

# Draka Norsk Kabel AS

Doc. title: Technical Data Book

Power and

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Doc. no.: ST260 bfou mangetrådet.doc

Instrumentation Cables

Rev. 00

# Halogen-free, MUD resistant Offshore cables with Flexible conductors

Technical Data Book

SDRL Code:

00	12.09.00	SOL		--	AFJ	For review
<b>REV</b>	<b>DATE</b>	<b>BY</b>	<b>CHECK</b>	<b>IDC</b>	<b>APPROV</b>	<b>REMARKS</b>

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# TECHNICAL DATA

## FOR

### POWER AND INSTRUMENTATION CABLE

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## **DIMENSION DATA, RFOU 0,6/1 kV, Flexible tinned copper conductor**

### DIMENSION DATA

Item/Stock no.	Type [mm <sup>2</sup> ]	Thickness of armour wires [mmØ]	Diameter Under braid [mm]	Diameter Overall [mm]	Weight of cable approx. [kg/km]	Copper content approx. [kg/km]
885176	12x 1,5/10	0,30	17,5±0,8	21,5±1,0	690	280

### ELECTRICAL DATA

No. of cores x cross section [mm <sup>2</sup> ]	Conductor resistance [Ω/km]		Reactance [Ω/km]	Impedance [Ω/km] at 85 °C	Continous current rating at 45 °C	Short circuit [Ampere]	
	at 20 °C	at 85 °C	at 60 Hz	at 60 Hz		1 sec	0,3 sec
12x 1,5/10	13,7	17,199	0,132	17,2	9	210	383

### INSTALLATION DATA

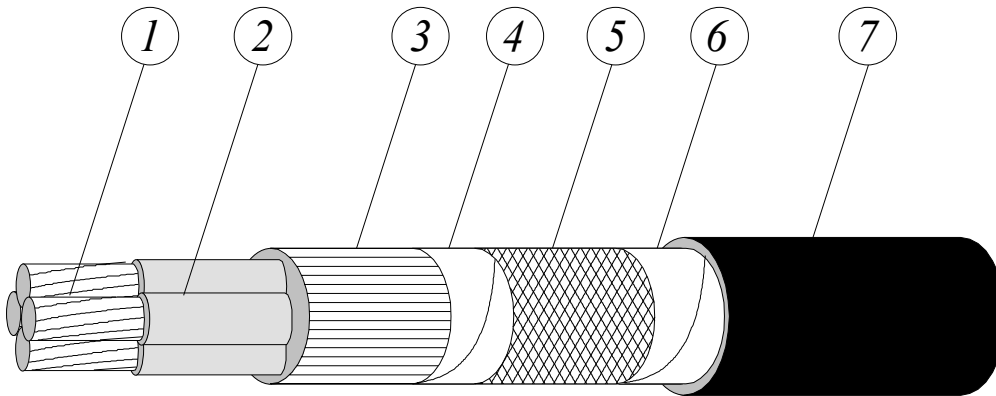
Item/Stock no.	TYPE [mm <sup>2</sup> ]	Overall Diameter [mmØ]	Minimum bending radius [mm]	Maximum pulling tension [N]
885176	12x 1,5/10	21,5±1,0	129	900

Minimum installation temperature: - 20 °C

## CABLE DRAWING: RFOU 0,6/1kV, Black sheath

Construction according to IEC 60092-353  
Conductor according to IEC 60228 class 5  
Flame retardant i.a.w. IEC 60332-1 and IEC 60332-3 cat. A  
Halogen-free i.a.w. IEC 60754-1,2  
Mud resistant i.a.w. NEK 606  
Maximum operating temperature 85°C  
Test voltage 8,4 kV dc in 5 minutes

Flame retardant – Halogen-free - Mud resistant



Drawing for indication only

1. Conductor, circular tinned flexible copper conductor
2. Insulation, EP-rubber (R)
3. Bedding, flame retardant halogen-free thermoset compound (F)
4. PETP-tape
5. Armour, tinned copper wire braid (O)
6. PETP-tape
7. Sheath, flame retardant halogen-free mud resistant thermoset compound, (U)

Sheath marking: (example)

“meter” “year” DRAKA NORSK KABEL RFOU 0,6/1kV 2x2,5/4 mm<sup>2</sup> Flexible conductors IEC 60332-3/A “CE”

“meter” is for reference length only.

