperature, generally applicable for any kind of ship and for navigation in any climate.

## Correction factors for various ambient air temperatures

Maximum conductor temperature	90°C										
	Ambient temperature °C	35	40	45	50	55	60	65	70	75	80
Correction factors		1.10	1.05	1.00	0.94	0.88	0.82	0.74	0.67	0.58	0.47

# FLAME-X 950

NKOGs 0.6/1 kV

Cu/SiR/LSOH 0.6/1 kV

## Correction factors for cable grouping

Where more than six bunched cables on cable trays, in cable conduits, pipes or trunking are expected to operate simultaneously full rated capacity, a correction factor of 0.85 should be applied.

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## Short circuit ratings

Cross-section in mm <sup>2</sup>	Maximum short circuit current rating for 1 s, in kA	Maximum short circuit current rating for 3 s, in kA	Maximum short circuit current rating for 5 s, in kA
1	0.14	0.08	0.06
1.5	0.21	0.12	0.1
2.5	0.36	0.21	0.16
4	0.57	0.33	0.26
6	0.86	0.5	0.38
10	1.43	0.83	0.64
16	2.29	1.32	1.02
25	3.58	2.06	1.6
35	5.01	2.89	2.24
50	7.15	4.13	3.2
70	10.01	5.78	4.48
95	13.59	7.84	6.08
120	17.16	9.91	7.67
150	21.45	12.38	9.59
185	26.46	15.27	11.83
240	34.32	19.81	15.35
300	42.9	24.77	19.19

For 0.6/1 kV cable and maximum normal operating temperature +90°C. Short circuit temperature up to 250°C



# FLAME-X 950 NKOGsekw 0.6/1 kV

## FLAME-X 950 NKOGsekw EMC 0.6/1 kV

Cu/SiR/LSOH/CWB/LSOH 0.6/1 kV

Cu/SiR/LSOH/CWB/LSOH EMC 0.6/1 kV

### IEC 60092-353

Halogen-free, fire resistant shipboard power cables with cross-linked insulation, halogen-free sheath and screen ensuring full electromagnetic compatibility (EMC).

## CONSTRUCTION

<b>Conductors:</b>	Circular or circular compacted stranded bare or tinned copper class 2 (RM) acc. to IEC 60092-350 and IEC 60228	
<b>Insulation:</b>	Special cross-linked compound S 95 acc. to IEC 60092-360	
<b>Inner covering:</b>	Bedding tape or/and extruded layer special flame-retardant, halogen-free compound	
<b>Screen:</b>	NKOGsekw: copper wire braiding NKOGsekw EMC: copper/polyester tape (coverage 100%) & copper wire braid acc. to IEC 60092-350	
<b>Sheath:</b>	Halogen-free thermoplastic compound type SHF 1 acc. to IEC 60092-360	
<b>Colour of sheath:</b>	Orange, black or other agreed	
<b>Core identification:</b>		
	<b>Without green-yellow</b>	<b>With green-yellow</b>
HD 308 S2:		
2-core:	Blue, brown	–
3-core:	Brown, black, grey	Green-yellow, blue, brown
4-core:	Blue, brown, black, grey	Green-yellow, brown, black, grey
5-core:	Blue, brown, black, grey, black	Green-yellow, blue, brown, black, grey
7 and more:	Numbered cores	Green-yellow, other cores numbered
	Other colors available on request	Other colors available on request



# FLAME-X 950 NKOGsekw 0.6/1 kV

## FLAME-X 950 NKOGsekw EMC 0.6/1 kV

### Cu/SiR/LSOH/CWB/LSOH 0.6/1 kV

### Cu/SiR/LSOH/CWB/LSOH EMC 0.6/1 kV

## CHARACTERISTIC

Rated voltage $U_o/U/ U_m$ :	AC 0.6/1 (1.2) kV DC 0.9/1.5 kV
Test voltage:	3.5 kV
Maximum conductor operating temperature:	+95°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Maximum short-circuit conductor temperature:	+350°C <sup>1)</sup>
Minimum bending radius for:	NKOGsekw: 6 × D NKOGsekw EMC: 8 × D D – overall diameter of the cable

<sup>1)</sup> temperature applicable only to power cables and is not appropriate for tinned conductors

## Fire performance

Fire resistant :	IEC 60331-21: for cable diameters ≤ 20 mm, IEC 60331-1: for cable diameters > 20 mm
Flame retardant:	IEC 60332-1-2 IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-1 IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>

## Applications

For fixed marine installations, where circuit integrity is required under fire conditions  
Available is also version with EMC (Electro Magnetic Compatibility) protection

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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FLAME-X 950 NKOGsekw 0.6/1 kV  
 FLAME-X 950 NKOGsekw EMC 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH EMC 0.6/1 kV

## Approvals

DNV-GL, ABS, LR, PRS, BV, RINA

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables			Maximum conductor resistance at temperature 20°C
	Extruded bedding	Tape bedding	EMC	Extruded bedding	Tape bedding	EMC	
<b>n × mm<sup>2</sup></b>	<b>mm</b>			<b>kg/km</b>			<b>Ω/km</b>
1 × 1 RM	6.9	7.7	8.3	83	87	122	18.1
1 × 1.5 RM	7.2	8	8.6	91	100	131	12.1
1 × 2.5 RM	7.6	8.4	9	110	113	145	7.41
1 × 4 RM	8.1	8.9	9.7	128	137	177	4.61
1 × 6 RM	8.9	9.7	10.3	162	165	203	3.08
1 × 10 RM	9.8	10.6	11.2	215	217	259	1.83
1 × 16 RM	11.4	11.6	12.4	299	285	338	1.15
1 × 25 RM	13.3	13.5	14.1	431	406	466	0.727
1 × 35 RM	14.4	14.6	15.8	531	512	628	0.524
1 × 50 RM	16.7	16.9	17.5	751	716	794	0.387
1 × 70 RM	18.2	18.4	19	964	945	1031	0.268
1 × 95 RM	20.8	21	21.6	1274	1248	1349	0.193
1 × 120 RM	22.2	22.4	23	1533	1503	1593	0.153
1 × 150 RM	24.4	24.6	25.2	1857	1802	1932	0.124
1 × 185 RM	26.5	26.7	27.3	2252	2221	2353	0.0991
1 × 240 RM	29.6	29.8	30.4	2861	2821	2941	0.0754
1 × 300 RM	32	32.2	32.8	3508	3434	3596	0.0601
2 × 1 RM	10.3	11.1	11.7	171	152	224	18.1
2 × 1.5 RM	10.9	11.7	12.5	197	167	255	12.1
2 × 2.5 RM	12	12.8	13.4	244	210	303	7.41
2 × 4 RM	13	13.8	14.4	305	256	357	4.61
2 × 6 RM	14.7	15.5	16.1	424	351	481	3.08
2 × 10 RM	16.4	17.2	18	536	463	629	1.83
2 × 16 RM	19.2	19.4	20	770	664	817	1.15

FLAME-X 950 NKOGsekw 0.6/1 kV  
 FLAME-X 950 NKOGsekw EMC 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables			Maximum conductor resistance at temperature 20°C
	Extruded bedding	Tape bedding	EMC	Extruded bedding	Tape bedding	EMC	
2 × 25 RM	23	23	24	993	952	1086	0.727
2 × 35 RM	25.3	25.3	26.1	1259	1192	1327	0.524
2 × 50 RM	29.1	29.1	29.9	1642	1564	1721	0.387
3 × 1 RM	10.8	11.6	12.4	193	173	251	18.1
3 × 1.5 RM	11.7	12.5	13.1	231	212	289	12.1
3 × 2.5 RM	12.6	13.4	14	278	249	337	7.41
3 × 4 RM	14.3	15.1	15.7	407	358	463	4.61
3 × 6 RM	15.5	16.3	16.9	487	445	568	3.08
3 × 16 RM	20.4	20.6	21.2	930	852	981	1.15
3 × 25 RM	24.5	24.5	25.3	1279	1215	1355	0.727
3 × 35 RM	27	27	27.8	1616	1573	1719	0.524
3 × 50 RM	30.8	30.8	31.6	2138	2054	2222	0.387
3 × 70 RM	34.3	33.9	35.3	2854	2727	2964	0.268
3 × 95 RM	40	39.8	41.2	3899	3815	4152	0.193
3 × 120 RM	43.4	43.2	44.4	4746	4650	4938	0.153
3 × 150 RM	48.4	47.8	49.4	5807	5607	5963	0.124
3 × 185 RM	52.9	52.3	53.9	7081	6876	7265	0.0991
3 × 240 RM	59.8	59	61	9058	8795	9296	0.0754
4 × 1 RM	11.9	12.7	13.3	229	214	288	18.1
4 × 1.5 RM	12.6	13.4	14	264	242	323	12.1
4 × 2.5 RM	13.6	14.4	15.6	328	299	441	7.41
4 × 4 RM	15.5	16.3	16.9	466	435	546	4.61
4 × 6 RM	17	17.8	18.4	595	533	661	3.08
4 × 10 RM	19	19.8	20.6	802	723	886	1.83
4 × 16 RM	22.2	22.4	23	1130	1045	1186	1.15
4 × 25 RM	26.9	26.9	27.7	1580	1537	1682	0.727
4 × 35 RM	29.7	29.7	30.5	2031	1980	2112	0.524
4 × 70 RM	38.2	38	39.2	3709	3581	3831	0.268
4 × 95 RM	44.3	44.1	45.3	4961	4861	5156	0.193
4 × 120 RM	48.3	47.7	49.3	6073	5872	6229	0.153
4 × 150 RM	53.6	53	54.6	7391	7182	7576	0.124

FLAME-X 950 NKOGsekw 0.6/1 kV  
 FLAME-X 950 NKOGsekw EMC 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables			Maximum conductor resistance at temperature 20°C
	Extruded bedding	Tape bedding	EMC	Extruded bedding	Tape bedding	EMC	
4 × 185 RM	58.8	58	60	9085	8827	9318	0.0991
4 × 240 RM	66.4	65.4	67.6	11631	11307	11893	0.0754
5 × 1 RM	12.8	13.6	14.2	264	245	324	18.1
5 × 1.5 RM	13.6	14.4	15.6	313	288	425	12.1
5 × 2.5 RM	15.4	16.2	16.8	440	417	520	7.41
5 × 4 RM	17	17.8	18.4	568	515	634	4.61
5 × 6 RM	18.5	19.3	19.9	694	648	786	3.08
5 × 10 RM	20.8	21.6	22.2	954	892	1056	1.83
5 × 16 RM	24.4	24.6	25.2	1377	1262	1448	1.15
5 × 25 RM	29.6	29.6	30.4	1907	1855	1988	0.727
5 × 35 RM	32.6	32.6	33.4	2456	2395	2545	0.524
5 × 50 RM	38.2	37.6	39.2	3388	3152	3510	0.387
5 × 70 RM	42	41.8	43.2	4501	4359	4709	0.268
6 × 1.5 RM	15.3	16.1	16.7	412	394	492	12.1
6 × 2.5 RM	16.6	17.4	18.2	516	470	589	7.41
7 × 1 RM	14.4	15.2	15.8	370	338	426	18.1
7 × 1.5 RM	15.3	16.1	16.7	421	403	501	12.1
7 × 2.5 RM	16.6	17.4	18.2	531	485	605	7.41
8 × 1.5 RM	16.3	17.1	17.7	461	441	544	12.1
9 × 1.5 RM	17.4	18.2	18.8	531	492	619	12.1
10 × 1 RM	17.9	18.7	19.3	496	463	586	18.1
10 × 1.5 RM	19	19.8	20.6	589	529	674	12.1
10 × 2.5 RM	21	21.8	22.4	730	676	833	7.41
12 × 1 RM	18.4	19.2	19.8	533	504	625	18.1
12 × 1.5 RM	19.8	20.6	21.2	647	610	745	12.1
12 × 2.5 RM	21.6	22.4	23	819	769	904	7.41
14 × 1.5 RM	20.7	21.5	22.1	704	666	805	12.1
16 × 1 RM	20.4	21.2	21.8	659	626	759	18.1
16 × 1.5 RM	21.7	22.5	23.3	789	748	886	12.1
16 × 2.5 RM	24	24.8	25.4	1019	956	1124	7.41
19 × 1 RM	21.4	22.2	22.8	738	702	822	18.1

FLAME-X 950 NKOGsekw 0.6/1 kV  
 FLAME-X 950 NKOGsekw EMC 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH EMC 0.6/1 kV

Number and cross-sectional area of conductor	Approximate overall diameter			Approximate net weight of cables			Maximum conductor resistance at temperature 20°C
	Extruded bedding	Tape bedding	EMC	Extruded bedding	Tape bedding	EMC	
19 × 1.5 RM	23	23.8	24.4	876	833	987	12.1
19 × 2.5 RM	25.4	26.2	26.8	1149	1101	1249	7.41
20 × 1 RM	22.5	23.3	23.9	784	739	893	18.1
20 × 1.5 RM	24.1	24.9	25.5	941	876	1047	12.1
20 × 2.5 RM	26.5	27.3	27.9	1208	1146	1343	7.41
24 × 1 RM	24.8	25.6	26.4	915	871	1026	18.1
24 × 1.5 RM	26.8	27.6	28.2	1091	1036	1227	12.1
24 × 2.5 RM	29.5	30.3	30.9	1426	1353	1574	7.41
27 × 1 RM	25.5	26.3	26.9	984	943	1115	18.1
27 × 1.5 RM	27.3	28.1	28.7	1194	1113	1303	12.1
27 × 2.5 RM	30.2	31	31.6	1533	1464	1683	7.41
30 × 1 RM	26.4	27.2	27.8	1048	1006	1183	18.1
30 × 1.5 RM	28.4	29.2	29.8	1289	1236	1402	12.1
30 × 2.5 RM	31.4	32.2	32.8	1692	1593	1817	7.41
37 × 1 RM	28.5	29.3	29.9	1242	1195	1355	18.1

## Current ratings

Current ratings acc. to IEC 60092-352 based on ambient air temperature of 45°C

Nominal cross-sectional area  mm <sup>2</sup>	Insulation class temperature 90°C		
	1-core	2-cores	3-cores & 4-cores
1	18	15	13
1.5	23	20	16
2.5	40	26	21
4	51	34	28
6	52	44	36
10	72	61	50
16	96	82	67
25	127	108	89



FLAME-X 950 NKOGsekw 0.6/1 kV  
 FLAME-X 950 NKOGsekw EMC 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH EMC 0.6/1 kV

Nominal cross-sectional area	Insulation class temperature 90°C		
	1-core	2-cores	3-cores & 4-cores
35	157	133	110
50	196	167	137
70	242	206	169
95	293	249	205
120	339	288	237
150	389	331	272
185	444	377	311
240	522	444	365
300	601	511	421

Current ratings for more than 4-core cables:

Number of cores	Nominal cross-sectional area of conductor		
	1 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
	<b>A</b>	<b>A</b>	<b>A</b>
5	10.5	12	16
7	9	10	15
10	8	9	13
12	8	9	12
16	7	8	11
19	7	7	10
20	7	7	10
24	6	6.5	9.5
27	6	6.5	9
30	6	6	9
37	5	6	8

## Correction factors for different ambient air temperatures

The ambient temperature of 45°C, on which the current ratings are based, is considered as a standard value for the ambient air temperature, generally applicable for any kind of ship and for navigation in any climate

FLAME-X 950 NKOGsekw 0.6/1 kV  
 FLAME-X 950 NKOGsekw EMC 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH 0.6/1 kV  
 Cu/SiR/LSOH/CWB/LSOH EMC 0.6/1 kV

## Correction factors for various ambient air temperatures

Maximum conductor temperature	90°C									
Ambient temperature °C	35	40	45	50	55	60	65	70	75	80
Correction factors	1.10	1.05	1.00	0.94	0.88	0.82	0.74	0.67	0.58	0.47

## Correction factors for cable grouping

Where more than six bunched cables on cable trays, in cable conduits, pipes or trunking are expected to operate simultaneously full rated capacity, a correction factor of 0.85 should be applied.

## Short circuit ratings (non-adiabatic)

Cross-section in mm <sup>2</sup>	Maximum short circuit current rating for 1 s, in kA	Maximum short circuit current rating for 3 s, in kA	Maximum short circuit current rating for 5 s, in kA
1	0.14	0.08	0.06
1.5	0.21	0.12	0.1
2.5	0.36	0.21	0.16
4	0.57	0.33	0.26
6	0.86	0.5	0.38
10	1.43	0.83	0.64
16	2.29	1.32	1.02
25	3.58	2.06	1.6
35	5.01	2.89	2.24
50	7.15	4.13	3.2
70	10.01	5.78	4.48
95	13.59	7.84	6.08
120	17.16	9.91	7.67
150	21.45	12.38	9.59
185	26.46	15.27	11.83
240	34.32	19.81	15.35
300	42.9	24.77	19.19

For 0.6/1 kV cable and maximum normal operating temperature +90°C, short circuit temperature up to 250°C



# FLAMEBLOCKER NKOXSekw-VFD

1.8/3 kV HD

Cu/XLPE/LSOH/CWB/LSOH VFD 1.8/3 kV

**IEC 60092-353**

Halogen-free shipboard power cables with cross-linked polyethylene insulation, halogen-free sheath and screen suitable for variable frequency dives (VFD).

## CONSTRUCTION

Conductors:	Circular stranded bare copper class 2 (RM) or class 5 (RF) acc. to IEC 60228
Insulation:	≤ 35 mm <sup>2</sup> : cross-linked polyethylene XLPE acc. to IEC 60092-360 > 35 mm <sup>2</sup> : cross-linked polyolefin compound HF 90 acc. to IEC 60092-360
Inner covering:	Bedding tape or/and extruded layer special flame-retardant, halogen-free compound
Screen:	Copper/polyester tape coverage 100%
Armour:	Tinned copper wire braid, coverage > 90% acc. to IEC 60092-350
Sheath:	Thermoplastic halogen-free polyolefin compound type SHF1 acc. to IEC 60092-360
Colour of sheath:	Black
Core identification:	<b>HD 308 S2</b>
1-core:	Black or green-yellow
3-core:	Black, brown, grey
3-core + 3 earth cores:	Black, brown, grey + 3 green-yellow
	Other colors available on request



## CHARACTERISTIC

Rated voltage $U_0/U_m$ :	AC 1.8/3 (3.6) kV
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	8 × D D – overall diameter

# FLAMEBLOCKER NKOXSekw-VFD

1.8/3 kV HD

Cu/XLPE/LSOH/CWB/LSOH VFD 1.8/3 kV

## Fire performance

Flame retardant:	IEC 60332-1-2 IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>

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## Applications

For fixed installations in ships. Special cable for variable frequency drives (VFD)

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
<b>n x mm<sup>2</sup></b>	<b>mm</b>		<b>kg/km</b>	
1 x 25 RF	16.5	15.5	539	463
1 x 25 RM	16.3	15.3	531	475
1 x 35 RF	17.5	16.5	640	580
1 x 35 RM	17.4	16.4	655	594
1 x 50 RF	19.6	18.6	858	769
1 x 50 RM	19.1	18.1	827	760
1 x 70 RF	21.4	20.4	1070	993
1 x 70 RM	20.4	19.4	1058	986
1 x 95 RF	23.7	22.7	1334	1248
1 x 95 RM	22.6	21.6	1363	1262
1 x 120 RF	25	24	1606	1495
1 x 120 RM	24.2	23.2	1624	1536
1 x 150 RF	26.8	25.8	1893	1794
1 x 150 RM	25.6	24.6	1920	1807
3 x 25 RF	29.3	28.1	1539	1308
3 x 25 RM	29	27.8	1570	1343
3 x 35 RF	31.7	30.5	1925	1630

# FLAMEBLOCKER NKOXSekw-VFD

1.8/3 kV HD

Cu/XLPE/LSOH/CWB/LSOH VFD 1.8/3 kV

Number and cross-sectional area of conductor	Approximate overall diameter		Approximate net weight of cables	
	Extruded bedding	Tape bedding	Extruded bedding	Tape bedding
3 × 35 RM	31.4	30.2	1932	1674
3 × 50 RF	36.4	34.6	2656	2247
3 × 50 RM	35.2	33.4	2565	2211
3 × 70 RF	40.9	39.3	3510	3073
3 × 70 RM	38.7	37.1	3421	3026
3 × 95 RF	45.6	44	4406	3871
3 × 95 RM	43.1	41.5	4423	3893
3 × 120 RF	48.7	46.5	5340	4630
3 × 120 RM	46.9	44.7	5344	4730
3 × 150 RF	52.9	50.9	6417	5626
3 × 150 RM	50.3	48.3	6354	5684
3 × 50 RF + 3 × 6 RF	38.1	36.3	2771	2400
3 × 50 RM + 3 × 6 RM	37.1	35.3	2726	2352
3 × 70 RF + 3 × 10 RF	42.7	41.1	3757	3277
3 × 70 RM + 3 × 10 RM	41.2	39.6	3643	3272
3 × 95 RF + 3 × 16 RF	47.7	46.1	4767	4195
3 × 95 RM + 3 × 16 RM	45.7	44.1	4769	4318
3 × 120 RF + 3 × 25 RF	52.2	50.2	5843	5259
3 × 120 RM + 3 × 25 RM	50.9	48.9	5959	5429
3 × 150 RF + 3 × 35 RF	56.7	54.7	7126	6450
3 × 150 RM + 3 × 35 RM	54.9	52.9	7183	6604

Cross-section of conductor	Conductor class 2		Conductor class 5	
	Bare copper		Bare copper	
	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C
	R <sub>20</sub>	R <sub>90</sub>	R <sub>20</sub>	R <sub>90</sub>
<b>mm<sup>2</sup></b>	<b>Ω/km</b>	<b>Ω/km</b>	<b>Ω/km</b>	<b>Ω/km</b>
25	0.727	0.927	0.78	0.995
35	0.524	0.668	0.554	0.706
50	0.387	0.493	0.386	0.492
70	0.268	0.342	0.272	0.347



# FLAMEBLOCKER NKOXSekw-VFD

1.8/3 kV HD

Cu/XLPE/LSOH/CWB/LSOH VFD 1.8/3 kV

Cross-section of conductor	Conductor class 2		Conductor class 5	
	Bare copper		Bare copper	
	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C
	R <sub>20</sub>	R <sub>90</sub>	R <sub>20</sub>	R <sub>90</sub>
95	0.193	0.249	0.206	0.263
120	0.153	0.195	0.161	0.205
150	0.124	0.158	0.129	0.164

## Current ratings

Current ratings acc. to IEC 60092-352 based on ambient air temperature of 45°C

Nominal cross-sectional area	Insulation class temperature 90°C
mm <sup>2</sup>	3-cores & 4-cores
25	89
35	110
50	137
70	169
95	205
120	237
150	272

## Correction factors for different ambient air temperatures

The ambient temperature of 45°C, on which the current ratings are based, is considered as a standard value for the ambient air temperature, generally applicable for any kind of ship and for navigation in any climate.

# FLAMEBLOCKER NKOXSekw-VFD

1.8/3 kV HD

Cu/XLPE/LSOH/CWB/LSOH VFD 1.8/3 kV

## Correction factors for various ambient air temperatures

Maximum conductor temperature	90°C									
Ambient temperature °C	35	40	45	50	55	60	65	70	75	80
Correction factors	1.10	1.05	1.00	0.94	0.88	0.82	0.74	0.67	0.58	0.47

## Correction factors for cable grouping

Where more than six bunched cables on cable trays, in cable conduits, pipes or trunking are expected to operate simultaneously full rated capacity, a correction factor of 0.85 should be applied.


## Short circuit ratings (non-adiabatic)

Cross-section in mm <sup>2</sup>	25	35	50	70	95	120	150
Maximum short circuit current rating for 1 s, in kA	3.58	5.01	7.15	10.01	13.59	17.16	21.45
Maximum short circuit current rating for 3 s, in kA	2.06	2.89	4.13	5.78	7.84	9.91	12.38
Maximum short circuit current rating for 5 s, in kA	1.6	2.24	3.2	4.48	6.08	7.67	9.59

For 1.8/3 kV cable and maximum normal operating temperature +90°C, short circuit temperature up to 250°C

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The background image shows a large industrial vessel, likely a power ship, with a complex superstructure including a crane, various platforms, and a tall mast. The ship is viewed from a distance, and the entire image has a teal color overlay with a fine grid pattern.

## **MV single-core halogen-free shipboard power cables**









# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH  
6/10 (12) kV

IEC 60092-354

Single-core, halogen-free ship board power cable.

## CONSTRUCTION

Conductors:	Round, stranded and compacted bare copper class 2 acc. to IEC 60228
Insulation:	<ul style="list-style-type: none"><li>Extruded semi-conductive conductor screen</li><li>Insulation XLPE, dry cured</li><li>Extruded semi-conductive insulation screen, fully bonded</li></ul>
Screen:	<ul style="list-style-type: none"><li>Semi-conductive tape</li><li>Metallic screen, double bare copper tape</li></ul>
Inner covering:	Halogen-free compound
Separator:	Separating tape – optional
Armour (overall screen):	Bare copper braid
Separator:	Separating tape – optional
Outer sheath:	Halogen-free compound type SHF 1
Colour of sheath:	Red



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Maximum short-circuit conductor temperature:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	0°C
Minimum bending radius:	15 × D D – overall diameter of cable



# NHKOXsek

Cu/XLPE/CTS/LSOH/CWB/LSOH  
6/10 (12) kV

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>
Approvals	DNV-GL certificate

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## Applications

Used for fixed installations on board of ships laying in air, but not on open decks

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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Description	Unit	Details				
		1 x 35/16	1 x 50/16	1 x 70/16	1 x 95/16	1 x 120/16
<b>Number and nominal cross-section of the conductors</b>	<b>No. x mm<sup>2</sup>/mm<sup>2</sup></b>					
Construction data						
Phase copper round conductor:						
▪ Nominal cross sectional area	mm <sup>2</sup>	35	50	70	95	120
▪ Number of wires	No.	7	19	19	19	36
▪ Diameter and tolerance	mm	6.96 <sup>+0.15</sup>	8.15 <sup>+0.2</sup>	9.6 <sup>+0.2</sup>	11.5 <sup>+0.2</sup>	12.8 <sup>+0.3</sup>
Minimum thickness of semi-conductive XLPE on conductor	mm			0.30		
Insulation thickness:						
▪ Nominal	mm			3.4		
▪ Minimum at a point	mm			2.96		
Approximate diameter over insulation	mm	14.8	16.0	17.4	19.3	20.6
Minimum thickness of semi-conductive XLPE on insulation	mm			0.30		
Approximate thickness of semi-conductive tape	mm			0.4		

# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

6/10 (12) kV

Description	Unit	Details				
		1 × 35/16	1 × 50/16	1 × 70/16	1 × 95/16	1 × 120/16
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>					
Metallic screen:						
▪ Nominal cross sectional area	mm <sup>2</sup>		16		16	
▪ Copper tapes, no. And dimensions	No. × mm × mm		2 × 30 × 0.30		2 × 40 × 0.20	
Approximate thickness of inner covering	mm			1.0		
Nominal dia. of wires of bare copper braid	mm			0.3		
Number of wires in copper braid	No.	24 × 10	36 × 7	36 × 7	36 × 7	36 × 7
Outer sheath thickness						
▪ Nominal	mm	1.7	1.7	1.7	1.8	1.9
▪ Minimum at a point	mm	1.16	1.16	1.16	1.24	1.32
Approximate overall diameter of complete cable (D)	mm	25.0	26.2	27.2	29.1	30.6
Approximate weight of complete cable	kg/km	1.170	1.320	1.530	1.820	2.110
Delivery data						
Length per drum ± 5%	m			1 000		
Diameter and max. width of wooden drum, type	m × m	1.60 × 1.06 16	1.60 × 1.06 16	1.60 × 1.06 16	1.60 × 1.06 16	1.80 × 1.07 18
Approximate weight of heaviest reel including cable	kg	1.400	1.550	1.760	2.050	2.340
Mechanical data						
Recommended minimum bending radius for laying	m	0.38	0.39	0.41	0.44	0.46
Maximum permissible pulling force with a pulling eye on conductor	kN	1.75	2.50	3.50	4.75	6.00
Electrical data						
Maximum D.C. phase conductor resistance at 20°C	Ω/km	0.524	0.387	0.268	0.193	0.153
Maximum A.C. phase conductor resistance at 90°C	Ω/km	0.668	0.496	0.345	0.249	0.198
Short circuit currents						
Maximum permissible thermal short-circuit current for 1 sec.						

# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

6/10 (12) kV

Description	Unit	Details				
		1 × 35/16	1 × 50/16	1 × 70/16	1 × 95/16	1 × 120/16
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>					
Phase conductor from 90°C to 250°C	kA	5.0	7.2	10.0	13.6	17.2
Metallic screen from 80°C to 180°C	kA	1.9	1.9	1.9	1.9	1.9
Ampacity, in free air, ambient temperature 45°C, acc. to IEC 60092-352 Table A.4						
Trefoil formation	A	147	180	233	285	333
Vertical Flat formation and spaced	A	175	214	277	338	395

Description	Unit	Details			
		1 × 150/25	1 × 185/25	1 × 240/25	1 × 300/25
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>				
Construction data					
Phase copper round conductor:					
▪ Nominal cross sectional area	mm <sup>2</sup>	150	185	240	300
▪ Number of wires	No.	36	36	60	60
▪ Diameter and tolerance	mm	14.25 <sup>+0.30</sup>	15.85 <sup>+0.30</sup>	18.5 <sup>+0.3</sup>	20.5 <sup>+0.3</sup>
Minimum thickness of semi-conductive XLPE on conductor	mm			0.30	
Insulation thickness:					
▪ Nominal	mm			3.4	
▪ Minimum at a point	mm			2.96	
Approximate diameter over insulation	mm	22.1	23.7	26.3	28.3
Minimum thickness of semi-conductive XLPE on insulation	mm			0.30	
Approximate thickness of semi-conductive tape	mm			0.4	
Metallic screen:					
▪ Nominal cross sectional area	mm <sup>2</sup>			25	
▪ Copper tapes, No. and dimensions	No. × mm × mm			2 × 50 × 0.25	
Approximate thickness of inner covering	mm	1.0		1.2	
Nominal dia. of wires of bare copper braid	mm		0.3		0.4

# NHKOXsek

Cu/XLPE/CTS/LSOH/CWB/LSOH  
6/10 (12) kV

Description	Unit	Details			
		1 × 150/25	1 × 185/25	1 × 240/25	1 × 300/25
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>				
Number of wires in copper braid	No.	36 × 11	36 × 11	36 × 7	36 × 7
Outer sheath thickness					
▪ Nominal	mm	1.9	2.0	2.1	2.2
▪ Minimum at a point	mm	1.32	1.40	1.48	1.56
Approximate overall diameter of complete cable (D)	mm	32.3	34.5	37.7	39.9
Approximate weight of complete cable	kg/km	2,510	2.960	3.650	4.320
Delivery data					
Length per drum ± 5%	m	1.80 × 1.07	2.00 × 1.09	2.00 × 1.09	2.20 × 1.49
Diameter and max. width of wooden drum, type	m × m	1.60 × 1.06 18	1.60 × 1.06 20	1.60 × 1.06 20	1.60 × 1.06 22A
Approximate weight of heaviest reel including cable	kg	2.820	3.400	4.060	5.000
Mechanical data					
Recommended minimum bending radius for laying	m	0.48	0.52	0.57	0.60
Maximum permissible pulling force with a pulling eye on conductor	kN	7.50	9.25	12.0	15.0
Electrical data					
Maximum D.C. phase conductor resistance at 20°C	Ω/km	0.124	0.0991	0.0754	0.0601
Maximum A.C. phase conductor resistance at 90°C	Ω/km	0.163	0.1310	0.1010	0.0830
Short circuit currents					
Maximum permissible thermal short-circuit current for 1 sec.					
Phase conductor from 90°C to 250°C	kA	21.5	26.5	34.3	42.9
Metallic screen from 80°C to 180°C	kA	2.9	2.9	2.9	2.9
Ampacity, in free air, ambient temperature 45°C, acc. to IEC 60092-352 Table A.4					
Trefoil formation	A	386	444	528	612
Vertical flat formation and spaced	A	458	526	626	725



# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

8.7/15 (17.5) kV

IEC 60092-354

Single-core, halogen-free ship board power cable.

## CONSTRUCTION

Conductors:	Round, stranded and compacted bare copper class 2 acc. to IEC 60228
Insulation:	<ul style="list-style-type: none"> <li>Extruded semi-conductive conductor screen</li> <li>Insulation XLPE, dry cured</li> <li>Extruded semi-conductive insulation screen, fully bonded</li> </ul>
Screen:	<ul style="list-style-type: none"> <li>Semi-conductive tape</li> <li>Metallic screen, double bare copper tape</li> </ul>
Inner covering:	Halogen-free compound
Separator:	Separating tape – optional
Armour (overall screen):	Bare copper braid
Separator:	Separating tape – optional
Outer sheath:	Halogen-free compound type SHF 1
Colour of sheath:	Red



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## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Maximum short-circuit conductor temperature:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	0°C
Minimum bending radius:	15 × D; D – overall diameter of cable



# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

8.7/15 (17.5) kV

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>
Approvals	DNV-GL certificate

## Applications

Used for fixed installations on board of ships laying in air, but not on open decks

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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Description	Unit	Details				
		1 x 35/16	1 x 50/16	1 x 70/16	1 x 95/16	1 x 120/16
<b>Number and nominal cross-section of the conductors</b>	<b>No. x mm<sup>2</sup>/mm<sup>2</sup></b>					
Construction data						
Phase copper round conductor:						
▪ Nominal cross sectional area	mm <sup>2</sup>	35	50	70	95	120
▪ Number of wires	No.	7	19	19	19	36
▪ Diameter and tolerance	mm	6.96 <sup>+0.15</sup>	8.15 <sup>+0.2</sup>	9.6 <sup>+0.2</sup>	11.5 <sup>+0.2</sup>	12.8 <sup>+0.3</sup>
Minimum thickness of semi-conductive XLPE on conductor	mm			0.30		
Insulation thickness:						
▪ Nominal	mm			4.5		
▪ Minimum at a point	mm			3.95		
Approximate diameter over insulation	mm	17.0	18.2	19.6	21.5	22.8
Minimum thickness of semi-conductive XLPE on insulation	mm			0.30		
Approximate thickness of semi-conductive tape	mm			0.4		

# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

8.7/15 (17.5) kV

Description	Unit	Details				
		1 × 35/16	1 × 50/16	1 × 70/16	1 × 95/16	1 × 120/16
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/ mm<sup>2</sup></b>					
Metallic screen:						
▪ Nominal cross sectional area	mm <sup>2</sup>			16		
▪ Copper tapes, No. and dimensions	No. × mm × mm			2 × 40 × 0.20		
Approximate thickness of inner covering	mm			1.0		
Nominal dia. of wires of bare copper braid	mm			0.3		
Number of wires in copper braid	No.	36 × 7	36 × 7	36 × 7	36 × 8	36 × 8
Outer sheath thickness						
▪ Nominal	mm	1.7	1.8	1.8	1.9	2.0
▪ Minimum at a point	mm	1.16	1.24	1.24	1.32	1.40
Approximate overall diameter of complete cable (D)	mm	26.8	28.0	29.4	31.5	33.0
Approximate weight of complete cable	kg/km	1.240	1.390	1.640	1.960	2.240
<b>Delivery data</b>						
Length per drum ± 5%	m			1 000		
Diameter and max. width of wooden drum, type	m × m	1.60 × 1.06 16	1.60 × 1.06 16	1.60 × 1.06 16	1.80 × 1.07 18	2.00 × 1.09 20
Approximate weight of heaviest reel including cable	kg	1.470	1.620	1.870	2.270	2.680
<b>Mechanical data</b>						
Recommended minimum bending radius for laying	m	0.40	0.42	0.44	0.47	0.50
Maximum permissible pulling force with a pulling eye on conductor	kN	1.75	2.50	3.50	4.75	6.00
<b>Electrical data</b>						
Maximum D.C. phase conductor resistance at 20°C	Ω/km	0.524	0.387	0.268	0.193	0.153
Maximum A.C. phase conductor resistance at 90°C	Ω/km	0.668	0.496	0.345	0.249	0.198
<b>Short circuit currents</b>						
Maximum permissible thermal short-circuit current for 1 sec.						

