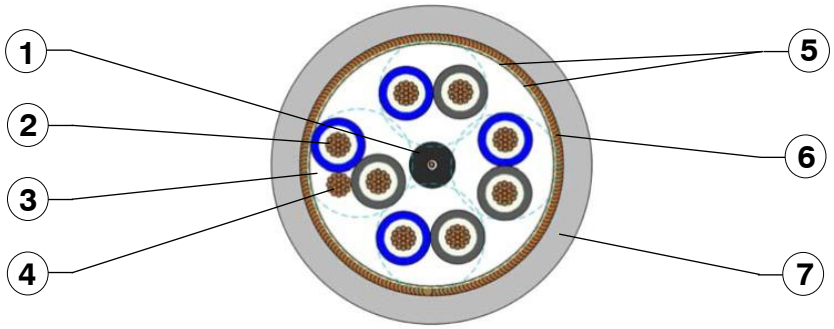
RADOX OFL SFR 150/250V (c)
Fire & Mud Resistant Instrumentation cable

HUBER+SUHNER

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

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

Collectively screened (c)



acc. to table 2

1.	Center und Fillers (optional)	Characteristic	Non hygroscopic
2.	Cores RADOX	Conductor	Stranded tin plated copper
	Type OFL FR	Wrapping	Mica Tape
		Insulation	RADOX EI303 (thin- wall)
		Colours	See table 2
3.	Element	Cores	2 or 3 cores
4.	Conductor	Drain wire	Flexible tin plated copper
5.	First layer	Alu tape	Wrapping
5.	Second layer	Tape	Wrapping
6.	Shielding	Screen	Tin plated copper braid, coverage density: ≥ 90%
7.	Outer layer	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

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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.

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Printing

Outer Diameter > 20mm
[a] HUBER+SUHNER RADOX OFL SFR 150/250V [b] SHF2 M 90°C IEC 60332-1-1
IEC 60332-3-22 [c]-[d] [e] [f]

Outer Diameter ≤ 20mm
[a] HUBER+SUHNER RADOX OFL SFR 150/250V [b] SHF2 M 90°C IEC 60332-1-2
IEC 60332-3-22 [c]-[d] [e] [f]

		Example
[a]	Meter marking (in m)	= 123456 = m
[b]	Construction (in mm²)	2x2x0.75(c)
[c]	Part number	12345678
[d]	Batch number	1234567
[e]	Production week and year	01-2025
[f]	Production place	CH

Technical data

acc. to IEC 60092 - 376 and - 350

Rated voltage	U_0/U (U_m)	...150/250 (300)	…V AC
Test voltage		2000	…V AC
Max. voltage conductor to earth		250	…V DC
Max. voltage conductor to conductor		500	…V DC
Test voltage		4800	…V DC

Storage, Installation and Operation recommendation

Max. rated conductor temperature normal operation IEC 60092	+90	…°C
Temperature index of core insulation TI/20kh	+135	…°C
Temperature index of sheath TI/20kh	+130	…°C
Max. storage temperature	+40	…°C
Max. storage temperature . ≤ 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 mm²

Min. bending radius fixed installation	D ≤ 12 mm	3 x D
	D > 12 mm	4 x D
free movement	D ≤ 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_2O)	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_2O)	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

The cables pass the following fire tests

Electric cables under fire conditions		
Outer Diamater > 20 mm	830°C, 120 min.	IEC 60331-1
Outer Diamater ≤ 20 mm	830°C, 120 min.	IEC 60331-2
Fire protection in ships	Fulfilled	IEC 60092-350 + DNV-CP-0400
Vertical flame spread of a single cable	50 < L ≤ 540 mm	IEC 60332-1-2
Vertical flame spread of bunched cables	L ≤ 2.5 m	IEC 60332-3- 22 Cat. A
Smoke density	T ≥ 70 %	IEC 61034-1,2
Corrosivity of combustion gases	pH ≥ 4.3, C ≤ 10 µS/mm	IEC 60754-2
Amount of halogen acid gas	HCl+HBr ≤ 0.5%	IEC 60754-1
Content of fluorine	HF ≤ 0.1 %	IEC 60684-2, 45.2
Toxicity	ITC ≤ 3	EN 50305, 9.2

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 sheating 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)

Approvals

DNV	Certificate TAE00004KC

Table 1: Capacitance, Inductance & L/R ratio

Cable type mm^2	Family	Type of measuring Core - Core C nf/km nom.	 L mH/km** nom.	L/R Ratio µH/ Ω	Resistance at 20°C max. Ω/km
pair 0.75	OFL SFR (c)	95	0.71	13.3	26.7
triple 0.75	OFL SFR (c)	90*	0.81*	15.2*	26.7
pair 1.5	OFL SFR (c)	115	0.65	23.7	13.7
triple 1.5	OFL SFR (c)	110	0.71	25.9	13.7
pair 2.5	OFL SFR (c)	130	0.6	36.5	8.21
triple 2.5	OFL SFR (c)	125*	0.62*	37.8*	8.21

