



# RADOX MFH-S B

## Multicore and Multipair Cables 0.5mm<sup>2</sup> - 6mm<sup>2</sup>

### General Properties

Mud, diesel fuel, oil, ozone, hydrolysis and weather resistant. Excellent flexibility, light weight, halogen free, flame retardant, easily strippable. Free of hygroscopic material.

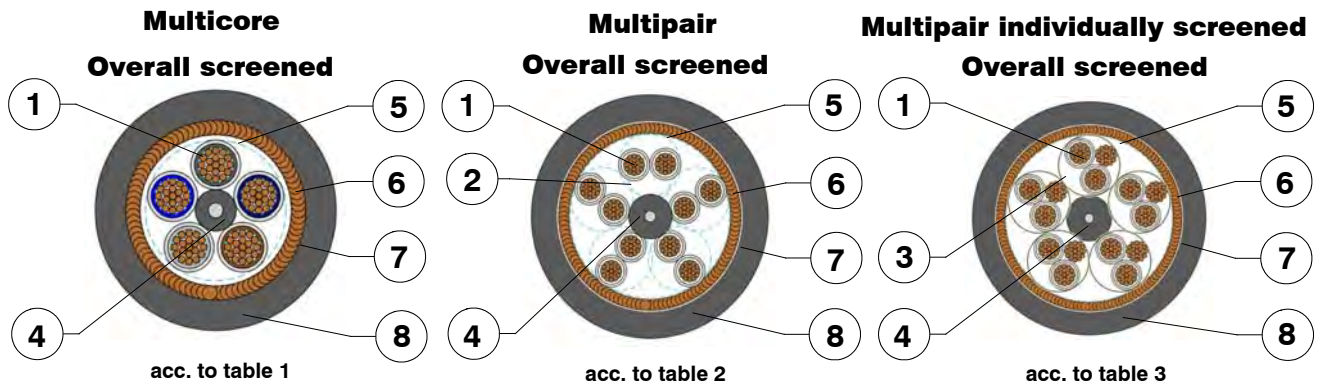
### Application

Highly flexible cable for fixed and free installations of power, control and lighting applications in harsh environments like diesel engines, ships, oil rigs and other offshore units.

Resistant to oil and drilling fluids according to NEK TS 606.

Suitable for moving cable carriers; flexible up to - 40 °C and - 50 °C for fixed installation.

### General composition of cables :



<ol style="list-style-type: none"> <li>1. Cores RADOX Type MA14</li> <li>2. Multipair</li> <li>3. Multipair screened</li> <li>4. Center und Fillers (optional)</li> <li>5. Wrapping</li> <li>6. Screen</li> <li>7. Wrapping</li> <li>8. Sheath</li> </ol>	<p>Conductor:    stranded tin plated copper          Insulation:    RADOX TI301, type E acc. to VG 95218-20          Colours:        see table 1-3</p> <p>Twisted pair unscreened, see table 2</p> <p>Twisted pair with drain wire, see table 3          Plastic laminated AL- tape</p> <p>RADOX 125 REC</p> <p>Tape</p> <p>Tin plated copper braid, coverage density: ≥ 90%</p> <p>Tape</p> <p>RADOX Elastomer S FH          Type SHF2 acc. to IEC 60092-360 and          Type SHF MUD acc. to NEK TS 606          Colour:        black or blue          D :                see table 1-3</p>
---	--

**Cable marking :** HUBER+SUHNER RADOX MFH- S B 0.6/1 KV [cable type]MM2 SHF2 SHF MUD 90C

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

Copyright 2018 HUBER+SUHNER AG. This document may not be amended and its content is confidential. It may not be passed on to third party which are not bound by confidentiality.