# NHKOXsek

Cu/XLPE/CTS/LSOH/CWB/LSOH

8.7/15 (17.5) kV

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Description	Unit	Details				
		1 × 35/16	1 × 50/16	1 × 70/16	1 × 95/16	1 × 120/16
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/ mm<sup>2</sup></b>					
Phase conductor from 90°C to 250°C	kA	5.0	7.2	10.0	13.6	17.2
Metallic screen from 80°C to 180°C	kA	1.9	1.9	1.9	1.9	1.9
Ampacity, in free air, ambient temperature 45°C, acc. to IEC 60092-352 Table A.4						
Trefoil formation	A	147	180	233	285	333
Vertical flat formation and spaced	A	175	214	277	338	395

Description	Unit	Details			
		1 × 150/25	1 × 185/25	1 × 240/25	1 × 300/25
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/ mm<sup>2</sup></b>				
Construction data					
Phase copper round conductor:					
▪ Nominal cross sectional area	mm <sup>2</sup>	150	185	240	300
▪ Number of wires	No.	36	36	60	60
▪ Diameter and tolerance	mm	14.25 <sup>+0.30</sup>	15.85 <sup>+0.30</sup>	18.5 <sup>+0.3</sup>	20.5 <sup>+0.3</sup>
Minimum thickness of semi-conductive XLPE on conductor	mm			0.30	
Insulation thickness:					
▪ Nominal	mm			4.5	
▪ Minimum at a point	mm			3.95	
Approximate diameter over insulation	mm	24.3	25.9	28.5	30.5
Minimum thickness of semi-conductive XLPE on insulation	mm			0.30	
Approximate thickness of semi-conductive tape	mm			0.4	
Metallic screen:					
▪ Nominal cross sectional area	mm <sup>2</sup>			25	
▪ Copper tapes, No. and dimensions	No. × mm × mm			2 × 50 × 0.25	
Approximate thickness of inner covering	mm			1.2	
Nominal dia. of wires of bare copper braid	mm	0.3		0.4	
Number of wires in copper braid	No.	36 × 11	36 × 7	36 × 7	36 × 8
Outer sheath thickness					
▪ Nominal	mm	2.0	2.1	2.2	2.3
▪ Minimum at a point	mm	1.40	1.48	1.56	1.64

# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

8.7/15 (17.5) kV

Description	Unit	Details			
		1 × 150/25	1 × 185/25	1 × 240/25	1 × 300/25
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>				
Approximate overall diameter of complete cable (D)	mm	35.1	37.3	40.1	42.3
Approximate weight of complete cable	kg/km	2.690	3.200	3.820	4.510
Delivery data					
Length per drum ± 5%	m	1 000			
Diameter and max. width of wooden drum, type	m × m	2.00 × 1.09 20	2.00 × 1.09 20A	2.20 × 1.49 22A	2.20 × 1.49 22A
Approximate weight of heaviest reel including cable	kg	3.260	3.610	4.500	5.190
Mechanical data					
Recommended minimum bending radius for laying	m	0.53	0.56	0.60	0.63
Maximum permissible pulling force with a pulling eye on conductor	kN	7.50	9.25	12.0	15.0
Electrical data					
Maximum D.C. phase conductor resistance at 20°C	Ω/km	0.124	0.0991	0.0754	0.0601
Maximum A.C. phase conductor resistance at 90°C	Ω/km	0.163	0.1310	0.1010	0.0830
Short circuit currents					
Maximum permissible thermal short-circuit current for 1 sec.					
Phase conductor from 90°C to 250°C	kA	21.5	26.5	34.3	42.9
Metallic screen from 80°C to 180°C	kA	2.9	2.9	2.9	2.9
Ampacity, in free air, ambient temperature 45°C, acc. to IEC 60092-352 Table A.4					
Trefoil formation	A	386	444	528	612
Vertical flat formation and spaced	A	458	526	626	725

The information contained in this document, including the tables and drawings, are provided for illustrative purposes only and not a commercial offer; nor may it constitute the basis for pursuing any claim against TELE-FONIKA KABLE SA. The suitability of any product including properties, should be made by a qualified person; having already gained the appropriate permissions and documentation, to ensure compliance with any applicable law or regulation.



# **MV three-core halogen-free shipboard power cables**











# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH  
6/10 (12) kV

IEC 60092-354

Three-core, halogen-free shipboard power cable.

## CONSTRUCTION

Conductors:	Round, stranded and compacted bare copper class 2 acc. to IEC 60228
Insulation:	<ul style="list-style-type: none"> <li>Extruded semi-conductive conductor screen</li> <li>Insulation XLPE, dry cured</li> <li>Extruded semi-conductive insulation screen, fully bonded</li> </ul>
Screen:	<ul style="list-style-type: none"> <li>Semi-conductive tape</li> <li>Metallic screen, double bare copper tapes over each core</li> </ul>
Forming:	Assembly of cores with central filler
Inner covering:	Halogen-free compound
Separator:	Separating tape – optional
Armour (overall screen):	Bare copper braid
Separator:	Separating tape – optional
Outer sheath:	Halogen-free compound type SHF 1
Colour of sheath:	Red



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Maximum short-circuit conductor temperature:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	0°C
Minimum bending radius:	15 × D; D – overall diameter of cable

# NHKOXsek

Cu/XLPE/CTS/LSOH/CWB/LSOH  
6/10 (12) kV

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>
Approvals	DNV-GL certificate

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## Applications

Used for fixed installations on board of ships laying in air, but not on open decks

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request			
Description	Unit	Details		
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>	<b>3 × 35/16</b>	<b>3 × 50/16</b>	<b>3 × 70/16</b>
		Construction data		
Phase copper round conductor:				
▪ Nominal cross sectional area	mm <sup>2</sup>	35	50	70
▪ Number of wires	No.	7	19	19
▪ Diameter and tolerance	mm	6.96 <sup>+0.15</sup>	8.15 <sup>+0.2</sup>	9.6 <sup>+0.2</sup>
Minimum thickness of semi-conductive XLPE on conductor	mm		0.30	
Insulation thickness:				
▪ Nominal	mm		3.4	
▪ Minimum at a point	mm		2.96	
Approximate diameter over insulation	mm	14.8	16.0	17.4
Minimum thickness of semi-conductive XLPE on insulation	mm		0.30	
Approximate thickness of semi-conductive tape	mm		0.4	
Metallic screen:				
▪ Nominal cross sectional area	mm <sup>2</sup>		16	
▪ Copper tapes, No. and dimensions	No. × mm × mm		(3 × 2) × 30 × 0.10	

# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

6/10 (12) kV

Description	Unit	Details		
		3 × 35/16	3 × 50/16	3 × 70/16
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>	<b>3 × 35/16</b>	<b>3 × 50/16</b>	<b>3 × 70/16</b>
Approximate diameter over stranded cores	mm	36.6	39.2	42.3
Approximate thickness of inner covering	mm		1.4	
Nominal dia. of wires of bare copper braid	mm		0.4	
Number of wires in copper braid	No.	36 × 8	36 × 9	36 × 9
Outer sheath thickness				
▪ Nominal	mm	2.5	2.6	2.7
▪ Minimum at a point	mm	1.80	1.88	1.96
Approximate overall diameter of complete cable (D)	mm	46.4	49.2	52.5
Approximate weight of complete cable	kg/km	3.430	4.000	4.840
Delivery data				
Length per drum ± 5%	m		500	
Diameter and max. width of wooden drum, type	m × m	2.00 × 1.09 20	2.00 × 1.09 20A	2.00 × 1.09 20A
Approximate weight of heaviest reel including cable	kg	2.160	2.410	2.830
Mechanical data				
Recommended minimum bending radius for laying	m	0.70	0.74	0.79
Maximum permissible pulling force with a pulling eye on conductor	kN	5.25	7.50	10.50
Electrical data				
Maximum D.C. phase conductor resistance at 20°C	Ω/km	0.524	0.387	0.268
Maximum A.C. phase conductor resistance at 90°C	Ω/km	0.668	0.496	0.345
Short circuit currents				
Maximum permissible thermal short-circuit current for 1 sec.				
Phase conductor from 90°C to 250°C	kA	5.0	7.2	10.0

# NHKOXsek

Cu/XLPE/CTS/LSOH/CWB/LSOH

6/10 (12) kV

Description	Unit	Details		
<b>Number and nominal cross-section of the conductors</b>	<b>No. x mm<sup>2</sup>/mm<sup>2</sup></b>	<b>3 x 35/16</b>	<b>3 x 50/16</b>	<b>3 x 70/16</b>
Metallic screen from 80°C to 180°C	kA	1.9	1.9	1.9
Ampacity, acc. to IEC 60092-352 Table A.4				
In free air, ambient temperature 45°C	A	137	167	214

Description	Unit	Details		
<b>Number and nominal cross-section of the conductors</b>	<b>No. x mm<sup>2</sup>/mm<sup>2</sup></b>	<b>3 x 95/16</b>	<b>3 x 120/16</b>	<b>3 x 150/25</b>
Construction data				
Phase copper round conductor:				
▪ Nominal cross sectional area	mm <sup>2</sup>	95	120	150
▪ Number of wires	No.	19	36	36
▪ Diameter and tolerance	mm	11.5 <sup>+0.2</sup>	12.8 <sup>+0.3</sup>	14.25 <sup>+0.30</sup>
Minimum thickness of semi-conductive XLPE on conductor	mm			0.30
Insulation thickness:				
▪ Nominal	mm			3.4
▪ Minimum at a point	mm			2.96
Approximate diameter over insulation	mm	19.3	20.6	22.1
Minimum thickness of semi-conductive XLPE on insulation	mm			0.30
Approximate thickness of semi-conductive tape	mm			0.4
Metallic screen:				
▪ Nominal cross sectional area	mm <sup>2</sup>		16	25
▪ Copper tapes, No. and dimensions	No. x mm x mm		(3 x 2) x 30 x 0.10	(3 x 2) x 40 x 0.12
Approximate diameter over stranded cores	mm	46.4	49.2	52.5
Approximate thickness of inner covering	mm			1.6
Nominal dia. of wires of bare copper braid	mm			0.4
Number of wires in copper braid	No.	36 x 10	36 x 10	36 x 12

# NHKOXsek

Cu/XLPE/CTS/LSOH/CWB/LSOH

6/10 (12) kV

Description	Unit	Details		
		3 × 95/16	3 × 120/16	3 × 150/25
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/ mm<sup>2</sup></b>			
Outer sheath thickness				
▪ Nominal	mm	2.9	3.0	3.1
▪ Minimum at a point	mm	2.12	2.20	2.28
Approximate overall diameter of complete cable (D)	mm	57.4	60.4	63.9
Approximate weight of complete cable	kg/km	6.030	7.000	8.160
Delivery data				
Length per drum ± 5%	m	500		
Diameter and max. width of wooden drum, type	m × m	2.20 × 1.34 22	2.20 × 1.34 22	2.40 × 1.44 24
Approximate weight of heaviest reel including cable	kg	3.630	4.120	4.830
Mechanical data				
Recommended minimum bending radius for laying	m	0.86	0.91	0.96
Maximum permissible pulling force with a pulling eye on conductor	kN	14.25	18.00	22.50
Electrical data				
Maximum D.C. phase conductor resistance at 20°C	Ω/km	0.193	0.153	0.124
Maximum A.C. phase conductor resistance at 90°C	Ω/km	0.249	0.198	0.163
Short circuit currents				
Maximum permissible thermal short-circuit current for 1 sec.				
Phase conductor from 90°C to 250°C	kA	13.6	17.2	21.5
Metallic screen from 80°C to 180°C	kA	1.9	1.9	1.9
Ampacity, acc. to IEC 60092-352 Table A.4				
In free air, ambient temperature 45°C	A	259	301	347





# NHKOXsek

Cu/XLPE/CTS/LSOH/CWB/LSOH

8.7/15 (17.5) kV

**IEC 60092-354**

Three-core, halogen-free shipboard power cable.

## CONSTRUCTION

Conductors:	Round, stranded and compacted bare copper class 2 acc. to IEC 60228
Insulation:	<ul style="list-style-type: none"> <li>Extruded semi-conductive conductor screen</li> <li>Insulation XLPE, dry cured</li> <li>Extruded semi-conductive insulation screen, fully bonded</li> </ul>
Screen:	<ul style="list-style-type: none"> <li>Semi-conductive tape</li> <li>Metallic screen, double bare copper tapes over each core</li> </ul>
Forming:	Assembly of cores with central filler
Inner covering:	Halogen-free compound
Separator:	Separating tape – optional
Armour (overall screen):	Bare copper braid
Separator:	Separating tape – optional
Outer sheath:	Halogen-free compound type SHF 1
Colour of sheath:	Red



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Maximum short-circuit conductor temperature:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	0°C
Minimum bending radius:	15 × D; D – overall diameter of cable

# NHKOXsek

Cu/XLPE/CTS/LSOH/CWB/LSOH  
8.7/15 (17.5) kV

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>
Approvals	DNV-GL certificate

## Applications

Used for fixed installations on board of ships laying in air, but not on open decks

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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Description	Unit	Details		
		3 × 35/16	3 × 50/16	3 × 70/16
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>			
Construction data				
Phase copper round conductor:				
▪ Nominal cross sectional area	mm <sup>2</sup>	35	50	70
▪ Number of wires	No.	7	19	19
▪ Diameter and tolerance	mm	6.96 <sup>+0.15</sup>	8.15 <sup>+0.2</sup>	9.6 <sup>+0.2</sup>
Minimum thickness of semi-conductive XLPE on conductor	mm		0.30	
Insulation thickness:				
▪ Nominal	mm		4.5	
▪ Minimum at a point	mm		3.95	
Approximate diameter over insulation	mm	17.0	18.2	19.6
Minimum thickness of semi-conductive XLPE on insulation	mm		0.30	
Approximate thickness of semi-conductive tape	mm		0.4	

# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

8.7/15 (17.5) kV

Description	Unit	Details		
		3 × 35/16	3 × 50/16	3 × 70/16
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>	<b>3 × 35/16</b>	<b>3 × 50/16</b>	<b>3 × 70/16</b>
Metallic screen:				
▪ Nominal cross sectional area	mm <sup>2</sup>		16	
▪ Copper tapes, No. and dimensions	No. × mm × mm		(3 × 2) × 30 × 0.10	
Approximate diameter over stranded cores	mm	41.3	43.9	47.0
Approximate thickness of inner covering	mm	1.4		1.6
Nominal dia. of wires of bare copper braid	mm		0.4	
Number of wires in copper braid	No.	36 × 9	36 × 10	36 × 10
Outer sheath thickness				
▪ Nominal	mm	2.6	2.7	2.9
▪ Minimum at a point	mm	1.88	1.96	2.12
Approximate overall diameter of complete cable (D)	mm	51.4	54.1	58.0
Approximate weight of complete cable	kg/km	3.930	4.540	5.500
Delivery data				
Length per drum ± 5%	m		500	
Diameter and max. width of wooden drum, type	m × m	2.00 × 1.09 20A	2.00 × 1.09 20A	2.20 × 1.34 22
Approximate weight of heaviest reel including cable	kg	2.370	2.680	3.370
Mechanical data				
Recommended minimum bending radius for laying	m	0.77	0.81	0.87
Maximum permissible pulling force with a pulling eye on conductor	kN	5.25	7.50	10.50
Electrical data				
Maximum D.C. phase conductor resistance at 20°C	Ω/km	0.524	0.387	0.268
Maximum A.C. phase conductor resistance at 90°C	Ω/km	0.668	0.496	0.345
Short circuit currents				

# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

8.7/15 (17.5) kV

Description	Unit	Details		
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>	<b>3 × 35/16</b>	<b>3 × 50/16</b>	<b>3 × 70/16</b>
Maximum permissible thermal short-circuit current for 1 sec.				
Phase conductor from 90°C to 250°C	kA	5.0	7.2	10.0
Metallic screen from 80°C to 180°C	kA	1.9	1.9	1.9
Ampacity, acc. to IEC60092-352 Table A.4				
In free air, ambient temperature 45°C	A	137	167	214

Description	Unit	Details		
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>	<b>3 × 95/16</b>	<b>3 × 120/16</b>	<b>3 × 150/25</b>
Construction data				
Phase copper round conductor				
▪ Nominal cross sectional area	mm <sup>2</sup>	95	120	150
▪ Number of wires	No.	19	36	36
▪ Diameter and tolerance	mm	11.5 <sup>+0.2</sup>	12.8 <sup>+0.3</sup>	14.25 <sup>+0.30</sup>
Minimum thickness of semi-conductive XLPE on conductor	mm		0.30	
Insulation thickness:				
▪ Nominal	mm		4.5	
▪ Minimum at a point	mm		3.95	
Approximate diameter over insulation	mm	21.5	22.8	24.3
Minimum thickness of semi-conductive XLPE on insulation	mm	0.30		
Approximate thickness of semi-conductive tape	mm	0.4		
Metallic screen:				
▪ Nominal cross sectional area	mm <sup>2</sup>		16	25
▪ Copper tapes, No. and dimensions	No. × mm × mm		(3×2) × 30 × 0.10	(3×2) × 50 × 0.10
Approximate diameter over stranded cores	mm	51.1	53.9	57.0
Approximate thickness of inner covering	mm		1.6	
Nominal dia. of wires of bare copper braid	mm		0.4	
Number of wires in copper braid	No.	36 × 11	36 × 12	36 × 12

# NHKOXSek

Cu/XLPE/CTS/LSOH/CWB/LSOH

8.7/15 (17.5) kV

Description	Unit	Details		
		3 × 95/16	3 × 120/16	3 × 150/25
<b>Number and nominal cross-section of the conductors</b>	<b>No. × mm<sup>2</sup>/mm<sup>2</sup></b>	<b>3 × 95/16</b>	<b>3 × 120/16</b>	<b>3 × 150/25</b>
Outer sheath thickness				
▪ Nominal	mm	3.1	3.2	3.3
▪ Minimum at a point	mm	2.28	2.36	2.44
Approximate overall diameter of complete cable (D)	mm	62.5	65.5	68.9
Approximate weight of complete cable	kg/km	6.700	7.670	8.830
Delivery data				
Length per drum ± 5%	m	500		
Diameter and max. width of wooden drum, type	m × m	2.20 × 1.34 22	2.40 × 1.44 24	2.40 × 1.44 24A
Approximate weight of reel including cable	kg	3.970	4.590	5.120
Mechanical data				
Recommended minimum bending radius for laying	m	0.94	0.98	1.03
Maximum permissible pulling force with a pulling eye on conductor	kN	14.25	18.00	22.50
Electrical data				
Maximum D.C. phase conductor resistance at 20°C	Ω/km	0.193	0.153	0.124
Maximum A.C. phase conductor resistance at 90°C	Ω/km	0.249	0.198	0.163
Short circuit currents				
Maximum permissible thermal short-circuit current for 1 sec. Phase conductor from 90°C to 250°C	kA	13.6	17.2	21.5
Metallic screen from 80°C to 180°C	kA	1.9	1.9	2.9
Ampacity, acc. to IEC 60092-352 Table A.4				
In free air, ambient temperature 45°C	A	259	301	347



# Type MVEPRHXCuHX

## Marine Cables 6/10 (12) kV

**IEC 60092-350, IEC 60092-354**

EPR Insulated, polyolefin jacketed, marine cable.

### CONSTRUCTION

Conductors	Annealed stranded bare copper Class 2 in accordance IEC 60228
Conductor shield	Semi-conductive tape layer between the conductor and insulation
Insulation	Ethylene-propylene rubber type E 90 to 3.22 UL 1309
Insulation shield	Semi-conductive layer + bare copper tape
Inner covering	Polyolefin
Armouring	Bare copper braid
Jacket:	Polyolefin thermosetting compound, halogen-free
Colour of jacket	Red



### CHARACTERISTIC

Maximum conductor temperature:	90°C
Temperature range:	-15°C to +50°C

### Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1 IEC 60754-2

### Applications

- For fixed installations on board of ships at all levels and open decks
- Cables are halogen-free, non corrosive and low toxic gases
- Other industrial applications



# Type MVEPRHXCuHX

## Marine Cables 6/10 (12) kV

### Approvals

ABS

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing: 500 or 1 000 m on drums  
Other forms of packing and delivery are available on request

Size	Outer diameter			Approximate weight
	Minimum mm	Approx. mm	Maximum mm	
3 × 25	42.00	45.50	46.50	3.263
3 × 35	44.50	47.90	49.50	3.744
3 × 50	47.00	51.00	51.50	4.377
3 × 70	50.50	54.10	56.00	5.262
3 × 95	54.50	59.10	60.00	6.511
3 × 120	58.50	62.40	64.50	7.529
3 × 150	61.50	66.20	67.50	8.717

Size	Stranding	Conductor diameter	Thickness of semi-con. tape + layer over conductor	Thickness of insulation	Thickness of semi-con + Cu over insulation	Diameter over ins. and screens	Thickness of inner covering	Thickness of screen Cu wires	Thickness of outer covering
mm <sup>2</sup>		mm	mm	mm	mm	mm	mm	mm	mm
3 × 25	7 × 2.13	6.10	0.2 + 0.7	3.4	0.8 + 0.127	16.70	1.4	0.4	2.4
3 × 35	7 × 2.55	7.15	0.2 + 0.7	3.4	0.8 + 0.127	17.70	1.4	0.4	2.5
3 × 50	19 × 1.84	8.25	0.2 + 0.7	3.4	0.8 + 0.127	19.00	1.4	0.4	2.6
3 × 70	19 × 2.17	9.8	0.2 + 0.7	3.4	0.8 + 0.127	20.40	1.4	0.4	2.7
3 × 95	19 × 2.55	11.75	0.2 + 0.7	3.4	0.8 + 0.127	22.30	1.6	0.4	2.9
3 × 120	19 × 2.96	13.15	0.2 + 0.7	3.4	0.8 + 0.127	23.70	1.6	0.4	3.1
3 × 150	37 × 2.25	14.80	0.2 + 0.7	3.4	0.8 + 0.127	25.40	1.6	0.4	3.2

\* Single core constructions are available on request



# Type MVEPRHXCuHX

## Marine Cables 8.7/15 (17.5) kV

IEC 60092-350, IEC 60092-354

EPR Insulated, polyolefin jacketed, marine cable.

### CONSTRUCTION

Conductors	Annealed stranded bare copper Class 2 in accordance IEC 60228
Conductor shield	Semi-conductive tape layer between the conductor and insulation
Insulation	Ethylene-propylene rubber type E 90 to 3.22 UL 1309
Insulation shield	Semi-conductive layer + bare copper tape
Inner covering	Polyolefin
Armouring	Bare copper braid
Jacket:	Polyolefin thermosetting compound, halogen-free
Colour of jacket	Red



### CHARACTERISTIC

Maximum conductor temperature:	90°C
Temperature range:	-15°C to +50°C

### Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1 IEC 60754-2

### Applications

- For fixed installations on board of ships at all levels and open decks
- Cables are halogen-free, non corrosive and low toxic gases
- Other industrial applications

# Type MVEPRHXCuHX

## Marine Cables 8.7/15 (17.5) kV

### Approvals

#### ABS

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing: 500 or 1 000 m on drums  
Other forms of packing and delivery are available on request


Size mm <sup>2</sup>	Outer diameter			Approximate weight kg/km
	Minimum mm	Approx. mm	Maximum mm	
3 × 25	47.5	49.1	52.0	3.905
3 × 35	49.5	50.3	54.5	4.438
3 × 50	52.0	52.8	57.0	5.108
3 × 70	56.0	56.2	61.5	6.175
3 × 95	59.5	63.8	65.5	7.325
3 × 120	63.5	67.3	69.5	8.505
3 × 150	66.5	71.1	73.5	9.744
3 × 185	69.5	74.4	78.0	11.150
3 × 240	79.0	83.5	87.5	13.936

Size	Stranding	Conductor diameter	Thickness of semi-con. tape + layer over conductor	Thickness of insulation	Thickness of semi-con + Cu over insulation	Diameter over ins. and screens	Thickness of inner covering	Thickness of screen Cu wires	Thickness of outer covering
mm <sup>2</sup>		mm	mm	mm	mm	mm	mm	mm	mm
3 × 25	7 × 2.13	6.10	0.2 + 0.7	4.5	0.8 + 0.127	40.60	1.4	0.4	2.6
3 × 35	7 × 2.55	7.15	0.2 + 0.7	4.5	0.8 + 0.127	42.90	1.4	0.4	2.7
3 × 50	19 × 1.84	8.25	0.2 + 0.7	4.5	0.8 + 0.127	45.70	1.6	0.4	2.8
3 × 70	19 × 2.17	9.8	0.2 + 0.7	4.5	0.8 + 0.127	50.20	1.6	0.4	3.0
3 × 95	19 × 2.55	11.75	0.2 + 0.7	4.5	0.8 + 0.127	52.80	1.6	0.4	3.1
3 × 120	19 × 2.96	13.15	0.2 + 0.7	4.5	0.8 + 0.127	55.90	1.6	0.4	3.3
3 × 150	37 × 2.25	14.80	0.2 + 0.7	4.5	0.8 + 0.127	59.40	1.6	0.4	3.4
3 × 185	37 × 2.55	16.30	0.2 + 0.7	4.5	0.8 + 0.127	62.00	1.8	0.4	3.5
3 × 240	61 × 2.25	18.50	0.2 + 0.7	4.5	0.8 + 0.127	70.40	1.8	0.4	3.8

\* Single core constructions are available on request

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A large ship is shown at sea, with a white text box overlaid on the upper portion of the image. The ship's superstructure, including a tall mast and various equipment, is visible against a dark, overcast sky. The water in the foreground is dark and textured. The text box contains the title in a bold, black, sans-serif font.

# **Shipboard instrumentation, control and telecommunication cables**









# FLAMEBLOCKER NTKOXSekw

150/250 V (300 V)

Cu/XLPE/CWB/LSOH

IEC 60092-376

Halogen-free, low smoke shipboard instrumentation, control and telecommunication cables with screen.

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## CONSTRUCTION

Conductors	Circular stranded bare or tinned copper class 2 or class 5 acc. to IEC 60228	
Insulation	Cross-linked polyethylene XLPE 90°C acc. to IEC 60092-360	
Inner covering:	Tape or extruded inner bedding (optional)	
Armour (screen):	Bare copper wire braid with the metallic contact with a copper drain wire (optional)	
Colour code:	<b>Pair identification:</b>	Core a: blue (or black) Core b: white
	<b>Triple identification:</b>	Core a: blue (or black) Core b: white Core c: red with printed pair or triple number
	<b>Core identification:</b>	White with black printed numbers
	Other colors available on request	
Sheath:	Thermoplastic halogen-free polyolefin compound type SHF1 acc. to IEC 60092-360	
Colour of sheath:	Grey, black or blue	



## CHARACTERISTIC

Inductance:	Max. 0.67 mH/km
Pair capacitance:	Max. 70 nF/km
Impedance at f=1MHz:	110±15 Ω
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	6 × D D – overall diameter of the cable

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## Fire performance

Flame retardant:	IEC 60332-1-2; IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH $\geq$ 4.3; conductivity $\leq$ 10 $\mu$ Smm <sup>-1</sup>

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## Applications

Cables designed for connections of all sorts of measuring and telecommunication equipment including emergency communications systems which proper functioning is necessary in order to ensure safety on ships

## Approvals

DNV-GL, LR, PRS, BV, RINA, ABS

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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### Multipair/Multitriple cables with tape bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
<b>n × mm<sup>2</sup></b>	<b>n</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 2 × 0.5	7	0.4	0.1	0.20	1.0	6.4	7.0	7.8	73
2 × 2 × 0.5*	7	0.4	0.1	0.20	1.0	7.0	7.8	8.6	96
3 × 2 × 0.5	7	0.4	0.1	0.20	1.1	9.0	10.0	11.0	135
4 × 2 × 0.5	7	0.4	0.1	0.20	1.1	9.6	10.8	11.5	152
7 × 2 × 0.5	7	0.4	0.1	0.20	1.2	11.0	12.7	13.5	220
10 × 2 × 0.5	7	0.4	0.1	0.30	1.3	14.5	16.3	17.5	338

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Multipair/Multiple cables with tape bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
12 × 2 × 0.5	7	0.4	0.1	0.30	1.3	15.0	16.7	18.0	367
14 × 2 × 0.5	7	0.4	0.1	0.30	1.3	15.5	17.5	18.5	415
19 × 2 × 0.5	7	0.4	0.1	0.30	1.4	17.5	19.4	20.5	501
24 × 2 × 0.5	7	0.4	0.1	0.30	1.5	20.0	22.6	24.0	633
37 × 2 × 0.5	7	0.4	0.1	0.30	1.6	23.0	25.7	27.0	862
1 × 3 × 0.5	7	0.4	0.1	0.20	1.0	6.6	7.3	8.0	81
3 × 3 × 0.5	7	0.4	0.1	0.20	1.1	9.8	10.9	12.0	165
7 × 3 × 0.5	7	0.4	0.1	0.20	1.2	12.5	14.0	15.0	281
12 × 3 × 0.5	7	0.4	0.1	0.30	1.4	16.5	18.7	20.0	483
1 × 2 × 0.75	7	0.5	0.1	0.20	1.0	7.2	7.8	8.8	90
2 × 2 × 0.75	7	0.5	0.1	0.20	1.0	8.0	8.7	9.8	120
3 × 2 × 0.75	7	0.5	0.1	0.20	1.1	10.5	11.4	13.0	167
4 × 2 × 0.75	7	0.5	0.1	0.20	1.2	11.5	12.5	14.0	206
5 × 2 × 0.75	7	0.5	0.1	0.20	1.2	12.5	13.5	15.0	231
6 × 2 × 0.75	7	0.5	0.1	0.20	1.2	13.5	14.6	16.5	266
7 × 2 × 0.75	7	0.5	0.1	0.20	1.2	13.5	14.6	16.5	283
10 × 2 × 0.75	7	0.5	0.1	0.30	1.4	17.5	19.0	21.0	444
12 × 2 × 0.75	7	0.5	0.1	0.30	1.4	18.0	19.6	21.5	504
14 × 2 × 0.75	7	0.5	0.1	0.30	1.4	19.0	20.5	22.5	548
19 × 2 × 0.75	7	0.5	0.1	0.30	1.5	21.0	22.8	25.0	687
20 × 2 × 0.75	7	0.5	0.1	0.30	1.6	22.5	24.2	26.5	726
24 × 2 × 0.75	7	0.5	0.1	0.30	1.7	25.0	26.8	29.5	861
37 × 2 × 0.75	7	0.5	0.1	0.30	1.8	28.5	30.6	33.5	1180
1 × 3 × 0.75	7	0.5	0.1	0.20	1.0	7.6	8.1	9.2	101
3 × 3 × 0.75	7	0.5	0.1	0.20	1.2	11.5	12.7	14.0	216
7 × 3 × 0.75	7	0.5	0.1	0.30	1.3	15.5	16.8	18.5	413
12 × 3 × 0.75	7	0.5	0.1	0.30	1.5	20.5	22.0	24.5	644
1 × 2 × 1	7	0.5	0.1	0.20	1.0	7.2	8.1	9.0	99
2 × 2 × 1*	7	0.5	0.1	0.20	1.1	8.4	9.3	10.5	139
3 × 2 × 1	7	0.5	0.1	0.20	1.1	10.5	12.0	13.0	194
4 × 2 × 1	7	0.5	0.1	0.20	1.2	11.5	13.2	14.5	234
7 × 2 × 1	7	0.5	0.1	0.30	1.3	14.5	16.1	17.5	381

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Multipair/Multiple cables with tape bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
10 × 2 × 1	7	0.5	0.1	0.30	1.4	18.0	20.2	22.0	526
12 × 2 × 1	7	0.5	0.1	0.30	1.4	18.5	20.8	22.5	579
14 × 2 × 1	7	0.5	0.1	0.30	1.5	19.5	22.0	23.5	645
19 × 2 × 1	7	0.5	0.1	0.30	1.6	21.5	24.5	26.0	813
24 × 2 × 1	7	0.5	0.1	0.30	1.7	25.5	28.6	30.5	1033
37 × 2 × 1	7	0.5	0.1	0.30	1.8	29.0	32.7	34.5	1425
1 × 3 × 1	7	0.5	0.1	0.20	1.0	7.6	8.5	9.4	114
3 × 3 × 1	7	0.5	0.1	0.20	1.2	12.0	13.4	14.5	247
7 × 3 × 1	7	0.5	0.1	0.30	1.3	16.0	17.8	19.5	495
12 × 3 × 1	7	0.5	0.1	0.30	1.5	20.5	23.4	25.0	770
1 × 2 × 1.5	7	0.6	0.1	0.20	1.0	8.2	9.1	10.0	121
2 × 2 × 1.5*	7	0.6	0.1	0.20	1.1	9.6	10.5	11.5	175
3 × 2 × 1.5	7	0.6	0.1	0.20	1.2	12.5	13.9	15.0	256
4 × 2 × 1.5	7	0.6	0.1	0.30	1.3	14.0	15.8	17.0	352
5 × 2 × 1.5	7	0.6	0.1	0.30	1.3	15.5	17.1	18.5	416
7 × 2 × 1.5	7	0.6	0.1	0.30	1.4	17.0	18.7	20.5	505
8 × 2 × 1.5	7	0.6	0.1	0.30	1.5	19.0	21.0	22.5	584
10 × 2 × 1.5	7	0.6	0.1	0.30	1.6	21.5	23.8	25.5	704
12 × 2 × 1.5	7	0.6	0.1	0.30	1.6	22.0	24.5	26.5	782
14 × 2 × 1.5	7	0.6	0.1	0.30	1.6	23.0	25.7	27.5	890
16 × 2 × 1.5	7	0.6	0.1	0.30	1.7	24.5	27.3	29.5	986
19 × 2 × 1.5	7	0.6	0.1	0.30	1.7	26.0	28.7	30.5	1132
20 × 2 × 1.5	7	0.6	0.1	0.30	1.8	27.5	30.4	32.5	1196
24 × 2 × 1.5	7	0.6	0.1	0.30	1.9	30.5	33.8	36.0	1411
37 × 2 × 1.5	7	0.6	0.1	0.30	2.1	35.0	38.8	41.5	1986
1 × 3 × 1.5	7	0.6	0.1	0.20	1.1	8.8	9.8	11.0	146
2 × 3 × 1.5	7	0.6	0.1	0.20	1.2	13.0	14.5	16.0	279
3 × 3 × 1.5	7	0.6	0.1	0.30	1.3	14.5	16.0	17.5	372
4 × 3 × 1.5	7	0.6	0.1	0.30	1.3	15.5	17.4	19.0	453
7 × 3 × 1.5	7	0.6	0.1	0.30	1.5	19.0	21.0	22.5	672
8 × 3 × 1.5	7	0.6	0.1	0.30	1.5	21.0	23.4	25.0	763
12 × 3 × 1.5	7	0.6	0.1	0.30	1.7	25.0	27.6	29.5	1060

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Multipair/Multitriple cables with tape bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
16 × 3 × 1.5	7	0.6	0.1	0.30	1.8	27.5	30.7	33.0	1342
1 × 4 × 2.5	7	0.6	0.1	0.20	1.1	10.5	11.6	13.0	227
2 × 2 × 2.5	7	0.6	0.1	0.20	1.2	13.0	14.6	16.0	265
1 × 2 × 2.5	7	0.6	0.1	0.20	1.1	9.2	10.2	11.5	158
4 × 2 × 2.5	7	0.6	0.1	0.30	1.3	16.0	17.5	19.0	462
6 × 2 × 2.5	7	0.6	0.1	0.30	1.5	19.0	21.0	23.0	631
10 × 2 × 2.5	7	0.6	0.1	0.30	1.6	24.0	26.6	28.5	951
12 × 2 × 2.5	7	0.6	0.1	0.30	1.7	25.0	27.7	30.0	1081