*calculated values, verification pending

**measurements were carried at 1kHz, all values refer to (1xnxm)mm^2

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	**Cross Section** nom. mm²	**Conductor** ⌀ nom. n x mm	**Conductor** ⌀ max. mm	**Core** ⌀ nom.	**Drain wire** ⌀ max. mm	**Nom. ⌀** after twisting mm	**Screen Wire** ⌀ nom. mm	**Overall screen.** cross section nom. mm2	**Copper weight** nom. kg/100m	**Cable ⌀ mm.** ● = Fixed ○ = Apprx.	**Cable weight** nom. kg/100m	**Sheat** colour	**H+S** part no
2	2	0.75	19 x 0.23	1.11	2.38	1.11	9.0	0.21	5.2	8.4	12.0 +/- 0.4 ●	24.1	BU GY	85189584 85186522
4	2	0.75	19 x 0.23	1.11	2.38	1.11	10.8	0.21	6.3	12.3	14.0 +/- 0.4 ●	30.4	BU GY	85189587 85186526
8	2	0.75	19 x 0.23	1.11	2.38	1.11	13.5	0.21	7.7	19.2	16.4 +/- 0.5 ●	42.6	BU GY	85189590 85186527
12	2	0.75	19 x 0.23	1.11	2.38	1.11	16.3	0.21	9.5	26.5	19.7 +/- 0.5 ●	56.4	BU GY	85192234 85189594
16	2	0.75	19 x 0.23	1.11	2.38	1.11	19.5	0.21	10.7	33.4	22.3 +/- 0.5 ●	73.0	BU GY	85192226 85189604
24	2	0.75	19 x 0.23	1.11	2.38	1.11	23.7	0.25	16.2	49.8	26.9 +/- 0.6 ●	104.6	BU GY	85192235 85189588
2	3	0.75	19 x 0.23	1.11	2.38	1.11	9.8	0.21	5.6	10.2	13.1 +/- 0.4 ●	26.7	BU GY	85192236 85192227
4	3	0.75	19 x 0.23	1.11	2.38	1.11	11.6	0.21	6.7	15.4	14.8 +/- 0.4 ●	35.3	BU GY	85192237 85192228
8	3	0.75	19 x 0.23	1.11	2.38	1.11	16.5	0.21	10.1	27.1	20.6 +/- 0.5 ○	65.2	BU GY	85189596 85192229
2	2	1.5	37 x 0.23	1.55	2.9	1.25	10.7	0.21	5.9	12.0	13.2 +/- 0.4 ●	29.3	BU GY	85192238 85189585
4	2	1.5	37 x 0.23	1.55	2.9	1.25	13.2	0.21	7.1	18.5	15.9 +/- 0.5 ●	42.6	BU GY	85192239 85189603
8	2	1.5	37 x 0.23	1.55	2.9	1.25	16.5	0.21	9.5	31.7	19.4 +/- 0.5 ●	62.8	BU GY	85192240 85189595
12	2	1.5	37 x 0.23	1.55	2.9	1.25	19.9	0.21	11.9	44.9	23.4 +/- 0.5 ●	84.2	BU GY	85192241 85189605
16	2	1.5	37 x 0.23	1.55	2.9	1.25	24.0	0.25	16.0	59.9	26.8 +/- 0.6 ●	112.7	BU GY	85192242 85189589
24	2	1.5	37 x 0.23	1.55	2.9	1.25	28.9	0.30	22.2	88.8	32.5 +/- 0.6 ●	161.0	BU GY	85192243 85189597
2	3	1.5	37 x 0.23	1.55	2.9	1.25	11.9	0.21	6.7	15.4	14.7 +/- 0.5 ●	36.6	BU GY	85192244 85192230
4	3	1.5	37 x 0.23	1.55	2.9	1.25	14.9	0.21	8.3	25.1	18.3 +/- 0.5 ○	55.6	BU GY	85192245 85192231
8	3	1.5	37 x 0.23	1.55	2.9	1.25	20.1	0.21	11.9	44.9	24.4 +/- 0.5 ○	95.3	BU GY	85192246 85189591

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Elements n x	**Core in** Element	**Cross Section** nom. mm^2	**Conductor** ⌀ nom. n x mm	**Conductor** ⌀ max. mm	**Core** ⌀ nom.	**Drain wire** ⌀ max. mm	**Nom. ⌀** after twisting mm	**Screen Wire** ⌀ nom. mm	**Overall screen.** cross section nom. mm2	**Copper weight** nom. kg/100m	**Cable ⌀ mm.** ● = **Fixed** ○ = **Apprx.**	**Cable weight** nom. kg/100m	**Sheat** colour	**H+S** part no
12	3	1.5	37 x 0.23	1.55	2.9	1.25	23.7	0.25	17.8	67.0	27.8 +/- 0.6 ○	125.0	BU GY	85192247 85192232
16	3	1.5	37 x 0.23	1.55	2.9	1.25	27.8	0.3	22.2	88.5	32.3 +/- 0.6 ○	165.5	BU GY	85192248 85189592
2	2	2.5	37 x 0.29	1.96	3.4	1.55	12.2	0.21	7.1	16.8	15.0 +/- 0.5 ○	38.1	BU GY	85189593 85192233
2	3	2.5	37 x 0.29	1.96	3.4	1.55	13.9	0.21	7.9	21.7	17.1 +/- 0.5 ●	50.0	BU GY	85189586 85186528

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