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



# RADOX MFH-S B

## Multicore and Multipair Cables 0.5mm<sup>2</sup> - 6mm<sup>2</sup>

### Technical data:

Rated voltage a.c. $U_0/U$ .....	600/1000 .....	V
Max. voltage a.c. $U_{0m}/U_m$ .....	720/1200 .....	V
Max. voltage d.c. conductor to earth .....	900 .....	V
Max. voltage d.c. conductor to conductor .....	1800 .....	V

Test voltage a.c. ....	3 500 .....	V
Test voltage d.c. ....	8 400 .....	V

Max. rated conductor temperature normal operation IEC 60092 .....	+90 .....	°C	
Temperature index of insulation TI/20kh .....	> +145 .....	°C	
Temperature index of sheath TI/20kh .....	> +120 .....	°C	
Max. storage temperature .....	+40 .....	°C	
Max. storage temperature .....	≤ 5000h .....	+65 .....	°C

Min. installation and handling temperature .....	-40 .....	°C
Min. storage temperature .....	-50 .....	°C

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, 4.1.1
Mineral oil type IRM 903	7 d / 100 °C	NEK TS 606, 4.1.2
Calcium bromide brine (45 % w/w CaBr <sub>2</sub> / H <sub>2</sub> O)	56 d / 70 °C	NEK TS 606, 4.1.2
Base oil EDC 95- 11	56 d / 70 °C	NEK TS 606, 4.1.2

Drilling fluid resistance	Fulfilled	IEC 60092- 360
Mineral oil type IRM 902	24 h / 100 °C	IEC 60811- 2- 1, 10
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. C
Calcium bromide brine (45 % w/w CaBr <sub>2</sub> / H <sub>2</sub> O)	56 d / 70 °C	IEC 60092- 360, An. D

### The cables pass the following fire tests

<b>Fire protection in ships</b>	<b>Fulfilled</b>	<b>IEC 60092- 350 + DNVGL- CP- 0400</b>
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- 2
Corrosivity of combustion gases	pH ≥ 4.3, C ≤ 10 μS/mm	IEC 60754- 2
Amount of halogen acid gas	HCl+HBr+HJ ≤ 0.5%	IEC 60754- 1, IEC 60684- 2, 45.1
Content of fluorine	HF ≤ 0.1 %	IEC 60684- 2, 45.2
Toxicity	Fulfilled	IMO 2010 FTP Code, An.1 Pt.2, 2.4.2



## RADOX MFH-S B

# Multicore and Multipair Cables 0.5mm<sup>2</sup> - 6mm<sup>2</sup>

Fire protection on railway vehicles, hazard level	HL1 - HL3	EN 45545
Vertical flame spread	50 < L ≤ 540 mm	EN 60332-1-2
Vertical flame spread, bunched, D ≤ 6mm	L ≤ 1.5 m	EN 50305, 9.1.2
Vertical flame spread, bunched, 6 < D < 12 mm	L ≤ 2.5 m	EN 50305, 9.1.1 (EN 60332-3-25)
Vertical flame spread, bunched, D ≥ 12 mm	L ≤ 2.5 m	EN 60332-3-24
Smoke density	T ≥ 70 %	EN 61034-2
Toxicity	ITC ≤ 6	EN 50305, 9.2

### Applicable standards :

DNVGL-CP-0400	Class programme - Type approval - Lightweight electric cables
IEC 60092-350	General construction and test methods of cables for shipboard and offshore applications
NEK TS 606	Cables for offshore installation, halogenfree and/or mud resistant
VG 95218-20	Cables and insulated wires - Part 20: Single core insulated wires, detail standard

### Approvals :

ABS :	Certificate 15-GD1369103-PDA
DNV :	Certificate E-12873
BV :	Certificate 44619/A0 BV
CCS :	Certificate HB17W00001



