



A NEW BEGINNING IN OIL & GAS

Offshore Cable Range

TF
Kable



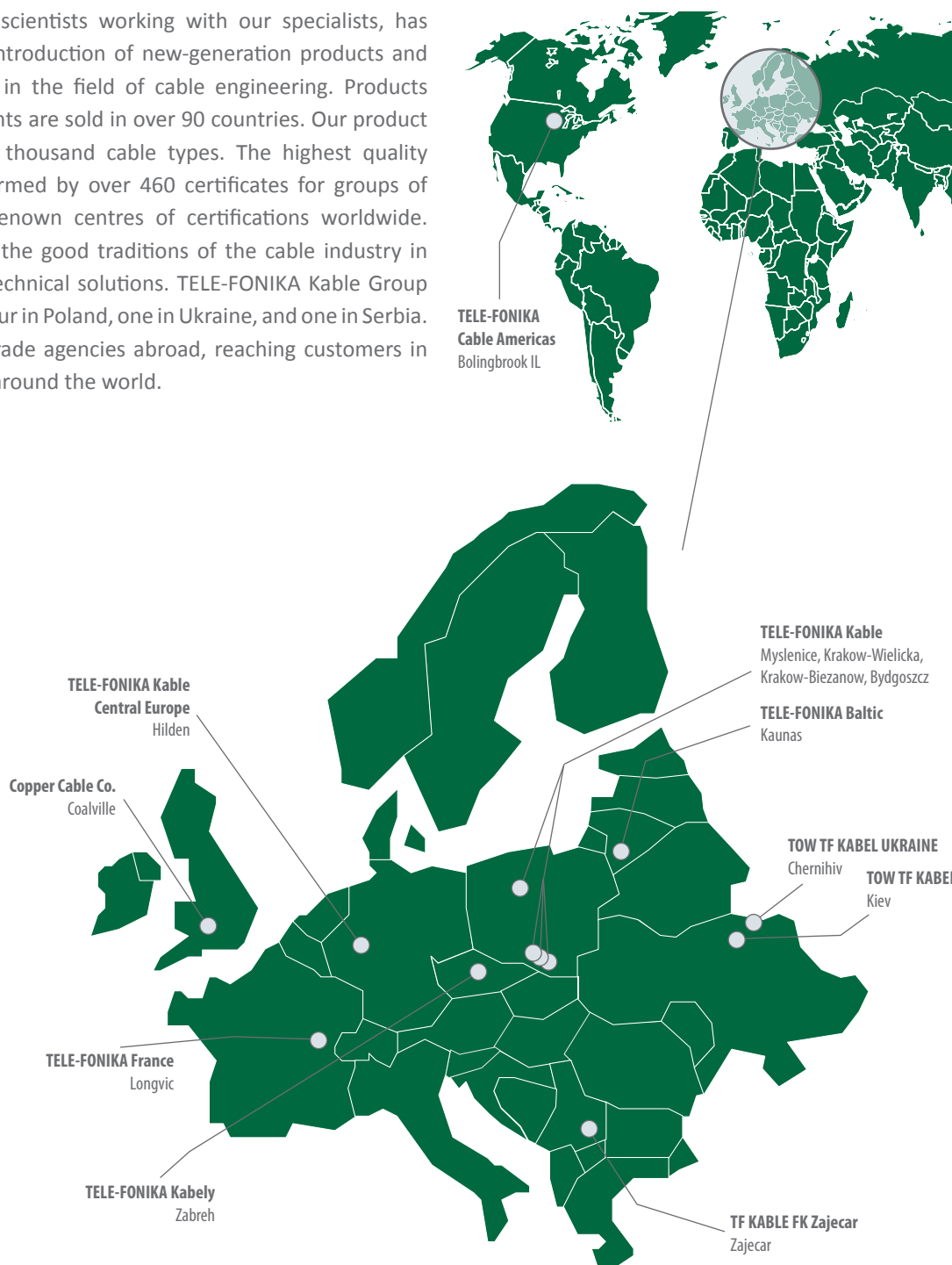
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TELE-FONIKA Kable S.A.

The Group TELE-FONIKA Kable (TF Kable) is ranked in the forefront of the global cable industry. The Group is the third manufacturer of cables and wires in Europe with significant development potential, based entirely on Polish capital.

TELE-FONIKA Kable Group's considerable investment in research and development centers and multi-skilled work teams, which have included eminent scientists working with our specialists, has been rewarded by the introduction of new-generation products and comprehensive services in the field of cable engineering. Products manufactured in our plants are sold in over 90 countries. Our product assortment includes 25 thousand cable types. The highest quality of our products is confirmed by over 460 certificates for groups of wares licensed by 34 renown centres of certifications worldwide. The company combines the good traditions of the cable industry in Poland and innovative technical solutions. TELE-FONIKA Kable Group consists of six plants — four in Poland, one in Ukraine, and one in Serbia. We own over a dozen trade agencies abroad, reaching customers in several dozen countries around the world.



PRODUCTION POTENTIAL

Our chief asset is extensive technological know-how in the field of production of wide variety of cables and wires supported by our experienced personnel. Our products match to a great extent the general trends concerning ecology and maintenance safety of wares. Extremely strict legislation in these areas has become the indicator of the technological progress of the manufactured cables.

Krakow-Wielicka Plant

Krakow-Wielicka Plant was established in 1928. In 1992, it received the ISO 9002 certificate (now ISO 9001) and in 1998 the ISO 14001 given by the British certification body: BASEC. The plant specializes in the production of rubber insulated cables and wires for mining and industrial applications. All types of rubber mixes used for EPR, CR, EVA and CSP cables are based on an original prescription designed together with research and development centres. The production offer of the plant are also medium voltage cables made in XLPE technology, as well as signal and control wires for special purposes.

Krakow-Biezanow Plant

Krakow-Biezanow Plant was established in 2001. In 2002, it received the ISO 9001 certificate and 14001 given by the British certification body: BASEC. The plant specializes in the production of overhead conductors from alloyed aluminium, conductors for railway traction network from copper and its alloys and installation wires for general usage.

Bydgoszcz Plant

Bydgoszcz Plant started production of cables and wires back in 1923. In 1992, it received the ISO 9002 certificate (now ISO 9001) and in 1998 the ISO 14001 given by the British certification body: BASEC. Bydgoszcz Plant specializes in power supply cables of medium and high voltage up to 500 kV. It is equipped with six modern chain lines for crosslinking polyethylene in XLPE technology. Complementary technological lines for producing the abovementioned cables ranging from thick wire drawing machines, cable stranding machines and screening machines to covering lines and two large-size high voltage laboratories called "Faraday cage" place the plant in the top of the list of the largest production centres of medium and high voltage cables in Europe.

Myslenice Plant

Myslenice Plant was established in April 1992 under the name Zakłady Kablowe TELE-FONIKA s.c. In 1995, it received the ISO 9001 certificate and in 1999 the ISO 14001 certificate. The certification body is BASEC. In September 2007 the plant received the ISO/TS 16949 certificate for automotive cables given by the certification body: SGS. Myślenice Plant specializes in the production of copper and fibre optic telecommunication cables, computer cables and automotive wires.

TOW TF Kabel (Ukraine)

The plant was established in 2002. In 2007, the plant was joined into the TELE-FONIKA Kable Group. This Plant is certified according to ISO 9001 and 14001. It specializes in the production of overhead conductors and cables for voltage up to 1 kV, including halogen-free, fire resistant and flame retardant cables versions.

TF Kable Fabrika Kablova Zajecar A.D. (Serbia)

The plant was established in 1974. In 2007, the plant was joined into the TELE-FONIKA Kable Group. This plant is certified according to ISO 9001 and 14001 by DAS Certification Ltd. It specializes in the production of low and medium voltage cables, as well as halogen-free, fire resistant and flame retardant cables, telecommunication cables and PVC and polyethylene-coated conductors.

Innovative and safe solutions

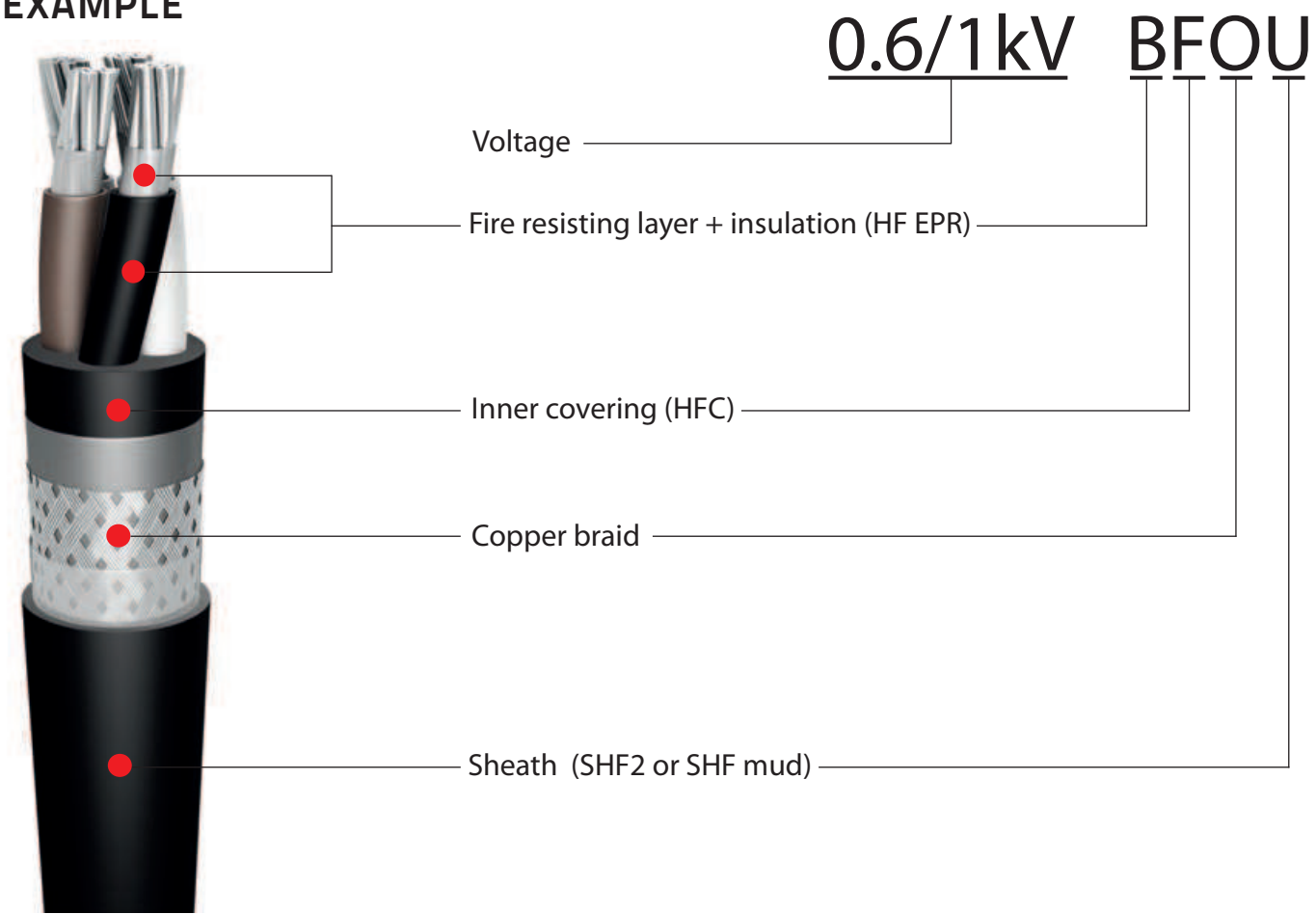




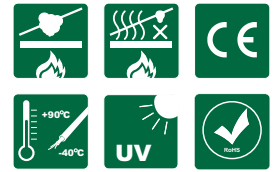
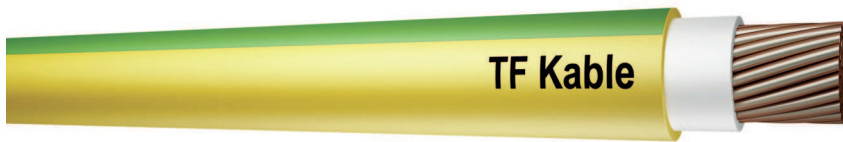
CABLE CODE DESIGNATION

