

RADOX OFL S 150/250V (c)

Flame Retardant & Mud Resistant Instrumentation cable

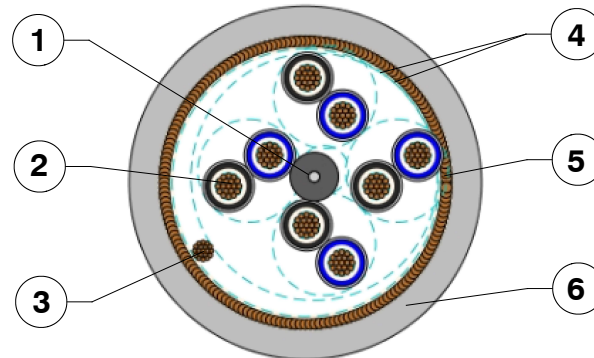
General Properties

Mud, diesel fuel, oil, ozone, hydrolysis resistant, excellent flexibility, light weight, halogen free, flame retardant, easily strippable, free of hygroscopic material, instrumentation cable following RFOU(c).

Application

Highly flexible cable for fixed and free installations for electrical instrument, control alarm and communication systems, applications where harsh environments can generate a potential risk on life and equipment, in areas exposed to mud, oil drilling fluids and/or safety areas.

collectively screened (c)



acc. to table 2

1.	Center und Fillers (optional)	non hygroscopic
2.	Cores RADOX Type OFL	Conductor: Stranded tin plated copper Insulation: RADOX TI301, dual layer high performance polymer (thin-wall) Colours: see table 2
3.	Drain wire	Flexible tin plated copper
4.	Wrapping	Alu Tape
4.	Wrapping	Tape
5.	Screen	Tin plated copper braid, coverage density: $\geq 90\%$
6.	Sheath	RADOX Elastomer S FH Type SHF2 acc. to IEC 60092-360 and NEK TS 606 Colour: Grey or Blue acc. NEK TS 606: 2016

Cable marking:

Outer Diameter: HUBER+SUHNER RADOX OFL S 150/250V [cable type] SHF2 M 90°C

IEC 60332-1-2 IEC 60332-3-22 [part no]-[batch no] [date of manufacture] [production place]

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The product fulfils the test and specification requirements described in this document for the stated areas of application and operating conditions. HUBER+SUHNER AG does not expressly or implicitly guarantee performance under additional or changed conditions. Deviations are to be agreed upon in writing.

HUBER+SUHNER AG
Low Frequency Division

CH-8330 Pfäffikon



+41 (0)44 952 22 11



+41 (0)44 952 26 40

www.hubersuhner.com

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Technical data:

acc. to IEC 60092-376 and - 350

Rated voltage a.c. $U_0/U (U_m)$	150/250 (300) ..	V
Max. voltage d.c. conductor to earth	250	V
Max. voltage d.c. conductor to conductor	500	V
Test voltage a.c.	3500	V
Test voltage d.c.	8400	V

Storage & Installation recommendation

Max. rated conductor temperature normal operation IEC 60092 ..+90	°C	
Temperature index of core insulation TI/20kh	+145	°C
Temperature index of sheath TI/20kh	+130	°C
Max. storage temperature	+40	°C
Max. storage temperature . \leq 5000h	+65	°C
Min. operation, installation and handling temperature	-40	°C
Min. storage temperature	-50	°C
Max. tensile load, only for installation	50 x A	N
A = number of conductors cross section mm ²		
Min. bending radius fixed installation	D \leq 12 mm	3 x D
.....	D > 12 mm	4 x D
..... free movement	D \leq 12 mm	5 x D
.....	D > 12 mm	6 x D

The cables pass the following fluid tests

Drilling fluid resistance for SHF mud	Fulfilled	NEK TS 606, 4.4.1
Mineral oil type IRM 903	7 d / 100 °C	NEK TS 606, 4.4.1 Cat. b
Calcium bromide brine (45 % w/w CaBr ₂ / H ₂ O)	56 d / 70 °C	NEK TS 606, 4.4.1 Cat. c
Base oil EDC 95-11	56 d / 70 °C	NEK TS 606, 4.4.1 Cat. c