# RADOX MFH-S B

## Multicore and Multipair Cables 0.5mm<sup>2</sup> - 6mm<sup>2</sup>

**Table 1, Multicore Cables:**

Cable type n x mm <sup>2</sup>	Conductor n x diameter mm	Core colours	Sheat colour	R <sub>20</sub> max conductor Ω / km	Cable diameter mm	Cable weight nom kg/100m	Overall screen cross section nom mm <sup>2</sup>	H+S part no
3x0.5	19 x 0.18	bk, bu, bn	black	40.1	5.75±0.3	6.4	2.1	85002705
4x0.5	19 x 0.18	bk, bu, bn, gy	black	40.1	6.1±0.3	7.1	2.1	85002932
6x0.5	19 x 0.18	bk, bu, bn, gy, light bu, wh	black	40.1	7.0±0.3	9.5	2.1	85065729
1x0.75	19 x 0.23	bk	black	26.7	4.25±0.3	3.4	1.1	85083708
3x0.75	19 x 0.23	bk, bu, bn	black	26.7	6.3±0.3	7.7	2.1	85002979
4x0.75	19 x 0.23	bk, bu, bn, gy	black	26.7	6.7±0.3	8.9	2.4	85025142
4x0.75	19 x 0.23	bk, bu, bn, gy	blue	26.7	6.7±0.3	8.9	2.4	85089554
5x0.75	19 x 0.23	bk, bu, bn, gy, light bu	black	26.7	7.35±0.3	10.9	2.9	85003007
5x0.75	19 x 0.23	bk, bu, bn, gy, light bu	blue	26.7	7.35±0.3	10.9	2.9	85030251
6x0.75	19 x 0.23	bk, bu, bn, gy, light bu, wh	black	26.7	7.65±0.3	11.9	2.9	85086085
7x0.75	19 x 0.23	bk, bu, bn, gy, light bu, wh, og	black	26.7	8.35±0.3	14.1	3.4	85003052
7G0.75	19 x 0.23	gnye, wh num	black	26.7	8.35±0.3	14.1	3.4	85087309
8x0.75	19 x 0.23	wh num	blue	26.7	8.95±0.3	15.9	3.4	85030239
12x0.75	19 x 0.23	wh num	black	26.7	9.55±0.3	18.8	4.0	85002706
12G0.75	19 x 0.23	gnye, wh num	black	26.7	9.55±0.3	18.8	4.0	85087308
14x0.75	19 x 0.23	wh num	black	26.7	10.2±0.4	21.6	4.0	85027796
16x0.75	19 x 0.23	wh num	black	26.7	10.7±0.4	24.0	4.2	84135032
18G0.75	19 x 0.23	gnye, wh num	black	26.7	11.1±0.4	26.4	4.7	85087307
19x0.75	19 x 0.23	wh num	black	26.7	11.8±0.4	28.5	4.8	84118599
24x0.75	19 x 0.23	wh num	black	26.7	12.7±0.4	34.2	5.6	85028542
25x0.75	19 x 0.23	wh num	black	26.7	12.9±0.4	33.6	5.9	85003059
25G0.75	19 x 0.23	gnye, wh num	black	26.7	12.9±0.4	33.6	5.9	85087306
27x0.75	19 x 0.23	wh num	black	26.7	12.9±0.4	35.9	5.6	85065770
30x0.75	19 x 0.23	wh num	black	26.7	13.5±0.4	39.7	6.3	84135033
37x0.75	19 x 0.23	wh num	black	26.7	14.8±0.4	50.0	10.0	85002707
50x0.75	19 x 0.23	wh num	black	26.7	17.1±0.5	64.8	11.6	84118582
8x1	19 x 0.26	wh num	black	20.0	9.4±0.3	18.3	4.0	-
24x1	19 x 0.26	wh num	black	20.0	14.3±0.4	44.9	9.1	85079436
37x1	19 x 0.26	wh num	black	20.0	16.0±0.5	59.6	9.9	85079441