\* Cables 2 pairs are assembler as a quad

Multicore cables with tape bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of inner bedding	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
<b>n × mm<sup>2</sup></b>	<b>n</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
2 × 0.75	7	0.5	0.1	0.20	1.0	7.2	7.8	8.8	90
3 × 0.75	7	0.5	0.1	0.20	1.0	7.5	8.1	9.2	101
4 × 0.75	7	0.5	0.1	0.20	1.0	8.0	8.7	9.8	119
5 × 0.75	7	0.5	0.1	0.20	1.1	8.8	9.5	11.0	136
7 × 0.75	7	0.5	0.1	0.20	1.1	9.4	10.2	11.5	164
10 × 0.75	7	0.5	0.1	0.20	1.2	11.5	12.6	14.0	225
12 × 0.75	7	0.5	0.1	0.20	1.2	12.0	12.9	14.5	246
14 × 0.75	7	0.5	0.1	0.20	1.2	12.5	13.5	15.0	268
16 × 0.75	7	0.5	0.1	0.20	1.2	13.0	14.1	15.5	299
19 × 0.75	7	0.5	0.1	0.20	1.2	13.5	14.8	16.5	331
24 × 0.75	7	0.5	0.1	0.30	1.3	16.0	17.6	19.5	464
27 × 0.75	7	0.5	0.1	0.30	1.4	16.5	18.1	20.0	503
32 × 0.75	7	0.5	0.1	0.30	1.4	18.0	19.3	21.5	559
37 × 0.75	7	0.5	0.1	0.30	1.4	18.5	20.0	22.0	628



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Multipair/Multiple cables with extruded inner bedding IB

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of inner bedding	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
<b>n × mm<sup>2</sup></b>	<b>n</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 2 × 0.5	7	0.4	1.0	0.20	1.0	8.2	8.8	9.8	121
2 × 2 × 0.5*	7	0.4	1.0	0.20	1.1	9.2	9.7	11.0	144
3 × 2 × 0.5	7	0.4	1.0	0.20	1.1	11.0	11.7	13.0	188
4 × 2 × 0.5	7	0.4	1.0	0.20	1.2	11.5	12.7	14.0	223
7 × 2 × 0.5	7	0.4	1.0	0.20	1.2	13.0	14.4	16.0	291
10 × 2 × 0.5	7	0.4	1.0	0.30	1.4	16.5	18.2	19.5	444
12 × 2 × 0.5	7	0.4	1.0	0.30	1.4	17.0	18.7	20.0	477
14 × 2 × 0.5	7	0.4	1.0	0.30	1.4	17.5	19.4	21.0	513
19 × 2 × 0.5	7	0.4	1.0	0.30	1.5	19.5	21.4	23.0	626
24 × 2 × 0.5	7	0.4	1.0	0.30	1.6	22.5	24.5	26.0	756
37 × 2 × 0.5	7	0.4	1.0	0.30	1.7	25.0	27.7	29.5	982
1 × 3 × 0.5	7	0.4	1.0	0.20	1.1	8.6	9.2	10.5	133
3 × 3 × 0.5	7	0.4	1.0	0.20	1.2	12.0	12.9	14.0	235
7 × 3 × 0.5	7	0.4	1.0	0.30	1.3	15.0	16.4	18.0	403
12 × 3 × 0.5	7	0.4	1.0	0.30	1.4	18.5	20.5	22.0	592
1 × 2 × 0.75	7	0.5	1.0	0.20	1.1	9.4	9.7	11.0	144
2 × 2 × 0.75	7	0.5	1.0	0.20	1.1	10.0	10.7	12.0	175
3 × 2 × 0.75	7	0.5	1.0	0.20	1.2	12.5	13.3	15.0	239
4 × 2 × 0.75	7	0.5	1.0	0.20	1.2	13.5	14.3	16.0	276
5 × 2 × 0.75	7	0.5	1.0	0.30	1.3	15.0	15.9	18.0	365
7 × 2 × 0.75	7	0.5	1.0	0.30	1.3	16.0	17.0	19.0	413
10 × 2 × 0.75	7	0.5	1.0	0.30	1.5	19.5	21.0	23.5	570
12 × 2 × 0.75	7	0.5	1.0	0.30	1.5	20.0	21.6	24.0	617
14 × 2 × 0.75	7	0.5	1.0	0.30	1.5	21.0	22.5	25.0	685
19 × 2 × 0.75	7	0.5	1.0	0.30	1.6	23.0	24.8	27.5	844
20 × 2 × 0.75	7	0.5	1.0	0.30	1.6	24.5	26.0	28.5	875
24 × 2 × 0.75	7	0.5	1.0	0.30	1.7	27.0	28.6	31.5	1025
37 × 2 × 0.75	7	0.5	1.0	0.30	1.9	30.5	32.6	36.0	1350
1 × 3 × 0.75	7	0.5	1.0	0.20	1.1	9.6	10.1	11.5	160

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Multipair/Multiple cables with extruded inner bedding IB

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of inner bedding	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
3 × 3 × 0.75	7	0.5	1.0	0.30	1.3	14.0	15.1	17.0	346
7 × 3 × 0.75	7	0.5	1.0	0.30	1.4	17.5	18.8	21.0	524
12 × 3 × 0.75	7	0.5	1.0	0.30	1.6	22.5	23.9	26.5	785
1 × 2 × 1	7	0.5	1.0	0.20	1.1	9.4	10.1	11.5	162
2 × 2 × 1*	7	0.5	1.0	0.20	1.1	10.0	11.1	12.5	199
3 × 2 × 1	7	0.5	1.0	0.20	1.2	12.5	14.0	15.5	273
4 × 2 × 1	7	0.5	1.0	0.30	1.3	14.0	16.6	17.5	361
7 × 2 × 1	7	0.5	1.0	0.30	1.4	16.5	18.1	20.0	490
10 × 2 × 1	7	0.5	1.0	0.30	1.5	20.0	22.2	24.0	660
12 × 2 × 1	7	0.5	1.0	0.30	1.5	20.5	22.8	24.5	719
14 × 2 × 1	7	0.5	1.0	0.30	1.5	21.5	23.8	25.5	781
19 × 2 × 1	7	0.5	1.0	0.30	1.6	23.5	26.3	28.5	971
24 × 2 × 1	7	0.5	1.0	0.30	1.8	27.5	30.5	33.0	1198
37 × 2 × 1	7	0.5	1.0	0.30	1.9	31.0	34.6	37.0	1578
1 × 3 × 1	7	0.5	1.0	0.20	1.1	9.8	10.5	12.0	175
3 × 3 × 1	7	0.5	1.0	0.30	1.3	14.5	15.8	17.5	383
7 × 3 × 1	7	0.5	1.0	0.30	1.4	18.0	19.8	21.5	614
12 × 3 × 1	7	0.5	1.0	0.30	1.6	23.0	25.3	27.5	930
1 × 2 × 1.5	7	0.6	1.0	0.20	1.1	10.0	11.1	12.5	195
2 × 2 × 1.5*	7	0.6	1.0	0.20	1.2	11.5	12.5	14.0	253
3 × 2 × 1.5	7	0.6	1.0	0.30	1.3	15.0	16.3	18.0	384
4 × 2 × 1.5	7	0.6	1.0	0.30	1.4	16.5	17.7	19.5	460
7 × 2 × 1.5	7	0.6	1.0	0.30	1.5	19.0	20.7	22.5	634
8 × 2 × 1.5	7	0.6	1.0	0.30	1.5	21.0	22.8	25.0	713
10 × 2 × 1.5	7	0.6	1.0	0.30	1.6	23.5	25.5	27.5	863
12 × 2 × 1.5	7	0.6	1.0	0.30	1.6	24.0	26.3	28.5	948
14 × 2 × 1.5	7	0.6	1.0	0.30	1.7	25.5	27.7	30.0	1050
16 × 2 × 1.5	7	0.6	1.0	0.30	1.7	26.5	29.0	31.5	1167
19 × 2 × 1.5	7	0.6	1.0	0.30	1.8	28.0	30.6	33.0	1308
20 × 2 × 1.5	7	0.6	1.0	0.30	1.8	29.5	32.2	34.5	1386

# FLAMEBLOCKER NTKOXSekw

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Cu/XLPE/CWB/LSOH

Multipair/Multiple cables with extruded inner bedding IB

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of inner bedding	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
24 × 2 × 1.5	7	0.6	1.2	0.30	2.0	33.0	36.1	39.0	1672
37 × 2 × 1.5	7	0.6	1.2	0.40	2.2	38.0	41.6	44.5	2321
1 × 3 × 1.5	7	0.6	1.0	0.20	1.1	10.5	11.5	13.0	213
2 × 3 × 1.5	7	0.6	1.0	0.30	1.3	15.5	16.9	18.5	413
3 × 3 × 1.5	7	0.6	1.0	0.30	1.4	16.5	18.0	20.0	491
4 × 3 × 1.5	7	0.6	1.0	0.30	1.4	18.0	19.4	21.5	559
7 × 3 × 1.5	7	0.6	1.0	0.30	1.5	21.0	22.7	25.0	804
8 × 3 × 1.5	7	0.6	1.0	0.30	1.6	23.0	25.3	27.5	935
12 × 3 × 1.5	7	0.6	1.0	0.30	1.8	27.0	29.5	32.0	1251
16 × 3 × 1.5	7	0.6	1.0	0.30	1.9	30.0	32.6	35.0	1556
1 × 4 × 2.5	7	0.6	1.0	0.20	1.2	12.5	13.5	15.0	310
2 × 2 × 2.5	7	0.6	1.0	0.30	1.3	15.5	17.0	19.0	423

\* Cables 2 pairs are assembled as a quad



# FLAMEBLOCKER NTKOXSekwf

150/250 V (300 V)

Cu/XLPE/CAM/LSOH

IEC 60092-376

Halogen-free, low smoke shipboard instrumentation, control and telecommunication cables, collectively screened.

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## CONSTRUCTION

Conductors:	Circular stranded bare or tinned copper class 2 or 5 (for request) acc. to IEC 60228	
Insulation:	Cross-linked polyethylene XLPE 90°C acc. to IEC 60092-360	
Inner covering:	Tape	
Screen:	Aluminium/polyester tape with the metallic side in contact with tinned copper drain wire	
Colour code:	<b>Pair identification:</b>	Core a: blue (or black) Core b: white with printed pair number
	Other colors available on request	
Sheath:	Thermoplastic halogen-free polyolefin compound type SHF1 acc. to IEC 60092-360	
Colour of sheath:	Grey, black, blue or white	



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6 × D D – overall diameter of the cable

# FLAMEBLOCKER NTKOXSekwf

150/250 V (300 V)

Cu/XLPE/LSOH

## Fire performance

Flame retardant:	IEC 60332-1-2; IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>

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## Applications

Cables designed for connections of all sorts of measuring and telecommunication equipment including emergency communications systems which proper functioning is necessary in order to ensure safety on ships

## Approvals

DNV-GL

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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### Multipair cables class 2

Number and cross-sectional area of conductor	Nominal thickness of insulation	Thickness of tape	Nominal thickness of sheath	Overall diameter			Net weight of cables	Maximum conductor resistance at temperature 20°C
				Min.	Nom.	Max.		
n × mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	kg/km	Ω/km
1 × 2 × 0.5	0.4	0.1	1.0	5.4	6.2	6.6	45	40.4
2 × 2 × 0.5*	0.4	0.1	1.0	6.0	7.0	7.4	63	40.4
4 × 2 × 0.5	0.4	0.1	1.1	8.6	10.0	10.5	110	40.4
7 × 2 × 0.5	0.4	0.1	1.1	10.0	11.7	12.5	159	40.4
10 × 2 × 0.5	0.4	0.1	1.2	13.0	14.8	15.5	224	40.4
12 × 2 × 0.5	0.4	0.1	1.2	13.5	15.3	16.0	253	40.4
14 × 2 × 0.5	0.4	0.1	1.3	14.0	16.2	17.0	291	40.4



# FLAMEBLOCKER NTKOXSekwf

150/250 V (300 V)

Cu/XLPE/LSOH

Multipair cables class 2

Number and cross-sectional area of conductor	Nominal thickness of insulation	Thickness of tape	Nominal thickness of sheath	Overall diameter			Net weight of cables	Maximum conductor resistance at temperature 20°C
				Min.	Nom.	Max.		
19 × 2 × 0.5	0.4	0.1	1.3	15.5	18.0	19.0	368	40.4
24 × 2 × 0.5	0.4	0.1	1.4	18.5	21.1	22.0	465	40.4
37 × 2 × 0.5	0.4	0.1	1.5	21.5	24.3	25.5	667	40.4
1 × 2 × 0.75	0.5	0.1	1.0	6.2	7.0	7.8	57	26.0
2 × 2 × 0.75*	0.5	0.1	1.0	7.0	7.9	8.8	82	26.0
3 × 2 × 0.75	0.5	0.1	1.1	9.6	10.6	11.5	120	26.0
4 × 2 × 0.75	0.5	0.1	1.1	10.5	11.5	12.5	145	26.0
7 × 2 × 0.75	0.5	0.1	1.2	12.5	13.8	15.0	221	26.0
8 × 2 × 0.75	0.5	0.1	1.3	14.0	15.6	17.0	259	26.0
10 × 2 × 0.75	0.5	0.1	1.3	16.0	17.6	19.5	311	26.0
12 × 2 × 0.75	0.5	0.1	1.3	16.5	18.2	20.0	353	26.0
14 × 2 × 0.75	0.5	0.1	1.4	17.5	19.3	21.0	407	26.0
19 × 2 × 0.75	0.5	0.1	1.5	19.5	21.6	23.5	528	26.0
20 × 2 × 0.75	0.5	0.1	1.5	21.0	22.8	25.0	557	26.0
24 × 2 × 0.75	0.5	0.1	1.6	23.0	25.4	27.5	665	26.0
37 × 2 × 0.75	0.5	0.1	1.7	26.5	29.2	32.0	957	26.0
1 × 2 × 1	0.5	0.1	1.0	6.4	7.4	8.0	67	19.2
2 × 2 × 1*	0.5	0.1	1.0	7.2	8.4	9.0	98	19.2
3 × 2 × 1	0.5	0.1	1.1	9.8	11.2	12.0	142	19.2
4 × 2 × 1	0.5	0.1	1.1	10.5	12.2	13.0	173	19.2
7 × 2 × 1	0.5	0.1	1.2	12.5	14.7	15.5	267	19.2
18 × 2 × 1	0.5	0.1	1.3	14.5	16.6	18.0	311	19.2
10 × 2 × 1	0.5	0.1	1.4	16.5	19.0	20.0	385	19.2
12 × 2 × 1	0.5	0.1	1.4	17.0	19.6	21.0	438	19.2
14 × 2 × 1	0.5	0.1	1.4	18.0	20.6	22.0	494	19.2
19 × 2 × 1	0.5	0.1	1.5	20.0	23.1	24.5	644	19.2
20 × 2 × 1	0.5	0.1	1.5	21.0	24.3	26.0	680	19.2
24 × 2 × 1	0.5	0.1	1.6	23.5	27.1	28.5	812	19.2
37 × 2 × 1	0.5	0.1	1.8	27.5	31.4	33.0	1191	19.2
1 × 2 × 1.5	0.6	0.1	1.0	7.2	8.3	9.0	84	12.8

# FLAMEBLOCKER NTKOXSekwf

150/250 V (300 V)

Cu/XLPE/LSOH

Multipair cables class 2

Number and cross-sectional area of conductor	Nominal thickness of insulation	Thickness of tape	Nominal thickness of sheath	Overall diameter			Net weight of cables	Maximum conductor resistance at temperature 20°C
				Min.	Nom.	Max.		
2 × 2 × 1.5*	0.6	0.1	1.1	8.6	9.7	10.5	133	12.8
3 × 2 × 1.5	0.6	0.1	1.2	11.5	13.2	14.0	194	12.8
4 × 2 × 1.5	0.6	0.1	1.2	12.5	14.4	15.5	238	12.8
7 × 2 × 1.5	0.6	0.1	1.3	15.0	17.3	18.5	373	12.8
8 × 2 × 1.5	0.6	0.1	1.4	17.5	19.6	21.0	433	12.8
10 × 2 × 1.5	0.6	0.1	1.5	20.0	22.4	24.0	536	12.8
12 × 2 × 1.5	0.6	0.1	1.5	20.5	23.1	24.5	614	12.8
14 × 2 × 1.5	0.6	0.1	1.6	21.5	24.5	26.0	707	12.8
16 × 2 × 1.5	0.6	0.1	1.6	23.0	25.9	27.5	791	12.8
19 × 2 × 1.5	0.6	0.1	1.7	24.5	27.5	29.0	924	12.8
20 × 2 × 1.5	0.6	0.1	1.7	26.0	29.0	31.0	974	12.8
24 × 2 × 1.5	0.6	0.1	1.8	29.0	32.4	34.5	1163	12.8
37 × 2 × 1.5	0.6	0.1	2.0	33.5	37.5	39.5	1711	12.8

\* Cables 2 pairs are assembled as a quad



# FLAMEBLOCKER NTKOXSekf/ekw

150/250 V (300 V)

Cu/XLPE/IAM/CAM/CWB/LSOH

IEC 60092-376

Halogen-free low smoke shipboard instrumentation, control and telecommunication cables, individually and collectively screened.

## CONSTRUCTION

<b>Conductors:</b>	Circular stranded bare or tinned copper class 2 or class 5 acc. to IEC 60092-360	
<b>Insulation:</b>	Cross-linked polyethylene XLPE 90°C acc. to IEC 60092-360	
<b>Individual screen:</b>	Aluminium/polyester tape with the metallic side in contact with tinned copper drain wire	
<b>Inner covering:</b>	Tape or extruded inner bedding (optional)	
<b>Armour (screen):</b>	Bare copper wire braid with the metallic contact with a tinned copper drain wire	
<b>Colour code:</b>	<b>Pair identification:</b>	Core a: blue (or black) Core b: white
	<b>Triple identification:</b>	Core a: blue (or black) Core b: white Core c: red with printed pair or triple number
	<b>Core identification:</b>	White with black printed numbers
	Other colors available on request	
<b>Lay length twisting:</b>	max 150 mm	
<b>Sheath:</b>	Thermoplastic halogen-free polyolefin compound type SHF1 acc. to IEC 60092-360	
<b>Colour of sheath:</b>	Grey, black or blue	



## CHARACTERISTIC

<b>Inductance:</b>	Max. 0.67 mH/km
<b>Pair capacitance:</b>	Max. 100 nF/km

# FLAMEBLOCKER NTKOXSekf/ekw

150/250 V (300 V)

Cu/XLPE/IAM/CAM/CWB/LSOH

Impedance at f=1MHz:	80±15 Ω
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	6 × D D – overall diameter of the cable

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## Fire performance

Flame retardant:	IEC 60332-1-2; IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>

## Applications

Cables designed for measuring and control circuits on ships. For fixed installation only

## Approvals

DNV-GL, ABS, LR, PRS, RINA, BV (wersja IB)

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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# FLAMEBLOCKER NTKOXSekf/ekw

150/250 V (300 V)

Cu/XLPE/IAM/CAM/CWB/LSOH

Multipair cables with tape bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
<b>n × mm<sup>2</sup></b>	<b>n</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 2 × 0.5	7	0.5	0.1	0.20	1.00	6.4	7.4	7.8	79
2 × 2 × 0.5	7	0.5	0.1	0.20	1.10	9.0	10.8	11.0	135
3 × 2 × 0.5	7	0.5	0.1	0.20	1.20	9.6	11.6	11.5	167
4 × 2 × 0.5	7	0.5	0.1	0.20	1.10	10.0	12.3	12.5	193
5 × 2 × 0.5	7	0.5	0.1	0.20	1.10	11.0	13.3	13.5	217
7 × 2 × 0.5	7	0.5	0.1	0.20	1.20	12.0	14.6	14.5	275
10 × 2 × 0.5	7	0.5	0.1	0.30	1.30	15.5	18.8	18.5	424
12 × 2 × 0.5	7	0.5	0.1	0.30	1.30	16.0	19.4	19.0	482
14 × 2 × 0.5	7	0.5	0.1	0.30	1.40	17.0	20.5	20.0	535
16 × 2 × 0.5	7	0.5	0.1	0.30	1.40	17.5	21.5	21.0	580
17 × 2 × 0.5	7	0.5	0.1	0.30	1.40	18.5	22.6	22.0	623
19 × 2 × 0.5	7	0.5	0.1	0.30	1.40	18.5	22.6	22.0	660
24 × 2 × 0.5	7	0.5	0.1	0.30	1.50	21.5	26.4	25.5	818
37 × 2 × 0.5	7	0.5	0.1	0.30	1.70	24.5	30.4	29.0	1141
1 × 3 × 0.5	7	0.5	0.1	0.20	1.00	6.6	7.7	8.0	93
2 × 3 × 0.5	7	0.5	0.1	0.20	1.10	9.8	11.8	12.0	159
3 × 3 × 0.5	7	0.5	0.1	0.20	1.20	10.5	12.6	12.5	201
4 × 3 × 0.5	7	0.5	0.1	0.20	1.20	11.0	13.7	13.5	240
5 × 3 × 0.5	7	0.5	0.1	0.20	1.20	12.0	14.8	14.5	273
7 × 3 × 0.5	7	0.5	0.1	0.20	1.20	13.0	16.1	16.0	338
10 × 3 × 0.5	7	0.5	0.1	0.30	1.40	17.0	21.0	20.5	531
12 × 3 × 0.5	7	0.5	0.1	0.30	1.40	17.5	21.6	21.0	586
14 × 3 × 0.5	7	0.5	0.1	0.30	1.40	18.5	22.7	22.0	661
16 × 3 × 0.5	7	0.5	0.1	0.30	1.50	19.5	24.0	23.5	732
17 × 3 × 0.5	7	0.5	0.1	0.30	1.50	20.5	25.3	24.5	793
19 × 3 × 0.5	7	0.5	0.1	0.30	1.50	20.5	25.3	24.5	843
24 × 3 × 0.5	7	0.5	0.1	0.30	1.60	24.0	29.6	28.5	1041
37 × 3 × 0.5	7	0.5	0.1	0.30	1.80	27.5	34.0	32.5	1461
1 × 2 × 0.75	7	0.6	0.1	0.20	1.00	7.2	8.2	8.8	97



# FLAMEBLOCKER NTKOXSekf/ekw

150/250 V (300 V)

Cu/XLPE/IAM/CAM/CWB/LSOH

Multipair cables with tape bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
2 × 2 × 0.75	7	0.6	0.1	0.20	1.10	10.5	12.2	13.0	172
3 × 2 × 0.75	7	0.6	0.1	0.20	1.20	11.0	13.1	13.5	208
4 × 2 × 0.75	7	0.6	0.1	0.20	1.20	12.0	14.2	15.0	249
5 × 2 × 0.75	7	0.6	0.1	0.20	1.20	13.0	15.4	16.0	290
7 × 2 × 0.75	7	0.6	0.1	0.30	1.30	15.0	17.3	18.0	413
10 × 2 × 0.75	7	0.6	0.1	0.30	1.40	18.5	21.8	22.5	549
12 × 2 × 0.75	7	0.6	0.1	0.30	1.50	19.5	22.7	23.5	634
14 × 2 × 0.75	7	0.6	0.1	0.30	1.50	20.5	23.8	24.5	695
16 × 2 × 0.75	7	0.6	0.1	0.30	1.50	21.5	25.0	25.5	783
17 × 2 × 0.75	7	0.6	0.1	0.30	1.60	22.5	26.5	27.0	832
19 × 2 × 0.75	7	0.6	0.1	0.30	1.60	22.5	26.5	27.0	884
24 × 2 × 0.75	7	0.6	0.1	0.30	1.70	26.5	31.0	31.5	1091
37 × 2 × 0.75	7	0.6	0.1	0.30	1.90	30.5	35.7	36.0	1556
1 × 3 × 0.75	7	0.6	0.1	0.20	1.00	7.6	8.6	9.2	114
3 × 3 × 0.75	7	0.6	0.1	0.20	1.20	12.5	14.3	15.0	254
7 × 3 × 0.75	7	0.6	0.1	0.30	1.30	16.5	19.1	20.0	495
12 × 3 × 0.75	7	0.6	0.1	0.30	1.50	21.5	25.1	25.5	799
16 × 3 × 0.75	7	0.6	0.1	0.30	1.60	24.0	28.0	28.5	978
17 × 3 × 0.75	7	0.6	0.1	0.30	1.70	25.5	29.6	30.0	1066
19 × 3 × 0.75	7	0.6	0.1	0.30	1.70	25.5	29.6	30.0	1138
24 × 3 × 0.75	7	0.6	0.1	0.30	1.80	30.0	34.7	35.0	1405
37 × 3 × 0.75	7	0.6	0.1	0.30	2.00	34.5	40.0	40.5	1992
1 × 2 × 1	7	0.6	0.1	0.20	1.00	7.2	8.6	9.0	114
2 × 2 × 1	7	0.6	0.1	0.20	1.10	10.5	12.8	13.0	193
3 × 2 × 1	7	0.6	0.1	0.20	1.20	11.5	13.8	14.0	245
4 × 2 × 1	7	0.6	0.1	0.20	1.20	12.5	15.0	15.5	287
5 × 2 × 1	7	0.6	0.1	0.30	1.30	14.0	16.9	17.0	382
7 × 2 × 1	7	0.6	0.1	0.30	1.30	15.0	18.3	18.5	476
8 × 2 × 1	7	0.6	0.1	0.30	1.30	17.0	20.6	20.8	552
10 × 2 × 1	7	0.6	0.1	0.30	1.50	19.5	23.3	23.5	665

# FLAMEBLOCKER NTKOXSekf/ekw

150/250 V (300 V)

Cu/XLPE/IAM/CAM/CWB/LSOH

Multipair cables with tape bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
12 × 2 × 1	7	0.6	0.1	0.30	1.50	20.0	24.0	24.0	739
14 × 2 × 1	7	0.6	0.1	0.30	1.50	21.0	25.2	25.0	842
16 × 2 × 1	7	0.6	0.1	0.30	1.60	22.0	26.7	26.5	933
17 × 2 × 1	7	0.6	0.1	0.30	1.60	23.0	28.1	28.0	1005
19 × 2 × 1	7	0.6	0.1	0.30	1.60	23.0	28.1	28.0	1072
24 × 2 × 1	7	0.6	0.1	0.30	1.80	27.5	33.1	33.0	1338
37 × 2 × 1	7	0.6	0.1	0.30	1.90	31.0	37.9	37.5	1867
3 × 3 × 1.5	7	0.7	0.1	0.30	1.20	15.0	17.7	18.5	421
4 × 3 × 1.5	7	0.7	0.1	0.30	1.40	17.0	19.7	20.5	532
7 × 3 × 1.5	7	0.7	0.1	0.30	1.50	20.0	23.6	24.0	780

Multipair cables with extruded inner bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of wires in braid	Nominal thickness of outer sheath	Overall diameter Approximate	Net weight of cables
<b>n × mm<sup>2</sup></b>	<b>n</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 2 × 0.5	7	0.5	1.0	0.20	1.00	9.1	123
2 × 2 × 0.5	7	0.5	1.0	0.20	1.10	12.5	206
4 × 2 × 0.5	7	0.5	1.0	0.20	1.20	14.2	271
7 × 2 × 0.5	7	0.5	1.0	0.30	1.30	16.9	404
10 × 2 × 0.5	7	0.5	1.0	0.30	1.40	20.7	551
14 × 2 × 0.5	7	0.5	1.0	0.30	1.40	22.2	659
19 × 2 × 0.5	7	0.5	1.0	0.30	1.50	24.5	815
27 × 2 × 0.5	7	0.5	1.0	0.30	1.60	28.9	1059
37 × 2 × 0.5	7	0.5	1.0	0.30	1.70	32.1	1327
1 × 3 × 0.5	7	0.5	1.0	0.20	1.10	9.6	138
2 × 3 × 0.5	7	0.5	1.0	0.20	1.20	13.7	244
4 × 3 × 0.5	7	0.5	1.0	0.20	1.20	15.4	319
7 × 3 × 0.5	7	0.5	1.0	0.30	1.30	18.4	485

# FLAMEBLOCKER NTKOXSekf/ekw

150/250 V (300 V)

Cu/XLPE/IAM/CAM/CWB/LSOH

Multipair cables with extruded inner bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of wires in braid	Nominal thickness of outer sheath	Overall diameter Approximate	Net weight of cables
10 × 3 × 0.5	7	0.5	1.0	0.30	1.50	22.9	670
14 × 3 × 0.5	7	0.5	1.0	0.30	1.50	24.6	817
19 × 3 × 0.5	7	0.5	1.0	0.30	1.60	27.2	987
27 × 3 × 0.5	7	0.5	1.0	0.30	1.70	32.1	1323
37 × 3 × 0.5	7	0.5	1.0	0.30	1.90	35.9	1685
1 × 2 × 0.75	7	0.6	1.0	0.20	1.10	10.1	150
2 × 2 × 0.75	7	0.6	1.0	0.20	1.20	14.1	255
4 × 2 × 0.75	7	0.6	1.0	0.30	1.30	16.5	378
7 × 2 × 0.75	7	0.6	1.0	0.30	1.40	19.2	513
10 × 2 × 0.75	7	0.6	1.0	0.30	1.50	23.7	697
14 × 2 × 0.75	7	0.6	1.0	0.30	1.60	25.7	860
19 × 2 × 0.75	7	0.6	1.0	0.30	1.70	28.4	1065
27 × 2 × 0.75	7	0.6	1.0	0.30	1.80	33.5	1390
37 × 2 × 0.75	7	0.6	1.0	0.30	1.90	37.4	1749
1 × 3 × 0.75	7	0.6	1.0	0.20	1.10	10.5	164
2 × 3 × 0.75	7	0.6	1.0	0.30	1.30	16.0	342
4 × 3 × 0.75	7	0.6	1.0	0.30	1.30	18.0	453
7 × 3 × 0.75	7	0.6	1.0	0.30	1.40	21.1	624
10 × 3 × 0.75	7	0.6	1.0	0.30	1.60	26.4	868
14 × 3 × 0.75	7	0.6	1.0	0.30	1.70	28.6	1078
19 × 3 × 0.75	7	0.6	1.0	0.30	1.70	31.5	1300
27 × 3 × 0.75	7	0.6	1.0	0.30	1.90	37.6	1763
37 × 3 × 0.75	7	0.6	1.2	0.40	2.10	43.0	2430
1 × 2 × 1	7	0.6	1.0	0.20	1.10	10.5	163
2 × 2 × 1	7	0.6	1.0	0.20	1.20	14.7	282
4 × 2 × 1	7	0.6	1.0	0.30	1.30	17.3	439
7 × 2 × 1	7	0.6	1.0	0.30	1.40	20.2	599
8 × 2 × 1	7	0.6	1.0	0.30	1.50	22.5	687
10 × 2 × 1	7	0.6	1.0	0.30	1.50	25.0	821
12 × 2 × 1	7	0.6	1.0	0.30	1.60	25.9	908
14 × 2 × 1	7	0.6	1.0	0.30	1.60	27.1	991

# FLAMEBLOCKER NTKOXSekf/ekw

150/250 V (300 V)

Cu/XLPE/IAM/CAM/CWB/LSOH

Multipair cables with extruded inner bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of wires in braid	Nominal thickness of outer sheath	Overall diameter Approximate	Net weight of cables
16 × 2 × 1	7	0.6	1.0	0.30	1.60	28.4	1104
19 × 2 × 1	7	0.6	1.0	0.30	1.70	30.0	1238
24 × 2 × 1	7	0.6	1.0	0.30	1.80	34.8	1522
27 × 2 × 1	7	0.6	1.0	0.30	1.90	35.7	1675
37 × 2 × 1	7	0.6	1.2	0.30	2.00	40.2	2138
1 × 3 × 1	7	0.6	1.0	0.20	1.10	10.9	187
2 × 3 × 1	7	0.6	1.0	0.30	1.30	16.7	378
4 × 3 × 1	7	0.6	1.0	0.30	1.30	18.9	513
7 × 3 × 1	7	0.6	1.0	0.30	1.40	22.2	737
10 × 3 × 1	7	0.6	1.0	0.30	1.60	27.9	1006
14 × 3 × 1	7	0.6	1.0	0.30	1.70	30.2	1264
19 × 3 × 1	7	0.6	1.0	0.30	1.80	33.6	1588
27 × 3 × 1	7	0.6	1.2	0.30	2.00	40.4	2175
37 × 3 × 1	7	0.6	1.2	0.40	2.20	45.8	2922
1 × 2 × 1.5	7	0.7	1.0	0.20	1.10	11.5	191
2 × 2 × 1.5	7	0.7	1.0	0.30	1.30	17.1	402
4 × 2 × 1.5	7	0.7	1.0	0.30	1.40	19.6	542
7 × 2 × 1.5	7	0.7	1.0	0.30	1.50	23.0	748
8 × 2 × 1.5	7	0.7	1.0	0.30	1.60	25.7	864
10 × 2 × 1.5	7	0.7	1.0	0.30	1.70	28.9	1047
12 × 2 × 1.5	7	0.7	1.0	0.30	1.70	29.8	1147
14 × 2 × 1.5	7	0.7	1.0	0.30	1.80	31.3	1272
16 × 2 × 1.5	7	0.7	1.0	0.30	1.80	32.9	1413
19 × 2 × 1.5	7	0.7	1.0	0.30	1.90	34.8	1592
24 × 2 × 1.5	7	0.7	1.2	0.40	2.10	41.5	2131
27 × 2 × 1.5	7	0.7	1.2	0.40	2.10	42.3	2326
37 × 2 × 1.5	7	0.7	1.2	0.40	2.30	47.4	2957
1 × 3 × 1.5	7	0.7	1.0	0.20	1.10	11.9	220
2 × 3 × 1.5	7	0.7	1.0	0.30	1.40	18.8	466
4 × 3 × 1.5	7	0.7	1.0	0.30	1.40	21.4	639
7 × 3 × 1.5	7	0.7	1.0	0.30	1.60	25.5	946

# FLAMEBLOCKER NTKOXSekf/ekw

150/250 V (300 V)

Cu/XLPE/IAM/CAM/CWB/LSOH

Multipair cables with extruded inner bedding

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of wires in braid	Nominal thickness of outer sheath	Overall diameter Approximate	Net weight of cables
8 × 3 × 1.5	7	0.7	1.0	0.30	1.70	28.5	1087
10 × 3 × 1.5	7	0.7	1.0	0.30	1.80	32.1	1317
12 × 3 × 1.5	7	0.7	1.0	0.30	1.80	33.1	1457
14 × 3 × 1.5	7	0.7	1.0	0.30	1.90	34.8	1625
16 × 3 × 1.5	7	0.7	1.0	0.30	1.90	36.7	1808
19 × 3 × 1.5	7	0.7	1.2	0.30	2.00	39.1	2085
24 × 3 × 1.5	7	0.7	1.2	0.40	2.20	46.2	2726
27 × 3 × 1.5	7	0.7	1.2	0.40	2.30	47.3	3003
37 × 3 × 1.5	7	0.7	1.4	0.40	2.50	53.4	3863

