

Halogen-free and/or Mud resistant cables for offshore installations



## Construction

- 1** Conductor  
Tinned annealed copper wire according to IEC 60228 Class 2 or Class 5
- 2** Insulation  
HF EPR as per IEC 60092-360(351), thickness as per IEC 60092-376
- 3** Individual screen  
Screened by copper or aluminium backed polyester tape with tinned copper drain wire
- 4** Twisting  
Two/Three insulated cores shall be twisted together to form a pair/triad
- 5** Inner covering  
Halogen free thermoset compound, thickness according to IEC 60092-376
- 6** Braid armour  
Tinned copper wire braid (O), Galvanized steel wire braid (C)
- 7** Outer sheath  
Halogen free thermoset compound SHF2 or halogen free MUD resistant thermoset compound SHF MUD complying with IEC 60092-360(359) and / or NEK 606.

## Marking

e.g. : S.E.C. 250V S1/S5 RFOU(I)-M 2 X 2 X 0.75SQMM  
NEK 606 IEC 60332-3A MUD SEOUL Year Length

## Applicable standards

NEK 606	Design standards
IEC 60092-350	Design standards
IEC 60092-352	Choice and installation of electric cables
IEC 60092-376	Design standards
IEC 60092-360(351, 359)	Insulating and sheathing materials
IEC 60332-1	Flame retardant
IEC 60332-3-22 Cat.A	Flame retardant
IEC 60684-2	Fluorine content test
IEC 60754-1	Halogen gas emission test
IEC 60754-2	pH and conductivity test
IEC 61034-1,2	Smoke emission test
UL 1581	UV resistance (sunlight resistance)
CSA C 22.2 No.0.3	Cold bending test (at -40°C) and cold impact (at -35°C) test at low temperature(option)



-40 to 90°C



Flame retardant  
IEC 60332-1 (single)  
IEC 60332-3, A (bunched)  
Fire retardant IEC 60331



Cold impact (-35°C)  
CSA C22.2 No.0.3  
Special requirement



Halogen free



Weather  
Resistance to severe  
weather condition



Chemical attacks  
Resistance to  
chemicals



Mud  
Resistance to  
Mud



Oil  
Resistance to  
Enhanced oil

## 150V250V | Multi-pair, (HF-)EPR insulated, Individual screen, Halogen free Inner covering /Bedding, Braid armour, Halogen free SHF2 or SHF MUD Resistance Instrumentation/control cables(Flame retardant) RFOU(I), RFCU(I)

No. of pairs & cores (n x c)	Conductor		Insulation Thick mm	Inner Covering Overall dia. mm	Outer Diameter Nom. mm	Cable weight Approx. kg/km	Conductor Resistance(20°C) max. Ω/km	Inductance mH/km
	Area	Overall dia.						
	mm <sup>2</sup>	mm						
1 x 2	0.75	1.11	0.6	7.8	10.6	210	26.3	0.75
2 x 2	0.75	1.11	0.6	11.5	15.1	390	26.3	0.75
3 x 2	0.75	1.11	0.6	12.2	15.8	440	26.3	0.75
4 x 2	0.75	1.11	0.6	13.4	17.1	500	26.3	0.75
7 x 2	0.75	1.11	0.6	15.5	19.3	670	26.3	0.75
8 x 2	0.75	1.11	0.6	16.9	20.9	760	26.3	0.75
10 x 2	0.75	1.11	0.6	19.5	23.4	940	26.3	0.75
12 x 2	0.75	1.11	0.6	20.2	24.3	1,020	26.3	0.75
14 x 2	0.75	1.11	0.6	21.3	25.4	1,140	26.3	0.75
16 x 2	0.75	1.11	0.6	22.5	27.0	1,250	26.3	0.75
19 x 2	0.75	1.11	0.6	23.3	27.6	1,370	26.3	0.75
24 x 2	0.75	1.11	0.6	27.5	32.2	1,750	26.3	0.75
32 x 2	0.75	1.11	0.6	30.2	35.0	2,150	26.3	0.75
37 x 2	0.75	1.11	0.6	32.1	36.7	2,510	26.3	0.75

## 150V250V | Multi-pair, (HF-)EPR insulated, Individual screen, Halogen free Inner covering /Bedding, Braid armour, Halogen free SHF2 or SHF MUD Resistance Instrumentation/control cables(Flame retardant) RFOU(I), RFCU(I)