Core identification:

One core	: Grey
Two cores	: Grey - Black
Three cores	: Grey - Black - Red
Four cores	: Grey - Black - Red - Blue
5 cores and above	: Black numbers on white base.
Earth core	: Yellow/green

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## **DIMENSION DATA, BFOU 0,6/1 kV, Flexible tinned copper conductor**

### DIMENSION DATA

Item/Stock no.	Type [mm <sup>2</sup> ]	Thickness of armour wires [mmØ]	Diameter Under braid [mm]	Diameter Overall [mm]	Weight of cable approx. [kg/km]	Copper content approx. [kg/km]
Tba	2x 2,5/4	0,20	11,0±0,8	14,0±0,8	300	93

### ELECTRICAL DATA

No. of cores x cross section [mm <sup>2</sup> ]	Conductor resistance [Ω/km]		Reactance [Ω/km]	Impedance [Ω/km] at 85 °C	Continous current rating at 45 °C	Short circuit [Ampere]	
	at 20 °C	at 85 °C	at 60 Hz	at 60 Hz		1 sec	0,3 sec
2x 2,5/4	8,21	10,31	0,127	10,308	24	350	639

### INSTALLATION DATA

Item/Stock no.	TYPE [mm <sup>2</sup> ]	Overall Diameter [mmØ]	Minimum bending radius [mm]	Maximum pulling tension [kp]
	2x 2,5/4	15,0±1,0	90	25,0

Minimum installation temperature: - 20 °C

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## CABLE DRAWING: BFOU 0,6/1kV, Black sheath

Construction according to IEC 60092-353

Conductor according to IEC 60228 class 5

Flame retardant i.a.w. IEC 60332-1 and IEC 60332-3 cat. A

Fire resistant i.a.w. IEC 60331

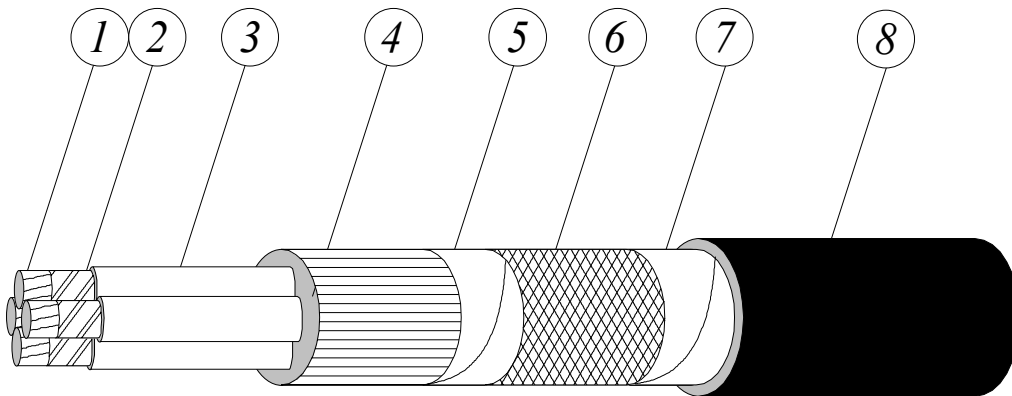
Halogen-free i.a.w. IEC 60754-1,2

Mud resistant i.a.w. NEK 606

Maximum operating temperature 85°C

Test voltage 8,4 kV dc in 5 minutes

Fire resistant - Flame retardant – Halogen-free - Mud resistant



Drawing for indication only

1. Conductor, circular tinned flexible copper conductor
2. Mica taping
3. Insulation, EP-rubber (B)
4. Bedding, flame retardant halogen-free thermoset compound (F)
5. PETP-tape
6. Armour, tinned copper wire braid (O)
7. PETP-tape
8. Sheath, flame retardant halogen-free mud resistant thermoset compound, (U)

Sheath marking: (example)

“meter” “year” DRAKA NORSK KABEL BFOU 0,6/1kV 2x2,5/4 mm<sup>2</sup> Flexible conductors  
IEC 60331 IEC 60332-3/A “CE”

“meter” is for reference length only.

Core identification:

One core	: Grey
Two cores	: Grey - Black
Three cores	: Grey - Black - Red
Four cores	: Grey - Black - Red - Blue
5 cores and above	: Black numbers on white base.
Earth core	: Yellow/green

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## **BFOU(c) 250V, Flexible tinned copper conductor, Collectively screened**

### DIMENSION DATA

Item/Stock no.	Type [mm <sup>2</sup> ]	Thickness of armour wires [mmØ]	Diameter Under braid [mm]	Diameter Overall [mm]	Weight of cable approx. [kg/km]	Copper content approx. [kg/km]
885378 B	2 pair 0,75	0,25	12,0±0,8	15,5±0,8	350	115
885377 B	8 pair 0,75	0,25	19,0±0,8	23,0±1,0	750	235