Multipair cables with extruded inner bedding

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor cl. 5	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of wires in braid	Nominal thickness of outer sheath	Overall diameter Approximate	Net weight of cables
<b>n × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 2 × 0.5	0.21	0.5	1.0	0.20	1.00	9.2	123
2 × 2 × 0.5	0.21	0.5	1.0	0.20	1.10	12.5	205
4 × 2 × 0.5	0.21	0.5	1.0	0.20	1.20	14.2	269
7 × 2 × 0.5	0.21	0.5	1.0	0.30	1.30	17.0	400
10 × 2 × 0.5	0.21	0.5	1.0	0.30	1.40	20.8	545
14 × 2 × 0.5	0.21	0.5	1.0	0.30	1.40	22.3	650
19 × 2 × 0.5	0.21	0.5	1.0	0.30	1.50	24.6	803
27 × 2 × 0.5	0.21	0.5	1.0	0.30	1.60	29.0	1042
37 × 2 × 0.5	0.21	0.5	1.0	0.30	1.70	32.2	1304
1 × 3 × 0.5	0.21	0.5	1.0	0.20	1.10	9.7	137
2 × 3 × 0.5	0.21	0.5	1.0	0.20	1.20	13.7	242
4 × 3 × 0.5	0.21	0.5	1.0	0.20	1.20	15.4	315
7 × 3 × 0.5	0.21	0.5	1.0	0.30	1.30	18.5	478
10 × 3 × 0.5	0.21	0.5	1.0	0.30	1.50	23.0	660
14 × 3 × 0.5	0.21	0.5	1.0	0.30	1.50	24.6	803



# FLAMEBLOCKER NTKOXSekf/ekw

150/250 V (300 V)

Cu/XLPE/IAM/CAM/CWB/LSOH

Multipair cables with extruded inner bedding

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor cl. 5	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of wires in braid	Nominal thickness of outer sheath	Overall diameter Approximate	Net weight of cables
19 × 3 × 0.5	0.21	0.5	1.0	0.30	1.60	27.3	968
27 × 3 × 0.5	0.21	0.5	1.0	0.30	1.70	32.2	1295
37 × 3 × 0.5	0.21	0.5	1.0	0.30	1.90	36.1	1646
1 × 2 × 0.75	0.21	0.6	1.0	0.20	1.10	10.1	149
2 × 2 × 0.75	0.21	0.6	1.0	0.20	1.20	14.1	255
4 × 2 × 0.75	0.21	0.6	1.0	0.30	1.30	16.6	376
7 × 2 × 0.75	0.21	0.6	1.0	0.30	1.40	19.3	508
10 × 2 × 0.75	0.21	0.6	1.0	0.30	1.50	23.8	690
14 × 2 × 0.75	0.21	0.6	1.0	0.30	1.60	25.7	851
19 × 2 × 0.75	0.21	0.6	1.0	0.30	1.70	28.5	1052
27 × 2 × 0.75	0.21	0.6	1.0	0.30	1.80	33.6	1371
37 × 2 × 0.75	0.21	0.6	1.0	0.30	1.90	37.5	1723
1 × 3 × 0.75	0.21	0.6	1.0	0.20	1.10	10.5	163
2 × 3 × 0.75	0.21	0.6	1.0	0.30	1.30	15.9	339
4 × 3 × 0.75	0.21	0.6	1.0	0.30	1.30	18.0	448
7 × 3 × 0.75	0.21	0.6	1.0	0.30	1.40	21.0	614
10 × 3 × 0.75	0.21	0.6	1.0	0.30	1.60	26.3	854
14 × 3 × 0.75	0.21	0.6	1.0	0.30	1.70	28.5	1059
19 × 3 × 0.75	0.21	0.6	1.0	0.30	1.70	31.4	1274
27 × 3 × 0.75	0.21	0.6	1.0	0.30	1.90	37.5	1726
37 × 3 × 0.75	0.21	0.6	1.2	0.40	2.10	42.9	2380
1 × 2 × 1	0.21	0.6	1.0	0.20	1.10	10.3	160
2 × 2 × 1	0.21	0.6	1.0	0.20	1.20	14.4	274
4 × 2 × 1	0.21	0.6	1.0	0.30	1.30	17.0	409
7 × 2 × 1	0.21	0.6	1.0	0.30	1.40	19.8	580
8 × 2 × 1	0.21	0.6	1.0	0.30	1.50	22.0	647
10 × 2 × 1	0.21	0.6	1.0	0.30	1.50	24.4	793
12 × 2 × 1	0.21	0.6	1.0	0.30	1.60	25.3	876
14 × 2 × 1	0.21	0.6	1.0	0.30	1.60	26.5	954
16 × 2 × 1	0.21	0.6	1.0	0.30	1.60	27.7	1036
19 × 2 × 1	0.21	0.6	1.0	0.30	1.70	29.3	1190

# FLAMEBLOCKER NTKOXSekf/ekw

## 150/250 V (300 V)

### Cu/XLPE/IAM/CAM/CWB/LSOH

Multipair cables with extruded inner bedding

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor cl. 5	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of wires in braid	Nominal thickness of outer sheath	Overall diameter Approximate	Net weight of cables
24 × 2 × 1	0.21	0.6	1.0	0.30	1.80	34.0	1461
27 × 2 × 1	0.21	0.6	1.0	0.30	1.90	34.8	1581
37 × 2 × 1	0.21	0.6	1.2	0.30	2.00	39.2	2040
1 × 3 × 1	0.21	0.6	1.0	0.20	1.10	10.7	176
2 × 3 × 1	0.21	0.6	1.0	0.30	1.30	16.3	364
4 × 3 × 1	0.21	0.6	1.0	0.30	1.30	18.4	490
7 × 3 × 1	0.21	0.6	1.0	0.30	1.40	21.6	684
10 × 3 × 1	0.21	0.6	1.0	0.30	1.60	27.1	955
14 × 3 × 1	0.21	0.6	1.0	0.30	1.70	29.3	1195
19 × 3 × 1	0.21	0.6	1.0	0.30	1.80	32.5	1498
27 × 3 × 1	0.21	0.6	1.2	0.30	2.00	39.2	2037
37 × 3 × 1	0.21	0.6	1.2	0.40	2.20	44.3	2750
1 × 2 × 1.5	0.21	0.7	1.0	0.20	1.10	11.3	187
2 × 2 × 1.5	0.21	0.7	1.0	0.30	1.30	16.9	376
4 × 2 × 1.5	0.21	0.7	1.0	0.30	1.40	19.4	510
7 × 2 × 1.5	0.21	0.7	1.0	0.30	1.50	22.7	724
10 × 2 × 1.5	0.21	0.7	1.0	0.30	1.70	28.5	1012
14 × 2 × 1.5	0.21	0.7	1.0	0.30	1.80	30.9	1226
19 × 2 × 1.5	0.21	0.7	1.0	0.30	1.90	34.2	1530
27 × 2 × 1.5	0.21	0.7	1.2	0.40	2.10	41.7	2193
37 × 2 × 1.5	0.21	0.7	1.2	0.40	2.30	46.6	2793
1 × 3 × 1.5	0.21	0.7	1.0	0.20	1.10	11.8	209
2 × 3 × 1.5	0.21	0.7	1.0	0.30	1.40	18.6	453
4 × 3 × 1.5	0.21	0.7	1.0	0.30	1.40	21.1	617
7 × 3 × 1.5	0.21	0.7	1.0	0.30	1.60	25.1	909
10 × 3 × 1.5	0.21	0.7	1.0	0.30	1.80	31.6	1239
14 × 3 × 1.5	0.21	0.7	1.0	0.30	1.90	34.3	1555
19 × 3 × 1.5	0.21	0.7	1.2	0.30	2.00	38.5	1990
27 × 3 × 1.5	0.21	0.7	1.2	0.40	2.30	46.6	2823
37 × 3 × 1.5	0.21	0.7	1.4	0.40	2.50	52.6	3673



# FLAMEBLOCKER NTKOXSekf/ekwf

150/250 V (300 V)

Cu/XLPE/IAM/CAM/LSOH

## IEC 60092-376

Halogen-free low smoke shipboard instrumentation, control and telecommunication cables, individually and collectively screened.

## CONSTRUCTION

Conductors:	Circular stranded bare or tinned copper class 2 or 5 (for request) acc. to IEC 60228
Insulation:	Cross-linked polyethylene XLPE 90°C acc. to IEC 60092-360
Individually pair:	Aluminium/polyester tape with the metallic side in contact with tinned copper drain wire
Inner covering:	Tape
Screen:	Aluminium/polyester tape with the metallic side in contact with tinned copper drain wire
Colour code:	<b>Pair identification:</b> Core a: blue (or black) Core b: white with printed pair number  Other colors available on request
Sheath:	Thermoplastic halogen-free polyolefin compound type SHF1 acc. to IEC 60092-360
Colour of sheath:	Grey, black, blue or white



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6 × D D – overall diameter of the cable

# FLAMEBLOCKER NTKOXSekf/ekwf

## 150/250 V (300 V)

### Cu/XLPE/IAM/CAM/LSOH

## Fire performance

Flame retardant:	IEC 60332-1-2; IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH $\geq$ 4.3; conductivity $\leq$ 10 $\mu\text{Smm}^{-1}$

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## Applications

Cables designed for measuring and control circuits on ships. For fixed installation only

## Approvals

### DNV-GL

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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Number and cross-sectional area of conductor	Nominal thickness of insulation	Thickness of tape	Nominal thickness of sheath	Overall diameter			Net weight of cables	Maximum conductor resistance at temperature 20°C
				Min.	Nom.	Max.		
<b>n × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	<b>Ω/km</b>
2 × 2 × 0.5	0.4	0.1	1.0	7.8	9.4	9.6	84	40.4
4 × 2 × 0.5	0.4	0.1	1.1	9.2	11.1	11.5	133	40.4
7 × 2 × 0.5	0.4	0.1	1.1	10.5	13.0	13.0	198	40.4
10 × 2 × 0.5	0.4	0.1	1.3	14.0	16.9	17.0	288	40.4
12 × 2 × 0.5	0.4	0.1	1.3	14.5	17.4	17.5	328	40.4
14 × 2 × 0.5	0.4	0.1	1.3	15.0	18.3	18.0	369	40.4
19 × 2 × 0.5	0.4	0.1	1.4	17.0	20.5	20.5	482	40.4
24 × 2 × 0.5	0.4	0.1	1.5	20.0	24.1	24.0	609	40.4
37 × 2 × 0.5	0.4	0.1	1.6	23.0	27.7	27.5	881	40.4
2 × 2 × 0.75	0.5	0.1	1.1	9.6	11.1	12.0	115	26.0

# FLAMEBLOCKER NTKOXSekf/ekwf

## 150/250 V (300 V)

### Cu/XLPE/IAM/CAM/LSOH

Number and cross-sectional area of conductor	Nominal thickness of insulation	Thickness of tape	Nominal thickness of sheath	Overall diameter			Net weight of cables	Maximum conductor resistance at temperature 20°C
				Min.	Nom.	Max.		
4 × 2 × 0.75	0.5	0.1	1.1	11.0	12.8	13.5	176	26.0
7 × 2 × 0.75	0.5	0.1	1.2	13.0	15.4	16.0	275	26.0
8 × 2 × 0.75	0.5	0.1	1.3	15.0	17.5	18.5	321	26.0
10 × 2 × 0.75	0.5	0.1	1.4	17.5	20.0	21.0	398	26.0
12 × 2 × 0.75	0.5	0.1	1.4	18.0	20.6	21.5	455	26.0
14 × 2 × 0.75	0.5	0.1	1.4	18.5	21.7	22.5	514	26.0
19 × 2 × 0.75	0.5	0.1	1.5	21.0	24.3	25.0	673	26.0
20 × 2 × 0.75	0.5	0.1	1.6	22.5	25.9	27.0	722	26.0
24 × 2 × 0.75	0.5	0.1	1.7	25.0	28.9	30.0	863	26.0
37 × 2 × 0.75	0.5	0.1	1.8	29.0	33.2	34.5	1251	26.0
2 × 2 × 1	0.5	0.1	1.10	9.8	11.7	12.0	137	19.2
3 × 2 × 1	0.5	0.1	1.10	10.0	12.4	13.0	174	19.2
4 × 2 × 1	0.5	0.1	1.20	11.5	13.8	14.0	222	19.2
7 × 2 × 1	0.5	0.1	1.20	13.5	16.4	17.0	340	19.2
8 × 2 × 1	0.5	0.1	1.30	15.5	18.6	19.0	395	19.2
10 × 2 × 1	0.5	0.1	1.40	17.5	21.3	21.5	490	19.2
12 × 2 × 1	0.5	0.1	1.40	18.0	22.0	22.5	563	19.2
14 × 2 × 1	0.5	0.1	1.50	19.5	23.3	23.5	651	19.2
19 × 2 × 1	0.5	0.1	1.50	21.5	25.9	26.0	841	19.2
20 × 2 × 1	0.5	0.1	1.60	23.0	27.6	28.0	899	19.2
24 × 2 × 1	0.5	0.1	1.70	25.5	30.8	31.0	1075	19.2
37 × 2 × 1	0.5	0.1	1.80	29.5	35.5	35.5	1573	19.2
2 × 2 × 1.5	0.6	0.1	1.2	11.5	13.6	14.0	175	12.8
3 × 2 × 1.5	0.6	0.1	1.2	12.5	14.5	15.0	226	12.8
4 × 2 × 1.5	0.6	0.1	1.2	13.5	15.8	16.5	280	12.8
7 × 2 × 1.5	0.6	0.1	1.4	16.5	19.3	20.0	453	12.8
8 × 2 × 1.5	0.6	0.1	1.4	18.5	21.7	22.5	516	12.8
10 × 2 × 1.5	0.6	0.1	1.5	21.5	24.8	25.5	641	12.8
12 × 2 × 1.5	0.6	0.1	1.6	22.0	25.9	26.5	750	12.8
14 × 2 × 1.5	0.6	0.1	1.6	23.5	27.2	28.0	852	12.8
19 × 2 × 1.5	0.6	0.1	1.7	25.0	28.9	29.5	1119	12.8
20 × 2 × 1.5	0.6	0.1	1.8	26.0	30.5	31.5	1195	12.8
24 × 2 × 1.5	0.6	0.1	1.9	28.0	32.5	33.0	1427	12.8
37 × 2 × 1.5	0.6	0.1	2.1	31.0	36.2	37.0	2108	12.8

\* Cables 2 pairs are assembled as a quad





# FLAME-X 950 NTKOGsekw

150/250 V (300 V)

Cu/SiR/CWB/LSOH

**IEC 60092-376**

Fire resistant, halogen-free, low smoke shipboard instrumentation, control and telecommunication cables.

## CONSTRUCTION

Conductors:	Circular stranded bare copper class 2 or class 5 acc. to IEC 60228
Insulation:	Special cross-linked compound S95 acc. to IEC 60092-360
Inner covering:	Tape
Armour (screen):	Bare copper wire braiding with the metallic contact with a copper drain wire
Colour code:	<p><b>Pair identification:</b> Starting par: red, white Reference par: blue, white Uneven par: black, white Even par: yellow, white</p> <p>Other colors available on request</p>
Sheath:	Thermoplastic halogen-free polyolefin compound type SHF1 acc. to IEC 60092-360
Colour of sheath:	Orange or grey



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## CHARACTERISTIC

Inductance:	Max. 0.67 mH/km
Pair capacitance:	Max. 70 nF/km
Impedance at f=1MHz:	110±15 Ω
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	6 × D D – overall diameter of the cable

# FLAME-X 950 NTKOGsekw

150/250 V (300 V)

Cu/SiR/CWB/LSOH

## Fire performance

Fire resistant:	IEC 60331-21: for cable diameters $\leq$ 20 mm Test for electric cables under fire conditions Temp. min. 750°C; time 90 minutes
	IEC 60331-1: for cable diameters $>$ 20 mm Test for electric cables under fire conditions with shock Temp. min. 830°C; time 120 minutes
Flame retardant:	IEC 60332-1-2; IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: $<$ 0.5% HCl and HBr IEC 60754-2: pH $\geq$ 4.3; conductivity $\leq$ 10 $\mu$ Smm <sup>-1</sup>
Oil resistant:	IRM 902 oil, 4h at 70°C according to IEC 60811-2

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## Applications

Cables designed for connections of all sorts of measuring and telecommunication equipment including emergency communications systems which proper functioning is necessary in order to ensure safety on ships

## Approvals

DNV-GL, ABS, LR, PRS, BV, RINA

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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Cable with tape bedding class 2

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
$n \times \text{mm}^2$	n	mm	mm	mm	mm	mm	mm	mm	kg/km
$1 \times 2 \times 0.5$	7	0.6	0.1	0.20	1.0	7.0	8.0	8.6	90
$2 \times 2 \times 0.5^*$	7	0.6	0.1	0.20	1.0	8.0	9.0	9.6	119

# FLAME-X 950 NTKOGsekw

150/250 V (300 V)

Cu/SiR/CWB/LSOH

Cable with tape bedding class 2

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
3 × 2 × 0.5	7	0.6	0.1	0.20	1.1	10.0	11.7	12.5	167
4 × 2 × 0.5	7	0.6	0.1	0.20	1.2	11.0	12.9	13.5	205
7 × 2 × 0.5	7	0.6	0.1	0.20	1.2	13.0	15.1	15.5	288
10 × 2 × 0.5	7	0.6	0.1	0.30	1.4	17.5	19.7	20.5	458
12 × 2 × 0.5	7	0.6	0.1	0.30	1.4	18.0	20.3	21.0	498
14 × 2 × 0.5	7	0.6	0.1	0.30	1.4	18.5	21.3	22.0	541
19 × 2 × 0.5	7	0.6	0.1	0.30	1.5	20.5	23.7	24.5	676
24 × 2 × 0.5	7	0.6	0.1	0.30	1.6	24.0	27.7	28.0	836
37 × 2 × 0.5	7	0.6	0.1	0.30	1.8	28.0	31.9	32.5	1158
1 × 2 × 0.75	7	0.6	0.1	0.20	1.0	7.6	8.4	9.2	98
2 × 2 × 0.75*	7	0.6	0.1	0.20	1.1	8.6	9.6	10.5	138
3 × 2 × 0.75	7	0.6	0.1	0.20	1.2	11.0	12.6	13.5	201
4 × 2 × 0.75	7	0.6	0.1	0.20	1.2	12.0	13.7	15.0	239
7 × 2 × 0.75	7	0.6	0.1	0.20	1.3	15.0	16.7	18.0	377
10 × 2 × 0.75	7	0.6	0.1	0.20	1.4	19.0	21.0	22.5	520
12 × 2 × 0.75	7	0.6	0.1	0.30	1.5	19.5	21.9	23.5	582
14 × 2 × 0.75	7	0.6	0.1	0.30	1.5	20.5	22.9	24.5	654
19 × 2 × 0.75	7	0.6	0.1	0.30	1.6	23.0	25.5	27.0	828
20 × 2 × 0.75	7	0.6	0.1	0.30	1.6	24.0	26.8	28.5	863
24 × 2 × 0.75	7	0.6	0.1	0.30	1.7	26.5	29.8	31.5	1019
37 × 2 × 0.75	7	0.6	0.1	0.30	1.9	31.0	34.3	36.0	1417
1 × 2 × 0.75	7	0.6	0.1	0.20	1.0	7.6	8.4	9.2	98
2 × 2 × 0.75*	7	0.6	0.1	0.20	1.1	8.6	9.6	10.5	138
3 × 2 × 0.75	7	0.6	0.1	0.20	1.2	11.0	12.6	13.5	201
4 × 2 × 0.75	7	0.6	0.1	0.20	1.2	12.0	13.7	15.0	239
7 × 2 × 0.75	7	0.6	0.1	0.20	1.3	15.0	16.7	18.0	377
10 × 2 × 0.75	7	0.6	0.1	0.20	1.4	19.0	21.0	22.5	520
12 × 2 × 0.75	7	0.6	0.1	0.30	1.5	19.5	21.9	23.5	582
14 × 2 × 0.75	7	0.6	0.1	0.30	1.5	20.5	22.9	24.5	654
19 × 2 × 0.75	7	0.6	0.1	0.30	1.6	23.0	25.5	27.0	828
20 × 2 × 0.75	7	0.6	0.1	0.30	1.6	24.0	26.8	28.5	863
24 × 2 × 0.75	7	0.6	0.1	0.30	1.7	26.5	29.8	31.5	1019

# FLAME-X 950 NTKOGsekw

150/250 V (300 V)

Cu/SiR/CWB/LSOH

Cable with tape bedding class 2

Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
37 × 2 × 0.75	7	0.6	0.1	0.30	1.9	31.0	34.3	36.0	1417
1 × 3 × 0.75	7	0.6	0.1	0.20	1.0	8.0	8.8	9.6	117
1 × 4 × 0.75	7	0.6	0.1	0.20	1.1	8.6	9.6	10.5	138
1 × 2 × 1	7	0.6	0.1	0.20	1.0	7.6	8.7	9.4	113
2 × 2 × 1*	7	0.6	0.1	0.20	1.1	8.8	10.1	11.0	159
3 × 2 × 1	7	0.6	0.1	0.20	1.2	11.5	13.3	14.0	224
4 × 2 × 1	7	0.6	0.1	0.20	1.2	12.5	14.4	15.5	268
7 × 2 × 1	7	0.6	0.1	0.30	1.3	15.0	17.6	18.5	442
10 × 2 × 1	7	0.6	0.1	0.30	1.5	19.5	22.4	23.5	616
12 × 2 × 1	7	0.6	0.1	0.30	1.5	20.0	23.1	24.0	680
14 × 2 × 1	7	0.6	0.1	0.30	1.5	21.0	24.2	25.0	747
19 × 2 × 1	7	0.6	0.1	0.30	1.6	23.5	27.0	28.0	951
20 × 2 × 1	7	0.6	0.1	0.30	1.7	24.5	28.6	29.5	1032
24 × 2 × 1	7	0.6	0.1	0.30	1.8	27.5	31.7	33.0	1190
37 × 2 × 1	7	0.6	0.1	0.30	1.9	31.5	36.3	37.5	1679
1 × 3 × 1	7	0.6	0.1	0.20	1.0	8.0	9.2	9.8	129
1 × 4 × 1	7	0.6	0.1	0.20	1.1	8.8	10.1	11.0	159
1 × 2 × 1.5	7	0.7	0.1	0.20	1.1	8.8	9.9	11.0	141
2 × 2 × 1.5*	7	0.7	0.1	0.20	1.1	10.0	11.2	12.0	197
3 × 2 × 1.5	7	0.7	0.1	0.30	1.3	14.0	15.6	16.5	334
4 × 2 × 1.5	7	0.7	0.1	0.30	1.3	15.0	17.0	18.0	385
7 × 2 × 1.5	7	0.7	0.1	0.30	1.4	18.0	20.2	21.5	576
8 × 2 × 1.5	7	0.7	0.1	0.30	1.5	20.0	22.7	24.0	664
10 × 2 × 1.5	7	0.7	0.1	0.30	1.6	22.5	25.8	27.0	809
12 × 2 × 1.5	7	0.7	0.1	0.30	1.6	23.5	26.6	28.0	900
14 × 2 × 1.5	7	0.7	0.1	0.30	1.7	25.0	28.1	29.5	1008
19 × 2 × 1.5	7	0.7	0.1	0.30	1.8	27.5	31.3	32.5	1286
20 × 2 × 1.5	7	0.7	0.1	0.30	1.8	29.0	33.0	34.5	1371
24 × 2 × 1.5	7	0.7	0.1	0.30	2.0	32.5	36.9	38.5	1633
37 × 2 × 1.5	7	0.7	0.1	0.40	2.2	38.0	42.9	44.5	2435
1 × 3 × 1.5	7	0.7	0.1	0.20	1.1	9.2	10.4	11.5	165
1 × 4 × 1.5	7	0.7	0.1	0.20	1.1	10.0	11.2	12.0	197

# FLAME-X 950 NTKOGsekw

150/250 V (300 V)

Cu/SiR/CWB/LSOH

Cable with tape bedding class 2

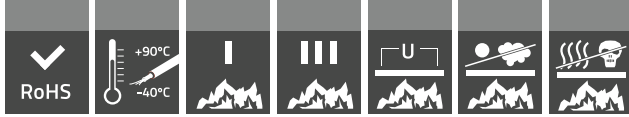
Number and cross-sectional area of conductor	Number of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
1 × 2 × 2.5	7	0.7	0.1	0.20	1.1	9.6	10.7	12.0	168
1 × 3 × 2.5	7	0.7	0.1	0.20	1.1	10.6	11.6	12.6	211

Cables with tape bedding class 5

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor cl. 5	Nominal thickness of insulation	Thickness of tape	Diameter of wires in braid	Nominal thickness of sheath	Overall diameter			Net weight of cables
						Min.	Nom.	Max.	
<b>n × mm<sup>2</sup></b>	<b>n</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 2 × 0.75	0.21	0.6	0.1	0.20	1.0	7.6	8.4	9.2	98
2 × 2 × 0.75 *	0.21	0.6	0.1	0.20	1.1	8.6	9.7	10.5	138
3 × 2 × 0.75	0.21	0.6	0.1	0.20	1.2	11.0	12.7	13.5	201
4 × 2 × 0.75	0.21	0.6	0.1	0.20	1.2	12.0	13.7	15.0	239
7 × 2 × 0.75	0.21	0.6	0.1	0.30	1.3	15.0	16.8	18.0	378
10 × 2 × 0.75	0.21	0.6	0.1	0.30	1.4	19.0	21.1	22.5	521
12 × 2 × 0.75	0.21	0.6	0.1	0.30	1.5	19.5	21.9	23.5	583
14 × 2 × 0.75	0.21	0.6	0.1	0.30	1.5	20.5	22.9	24.5	655
19 × 2 × 0.75	0.21	0.6	0.1	0.30	1.6	23.0	25.6	27.0	829
20 × 2 × 0.75	0.21	0.6	0.1	0.30	1.6	24.0	26.9	28.5	864
24 × 2 × 0.75	0.21	0.6	0.1	0.30	1.7	26.5	29.9	31.5	1021
37 × 2 × 0.75	0.21	0.6	0.1	0.30	1.9	31.0	34.4	36.0	1419

\* Cables 2 pairs are assembled as a quad





# FLAME-X 950 NTKOGsekwf

150/250 V (300 V)

Cu/SiR/CAM/LSOH

IEC 60092-376

Fire resistant, halogen-free, low smoke shipboard instrumentation, control and telecommunication cables.

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## CONSTRUCTION

Conductors:	Circular stranded bare copper class 2 acc. to IEC 60228
Insulation:	Special cross-linked compound S95 acc. to IEC 60092-360
Inner covering:	Tape
Armour (screen):	Aluminium/polyester tape with the metallic side in contact with tinned copper drain wire
Colour code:	<b>Pair identification:</b> Starting par: red, white Reference par: blue, white Uneven par: black, white Even par: yellow, white  Other colors available on request
Sheath:	Thermoplastic halogen-free polyolefin compound type SHF1 acc. to IEC 60092-360
Colour of sheath:	Orange or red



## CHARACTERISTIC

Inductance:	Max. 0.67 mH/km
Pair capacitance:	Max. 70 nF/km
Impedance at f=1MHz:	110±15 Ω
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	6 × D D – overall diameter of the cable

# FLAME-X 950 NTKOGsekwf

150/250 V (300 V)

Cu/SiR/CAM/LSOH

## Fire performance

Fire resistant:	IEC 60331-21: for cable diameters < 20 mm; Test for electric cables under fire conditions Temp. min. 750°C; time 90 minutes IEC 60331-1: for cable diameters > 20 mm Test for electric cables under fire conditions with shock Temp. min. 830°C; time 120 minutes
Flame retardant:	IEC 60332-1-2; IEC 60332-3-22 Category A
Smoke emission:	IEC 61034-2 min. 60%
Gases evolved during combustion:	IEC 60754-1: < 0.5% HCl and HBr IEC 60754-2: pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>

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## Applications

Cables designed for connections of all sorts of measuring and telecommunication equipment including emergency communications systems which proper functioning is necessary in order to ensure safety on ships

Standard length cable packing:	500 or 1 000 m on drums Other forms of packing and delivery are available on request
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Number and cross-sectional area of conductor	Maximum diameter of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Nominal thickness of sheath	Overall diameter			Net weight of cables
					Min.	Nom.	Max.	
<b>n × mm<sup>2</sup></b>	<b>n</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 2 × 0.75	0.36	0.6	0.1	1.0	7.3	7.6	8.5	67
2 × 2 × 0.75*	0.36	0.6	0.1	1.0	8.3	8.6	9.5	99
4 × 2 × 0.75	0.36	0.6	0.1	1.1	12.0	12.7	13.5	176
7 × 2 × 0.75	0.36	0.6	0.1	1.2	14.5	15.3	16.6	272
8 × 2 × 0.75	0.36	0.6	0.1	1.3	16.5	17.3	18.7	317
10 × 2 × 0.75	0.36	0.6	0.1	1.4	19.0	19.8	21.3	394
12 × 2 × 0.75	0.36	0.6	0.1	1.4	19.5	20.4	21.9	448
14 × 2 × 0.75	0.36	0.6	0.1	1.4	20.5	21.4	23.0	505
19 × 2 × 0.75	0.36	0.6	0.1	1.5	23.0	24.0	25.7	660

# FLAME-X 950 NTKOGsekwf

150/250 V (300 V)

Cu/SiR/CAM/LSOH

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor cl. 2	Nominal thickness of insulation	Thickness of tape	Nominal thickness of sheath	Overall diameter			Net weight of cables
					Min.	Nom.	Max.	
20 × 2 × 0.75	0.36	0.6	0.1	1.6	24.5	25.6	27.4	707
24 × 2 × 0.75	0.36	0.6	0.1	1.7	27.5	28.5	30.4	845
37 × 2 × 0.75	0.36	0.6	0.1	1.8	31.5	32.8	34.9	1220
1 × 2 × 1.5	0.52	0.7	0.1	1.0	8.6	8.9	9.8	96
2 × 2 × 1.5*	0.52	0.7	0.1	1.1	10.0	10.5	11.5	155
4 × 2 × 1.5	0.52	0.7	0.1	1.2	15.0	15.6	16.9	280
7 × 2 × 1.5	0.52	0.7	0.1	1.4	18.4	19.0	20.5	450
8 × 2 × 1.5	0.52	0.7	0.1	1.4	20.5	21.3	22.7	515
10 × 2 × 1.5	0.52	0.7	0.1	1.5	23.5	24.3	26.0	640
12 × 2 × 1.5	0.52	0.7	0.1	1.6	24.5	25.4	27.2	745
14 × 2 × 1.5	0.52	0.7	0.1	1.6	25.5	26.7	28.5	850
19 × 2 × 1.5	0.52	0.7	0.1	1.7	29.0	29.9	31.9	1105
20 × 2 × 1.5	0.52	0.7	0.1	1.8	30.5	31.8	33.9	1182
24 × 2 × 1.5	0.52	0.7	0.1	1.9	34.0	35.5	37.8	1410
37 × 2 × 1.5	0.52	0.7	0.1	2.1	39.5	41.1	43.7	2078

\* Cables 2 pairs are assembled as a quad

The information contained in this document, including the tables and drawings, are provided for illustrative purposes only and not a commercial offer; nor may it constitute the basis for pursuing any claim against TELE-FONIKA KABLE SA. The suitability of any product including properties, should be made by a qualified person; having already gained the appropriate permissions and documentation, to ensure compliance with any applicable law or regulation.

Classification Bureau	Type cables
DNV-GL	FLAMEBLOCKER KONS
	FLAMEBLOCKER NKOXS
	FLAMEBLOCKER NKOXSekw FLAMEBLOCKER NKOXSekw EMC
	FLAME-X 950 NKOGs
	FLAME-X 950 NKOGsekw FLAME-X 950 NKOGsekw EMC
	FLAMEBLOCKER NTKOXSekw
	FLAMEBLOCKER NTKOXSekwf
	FLAMEBLOCKER NTKOXSekf/ekw
	FLAMEBLOCKER NTKOXSekf/ekwf
	FLAME-X 950 NTKOGsekw
ABS	FLAMEBLOCKER KONS
	FLAMEBLOCKER NKOXS
	FLAMEBLOCKER NKOXSekw FLAMEBLOCKER NKOXSekw EMC
	FLAME-X 950 NKOGs
	FLAME-X 950 NKOGsekw FLAME-X 950 NKOGsekw EMC
	Type MVEPRHXCuHX Marine Cables 6/10 (12) kV
	Type MVEPRHXCuHX Marine Cables 8.7/15 (17.5) kV
	FLAMEBLOCKER NTKOXSekf/ekw
	FLAME-X 950 NTKOGsekw
	LR
FLAMEBLOCKER NKOXSekw FLAMEBLOCKER NKOXSekw EMC	
FLAME-X 950 NKOGs	
FLAME-X 950 NKOGsekw FLAME-X 950 NKOGsekw EMC	
FLAMEBLOCKER NTKOXSekw	
FLAMEBLOCKER NTKOXSekf/ekw	
FLAME-X 950 NTKOGsekw	

Classification Bureau	Type cables	
PRS	FLAMEBLOCKER NKOXS	
	FLAMEBLOCKER NKOXSekw FLAMEBLOCKER NKOXSekw EMC	
	FLAME-X 950 NKOGs	
	FLAME-X 950 NKOGsekw FLAME-X 950 NKOGsekw EMC	
	FLAMEBLOCKER NTKOXSekw	
	FLAMEBLOCKER NTKOXSekf/ekw	
	FLAME-X 950 NTKOGsekw	
	BV	FLAMEBLOCKER NKOXS
		FLAMEBLOCKER NKOXSekw FLAMEBLOCKER NKOXSekw EMC
		FLAME-X 950 NKOGs
FLAME-X 950 NKOGsekw FLAME-X 950 NKOGsekw EMC		
FLAMEBLOCKER NTKOXSekw		
FLAME-X 950 NTKOGsekw		
RINA		FLAMEBLOCKER NKOXS
		FLAMEBLOCKER NKOXSekw FLAMEBLOCKER NKOXSekw EMC
		FLAME-X 950 NKOGs
		FLAME-X 950 NKOGsekw FLAME-X 950 NKOGsekw EMC
	FLAMEBLOCKER NTKOXSekw	
	FLAMEBLOCKER NTKOXSekf/ekw	
	FLAME-X 950 NTKOGsekw	





**Oil&Gas / Offshore**



## Oil and Gas

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Since late 1990s, TF Kable has been engaged in the production and delivery of cables for the oil and gas industry. Being one of the largest producers of this type of cables in Europe, we offer products that meet all requirements of the certification authorities, such as Lloyd Register, DNV and ABS. All cables are designed for operation in the harshest environmental conditions and are environmentally friendly, such as the new generation of lead-free cables.

They are designed for operation on ships and drilling platforms. They are characterised by excellent mechanical and chemical resistance required to work in harsh conditions.

JDR Product and Installation Service division provides 24/7 installation (testing and commissioning) and maintenance support through a global network of highly experienced and fully certified technicians. Our team of certified offshore technicians supports installation, hook-up and commissioning. The team is equipped for rapid mobilisation to anywhere in the world.



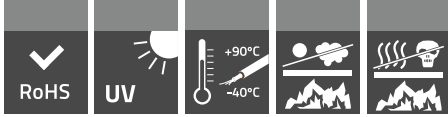
# **BS6883/BS7917 (UK00A)**











# 6571 Earth SW4 0.6/1 kV

EPR/ZH

BS 6883

Halogen-free, flame retardant, offshore & shipboard earth cables with elastomeric insulation and sheath.