No. of pairs & cores (n x c)	Conductor		Insulation Thick mm	Inner Covering Overall dia. mm	Outer Diameter Nom. mm	Cable weight Approx. kg/km	Conductor Resistance(20°C) max. Ω/km	Inductance mH/km
	Area	Overall dia.						
	mm <sup>2</sup>	mm						
1 x 2	1	1.29	0.6	8.2	11.0	220	19.3	0.67
2 x 2	1	1.29	0.6	12.1	15.8	430	19.3	0.67
3 x 2	1	1.29	0.6	12.9	16.5	490	19.3	0.67
4 x 2	1	1.29	0.6	14.2	17.9	570	19.3	0.67
7 x 2	1	1.29	0.6	16.4	20.3	770	19.3	0.67
8 x 2	1	1.29	0.6	17.9	22.0	860	19.3	0.67
10 x 2	1	1.29	0.6	20.7	24.7	1,070	19.3	0.67
12 x 2	1	1.29	0.6	21.4	25.6	1,180	19.3	0.67
14 x 2	1	1.29	0.6	22.6	26.8	1,300	19.3	0.67
16 x 2	1	1.29	0.6	23.9	28.6	1,440	19.3	0.67
19 x 2	1	1.29	0.6	24.8	29.2	1,590	19.3	0.67
24 x 2	1	1.29	0.6	29.7	34.4	2,080	19.3	0.67
32 x 2	1	1.29	0.6	32.1	37.1	2,610	19.3	0.67
37 x 2	1	1.29	0.6	34.2	38.8	2,930	19.3	0.67

# 150/250V

Multi-pair, (HF-)EPR insulated, Individual screen, Halogen free Inner covering /Bedding, Braid armour, Halogen free SHF2 or SHF MUD Resistance Instrumentation/control cables(Flame retardant) RFOU(I), RFCU(I)

No. of pairs & cores (n x c)	Conductor		Insulation Thick mm	Inner Covering Overall dia. mm	Outer Diameter Nom. mm	Cable weight Approx. kg/km	Conductor Resistance(20°C) max. Ω/km	Inductance mH/km
	Area mm <sup>2</sup>	Overall dia. mm						
	1 x 2	1.50						
2 x 2	1.50	1.59	0.7	14.2	17.6	540	12.9	0.63
3 x 2	1.50	1.59	0.7	15.1	18.5	610	12.9	0.63
4 x 2	1.50	1.59	0.7	16.7	20.0	720	12.9	0.63
7 x 2	1.50	1.59	0.7	19.4	22.8	990	12.9	0.63
8 x 2	1.50	1.59	0.7	21.1	24.9	1,120	12.9	0.63
10 x 2	1.50	1.59	0.7	24.6	28.0	1,410	12.9	0.63
12 x 2	1.50	1.59	0.7	25.4	29.1	1,540	12.9	0.63
14 x 2	1.50	1.59	0.7	26.9	30.9	1,720	12.9	0.63
16 x 2	1.50	1.59	0.7	28.9	33.0	1,950	12.9	0.63
19 x 2	1.50	1.59	0.7	29.9	33.7	2,150	12.9	0.63
24 x 2	1.50	1.59	0.7	35.3	39.2	2,870	12.9	0.63
32 x 2	1.50	1.59	0.7	38.3	42.8	3,480	12.9	0.63
37 x 2	1.50	1.59	0.7	41.2	44.9	3,980	12.9	0.63

# 150/250V

Multi-pair, (HF-)EPR insulated, Individual screen, Halogen free Inner covering /Bedding, Braid armour, Halogen free SHF2 or SHF MUD Resistance Instrumentation/control cables(Flame retardant) RFOU(I), RFCU(I)

No. of pairs & cores (n x c)	Conductor		Insulation Thick mm	Inner Covering Overall dia. mm	Outer Diameter Nom. mm	Cable weight Approx. kg/km	Conductor Resistance(20°C) max. Ω/km	Inductance mH/km
	Area mm <sup>2</sup>	Overall dia. mm						
	1 x 2	2.5						
2 x 2	2.5	2.01	0.7	15.7	19.2	640	8.02	0.59
3 x 2	2.5	2.01	0.7	16.7	20.2	750	8.02	0.59
4 x 2	2.5	2.01	0.7	18.5	21.9	880	8.02	0.59
7 x 2	2.5	2.01	0.7	21.5	25.1	1,240	8.02	0.59
8 x 2	2.5	2.01	0.7	23.5	27.5	1,390	8.02	0.59
10 x 2	2.5	2.01	0.7	27.3	31.4	1,770	8.02	0.59
12 x 2	2.5	2.01	0.7	28.7	32.6	2,000	8.02	0.59
14 x 2	2.5	2.01	0.7	30.3	34.5	2,220	8.02	0.59
16 x 2	2.5	2.01	0.7	32.1	36.9	2,580	8.02	0.59
19 x 2	2.5	2.01	0.7	33.3	37.7	2,890	8.02	0.59
24 x 2	2.5	2.01	0.7	39.8	44.0	3,740	8.02	0.59
32 x 2	2.5	2.01	0.7	43.2	47.6	4,540	8.02	0.59
37 x 2	2.5	2.01	0.7	45.9	49.9	5,140	8.02	0.59