Materials	Insulation	Bedding/inner covering inner sheath	Armour/screen	Outer sheath
Fire resistance tape+insulation (Halogen-free)	B			
Ethylene propylene rubber - EPR	R			
Cross-linked polyethylene XLPE	T			
Thermoplastic compound (Halogen-free)	I			
Halogen-free thermoset compound EMA or EVA	U			
Fibre, tight buffered	A			
Fibre in loose tube	Q			
Bedding/Inner covering or taping (Halogen-free)		F		
Screen (poss. with PE or PP)		Y		
Aluminium (laminated to outer jacket)			L	
No armour			X	
Copper wire braid (Tinned or bare)			O	
Strength member of yarn			A	
Galvanized steel wire braid			C	
Thermoplastic compound (Halogen-free) SHF1		I		I
Halogen-free thermoset compound, SHF2				U
Halogen-free mud resistant thermoset compound, SHF Mud				U
Additional abbreviation for instrumentation cables: Collective screen (c), Individual pair or triple screen (i)				

EXAMPLE



6571 Earth SW4 0.6/1kV EPR/ZH BS 6883



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

Standards: BS6883:1999 Design Guidelines, BS EN 60228 conductors, BS7655-1.2 Insulating material, BS7655-2.6 Sheathing materials, IEC60332-1-2 Flame propagation, IEC 60332-3-22 Flame retardant, IEC60754-1 Smoke emission properties

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

CHARACTERISTICS

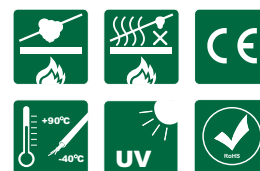
Maximum conductor operating temperature: +90°C	
Lowest ambient temperature for fixed installation: -40°C	
Lowest installation temperature: -15°C	
Flame retardant: BS EN 50266-2-2 Category A/F, IEC 60332-3-22	
Smoke emission: BS EN 61034-2, IEC 61034-2	
Corrosive gas emission: BS EN 50267-2-1, IEC 60754-1: type SW4 cables ≤ 0.5% acid gas	
Application	Unarmoured Earth cable for fixed installations in all areas including accommodation and open deck in ships and offshore units
Cable marking	ELECTRIC CABLE Type SW4 "number of cores" "x" "conductor size" "600/1000V" "TFK3" "BS6883" "UK00A code" "IEC60332-3-22 cat. A" "year" "metre mark"
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	LRS Certificate 08/20071

MINIMUM BENDING RADIUS:

Overall diameter of cable (D)	Minimum bending radius
≤10mm	3 D
16-25 mm	4 D
> 25 mm	6 D
* D - overall diameter of cable	

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	UK00A Code	TFK Part Number
n x mm ²		mm	mm	mm	kg/km		
1x1	2	0.8	1.0	4.8	34	WE101	G-023623
1x1.5	2	0.8	1.0	5.1	40	WE102	G-023624
1x2.5	2	0.8	1.0	5.6	54	WE103	G-023625
1x4	2	1.0	1.0	6.5	78	WE204	G-010992
1x6	2	1.0	1.0	7.1	101	WE106	G-010994
1x10	2	1.0	1.0	8.1	144	WE110	G-020870
1x16	2	1.0	1.1	9.5	216	WE116	G-010996
1x25	2	1.2	1.2	11.4	328	WE125	G-022642
1x35	2	1.2	1.2	12.6	429	WE135	G-022112
1x50	2	1.4	1.3	14.3	551	WE150	G-010999
1x70	2	1.4	1.3	16.0	753	WE170	G-010987
1x95	2	1.6	1.4	18.6	1049	WE195	G-010988
1x120	2	1.6	1.5	20.3	1274	WE10A	G-020893
1x150	2	1.8	1.6	22.4	1568	WE10B	G-021292
1x185	2	2.0	1.7	24.9	1949	WE10C	G-010989
1x240	2	2.2	1.8	28.0	2530	WE10D	G-023628
1x300	2	2.4	1.9	30.9	3134	WE10E	G-021776
1x400	2	2.6	2.0	35.3	4258	WE10F	G-023629
1x500	2	2.8	2.2	39.3	5337	WE10G	G-023630
Please refer to technical section for additional information relating to these cables							

657 (*) SW4 0.6/1kV EPR/ZH BS 6883



Halogen free, flame retardant offshore & shipboard power, control & lighting cables with elastomeric insulation and sheath

Standards: BS6883:1999 Design Guidelines, BS EN 60228 conductors, BS7655-1.2 Insulating material, BS7655-2.6 Sheathing materials, IEC60332-1-2 Flame propagation, IEC 60332-3-22 Flame retardant, IEC60754-1 Smoke emission properties

CONSTRUCTION

Conductors	Tinned annealed circular stranded copper	
	Class 5 acc. to BS EN 60228	Class 2 acc. to BS EN 60228
	¹⁾ For sizes: 1.0 & 1.5 mm ²	²⁾ For sizes 2.5 mm ² and above
Insulation	Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2	
Core identification ³⁾	All cores are white with black printed numbers	
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	

¹⁾ Class 2 conductors for sizes below 2.5 mm² are available on request

²⁾ Class 5 flexible conductors for sizes above 2.5 mm² are available on request

³⁾ Coloured cores are available on request

CHARACTERISTICS

Maximum conductor operating temperature: +90°C	
Lowest ambient temperature for fixed installation: -40°C	
Lowest installation temperature: -15°C	
Flame retardant: BS EN 50266-2-2 Category A/F, IEC 60332-3-22	
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% acid gas	
Application	Power, control or lighting cable for fixed installations in all areas including accommodation and open deck in ships and offshore units
Cable marking	ELECTRIC CABLE Type SW4 "number of cores" "x" "conductor size" "600/1000V" "TFK3" "BS6883" "UK00A code" "IEC60332-3-22 cat. A" "year" "metre mark"
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	LRS certificate 08/20071

MINIMUM BENDING RADIUS:

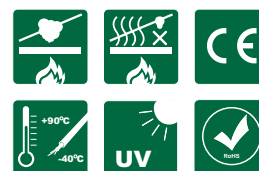
Overall diameter of cable (D)	Minimum bending radius
≤10mm	3 D
16-25 mm	4 D
> 25 mm	6 D

* D - overall diameter of cable

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	UK00A Code	TFK Part Number
n x mm ²		mm	mm	mm	kg/km		
1x1	5	0.8	1	4.8	34	WF101	G-028829
1x1.5	5	0.8	1	5.1	40	WF102	G-028830
1x2.5	2	0.8	1	5.6	54	WF103	G-022623
1x4	2	1	1	6.5	78	WF104	G-010991
1x6	2	1	1	7.1	101	WF106	G-010993
1x10	2	1	1	8.1	144	WF110	G-010995
1x16	2	1	1.1	9.5	216	WF116	G-020463
1x25	2	1.2	1.2	11.4	328	WF125	G-022575
1x35	2	1.2	1.2	12.6	429	WF135	G-010997
1x50	2	1.4	1.3	14.3	551	WF150	G-010998
1x70	2	1.4	1.3	16	753	WF170	G-011000
1x95	2	1.6	1.4	18.6	1049	WF195	G-011001
1x120	2	1.6	1.5	20.3	1274	WF10A	G-011002
1x150	2	1.8	1.6	22.4	1568	WF10B	G-011003
1x185	2	2	1.7	24.9	1949	WF10C	G-011004
1x240	2	2.2	1.8	28	2530	WF10D	G-022631
1x300	2	2.4	1.9	30.9	3134	WE10E	G-023621
1x400	2	2.6	2	35.3	4258	WE10F	G-023642
1x500	2	2.8	2.2	39.3	5337	WE10G	G-023626
2x1	5	0.8	1	8.1	86	WF201	G-028841
2x1.5	5	0.8	1.1	8.5	103	WF202	G-011007
2x2.5	2	0.8	1.1	9.5	140	WF203	G-011008
2x4	2	1	1.2	11.6	210	WF204	G-011009
2x6	2	1	1.2	12.7	270	WF206	G-020077
2x10	2	1	1.3	14.9	391	WF210	G-023847
2x16	2	1	1.4	17.5	574	WF216	G-024350
2x25	2	1.2	1.5	21.2	864	WF225	G-024787
2x35	2	1.2	1.6	23.7	1129	WF235	G-024788
2x50	2	1.4	1.7	26.9	1452	WF250	G-024789
2x70	2	1.4	1.9	30.8	1991	WF270	G-024790
2x95	2	1.6	2.1	35.9	2766	WF295	G-024791
2x120	2	1.6	2.2	39.1	3338	WF20A	G-024792
2x150	2	1.8	2.3	43.2	4097	WF20B	G-024793
3x1	5	0.8	1.1	8.4	100	WF301	G-028842
3x1.5	5	0.8	1.1	9	122	WF302	G-011012
3x2.5	2	0.8	1.1	10.1	169	WF303	G-011013
3x4	2	1	1.2	12.3	257	WF304	G-011014
3x6	2	1	1.2	13.5	335	WF306	G-011015
3x10	2	1	1.3	15.9	490	WF310	G-011016
3x16	2	1	1.4	18.6	732	WF316	G-023345
3x25	2	1.2	1.6	22.7	1121	WF325	G-011017

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	UK00A Code	TFK Part Number
n x mm ²		mm	mm	mm	kg/km		
3x35	2	1.2	1.7	25.4	1474	WF335	G-021295
3x50	2	1.4	1.8	28.9	1893	WF350	G-024797
3x70	2	1.4	2	33	2611	WF370	G-024798
3x95	2	1.6	2.2	38.5	3638	WF395	G-021184
3x120	2	1.6	2.3	41.9	4400	WF30A	G-024799
3x150	2	1.8	2.5	46.5	5425	WF30B	G-024800
3x185	2	2	2.7	51.8	6754	WF30C	G-024801
3x240	2	2.2	2.9	58.6	8770	WF30D	G-011018
4x1	5	0.8	1.1	9.1	122	WF401	G-028843
4x1.5	5	0.8	1.1	9.8	149	WF402	G-022663
4x2.5	2	0.8	1.1	11	210	WF403	G-011022
4x4	2	1	1.2	13.4	321	WF404	G-011023
4x6	2	1	1.3	15	428	WF406	G-011024
4x10	2	1	1.4	17.6	627	WF410	G-011025
4x16	2	1	1.5	20.7	940	WF416	G-011026
4x25	2	1.2	1.7	25.3	1442	WF425	G-011027
4x35	2	1.2	1.8	28.3	1899	WF435	G-011028
4x50	2	1.4	1.9	32.1	2439	WF450	G-024803
4x70	2	1.4	2.1	36.7	3370	WF470	G-021302
4x95	2	1.6	2.3	42.8	4700	WF495	G-024804
4x120	2	1.6	2.5	46.8	5710	WF40A	G-024805
4x150	2	1.8	2.7	51.9	7035	WF40B	G-024806
5x1.5	5	0.8	1.1	10.7	180	n/a	G-028673
5x2.5	2	0.8	1.2	12.2	260	n/a	G-022625
7x1.5	5	0.8	1.2	12.8	252	WF702	-
7x2.5	2	0.8	1.2	14.4	359	WF703	-
12x1.5	5	0.8	1.3	15.6	370	WFA02	-
12x2.5	2	0.8	1.4	17.9	543	WFA03	G-011033
19x1.5	5	0.8	1.4	19.4	570	WFB02	-
19x2.5	2	0.8	1.5	22.2	842	WFB03	G-022626
27x1.5	5	0.8	1.6	22.4	766	WFC02	-
37x1.5	5	0.8	1.7	26.2	1037	WFD02	-
Please refer to technical section for additional information relating to these cables							

658 (*) SW4 0.6/1kV 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

Standards: BS6883:1999 Design Guidelines, BS EN 60228 conductors, BS7655-1.2 Insulating material, BS7655-2.6 Sheathing materials, IEC60332-1-2 Flame propagation, IEC 60332-3-22 Flame retardant, IEC60754-1 Smoke emission properties

CONSTRUCTION

Conductors	Tinned annealed circular stranded copper	
	Class 5 acc. to BS EN 60228	Class 2 acc. to BS EN 60228
	¹⁾ For sizes: 1.0 & 1.5 mm ²	²⁾ For sizes 2.5 mm ² and above
Insulation	Halogen-free elastomer compound EPR type GP4 acc. to BS 7655-1.2	
Core identification ³⁾	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 ⁴⁾	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	

¹⁾ Class 2 conductors for sizes below 2.5 mm² are available on request.