## CONSTRUCTION

Conductors	Tinned annealed circular stranded copper class 2 acc. to BS EN 60228
Insulation	Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2
Outer sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6
Colour of outer sheath	Green/yellow
Cable marking	ELECTRIC CABLE Type SW4 "number of cores" "x" "conductor size" "600/1 000 V" "TFK3" "BS6883" "UK00A code" "IEC60332-3-22 cat. A" "year" "metre mark"



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C	
Lowest ambient temperature for fixed installation:	-40°C	
Lowest installation temperature:	-15°C	
Minimum bending radius:	<b>Overall diameter of cable (D)</b>	<b>Minimum bending radius</b>
	≤ 10 mm	3 D
	16-25 mm	4 D
	> 25 mm	6 D
D – overall diameter of cable		

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	BS EN 61034-2, IEC 61034-2
Corrosive gas emission:	BS EN 50267-2-1, IEC 60754-1: type SW4 cables ≤ 0.5% HCl

# 6571 Earth SW4 0.6/1 kV

## EPR/ZH

### BS 6883

## Applications

Unarmoured earth cable for fixed installations in all areas, including accommodation and open deck in ships and offshore units

Standard length cable packing:

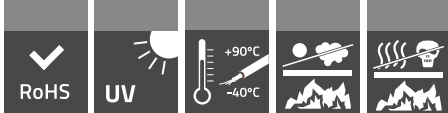
1 000 m on drums

Other forms of packing and delivery are available on request

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of outersheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UKOOA Code
<b>n × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
1 × 1	2	0.8	1.0	4.8	34	–
1 × 1.5	2	0.8	1.0	5.1	40	–
1 × 2.5	2	0.8	1.0	5.6	54	WE103
1 × 4	2	1.0	1.0	6.5	78	WE104
1 × 6	2	1.0	1.0	7.3	101	WE106
1 × 10	2	1.0	1.0	8.1	144	WE110
1 × 16	2	1.0	1.1	9.5	216	WE116
1 × 25	2	1.2	1.2	11.4	328	WE125
1 × 35	2	1.2	1.2	12.6	429	WE135
1 × 50	2	1.4	1.3	14.3	551	WE150
1 × 70	2	1.4	1.3	16.0	753	WE170
1 × 95	2	1.6	1.4	18.6	1,049	WE195
1 × 120	2	1.6	1.5	20.3	1,274	WE10A
1 × 150	2	1.8	1.6	22.5	1,568	WE10B
1 × 185	2	2.0	1.7	24.9	1,949	WE10C
1 × 240	2	2.2	1.8	28.0	2,530	WE10D
1 × 300	2	2.4	1.9	30.9	3,134	WE10E
1 × 400	2	2.6	2.0	34.6	4,258	WE10F
1 × 500	2	2.8	2.2	37.6	5,337	WE10G
1 × 630	2	2.8	2.3	42.9	6,533	WE10H

Please refer to technical section for additional information relating to these cables.





# 657(\*) SW4 0.6/1 kV

EPR/ZH

BS 6883

Flame retardant, halogen-free, offshore & shipboard power, control & lighting cables with elastomeric insulation and sheath.

## CONSTRUCTION

Conductors	Tinned annealed circular stranded copper	
	Class 5 acc. to BS EN 60228	Class 2 acc. to BS EN 60228
	<sup>1)</sup> For sizes: 1.0 ÷ 1.5 mm <sup>2</sup>	<sup>2)</sup> For sizes 2.5 mm <sup>2</sup> and above
Insulation	Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2	
Core identification <sup>3)</sup>	All cores are white with black printed numbers	
Outer sheath	Heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6	
Colour of outer sheath	Black	
Cable marking	ELECTRIC CABLE Type SW4 "number of cores" "x" "conductor size" "600/1 000 V" "TFK3" "BS6883" "UK00A code" "IEC60332-3-22 cat. A" "year" "metre mark"	

<sup>1)</sup>Class 2 conductors for sizes below 2.5 mm<sup>2</sup> are available on request

<sup>2)</sup>Class 5 flexible conductors for sizes above 2.5 mm<sup>2</sup> are available on request

<sup>3)</sup>Coloured cores are available on request



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C	
Lowest ambient temperature for fixed installation:	-40°C	
Lowest installation temperature:	-15°C	
UV resistant:	UL 1581	
Minimum bending radius:	<b>Overall diameter of cable (D)</b>	<b>Minimum bending radius</b>
	≤ 10 mm	3 D
	16-25 mm	4 D
	> 25 mm	6 D
	D – overall diameter of cable	

# 657(\*) SW4 0.6/1 kV

## EPR/ZH

### BS 6883

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	BS EN 61034-2, IEC 61034-2
Corrosive gas emission:	BS EN 50267-2-1, IEC 60754-1: type SW4 cables ≤ 0.5% HCl

## Applications

Power, control or lighting cable for fixed installations in all areas and open deck in ships and offshore units

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## Approvals

LR

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	1 000 m on drums Other forms of packing and delivery are available on request
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Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UKOOA Code
<b>n x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
1 x 1	5	0.8	1	4.8	34	WF101
1 x 1.5	5	0.8	1	5.1	40	WF102
1 x 2.5	2	0.8	1	5.6	54	WF103
1 x 4	2	1	1	6.7	78	WF104
1 x 6	2	1	1	7.3	101	WF106
1 x 6	5	1	1	7.1	96	-
1 x 10	2	1	1	8.2	144	WF110
1 x 16	2	1	1.1	9.5	216	WF116
1 x 25	2	1.2	1.2	11.5	328	WF125
1 x 35	2	1.2	1.2	12.6	429	WF135
1 x 50	2	1.4	1.3	14.3	551	WF150

# 657(\*) SW4 0.6/1 kV

EPR/ZH

BS 6883

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UKOOA Code
<b>n x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
1 x 70	2	1.4	1.3	16.1	753	WF170
1 x 95	2	1.6	1.4	18.6	1049	WF195
1 x 120	2	1.6	1.5	20.3	1274	WF10A
1 x 150	2	1.8	1.6	22.5	1568	WF10B
1 x 185	2	2	1.7	25	1949	WF10C
1 x 240	2	2.2	1.8	28	2530	WF10D
1 x 300	2	2.4	1.9	31.1	3134	WF10E
1 x 400	2	2.6	2	34.6	4258	WF10F
1 x 500	2	2.8	2.2	38.8	5337	WF10G
1 x 630	2	2.8	2.2	42.9	6533	WF10H
2 x 1	5	0.8	1	8.1	86	WF201
2 x 1.5	5	0.8	1.1	8.5	103	WF202
2 x 2.5	2	0.8	1.1	9.5	140	WF203
2 x 4	2	1	1.2	11.7	210	WF204
2 x 6	2	1	1.2	12.8	270	WF206
2 x 10	2	1	1.3	14.9	391	WF210
2 x 16	2	1	1.4	17.4	574	WF216
2 x 25	2	1.2	1.5	21.1	864	WF225
2 x 35	2	1.2	1.6	23.7	1129	WF235
2 x 50	2	1.4	1.7	26.8	1452	WF250
2 x 70	2	1.4	1.9	30.7	1991	WF270
2 x 95	2	1.6	2.1	35.8	2766	WF295
2 x 120	2	1.6	2.2	39.1	3338	WF20A
2 x 150	2	1.8	2.3	43.1	4097	WF20B
>>2 x 185	2	2	2.5	48	5170	WF20C
3 x 1	5	0.8	1.1	8.4	100	WF301
3 x 1	2	0.8	1.1	8.5	102	-
3 x 1.5	5	0.8	1.1	9	122	WF302
3 x 2.5	2	0.8	1.1	10.1	169	WF303
3 x 4	2	1	1.2	12.4	257	WF304

# 657(\*) SW4 0.6/1 kV

EPR/ZH

BS 6883

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UKOOA Code
<b>n x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
3 x 6	2	1	1.2	13.6	335	WF306
3 x 10	2	1	1.3	15.9	490	WF310
3 x 16	2	1	1.4	18.6	732	WF316
3 x 25	2	1.2	1.6	22.7	1121	WF325
3 x 35	2	1.2	1.7	25.4	1474	WF335
3 x 50	2	1.4	1.8	28.9	1893	WF350
3 x 70	2	1.4	2	33	2611	WF370
3 x 95	2	1.6	2.2	38.5	3638	WF395
3 x 120	2	1.6	2.3	41.8	4400	WF30A
3 x 150	2	1.8	2.5	46.5	5425	WF30B
3 x 185	2	2	2.7	51.9	6754	WF30C
3 x 240	2	2.2	2.9	58.7	8770	WF30D
4 x 1	5	0.8	1.1	9.1	122	WF401
4 x 1.5	5	0.8	1.1	9.8	149	WF402
4 x 2.5	2	0.8	1.1	11	210	WF403
4 x 4	2	1	1.2	13.6	321	WF404
4 x 6	2	1	1.3	15.2	428	WF406
4 x 10	2	1	1.4	17.6	627	WF410
4 x 16	2	1	1.5	20.6	940	WF416
4 x 25	2	1.2	1.7	25.3	1442	WF425
4 x 35	2	1.2	1.8	28.2	1899	WF435
4 x 50	2	1.4	1.9	32.1	2439	WF450
4 x 70	2	1.4	2.1	36.7	3370	WF470
4 x 95	2	1.6	2.3	42.8	4700	WF495
4 x 120	2	1.6	2.5	46.7	5710	WF40A
4 x 150	2	1.8	2.7	51.9	7035	WF40B
4 x 185	2	2	2.9	57.7	8714	WF40C
>>5 x 0.75*	5	0.8	1.1	9.6	124	-
5 x 1.5	5	0.8	1.1	10.7	180	-
5 x 2.5	2	0.8	1.2	12.2	260	-

# 657(\*) SW4 0.6/1 kV

EPR/ZH

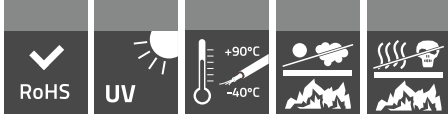
BS 6883

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UKOOA Code
<b>n x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
5 x 4*	2	1	1.3	15.2	394	-
5 x 6*	2	1	1.4	16.9	463	-
5 x 10*	2	1	1.5	19.6	685	-
5 x 16*	2	1	1.6	22.5	1097	-
5 x 35*	2	1.2	1.9	31.3	2114	-
5 x 50*	2	1.4	2	35.6	2709	-
6 x 1.5*	2	0.8	1.2	12	226	-
6 x 1.5*	5	0.8	1.2	11.8	214	-
6 x 2.5*	2	0.8	1.2	13.3	305	-
7 x 1.5	5	0.8	1.2	12.8	252	WF702
7 x 2.5	2	0.8	1.2	14.4	359	WF703
>>9 x 1.5*	5	0.8	1.3	14.9	304	-
10 x 1.5*	2	0.8	1.3	15.4	347	-
10 x 1.5*	5	0.8	1.3	15.1	326	-
12 x 1.5	5	0.8	1.3	15.6	370	WFA02
12 x 2.5	2	0.8	1.4	17.9	543	WFA03
19 x 1.5	5	0.8	1.4	19.4	570	WFB02
19 x 2.5	2	0.8	1.5	22.2	842	WFB03
27 x 1.5	5	0.8	1.6	22.4	766	WFC02
>>27 x 2.5*	5	0.8	1.7	25.5	1082	-
37 x 1.5	5	0.8	1.7	26.2	1107	WFD02

\* Based on standard  
>> without approvals

Please refer to technical section for additional information relating to these cables.





# 658(\*) SW4 0.6/1 kV

## TCu/EPR/ZH/GSWB/ZH

### BS 6883

Halogen-free, flame retardant, offshore & shipboard power, control & lighting cables with elastomeric insulation and sheath, with steel wire braid.

## CONSTRUCTION

Conductors	Tinned annealed circular stranded copper
	Class 5 acc. to BS EN 60228      Class 2 acc. to BS EN 60228
	<sup>1)</sup> For sizes: 1.0 & 1.5 mm <sup>2</sup> <sup>2)</sup> For sizes 2.5 mm <sup>2</sup> and above
Insulation	Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2
Core identification <sup>3)</sup>	All cores are white with black printed numbers
Inner sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6
Armour/Mechanical screen <sup>4)</sup>	Galvanized steel wire braid
Separator	Separator, suitable tape between the braid and outer sheath
Outer sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6
Colour of outer sheath	Black
Cable marking	ELECTRIC CABLE Type SW4 "number of cores" "x" "conductor size" "600/1 000 V" "TFK3" "BS6883" "UK00A code" "IEC60332-3-22 cat. A" "year" "metre mark"

<sup>1)</sup>Class 2 conductors for sizes below 2.5 mm<sup>2</sup> are available on request

<sup>2)</sup>Class 5 flexible conductors for sizes above 2.5 mm<sup>2</sup> are available on request

<sup>3)</sup>Coloured cores are available on request

<sup>4)</sup>Tinned copper wire braid version is available on request

## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C	
Lowest ambient temperature for fixed installation:	-40°C	
Lowest installation temperature:	-15°C	
UV resistant:	UL 1581	
Minimum bending radius:	<b>Overall diameter of cable (D)</b>	<b>Minimum bending radius</b>
	< 25 mm	4 D
	> 25 mm	6 D
	D – overall diameter of cable	



# 658(\*) SW4 0.6/1 kV

## TCu/EPR/ZH/GSWB/ZH

### BS 6883

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	BS EN 61034-2, IEC 61034-2
Corrosive gas emission:	BS EN 50267-2-1, IEC 60754-1: type SW4 cables $\leq$ 0.5% HCl

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## Applications

Armoured power, control or lighting cable for fixed installations in all areas including accommodation and open deck in ships and offshore units where halogen-free cable protection is required

## Approvals

LR

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	1 000 m on drums Other forms of packing and delivery are available on request
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Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UK00A Code
<b>n x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
>>2 x 0.75*	5	0.8	1	0.3	1.2	11.3	198	-
2 x 1	5	0.8	1	0.3	1.2	11.6	200	WB201
2 x 1.5	5	0.8	1.1	0.3	1.2	12.4	241	WB202
2 x 2.5	2	0.8	1.1	0.3	1.2	13.4	283	WB203
2 x 4	2	1	1.2	0.3	1.3	15.6	387	WB204
2 x 6	2	1	1.2	0.3	1.4	16.9	476	WB206
2 x 10	2	1	1.3	0.3	1.4	19.2	627	WB210
2 x 16	2	1	1.4	0.3	1.5	22	853	WB216
2 x 25	2	1.2	1.5	0.3	1.7	26.1	1212	WB225

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## TCu/EPR/ZH/GSWB/ZH

### BS 6883

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UKOOA Code
<b>n x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
2 x 35	2	1.2	1.6	0.3	1.8	28.8	1532	WB235
2 x 50	2	1.4	1.7	0.45	2	33	2038	WB250
2 x 70	2	1.4	1.9	0.45	2.1	37.1	2680	WB270
2 x 95	2	1.6	2.1	0.45	2.3	42.6	3593	WB295
2 x 120	2	1.6	2.2	0.45	2.5	46.2	4291	WB20A
2 x 150	2	1.8	2.3	0.45	2.6	50.5	5120	WB20B
>>2 x 185	2	2	2.5	0.45	2.8	55.7	6404	WB20C
>>2 x 240	2	2.2	2.8	0.45	3.1	62.8	8210	WB20D
>>2 x 300	2	2.4	3	0.45	3.3	69.1	10016	WB20E
>>3 x 0.75*	5	0.8	1.1	0.3	1.2	12.1	222	-
3 x 1	5	0.8	1.1	0.3	1.2	12.2	237	WB301
3 x 1.5	5	0.8	1.1	0.3	1.2	12.9	263	WB302
3 x 2.5	2	0.8	1.1	0.3	1.3	14.1	323	WB303
3 x 4	2	1	1.2	0.3	1.3	16.3	439	WB304
3 x 6	2	1	1.2	0.3	1.4	17.7	547	WB306
3 x 10	2	1	1.3	0.3	1.5	20.4	743	WB310
3 x 16	2	1	1.4	0.3	1.6	23.3	1029	WB316
3 x 25	2	1.2	1.6	0.3	1.8	27.8	1515	WB325
3 x 35	2	1.2	1.7	0.45	1.9	31.4	2032	WB335
3 x 50	2	1.4	1.8	0.45	2	35	2547	WB350
3 x 70	2	1.4	2	0.45	2.2	39.6	3340	WB370
3 x 95	2	1.6	2.2	0.45	2.4	45.5	4514	WB395
3 x 95*	5	1.6	2.2	0.45	2.4	46.2	4431	-
3 x 120	2	1.6	2.3	0.45	2.6	49.3	5408	WB30A
3 x 150	2	1.8	2.5	0.45	2.8	54.3	6587	WB30B
3 x 185	2	2	2.7	0.45	3	59.9	8197	WB30C
3 x 240	2	2.2	2.9	0.45	3.2	67	10475	WB30D
>>3 x 300	2	2.4	3.2	0.45	3.5	74.1	12878	WB30E
4 x 1	5	0.8	1.1	0.3	1.2	12.9	262	WB401
4 x 1.5	5	0.8	1.1	0.3	1.3	13.9	301	WB402
4 x 2.5	2	0.8	1.1	0.3	1.3	15.1	384	WB403

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## TCu/EPR/ZH/GSWB/ZH

### BS 6883

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UK00A Code
n x mm <sup>2</sup>		mm	mm	mm	mm	mm	kg/km	
4 x 4	2	1	1.2	0.3	1.4	17.7	532	WB404
4 x 6	2	1	1.3	0.3	1.5	19.4	673	WB406
4 x 10	2	1	1.4	0.3	1.6	22.3	917	WB410
4 x 16	2	1	1.5	0.3	1.7	25.6	1287	WB416
4 x 25	2	1.2	1.7	0.45	1.9	31.3	1999	WB425
4 x 35	2	1.2	1.8	0.45	2	34.2	2525	WB435
4 x 50	2	1.4	1.9	0.45	2.2	38.7	3159	WB450
4 x 70	2	1.4	2.1	0.45	2.4	43.7	4226	WB470
4 x 95	2	1.6	2.3	0.45	2.6	50.2	5718	WB495
4 x 120	2	1.6	2.5	0.45	2.8	54.6	6876	WB40A
4 x 150	2	1.8	2.7	0.45	3	60.1	8357	WB40B
>>4 x 185	2	2	2.9	0.45	3.2	66.3	10406	WB40C
>>4 x 240	2	2.2	3.2	0.45	3.5	74.6	13363	WB40D
>>4 x 300	2	2.4	3.5	0.45	3.8	82.4	16433	WB40E
5 x 1.5	5	0.8	1.1	0.3	1.3	14.6	351	-
5 x 2.5	2	0.8	1.2	0.3	1.3	16.3	441	-
>>5 x 4*	2	1	1.4	0.3	1.5	19.7	652	-
>>5 x 6*	2	1	1.5	0.3	1.6	21.6	807	-
>>5 x 10*	2	1	1.5	0.3	1.7	24.3	1090	-
>>5 x 16*	2	1	1.7	0.45	1.9	28.9	1654	-
>>5 x 25*	2	1.2	1.8	0.45	2	33.6	2290	-
>>5 x 25*	5	1.2	1.8	0.45	2	33.5	2223	-
>>5 x 35*	2	1.2	1.9	0.45	2.2	37.6	3086	-
>>5 x 50*	2	1.4	2.1	0.45	2.4	42.6	3857	-
>>5 x 70*	2	1.4	2.3	0.45	2.6	48.2	5152	-
>>6 x 1*	2	0.8	1.2	0.3	1.3	15.1	342	-
>>6 x 1.5*	2	0.8	1.2	0.3	1.3	16.1	408	-
>>6 x 4*	2	1	1.4	0.3	1.5	21.2	724	-
>>6 x 6*	2	1	1.5	0.3	1.7	23.5	911	-
>>7 x 1*	5	0.8	1.2	0.3	1.3	15.8	367	WB701
>>7 x 1.5	5	0.8	1.2	0.3	1.3	16.8	452	WB702

# 658(\*) SW4 0.6/1 kV

## TCu/EPR/ZH/GSWB/ZH

### BS 6883

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UK00A Code
n x mm <sup>2</sup>		mm	mm	mm	mm	mm	kg/km	
>>7 x 2.5	2	0.8	1.2	0.3	1.4	18.6	577	WB703
>>7 x 4*	2	1	1.4	0.3	1.6	22.7	855	-
>>8 x 1.5*	5	0.8	1.2	0.3	1.4	17.9	473	-
>>10 x 1.5*	2	0.8	1.3	0.3	1.5	19.7	586	-
>>10 x 1.5*	5	0.8	1.3	0.3	1.5	19.5	563	-
>>10 x 4*	2	1	1.4	0.3	1.6	26.2	1067	-
12 x 1.5	5	0.8	1.3	0.3	1.5	20.1	621	WBA02
12 x 2.5	2	0.8	1.4	0.3	1.6	22.6	836	WBA03
>>12 x 4*	2	1	1.5	0.3	1.7	27.1	1192	-
>>13G2.5**	5	0.8	1.5	0.3	1.7	23.7	885	-
>>14 x 2.5*	2	0.8	1.5	0.3	1.7	23.8	944	-
>>14G2.5**	5	0.8	1.5	0.3	1.7	23.8	912	-
19 x 1.5	5	0.8	1.4	0.3	1.6	24.1	888	WBB02
19 x 2.5	2	0.8	1.5	0.3	1.7	27.1	1202	WBB03
>>19 x 4*	2	1	1.6	0.3	1.8	32.8	1740	WBB04
>>20 x 2.5*	2	0.8	1.6	0.3	1.8	27.4	661	-
>>20 x 2.5*	5	0.8	1.6	0.3	1.8	27.3	650	-
>>24 x 1.5*	5	0.8	1.6	0.3	1.8	26.9	1070	-
>>24 x 2.5*	2	0.8	1.6	0.3	1.8	29.8	1462	-
27 x 1.5	5	0.8	1.6	0.3	1.8	27.3	1162	WBC02
>>27 x 2.5*	2	0.8	1.7	0.45	1.9	31.4	1714	WBC03
>>30 x 2.5*	2	0.8	1.7	0.45	1.9	32.4	1803	-
37 x 1.5	5	0.8	1.7	0.45	1.9	32.1	1608	WBD02
>>37 x 2.5*	2	0.8	1.8	0.45	2	36	2240	WBD03
>>37 x 2.5*	5	0.8	1.8	0.45	2	35.9	2153	-
>>47 x 1.5*	2	0.8	1.8	0.45	2	35.5	2060	-
>>48 x 1.5*	2	0.8	1.8	0.45	2	35.4	2002	-
>>48 x 2.5*	2	0.8	1.9	0.45	2.1	39.3	2688	-

\* Based on standard

\*\* Based on standard with green-yellow earth core

>> without approvals



# 658(\*) SW4 0.6/1 kV

## TCu/EPR/ZH/GSWB/ZH

### BS 6883

## Continuous Current Ratings

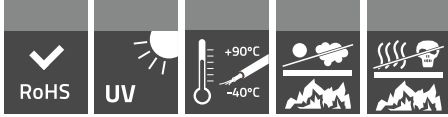
In accordance with IEC 60092-352

Conductor size	Single core	2-core	3- or 4-core
mm <sup>2</sup>	Amps	Amps	Amps
1	18	15	13
1.5	23	20	16
2.5	30	26	21
4	40	34	28
6	52	44	36
10	72	61	50
16	96	82	67
25	127	108	89
35	157	133	110
50	196	167	137
70	242	206	169
95	293	249	205
120	339	288	237
150	389	331	272
185	444	377	311
240	522	444	365
300	601	511	421

Maximum rated conductor temperature 90°C, ambient temperature 45°C

Correction factor for different ambient temperature										
Temperature of air [°C]	35	40	45	50	55	60	65	70	75	80
Correction factor	1.1	1.05	1	0.94	0.88	0.82	0.74	0.67	0.58	0.47

Please refer to technical section for additional information relating to these cables.



# 658(\*) (c) SW4 150/250 V

TCu/EPR/CAM/ZH/GSWB/ZH

BS 6883

Halogen-free, flame retardant, offshore & shipboard instrumentation cables, elastomer insulated and sheathed, collectively screened pairs, triples or quads with steel wire braid.

## CONSTRUCTION

Conductors	Tinned annealed circular stranded copper class 5 <sup>1)</sup> acc. to BS EN 60228
Insulation	Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2
Pairs identification*	Black and white with printed number of pairs in contrasting colour on the insulation
Triples identification*	Black, white and red with printed number of triples in contrasting colour on the insulation
Quad identification*	Black, white, red and blue with printed number of quad in a contrasting colour on the insulation
Separator	Polyester tape
Collective screen	Aluminium/polyester tape with the metallic side in contact with tinned copper drain wire
Inner sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4, acc. to BS 7655-2.6
Separator	Polyester tape
Armour/mechanical screen	Galvanized steel wire braid <sup>2)</sup>
Outer sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4, acc. to BS 7655-2.6
Colour of outer sheath	Grey (Non Intrinsically Safe) or blue (Intrinsically Safe) <sup>3)</sup>
Cable marking	ELECTRIC CABLE Type SW4 "number of pairs or triples, quads" "x" "conductor size" "(C)" "150/250 V" "TFK3" "BS6883" "UK00A code" "IEC60332-3-22 cat. A" "year" "metre mark"

<sup>1)</sup> Class 2 conductors are available on request

<sup>2)</sup> Tinned copper wire braid version is available on request

<sup>3)</sup> Black outer sheathing is available on request

\* Alternative coloured cores are available on request



# 658(\*) (c) SW4 150/250 V

## TCu/EPR/CAM/ZH/GSWB/ZH

### BS 6883

## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	8 × D; D – overall diameter of cable

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## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	BS EN 61034-2, IEC 61034-2
Corrosive gas emission:	BS EN 50267-2-1, IEC 60754-1: type SW4 cables ≤ 0.5% HCl

## Applications

Armoured instrumentation cable for fixed installations in all areas including accommodation and on open deck in ships and offshore units where halogen-free cable protection is required

## Approvals

LR

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	1 000 m on drums Other forms of packing and delivery are available on request
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Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UK00A Code (Grey/Blue)
<b>n × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
2 × 2 × 0.75*	5	0.8	1.2	0.3	1.4	13.3	340	-
3 × 2 × 0.75	5	0.8	1.2	0.3	1.4	16.9	435	KJH00/KGH00

# 658(\*) (c) SW4 150/250 V

## TCu/EPR/CAM/ZH/GSWB/ZH

### BS 6883

Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
<b>n × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
3 × 2 × 1.0	5	0.8	1.2	0.3	1.4	17.8	483	KJH01/KGH01
3 × 2 × 1.5*	5	0.8	1.4	0.3	1.6	18.9	497	KJH02/KGH02
4 × 2 × 1.5*	5	0.8	1.4	0.3	1.6	20.4	561	-
5 × 2 × 0.75*	5	0.8	1.4	0.3	1.5	19.9	497	-
5 × 2 × 1.0*	5	0.8	1.4	0.3	1.6	20.5	522	-
5 × 2 × 1.5*	5	0.8	1.4	0.3	1.6	21.9	608	-
5 × 2 × 1.5*	2	0.8	1.4	0.3	1.6	22.2	628	-
6 × 2 × 0.75*	5	0.8	1.4	0.3	1.5	21.2	538	-
7 × 2 × 0.75	5	0.8	1.4	0.3	1.5	21.2	566	KJJ00/KGJ00
7 × 2 × 1.0	5	0.8	1.4	0.3	1.6	22.2	640	KJJ01/KGJ01
7 × 2 × 1.5*	5	0.8	1.6	0.3	1.8	23.8	761	KJJ02/KGJ02
10 × 2 × 0.75*	5	0.8	1.6	0.3	1.7	25.5	922	-
10 × 2 × 1.0*	5	0.8	1.6	0.3	1.8	26.3	889	-
10 × 2 × 1.5*	5	0.8	1.6	0.3	1.8	28.2	1184	-
12 × 2 × 0.75	5	0.8	1.6	0.3	1.7	27	849	KJK00/KGJ00
12 × 2 × 1.0	5	0.8	1.6	0.3	1.8	28.3	986	KJK01/KGJ01
12 × 2 × 1.5*	5	0.8	1.8	0.45	2.1	30.9	1266	KJK02/KGJ02
12 × 2 × 1.5*	2	0.8	1.8	0.45	2.1	31.4	1311	-
12 × 2 × 2.5	2	0.8	1.9	0.45	2.1	34.5	1666	-
14 × 2 × 0.75*	5	0.8	1.8	0.45	2.0	29.5	1085	-
20 × 2 × 0.75	5	0.8	1.8	0.45	2	33.4	1549	KJL00/KGL00
20 × 2 × 1.0	5	0.8	1.8	0.45	2.1	35.7	1810	KJL01/KGL01
20 × 2 × 1.5*	5	0.8	2	0.45	2.2	37.6	2061	KJL02/KGL02
20 × 2 × 1.5*	2	0.8	2	0.45	2.2	38.2	1919	-
24 × 2 × 1.5*	5	0.8	2	0.45	2.2	40.3	2102	-
27 × 2 × 0.75	5	0.8	1.9	0.45	2.2	37.7	1724	KJM00/KGM00
27 × 2 × 1	5	0.8	2	0.45	2.2	39.9	1993	KJM01/KGM01
<b>n × 3 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
3 × 3 × 0.75	5	0.8	1.3	0.3	1.4	18.5	440	KJS00/KGS00
3 × 3 × 1.0	5	0.8	1.3	0.3	1.5	19.6	519	KJS01/KGS01
4 × 3 × 1.5*	5	0.8	1.5	0.3	1.7	22.3	674	-
7 × 3 × 0.75	5	0.8	1.4	0.3	1.6	24.2	745	KJT00/KGT00
7 × 3 × 1.0	5	0.8	1.5	0.3	1.7	25.7	871	KJT01/KGT01
8 × 3 × 1.5*	5	0.8	1.7	0.45	2	29.8	1229	-
12 × 3 × 0.75	5	0.8	1.7	0.45	1.9	30.4	1381	KJU00/KGU00
12 × 3 × 1.0	5	0.8	1.7	0.45	2	32.2	1591	KJU01/KGU01
12 × 3 × 1.5*	5	0.8	1.9	0.45	2.1	34.4	1772	KJU02/KGU02

\* Based on standard

# 658(\*) (c) SW4 150/250 V

## TCu/EPR/CAM/ZH/GSWB/ZH

### BS 6883

## Without Approvals

Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
<b>n x 2 x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
2x2x1.0*	5	0.8	1.2	0.3	1.4	13.5	357	-
2x2x1.5*	5	0.8	1.4	0.3	1.6	15.1	352	-
2x2x2.5*	2	0.8	1.4	0.3	1.6	16.6	413	-
2x2x2.5*	5	0.8	1.4	0.3	1.6	16.6	404	-
5x2x2.5*	2	0.8	1.5	0.3	1.7	24.6	846	-
6x2x1*	5	0.8	1.4	0.3	1.6	21.9	595	-
7x2x2.5*	2	0.8	1.6	0.3	1.8	26.8	993	-
8x2x1.5*	5	0.8	1.6	0.3	1.8	25.5	889	-
16x2x1.5*	5	0.8	1.8	0.45	2.1	34.2	1540	-
20x2x2.5*	2	0.8	2	0.45	2.2	42.0	2451	-
27x2x1.5*	5	0.8	2.1	0.45	2.3	42.4	2503	KJM02/KGM02
<b>n x 3 x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
2x3x1.5*	2	0.8	1.4	0.3	1.6	19.9	493	-
3x3x1.5*	5	0.8	1.4	0.3	1.6	20.3	560	KJS02/KGS02
5x3x1*	2	0.8	1.5	0.3	1.7	22.5	700	-
7x3x1.5*	5	0.8	1.7	0.3	1.9	27.4	1008	KJT02/KGT02
16x3x1.5*	5	0.8	2	0.45	2.2	38.5	2044	-
<b>n x 4 x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
3x4x0.75*	5	0.8	1.4	0.3	1.5	20.6	531	KJY00/KGY00
3x4x1*	5	0.8	1.4	0.3	1.6	21.3	576	KJY01/KGY01
3x4x1.5*	5	0.8	1.6	0.3	1.7	23.4	702	KJY02/KGY02
7x4x0.75*	5	0.8	1.6	0.3	1.7	26.8	908	KJZ00/KGZ00
7x4x1*	5	0.8	1.6	0.45	1.8	28.2	1223	KJZ01/KGZ01
7x4x1.5*	5	0.8	1.7	0.45	1.9	30.8	1466	KJZ02/KGZ02

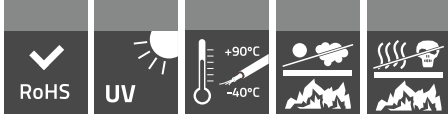
\* Based on standard

## Electrical parameters

Nominal cross-sectional area	Maximum conductor resistance at 20°C (Ω/km)	
	Class 5	Class 2
0.75 mm <sup>2</sup>	26.7	24.8
1.0 mm <sup>2</sup>	20.0	18.2
1.5 mm <sup>2</sup>	13.7	12.2

Please refer to technical section for additional information relating to these cables.





# 658(\*) (I) SW4 150/250 V

## TCu/EPR/IAM/ZH/GSWB/ZH

### BS 6883

Halogen-free, flame retardant, offshore & shipboard instrumentation cables, elastomer insulated and sheathed, individually screened pairs, triples or quads with steel wire braid.