G= grey, B= blue sheath colour

### ELECTRICAL DATA

TYPE [mm <sup>2</sup> ]	Capacit. approx. [nF/km]	Induct. approx. [mH/km]	Resist. 20 deg C [Max.ohm/km]	Capacitance Unbalance pair/pair [Max pF/km]	pair/screen [Approx. pF/km]
Single pair 0,75	90	0,75	26,7	1500	3000

### INSTALLATION DATA

Item/Stock no.	TYPE [mm <sup>2</sup> ]	Overall Diameter [mmØ]	Minimum bending radius [mm]	Maximum pulling tension [N]
885378 B	2 pair 0,75	15,5±1,0	93	150
885377 B	8 pair 0,75	23,0±1,5	138	600

Minimum installation temperature: - 20 °C

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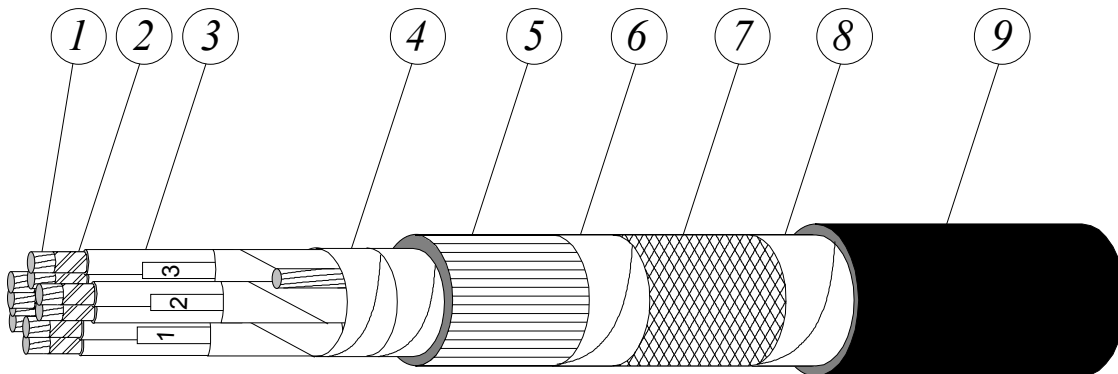
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## CABLE DRAWING : BFOU (c) 250V, Grey or Blue sheath

Construction according to IEC 60092-3.  
Conductor according to IEC 60228 class 5  
Flame retardant i.a.w. IEC 60332-1 and IEC 60332-3 Cat.A  
Fire resistant i.a.w. IEC 60331  
Halogen-free i.a.w. IEC 60754-1,2  
Mud resistant i.a.w. NEK 606  
Test voltage 3,6 kV dc for 5 minutes

Flame retardant - Fire resistant – Halogen-free - Mud resistant

### Collective screen :



Cable drawing for indication only

1. Tinned flexible copper conductor
2. Mica taping
3. EPR-insulation (B)
4. Screen ,laminated Cu/PETP-tape with drain wire
5. Bedding, flame retardant halogen-free thermoplastic compound (F)
6. PETP-tape
7. Armour, tinned copper wire braid (O)
8. PETP-tape
9. Sheath, flame retardant halogen-free mud resistant thermoset compound, (U)

Core identification :    Pair    = Black - Light Blue  
                                 Triple    = Black - Light Blue - Brown

Pairs/triples are numbered with numbered tape or by numbers printed directly on the insulated conductors.

Sheath-marking: (example)

“meter” “year of manufacture” DRAKA NORSK KABEL BFOU(c) 250V 8 PAIR 0,75 mm<sup>2</sup> Flexible conductors  
IEC 60331 IEC 60332-3/A “CE”

“meter” is for reference length only.

Pairs are twisted with differing lay lengths to reduce mutual interference.

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## CODE DESIGNATION

- EPR - Ethylene propylene rubber
- MGT - Mica glass tape
- Bedding - Halogenfree thermoset or thermoplastic compound
- HFFR-MUD - Flame retardant, halogen-free MUD resistant thermoset compound, type SHF2, i.a.w. IEC 600092-359

Materials	1.Letter: Insulation	2.Letter: Bedding/ Sheath	3.Letter: Braid/ Armour	4.Letter: Outer Sheath
EPR / MGT	B			
EPR	R			
Extruded bedding		F		
Tinned copper wire braid			O	
Outer sheath, HFFR-MUD				U

Additional abbreviation for instrumentation cables:

Individual pair/triple screened cable..... (i)

Collective pair/triple screened cable.....(c)