²⁾ Class 5 flexible conductors for sizes above 2.5 mm² are available on request

³⁾ Coloured cores are available on request

⁴⁾ Tinned copper wire braid version is available on request

CHARACTERISTICS

Maximum conductor operating temperature: +90°C	
Lowest ambient temperature for fixed installation: -40°C	
Lowest installation temperature: -15°C	
Flame retardant: BS EN 50266-2-2 Category A/F, IEC 60332-3-22	
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% acid gas	
Application	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
Cable marking	ELECTRIC CABLE Type SW4 "number of cores" "x" "conductor size" "600/1000V" "TFK3" "BS6883" "UK00A code" "IEC60332-3-22 cat. A" "year" "metre mark"
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	LRS certificate 08/20071

MINIMUM BENDING RADIUS:

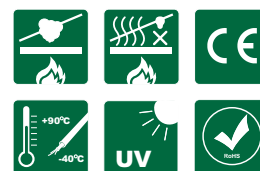
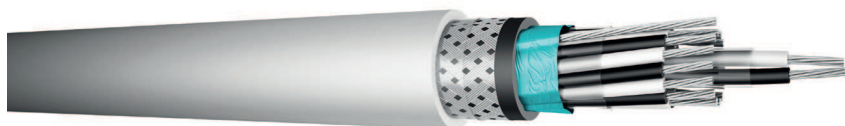
Overall diameter of cable (D)	Minimum bending radius
< 25 mm	4 D
> 25 mm	6 D

* D - overall diameter of cable

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	TFK Part Number
n x mm ²		mm	mm	mm	mm	mm	kg/km		
2x1	5	0.8	1.0	0.3	1.2	11.6	200	WB201	G-028565
2x1.5	5	0.8	1.1	0.3	1.2	12.4	241	WB202	G-011050
2x2.5	2	0.8	1.1	0.3	1.2	13.4	283	WB203	G-011051
2x4	2	1.0	1.2	0.3	1.3	15.6	387	WB204	G-020831
2x6	2	1.0	1.2	0.3	1.4	16.9	476	WB206	G-011052
2x10	2	1.0	1.3	0.3	1.4	19.2	627	WB210	G-011053
2x16	2	1.0	1.4	0.3	1.5	22.0	853	WB216	G-024827
2x25	2	1.2	1.5	0.3	1.7	26.1	1212	WB225	G-011054
2x35	2	1.2	1.6	0.3	1.8	28.8	1532	WB235	G-011055
2x50	2	1.4	1.7	0.45	2.0	33.0	2038	WB250	G-024828
2x70	2	1.4	1.9	0.45	2.1	37.1	2680	WB270	G-024829
2x95	2	1.6	2.1	0.45	2.3	42.6	3593	WB295	G-023427
2x120	2	1.6	2.2	0.45	2.5	46.2	4291	WB20A	G-024830
2x150	2	1.8	2.3	0.45	2.6	50.5	5120	WB20B	G-024851
2x185	2	2.0	2.5	0.45	2.8	55.7	6404	WB20C	G-024852
2x240	2	2.2	2.8	0.45	3.1	62.8	8210	WB20D	G-024853
2x300	2	2.4	3.0	0.45	3.3	69.1	10016	WB20E	G-024854
3x1	5	0.8	1.1	0.3	1.2	12.2	237	WB301	G-028527
3x1.5	5	0.8	1.1	0.3	1.2	12.9	263	WB302	G-011058
3x2.5	2	0.8	1.1	0.3	1.3	14.1	323	WB303	G-011059
3x4	2	1.0	1.2	0.3	1.3	16.3	439	WB304	G-011060
3x6	2	1.0	1.2	0.3	1.4	17.7	547	WB306	G-011061
3x10	2	1.0	1.3	0.3	1.5	20.4	743	WB310	G-011063
3x16	2	1.0	1.4	0.3	1.6	23.3	1029	WB316	G-011064
3x25	2	1.2	1.6	0.3	1.8	27.8	1515	WB325	G-011065
3x35	2	1.2	1.7	0.45	1.9	31.4	2032	WB335	G-011066
3x50	2	1.4	1.8	0.45	2.0	35.0	2547	WB350	G-011067
3x70	2	1.4	2.0	0.45	2.2	39.6	3340	WB370	G-024371
3x95	2	1.6	2.2	0.45	2.4	45.5	4514	WB395	G-011068
3x120	2	1.6	2.3	0.45	2.6	49.3	5408	WB30A	G-011069
3x150	2	1.8	2.5	0.45	2.8	54.3	6587	WB30B	G-022311
3x185	2	2.0	2.7	0.45	3.0	59.9	8197	WB30C	G-011070
3x240	2	2.2	2.9	0.45	3.2	67.0	10475	WB30D	G-024120
3x300	2	2.4	3.2	0.45	3.5	74.1	12878	WB30E	G-024856
4x1	5	0.8	1.1	0.3	1.2	12.9	262	WB401	G-028526
4x1.5	5	0.8	1.1	0.3	1.3	13.9	301	WB402	G-011072
4x2.5	2	0.8	1.1	0.3	1.3	15.1	384	WB403	G-011073
4x4	2	1.0	1.2	0.3	1.4	17.7	532	WB404	G-011074
4x6	2	1.0	1.3	0.3	1.5	19.4	673	WB406	G-011075
4x10	2	1.0	1.4	0.3	1.6	22.3	917	WB410	G-011076

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	TFK Part Number
n x mm ²		mm	mm	mm	mm	mm	kg/km		
4x16	2	1.0	1.5	0.3	1.7	25.6	1287	WB416	G-011077
4x25	2	1.2	1.7	0.45	1.9	31.3	1999	WB425	G-011078
4x35	2	1.2	1.8	0.45	2.0	34.2	2525	WB435	G-011079
4x50	2	1.4	1.9	0.45	2.2	38.7	3159	WB450	G-011080
4x70	2	1.4	2.1	0.45	2.4	43.7	4226	WB470	G-011081
4x95	2	1.6	2.3	0.45	2.6	50.2	5718	WB495	G-011082
4x120	2	1.6	2.5	0.45	2.8	54.6	6876	WB40A	G-011083
4x150	2	1.8	2.7	0.45	3.0	60.1	8357	WB40B	G-024858
4x185	2	2.0	2.9	0.45	3.2	66.3	10406	WB40C	G-024131
4x240	2	2.2	3.2	0.45	3.5	74.6	13363	WB40D	G-022169
4x300	2	2.4	3.5	0.45	3.8	82.4	16433	WB40E	G-024859
5x1.5	5	0.8	1.1	0.3	1.3	14.8	351	n/a	G-028393
5x2.5	2	0.8	1.2	0.3	1.3	16.3	441	n/a	G-024860
7x1.5	5	0.8	1.2	0.3	1.3	16.8	452	WB702	G-011087
7x2.5	2	0.8	1.2	0.3	1.4	18.6	577	WB703	G-011088
12x1.5	5	0.8	1.3	0.3	1.5	20.1	621	WBA02	G-011090
12x2.5	2	0.8	1.4	0.3	1.6	22.6	836	WBA03	G-011091
19x1.5	5	0.8	1.4	0.3	1.6	24.1	888	WBB02	G-011093
19x2.5	2	0.8	1.5	0.3	1.7	27.1	1202	WBB03	G-011094
27x1.5	5	0.8	1.6	0.3	1.8	27.5	1162	WBC02	G-028567
*27x2.5	2	0.8	1.7	0.45	1.9	31.4	1714	WBC03	G-011096
37x1.5	5	0.8	1.7	0.45	1.9	32.1	1608	WBD02	G-011097
* based on standard Please refer to technical section for additional information relating to these cables									

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

Standards: BS6883:1999 Design Guidelines, BS EN 60228 conductors, BS7655-1.2 Insulating material, BS7655-2.6 Sheathing materials, IEC60332-1-2 Flame propagation, IEC 60332-3-22 Flame retardant, IEC60754-1 Smoke emission properties

CONSTRUCTION

Conductors	Tinned annealed circular stranded copper class 5 ¹⁾ 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 a contrasting colour on the insulation
Triples identification *	Black, white and red with printed number of triples in a contrasting colour on the insulation
Separator	Polyester tape
Collective screen	Aluminium/polyester tape with the metallic contact with a 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 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	Grey (Non Intrinsically Safe) or Blue (Intrinsically Safe) ³⁾

¹⁾ Class 2 conductors are available on request

²⁾ Tinned copper wire braid version is available on request

³⁾ Black outer sheathing is available on request

^{*)} Alternative coloured cores are available on request

CHARACTERISTICS

Maximum conductor operating temperature: +90°C

Lowest ambient temperature for fixed installation: -40°C

Lowest installation temperature: -15°C

Minimum bending radius: 8 x D; D - overall diameter of cable

Flame retardant: BS EN 50266-2-2, 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% acid gas

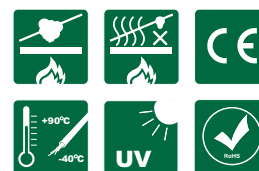
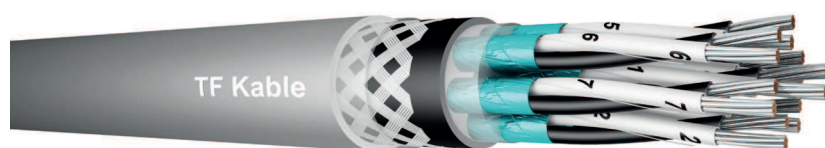
Application	Armoured instrumentation cable for fixed installations in all areas including accommodation and on open deck in ships and offshore units where halogen free cable protection is required
Cable marking	ELECTRIC CABLE Type SW4 "number of pairs or triples, quads" "x" "conductor size" "(C)" "150/250V" "TFK3" "BS6883" "UK00A code" "IEC60332-3-22 cat. A" "year" "metre mark"
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	LRS certificate 05/00015

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)
n x 2 x mm ²		mm	mm	mm	mm	mm	kg/km	
2x2x0.75	5	0.8	1.2	0.3	1.4	13.3	340	-
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	-
3x2x0.75	5	0.8	1.2	0.3	1.4	16.9	435	KJH00/KGH00
3x2x1.0	5	0.8	1.2	0.3	1.4	17.8	483	KJH01/KGH01
3x2x1.5	5	0.8	1.4	0.3	1.6	18.9	575	KJH02/KGH02
5x2x0.75	5	0.8	1.4	0.3	1.5	19.8	563	-
5x2x1.0	5	0.8	1.4	0.3	1.6	20.4	613	-
5x2x1.5	5	0.8	1.4	0.3	1.6	21.9	716	-
7x2x0.75	5	0.8	1.4	0.3	1.5	21.2	664	KJJ00/KGJ00
7x2x1.0	5	0.8	1.4	0.3	1.6	22.4	754	KJJ01/KGJ01
7x2x1.5	5	0.8	1.6	0.3	1.8	24.2	897	KJJ02/KGJ02
10x2x0.75	5	0.8	1.6	0.3	1.7	25.5	922	-
10x2x1.5	5	0.8	1.6	0.3	1.8	28.2	1184	-
12x2x0.75	5	0.8	1.6	0.3	1.7	27.0	1087	KJK00/KGJ00
12x2x1.0	5	0.8	1.6	0.3	1.8	28.3	1155	KJK01/KGJ01
12x2x1.5	5	0.8	1.8	0.45	2.1	30.9	1470	KJK02/KGJ02
20x2x0.75	5	0.8	1.8	0.45	2.0	33.4	1549	KJL00/KGL00
20x2x1.0	5	0.8	1.8	0.45	2.1	35.7	1810	KJL01/KGL01
20X2X1.5	5	0.8	2.0	0.45	2.2	37.63	2061	KJL02/KGL02

Number of triples 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)
n x 3 x mm ²		mm	mm	mm	mm	mm	kg/km	
3x3x0.75	5	0.8	1.3	0.3	1.4	18.7	537	KJS00/KGS00
3x3x1.0	5	0.8	1.3	0.3	1.5	19.6	605	KJS01/KGS01
7x3x0.75	5	0.8	1.4	0.3	1.6	24.4	868	KJT00/KGT00
7x3x1.0	5	0.8	1.5	0.3	1.7	25.9	1013	KJT01/KGT01
12x3x0.75	5	0.8	1.7	0.45	1.9	30.4	1381	KJU00/KGU00
12x3x1.0	5	0.8	1.7	0.45	2.0	32.2	1591	KJU01/KGU01

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

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

Standards: BS6883:1999 Design Guidelines, BS EN 60228 conductors, BS7655-1.2 Insulating material, BS7655-2.6 Sheathing materials, IEC60332-1-2 Flame propagation, IEC 60332-3-22 Flame retardant, IEC60754-1 Smoke emission properties