## CONSTRUCTION

Conductors	Tinned annealed circular stranded copper class 5 <sup>1)</sup> acc. to BS EN 60228
Insulation	Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2
Pairs identification *	Black and white with printed number of pairs in contrasting colour on the insulation
Triples identification *	Black, white and red with printed number of triples in contrasting colour on the insulation
Quads identification *	Black, white, red and blue with printed number of quads in contrasting colour on the insulation
Separator	Polyester tape
Individual screen	Aluminium/polyester tape with the metallic contact with tinned copper drain wire
Separator	Polyester tape
Inner sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4, acc. to BS 7655-2.6
Armour/mechanical screen	Galvanized steel wire braid <sup>2)</sup>
Outer sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4, acc. to BS 7655-2.6
Colour of outer sheath	Grey (Non Intrinsically Safe) or blue (Intrinsically Safe) <sup>3)</sup>
Cable marking	ELECTRIC CABLE Type SW4 "number of pairs or triples, quads" "x" "conductor size" "(I)" "150/250 V" "TFK3" "BS6883" "UKOOA code" "IEC60332-3-22 cat. A" "year" "metre mark"

<sup>1)</sup>Class 2 conductors are available on request

<sup>2)</sup>Tinned copper wire braid version is available on request

<sup>3)</sup>Black outer sheathing is available on request

\* Alternative coloured cores are available on request



# 658(\*) (I) SW4 150/250 V

TCu/EPR/IAM/ZH/GSWB/ZH  
BS 6883

## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	8 × D; D – overall diameter of cable

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	BS EN 61034-2, IEC 61034-2
Corrosive gas emission:	BS EN 50267-2-1, IEC 60754-1: type SW4 cables < 0.5% HCl

## Applications

Armoured instrumentation cable for fixed installations in all areas including accommodation and on open deck in ships and offshore units where halogen-free cable protection is required

## Approvals

LR	Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.
Standard length cable packing:	1 000 m on drums Other forms of packing and delivery are available on request

# 658(\*) (I) SW4 150/250 V

## TCu/EPR/IAM/ZH/GSWB/ZH

### BS 6883

Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
<b>n x 2 x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
1 x 2 x 0.75	5	0.8	1	0.3	1.2	11.5	197	KKF00/KHF00
1 x 2 x 1.0	5	0.8	1	0.3	1.2	11.7	205	KKF01/KHF01
1 x 2 x 1.5*	5	0.8	1.2	0.3	1.4	13.1	252	KKF02/KHF02
1 x 2 x 1.5*	2	0.8	1.2	0.3	1.4	13.2	257	-
1 x 2 x 2.5*	2	0.8	1.3	0.3	1.4	14.3	301	KKF03/KHF03
<b>n x 3 x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
1 x 3 x 0.75	5	0.8	1	0.3	1.2	11.9	218	KKR00/KHR00
1 x 3 x 1.0	5	0.8	1.1	0.3	1.2	12.3	234	KKR01/KHR01
1 x 3 x 1.5*	5	0.8	1.2	0.3	1.4	13.5	285	KKR02/KHR02
1 x 3 x 1.5*	2	0.8	1.2	0.3	1.4	13.7	291	-
1 x 3 x 2.5*	2	0.8	1.4	0.3	1.5	15.2	362	KKR03/KHR03
<b>n x 4 x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
1 x 4 x 0.75	5	0.8	1.1	0.3	1.2	12.8	237	KKX00/KHX00
1 x 4 x 1	5	0.8	1.1	0.3	1.2	13.2	257	KKX01/KHX01
1 x 4 x 1.5*	5	0.8	1.4	0.3	1.5	14.9	361	KKX02/KHX02
1 x 4 x 2.5*	2	0.8	1.4	0.3	1.6	16.3	422	KKX03/KHX03

\* Based on standard

## Without Approvals

Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
<b>n x 2 x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
2 x 2 x 0.75*	5	0.8	1.2	0.3	1.4	13.1	260	-
2 x 2 x 1.5*	5	0.8	1.3	0.3	1.5	14.5	344	
3 x 2 x 0.75	5	0.8	1.2	0.3	1.4	17.1	398	KKH00/KHH00
3 x 2 x 1	5	0.8	1.3	0.3	1.4	17.8	447	KKH01/KHH01
3 x 2 x 1.5*	5	0.8	1.3	0.3	1.5	18.3	448	KKH02/KHH02
4 x 2 x 0.75	5	0.8	1.4	0.3	1.6	18.5	453	-
4 x 2 x 1.5*	5	0.8	1.4	0.3	1.6	20.2	552	-
5 x 2 x 0.75*	5	0.8	1.4	0.3	1.6	19.9	519	-
5 x 2 x 1.5*	5	0.8	1.4	0.3	1.6	21.7	673	-
7 x 2 x 0.75	5	0.8	1.4	0.3	1.6	21.8	658	KKJ00/KHJ00

# 658(\*) (I) SW4 150/250 V

## TCu/EPR/IAM/ZH/GSWB/ZH

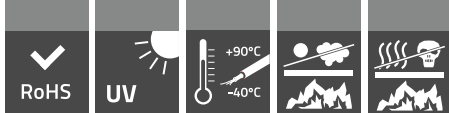
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Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
7 × 2 × 1.0	5	0.8	1.4	0.3	1.6	22.9	739	KKJ01/KHJ01
7 × 2 × 1.5*	5	0.8	1.4	0.3	1.6	23.2	786	KKJ02/KHJ02
8 × 2 × 1.5*	5	0.8	1.7	0.45	1.9	26.3	990	-
10 × 2 × 0.75*	5	0.8	1.6	0.3	1.8	25.5	839	-
10 × 2 × 1.5*	5	0.8	1.7	0.45	1.9	29.1	1248	-
10 × 2 × 2.5*	2	0.8	1.7	0.45	1.9	32.2	1605	-
12 × 2 × 0.75	5	0.8	1.6	0.3	1.8	26.5	944	KKK00/KHK00
12 × 2 × 1.0	5	0.8	1.7	0.45	1.9	28.9	1200	KKK01/KHK01
12 × 2 × 1.5*	5	0.8	1.7	0.45	1.9	30.2	1341	KKK02/KHK02
12 × 2 × 2.5*	5	0.8	1.9	0.45	2.1	34.2	1696	-
16 × 2 × 0.75*	5	0.8	1.9	0.45	2.1	31.1	1325	-
20 × 2 × 0.75	5	0.8	1.9	0.45	2.1	33.6	1558	KKL00/KHL00
20 × 2 × 1.0	5	0.8	1.9	0.45	2.2	35.4	1760	KKL01/KHL01
20 × 2 × 1.5*	5	0.8	2.0	0.45	2.3	37.6	2039	KKL02/KHL02
24 × 2 × 0.75	5	0.8	2.0	0.45	2.3	36.4	1903	-
24 × 2 × 1.5*	5	0.8	2.1	0.45	2.4	40.7	2292	-
27 × 2 × 0.75	5	0.8	2.0	0.45	2.3	38.0	1968	KKM00/KHM00
27 × 2 × 1	5	0.8	2.1	0.45	2.4	39.7	2203	KKM01/KHM01
n × 3 × mm <sup>2</sup>		mm	mm	mm	mm	mm	kg/km	
2 × 3 × 0.75*	5	0.8	1.3	0.3	1.5	17.6	385	-
2 × 3 × 1.5*	2	0.8	1.4	0.3	1.6	19.7	496	-
3 × 3 × 0.75	5	0.8	1.3	0.3	1.5	18.9	456	KKO00/KHO00
3 × 3 × 1.0	5	0.8	1.3	0.3	1.5	19.7	492	KKO01/KHO01
3 × 3 × 1.5*	5	0.8	1.4	0.3	1.6	20.1	588	KKO02/KHO02
7 × 3 × 0.75	5	0.8	1.5	0.3	1.7	24.4	803	KKT00/KHT00
7 × 3 × 1.0	5	0.8	1.5	0.3	1.7	26	871	KKT01/KHT01
7 × 3 × 1.5*	5	0.8	1.7	0.45	2	28.1	1220	KKT02/KHT02
12 × 3 × 0.75	5	0.8	1.7	0.45	2	30.5	1339	KKU00/KHU00
12 × 3 × 1.0	5	0.8	1.8	0.45	2	31.4	1468	KKU01/KHU01
12 × 3 × 1.5*	5	0.8	1.9	0.45	2.1	34.2	1815	KKU02/KHU02
n × 4 × mm <sup>2</sup>		mm	mm	mm	mm	mm	kg/km	
3 × 4 × 0.75	5	0.8	1.4	0.3	1.5	21.0	574	KKY00/KHY00
3 × 4 × 1	5	0.8	1.4	0.3	1.6	22.3	654	KKY01/KHY01
3 × 4 × 1.5*	5	0.8	1.6	0.3	1.7	23.2	719	KKY02/KHY02
7 × 4 × 0.75	5	0.8	1.6	0.3	1.7	27.2	1011	KKZ00/KHZ00
7 × 4 × 1	5	0.8	1.6	0.45	1.8	29.7	1275	KKZ01/KHZ01
7 × 4 × 1.5	5	0.8	1.7	0.45	1.9	30.6	1414	KKZ02/KHZ02

\* Based on standard

Please refer to technical section for additional information relating to these cables.



# 659(\*) SW4 0.6/1 kV

## TCu/EPR/ZH/TPBWB/ZH

### BS 6883

Halogen-free, flame retardant, offshore & shipboard power cables with elastomeric insulation and sheath, with tinned phosphor bronze wire braid.

## CONSTRUCTION

Conductors	Tinned annealed circular stranded copper class 2 acc. to BS EN 60228 <sup>1)</sup>
Insulation	Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2
Core identification	Red or black
Inner sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6
Screen	Tinned phosphor bronze wire braid
Separator	Separator, suitable tape between the braid and outer sheath
Outer sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6
Colour of outer sheath	Black

<sup>1)</sup> Class 5 flexible conductors are available on request

## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
UV resistant:	UL 1581





# 659(\*) SW4 0.6/1 kV

## TCu/EPR/ZH/TPBWB/ZH

### BS 6883

Minimum bending radius:	Overall diameter of cable (D)	Minimum bending radius
	< 25 mm	4 D
	> 25 mm	6 D
D – overall diameter of cable		

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## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Smoke emission:	BS EN 61034-2, IEC 61034-2
Corrosive gas emission:	BS EN 50267-2-1, IEC 60754-1: type SW4 cables $\leq$ 0.5% HCl

## Applications

Armoured instrumentation cable for fixed installations in all areas including accommodation and on open deck in ships and offshore units where halogen-free cable protection is required

Standard length cable packing:	1 000 m on drums
	Other forms of packing and delivery are available on request

Number and cross-sectional area of conductor	Class of the conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of the cable
n × mm <sup>2</sup>		mm	mm	mm	mm	mm	kg/km
1 × 1	2	0.8	1	0.3	1.1	8.5	137
1 × 1.5	2	0.8	1	0.3	1.1	8.8	145
1 × 2.5	2	0.8	1	0.3	1.1	9.2	160
1 × 4	2	1	1	0.3	1.1	10.2	190
1 × 6	2	1	1	0.3	1.1	10.8	219
1 × 10	2	1	1	0.3	1.2	11.9	280
1 × 16	2	1	1.1	0.3	1.2	13.3	371
1 × 25	2	1.2	1.2	0.3	1.3	15.4	519
1 × 35	2	1.2	1.2	0.3	1.4	16.8	644

# 659(\*) SW4 0.6/1 kV

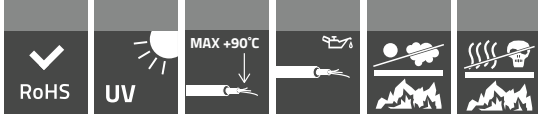
## TCu/EPR/ZH/TPBWB/ZH

### BS 6883

Number and cross-sectional area of conductor	Class of the conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of the cable
1 × 50	2	1.4	1.3	0.3	1.4	18.5	789
1 × 50*	5	1.4	1.3	0.3	1.4	18.7	798
1 × 70	2	1.4	1.3	0.3	1.5	20.4	1.029
1 × 95	2	1.6	1.4	0.3	1.6	23.2	1.372
1 × 120	2	1.6	1.5	0.3	1.7	25.1	1.635
1 × 150	2	1.8	1.6	0.3	1.8	27.4	1.975
1 × 185	2	2	1.7	0.45	1.9	30.7	2.520
1 × 185*	5	2	1.7	0.45	1.9	31.3	2.438
1 × 240	2	2.2	1.8	0.45	2	34.1	3.184
1 × 300	2	2.4	1.9	0.45	2.1	37.2	3.877
1 × 400	2	2.6	2	0.45	2.3	41.1	4.814
1 × 500	2	2.8	2.2	0.45	2.5	45.7	6.042
1 × 630	2	2.8	2.3	0.45	2.6	50	7.609

\* Based on standard

Please refer to technical section for additional information relating to these cables.



# TCu/MGT/EPR/IS/ZH/GSWB/ZH

150/250 V

BS 7917

Halogen-free, fire resistant, low smoke, instrumentation cables with elastomeric insulation and sheath, with steel wire braid.

## CONSTRUCTION

Conductors	Tinned annealed circular stranded copper according to BS EN 60228 class 2 or class 5
Insulation	Mica glass tape Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2
Pairs identification	Black and white with printed number of pairs in contrasting colour on the insulation
Triples identification	Black, white and red with printed number of triples in contrasting colour on the insulation
Quads identification	Black, white, red and blue with printed number of quads in contrasting colour on the insulation
Screen	Individual screen Aluminium/polyester tape with the metallic side in contact with tinned copper drain wire
Inner sheath	Halogen-free elastomer compound EPR type SB 1 acc. to BS 7917
Braid armour	Galvanized steel wire braid
Separator	Separator, suitable tape between the braid and outer sheath
Outer sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6
Colour of outer sheath	Grey or other colors can be provided
Cable marking e.g.	ELECTRIC CABLE "Type SW4 F1" "number of pairs or triples or quads" "x" "conductor size" "(l)" "150/250 V" "TFK3" "BS 7917" "UKOOA code" "IEC60331-21" "IEC60332-3-22 cat. A" "year" "metre mark"



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Maximum conductor temperature during short circuit:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	8 D D – overall diameter of cable

# TCu/MGT/EPR/IS/ZH/GSWB/ZH

## 150/250 V

### BS 7917

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Fire resistant:	IEC 60331-21
Smoke emission:	BS EN 61034-2, IEC 61034-2
Gases evolved during combustion:	BS EN 50267-2-1, IEC 60754-1 type SW4 cables: $\leq 0.5\%$ HCl

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## Applications

Elastomer insulated, fire resistant (limited circuit integrity) cables for fixed wiring in ships and on mobile and fixed offshore units

## Approvals

LR

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	1 000 m on drums Other forms of packing and delivery are available on request
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Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
$n \times 2 \times \text{mm}^2$		mm	mm	mm	mm	mm	kg/km	
$1 \times 2 \times 0.75$	5	0.8	1	0.3	1.2	12.9	221	GPFO0/GMF00
$1 \times 2 \times 1.0$	5	0.8	1	0.3	1.2	13.1	225	GPFO1/GMF01
$1 \times 2 \times 1.5^*$	5	0.8	1.2	0.3	1.4	14.6	279	GPFO2/GMF02
$1 \times 2 \times 1.5^*$	2	0.8	1.2	0.3	1.4	14.8	279	-
$1 \times 2 \times 2.5^*$	2	0.8	1.3	0.3	1.4	15.8	325	GPFO3/GMF03
$2 \times 2 \times 0.75^*$	5	0.8	1.2	0.3	1.4	14.9	312	-
$2 \times 2 \times 1.0^*$	5	0.8	1.2	0.3	1.4	15.1	324	-
$2 \times 2 \times 1.5^*$	2	0.8	1.3	0.3	1.5	16.4	386	-

# TCu/MGT/EPR/IS/ZH/GSWB/ZH

## 150/250 V

### BS 7917

Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
2 × 2 × 1.5*	5	0.8	1.3	0.3	1.5	16.3	404	-
3 × 2 × 0.75	5	0.8	1.2	0.3	1.4	19.1	433	GPH00/GMH00
3 × 2 × 1	5	0.8	1.3	0.3	1.4	19.6	453	GPH01/GMH01
3 × 2 × 1.5*	5	0.8	1.3	0.3	1.5	21	522	GPH02/GMH02
3 × 2 × 2.5*	5	0.8	1.4	0.3	1.5	23	692	-
7 × 2 × 0.75	5	0.8	1.4	0.3	1.6	24.9	740	GPJ00/GMJ00
7 × 2 × 1.0	5	0.8	1.4	0.3	1.6	25.3	759	GPJ01/GMJ01
7 × 2 × 1.5*	5	0.8	1.4	0.3	1.6	26.9	866	GPJ02/GMJ02
12 × 2 × 0.75	5	0.8	1.6	0.3	1.8	31.3	1129	GPK00/GMK00
12 × 2 × 1.0	5	0.8	1.7	0.45	1.9	32.9	1296	GPK01/GMK01
12 × 2 × 1.5*	5	0.8	1.7	0.45	1.9	35	1475	GPK02/GMK02
20 × 2 × 0.75	5	0.8	1.9	0.45	2.1	39.8	1925	GPL00/GML00
20 × 2 × 1.0	5	0.8	1.9	0.45	2.2	40.8	2070	GPL01/GML01
20 × 2 × 1.5*	5	0.8	2	0.45	2.3	43.9	2444	GPL02/GML02
<b>n × 3 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
1 × 3 × 0.75	5	0.8	1	0.3	1.2	13.4	248	GPR00/GMR00
1 × 3 × 1.0	5	0.8	1.1	0.3	1.2	13.8	266	GPR01/GMR01
1 × 3 × 1.5*	5	0.8	1.2	0.3	1.4	15.1	314	GPR02/GMR02
1 × 3 × 1.5*	2	0.8	1.2	0.3	1.4	15.4	318	-
1 × 3 × 2.5*	2	0.8	1.4	0.3	1.5	16.8	394	-
<b>n × 4 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
1 × 4 × 0.75	5	0.8	1.1	0.3	1.2	14.5	291	GPX00/GMX00
1 × 4 × 1.0	5	0.8	1.1	0.3	1.2	14.8	307	GPX01/GMX01
1 × 4 × 1.5*	5	0.8	1.2	0.3	1.4	16.1	359	GPX02/GMX02
1 × 4 × 1.5	2	0.8	1.2	0.3	1.4	16.4	362	-
1 × 4 × 2.5*	2	0.8	1.4	0.3	1.5	17.9	471	GPX03/GMX03

\* Based on standard



# TCu/MGT/EPR/IS/ZH/GSWB/ZH

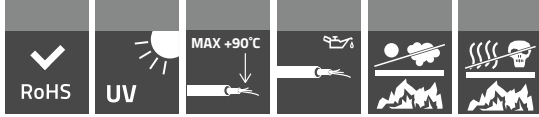
150/250 V

BS 7917

## Without approvals

Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
<b>n × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
2 × 2 × 1	2	0.8	1.2	0.3	1.4	15.5	328	-
2 × 2 × 2.5*	2	0.8	1.3	0.3	1.4	17.4	450	-
5 × 2 × 0.75*	2	0.8	1.4	0.3	1.6	23.3	641	-
5 × 2 × 1.5*	2	0.8	1.4	0.3	1.6	25.5	761	-
5 × 2 × 2.5*	2	0.8	1.4	0.3	1.6	27.4	919	-
6 × 2 × 1.5*	5	0.8	1.4	0.3	1.6	27.1	843	-
8 × 2 × 1.5*	5	0.8	1.4	0.45	1.9	29.8	1139	-
8 × 2 × 2.5*	5	0.8	1.4	0.45	1.9	32.5	1365	-
10 × 2 × 0.75*	2	0.8	1.6	0.3	1.8	30.2	1054	-
10 × 2 × 2.5*	2	0.8	1.7	0.45	1.9	36.7	1711	-
<b>n × 3 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
3 × 3 × 0.75	5	0.8	1.3	0.3	1.5	21.0	552	GPS00/GMS00
3 × 3 × 1	5	0.8	1.3	0.3	1.5	21.4	583	GPS01/GMS01
3 × 3 × 1.5*	5	0.8	1.5	0.3	1.7	23.5	688	GPS02/GMS02
6 × 3 × 1.5*	5	0.8	1.5	0.3	1.7	30.9	1096	-
6 × 3 × 2.5*	2	0.8	1.5	0.3	1.7	33.9	1386	-
7 × 3 × 0.75	5	0.8	1.5	0.3	1.7	28.3	1007	GPT00/GMT00
7 × 3 × 1.0	5	0.8	1.5	0.3	1.7	28.9	1073	GPT01/GMT01
7 × 3 × 1.5*	5	0.8	1.7	0.3	2.0	31.7	1282	GPT02/GMT02
12 × 3 × 0.75	5	0.8	1.7	0.45	2.0	36.1	1672	GPU00/GMU00
12 × 3 × 1.0	5	0.8	1.8	0.45	2.0	37.0	1801	GPU01/GMU01
12 × 3 × 1.5*	5	0.8	1.9	0.45	2.1	39.8	2083	GPU02/GMU02
12 × 3 × 2.5*	2	0.8	1.8	0.45	2.0	43.4	2548	GPU03/GMU03
<b>n × 4 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
3 × 4 × 0.75	5	0.8	1.4	0.3	1.5	24.0	670	GPY00/GMY00
3 × 4 × 1	5	0.8	1.4	0.3	1.6	24.6	727	GPY01/GMY01
3 × 4 × 1.5*	5	0.8	1.6	0.3	1.7	26.7	854	GPY02/GMY02
7 × 4 × 0.75	5	0.8	1.6	0.3	1.7	31.6	1229	GPZ00/GMZ00
7 × 4 × 1	5	0.8	1.6	0.45	1.8	33.0	1450	GPZ01/GMZ01
7 × 4 × 1.5*	5	0.8	1.7	0.45	1.9	35.6	1644	GPZ02/GMZ02

\* Based on standard



# TCu/MGT/EPR/CS/ZH/GSWB/ZH

150/250 V

BS 7917

Halogen-free, fire resistant, low smoke, instrumentation cables with elastomeric insulation and sheath, with steel wire braid.

## CONSTRUCTION

Conductors	Tinned annealed circular stranded copper according to BS EN 60228 class 2 or class 5
Insulation	Mica glass tape Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2
Pairs identification	Black and white with printed number of pairs in contrasting color on the insulation
Screen	Collective screen Aluminium/polyester tape with the metallic side in contact with tinned copper drain wire
Inner sheath	Halogen-free elastomer compound EPR type SB 1 acc. to BS 7917
Braid armour	Galvanized steel wire braid
Separator	Separator, suitable tape between the braid and outer sheath
Outer sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6
Colour of outer sheath	Grey or blue or other colors can be provided
Cable marking e.g.	ELECTRIC CABLE "Type SW4 F1" "number of pairs" "x" "conductor size" "(C)" "150/250 V" "TFK3" "BS 7917" "UK00A code" "IEC60331-21" "IEC60332-3-22 cat. A" "year" "metre mark"



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C
Maximum conductor temperature during short circuit:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	8D D – overall diameter of cable

# TCu/MGT/EPR/CS/ZH/GSWB/ZH

## 150/250 V

### BS 7917

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Fire resistant:	IEC 60331-21
Smoke emission:	BS EN 61034-2, IEC 61034-2
Gases evolved during combustion:	BS EN 50267-2-1, IEC 60754-1, type SW4 cables: $\leq 0.5\%$ HCl

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## Applications

Elastomer insulated, fire resistant (limited circuit integrity) cables for fixed wiring in ships and on mobile and fixed offshore units

## Approvals

LR

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	1 000 m on drums Other forms of packing and delivery are available on request
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Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
$n \times 2 \times \text{mm}^2$		mm	mm	mm	mm	mm	kg/km	
$2 \times 2 \times 0.75^*$	5	0.8	1.2	0.3	1.4	15.1	307	-
$2 \times 2 \times 1.0^*$	5	0.8	1.2	0.3	1.4	15.7	334	-
$2 \times 2 \times 1.0^*$	2	0.8	1.2	0.3	1.4	15.9	341	-
$2 \times 2 \times 1.5^*$	5	0.8	1.2	0.3	1.4	16.0	358	-
$2 \times 2 \times 1.5^*$	2	0.8	1.2	0.3	1.4	16.3	370	-
$3 \times 2 \times 0.75$	5	0.8	1.2	0.3	1.4	19.3	434	GNH00/GLH00

# TCu/MGT/EPR/CS/ZH/GSWB/ZH

## 150/250 V

### BS 7917

Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
<b>n × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
3 × 2 × 1.0	5	0.8	1.2	0.3	1.4	19.6	437	GNH01/GLH01
3 × 2 × 1.5*	5	0.8	1.4	0.3	1.6	21.5	533	GNH02/GLH02
3 × 2 × 2.5*	5	0.8	1.6	0.3	1.8	24.1	735	-
7 × 2 × 0.75	5	0.8	1.4	0.3	1.5	24.8	707	GNJ00/GLJ00
7 × 2 × 1.0	5	0.8	1.4	0.3	1.6	25.5	737	GNJ01/GLJ01
7 × 2 × 1.5*	5	0.8	1.6	0.3	1.8	28.1	908	GNJ02/GLJ02
7 × 2 × 1.5*	2	0.8	1.6	0.3	1.8	28.4	930	-
12 × 2 × 0.75	5	0.8	1.6	0.3	1.7	31.3	1075	GNK00/GLK00
12 × 2 × 1.0	5	0.8	1.6	0.3	1.8	32.1	1104	GNK01/GLK01
12 × 2 × 1.5*	5	0.8	1.8	0.45	2.1	35.8	1496	GNK02/GLK02
20 × 2 × 0.75	2	0.8	1.8	0.45	2	39.6	1665	-
20 × 2 × 0.75	5	0.8	1.8	0.45	2	39.8	1652	GNL00/GLL00

\* Based on standard

## Without approvals

Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
<b>n × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
2 × 2 × 2.5*	2	0.8	1.2	0.3	1.4	17.9	425	-
5 × 2 × 0.75	2	0.8	1.4	0.3	1.5	23.1	598	-
5 × 2 × 1.0*	2	0.8	1.4	0.3	1.6	24.1	631	-
5 × 2 × 1.5*	2	0.8	1.4	0.3	1.6	25.6	731	-
5 × 2 × 2.5*	2	0.8	1.4	0.6	1.6	28.2	921	-
10 × 2 × 0.75*	2	0.8	1.6	0.3	1.7	30.0	973	-
10 × 2 × 1.5*	2	0.8	1.6	0.3	1.8	33.4	1204	-
10 × 2 × 2.5*	2	0.8	1.6	0.3	1.8	36.2	1484	-
15 × 2 × 1.5*	2	0.8	1.8	0.45	2.1	39.5	1794	-

# TCu/MGT/EPR/CS/ZH/GSWB/ZH

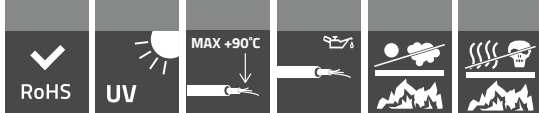
## 150/250 V

### BS 7917

Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UKOOA Code (Grey/Blue)
<b>n × 3 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
3 × 3 × 0.75	5	0.8	1.3	0.3	1.4	21.0	518	GNS00/GLS00
3 × 3 × 1	5	0.8	1.3	0.3	1.5	21.6	558	GNS01/GLS01
3 × 3 × 1.5*	5	0.8	1.4	0.3	1.6	23.3	655	GNS02/GLS02
7 × 3 × 0.75	5	0.8	1.4	0.3	1.6	28.1	911	GNT00/GLT00
7 × 3 × 1	5	0.8	1.5	0.3	1.7	29.1	1002	GNT01/GLT01
7 × 3 × 1.5*	5	0.8	1.7	0.3	1.9	31.7	1215	GNT02/GLT02
8 × 3 × 1.5*	2	0.8	1.8	0.45	2.1	35.2	1540	-
12 × 3 × 0.75	5	0.8	1.7	0.45	1.9	36.0	1525	GNU00/GLU00
12 × 3 × 1	5	0.8	1.7	0.45	2.0	36.9	1654	GNU01/GLU01
12 × 3 × 1.5*	5	0.8	1.8	0.45	2.1	39.8	1966	GNU02/GLU02
12 × 3 × 1.5*	2	0.8	1.8	0.45	2.1	40.2	2022	-
<b>n × 4 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
3 × 4 × 0.75*	5	0.8	1.4	0.3	1.5	24.1	656	GNY00/GLY00
3 × 4 × 1*	5	0.8	1.4	0.3	1.6	24.8	703	GNY01/GLY01
3 × 4 × 1.5*	5	0.8	1.6	0.3	1.7	26.9	844	GNY02/GLY02
7 × 4 × 0.75*	5	0.8	1.6	0.3	1.7	31.8	1143	GNZ00/GLZ00
7 × 4 × 1*	5	0.8	1.6	0.45	1.8	33.2	1383	GNZ01/GLZ01
7 × 4 × 1.5*	5	0.8	1.7	0.45	1.9	35.7	1601	GNZ02/GLZ02

\* Based on standard





# TCu/MGT/EPR/ZH/GSWB/ZH

0.6/1 kV SW4

BS 7917

Halogen-free, fire resistant, low smoke, low voltage cables with elastomeric insulation and sheath, with steel wire braid.

## CONSTRUCTION

Conductors	Tinned annealed circular stranded copper according to BS EN 60228 class 2 or class 5
Insulation	Mica glass tape Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2
Core identification	All cores are white with black printed numbers <sup>1)</sup>
Inner sheath	Halogen-free elastomer compound EPR type SB 1 acc. to BS 7917
Braid armour	Galvanized steel wire braid
Separator	Separator, suitable tape between the braid and outer sheath
Outer sheath	Halogen-free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6
Colour of outer sheath	Black or other colors can be provided
Cable marking e.g.	ELECTRIC CABLE TYPE SW4 F1 "number of core" "x" "conductor size" "600/1 000 V" "TFK3" "BS 7917" "UKOOA code" "IEC60331-21" "IEC60332-3-22 cat. A" "year" "metre mark"

<sup>1)</sup> Other colours available on request



## CHARACTERISTIC

Maximum conductor operating temperature:	+90°C	
Maximum conductor temperature during short circuit:	+250°C	
Lowest ambient temperature for fixed installation:	-40°C	
Lowest installation temperature:	-15°C	
Minimum bending radius:	<b>Overall diameter of cable (D)</b>	<b>Minimum bending radius</b>
	< 25 mm	4 D
	> 25 mm	6 D
	D – overall diameter of cable	

# TCu/MGT/EPR/ZH/GSWB/ZH

0.6/1 kV SW4

BS 7917

## Fire performance

Flame retardant:	IEC 60332-3-22 Category A
Fire resistant:	IEC 60331-21
Smoke emission:	BS EN 61034-2, IEC 61034-2
Corrosive gas emission:	BS EN 50267-2-1, IEC 60754-1: type SW4 cables $\leq$ 0.5% HCl

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## Applications

Elastomer insulated, fire resistant (limited circuit integrity) cables for fixed wiring in ships and on mobile and fixed offshore units

## Approvals

LR

Details related to particular Approvals are informative only. Please contact manufacturer to confirm whether the required cross-sections are covered by the Certificate.

Standard length cable packing:	1 000 m on drums Other forms of packing and delivery are available on request
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Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UKOOA Code
$n \times \text{mm}^2$		mm	mm	mm	mm	mm	kg/km	
2 × 1.5	5	0.8	1.1	0.3	1.2	14.4	312	YD202
2 × 2.5	2	0.8	1.1	0.3	1.2	15.3	350	YD203
2 × 4	2	1	1.2	0.3	1.3	17.5	464	YD204
2 × 6	2	1	1.2	0.3	1.4	18.9	542	YD206
2 × 10	2	1	1.3	0.3	1.4	20.9	696	YD210
2 × 16	2	1	1.4	0.3	1.5	23.7	947	YD216
2 × 25	2	1.2	1.5	0.3	1.7	27.8	1330	YD225
2 × 35	2	1.2	1.6	0.3	1.8	30.5	1639	YD235

# TCu/MGT/EPR/ZH/GSWB/ZH

0.6/1 kV SW4

BS 7917

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UKOOA Code
n × mm <sup>2</sup>		mm	mm	mm	mm	mm	kg/km	
2 × 50	2	1.4	1.7	0.45	2	34.7	2163	YD250
2 × 70	2	1.4	1.9	0.45	2.1	38.9	2824	YD270
2 × 95	2	1.6	2.1	0.45	2.3	44.4	3766	YD295
2 × 120	2	1.6	2.2	0.45	2.5	48	4483	YD20A
3 × 1.5	5	0.8	1.1	0.3	1.2	14.2	319	YD302
3 × 2.5	2	0.8	1.1	0.3	1.3	15.6	378	YD303
3 × 4	2	1	1.2	0.3	1.3	17.7	502	YD304
3 × 6	2	1	1.2	0.3	1.4	19.1	596	YD306
3 × 10	2	1	1.3	0.3	1.5	21.5	803	YD310
3 × 16	2	1	1.4	0.3	1.6	24.4	1102	YD316
3 × 25	2	1.2	1.6	0.3	1.8	29.7	1611	YD325
3 × 35	2	1.2	1.7	0.45	1.9	33.2	2138	YD335
3 × 50	2	1.4	1.8	0.45	2	37.1	2669	YD350
3 × 70	2	1.4	2	0.45	2.2	41.5	3529	YD370
3 × 95	2	1.6	2.2	0.45	2.4	47.3	4730	YD395
3 × 120	2	1.6	2.3	0.45	2.6	51.1	5642	YD30A
4 × 1.5	5	0.8	1.1	0.3	1.3	15.6	366	YD402
4 × 2.5	2	0.8	1.1	0.3	1.3	16.7	440	YD403
4 × 4	2	1	1.2	0.3	1.4	19.3	594	YD404
4 × 6	2	1	1.3	0.3	1.5	21	727	YD406
4 × 10	2	1	1.4	0.3	1.6	23.6	973	YD410
4 × 16	2	1	1.5	0.3	1.7	26.9	1345	YD416
4 × 25	2	1.2	1.7	0.45	1.9	33.3	2110	YD425
4 × 35	2	1.2	1.8	0.45	2	36.5	2671	YD435
4 × 50	2	1.4	1.9	0.45	2.2	40.7	3350	YD450
4 × 70	2	1.4	2.1	0.45	2.4	45.8	4436	YD470
4 × 95	2	1.6	2.3	0.45	2.6	52.2	5960	YD495
4 × 120	2	1.6	2.5	0.45	2.8	57.7	7093	YD40A
5 × 1.5	5	0.8	1.1	0.3	1.3	17.5	464	–
5 × 2.5	2	0.8	1.2	0.3	1.3	18.7	566	–
>>5 × 4*	2	1	1.3	0.3	1.5	21.3	698	–
>>5 × 6*	2	1	1.3	0.3	1.5	23.1	851	–
>>5 × 16*	2	1	1.7	0.45	1.9	30.6	1698	–
>>5 × 25*	2	1.2	1.8	0.45	2.0	35.5	2385	–
>>5 × 70*	2	1.4	2.2	0.45	2.6	49.9	5276	–
>>5 × 95*	2	1.6	2.4	0.45	2.7	56.9	7099	–
>>6 × 2.5*	2	0.8	1.2	0.3	1.4	19.7	568	–

# TCu/MGT/EPR/ZH/GSWB/ZH

0.6/1 kV SW4

BS 7917

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UKOOA Code
<b>n × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>	
7 × 1.5	5	0.8	1.2	0.3	1.3	18.8	580	YD702
7 × 2.5	2	0.8	1.2	0.3	1.4	20	708	YD703
>>8 × 1.5*	5	0.8	1.3	0.3	1.5	20.9	588	–
12 × 1.5	5	0.8	1.3	0.3	1.5	23.9	797	YDA02
12 × 2.5	2	0.8	1.4	0.3	1.6	26	986	YDA03
>>12 × 4*	2	1.0	1.5	0.3	1.7	30.2	1331	YDA04
>>14 × 2.5*	2	0.8	1.5	0.3	1.7	27	1090	–
>>16 × 2.5*	2	0.8	1.5	0.3	1.7	28.2	1200	–
19 × 1.5	5	0.8	1.4	0.3	1.6	27.9	1013	YDB02
19 × 2.5	2	0.8	1.5	0.3	1.7	29.1	1435	YDB03
>>20 × 2.5*	2	0.8	1.6	0.45	1.8	31.9	1548	–
>>24 × 1.5*	5	0.8	1.6	0.45	1.8	31.9	1411	–
>>24 × 2.5*	2	0.8	1.6	0.45	1.8	34.9	1814	–
27 × 1.5	5	0.8	1.6	0.3	1.8	31.9	1461	YDC02
27 × 2.5*	2	0.8	1.6	0.45	1.8	35.5	1983	YDC03
37 × 1.5	5	0.8	1.7	0.45	1.9	35.8	1608	YDD02
>>37 × 2.5*	2	0.8	1.8	0.45	2.0	41.2	2515	–

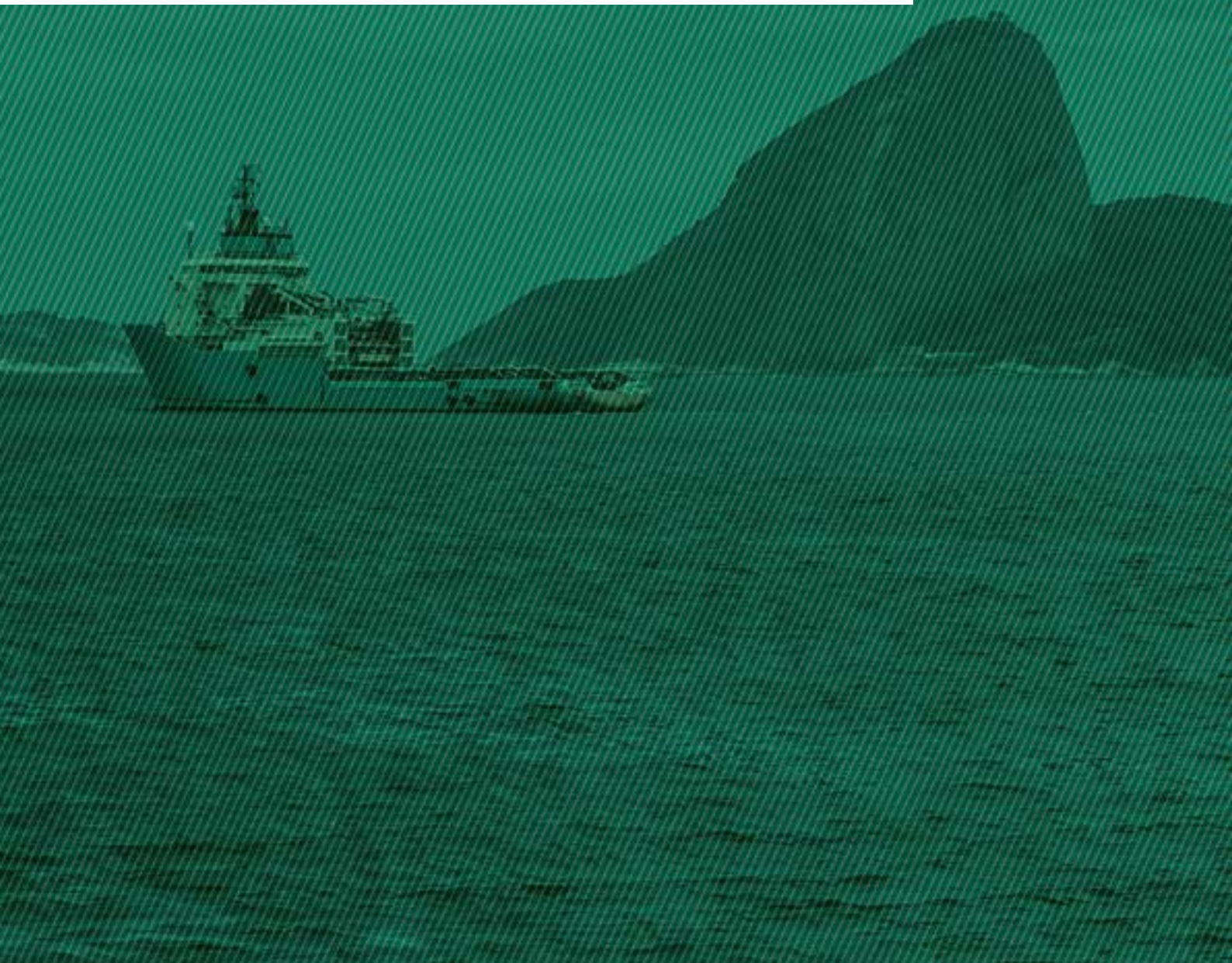
\* Based on standard  
>> without approvals

Classification Bureau	Type cables
LR	657(*) SW4 0.6/1 kV EPR/ZH BS 6883
	658(*) SW4 0.6/1 kV TCu/EPR/ZH/GSWB/ZH BS 6883
	658(*) (c) SW4 150/250 V TCu/EPR/CAM/ZH/GSWB/ZH BS 6883
	658(*) (l) SW4 150/250 V TCu/EPR/IAM/ZH/GSWB/ZH BS 6883
	TCu/MGT/EPR/IS/ZH/GSWB/ZH 150/250 V BS 7917
	TCu/MGT/EPR/CS/ZH/GSWB/ZH 150/250 V BS 7917
	TCu/MGT/EPR/ZH/GSWB/ZH 0.6/1 kV SW4 BS 7917

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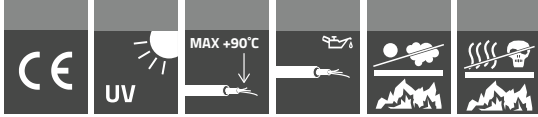
# NEK606











# UX P108 E-M TCu/EVA

0.6/1kV

## Applicable standards:

**NEK TS 606:2016, Code P108, IEC 60092-353- Design guidelines, IEC 60228 conductor, IEC 60092-360 Insulating materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60754-1.2 Halogen free, IEC 61034-1.2 Low Smoke**

Halogen-free, flame retardant. Mud resistant insulated conductor.