# RADOX MFH-S B

## Multicore and Multipair Cables 0.5mm<sup>2</sup> - 6mm<sup>2</sup>

**Table 1, Multicore Cables:**

Cable type n x mm <sup>2</sup>	Conductor n x diameter mm	Core colours	Sheat colour	R <sub>20</sub> max conductor Ω / km	Cable diameter mm	Cable weight nom kg/100m	Overall screen cross section nom mm <sup>2</sup>	H+S part no
3x1.5	37 x 0.23	bk, bu, bn	black	13.7	7.45±0.3	11.7	2.9	85003088
3G1.5	37 x 0.23	gnye, bn, bu	black	13.7	7.45±0.3	11.7	2.9	85030413
4x1.5	37 x 0.23	bk, bu, bn, gy	black	13.7	8.1±0.3	13.9	3.2	85025144
4G1.5	37 x 0.23	gnye, bn, bk, gy	black	13.7	8.1±0.3	13.9	3.2	85030415
5x1.5	37 x 0.23	bk, bu, bn, gy, light bu	black	13.7	8.9±0.3	16.8	4.0	85003089
7x1.5	37 x 0.23	bk, bu, bn, gy, light bu, wh, og	black	13.7	10.1±0.4	21.7	4.0	85027763
7G1.5	37 x 0.23	gnye, bk, bu, bn, gy, light- bu, wh	black	13.7	10.1±0.4	21.7	4.0	85030416
12x1.5	37 x 0.23	wh num	black	13.7	11.9±0.4	31.4	4.7	85003092
12G1.5	37 x 0.23	gnye, wh num	black	13.7	11.9±0.4	31.4	4.7	85087311
4x3x1.5	37 x 0.23	wh num	black	13.7	14.1±0.4	39.7	9.1	85073464
19x1.5	37 x 0.23	wh num	black	13.7	15.0±0.4	51.3	10.0	85030417
24x1.5	37 x 0.23	wh num	black	13.7	16.9±0.5	63.1	10.0	85090546
3x2.5	37 x 0.29	bk, bu, bn	black	8.21	8.6±0.3	15.6	2.9	85025146
3G2.5	37 x 0.29	gnye, bu, bn	black	8.21	8.6±0.3	15.6	2.9	85087310
4x2.5	37 x 0.29	bk, bu, bn, gy	black	8.21	9.45±0.3	19.4	3.7	85026777
4G2.5	37 x 0.29	gnye, bn, bk, gy	black	8.21	9.45±0.3	19.4	3.7	85025147
5G2.5	37 x 0.29	gnye, bu, bn, bk, gy	black	8.21	10.5±0.4	23.7	4.4	85018986
7x2.5	37 x 0.29	bk, bu, bn, gy, bu, wh, og	black	8.21	12.1±0.4	32.0	5.6	85029466
12x2.5	37 x 0.29	wh num	black	8.21	14.6±0.4	48.7	9.1	85065191
19x2.5	37 x 0.29	wh num	black	8.21	17.9±0.5	73.4	10.9	85027823
27x2.5	37 x 0.29	wh num	black	8.21	20.1±0.5	95.1	13.3	85065782
3x4	56 x 0.30	bk, bu, bn	black	5.09	9.8±0.3	22.0	3.7	85026490
4G4	56 x 0.30	gnye, bk, bu, bn	black	5.09	11.0±0.4	28.0	5.2	85030419
3x6	84 x 0.30	bk, bu, bn	black	3.39	11.3±0.4	29.9	4.2	85026510
4x6	84 x 0.30	bk, bu, bn, gy	black	3.39	12.6±0.4	38.0	4.8	85030422
4G6	84 x 0.30	gnye, bn, bk, gy	black	3.39	12.6±0.4	38.0	4.8	85030420
5x6	84 x 0.30	bk, bu, bn, gy, light bu	black	3.39	14.2±0.4	49.3	8.3	85032834
4x1.5+2x0.75	37x0.23 / 19x0.23	bk, wh, ye, bn, wh, bk	black	13.7 26.7	9.2±0.3	17.0	3.7	-
8x2.5+2x0.75	37x0.29 / 19x0.23	wh num	black	8.21 26.7	15.3±0.5	47.7	10	85019021
8x2.5+24x2x0.5	37x0.29 / 19x0.18	rd, bk num, bk, ye num, wh, bk num	black	8.21 40.1	21.4±0.5	74.3	13.3	85075981