CONSTRUCTION

Conductors	Tinned annealed circular stranded copper class 5 ¹⁾ acc. to BS EN 60228	
	Class 5 ¹⁾ acc. to BS EN 60228	Class 2 acc. to BS EN 60228
	For 0.75 & 1.5 mm ²	For sizes 2.5 mm ²
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 a contrasting colour on the insulation	
Triples identification *	Black, white and red with printed number of triples in a contrasting colour on the insulation	
Quads identification *	Black, white, red and blue with printed number of quads in a contrasting colour on the insulation	
Separator	Polyester tape	
Individual screen	Aluminium/polyester tape with the metallic contact with a 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 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	Grey (Non Intrinsically Safe) or Blue (Intrinsically Safe) ³⁾	

¹⁾ Class 2 conductors are available on request

²⁾ Tinned copper wire braid version is available on request

³⁾ Black outer sheathing is available on request

⁴⁾ Alternative coloured cores are available on request

CHARACTERISTICS

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	8 x D; D - overall diameter of cable
Flame retardant:	BS EN 50266-2-2, 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% acid gas
Application	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
Cable marking	ELECTRIC CABLE Type SW4 "number of pairs or triples, quads" "x" "conductor size" "(I)" "150/250V" "TFK3" "BS6883" "UK00A code" "IEC60332-3-22 cat. A" "year" "metre mark"
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	LRS certificate 05/00015

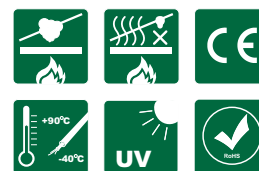
Number of pairs and nominal area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables	UK00A Code (Grey/Blue)
n x 2 x mm ²		mm	mm	mm	mm	mm	kg/km	
1x2x0.75	5	0.8	1.0	0.3	1.2	11.5	197	KKF00/KHF00
1x2x1.0	5	0.8	1.0	0.3	1.2	11.7	205	KKF01/KHF01
1x2x1.5	5	0.8	1.2	0.3	1.4	13.1	252	KKF02/KHF02
1x2x2.5	2	0.8	1.3	0.3	1.4	14.3	301	KKF03/KHF03
3x2x0.75	5	0.8	1.2	0.3	1.4	17.1	398	KKH00/KHH00
3x2x1	5	0.8	1.3	0.3	1.4	17.8	447	KKH01/KHH01
3x2x1.5	5	0.8	1.3	0.3	1.5	18.3	448	KKH02/KHH02
7x2x0.75	5	0.8	1.4	0.3	1.6	21.8	658	KKJ00/KHJ00
7x2x1.0	5	0.8	1.4	0.3	1.6	22.9	739	KKJ01/KHJ01
7x2x1.5	5	0.8	1.4	0.3	1.6	23.2	786	KKJ02/KHJ02
12x2x0.75	5	0.8	1.6	0.3	1.8	26.5	944	KKK00/KHK00
12x2x1.0	5	0.8	1.7	0.45	1.9	28.9	1200	KKK01/KHK01
12x2x1.5	5	0.8	1.7	0.45	1.9	30.2	1341	KKK02/KHK02
20x2x0.75	5	0.8	1.9	0.45	2.1	33.6	1558	KKL00/KHL00
20x2x1.0	5	0.8	1.9	0.45	2.2	35.6	1779	KKL01/KHL01
20x2x1.5	5	0.8	1.8	0.45	2.1	36.85	1957	KKL02/KHL02

Number of triples 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)
n x 3 x mm ²		mm	mm	mm	mm	mm	kg/km	
1x3x0.75	5	0.8	1.0	0.3	1.2	11.9	218	KKR00/KHR00
1x3x1.0	5	0.8	1.1	0.3	1.2	12.3	234	KKR01/KHR01
1x3x1.5	5	0.8	1.2	0.3	1.4	13.6	289	KKR02/KHR02
1x3x2.5	2	0.8	1.4	0.3	1.5	15.2	362	KKR03/KHR03
3x3x0.75	5	0.8	1.3	0.3	1.5	18.9	456	KKS00/KHS00
3x3x1.0	5	0.8	1.3	0.3	1.5	19.7	492	KKS01/KHS01
7x3x0.75	5	0.8	1.5	0.3	1.7	24.4	803	KKT00/KHT00
7x3x1.0	5	0.8	1.5	0.3	1.7	26.0	871	KKT01/KHT01
12x3x0.75	5	0.8	1.7	0.45	2.0	30.5	1339	KKU00/KHU00
12x3x1.0	5	0.8	1.8	0.45	2.0	31.4	1468	KKU01/KHU01

Number of quads 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)
n x 4 x mm ²		mm	mm	mm	mm	mm	kg/km	
1x4x0.75	5	0.8	1.1	0.3	1.2	12.8	250	KKX00/KHX00
1x4x1.0	5	0.8	1.1	0.3	1.2	13.0	264	KKX01/KHX01
1x4x1.5	5	0.8	1.2	0.3	1.4	14.4	323	KKX02/KHX02
1x4x2.5	2	0.8	1.4	0.3	1.5	16.2	419	KKX03/KHX03

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

Standard: BS6883

CONSTRUCTION

Conductors	Tinned annealed circular stranded copper class 2 acc. to BS EN 60228 ¹⁾
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

¹⁾ Class 5 flexible conductors are available on request

CHARACTERISTICS

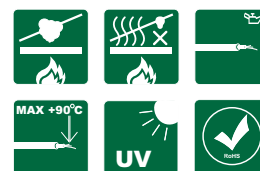
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-15°C
Minimum bending radius:	< 25 mm - 4 x D > 25 mm - 6 x D (D - overall diameter of cable)
Flame retardant:	BS EN 50266-2-2 Category A/F, IEC 60332-3-22
Smoke emission:	BS EN 61034-2, IEC 61034-2
Corrosive gas emission:	BS EN 50267-2-1, IEC 60754-1: type SW4 cables ≤ 0.5% acid gas
Application	Armoured power 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	1000m 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 cable
n x mm ²		mm	mm	mm	mm	mm	kg/km
1x1	2	0.8	1	0.3	1.1	8.5	137
1x1.5	2	0.8	1	0.3	1.1	8.8	145
1x2.5	2	0.8	1	0.3	1.1	9.2	160
1x4	2	1	1	0.3	1.1	10.2	190
1x6	2	1	1	0.3	1.1	10.8	219
1x10	2	1	1	0.3	1.2	11.9	280
1x16	2	1	1.1	0.3	1.2	13.3	371
1x25	2	1.2	1.2	0.3	1.3	15.4	519
1x35	2	1.2	1.2	0.3	1.4	16.8	644
1x50	2	1.4	1.3	0.3	1.4	18.5	789
1x70	2	1.4	1.3	0.3	1.5	20.4	1029
1x95	2	1.6	1.4	0.3	1.6	23.2	1372
1x120	2	1.6	1.5	0.3	1.7	25.1	1635
1x150	2	1.8	1.6	0.3	1.8	27.4	1975
1x185	2	2	1.7	0.45	1.9	30.7	2520
1x240	2	2.2	1.8	0.45	2	34.1	3184
1x300	2	2.4	1.9	0.45	2.1	37.2	3877
1x400	2	2.6	2	0.45	2.3	41.1	4814
1x500	2	2.8	2.2	0.45	2.5	45.7	6042
1x630	2	2.8	2.3	0.45	2.6	50	7609

TCu/MGT/EPR/ZH/GSWB/ZH

0.6/1kV SW4

BS 7917



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

Standards: BS EN 60228; BS 7917: 1999- Design guidelines, BS 7655-1.2 Insulating material, BS 7655-2.6 Sheathing materials, IEC 60331-21 Fire resistant, IEC 60332-1-2 Flame propagation, IEC 60332-3-22 Flame retardant, IEC 60754-1 Smoke emission properties

CONSTRUCTION

Conductors	TCu Tinned annealed circular stranded copper according to BS EN 60228 class 2 or class 5
Insulation	MGT/EPR 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
Inner sheath	ZH Halogen free elastomer compound EPR type SB 1 acc. to BS 7917
Braid armour	GSWB Galvanized steel wire braid
Separator	Separator, suitable tape between the braid and outer sheath
Outer sheath	ZH Halogen free, heat-resistant, oil-resisting and flame-retardant elastomer compound type SW4 acc. to BS 7655-2.6
Colour of outer sheath	Black

CHARACTERISTICS

Maximum conductor operating temperature: +90°C	
Lowest ambient temperature for fixed installation: -40°C	
Lowest installation temperature: -15°C	
Flame retardant: BS EN 50266-2-2, Category A/F, IEC 60332-3-22	
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 ≤ 0.5% acid gas	
Application	Elastomer insulated fire resistant (limited circuit integrity) cables for fixed wiring in ships and on mobile and fixed offshore units
Cable marking	ELECTRIC CABLE TYPE SW4 F1 "number of core""x""conductor size""600/1000V""TFK3""BS 7917""UK00A code""IEC60331-21""IEC60332-3-22 cat.A""year""metre mark
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	LRS certificate 14/20052

MINIMUM BENDING RADIUS:

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

* D - overall diameter of cable

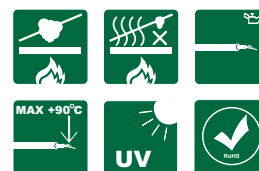
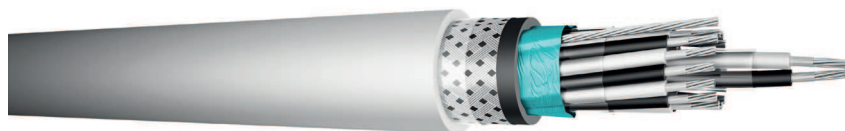
Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of inner sheath	Diameter of steel wires in braid	Nominal thickness of outer sheath	Approximate overall diameter of cable	Approximate net weight of cables SW4	UK00A Code
n x mm ²		mm	mm	mm	mm	mm	kg/km	
2x1.5	5	0.8	1.1	0.3	1.2	14.4	312	YD202
2x2.5	2	0.8	1.1	0.3	1.2	15.3	350	YD203
2x4	2	1	1.2	0.3	1.3	17.5	464	YD204
2x6	2	1	1.2	0.3	1.4	18.9	542	YD206
2x10	2	1	1.3	0.3	1.4	20.9	696	YD210
2x16	2	1	1.4	0.3	1.5	23.7	947	YD216
2x25	2	1.2	1.5	0.3	1.7	27.8	1330	YD225
2x35	2	1.2	1.6	0.3	1.8	30.5	1639	YD235
2x50	2	1.4	1.7	0.45	2	34.7	2163	YD250
2x70	2	1.4	1.9	0.45	2.1	38.9	2824	YD270
2x95	2	1.6	2.1	0.45	2.3	44.4	3766	YD295
2x120	2	1.6	2.2	0.45	2.5	48	4483	YD20A
3x1.5	5	0.8	1.1	0.3	1.2	14.2	319	YD302
3x2.5	2	0.8	1.1	0.3	1.3	15.6	378	YD303
3x4	2	1	1.2	0.3	1.3	17.7	502	YD304
3x6	2	1	1.2	0.3	1.4	19.1	596	YD306
3x10	2	1	1.3	0.3	1.5	21.5	803	YD310
3x16	2	1	1.4	0.3	1.6	24.4	1102	YD316
3x25	2	1.2	1.6	0.3	1.8	29.7	1611	YD325
3x35	2	1.2	1.7	0.45	1.9	33.2	2138	YD335
3x50	2	1.4	1.8	0.45	2	37.1	2669	YD350
3x70	2	1.4	2	0.45	2.2	41.5	3529	YD370
3x95	2	1.6	2.2	0.45	2.4	47.3	4730	YD395
3x120	2	1.6	2.3	0.45	2.6	51.1	5642	YD30A
4x1.5	2	0.8	1.1	0.3	1.3	15.6	366	YD402
4x2.5	2	0.8	1.1	0.3	1.3	16.7	440	YD403
4x4	2	1	1.2	0.3	1.4	19.3	594	YD404
4x6	2	1	1.3	0.3	1.5	21	727	YD406
4x10	2	1	1.4	0.3	1.6	23.6	973	YD410
4x16	2	1	1.5	0.3	1.7	26.9	1345	YD416
4x25	2	1.2	1.7	0.45	1.9	33.3	2110	YD425
4x35	2	1.2	1.8	0.45	2	36.5	2671	YD435
4x50	2	1.4	1.9	0.45	2.2	40.7	3350	YD450
4x70	2	1.4	2.1	0.45	2.4	45.8	4436	YD470
4x95	2	1.6	2.3	0.45	2.6	52.2	5960	YD495
4x120	2	1.6	2.5	0.45	2.8	57.7	7093	YD40A
5x1.5	5	0.8	1.1	0.3	1.3	17.5	464	N/A
5x2.5	2	0.8	1.2	0.3	1.3	18.7	566	N/A
7x1.5	5	0.8	1.2	0.3	1.3	18.8	580	YD702
7x2.5	2	0.8	1.2	0.3	1.4	20	708	YD703