## APPLICATIONS

- Insulated conductor for earthing and bonding services
- Meets the MUD resistance requirement in NEK TS 606
- Other industrial applications

## CONSTRUCTION

	Code letter	
Conductor		Tinned annealed stranded circular copper conductor class 2 or class 5 wrapped PETP
Insulation	U	Halogen-free thermoset compound in accordance with type SHF2
Unsheathed	X	
Color		Green/Yellow
Standard marking		acc.to NEK TS 606:2016 TF KABLE 3 UX P108 E-M 0.6/1kV (SIZE) IEC 60332-3-22

## FEATURES

Maximum conductor operating temperature:	+90°C	
Maximum conductor temperature during short circuit:	+250°C	
Lowest ambient temperature for fixed installation:	-40°C	
Lowest installation temperature:	-15°C	
Minimum bending radius	During installation	8 D
	Fixed installed	6 D
Minimum bending radius:	D – overall diameter of cable	



# UX P108 E-M TCu/EVA

## 0.6/1kV

Flame retardant:	IEC 60332-3-22 (Category A)
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1
Oil resistance:	IEC 60092-360 SHF2, IRM 902 (100°C/24h)
Mud resistance:	NEK 606 (SHF MUD, SHF2)

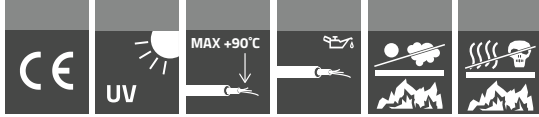
## APPROVAL

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ABS:	
DNV:	

Standard length cable packing 1000m on drums. Other forms of packing and delivery are available on request.

Size	Insulation thickness	Approx. Diameter over insulation	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 6	1	5.2	81
1 × 10	1	6.5	121
1 × 16	1	7.1	182
1 × 25	1.2	9.1	282
1 × 35	1.2	10.2	371
1 × 50	1.4	11.7	521
1 × 70	1.4	13.4	731
1 × 95	1.6	15.8	972
1 × 120	1.6	17.3	1221
1 × 150	1.8	19.2	1521
1 × 185	2	21.4	1893
1 × 240	2.2	24.4	2455
1 × 300	2.4	27.2	3093
1 × 630	2.8	38.6	6351



# RFOU P101 E-M

## RFOU EMC E-M

### EPR/EVA/TCWB/EVA

0,6/1(1,2) kV

#### Applicable standards:

**NEK TS 606:2016, Code P101, IEC 60092-353- Design guidelines, IEC 60228 conductor, IEC 60092-360 Insulating material, IEC 60092-360 Sheathing materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60754-1.2 Halogen free, IEC 61034-1.2 Low Smoke**

Flame retardant halogen-free power cable. Mud resistant.

## APPLICATIONS

- Fixed installation for power control and lighting in both EX- and safe areas, general purposes
- For installation in areas exposed to MUD and drilling/cleaning fluids
- Meets the MUD resistance requirement in NEK TS 606
- For fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC
- Other industrial applications

## CONSTRUCTION

	Code letter	
Conductor		Tinned annealed stranded circular copper conductor, IEC 60228 class 2 or class 5
Insulation	R	EP- rubber thermosetting compound, IEC 60092-360 (EPR)
Core identification		<p>Accordance to HD308 S2</p> <p>Single core - Black</p> <p>Two core- Blue, Brown</p> <p>Three cores -Brown, Black, Grey, or Green/Yellow, Blue, Brown</p> <p>Four cores - Blue, Brown, Black, Grey or Green/Yellow, Brown, Black, Grey</p> <p>Five cores - Blue, Brown, Black, Grey, Black or Green/Yellow, Blue, Brown, Black, Grey</p> <p>Multi-cores - White with Black numbers</p>



# RFOU P101 E-M

## RFOU EMC E-M

### EPR/EVA/TCWB/EVA

#### 0,6/1(1,2) kV

Lay up/ Shielding		Cores laid up in concentric layers
Inner covering	F	Flame retardant and halogen-free thermosetting compound
Armour/screen	O	Tinned annealed copper wire braid
For EMC cable		Cu/PET tape under the braid
Separator		Separator, suitable tape between the braid and outer sheath
Outer sheath	U	Flame retardant, halogen-free, heat- resistant, oil-resisting and mud resistant thermosetting compound type SHF2 acc. to IEC 60092-360
Outer sheath color		Black
Standard marking		acc. to NEK TS 606:2016 TF KABLE 3 RFOU P101 E-M 0.6/1kV (SIZE) IEC 60332-3-22

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## FEATURES

Maximum conductor operating temperature:	+90°C	
Maximum conductor temperature during short circuit:	+250°C	
Lowest ambient temperature for fixed installation:	-40°C	
Lowest installation temperature:	-15°C	
Minimum bending radius	Overall diameter of cable (D)	Minimum bending radius
	< 25 mm	4 D
	> 25 mm	6 D
	D – overall diameter of cable	
Flame retardant	IEC 60332-3-22 (Category A)	
Smoke emission:	IEC 61034-2	
Corrosive gas emission:	IEC 60754-1	
Oil resistance:	IEC 60092-360 SHF2, IRM 902 (100°C/24h)	
Mud resistance:	NEK 606 (SHF MUD, SHF2)	



RFOU P101 E-M  
RFOU EMC E-M  
EPR/EVA/TCWB/EVA  
0,6/1(1,2) kV

## APPROVAL

ABS:

DNV:

Standard length cable packing 1000m on drums. Other forms of packing and delivery are available on request.

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness outer sheath	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 16/2.5*	1	1.1	0.2	1.2	12.8	328
1 × 25/4*	1.2	1.1	0.2	1.2	14.5	454
1 × 35/6*	1.2	1.1	0.3	1.3	16.3	610
1 × 50/6*	1.4	1.1	0.3	1.4	18	753
1 × 70/10*	1.4	1.1	0.3	1.4	19.7	1010
1 × 95/10*	1.6	1.1	0.3	1.5	22.3	1312
1 × 120/10*	1.6	1.2	0.3	1.6	24.1	1562
1 × 150/10*	1.8	1.2	0.3	1.6	26.1	1871
1 × 185/10*	2	1.2	0.3	1.7	28.7	2286
1 × 240/16*	2.2	1.2	0.3	1.8	31.8	2987
1 × 300/16*	2.4	1.2	0.3	1.9	34.7	3544
2 × 1.5/4	1	1.1	0.2	1.2	12.7	263
2 × 2.5/4	1	1.1	0.2	1.2	13.6	299
2 × 4/6	1	1.1	0.3	1.3	15.5	420
2 × 6/6	1	1.1	0.3	1.3	16.6	485
2 × 10/10	1	1.1	0.3	1.4	18.6	613
2 × 16/16	1	1.1	0.4	1.5	21.5	881

RFOU P101 E-M  
RFOU EMC E-M  
EPR/EVA/TCWB/EVA  
0,6/1(1,2) kV

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness outer sheath	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
2 × 25/16*	1.2	1.2	0.4	1.6	25.4	1240
2 × 35/16	1.2	1.2	0.3	1.7	27.5	1510
2 × 50/25	1.4	1.2	0.4	1.8	31.1	1929
2 × 70/35	1.4	1.2	0.5	1.9	35.2	2656
2 × 95/50	1.6	1.4	0.5	2.1	40.7	3686
2 × 120/70	1.6	1.4	0.5	2.2	43.9	4441
3 × 1.5/4	1	1.1	0.2	1.2	13.3	267
3G1.5	1	1.1	0.2	1.2	13.3	271
3 × 2.5/6	1	1.1	0.3	1.3	14.8	360
3G2.5	1	1.1	0.3	1.3	14.8	356
3 × 4/6	1	1.1	0.3	1.3	16.2	464
3G4	1	1.1	0.3	1.3	16.2	437
3 × 6/6	1	1.1	0.3	1.4	17.6	555
3G6	1	1.1	0.3	1.4	17.6	536
3 × 10/10	1	1.1	0.3	1.4	19.5	756
3G10	1	1.1	0.3	1.4	19.5	710
3 × 16/16	1	1.1	0.4	1.5	22.7	1075
3G16	1	1.1	0.3	1.5	22.3	985
3 × 25/16	1.2	1.2	0.3	1.6	26.4	1481
3 × 35/16*	1.2	1.2	0.3	1.7	29.1	1847
3 × 50/25	1.4	1.2	0.4	1.9	33.1	2428
3 × 70/35	1.4	1.4	0.5	2	37.9	3300
3 × 95/50	1.6	1.4	0.5	2.2	43.4	4524
3 × 120/70	1.6	1.4	0.5	2.3	46.8	5584

RFOU P101 E-M  
RFOU EMC E-M  
EPR/EVA/TCWB/EVA  
0,6/1(1,2) kV

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness outer sheath	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
3 × 150/70	1.8	1.5	0.5	2.5	52.5	6520
3 × 240/120	2.2	1.6	0.4	3.1	63.9	10461
4 × 1.5/4	1	1.1	0.3	1.3	14.8	342
4G1.5	1	1.1	0.3	1.3	14.8	352
4 × 2.5/6	1	1.1	0.3	1.3	15.9	411
4G2.5	1	1.1	0.3	1.3	15.9	411
4 × 4/6	1	1.1	0.3	1.4	17.6	632
4G4	1	1.1	0.3	1.4	17.6	518
4 × 6/6	1	1.1	0.3	1.4	18.9	1217
4G6	1	1.1	0.3	1.4	18.9	632
4 × 10/10	1	1.1	0.3	1.5	21.3	2254
4G10	1	1.1	0.3	1.5	21.3	859
4 × 16/16	1	1.2	0.4	1.6	24.9	3966
4G16	1	1.2	0.4	1.6	24.5	1217
4 × 25/16	1.2	1.2	0.3	1.7	29	6463
4G25	1.2	1.2	0.3	1.7	29	1764
4 × 35/16*	1.2	1.2	0.3	1.8	31.9	2260
4G35	1.2	1.2	0.3	1.8	31.9	2254
4 × 50/25	1.4	1.4	0.4	2	36.8	2988
4G50	1.4	1.4	0.4	2	36.4	2885
4 × 70/35	1.4	1.4	0.5	2.2	41.8	4059
4G70	1.4	1.4	0.4	2.2	41.4	3966
4 × 95/50	1.6	1.4	0.5	2.4	47.9	5559
4G95	1.6	1.4	0.4	2.4	47.5	5378
4 × 120/70	1.6	1.6	0.5	2.5	52	6876

RFOU P101 E-M  
RFOU EMC E-M  
EPR/EVA/TCWB/EVA  
0,6/1(1,2) kV

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness outer sheath	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
4G120	1.6	1.6	0.4	2.5	51.6	6463
5 × 1.5/6	1	1.1	0.3	1.3	15.8	402
5G1.5	1	1.1	0.3	1.3	15.8	387
5 × 2.5/6	1	1.1	0.3	1.4	17.2	483
5G2.5	1	1.1	0.3	1.4	17.2	477
5 × 4/6	1	1.1	0.3	1.4	18.9	596
5G4	1	1.1	0.3	1.4	18.9	596
5G6	1	1.1	0.3	1.5	20.6	742
5G10	1	1.2	0.3	1.5	23.3	1017
5 × 16/16	1	1.2	0.3	1.6	26.6	1482
5G16	1	1.2	0.3	1.6	26.6	1436
5G25	1.2	1.2	0.3	1.8	31.7	2110
5G35	1.2	1.2	0.3	1.9	35	2706
5G50	1.4	1.4	0.4	2.1	40.3	3561
5 × 70/35	1.4	1.4	0.4	2.3	45.4	4797
5G70	1.4	1.4	0.4	2.3	45.4	4769
5G120	1.6	1.6	0.5	2.7	57.3	7966
7 × 1.5/6	1	1.1	0.3	1.4	18	485
7 × 2.5/6	1	1.1	0.3	1.4	19.6	601
12 × 1.5/10	1	1.1	0.3	1.5	21.4	691
12 × 2.5/10	1	1.2	0.3	1.6	23.6	887
19 × 1.5/10	1	1.2	0.3	1.6	25.9	973
19 × 2.5/10	1	1.2	0.3	1.7	28.4	1247
27 × 1.5/16	1	1.2	0.3	1.8	29.3	1275
27 × 2.5/16	1	1.2	0.3	1.9	32.2	1657

# RFOU P101 E-M RFOU EMC E-M EPR/EVA/TCWB/EVA 0,6/1(1,2) kV

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness outer sheath	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
37 × 1.5/16	1	1.2	0.3	1.9	33.6	1625
37 × 2.5/16	1	1.4	0.3	2	37.4	2161

\* Braid cannot be used as protective earth conductor

## WITHOUT APPROVALS

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness outer sheath	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 400/25	2.6	1.3	0.4	2.1	39.1	4530
1 × 10/2.5	1.0	1.1	0.2	1.2	11.7	254
3 × 35RF/16	1.2	1.2	0.3	1.7	28.5	1698
3G70	1.4	1.3	0.3	2.0	37	3047
3 × 95RF/50	1.6	1.4	0.5	2.2	44.5	4347
3G120	1.6	1.3	0.4	2.3	46.4	5050
3G150	1.8	1.5	0.4	2.5	51.3	6301
3 × 150/70	1.8	1.5	0.5	2.5	51.7	6560
3G185	2	1.5	0.4	2.7	56.5	7581
3X185/95**	2	1.5	0.5	2.7	58.9	8155
3G240	2.2	1.6	0.4	3.1	64.0	9577
3G300	2.4	1.7	0.4	3.1	70.1	11940
4 × 150/70	1.8	1.5	0.4	2.7	58.2	8148
4G150	1.8	1.5	0.4	2.7	56.6	7785
4G185	2	1.7	0.4	2.9	62.9	9647
4G240	2.2	1.7	0.4	3.1	70.5	12325

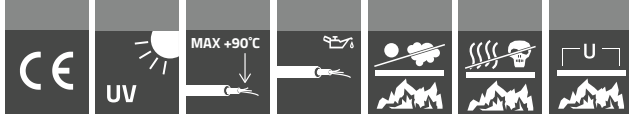


RFOU P101 E-M  
RFOU EMC E-M  
EPR/EVA/TCWB/EVA  
0,6/1(1,2) kV

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness outer sheath	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
5 × 10/10	1	1.1	0.3	1.6	23.4	1055
5G95	1.6	1.5	0.4	2.5	52.3	6388
5G150	1.8	1.7	0.4	2.9	63	6941
5G185	2.0	1.7	0.4	3.1	69.4	11730
5G240	2.2	1.7	0.4	3.4	78.1	15070
6G2.5	1	1.1	0.3	1.4	18.5	537
7G1.5	1	1.1	0.3	1.4	18.3	484
7G4	1	1.1	0.3	1.5	22.0	807
8G1.5	1	1.1	0.3	1.4	19.4	533
9G1.5	1	1.1	0.3	1.5	20.7	653
10G1.5	1	1.1	0.3	1.5	21	633
10 × 1.5/10	1	1.1	0.3	1.5	21	633
10 × 2.5/10	1	1.1	0.3	1.6	22.9	794
12G4	1	1.1	0.3	1.7	26.3	1198
14G2.5	1	1.1	0.3	1.6	24.5	1057
14G4	1	1.1	0.3	1.7	27.5	1240
15 × 2.5/10	1	1.1	0.3	1.7	25.9	1040
16G1.5	1	1.1	0.3	1.6	23.7	832
16 × 2.5/10	1	1.1	0.3	1.7	25.9	1063
17G1.5	1	1.1	0.3	1.6	24.7	893
20G1.5	1	1.1	0.3	1.7	26.0	986
20G2.5	1	1.1	0.3	1.8	28.5	1266
20G4	1	1.1	0.3	1.9	32.0	1651
24G1.5	1	1.1	0.3	1.8	28.7	1157

RFOU P101 E-M  
RFOU EMC E-M  
EPR/EVA/TCWB/EVA  
0,6/1(1,2) kV

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness outer sheath	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
27G2.5	1	1.3	0.3	2	37.3	2368
32G1	1	1.1	0.3	1.8	29.2	1179
33G1.5	1	1.1	0.3	1.9	31.4	1656
47G1.5	1	1.3	0.3	2.1	37.4	2283
1 × 2.5	1	1.1	0.2	1.1	9.4	144
1 × 500	2.8	1.3	0.4	2.2	43.1	5653



# BFOU P105

## BFOU EMC

### EPR/EVA/TCWB/EVA

0.6/1(1.2) kV

#### Applicable standards:

**NEK TS 606:2016, Code P105, IEC 60092-353- Design guidelines, IEC 60228 conductor, IEC 60092-360 Insulating material, IEC 60092-360 Sheathing materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60331 Fire resistant, IEC 60754-1.2 Halogen free, IEC 61034-1.2 Low Smoke**

Fire resistant, flame retardant halogen-free power cable. Mud resistant.

## APPLICATIONS

- Fixed installation for power control and lighting in both EX- and safe areas emergency and critical systems where requirement for fire resistant exists
- For installation in areas exposed to MUD and drilling/cleaning fluids
- Meets the MUD resistance requirement in NEK TS 606
- For fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC
- Other industrial applications



## CONSTRUCTION

	Code letter	
Conductor		Tinned annealed stranded circular copper conductor, IEC 60228 class 2 or class 5
Insulation	B	Mica tape + EP- rubber thermosetting compound, IEC 60092-360 (EPR)
Core identification		<p>Accordance to HD308 S2</p> <p>Single core - Black</p> <p>Two core- Blue, Brown</p> <p>Three cores -Brown, Black, Grey, or Green/Yellow, Blue, Brown</p> <p>Four cores - Blue, Brown, Black, Grey or Green/Yellow, Brown, Black, Grey</p> <p>Five cores - Blue, Brown, Black, Grey, Black or Green/Yellow, Blue, Brown, Black, Grey</p> <p>Multi-cores - White with Black numbers</p>

# BFOU P105

## BFOU EMC

### EPR/EVA/TCWB/EVA

#### 0.6/1(1.2) kV

Lay up/ Shielding		Cores laid up in concentric layers
Inner covering	F	Flame retardant and halogen-free thermosetting compound
Armour/screen	O	Polyester tape & Tinned annealed copper wire braid
For EMC cable		Cu/PET tape under the braid
Separator		Separator, suitable tape between the braid and outer sheath
Outer sheath	U	Flame retardant, halogen-free, heat-resistant, oil-resisting and mud resistant thermosetting compound type SHF2 acc. to IEC 60092-360
Outer sheath color		Black
Standard marking		acc. to NEK TS 606:2016 TF KABLE 3 BFOU P105 0.6/1KV (SIZE) IEC 60331-21 IEC 60332-3-22

## FEATURES

Maximum conductor operating temperature:	+90°C	
Maximum conductor temperature during short circuit:	+250°C	
Lowest ambient temperature for fixed installation:	-40°C	
Lowest installation temperature:	-15°C	
Minimum bending radius:	Overall diameter of cable (D)	Minimum bending radius
	< 25 mm	4 D
	> 25 mm	6 D
	D – overall diameter of cable	
Flame retardant:	IEC 60332-3-22 (Category A)	
Fire resistant:	IEC 60331	
Smoke emission:	IEC 61034-2	
Corrosive gas emission:	IEC 60754-1	
Oil resistance:	IEC 60092-360 SHF2, IRM 902 (100°C/24h)	
Mud resistance:	NEK 606 (SHF MUD, SHF2)	

# BFOU P105

## BFOU EMC

### EPR/EVA/TCWB/EVA

#### 0.6/1(1.2) kV

## APPROVAL

ABS:

Standard length cable packing

1000m on drums. Other forms of packing and delivery are available on request.

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness Outer covering	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 16/4*	1	1.1	0.2	1.2	13.4	362
1 × 25/6*	1.2	1.1	0.3	1.3	15.7	534
1 × 35/6*	1.2	1.1	0.3	1.3	16.9	654
1 × 50/10*	1.4	1.1	0.3	1.4	18.6	801
1 × 70/10*	1.4	1.1	0.3	1.4	20.3	1010
1 × 95/10*	1.6	1.1	0.3	1.5	22.9	1342
1 × 120/10*	1.6	1.2	0.3	1.6	24.8	1600
1 × 150/10*	1.8	1.2	0.3	1.7	26.9	1922
1 × 185/10*	2	1.2	0.3	1.7	29.1	2323
1 × 240/16*	2.2	1.2	0.3	1.8	32.3	2946
1 × 300/16*	2.4	1.2	0.3	1.9	35.3	3586
2 × 1.5/4*	1	1.1	0.2	1.2	14.2	279
2 × 2.5/6*	1	1.1	0.3	1.3	15.6	364
2 × 4/6	1	1.1	0.3	1.3	16.7	429
2 × 6/6	1	1.1	0.3	1.4	18	512
2 × 10/10	1	1.1	0.3	1.4	19.8	650
2 × 16/16	1	1.1	0.4	1.5	22.8	926
2 × 25/16	1.2	1.2	0.4	1.6	26.7	1296



# BFOU P105

## BFOU EMC

### EPR/EVA/TCWB/EVA

#### 0.6/1(1.2) kV

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness Outer covering	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
2 × 35/16*	1.2	1.2	0.3	1.7	28.8	1539
2 × 50/25	1.4	1.4	0.4	1.8	32.8	2015
2 × 70/35	1.4	1.6	0.5	2	37.6	2842
3G1.5	1	1.1	0.3	1.3	15.4	349
3 × 1.5/6	1	1.1	0.3	1.3	15.4	361
3G2.5	1	1.1	0.3	1.3	16.4	404
3 × 2.5/6	1	1.1	0.3	1.3	16.4	409
3 × 4/6	1	1.1	0.3	1.3	17.5	484
3 × 6/6	1	1.1	0.3	1.4	18.9	585
3 × 10/10	1	1.1	0.3	1.5	21.1	768
3 × 16/16	1	1.1	0.4	1.5	24	1096
3 × 25/16	1.2	1.2	0.3	1.7	28	1497
3G35	1.2	1.2	0.3	1.8	30.6	1898
3 × 35/16*	1.2	1.2	0.3	1.8	30.6	1926
3 × 50/25	1.4	1.2	0.4	1.9	34.5	2476
3 × 70/35	1.4	1.4	0.5	2	39.2	3361
3 × 95/50	1.6	1.4	0.5	2.2	44.8	4589
3 × 120/70	1.6	1.4	0.5	2.4	48.5	5447
3 × 185/95	2	2	0.5	3	59.7	6030
4 × 1.5/6	1	1.1	0.3	1.3	16.6	450
4G1.5	1	1.1	0.3	1.3	16.6	420
4 × 2.5/6	1	1.1	0.3	1.3	17.6	480
4G2.5	1	1.1	0.3	1.3	17.6	460
4 × 4/6	1	1.1	0.3	1.4	19.1	610

**BFOU P105**  
**BFOU EMC**  
**EPR/EVA/TCWB/EVA**  
**0.6/1(1.2) kV**

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness Outer covering	Approx.Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
4G4	1	1.1	0.3	1.4	19.1	660
4 × 6/6	1	1.1	0.3	1.4	20.4	770
4G6	1	1.1	0.3	1.4	20.4	720
4 × 10/10	1	1.1	0.3	1.5	22.8	990
4G10	1	1.1	0.3	1.5	22.8	990
4 × 16/16	1	1.2	0.4	1.6	26.4	1420
4G16	1	1.2	0.3	1.6	26	1330
4 × 25/16	1.2	1.2	0.3	1.7	29	1970
4G25	1.2	1.2	0.3	1.7	29	1930
4 × 35/16*	1.2	1.2	0.3	1.9	33.5	2490
4G35	1.2	1.2	0.3	1.9	33.5	2470
4 × 50/25	1.4	1.4	0.4	2	38.5	3380
4G50	1.4	1.4	0.3	2	38	3290
4 × 70/35	1.4	1.4	0.4	2.2	43	4610
4G70	1.4	1.4	0.4	2.2	43	4520
4 × 95/50	1.6	1.6	0.5	2.4	49.8	6150
4G95	1.6	1.6	0.4	2.4	49.4	5900
4 × 120/70	1.6	1.6	0.5	2.5	52.8	7470
4G120	1.6	1.6	0.4	2.5	54	7180
4G150	1.8	1.6	0.5	2.7	59	8910
4G185	2	1.8	0.4	2.9	64.8	10830
5G1.5	1	1.1	0.3	1.4	18	454
5 × 1.5/6	1	1.1	0.3	1.4	18	460
5G2.5	1	1.1	0.3	1.4	19.1	475

# BFOU P105

## BFOU EMC

### EPR/EVA/TCWB/EVA

#### 0.6/1(1.2) kV

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness Outer covering	Approx.Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
5 × 2.5/6	1	1.1	0.3	1.4	19.1	487
5G4	1	1.1	0.3	1.4	20.5	651
5G6	1	1.1	0.3	1.5	22.3	798
5G10	1	1.2	0.3	1.6	25.1	1085
5G16	1	1.2	0.3	1.7	28.5	1510
5G25	1.2	1.2	0.3	1.8	33.4	2172
5G35	1.2	1.4	0.3	2	37.3	2825
5G50	1.4	1.4	0.4	2.2	42.2	3651
5G70	1.4	1.4	0.4	2.3	47.1	4845
5G95	1.6	1.6	0.5	2.6	54	7140
7 × 1.5/6	1	1.1	0.3	1.4	17	540
7 × 2.5/6	1	1.1	0.3	1.4	22	630
12 × 1.5/10	1	1.2	0.3	1.6	21.5	810
12 × 2.5/10	1	1.2	0.3	1.6	25.5	990
19 × 1.5/10	1	1.2	0.3	1.7	25	1100
19 × 2.5/16	1	1.2	0.3	1.8	30	1370
27 × 1.5/16	1	1.4	0.3	2	34.7	1565
27 × 2.5/25	1	1.4	0.3	2	37.3	1994
37 × 1.5/16	1	1.4	0.3	2	39.6	1987
37 × 2.5/25	1	1.4	0.4	2.2	43.5	2628

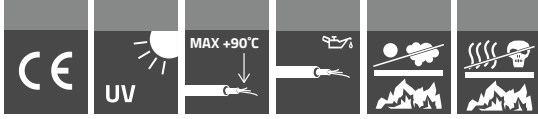
\* Braid cannot be used as protective earth conductor

**BFOU P105**  
**BFOU EMC**  
**EPR/EVA/TCWB/EVA**  
**0.6/1(1.2) kV**

**WITHOUT APPROVALS**

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness Outer covering	Approx.Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 400/25	2.6	1.3	0.4	2.1	39.8	4589
2 × 240/120**	2.2	1.5	0.5	2.8	63.3	8525
3G1	1	1.1	0.2	1.2	14.3	269
3G150	1.8	1.5	0.4	2.5	52.8	6357
3 × 150/70	1.8	1.5	0.5	2.6	53.4	6752
3G300	2.4	1.7	0.4	3.2	71.9	12226
4G1	1	1.1	0.3	1.3	16.0	371
4 × 240/120**	2.2	1.7	0.5	3.2	74.9	13816
4G300	2.4	1.7	0.4	3.4	79.5	15482
5G150	1.8	1.7	0.4	2.9	64.9	9776
7G1.5	1	1.1	0.3	1.5	20.9	585
9 × 1.5/10	1	1.1	0.3	1.5	23.5	700
10G1.5	1	1.1	0.3	1.6	24.1	764
16 × 1.5/10	1	1.1	0.3	1.7	27.3	1009
20 × 2.5/16	1	1.2	0.3	1.8	32.5	1492
24G2.5	1	1.3	0.3	2	36.4	1792

\*\* double braided



# RFOU (i) S101 E-M

## RFOU EMC E-M (i)

### EPR/EVA/TCWB/EVA

150/250(300)V

#### Applicable standards:

**NEK TS 606:2016, Code S101, IEC 60092-376- Design guidelines, IEC 60228 conductor, IEC 60092-360 Insulating material, IEC 60092-360 Sheathing materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60754-1.2 Halogen free, IEC 61034-1.2 Low Smoke**

Flame retardant halogen-free instrumentation cable. Mud resistant.

## APPLICATIONS

- Fixed installation for instrumentation, communication, control and alarm system in both EX -and safe areas
- Meets the MUD resistance requirement in NEK TS 606
- For fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC
- Other industrial applications

## CONSTRUCTION

	Code Letter	
Conductors		Tinned annealed circular stranded copper according to IEC 60228 class 2 or class 5
Insulation	R	EP rubber thermosetting compound ,IEC 60092-360 (EPR)
Pair, Triple, Quad twisting		Color coded cores twisted together. Pairs/ Triples are screened by copper backed polyester tape with tinned copper drain wire .Each pair/ triple is wrapped with polyester tape to prevent electrical contact with adjacent pairs/ triples . Pairs/ triples are identified by numbers printed directly on the insulated conductors
Lay up/ Shielding		Individually shielded pairs/triples/quads are laid up in concentric layers and wrapped with polyester tape
Inner covering	F	Flame retardand and halogen free thermosetting compound





# RFOU (i) S101 E-M RFOU EMC E-M (i) EPR/EVA/TCWB/EVA 150/250(300)V

Armour/screen	O	Polyester tape & Tinned annealed copper wire braid
For EMC cable		Cu/PET tape under the braid
Separator		Separator, suitable tape between the braid and outer sheath
Outer sheath	U	Flame retardand, halogen free and mud resistant thermosetting compound SHF2 (IEC 60092-360)
Color of outer sheath *		Grey or Blue
Standard marking		acc.to NEK TS 606:2016 TF KABLE 3 RFOU (i) S101 E-M 250V 2 PAIR 0.75mm <sup>2</sup> IEC 60332-3-22 IEC 60092-376

\* Black outer sheath is available on request

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## FEATURES

Maximum conductor operating temperature:	+90°C
Maximum conductor temperature during short circuit:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	6 D
D – overall diameter of cable	
Flame retardant	IEC 60332-3-22 (Category A)
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1
UV resistant:	ISO 4892-2
Oil resistance:	IEC 60092-360 SHF2, IRM 902 (100°C/24h)
Mud resistance:	NEK 606 (SHF MUD, SHF2)

RFOU (i) S101 E-M  
RFOU EMC E-M (i)  
EPR/EVA/TCWB/EVA  
150/250(300)V

APPROVAL

ABS:

DNV:

Standard length cable packing 1000m on drums. Other forms of packing and delivery are available on request

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 2 × 0.75	2	0.6	1.1	0.2	1.1	10.3	148
2 × 2 × 0.75	2	0.6	1.1	0.2	1.2	14.4	248
4 × 2 × 0.75	2	0.6	1.1	0.3	1.3	15.6	355
8 × 2 × 0.75	2	0.6	1.1	0.3	1.5	19.2	554
12 × 2 × 0.75	2	0.6	1.4	0.3	1.6	22.9	775
16 × 2 × 0.75	2	0.6	1.9	0.3	1.7	26.5	1024
19 × 2 × 0.75	2	0.6	1.9	0.3	1.7	28.1	1153
24 × 2 × 0.75	2	0.6	2.1	0.3	1.9	31.3	1421
1 × 3 × 0.75	2	0.6	1.1	0.2	1.1	10.6	162
2 × 3 × 0.75	2	0.6	1.1	0.3	1.3	15.2	308
4 × 3 × 0.75	2	0.6	1.1	0.3	1.4	17	429
8 × 3 × 0.75	2	0.6	1.1	0.3	1.6	21.7	698
12 × 3 × 0.75	2	0.6	1.4	0.3	1.7	25.5	972
16 × 3 × 0.75	2	0.6	2.1	0.3	1.8	29.8	1310
19 × 3 × 0.75	2	0.6	2.1	0.3	1.8	31.7	1482

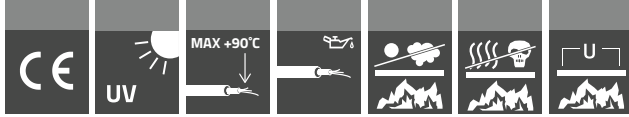
RFOU (i) S101 E-M  
RFOU EMC E-M (i)  
EPR/EVA/TCWB/EVA  
150/250(300)V

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
24 × 3 × 0.75	2	0.6	2.5	0.4	2	36.1	1859
1 × 2 × 1.5	2	0.7	1.1	0.2	1.1	11.6	187
2 × 2 × 1.5	2	0.7	1.1	0.3	1.3	17.6	384
4 × 2 × 1.5	2	0.7	1.1	0.3	1.4	20.0	546
8 × 2 × 1.5	2	0.7	1.1	0.3	1.7	23.1	809
12 × 2 × 1.5	2	0.7	1.4	0.3	1.8	27.8	1156
16 × 2 × 1.5	2	0.7	1.9	0.3	1.9	32.1	1524
19 × 2 × 1.5	2	0.7	1.9	0.3	1.9	34.2	1732
24 × 2 × 1.5	2	0.7	2.3	0.4	2.2	39.1	2287
1 × 3 × 1.5	2	0.7	1.1	0.2	1.1	12.2	216
2 × 3 × 1.5	2	0.7	1.1	0.3	1.4	18	428
4 × 3 × 1.5	2	0.7	1.1	0.3	1.5	20.2	622
8 × 3 × 1.5	2	0.7	1.1	0.3	1.8	26.3	1047
12 × 3 × 1.5	2	0.7	1.4	0.3	1.9	31.1	1488
16 × 3 × 1.5	2	0.7	2.3	0.4	2	37.1	2030
24 × 3 × 1.5	2	0.7	2.5	0.4	2.3	44.1	2983
1 × 2 × 2.5	2	0.7	1.1	0.2	1.1	12.4	222
2 × 2 × 2.5	2	0.7	1.1	0.3	1.4	14.6	368
4 × 2 × 2.5	2	0.7	1.1	0.3	1.5	20.5	637

RFOU (i) S101 E-M  
RFOU EMC E-M (i)  
EPR/EVA/TCWB/EVA  
150/250(300)V

WITHOUT APPROVALS

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × X × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
3 × 2 × 0.75	2	0.6	1.1	0.2	1.2	15.2	295
5 × 2 × 0.75	2	0.6	1.1	0.3	1.3	18.1	444
10 × 2 × 0.75	2	0.6	1.1	0.3	1.5	24.1	734
20 × 2 × 0.75	2	0.6	1.9	0.3	1.7	31.9	1321
7 × 3 × 0.75	2	0.6	1.1	0.3	1.5	23.2	701
1 × 2 × 1	2	0.6	1.1	0.2	1.1	10.6	162
1 × 3 × 1	2	0.6	1.1	0.2	1.1	11.0	181
1 × 4 × 1	2	0.6	1.1	0.2	1.1	11.7	206
5 × 2 × 1.5	2	0.7	1.1	0.3	1.4	21.6	631
4 × 2 × 2.5	2	0.7	1.1	0.3	1.5	21.9	677
8 × 2 × 2.5	2	0.7	1.1	0.3	1.7	29.9	1167
16 × 2 × 2.5	2	0.7	1.1	0.3	1.9	37.2	1969
24 × 2 × 2.5	2	0.7	1.2	0.4	2.2	46.7	2968
4 × 3 × 1	2	0.6	1	0.3	1.4	22.5	635
7 × 3 × 1.5	2	0.7	1.1	0.3	1.6	27.7	1017
1 × 3 × 2.5	2	0.7	1	0.2	1.2	13.0	265
4 × 3 × 2.5	2	0.7	1.1	0.3	1.5	24.0	840
16 × 3 × 2.5	2	0.7	1.2	0.4	2.1	42.2	2705
1 × 4 × 2.5	2	0.7	1	0.2	1.2	13.9	309



# BFOU (i) S103 E-M

## BFOU EMC E-M (i)

### MGT/EPR/EVA/TCWB/EVA

#### 150/250(300) V

#### Applicable standards:

**NEK TS 606:2016, Code S103, IEC 60092-376- Design guidelines, IEC 60228 conductor, IEC 60092-360 Insulating material, IEC 60092-360 Sheathing materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60331 Fire resistant, IEC 60754-1.2 Halogen free, IEC 61034-1.2 Low Smoke**

Fire resistant, flame retardant halogen-free instrumentation cable. Mud resistant.