Drilling fluid resistance	Fulfilled	IEC 60092-360
Mineral oil type IRM 902	24 h / 100 °C	IEC 60811-404
Mineral oil type IRM 902	7 d / 100 °C	IEC 60092-360, An. C
Mineral oil type IRM 903	7 d / 100 °C	IEC 60092-360, An. D
Calcium bromide brine (45 % w/w CaBr ₂ / H ₂ O)	56 d / 70 °C	IEC 60092-360, An. D
Oil based test fluid (CAS no.: 64742-46-7)	56 d / 70 °C	IEC 60092-360, An. D

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The cables pass the following fire tests

Fire protection in ships	Fulfilled	IEC 60092-350+DNVGL-CP-0400
Vertical flame spread of a single cable	$50 < L \leq 540$ mm	IEC 60332-1-2
Vertical flame spread of bunched cables	$L \leq 2.5$ m	IEC 60332-3-22 Cat. A
Smoke density	$T \geq 70$ %	IEC 61034-1,2
Corrosivity of combustion gases	$pH \geq 4.3, C \leq 10$ μ S/mm	IEC 60754-2
Amount of halogen acid gas	$HCl+HBr \leq 0.5\%$	IEC 60754-11
Content of fluorine	$HF \leq 0.1$ %	IEC 60684-2, 45.2
Toxicity	$ITC \leq 3$	EN 50305, 9.2

Approvals :

DNV : TAE00004KB

Applicable standards :

DNVGL-CP-0400	Class programme - Type approval - Lightweight electric cables
EN 50306	Railway rolling stock cables having special fire performance - Thin wall
NEK TS 606	Cables for offshore installation, halogenfree and/or mud resistant
IEC 60092-350	General construction and test methods of cables for shipboard and offshore applications
IEC 60092-360	Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables
IEC 60092-376	Electrical Installations in ships, cables for control and instrumentation circuits 150/250V (300V)

Table 1: Capacitance, Inductance & L/R ratio

Cable type mm ²	Family	Type of measuring Core - Core		L/R Ratio μ H/ Ω	Resistance at 20°C max. Ω /km
		C nf/km nom.	L μ H/km** nom.		
pair 0.75	OFL S (c)	150	0.55	10.3	26.7
triple 0.75	OFL S (c)	140	0.62	11.6	26.7
pair 1.5	OFL S (c)	175	0.53	19.3	13.7
triple 1.5	OFL S (c)	165*	0.6*	21.9*	13.7
pair 2.5	OFL S (c)	195	0.52	31.7	8.21
triple 2.5	OFL S (c)	185*	0.57*	34.7*	8.21

*calculated values, verification pending

**measurements were carried at 1kHz, all values refer to (1xnxm)mm²

EX attachment : worst case values depend on construction of cables and customer applications, therefore worst case values (inductivity / capacity / LR ratio) are available only on request.

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Core colours

Pair: Black, Light Blue

Triple: Black, Light Blue, Brown

Table 2: collectively screened (c)