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 ²		mm	mm	mm	mm	mm	kg/km	
12x1.5	5	0.8	1.3	0.3	1.5	23.9	797	YDA02
12x2.5	2	0.8	1.4	0.3	1.6	26	986	YDA03
19x1.5	5	0.8	1.4	0.3	1.6	27.1	1139	YDB02
19x2.5	2	0.8	1.5	0.3	1.7	29.1	1435	YDB03
27x1.5	5	0.8	1.6	0.3	1.8	31.9	1461	YDC02
27x2.5*	2	0.8	1.6	0.45	1.8	37.2	1983	YDC03
37x1.5	5	0.8	1.7	0.45	1.9	35.8	1608	YDD02
* 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

Standards: BS EN 60228; BS 7917: 1999- Design guidelines, BS 7655-1.2 Insulating material, BS 7655-2.6 Sheathing materials, IEC 60331-21 Fire resistant, IEC 60332-1-2 Flame propagation, IEC 60332-3-22 Flame retardant, IEC 60754-1 Smoke emission properties

CONSTRUCTION

Conductors	TCu Tinned annealed circular stranded copper according to BS EN 60228 class 2 or class 5
Insulation	MGT/EPR 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 a contrasting color on the insulation
Screen	CS Collective screen Aluminium/polyester tape with the metallic contact with a tinned copper drain wire
Inner sheath	ZH Halogen free elastomer compound EPR type SB 1 acc. to BS 7917
Braid armour	GSWB Galvanized steel wire braid
Separator	Separator, suitable tape between the braid and outer sheath
Outer sheath	ZH 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

CHARACTERISTICS

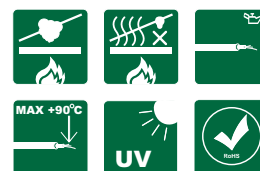
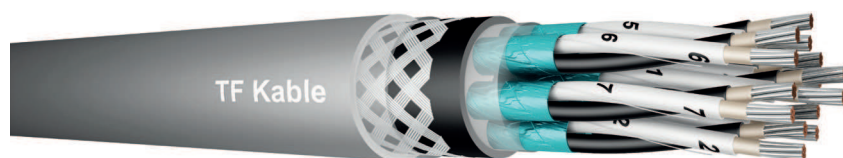
Maximum conductor operating temperature: +90°C	
Maximum conductor temperature during short circuit: +250°C	
Lowest ambient temperature for fixed installation: -40°C	
Lowest installation temperature: -15°C	
Minimum bending radius: 6 D; D - overall diameter of cable	
Flame retardant: BS EN 50266-2-2, Category A/F, IEC 60332-3-22	
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 ≤ 0.5% acid gas	
Application	Elastomer insulated fire resistant (limited circuit integrity) cables for fixed wiring in ships and on mobile and fixed offshore units
Cable marking	ELECTRIC CABLE TYPE SW4 F1 "number of core""x""conductor size""600/1000V""TFK3""BS 7917""UK00A code""IEC60331-21""IEC60332-3-22 cat.A""year""metre mark"
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	LRS certificate 14/20052

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)
n x 2 x mm ²		mm	mm	mm	mm	mm	kg/km	
2x2x0.75*	5	0.8	1.2	0.3	1.4	15.1	326	N/A
2x2x1.0*	5	0.8	1.2	0.3	1.4	15.3	343	N/A
2x2x1.5*	5	0.8	1.4	0.3	1.6	16.8	401	N/A
3x2x0.75	5	0.8	1.2	0.3	1.4	19.3	434	GNH00/GLH00
3x2x1.0	5	0.8	1.2	0.3	1.4	19.6	437	GNH01/GLH01
3x2x1.5*	5	0.8	1.4	0.3	1.6	21.5	533	GNH02/GLH02
3x2x2.5*	5	0.8	1.6	0.3	1.8	24.1	735	GNH03/GLH03
7x2x0.75	5	0.8	1.4	0.3	1.5	24.8	707	GNJ00/GLJ00
7x2x1.0	5	0.8	1.4	0.3	1.6	25.5	737	GNJ01/GLJ01
7x2x1.5*	5	0.8	1.6	0.3	1.8	27.9	908	GNJ02/GLJ02
12x2x0.75	5	0.8	1.6	0.3	1.7	31.3	1075	GNK00/GLK00
12x2x1.0	5	0.8	1.6	0.3	1.8	32.1	1104	GNK01/GLK01
12x2x1.5*	5	0.8	1.8	0.45	2.1	35.8	1496	GNK02/GLK02
20x2x0.75	2	0.8	1.8	0.45	2	39.6	1665	GNL00/GLL00
20x2x1.0	5	0.8	1.8	0.45	2.1	40.6	1792	GNL01/GLL01
20x2x1.5*	5	0.8	2	0.45	2.2	43.9	2157	GNL02/GLL02
* based on standard								

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

Standards: BS EN 60228; BS 7917: 1999- Design guidelines, BS 7655-1.2 Insulating material, BS 7655-2.6 Sheathing materials, IEC 60331-21 Fire resistant, IEC 60332-1-2 Flame propagation, IEC 60332-3-22 Flame retardant, IEC 60754-1 Smoke emission properties

CONSTRUCTION

Conductors	TCu Tinned annealed circular stranded copper according to BS EN 60228 class 2 or class 5
Insulation	MGT/EPR 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 a contrasting colour on the insulation
Triples identification	Black, white and red with printed number of triples in a contrasting colour on the insulation
Quads identification	Black, white, red and blue with printed number of quads in a contrasting colour on the insulation
Screen	IS Individual screen Aluminium/polyester tape with the metallic contact with a tinned copper drain wire
Inner sheath	ZH Halogen free elastomer compound EPR type SB 1 acc. to BS 7917
Braid armour	GSWB Galvanized steel wire braid
Separator	Separator, suitable tape between the braid and outer sheath
Outer sheath	ZH 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

CHARACTERISTICS

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: BS EN 50266-2-2, Category A/F, IEC 60332-3-22	
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 ≤ 0.5% acid gas	
Application	Elastomer insulated fire resistant (limited circuit integrity) cables for fixed wiring in ships and on mobile and fixed offshore units
Cable marking	ELECTRIC CABLE "Type SW4 F1" "number of pairs or triples or quads" "x" "conductor size" "(l)" "150/250V" "TFK3" "BS 7917" "UK00A code" "IEC60331-21" "IEC60332-3-22 cat.A" "year" "metre mark"
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	LRS certificate 14/20052

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)
n x 2 x mm ²		mm	mm	mm	mm	mm	kg/km	
1x2x0.75	5	0.8	1	0.3	1.2	12.9	221	GPF00/GMF00
1x2x1.0	5	0.8	1	0.3	1.2	13.1	225	GPF01/GMF01
1x2x1.5*	5	0.8	1.2	0.3	1.4	14.6	279	GPF02/GMF02
1x2x2.5*	2	0.8	1.3	0.3	1.4	15.7	332	GPF03/GMF03
2x2x0.75*	5	0.8	1.2	0.3	1.4	14.9	333	N/A
2x2x1.0*	5	0.8	1.2	0.3	1.4	15.1	349	N/A
2x2x1.5*	5	0.8	1.3	0.3	1.5	16.3	404	N/A
3x2x0.75	5	0.8	1.2	0.3	1.4	19.1	433	GPH00/GMH00
3x2x1	5	0.8	1.3	0.3	1.4	19.6	453	GPH01/GMH01
3x2x1.5*	5	0.8	1.3	0.3	1.5	21	522	GPH02/GMH02
3x2x2.5*	5	0.8	1.4	0.3	1.5	23	692	GPH03/GMH03
7x2x0.75	5	0.8	1.4	0.3	1.6	24.9	740	GPJ00/GMJ00
7x2x1.0	5	0.8	1.4	0.3	1.6	25.3	759	GPJ01/GMJ01
7x2x1.5*	5	0.8	1.4	0.3	1.6	26.9	866	GPJ02/GMJ02
12x2x0.75	5	0.8	1.6	0.3	1.8	31.3	1129	GPK00/GMK00
12x2x1.0	5	0.8	1.7	0.45	1.9	32.9	1296	GPK01/GMK01
12x2x1.5*	5	0.8	1.7	0.45	1.9	35	1475	GPK02/GMK02
20x2x0.75	5	0.8	1.9	0.45	2.1	39.8	1765	GPL00/GML00
20x2x1.0	5	0.8	1.9	0.45	2.2	40.8	1920	GPL01/GML01
20x2x1.5*	5	0.8	1.8	0.45	2.1	43.1	2155	GPL02/GML02

Number of triples 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)
n x 3 x mm ²		mm	mm	mm	mm	mm	kg/km	
1x3x0.75	5	0.8	1	0.3	1.2	13.4	248	GPR00/GMR00
1x3x1.0	5	0.8	1.1	0.3	1.2	13.8	266	GPR01/GMR01
1x3x1.5*	5	0.8	1.2	0.3	1.4	15.2	314	GPR02/GMR02
1x3x2.5*	2	0.8	1.4	0.3	1.5	16.8	394	GPR03/GMR03

Number of quads 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)
n x 4 x mm ²		mm	mm	mm	mm	mm	kg/km	
1x4x0.75	5	0.8	1.1	0.3	1.2	14.5	291	GPX00/GMX00
1x4x1.0	5	0.8	1.1	0.3	1.2	14.8	307	GPX01/GMX01
1x4x1.5*	5	0.8	1.2	0.3	1.4	16.1	359	GPX02/GMX02
1x4x2.5*	2	0.8	1.4	0.3	1.5	17.9	445	GPX03/GMX03

* based on standard

We look into
the future





UX 0.6/1 KV P15 TCU/EVA



Flame retardant, halogen-free Mud resistant insulated conductor

Standards: NEK TS 606 Code P5/P12, IEC 60092-353- Design guidelines, IEC 60228 conductor, IEC 60092-359 Insulating materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60754-1,2 Halogen free, IEC 61034-1,2 Low Smoke

CONSTRUCTION

	Code letter	
Conductor		Tinned annealed stranded circular copper conductor wrapped PETP
Insulation	U	Halogen-free thermoset compound in accordance with type SHF2
Unsheathed	X	
Outer sheath colour		Yellow/green

CHARACTERISTICS

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	
Flame retardant: IEC 60332-3-22 (Category A)	
Smoke emission: IEC 61034-2	
Corrosive gas emission: IEC 60754-1	
Oil resistance: IEC 60092-359 SHF2, IRM 902 (100°C/24h)	
Mud resistance: NEK 606 (SHF MUD, SHF2)	
Application	Insulated conductor for earthing and bonding services Meets the MUD resistance requirement in NEK TS 606:2009 Other industrial applications
Cable marking	TF KABLE 3 UX 1000V P15 (SIZE) IEC 60332-3-22
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	DNV GL Certificate No: E14148; ABS Certificate No: 15-GD1364421-PDA

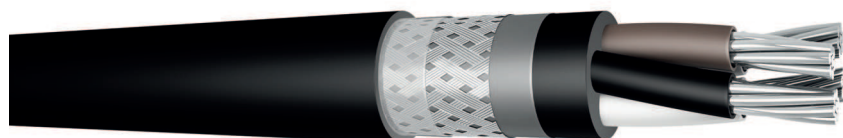
MINIMUM BENDING RADIUS:

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

* D - overall diameter of cable

Size	Insulation thickness	Diameter over insulation	Approx. weight of cable
N x mm ²	mm	mm	kg/km
1x6	1.0	5.5	81
1x10	1.0	6.5	121
1x16	1.0	7.5	182
1x25	1.2	9.5	282
1x35	1.2	10.5	371
1x50	1.4	12.5	521
1x70	1.4	14.5	731
1x95	1.6	16.5	972
1x120	1.6	18.1	1221
1x150	1.8	20.1	1521
1x185	2.0	22.1	1893
1x240	2.2	25.1	2455
1x300	2.4	28.1	3093
1x630	2.8	38.6	6351