## APPLICATIONS

- Fixed installation for instrumentation ,communication, control and alarm system in both EX -and safe areas emergency and critical systems where requirements for fire resistance exists
- Meets the MUD resistance requirement in NEK TS 606
- For fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC
- Other industrial applications

## CONSTRUCTION

	Code Letter	
Conductors		Tinned annealed circular stranded copper according IEC 60228 class 2 or class 5
Insulation	B	Mica tape EP- thermosetting compound ,IEC 60092 (EPR)
Pair, Triple, Quad twisting		Color coded cores twisted together. Pairs/ Triples are screened by copper backed polyester tape with tinned copper drain wire .Each pair/ triple is wrapped with polyester tape to prevent electrical contact with adjacent pairs/ triples . Pairs/ triples are identified by numbers printed directly on the insulated conductors
Lay up/ Shielding		Individually shielded pairs/triples/quads are laid up concentric layers and wrapped with polyester tape
Inner covering	F	Flame retardant and halogen free thermosetting compound





# BFOU (i) S103 E-M BFOU EMC E-M (i) MGT/EPR/EVA/TCWB/EVA 150/250(300)V

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Armour/screen	O	Polyester tape & Tinned annealed copper wire braid
For EMC cable		Cu/PET tape under the braid
Separator		Separator, suitable tape between the braid and outer sheath
Outer sheath	U	Flame retardant, halogen free and mud resistant thermosetting compound SHF2 (IEC 60092-360)
Color of outer sheath *		Grey or Blue
Standard marking		acc. to NEK TS 606:2016 TF KABLE 3 BFOU (i) S103 E-M 250V 2 PAIR 0.75mm <sup>2</sup> IEC 60331-21 IEC 60332-3-22 IEC 60092-376

\* Black outer sheath is available on request

## FEATURES

Maximum conductor operating temperature:	+90°C
Maximum conductor temperature during short circuit:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	6 D
D – overall diameter of cable	
Flame retardant:	IEC 60332-3-22 (Category A)
Fire resistant:	IEC 60331
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1
Oil resistance:	IEC 60092-360 SHF2, IRM 902 (100°C/24 h)
Mud resistance:	NEK 606 (SHF MUD, SHF2)

# BFOU (i) S103 E-M BFOU EMC E-M (i) MGT/EPR/EVA/TCWB/EVA 150/250(300)V

## APPROVAL

ABS:

DNV:

Standard length cable packing 1000m on drums. Other forms of packing and delivery are available on request

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 × 2 × 0.75	2	0.6	1.1	0.2	1.1	11.7	171
2 × 2 × 0.75	2	0.6	1.1	0.3	1.3	13.5	258
4 × 2 × 0.75	2	0.6	1.1	0.3	1.4	18.8	438
8 × 2 × 0.75	2	0.6	1.1	0.3	1.6	23.4	680
12 × 2 × 0.75	2	0.6	1.4	0.3	1.7	28	949
16 × 2 × 0.75	2	0.6	1.9	0.3	1.8	32.3	1250
19 × 2 × 0.75	2	0.6	1.9	0.3	1.9	34.6	1422
24 × 2 × 0.75	2	0.6	2.3	0.4	2.1	39.4	1879
1 × 3 × 0.75	2	0.6	1.1	0.2	1.1	12.2	200
2 × 3 × 0.75	2	0.6	1.1	0.3	1.4	18.2	384
4 × 3 × 0.75	2	0.6	1.1	0.3	1.4	20.3	521
8 × 3 × 0.75	2	0.6	1.1	0.3	1.7	26.6	860
12 × 3 × 0.75	2	0.6	1.4	0.3	1.8	31.3	1192
16 × 3 × 0.75	2	0.6	2.1	0.4	1.9	36.9	1603
19 × 3 × 0.75	2	0.6	2.3	0.4	2	39.9	1866
24 × 3 × 0.75	2	0.6	2.5	0.4	2.2	44.4	2395
1 × 2 × 1.5	2	0.7	1.1	0.2	1.1	13	214
2 × 2 × 1.5	2	0.7	1.1	0.3	1.4	20.1	454

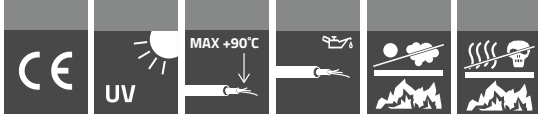
**BFOU (i) S103 E-M**  
**BFOU EMC E-M (i)**  
**MGT/EPR/EVA/TCWB/EVA**  
**150/250(300)V**

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
4 × 2 × 1.5	2	0.7	1.1	0.3	1.5	23.2	648
8 × 2 × 1.5	2	0.7	1.1	0.3	1.7	27.3	947
12 × 2 × 1.5	2	0.7	1.4	0.3	1.9	36.5	1519
16 × 2 × 1.5	2	0.7	2.1	0.4	2	38.7	1810
19 × 2 × 1.5	2	0.7	1.9	0.4	2	40.9	2092
24 × 2 × 1.5	2	0.7	2.3	0.4	2.3	46.2	2657
1 × 3 × 1.5	2	0.7	1.1	0.2	1.1	13.6	259
2 × 3 × 1.5	2	0.7	1.1	0.3	1.5	21	508
4 × 3 × 1.5	2	0.7	1.1	0.3	1.6	23.8	730
8 × 3 × 1.5	2	0.7	1.1	0.3	1.8	31.1	1221
12 × 3 × 1.5	2	0.7	1.6	0.4	2	37.7	1765
16 × 3 × 1.5	2	0.7	2.3	0.4	2.2	43.9	2481
24 × 3 × 1.5	2	0.7	2.7	0.4	2.5	52.8	3527
1 × 2 × 2.5	2	0.7	1.1	0.2	1.2	14.1	258
2 × 2 × 2.5	2	0.7	1.1	0.3	1.5	16.5	423
4 × 2 × 2.5	2	0.7	1.1	0.3	1.6	23.7	733
8 × 2 × 2.5	2	0.7	1.1	0.3	1.8	29.8	1200
16 × 2 × 2.5	2	0.7	2.3	0.4	2.2	42.9	2466
8 × 3 × 2.5	2	0.7	1.3	0.3	2	34.7	1621
16 × 3 × 2.5	2	0.7	2.6	0.4	2.2	48.4	3224

**BFOU (i) S103 E-M**  
**BFOU EMC E-M (i)**  
**MGT/EPR/EVA/TCWB/EVA**  
**150/250(300)V**

**WITHOUT APPROVALS**

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N x 2 x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
6 x 2 x 0.75	2	0.6	1.1	0.3	1.5	23.6	646
1 x 2 x 1	2	0.6	1.0	0.2	1.1	11.9	187
5 x 2 x 1.5	2	0.7	1.1	0.3	1.5	25.1	754
6 x 2 x 1.5	2	0.7	1.1	0.3	1.6	27.4	873
10 x 2 x 1.5	2	0.7	1.1	0.3	1.8	34.6	1299
1 x 2 x 2.5	2	0.7	1.1	0.2	1.1	13.1	222
5 x 2 x 2.5	2	0.7	1.1	0.3	1.6	27.4	953
12 x 2 x 2.5	2	0.7	1.1	0.3	1.9	39.1	1838
20 x 2 x 2.5	2	0.7	1.2	0.4	2.2	49.1	2855
<b>N x 3 x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
6 x 3 x 0.75	2	0.6	1.1	0.3	1.5	25.9	783
6 x 3 x 1.5	2	0.7	1.1	0.3	1.7	30.4	1092
7 x 3 x 1.5	2	0.7	1.1	0.3	1.7	32.7	1234
1 x 3 x 2.5	2	0.7	1.1	0.2	1.2	14.8	312
2 x 3 x 2.5	2	0.7	1.1	0.3	1.5	23.9	653
4 x 3 x 2.5	2	0.7	1.1	0.3	1.6	27.7	985
12 x 3 x 2.5	2	0.7	1.3	0.4	2.1	44.6	2532
<b>N x 4x mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
1 x 4 x 0.75	2	0.6	1.1	0.2	1.2	13.2	234



# RFOU (c) S102 E-M

# RFOU EMC E-M (c)

# EPR/EVA/TCWB/EVA

150/250(300)V

## Applicable standards:

**NEK TS 606:2016, Code S102, IEC 60092-376- Design guidelines, IEC 60228 conductor, IEC 60092-360 Insulating material, IEC 60092-360 Sheathing materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60754-1.2 Halogen free, IEC 61034-1.2 Low Smoke**

Flame retardant halogen-free instrumentation cable. Mud resistant.

## APPLICATIONS

- Fixed installation for instrumentation ,communication, control and alarm system in both EX -and safe areas
- Meets the MUD resistance requirement in NEK TS 606
- For fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC
- Other industrial applications

## CONSTRUCTION

	Code Letter	
Conductors		Tinned annealed circular stranded copper according to IEC 60228 class 2 or class 5
Insulation	R	EP rubber thermosetting compound ,IEC 60092-360 (EPR)
Pair, Triple, Quad twisting		Color coded cores twisted together and wrapped with polyester tape. Pairs/ Triples are laid up collectively and screened by copper backed polyester tape with tinned copper drain wire . Pairs/ triples are identified by numbers printed directly on the insulated conductors
Inner covering	F	Flame retardant and halogen free thermosetting compound
Armour/screen	O	Polyester tape & Tinned annealed copper wire braid
For EMC cable		Cu/PET tape under the braid





# RFOU (c) S102 E-M RFOU EMC E-M (c) EPR/EVA/TCWB/EVA 150/250(300)V

Separator		Separator, suitable tape between the braid and outer sheath
Outer sheath	U	Flame retardant, halogen free and mud resistant thermosetting compound SHF2 (IEC 60092-360)
Color of outer sheath		Grey or Blue
Standard marking		acc.to NEK TS 606:2016 E.g. TF KABLE 3 RFOU (c) S102 E-M 250V 2 PAIR 0.75mm <sup>2</sup> IEC 60332-3-22 IEC 60092-376

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## FEATURES

Maximum conductor operating temperature:	+90°C
Maximum conductor temperature during short circuit:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	6 D
D – overall diameter of cable	
Flame retardant	IEC 60332-3-22 (Category A)
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1
Oil resistance:	IEC 60092-360 SHF2, IRM 902 (100°C/24h)
Mud resistance:	NEK 606 (SHF MUD, SHF2)

## APPROVAL

ABS:

DNV:

# RFOU (c) S102 E-M RFOU EMC E-M (c) EPR/EVA/TCWB/EVA 150/250(300)V

Standard length cable packing

1000m on drums. Other forms of packing and delivery are available on request

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
2 × 2 × 0.75	2	0.6	1.1	0.2	1.2	11.4	187
4 × 2 × 0.75	2	0.6	1.1	0.3	1.3	15.9	337
8 × 2 × 0.75	2	0.6	1.1	0.3	1.5	21.7	496
12 × 2 × 0.75	2	0.6	1.4	0.3	1.5	24.4	685
16 × 2 × 0.75	2	0.6	1.9	0.3	1.6	26.5	899
19 × 2 × 0.75	2	0.6	1.9	0.3	1.7	28.3	1017
24 × 2 × 0.75	2	0.6	2.1	0.3	1.8	31.3	1231
2 × 3 × 0.75	2	0.6	1.1	0.3	1.3	15.4	306
4 × 3 × 0.75	2	0.6	1.1	0.3	1.3	17	403
8 × 3 × 0.75	2	0.6	1.1	0.3	1.6	21.8	639
12 × 3 × 0.75	2	0.6	1.4	0.3	1.6	25.5	879
16 × 3 × 0.75	2	0.6	2.1	0.3	1.7	29.9	1183
24 × 3 × 0.75	2	0.6	2.5	0.4	2	36.3	1680
2 × 2 × 1.5	2	0.7	1.1	0.3	1.3	13.6	288
4 × 2 × 1.5	2	0.7	1.1	0.3	1.4	18.8	475
8 × 2 × 1.5	2	0.7	1.1	0.3	1.6	23.3	740
10 × 2 × 1.5	2	0.7	1.2	0.3	1.7	26.4	900
12 × 2 × 1.5	2	0.7	1.4	0.3	1.7	27.9	1031
16 × 2 × 1.5	2	0.7	1.9	0.3	1.8	32.2	1353
19 × 2 × 1.5	2	0.7	1.9	0.3	1.9	34.4	1543
24 × 2 × 1.5	2	0.7	2.3	0.3	2.1	39.1	1932
2 × 3 × 1.5	2	0.7	1.1	0.3	1.4	18.2	420

# RFOU (c) S102 E-M RFOU EMC E-M (c) EPR/EVA/TCWB/EVA 150/250(300)V

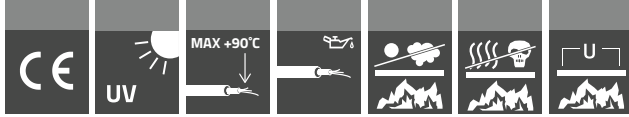
Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
4 × 3 × 1.5	2	0.7	1.1	0.3	1.4	20.3	585
8 × 3 × 1.5	2	0.7	1.1	0.3	1.7	26.5	975
12 × 3 × 1.5	2	0.7	1.4	0.3	1.8	31.1	1357
16 × 3 × 1.5	2	0.7	2.1	0.4	1.9	36.7	1810
24 × 3 × 1.5	2	0.7	2.5	0.4	2.2	44.1	2593
2 × 2 × 2.5	2	0.7	1.1	0.3	1.4	14.8	358
4 × 2 × 2.5	2	0.7	1.1	0.3	1.4	20.6	594
8 × 2 × 2.5	2	0.7	2.1	0.3	1.8	28.1	1110
12 × 2 × 2.5	2	0.7	2.1	0.3	1.8	32.4	1460

## WITHOUT APPROVALS

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
6 × 2 × 0.75	2	0.6	1.1	0.3	1.4	19.0	451
10 × 2 × 0.75	2	0.6	1.1	0.3	1.5	23.3	629
14 × 2 × 0.75	2	0.6	1.4	0.3	1.6	25.8	797
1 × 2 × 1	2	0.6	1.0	0.2	1.1	11.8	199
2 × 2 × 1	2	0.6	1.0	0.2	1.2	14.5	250
4 × 2 × 1	2	0.6	1.0	0.3	1.4	20.1	484
6 × 2 × 1	2	0.6	1.0	0.3	1.4	19.6	490
10 × 2 × 1	2	0.6	1.0	0.3	1.5	24.2	702

RFOU (c) S102 E-M  
RFOU EMC E-M (c)  
EPR/EVA/TCWB/EVA  
150/250(300)V

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
12 × 2 × 1	2	0.6	1.0	0.3	1.6	25.1	775
3 × 2 × 1.5	2	0.7	1.0	0.3	1.3	17.6	408
5 × 2 × 1.5	2	0.7	1.0	0.3	1.4	20.7	552
6 × 3 × 1.5	2	0.7	1.0	0.3	1.6	24.8	803
20 × 2 × 1.5	2	0.7	1.0	0.3	1.9	35.4	1479
6 × 2 × 2.5	2	0.7	1.1	0.3	1.6	25.2	821
16 × 2 × 2.5	2	0.7	1.0	0.3	1.9	35.8	1648
24 × 2 × 2.5	2	0.7	1.2	0.4	2.2	45.1	2496
4 × 3 × 2.5	2	0.7	1.0	0.3	1.5	23.2	761
16 × 3 × 2.5	2	0.7	1.2	0.4	2.1	40.9	2373



# BFOU (c) S104 E-M

## BFOU EMC E-M (c)

### MGT/EPR/EVA/TCWB/EVA

#### 150/250(300)V

#### Applicable standards:

**NEK TS 606:2016, Code S104, IEC 60092-376- Design guidelines, IEC 60228 conductor, IEC 60092-360 Insulating material, IEC 60092-360 Sheathing materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60331 Fire resistant, IEC 60754-1.2 Halogen free, IEC 61034-1.2 Low Smoke**

Fire resistant, flame retardant halogen-free instrumentation cable. Mud resistant.

## APPLICATIONS

- Fixed installation for instrumentation ,communication, control and alarm system in both EX -and safe areas emergency and critical systems where requirements for fire resistance exists
- Meets the MUD resistance requirement in NEK TS 606
- For fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC
- Other industrial applications

## CONSTRUCTION

	Code Letter	
Conductors		Tinned annealed circular stranded copper according to IEC 60228 class 2 or class 5
Insulation	B	Mica tape EP rubber thermosetting compound .IEC 60092-360 (EPR)
Pair. Triple. Quad twisting		Color coded cores twisted together and wrapped with polyester tape. Pairs/ Triples are laid up collectively and screened by copper backed polyester tape with tinned copper drain wire .Pairs/ triples are identified by numbers printed directly on the insulated conductors
Inner covering	F	Flame retardant and halogen free thermosetting compound
Armour/screen	O	Polyester tape & Tinned annealed copper wire braid
For EMC cable		Cu/PET tape under the braid





# BFOU (c) S104 E-M BFOU EMC E-M (c) MGT/EPR/EVA/TCWB/EVA 150/250(300)V

Separator		Separator. suitable tape between the braid and outer sheath
Outer sheath	U	Flame retardant. halogen free and mud resistant thermosetting compound SHF2 (IEC 60092-360)
Color of outer sheath		Grey or Blue
Standard marking		acc. to NEK TS 606:2016 E.g. TF KABLE 3 BFOU (c) S104 E-M 250V 2 PAIR 0.75mm <sup>2</sup> IEC 60331-21 IEC 60332-3-22 IEC 60092-376

## FEATURES

Maximum conductor operating temperature:	+90°C
Maximum conductor temperature during short circuit:	+250°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	6 D
D – overall diameter of cable	
Flame retardant:	IEC 60332-3-22 (Category A)
Fire resistant:	IEC 60331
Smoke emission:	IEC 61034-2
Corrosive gas emission:	IEC 60754-1
Oil resistance:	IEC 60092-360 SHF2, IRM 902 (100°C/24h)
Mud resistance:	NEK 606 (SHF MUD, SHF2)

## APPROVAL

ABS:	
DNV:	

# BFOU (c) S104 E-M BFOU EMC E-M (c) MGT/EPR/EVA/TCWB/EVA 150/250(300)V

Standard length cable packing

1000m on drums. Other forms of packing and delivery are available on request

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
2 × 2 × 0.75	2	0.6	1.1	0.3	1.3	13.7	258
4 × 2 × 0.75	2	0.6	1.1	0.3	1.4	19	416
8 × 2 × 0.75	2	0.6	1.1	0.3	1.5	23.4	612
12 × 2 × 0.75	2	0.6	1.4	0.3	1.6	28	842
16 × 2 × 0.75	2	0.6	1.9	0.3	1.7	32.3	1104
19 × 2 × 0.75	2	0.6	1.9	0.3	1.8	34.6	1247
24 × 2 × 0.75	2	0.6	2.3	0.4	2	39.4	1561
2 × 3 × 0.75	2	0.6	1.1	0.3	1.3	18.2	372
4 × 3 × 0.75	2	0.6	1.1	0.3	1.4	20.5	497
8 × 3 × 0.75	2	0.6	1.1	0.3	1.6	22.7	703
12 × 3 × 0.75	2	0.6	1.4	0.3	1.8	31.5	1091
16 × 3 × 0.75	2	0.6	2.1	0.4	1.9	37.1	1463
24 × 3 × 0.75	2	0.6	2.5	0.4	2.1	44.4	2157
2 × 2 × 1.5	2	0.7	1.1	0.3	1.4	19.7	435
4 × 2 × 1.5	2	0.7	1.1	0.3	1.4	21.8	551
8 × 2 × 1.5	2	0.7	1.1	0.3	1.7	27.5	868
12 × 2 × 1.5	2	0.7	1.4	0.3	1.8	32.9	1207
16 × 2 × 1.5	2	0.7	1.9	0.4	1.9	38.4	1580
24 × 2 × 1.5	2	0.7	2.3	0.4	2.3	46.4	2379
2 × 3 × 1.5	2	0.7	1.1	0.3	1.4	21	492
4 × 3 × 1.5	2	0.7	1.1	0.3	1.5	24.9	742
8 × 3 × 1.5	2	0.7	1.1	0.3	1.8	34.4	1139

# BFOU (c) S104 E-M BFOU EMC E-M (c) MGT/EPR/EVA/TCWB/EVA 150/250(300)V

Size	Class of conductor	Insulation Thickness	Thickness of inner sheath	Diameter of braid wire	Thickness of outer sheath	Approximate overall diameter	Approximate net weight of cable
<b>N × 2 × mm<sup>2</sup></b>		<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
12 × 3 × 1.5	2	0.7	1.4	0.4	1.9	39.6	1578
16 × 3 × 1.5	2	0.7	2.3	0.4	2.1	44	2274
24 × 3 × 1.5	2	0.7	2.7	0.4	2.4	52.8	3210
2 × 2 × 2.5	2	0.7	1.1	0.3	1.4	16.6	402
4 × 2 × 2.5	2	0.7	1.1	0.3	1.5	23.7	683
8 × 2 × 2.5	2	0.7	1.1	0.3	1.8	30.1	1103
16 × 2 × 2.5	2	0.7	2.3	0.4	2.1	42.9	2228
4 × 3 × 2.5	2	0.7	1.1	0.3	1.6	26	929
8 × 3 × 2.5	2	0.7	1.1	0.3	1.9	34.4	1472
16 × 3 × 2.5	2	0.7	2.6	0.4	2.3	48.9	3023

## WITHOUT APPROVALS

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness Outer covering	Approx. Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
6 × 2 × 0.75	0.6	1.0	0.3	1.5	22.7	575
7 × 2 × 0.75	0.6	1.0	0.3	1.5	24.5	637
10 × 2 × 0.75	0.6	1.0	0.3	1.6	28.4	817
14 × 2 × 0.75	0.6	1.0	0.3	1.7	30.8	987
20 × 2 × 0.75	0.6	1.0	0.3	1.8	35.7	1275
4 × 2 × 1	0.6	0.6	0.3	1.4	20.2	484
5 × 2 × 1	0.6	1.0	0.3	1.4	21.8	545
6 × 2 × 1	0.6	1.0	0.3	1.5	23.7	625

**BFOU (c) S104 E-M**  
**BFOU EMC E-M (c)**  
**MGT/EPR/EVA/TCWB/EVA**  
**150/250(300)V**

Size	Insulation thickness	Thickness Inner covering	Diameter of braid wire	Thickness Outer covering	Approx.Outer Diameter	Approx. weight of cable
<b>N × mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>mm</b>	<b>kg/km</b>
8 × 2 × 1	0.6	1.0	0.3	1.6	27.4	777
12 × 2 × 1	0.6	1.0	0.3	1.7	30.7	992
20 × 2 × 1	0.6	1.0	0.3	1.9	37.6	1439
3 × 3 × 1	0.6	1.0	0.3	1.4	20.4	505
5 × 3 × 1	0.6	1.0	0.3	1.5	24.1	684
19 × 3 × 1	0.6	1.2	0.3	2.0	42.3	1836
5 × 2 × 1.5	0.7	1.0	0.3	1.5	24.4	679
6 × 2 × 1.5	0.7	1.0	0.3	1.6	26.5	773
10 × 2 × 1.5	0.7	1.1	0.3	1.8	33.7	1151
19 × 2 × 1.5	0.7	1.2	0.3	2.0	42.8	1837
20 × 2 × 1.5	0.7	1.2	0.4	2.1	43.4	2016
6 × 3 × 1.5	0.7	1.1	0.3	1.7	29.6	1001
7 × 3 × 1.5	0.7	1.1	0.3	1.7	31.9	1129
12 × 2 × 2.5	0.7	1.4	0.3	1.9	38.7	1667





# Technical section

To be read in conjunction  
with the relevant cable datasheet



## Installation recommendations

(in accordance with BS 6883:1999 appendix B)

### Installation Temperature

Minimum recommended installation temperature for cables according to BS6883 is -15°C

### Minimum bending radius (MBR)

The cables specified in BS6883 should not be bent to an internal radius smaller than that given in the table A1 below. Wherever possible larger installation radii should be used.

Type of cable	Overall diameter	Minimum bending radius
Screened multi-pair, triple or quad	Any	8 D
Multi-core unarmoured (unbraided) 600/1000 V	≤10mm	3 D
	>10mm to ≤25mm	4 D
	>25mm	6 D
Multi-core armoured (braided) 600/1000 V	≤25mm	4 D
	>25mm	6 D

D – is the overall diameter of the cable

## Current Ratings

(in accordance with IEC 60092-352 based on ambient air temperature of 45°C)

Nominal cross-sectional area mm <sup>2</sup>	Insulation class temperature 90°C		
	Single core Ampere	2 core Ampere	3 & 4 core Ampere
1	18	15	13
1.5	23	20	16
2.5	30	26	21
4	40	34	28
6	52	44	36
10	72	61	50
16	96	82	67
25	127	108	89
35	157	133	110
50	196	167	137
70	242	206	169
95	293	249	205
120	339	288	237
150	389	331	272
185	444	377	311
240	522	444	365
300	601	511	421
400	719	611	503
500	827	703	579
630	955	812	669



## Current ratings for 5 cores and over

Number of cores	Insulation class temperature 90°C		
	1 mm <sup>2</sup> Ampere	1.5 mm <sup>2</sup> Ampere	2.5 mm <sup>2</sup> Ampere
5	10.5	12	16
7	9	10	15
10	8	9	13
12	8	9	12
16	7	8	11
19	7	7	10
20	7	7	10
24	6	6.5	9.5
27	6	6.5	9
30	6	6	9
37	5	6	8

The ambient temperature of 45°C, on which the above current ratings are based, is considered as a standard value for the ambient air temperature, generally applicable for any kind of ship or offshore platform in any climate.

## Correction factors for different ambient air temperatures

Maximum conductor temperature	90°C									
	Ambient temperature, °C	35	40	45	50	55	60	65	70	75
Correction factor	1.10	1.05	1.0	0.94	0.88	0.82	0.74	0.67	0.58	0.47

Where more than six bunched cables on cable trays, in cable conduits. Pipes or trunking are expected to operate simultaneously full rated capacity, a correction factor of 0.85 should be applied.

## Short circuit rating

Short circuit rating calculation based on formula:

$$\text{Short circuit} = 226 \times \frac{S}{\sqrt{t}} \times \sqrt{\ln \frac{234 + T_k}{234 + T_b}}$$

S = Cross-section of conductor, mm<sup>2</sup>

t = Duration of the short circuit, s

T<sub>k</sub> = Maximum rated conductor temperature, short circuit, °C

T<sub>b</sub> = Maximum rated conductor temperature, normal, °C

Size	Maximum short circuit current rating for 1 second	Maximum short circuit current rating for 3 seconds	Maximum short circuit current rating for 5 seconds
mm <sup>2</sup>	kA	kA	kA
1	0.14	0.08	0.06
1.5	0.21	0.12	0.10
2.5	0.35	0.21	0.16
4	0.57	0.33	0.26
6	0.85	0.50	0.38
10	1.43	0.82	0.64

Size	Maximum short circuit current rating for 1 second	Maximum short circuit current rating for 3 seconds	Maximum short circuit current rating for 5 seconds
16	2.29	1.32	1.02
25	3.57	2.06	1.60
35	5.01	2.89	2.20
50	7.15	4.13	3.20
70	10.0	5.78	4.48
95	13.6	7.85	6.08
120	17.1	9.91	7.68
150	21.4	12.3	9.60
185	26.4	15.3	11.8
240	34.3	19.8	15.3
300	42.9	24.8	19.2
400	56.0	–	–
500	70.0	–	–
630	88.2	–	–

### Conductor resistance for Power cables

(in accordance with IEC60228)

Cross-section of conductor	Conductor class 2		Conductor class 5	
	Tinned copper		Tinned copper	
	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C
mm <sup>2</sup>	Ω/km	Ω/km	Ω/km	Ω/km
1	18.2	23.2	20.0	25.5
1.5	12.2	15.6	13.7	17.5
2.5	7.56	9.64	8.21	10.47
4	4.7	5.99	5.09	6.49
6	3.11	3.97	3.39	4.32
10	1.84	2.35	1.95	2.49
16	1.16	1.48	1.24	1.58
25	0.734	0.936	0.795	1.014
35	0.529	0.675	0.565	0.720
50	0.391	0.499	0.393	0.501
70	0.27	0.344	0.277	0.353
95	0.195	0.249	0.210	0.268
120	0.154	0.196	0.164	0.209
150	0.126	0.161	0.132	0.168
185	0.1	0.128	0.108	0.138
240	0.0762	0.0972	0.0817	0.1042
300	0.607	0.0774	0.0654	0.0834

## Conductor resistance for Instrumentation cables

(in accordance with IEC60228)

Cross-section of conductor	Conductor class 5	
	Tinned copper	
	Maximum resistance at 20°C	Maximum resistance at 90°C
mm <sup>2</sup>	Ω/km	Ω/km
0.75	26.7	34.18
1	20.0	25.60
1.5	13.7	17.54

## UKOOA cable coding

1st Character					
	Type	Voltage		Type	Voltage
F	Fire resistant, reduced halogen	150/250 V	M	Flame retardant, reduced halogen	3.8/6.6 KV
G	Fire resistant, low smoke & fume	150/250 V	N	Flame retardant, reduced halogen	1.9/3.3 KV
H	Flame retardant, reduced halogen	8.7/15 KV	P	Flame retardant, reduced halogen	6.35/11 KV
J	Flame retardant, reduced halogen	150/250 V	W	Flame retardant, low smoke & fume	600/1000 V
K	Flame retardant, low smoke & fume	150/250 V	X	Fire resistant, reduced halogen	600/1000 V
L	Flame retardant, reduced halogen	600/1000 V	Y	Fire resistant, low smoke & fume	600/1000 V

2nd Character				
	Basic Construction	Sheath Colour	Armour	Screen
A	Flame retardant	Black (600/1000 V) , Red (HV)	Bronze braid (TPBWB)	–
B	Flame retardant	Black (600/1000 V) , Red (HV)	GSWB	–
C	Fire resistant	Black (600/1000 V)	Bronze braid (TPBWB)	–
D	Fire resistant	Black (600/1000 V)	GSWB	–
E	Flame retardant	Green/Yellow	None	–
F	Flame retardant	Black	None	–
G	Flame retardant	Light Blue	GSWB	Collective
H	Flame retardant	Light Blue	GSWB	Individual
J	Flame retardant	Grey	GSWB	Collective
K	Flame retardant	Grey	GSWB	Individual
L	Fire resistant	Light Blue	GSWB	Collective
M	Fire resistant	Light Blue	GSWB	Individual
N	Fire resistant	Grey	GSWB	Collective
P	Fire resistant	Grey	GSWB	Individual
Y	Flame retardant	Orange	GSWB	Co-axial

### 3rd Character

1	Single core	B	19 core	K	12 pair	T	7 triple
2	2 core	C	27 core	L	20 pair	U	12 triple
3	3 core	D	37 core	M	27 pair	X	1 quad
4	4 core	F	1 pair	N	37 pair	Y	3 quad
7	7 core	H	3 pair	R	1 triple	Z	7 quad
A	12 core	J	7 pair	S	3 triple		

### 4th & 5th Character

	Conductor Size	Type of stranding		Conductor Size	Type of stranding
00	0.75 mm <sup>2</sup>	Flexible tinned copper (Class5)	70	70 mm <sup>2</sup>	Tinned copper (Class2)
01	1.0 mm <sup>2</sup>	Flexible tinned copper (Class5)	95	95 mm <sup>2</sup>	Tinned copper (Class2)
02	1.5 mm <sup>2</sup>	Flexible tinned copper (Class5)	0A	120 mm <sup>2</sup>	Tinned copper (Class2)
03	2.5 mm <sup>2</sup>	Tinned copper (Class2)	0B	150 mm <sup>2</sup>	Tinned copper (Class2)
04	4 mm <sup>2</sup>	Tinned copper (Class2)	0C	185 mm <sup>2</sup>	Tinned copper (Class2)
06	6 mm <sup>2</sup>	Tinned copper (Class2)	0D	240 mm <sup>2</sup>	Tinned copper (Class2)
10	10 mm <sup>2</sup>	Tinned copper (Class2)	0E	300 mm <sup>2</sup>	Tinned copper (Class2)
16	16 mm <sup>2</sup>	Tinned copper (Class2)	0F	400 mm <sup>2</sup>	Tinned copper (Class2)
25	25 mm <sup>2</sup>	Tinned copper (Class2)	0G	500 mm <sup>2</sup>	Tinned copper (Class2)
35	35 mm <sup>2</sup>	Tinned copper (Class2)	0H	630 mm <sup>2</sup>	Tinned copper (Class2)
50	50 mm <sup>2</sup>	Tinned copper (Class2)			

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Edition II

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