# RADOX MFH-S B

## Multicore and Multipair Cables 0.5mm<sup>2</sup> - 6mm<sup>2</sup>

**Table 2, Multipair Cables:**

Cable type n x mm <sup>2</sup>	Conductor n x diameter mm	Core colours	Sheat colour	R <sub>20</sub> max conductor Ω / km	Cable diameter mm	Cable weight nom kg/100m	Overall screen cross section nom mm <sup>2</sup>	H+S part no
2x0.5	19 x 0.18	bk, bu	black	40.1	5.55±0.3	5.8	2.1	85023014
2x2x0.5	19 x 0.18	bk, bu, bn, gy	black	40.1	7.9±0.3	10.6	3.2	85030423
2x2x0.5	19 x 0.18	bk, bu, bn, gy	blue	40.1	7.9±0.3	10.6	3.2	85063748
4x2x0.5	19 x 0.18	wh num	black	40.1	9.25±0.3	14.6	3.7	85028903
5x2x0.5	19 x 0.18	wh num	black	40.1	9.75±0.3	16.4	4.0	85018695
7x2x0.5	19 x 0.18	wh num	black	40.1	11.8±0.4	22.8	4.8	85030424
10x2x0.5	19 x 0.18	wh num	black	40.1	12.8±0.4	26.1	5.9	85018794
14x2x0.5	19 x 0.18	wh num	black	40.1	14.1±0.4	34.8	10.0	85018853
21x2x0.5	19 x 0.18	wh num	black	40.1	17.7±0.5	51.1	11.6	85025951
45x2x0.5	19 x 0.18	wh num	black	40.1	21.9±0.5	98.6	21.4	85069169
2x0.75	19 x 0.23	bk, bu	black	26.7	6.3±0.3	7.0	2.1	85002975
2x2x0.75	19 x 0.23	bk, bu, bn, gy	black	26.7	8.7±0.3	12.5	3.1	85070502
3x2x0.75	19 x 0.23	wh num	black	26.7	9.6±0.3	15.9	3.5	85091387
4x2x0.75	19 x 0.23	wh num	black	26.7	10.4±0.4	18.6	4.0	85025307
8x2x0.75	19 x 0.23	wh num	black	26.7	14.6±0.4	37.9	10.0	85003074
10x2x0.75	19 x 0.23	wh num	black	26.7	14.0±0.4	35.0	8.3	85077994
12x2x0.75	19 x 0.23	wh num	black	26.7	15.6±0.5	43.9	10.0	85002708
16x2x0.75	19 x 0.23	wh num	black	26.7	17.8±0.5	54.9	11.6	85063420
19x2x0.75	19 x 0.23	wh num	black	26.7	18.3±0.5	60.4	11.6	85031614
5x2x1	19 x 0.26	wh num	black	20.0	12.1±0.4	26.1	5.6	85018964
2x1.5	37 x 0.23	bk, bu	black	13.7	7.15±0.3	10.0	2.4	85003086
4x2x1.5	37 x 0.23	wh num	black	13.7	12.9±0.4	29.7	5.5	85073461
2x2.5	37 x 0.29	bk, bu	black	8.21	8.2±0.3	13.6	2.6	85003100
2x2x2.5	37 x 0.29	bk, bu, bn, gy	black	8.21	13.7±0.4	28.7	5.6	85003101
2x4	56 x 0.30	bk, bu	black	4.8	9.3±0.3	18.1	3.7	85030605
2x6	84 x 0.30	bk, bu	black	3.2	10.7±0.4	24.4	4.4	85019004