RFOU P1/P8 & RFOU EMC 0.6/1 (1.2) KV EPR/EPR/TCWB/EVA



Fire retardant halogen-free power cable Mud resistant

Standards: NEK TS 606 Code P1/P8, IEC 60092-353-Design guidelines, IEC 60228 conductor, IEC 60092-351 Insulating material, IEC 60092-359 Sheathing materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60754-1,2 Halogen free, IEC 61034-1,2 Low Smoke

CONSTRUCTION

	Code letter	
Conductor		Tinned annealed stranded circular copper conductor, IEC 60228 class 2
Insulation	R	EP- rubber thermosetting compound, IEC 60092-351 (EPR)
Core identification		According to HD308 S2 Single core – Black Two core – Blue, Brown Three cores – Brown, Black, Grey, or Green/Yellow, Blue, Brown Four cores – Blue, Brown, Black, Grey or Green/Yellow, Brown, Black, Grey Five cores – Blue, Brown, Black, Grey, Black Multi-cores – White with Black numbers
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 60092-359
Outer sheath colour		Black

CHARACTERISTICS

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

Flame retardant: IEC 60332-3-22 (Category A)

Smoke emission: IEC 61034-2

Corrosive gas emission: IEC 60754-1

Oil resistance: IEC 60092-359 SHF2, IRM 902 (100°C/24h)

Mud resistance: NEK 606 (SHF MUD, SHF2)

Application

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 606:2009
 Marine for fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC
 Other industrial applications

Cable marking TF KABLE 3 RFOU 0.6/1KV P1/P8 (SIZE) IEC 60332-3-22

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

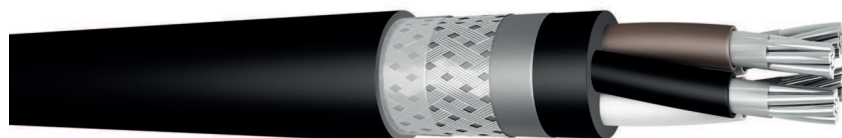
Approval DNV GL Certificate No: E14149; ABS Certificate No: 15-GD1363819-PDA

Size	Insulation thickness	Thickness inner covering	Diameter of braid wire	Thickness outer covering	Approx. outer diameter	Approx. weight of cable
n x mm ²	mm	mm	mm	mm	mm	kg/km
1x16/2.5	1	1.1	0.2	1.2	12.8	328
1x25/4	1.2	1.1	0.2	1.2	14.5	454
1x35/6	1.2	1.1	0.3	1.3	16.3	610
1x50/6	1.4	1.1	0.3	1.4	18	753
1x70/10	1.4	1.1	0.3	1.4	19.7	1010
1x95/10	1.6	1.1	0.3	1.5	22.3	1312
1x120/10	1.6	1.2	0.3	1.6	24.1	1562
1x150/10	1.8	1.2	0.3	1.6	26.1	1871
1x185/10	2	1.2	0.3	1.7	28.7	2286
1x240/16	2.2	1.2	0.3	1.8	31.8	2987
1x300/16	2.4	1.2	0.3	1.9	34.7	3544
2x1.5/4	1	1.1	0.2	1.2	12.7	263
2x2.5/4	1	1.1	0.2	1.2	13.6	299
2x4/6	1	1.1	0.3	1.3	15.5	420
2x6/6	1	1.1	0.3	1.3	16.6	485
2x10/10	1	1.1	0.3	1.4	18.6	613
2x16/16	1	1.1	0.4	1.5	21.5	881
2x25/16	1.2	1.2	0.4	1.6	25.4	1240
2x35/16	1.2	1.2	0.3	1.7	27.5	1510
2x50/25	1.4	1.2	0.4	1.8	31.1	1929
2x70/35	1.4	1.2	0.5	1.9	35.2	2656
2x95/50	1.6	1.4	0.5	2.1	40.7	3686
2x120/70	1.6	1.4	0.5	2.2	43.9	4441
3x1.5/4	1	1.1	0.2	1.2	13.3	267
3G1.5	1	1.1	0.2	1.2	13.3	264
3x2.5/6	1	1.1	0.3	1.3	14.8	360
3G2.5	1	1.1	0.3	1.3	14.8	356
3x4/6	1	1.1	0.3	1.3	16.2	464
3G4	1	1.1	0.3	1.3	16.2	437
3x6/6	1	1.1	0.3	1.4	17.6	555
3G6	1	1.1	0.3	1.4	17.6	536
3x10/10	1	1.1	0.3	1.4	19.5	756
3G10	1	1.1	0.3	1.4	19.5	710
3x16/16	1	1.1	0.4	1.5	22.7	1075
3G16	1	1.1	0.3	1.5	22.3	985
3x25/16	1.2	1.2	0.3	1.6	26.4	1481
3x35/16	1.2	1.2	0.3	1.7	29.1	1847
3x50/25	1.4	1.2	0.4	1.9	33.1	2428
3x70/35	1.4	1.4	0.5	2	37.9	3300
3x95/50	1.6	1.4	0.5	2.2	43.4	4524
3x120/70	1.6	1.4	0.5	2.3	46.8	5584
3x240/120	2.2	1.6	0.4	3.1	63.9	10461
4x1.5/4	1	1.1	0.3	1.3	14.8	342

Size	Insulation thickness	Thickness inner covering	Diameter of braid wire	Thickness outer covering	Approx. outer diameter	Approx. weight of cable
n x mm ²	mm	mm	mm	mm	mm	kg/km
4G1.5	1	1.1	0.3	1.3	14.8	342
4x2.5/6	1	1.1	0.3	1.3	15.9	411
4G2.5	1	1.1	0.3	1.3	15.9	411
4x4/6	1	1.1	0.3	1.4	17.6	632
4G4	1	1.1	0.3	1.4	17.6	518
4x6/6	1	1.1	0.3	1.4	18.9	1217
4G6	1	1.1	0.3	1.4	18.9	632
4x10/10	1	1.1	0.3	1.5	21.3	2254
4G10	1	1.1	0.3	1.5	21.3	859
4x16/16	1	1.2	0.4	1.6	24.9	3966
4G16	1	1.2	0.4	1.6	24.5	1217
4x25/16	1.2	1.2	0.3	1.7	29	6463
4G25	1.2	1.2	0.3	1.7	29	1764
4x35/16	1.2	1.2	0.3	1.8	31.9	2260
4G35	1.2	1.2	0.3	1.8	31.9	2254
4x50/25	1.4	1.4	0.4	2	36.8	2988
4G50	1.4	1.4	0.4	2	36.4	2885
4x70/35	1.4	1.4	0.5	2.2	41.8	4059
4G70	1.4	1.4	0.4	2.2	41.4	3966
4x95/50	1.6	1.4	0.5	2.4	47.9	5559
4G95	1.6	1.4	0.4	2.4	47.5	5378
4x120/70	1.6	1.6	0.5	2.5	52	6876
4G120	1.6	1.6	0.4	2.5	51.6	6463
5x1.5/6	1	1.1	0.3	1.3	15.8	402
5G1.5	1	1.1	0.3	1.3	15.8	387
5x2.5/6	1	1.1	0.3	1.4	17.2	483
5G2.5	1	1.1	0.3	1.4	17.2	477
5x4/6	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
5x16/16	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
5x70/35	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
7x1.5/6	1	1.1	0.3	1.4	18	485
7x2.5/6	1	1.1	0.3	1.4	19.6	601
12x1.5/10	1	1.1	0.3	1.5	21.4	691
12x2.5/10	1	1.2	0.3	1.6	23.6	887

Size	Insulation thickness	Thickness inner covering	Diameter of braid wire	Thickness outer covering	Approx. outer diameter	Approx. weight of cable
n x mm ²	mm	mm	mm	mm	mm	kg/km
19x1.5/10	1	1.2	0.3	1.6	25.9	973
19x2.5/10	1	1.2	0.3	1.7	28.4	1247
27x1.5/16	1	1.2	0.3	1.8	29.3	1275
27x2.5/16	1	1.2	0.3	1.9	32.2	1657
37x1.5/16	1	1.2	0.3	1.9	33.6	1625
37x2.5/16	1	1.4	0.3	2	37.4	2161

BFOU P5/P12 & BFOU EMC 0.6/1 (1.2) kV EPR/EPR/TCWB/EVA



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

Standards: NEK TS 606 Code P5/P12, IEC 60092-353- Design guidelines, IEC 60228 conductor, IEC 60092-351 Insulating material, IEC 60092-359 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

CONSTRUCTION

	Code letter	
Conductor		Tinned annealed stranded circular copper conductor, IEC 60228 class 2
Insulation	B	Mica tape + EP - rubber thermosetting compound, IEC 60092-351 (EPR)
Core identification		According to HD308 S2 Single core - Black Two core - Blue, Brown Three cores - Brown, Black, Grey, or Green/Yellow, Blue, Brown Four cores - Blue, Brown, Black, Grey or Green/Yellow, Brown, Black, Grey Five cores - Blue, Brown, Black, Grey, Black Multi-cores - White with Black numbers
Lay up/Shielding		Cores laid up in concentric layers
Inner covering	F	Flame retardant and halogen-free thermosetting compound
Armour/screen	O	Polyester or Cu/PET 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 60092-359
Outer sheath colour		Black

CHARACTERISTICS

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
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 60092-359 SHF2, IRM 902 (100°C/24h)
Mud resistance: NEK 606 (SHF MUD, SHF2)

Application	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 606:2009 Marine for fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC Other industrial applications
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Cable marking	TF KABLE 3 BFOU 0.6/1KV P5/P12 (SIZE) IEC 60331-21 IEC 60332-3-22
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	DNV GL Certificate No: E14150; ABS Certificate No: 15-GD1364347-PDA

MINIMUM BENDING RADIUS:

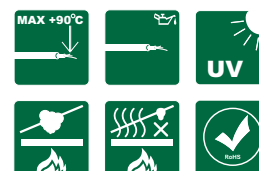
Overall diameter of cable (D)	Minimum bending radius
< 25 mm	4 D
> 25 mm	6 D
* D - overall diameter of cable	

Size	Insulation thickness	Thickness inner covering	Diameter of braid wire	Thickness outer covering	Approx. outer diameter	Approx. weight of cable
n x mm ²	mm	mm	mm	mm	mm	kg/km
1x16/4	1	1.1	0.2	1.2	13.4	362
1x25/6	1.2	1.1	0.3	1.3	15.7	534
1x35/6	1.2	1.1	0.3	1.3	16.9	654
1x50/10	1.4	1.1	0.3	1.4	18.6	801
1x70/10	1.4	1.1	0.3	1.4	20.3	1010
1x95/10	1.6	1.1	0.3	1.5	22.9	1342
1x120/10	1.6	1.2	0.3	1.6	24.8	1600
1x150/10	1.8	1.2	0.3	1.7	26.9	1922
1x185/10	2	1.2	0.3	1.7	29.1	2323
1x240/16	2.2	1.2	0.3	1.8	32.3	2946
1x300/16	2.4	1.2	0.3	1.9	35.3	3586
2x1.5/4	1	1.1	0.2	1.2	14.2	279
2x2.5/6	1	1.1	0.3	1.3	15.6	364
2x4/6	1	1.1	0.3	1.3	16.7	429
2x6/6	1	1.1	0.3	1.4	18	512
2x10/10	1	1.1	0.3	1.4	19.8	650
2x16/16	1	1.1	0.4	1.5	22.8	926
2x25/16	1.2	1.2	0.4	1.6	26.7	1296
2x35/16	1.2	1.2	0.3	1.7	28.8	1539
2x50/25	1.4	1.4	0.4	1.8	32.8	2015
2x70/35	1.4	1.6	0.5	2	37.6	2842
3G1.5	1	1.1	0.3	1.3	15.4	349
3x1.5/6	1	1.1	0.3	1.3	15.4	361
3G2.5	1	1.1	0.3	1.3	16.4	404
3x2.5/6	1	1.1	0.3	1.3	16.4	409
3x4/6	1	1.1	0.3	1.3	17.5	484
3x6/6	1	1.1	0.3	1.4	18.9	585
3x10/10	1	1.1	0.3	1.5	21.1	768
3x16/16	1	1.1	0.4	1.5	24	1096
3x25/16	1.2	1.2	0.3	1.7	28	1497
3G35	1.2	1.2	0.3	1.8	30.6	1898
3x35/16	1.2	1.2	0.3	1.8	30.6	1926