Conductor area (mm <sup>2</sup> )	Capacitance (mF/km)		Inductance (mH/km)	
	Shielded	Unshielded	Shielded	Unshielded
0.75	90	80	0.75	0.75
1.0	100	90	0.67	0.69
1.5	110	100	0.63	0.63
2.5	135	120	0.59	0.60

**150/250V**

Multi-triple, (HF-)EPR insulated, Individual screen, Halogen free Inner covering /Bedding, Braid armour, Halogen free SHF2 or SHF MUD Resistance Instrumentation/control cables(Flame retardant) RFOU(I), RFCU(I)

No. of triples & cores (n x c)	Conductor		Insulation Thick mm	Inner Covering Overall dia. mm	Outer Diameter Nom. mm	Cable weight Approx. kg/km	Conductor Resistance(20°C) max. Ω/km	Inductance mH/km
	Area	Overall dia.						
	mm <sup>2</sup>	mm						
1 x 3	0.75	1.11	0.6	8.2	11.1	230	26.3	0.75
2 x 3	0.75	1.11	0.6	12.7	15.9	460	26.3	0.75
3 x 3	0.75	1.11	0.6	13.5	16.8	520	26.3	0.75
4 x 3	0.75	1.11	0.6	14.8	18.2	610	26.3	0.75
7 x 3	0.75	1.11	0.6	17.6	22.1	840	26.3	0.75
8 x 3	0.75	1.11	0.6	19.1	23.4	960	26.3	0.75
10 x 3	0.75	1.11	0.6	22.2	26.2	1,190	26.3	0.75
12 x 3	0.75	1.11	0.6	23.0	27.6	1,300	26.3	0.75
14 x 3	0.75	1.11	0.6	24.3	28.7	1,450	26.3	0.75
16 x 3	0.75	1.11	0.6	25.7	30.0	1,600	26.3	0.75
19 x 3	0.75	1.11	0.6	27.2	31.1	1,810	26.3	0.75
24 x 3	0.75	1.11	0.6	32.6	33.4	2,460	26.3	0.75
32 x 3	0.75	1.11	0.6	35.4	42.1	2,960	26.3	0.75

**150/250V**

Multi-triple, (HF-)EPR insulated, Individual screen, Halogen free Inner covering /Bedding, Braid armour, Halogen free SHF2 or SHF MUD Resistance Instrumentation/control cables(Flame retardant) RFOU(I), RFCU(I)

No. of triples & cores (n x c)	Conductor		Insulation Thick mm	Inner Covering Overall dia. mm	Outer Diameter Nom. mm	Cable weight Approx. kg/km	Conductor Resistance(20°C) max. Ω/km	Inductance mH/km
	Area	Overall dia.						
	mm <sup>2</sup>	mm						
1 x 3	1.00	1.29	0.6	8.2	12.0	230	19.3	0.67
2 x 3	1.00	1.29	0.6	13.8	17.6	540	19.3	0.67
3 x 3	1.00	1.29	0.6	14.3	18.6	590	19.3	0.67
4 x 3	1.00	1.29	0.6	15.7	20.2	680	19.3	0.67
7 x 3	1.00	1.29	0.6	18.6	24.7	970	19.3	0.67
8 x 3	1.00	1.29	0.6	20.3	26.3	1,080	19.3	0.67
10 x 3	1.00	1.29	0.6	23.6	29.5	1,370	19.3	0.67
12 x 3	1.00	1.29	0.6	24.5	31.1	1,500	19.3	0.67
14 x 3	1.00	1.29	0.6	25.8	32.8	1,670	19.3	0.67
16 x 3	1.00	1.29	0.6	27.4	33.7	1,860	19.3	0.67
19 x 3	1.00	1.29	0.6	29.4	35.0	2,140	19.3	0.67
24 x 3	1.00	1.29	0.6	34.7	37.6	2,850	19.3	0.67
32 x 3	1.00	1.29	0.6	37.6	47.7	3,560	19.3	0.67