# RADOX MFH-S B

## Multicore and Multipair Cables 0.5mm<sup>2</sup> - 6mm<sup>2</sup>

**Table 3, Multipair Cables, individually screened:**

Cable type n x mm <sup>2</sup>	Conductor n x diameter mm	Core colours	Sheat colour	Pair screen / Drain wire	R <sub>20</sub> max conductor Ω / km	Cable diameter mm	Cable weight nom kg/100m	Overall screen cross section nom mm <sup>2</sup>	H+S part no
2x(2x0.5)	19 x 0.18	bk, bu, bn, gy	black	y / y	40.1	8.3±0.3	12.0	3.2	85030425
7x(2x0.5)	19 x 0.18	wh num	black	y / y	40.1	12.6±0.4	27.7	5.6	85030427
12x(2x0.5)	19 x 0.18	wh num	black	y / y	40.1	14.8±0.4	41.0	10.0	85069151
14x(2x0.5)	19 x 0.18	wh num	black	y / y	40.1	15.5±0.5	45.5	10.0	85030428
19x(2x0.5)	19 x 0.18	wh num	black	y / y	40.1	18.7±0.5	61.6	11.6	85069162
(2x0.75)	19 x 0.23	bk, bu	black	y / -	26.7	6.3±0.3	7.42	2.1	85016844
<del>(2x0.75)</del>	<del>19 x 0.23</del>	<del>bk, bu</del>	<del>blue</del>	<del>y / -</del>	<del>26.7</del>	<del>6.3±0.3</del>	<del>7.42</del>	<del>2.1</del>	<del>85068209</del>
(2x0.75)	19 x 0.23	bk, bu	black	y / y	26.7	6.3±0.3	7.82	2.1	85077525
2x(2x0.75)	19 x 0.23	bk, bu, bn, gy	black	y / y	26.7	9.5±0.3	15.7	4.0	85018684
3x(2x0.75)	19 x 0.23	bk, bu, bn, gy, light bu, wh	black	y / y	26.7	9.55±0.3	16.9	3.4	85085634
4x(2x0.75)	19 x 0.23	wh num	black	y / y	26.7	10.5±0.3	21.3	4.8	85018685
5x(2x0.75)	19 x 0.23	wh num	black	y / y	26.7	11.7±0.4	25.6	4.7	85085608
8x(2x0.75)	19 x 0.23	wh num	black	y / y	26.7	16.0±0.5	46.6	10.0	85016458
12x(2x0.75)	19 x 0.23	wh num	black	y / y	26.7	17.1±0.5	54.0	11.6	85016479
16x(2x0.75)	19 x 0.23	wh num	black	y / y	26.7	18.7±0.5	66.5	13.3	85018686
<del>(2x1.5)</del>	<del>37 x 0.23</del>	<del>bk, bu</del>	<del>black</del>	<del>y / -</del>	<del>13.7</del>	<del>7.1±0.3</del>	<del>10.1</del>	<del>2.1</del>	<del>85016845</del>
(2x1.5)	37 x 0.23	bk, bu	black	y / y	13.7	7.1±0.3	10.7	2.1	85077524
2x(2x1.5)	37 x 0.23	bk, bu, bn, gy	black	y / y	13.7	11.5±0.4	24.0	4.8	85018688
2x(2x1.5)	37 x 0.23	bk, bu, bn, gy	blue	y / y	13.7	11.5±0.4	24.0	4.8	85063968
3x(2x1.5)	37 x 0.23	bk, bu, bn, gy, light bu, wh	black	y / y	13.7	11.9±0.4	27.4	4.8	85064382
4x(2x1.5)	37 x 0.23	wh num	black	y / y	13.7	13.1±0.4	34.1	5.6	85018689
5x(2x1.5)	37 x 0.23	wh num	black	y / y	13.7	15.2±0.5	46.1	9.1	85094599
6x(2x1.5)	37 x 0.23	wh num	black	y / y	13.7	16.7±0.5	56.2	11.6	85064387
8x(2x1.5)	37 x 0.23	wh num	black	y / y	13.7	19.5±0.5	72.4	13.9	85018690
12x(2x1.5)	37 x 0.23	wh num	black	y / y	13.7	20.9±0.4	87.4	15.0	85018691
16x(2x1.5)	37 x 0.23	wh num	black	y / y	13.7	24.0±0.5	122.2	16.6	85018446
(2x2.5)	37 x 0.29	bk, bu	black	y / -	8.21	8.25±0.3	13.6	2.1	85016525
2x(2x2.5)	37 x 0.29	bk, bu, bn, gy	black	y / y	8.21	13.9±0.4	33.0	5.2	85016533