Size	Insulation thickness	Thickness inner covering	Diameter of braid wire	Thickness outer covering	Approx. outer diameter	Approx. weight of cable
n x mm ²	mm	mm	mm	mm	mm	kg/km
3x50/25	1.4	1.2	0.4	1.9	34.5	2476
3x70/35	1.4	1.4	0.5	2	39.2	3361
3x95/50	1.6	1.4	0.5	2.2	44.8	4589
3x120/70	1.6	1.4	0.5	2.4	48.5	5447
3x185/95	2	2	0.5	3	59.7	6030
4x1.5/6	1	1.1	0.3	1.3	16.6	450
4G1.5	1	1.1	0.3	1.3	16.6	420
4x2.5/6	1	1.1	0.3	1.3	17.6	480
4G2.5	1	1.1	0.3	1.3	17.6	460
4x4/6	1	1.1	0.3	1.4	19.1	610
4G4	1	1.1	0.3	1.4	19.1	660
4x6/6	1	1.1	0.3	1.4	20.4	770
4G6	1	1.1	0.3	1.4	20.4	720
4x10/10	1	1.1	0.3	1.5	22.8	990
4G10	1	1.1	0.3	1.5	22.8	990
4x16/16	1	1.2	0.4	1.6	26.4	1420
4G16	1	1.2	0.3	1.6	26	1330
4x25/16	1.2	1.2	0.3	1.7	29	1970
4G25	1.2	1.2	0.3	1.7	29	1930
4x35/16	1.2	1.2	0.3	1.9	33.5	2490
4G35	1.2	1.2	0.3	1.9	33.5	2470
4x50/25	1.4	1.4	0.4	2	38.5	3380
4G50	1.4	1.4	0.3	2	38	3290
4x70/35	1.4	1.4	0.4	2.2	43	4610
4G70	1.4	1.4	0.4	2.2	43	4520
4x95/50	1.6	1.6	0.5	2.4	49.8	6150
4G95	1.6	1.6	0.4	2.4	49.4	5900
4x120/70	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
5x1.5/6	1	1.1	0.3	1.4	18	460
5G2.5	1	1.1	0.3	1.4	19.1	475
5x2.5/6	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

Size	Insulation thickness	Thickness inner covering	Diameter of braid wire	Thickness outer covering	Approx. outer diameter	Approx. weight of cable
n x mm ²	mm	mm	mm	mm	mm	kg/km
5G95	1.6	1.6	0.5	2.6	54	7140
7x1.5/6	1	1.1	0.3	1.4	17	540
7x2.5/6	1	1.1	0.3	1.4	22	630
12x1.5/10	1	1.2	0.3	1.6	21.5	810
12x2.5/10	1	1.2	0.3	1.6	25.5	990
19x1.5/10	1	1.2	0.3	1.7	25	1100
19x2.5/16	1	1.2	0.3	1.8	30	1370
27x1.5/16	1	1.4	0.3	2	30	1460
27x2.5/25	1	1.4	0.3	2	32	1985
37x1.5/16	1	1.4	0.3	2	32.5	1880
37x2.5/25	1	1.4	0.4	2.2	34	2510

RFOU (i) S1/S5 & RFOU (i) EMC 150/250 (300)V EPR/EPR/TCWB/EVA



Flame retardant halogen-free instrumentation cable Mud resistant

Standards: NEK TS 606 Code S1/S5, IEC 60092-376- Design guidelines, IEC 60228 conductor, IEC 60092-351 Insulating material, IEC 60092-359 Sheathing materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60754-1,2 Halogen free, IEC 61034-1,2 Low Smoke

CONSTRUCTION

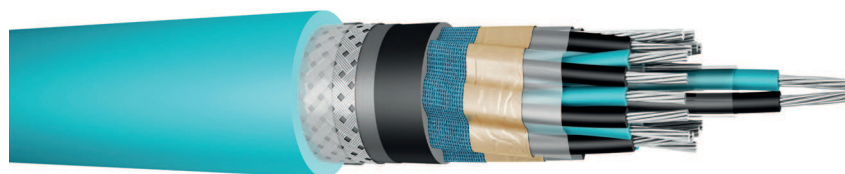
	Code letter	
Conductors		Tinned annealed stranded circular copper conductor, IEC 60228 class 2
Insulation	R	EP- rubber thermosetting compound, IEC 60092-351 (EPR)
Pair, Triple, Quad twisting		Colour coded cores twisted together. Pairs/Triples are screened by copper backed polyester tape with tinned copper 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 retardant and halogen-free thermosetting compound
Armour/screen	O	Polyester or Cu/PET 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 type SHF2 acc. to IEC 60092-359
Outer sheath colour		Grey or blue

CHARACTERISTICS

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	
Flame retardant: IEC 60332-3-22 (Category A)	
Smoke emission: IEC 61034-2	
Corrosive gas emission: IEC 60754-1	
Oil resistance: IEC 60092-359 SHF2, IRM 902 (100°C/24h)	
Mud resistance: NEK 606 (SHF MUD, SHF2)	
Application	Fixed installation for instrumentation, communication, control and alarm system in both EX - and safe areas Meets the MUD resistance requirement in NEK TS 606 Marine for fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC Other industrial applications
Cable marking	TF KABLE 3 RFOU (i) 250V S1/S5 2 PAIR 0.75mm ² IEC 60332-3-22 IEC 60092-376
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	DNV GL Certificate No: E14151; ABS Certificate No: 15-GD1364505-PDA

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
N x 2 x mm ²		mm	mm	mm	mm	mm	kg/km
1x2x0.75	2	0.6	1.1	0.2	1.1	10.3	148
2x2x0.75	2	0.6	1.1	0.2	1.2	14.4	248
4x2x0.75	2	0.6	1.1	0.3	1.3	15.6	355
8x2x0.75	2	0.6	1.1	0.3	1.5	19.2	554
12x2x0.75	2	0.6	1.4	0.3	1.6	22.9	775
16x2x0.75	2	0.6	1.9	0.3	1.7	26.5	1024
19x2x0.75	2	0.6	1.9	0.3	1.7	28.1	1153
24x2x0.75	2	0.6	2.1	0.3	1.9	31.3	1421
1x3x0.75	2	0.6	1.1	0.2	1.1	10.6	162
2x3x0.75	2	0.6	1.1	0.3	1.3	15.2	308
4x3x0.75	2	0.6	1.1	0.3	1.4	17	429
8x3x0.75	2	0.6	1.1	0.3	1.6	21.7	698
12x3x0.75	2	0.6	1.4	0.3	1.7	25.5	972
16x3x0.75	2	0.6	2.1	0.3	1.8	29.8	1310
19x3x0.75	2	0.6	2.1	0.3	1.8	31.7	1482
24x3x0.75	2	0.6	2.5	0.4	2	36.1	1859
1x2x1.5	2	0.7	1.1	0.2	1.1	11.6	187
2x2x1.5	2	0.7	1.1	0.3	1.3	17.6	384
4x2x1.5	2	0.7	1.1	0.3	1.4	20.0	546
8x2x1.5	2	0.7	1.1	0.3	1.7	23.1	809
12x2x1.5	2	0.7	1.4	0.3	1.8	27.8	1156
16x2x1.5	2	0.7	1.9	0.3	1.9	32.1	1524
19x2x1.5	2	0.7	1.9	0.3	1.9	34.2	1732
24x2x1.5	2	0.7	2.3	0.4	2.2	39.1	2287
1x3x1.5	2	0.7	1.1	0.2	1.1	12.2	216
2x3x1.5	2	0.7	1.1	0.3	1.4	18	428
4x3x1.5	2	0.7	1.1	0.3	1.5	20.2	622
8x3x1.5	2	0.7	1.1	0.3	1.8	26.3	1047
12x3x1.5	2	0.7	1.4	0.3	1.9	31.1	1488
16x3x1.5	2	0.7	2.3	0.4	2	37.1	2030
24x3x1.5	2	0.7	2.5	0.4	2.3	44.1	2983
1x2x2.5	2	0.7	1.1	0.2	1.1	12.4	222
2x2x2.5	2	0.7	1.1	0.3	1.4	14.6	368
4x2x2.5	2	0.7	1.1	0.3	1.5	20.5	637

RFOU (c) S2/S6 & RFOU (c) EMC 150/250(300)V EPR/EPR/TCWB/EVA



Flame retardant halogen-free instrumentation cable Mud resistant

Standards: NEK TS 606 Code S2/S6, IEC 60092-376- Design guidelines, IEC 60228 conductor, IEC 60092-351 Insulating material, IEC 60092-359 Sheathing materials, IEC 60332-1, IEC 60332-3-22 Flame retardant, IEC 60754-1,2 Halogen free, IEC 61034-1,2 Low Smoke

CONSTRUCTION

	Code letter	
Conductors		Tinned annealed stranded circular copper conductor, IEC 60228 class 2
Insulation	R	EP- rubber thermosetting compound, IEC 60092-351 (EPR)
Pair, Triple, Quad twisting		Colour 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 or Cu/PET 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 type SHF2 acc. to IEC 60092-359
Outer sheath colour		Grey or blue

CHARACTERISTICS

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

Flame retardant: IEC 60332-3-22 (Category A)

Smoke emission: IEC 61034-2

Corrosive gas emission: IEC 60754-1

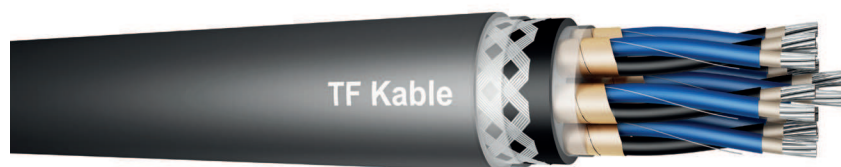
Oil resistance: IEC 60092-359 SHF2, IRM 902 (100°C/24h)

Mud resistance: NEK 606 (SHF MUD, SHF2)

Application	Fixed installation for instrumentation, communication, control and alarm system in both EX - and safe areas Meets the MUD resistance requirement in NEK TS 606 Marine for fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC Other industrial applications
Cable marking	TF KABLE 3 RFOU (c) 250V S2/S6 2 PAIR 0.75mm ² IEC 60332-3-22 IEC 60092-376
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	DNV GL Certificate No: E14151; ABS Certificate No: 15-GD1364505-PDA

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
N x 2 x mm ²		mm	mm	mm	mm	mm	kg/km
2x2x0.75	2	0.6	1.1	0.2	1.2	11.4	187
4x2x0.75	2	0.6	1.1	0.3	1.3	15.9	337
8x2x0.75	2	0.6	1.1	0.3	1.5	19.3	496
12x2x0.75	2	0.6	1.4	0.3	1.5	22.9	685
16x2x0.75	2	0.6	1.9	0.3	1.6	26.5	899
19x2x0.75	2	0.6	1.9	0.3	1.7	28.3	1017
24x2x0.75	2	0.6	2.1	0.3	1.8	31.3	1231
2x3x0.75	2	0.6	1.1	0.3	1.3	15.4	306
4x3x0.75	2	0.6	1.1	0.3	1.3	17	403
8x3x0.75	2	0.6	1.1	0.3	1.6	21.8	639
12x3x0.75	2	0.6	1.4	0.3	1.6	25.5	879
16x3x0.75	2	0.6	2.1	0.3	1.7	29.9	1183
24x3x0.75	2	0.6	2.5	0.4	2	36.3	1680
2x2x1.5	2	0.7	1.1	0.3	1.3	13.6	288
4x2x1.5	2	0.7	1.1	0.3	1.4	18.8	475
8x2x1.5	2	0.7	1.1	0.3	1.6	23.3	740
10x2x1.5	2	0.7	1.2	0.3	1.7	26.4	900
12x2x1.5	2	0.7	1.4	0.3	1.7	27.9	1031
16x2x1.5	2	0.7	1.9	0.3	1.8	32.2	1353
19x2x1.5	2	0.7	1.9	0.3	1.9	34.4	1543
24x2x1.5	2	0.7	2.3	0.3	2.1	39.1	1932
2x3x1.5	2	0.7	1.1	0.3	1.4	18.2	420
4x3x1.5	2	0.7	1.1	0.3	1.4	20.3	585
8x3x1.5	2	0.7	1.1	0.3	1.7	26.5	975
12x3x1.5	2	0.7	1.4	0.3	1.8	31.1	1357
16x3x1.5	2	0.7	2.1	0.4	1.9	36.7	1810
24x3x1.5	2	0.7	2.5	0.4	2.2	44.1	2593
2x2x2.5	2	0.7	1.1	0.3	1.4	14.8	358
4x2x2.5	2	0.7	1.1	0.3	1.4	20.6	594
8x2x2.5	2	0.7	2.1	0.3	1.8	28.1	1110
12x2x2.5	2	0.7	2.1	0.3	1.8	32.4	1460