Conductor area, (mm <sup>2</sup> )	Capacitance (mF/km)		Inductance (mH/km)	
	Shielded	Unshielded	Shielded	Unshielded
0.75	90	80	0.75	0.75
1.0	100	90	0.67	0.69
1.5	110	100	0.63	0.63
2.5	135	120	0.59	0.60

# 150/250V

Multi-triple, (HF-)EPR insulated, Individual screen, Halogen free Inner covering /Bedding, Braid armour, Halogen free SHF2 or SHF MUD Resistance Instrumentation/control cables(Flame retardant) RFOU(I), RFCU(I)

No. of triples & cores (n x c)	Conductor		Insulation Thick mm	Inner Covering Overall dia. mm	Outer Diameter Nom. mm	Cable weight Approx. kg/km	Conductor Resistance(20°C) max. Ω/km	Inductance mH/km
	Area	Overall dia.						
	mm <sup>2</sup>	mm						
1 x 3	1.50	1.59	0.7	9.3	13.5	280	12.9	0.63
2 x 3	1.50	1.59	0.7	15.3	19.7	620	12.9	0.63
3 x 3	1.50	1.59	0.7	17.2	20.8	780	12.9	0.63
4 x 3	1.50	1.59	0.7	18.5	22.7	880	12.9	0.63
7 x 3	1.50	1.59	0.7	22.1	28.0	1,260	12.9	0.63
8 x 3	1.50	1.59	0.7	24.1	29.8	1,430	12.9	0.63
10 x 3	1.50	1.59	0.7	28.1	34.0	1,810	12.9	0.63
12 x 3	1.50	1.59	0.7	29.5	36.2	2,040	12.9	0.63
14 x 3	1.50	1.59	0.7	31.2	37.8	2,390	12.9	0.63
16 x 3	1.50	1.59	0.7	33.0	38.9	2,640	12.9	0.63
19 x 3	1.50	1.59	0.7	34.9	40.0	2,980	12.9	0.63
24 x 3	1.50	1.59	0.7	41.8	43.5	3,900	12.9	0.63
32 x 3	1.50	1.59	0.7	45.4	54.7	4,720	12.9	0.63

# 150/250V

Multi-triple, (HF-)EPR insulated, Individual screen, Halogen free Inner covering /Bedding, Braid armour, Halogen free SHF2 or SHF MUD Resistance Instrumentation/control cables(Flame retardant) RFOU(I), RFCU(I)

No. of triples & cores (n x c)	Conductor		Insulation Thick mm	Inner Covering Overall dia. mm	Outer Diameter Nom. mm	Cable weight Approx. kg/km	Conductor Resistance(20°C) max. Ω/km	Inductance mH/km
	Area	Overall dia.						
	mm <sup>2</sup>	mm						
1 x 3	2.50	2.01	0.7	10.4	14.6	340	8.02	0.59
2 x 3	2.50	2.01	0.7	17.4	21.6	780	8.02	0.59
3 x 3	2.50	2.01	0.7	18.6	22.8	910	8.02	0.59
4 x 3	2.50	2.01	0.7	21.0	25.0	1,140	8.02	0.59
7 x 3	2.50	2.01	0.7	24.5	30.9	1,600	8.02	0.59
8 x 3	2.50	2.01	0.7	26.8	33.5	1,820	8.02	0.59
10 x 3	2.50	2.01	0.7	31.7	38.1	2,460	8.02	0.59
12 x 3	2.50	2.01	0.7	32.8	40.2	2,720	8.02	0.59
14 x 3	2.50	2.01	0.7	34.7	41.9	3,050	8.02	0.59
16 x 3	2.50	2.01	0.7	36.8	43.6	3,400	8.02	0.59
19 x 3	2.50	2.01	0.7	39.4	44.9	3,910	8.02	0.59
24 x 3	2.50	2.01	0.7	46.6	48.3	5,030	8.02	0.59
32 x 3	2.50	2.01	0.7	51.0	61.5	6,230	8.02	0.59

Conductor area. (mm <sup>2</sup> )	Capacitance (mF/km)		Inductance (mH/km)	
	Shielded	Unshielded	Shielded	Unshielded
0.75	90	80	0.75	0.75
1.0	100	90	0.67	0.69
1.5	110	100	0.63	0.63
2.5	135	120	0.59	0.60