Elements n x	Core in Element	Core Cross section mm ²	Con- ductor n x diameter mm	Nom. diameter after twisting mm	Screen Wire diameter nom mm	Overall screen cross section nom mm ²	Copper weight nom kg/100m	Cable diameter mm ● = Fixed ○ = Apprx.	Cable weight nom kg/100m	Sheat colour	H+S part no
2	2	0.75	19 x 0.23	6.5	0.16	3.0	5.7	9.45 +/- 0.3 ○	14.5	BU GY	85117672 85116813
4	2	0.75	19 x 0.23	7.3	0.16	3.5	8.9	10.40 +/- 0.4 ○	18.6	BU GY	85116802 85116296
8	2	0.75	19 x 0.23	9.3	0.21	5.6	16.5	12.40 +/- 0.4 ○	28.6	BU GY	85116805 85116814
12	2	0.75	19 x 0.23	11.2	0.21	6.7	23.3	14.6 +/- 0.4 ○	38.2	BU GY	85116806 85116816
16	2	0.75	19 x 0.23	12.9	0.21	7.5	29.8	16.4 +/- 0.5 ○	48.2	BU GY	85116807 85116817
19	2	0.75	19 x 0.23	13.9	0.21	8.3	34.6	17.50 +/- 0.5 ○	54.4	BU GY	85116808 85116818
24	2	0.75	19 x 0.23	16.3	0.21	9.5	42.9	20.00 +/- 0.5 ○	68.0	BU GY	85119962 85116819
2	3	0.75	19 x 0.23	7.0	0.16	3.3	7.3	10.00 +/- 0.3 ○	16.9	BU GY	85119964 85116820
4	3	0.75	19 x 0.23	7.9	0.16	3.8	12.0	11.00 +/- 0.4 ○	22.0	BU GY	85116809 85186541
8	3	0.75	19 x 0.23	10.0	0.21	6.3	22.9	13.50 +/- 0.5 ○	35.4	BU GY	85119977 85116822
12	3	0.75	19 x 0.23	12.2	0.21	7.9	32.8	15.70 +/- 0.5 ○	49.2	BU GY	85119978 85116823
16	3	0.75	19 x 0.23	13.7	0.21	8.3	41.7	17.30 +/- 0.5 ○	61.2	BU GY	85116810 85116824
24	3	0.75	19 x 0.23	17.6	0.21	10.7	60.9	21.40 +/- 0.5 ○	88.7	BU GY	85119979 85116852
2	2	1.5	37 x 0.23	8.6	0.16	4.0	9.3	11.60 +/- 0.4 ●	22.3	BU GY	85119980 85116857
4	2	1.5	37 x 0.23	9.8	0.21	5.6	16.2	12.30 +/- 0.4 ●	29.7	BU GY	85116812 85116858
8	2	1.5	37 x 0.23	12.4	0.21	7.5	29.0	16.00 +/- 0.4 ●	47.1	BU GY	85116815 85116859
12	2	1.5	37 x 0.23	15.1	0.21	8.9	41.3	18.7 +/- 0.5 ○	64.2	BU GY	85119984 85116862

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Elements n x	Core in Element	Core Cross section mm ²	Con- ductor n x diameter mm	Nom. diameter after twisting mm	Screen Wire diameter nom mm	Overall screen cross section nom mm ²	Copper weight nom kg/100m	Cable diameter mm ● = Fixed ○ = Apprx.	Cable weight nom kg/100m	Sheat colour	H+S part no
16	2	1.5	37 x 0.23	17.1	0.21	10.1	53.4	20.9 +/- 0.5 ○	81.5	BU GY	85116853 85116864
19	2	1.5	37 x 0.23	18.7	0.21	11.3	62.7	22.50 +/- 0.5 ○	93.1	BU GY	85116955 85116866
24	2	1.5	37 x 0.23	21.9	0.25	16.2	81.2	26.20 +/- 0.6 ○	122.8	BU GY	85116957 85116868
32	2	1.5	37 x 0.23	23.9	0.25	18.0	104.9	28.30 +/- 0.6 ●	150.0	BU GY	85119986 85116956
2	3	1.5	37 x 0.23	9.2	0.21	5.6	13.4	12.80 +/- 0.4 ○	29.9	BU GY	85119987 85116958
4	3	1.5	37 x 0.23	10.3	0.21	6.3	22.4	14.0 +/- 0.4 ○	37.5	BU GY	85116985 85116970
8	3	1.5	37 x 0.23	15.0	0.21	8.9	41.3	19.80 +/- 0.5 ○	68.7	BU GY	85116986 85116971
12	3	1.5	37 x 0.23	16.3	0.21	10.1	58.9	20.00 +/- 0.5 ○	83.2	BU GY	85119988 85116972
16	3	1.5	37 x 0.23	18.4	0.21	11.9	77.0	22.20 +/- 0.5 ○	106.7	BU GY	85119989 85116973
24	3	1.5	37 x 0.23	23.6	0.25	18.0	115.8	28.00 +/- 0.6 ○	160.0	BU GY	85119990 85116974
2	2	2.5	37 x 0.29	10.7	0.21	6.3	14.7	14.30 +/- 0.4 ○	33.8	BU GY	85119991 85116976
2	3	2.5	37 x 0.29	11.5	0.21	6.7	19.2	15.30 +/- 0.5 ○	40.6	BU GY	85189309 85181500

Other articles on request