BFOU (i) S3/S7 & BFOU (i) EMC 150/250 (300)V MGT/EPR/EPR/TCWB/EVA



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

Standards: NEK TS 606 Code S3/S7, IEC 60092-376- Design guidelines, IEC 60228 conductor, IEC 60092-351 Insulating material, IEC 60092-359 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

CONSTRUCTION

	Code letter	
Conductors		Tinned annealed stranded circular copper conductor, IEC 60228 class 2
Insulation	B	Mica tape EP - rubber thermosetting compound, IEC 60092-351 (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 retardant and halogen-free thermosetting compound
Armour/screen	O	Polyester or Cu/PET 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 60092-359)
Outer sheath colour		Grey or blue

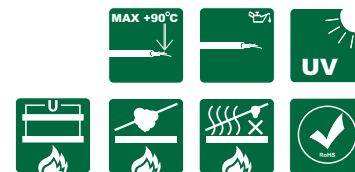
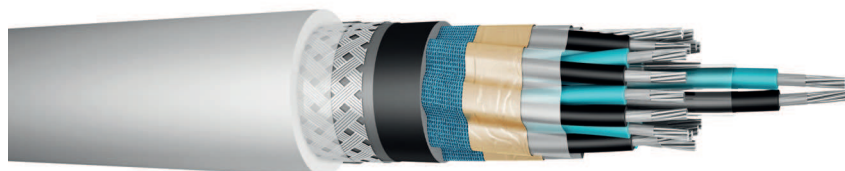
CHARACTERISTICS

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
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 60092-359 SHF2, IRM 902 (100°C/24h)
Mud resistance: NEK 606 (SHF MUD, SHF2)

Application	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 Marine For fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC Other industrial applications
Cable marking	TF KABLE 3 BFOU (i) 250V S3/S7 2 PAIR 0.75mm ² IEC 60331-21 IEC 60332-3-22 IEC 60092-376
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	DNV GL Certificate No: E14152; ABS Certificate No: 15-GD1357086-PDA

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
N x 2 x mm ²		mm	mm	mm	mm	mm	kg/km
1x2x0.75	2	0.6	1.1	0.2	1.1	11.7	171
2x2x0.75	2	0.6	1.1	0.3	1.3	13.5	258
4x2x0.75	2	0.6	1.1	0.3	1.4	18.8	438
8x2x0.75	2	0.6	1.1	0.3	1.6	23.4	680
12x2x0.75	2	0.6	1.4	0.3	1.7	28	949
16x2x0.75	2	0.6	1.9	0.3	1.8	32.3	1250
19x2x0.75	2	0.6	1.9	0.3	1.9	34.6	1422
24x2x0.75	2	0.6	2.3	0.4	2.1	39.4	1879
1x3x0.75	2	0.6	1.1	0.2	1.1	12.2	200
2x3x0.75	2	0.6	1.1	0.3	1.4	18.2	384
4x3x0.75	2	0.6	1.1	0.3	1.4	20.3	521
8x3x0.75	2	0.6	1.1	0.3	1.7	26.6	860
12x3x0.75	2	0.6	1.4	0.3	1.8	31.3	1192
16x3x0.75	2	0.6	2.1	0.4	1.9	36.9	1603
19x3x0.75	2	0.6	2.3	0.4	2	39.9	1866
24x3x0.75	2	0.6	2.5	0.4	2.2	44.4	2395
1x2x1.5	2	0.7	1.1	0.2	1.1	13	214
2x2x1.5	2	0.7	1.1	0.3	1.4	20.1	454
4x2x1.5	2	0.7	1.1	0.3	1.5	23.2	648
8x2x1.5	2	0.7	1.1	0.3	1.7	27.3	947
12x2x1.5	2	0.7	1.4	0.3	1.9	36.5	1519
16x2x1.5	2	0.7	2.1	0.4	2	38.7	1810
19x2x1.5	2	0.7	1.9	0.4	2	40.9	2092
24x2x1.5	2	0.7	2.3	0.4	2.3	46.2	2657
1x3x1.5	2	0.7	1.1	0.2	1.1	12.2	224
2x3x1.5	2	0.7	1.1	0.3	1.5	21	508
4x3x1.5	2	0.7	1.1	0.3	1.6	23.8	730
8x3x1.5	2	0.7	1.1	0.3	1.8	31.1	1221
12x3x1.5	2	0.7	1.6	0.4	2	37.7	1765
16x3x1.5	2	0.7	2.3	0.4	2.2	43.9	2481
24x3x1.5	2	0.7	2.7	0.4	2.5	52.8	3527
1x2x2.5	2	0.7	1.1	0.2	1.2	14.1	258
2x2x2.5	2	0.7	1.1	0.3	1.5	16.5	423
4x2x2.5	2	0.7	1.1	0.3	1.6	23.7	733
8x2x2.5	2	0.7	1.1	0.3	1.8	29.8	1200
16x2x2.5	2	0.7	2.3	0.4	2.2	42.9	2466
8x3x2.5	2	0.7	1.3	0.3	2	34.7	1621
16x3x2.5	2	0.7	2.6	0.4	2.2	48.4	3224

BFOU (c) S4/S8 & BFOU (c) EMC 150/250 (300)V MGT/EPR/EPR/TCWB/EVA



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

Standards: NEK TS 606 Code S4/S8, IEC 60092-376- Design guidelines, IEC 60228 conductor, IEC 60092-351 Insulating material, IEC 60092-359 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

CONSTRUCTION

	Code letter	
Conductor		Tinned annealed stranded circular copper conductor, IEC 60228 class 2
Insulation	B	Mica tape + EP - rubber thermosetting compound, IEC 60092-351 (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
Lay up/Shielding		Cores laid up in concentric layers
Inner covering	F	Flame retardant and halogen-free thermosetting compound
Armour/screen	O	Polyester or Cu/PET 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 60092-359)
Outer sheath colour		Grey or blue

CHARACTERISTICS

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
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 60092-359 SHF2, IRM 902 (100°C/24h)
Mud resistance: NEK 606 (SHF MUD, SHF2)

Application	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 Marine For fixed wiring installations on Oil and Gas Rigs, Shipboard and other marine applications requiring screened cable for EMC Other industrial applications
Cable marking	TF KABLE 3 BFOU (c) 250V S4/S8 2 PAIR 0.75mm ² IEC 60331-21 IEC 60332-3-22 IEC 60092-376
Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request
Approval	DNV GL Certificate No: E14152; ABS Certificate No: 15-GD1357086-PDA

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
N x 2 x mm ²		mm	mm	mm	mm	mm	kg/km
2x2x0.75	2	0.6	1.1	0.3	1.3	13.7	258
4x2x0.75	2	0.6	1.1	0.3	1.4	19	416
8x2x0.75	2	0.6	1.1	0.3	1.5	23.4	612
12x2x0.75	2	0.6	1.4	0.3	1.6	28	842
16x2x0.75	2	0.6	1.9	0.3	1.7	32.3	1104
19x2x0.75	2	0.6	1.9	0.3	1.8	34.6	1247
24x2x0.75	2	0.6	2.3	0.4	2	39.4	1561
2x3x0.75	2	0.6	1.1	0.3	1.3	18.2	372
4x3x0.75	2	0.6	1.1	0.3	1.4	20.5	497
8x3x0.75	2	0.6	1.1	0.3	1.6	22.7	703
12x3x0.75	2	0.6	1.4	0.3	1.8	31.5	1091
16x3x0.75	2	0.6	2.1	0.4	1.9	37.1	1463
24x3x0.75	2	0.6	2.5	0.4	2.1	44.4	2157
2x2x1.5	2	0.7	1.1	0.3	1.4	15.5	337
4x2x1.5	2	0.7	1.1	0.3	1.4	21.8	551
8x2x1.5	2	0.7	1.1	0.3	1.7	27.5	868
12x2x1.5	2	0.7	1.4	0.3	1.8	32.9	1207
16x2x1.5	2	0.7	1.9	0.4	1.9	38.4	1580
24x2x1.5	2	0.7	2.3	0.4	2.3	46.4	2379
2x3x1.5	2	0.7	1.1	0.3	1.4	21	492
4x3x1.5	2	0.7	1.1	0.3	1.5	23.8	687
8x3x1.5	2	0.7	1.1	0.3	1.8	31.4	1139
12x3x1.5	2	0.7	1.4	0.4	1.9	37.3	1578
16x3x1.5	2	0.7	2.3	0.4	2.1	44	2274
24x3x1.5	2	0.7	2.7	0.4	2.4	52.8	3210
2x2x2.5	2	0.7	1.1	0.3	1.4	16.6	402
4x2x2.5	2	0.7	1.1	0.3	1.5	23.7	683
8x2x2.5	2	0.7	1.1	0.3	1.8	30.1	1103
16x2x2.5	2	0.7	2.3	0.4	2.1	42.9	2228
4x3x2.5	2	0.7	1.1	0.3	1.6	26	929
8x3x2.5	2	0.7	1.1	0.3	1.9	34.4	1472
16x3x2.5	2	0.7	2.6	0.4	2.3	48.9	3023

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) 600/1000v	≤10mm	3 D
	>10mm to ≤25mm	4 D
	>25mm	6 D
Multi-core armoured (braided) 600/1000v	≤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	Insulation class temperature 90°C		
mm ²	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		
Nominal cross-sectional area	1mm ² Ampere	1.5mm ² Ampere	2.5mm ² 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	80
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:

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

S=Cross-section of conductor, mm²

t=Duration of the short circuit, s

T_k=Maximum rated conductor temperature, short circuit, °C

T_b=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 ²	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
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

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 ²	kA	kA	kA
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 ²	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 ²	Ω/km	Ω/km
0.75	26.7	34.18
1	20.0	25.60
1.5	13.7	17.54

UKOOA CABLE CODING

1 st Character							
	Type	Voltage		Type	Voltage		
F	Fire resistant, reduced halogen	150/250V	M	Flame retardant, reduced halogen	3.8/6.6KV		
G	Fire resistant, low smoke & fume	150/250V	N	Flame retardant, reduced halogen	1.9/3.3KV		
H	Flame retardant, reduced halogen	8.7/15KV	P	Flame retardant, reduced halogen	6.35/11KV		
J	Flame retardant, reduced halogen	150/250V	W	Flame retardant, low smoke & fume	600/1000V		
K	Flame retardant, low smoke & fume	150/250V	X	Fire resistant, reduced halogen	600/1000V		
L	Flame retardant, reduced halogen	600/1000V	Y	Fire resistant, low smoke & fume	600/1000V		
2 nd Character							
	Basic Construction	Sheath Colour	Armour	Screen			
A	Flame retardant	Black (600/1000V) , Red (HV)	Bronze braid (TPBWB)	-			
B	Flame retardant	Black (600/1000V) , Red (HV)	GSWB	-			
C	Fire resistant	Black (600/1000V)	Bronze braid (TPBWB)	-			
D	Fire resistant	Black (600/1000V)	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			
3 rd 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		
4 th & 5 th Character							
	Conductor Size	Type of stranding		Conductor Size	Type of stranding		
00	0.75 mm ²	Flexible tinned copper (Class5)	70	70 mm ²	Tinned copper (Class2)		
01	1.0 mm ²	Flexible tinned copper (Class5)	95	95 mm ²	Tinned copper (Class2)		
02	1.5 mm ²	Flexible tinned copper (Class5)	0A	120 mm ²	Tinned copper (Class2)		
03	2.5 mm ²	Tinned copper (Class2)	0B	150 mm ²	Tinned copper (Class2)		
04	4 mm ²	Tinned copper (Class2)	0C	185 mm ²	Tinned copper (Class2)		
06	6 mm ²	Tinned copper (Class2)	0D	240 mm ²	Tinned copper (Class2)		
10	10 mm ²	Tinned copper (Class2)	0E	300 mm ²	Tinned copper (Class2)		
16	16 mm ²	Tinned copper (Class2)	0F	400 mm ²	Tinned copper (Class2)		
25	25 mm ²	Tinned copper (Class2)	0G	500 mm ²	Tinned copper (Class2)		
35	35 mm ²	Tinned copper (Class2)	0H	630 mm ²	Tinned copper (Class2)		
50	50 mm ²	Tinned copper (Class2)					

NOTES

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Edition III



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