



# 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.

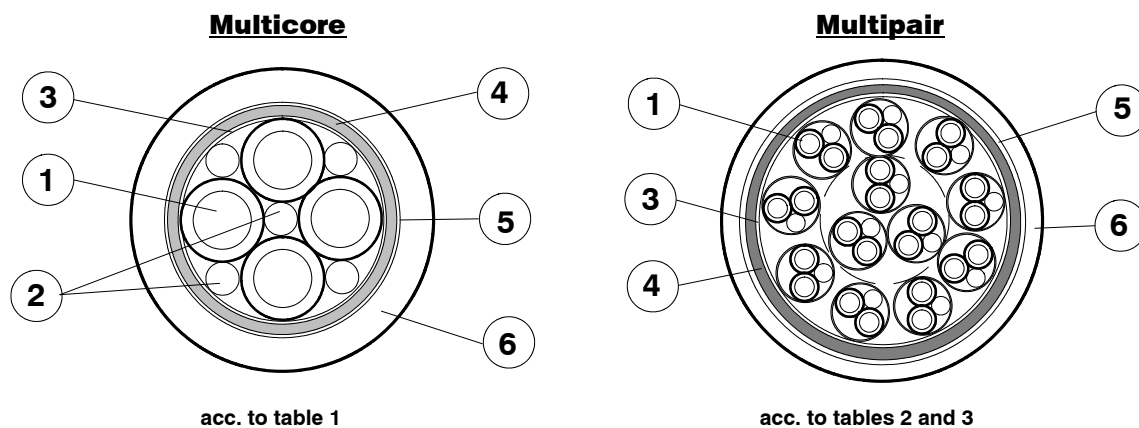
### Application

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 :



- |    |  |   |
|----|--|---|
| 1. | Cores RADOX type MA14<br>Pair screen (optional)<br>Drain wire (optional) | Conductor: stranded tin plated copper<br>Insulation: RADOX TI301 type E acc. to VG 95218- 20<br>Colours: see table 1- 3<br>Plastic laminated Al- tape<br>Stranded tin plated copper |
| 2. | Center und Fillers (optional)  | RADOX 125 REC   |
| 3. | Wrapping   | Tape  |
| 4. | Screen   | Tin plated copper braid, coverage density: <span style="float: right;">≥ 90%</span>   |
| 5. | Wrapping   | Tape  |
| 6. | Sheath   | RADOX Elastomer S FH type SHF2 acc. to IEC 60092- 360 and type SHF MUD acc. to NEK TS 606<br>colour: black or blue<br>D : see table 1- 3  |

Cable marking : HUBER+SUHNER RADOX MFH- S B 0.6/1 KV [cable type]MM2 SHF2 SHF MUD 90C  
90C IEC 60332- 1- 2 IEC 60332- 3- 22 [H+S 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.

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### 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 + DNV 827.11</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 FTP Code 2010, An.1 Pt.2, 2.4.2



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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 :

DNV 827.11	Type approval programme - 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 - single core insulated wires, detail standard

### Approvals :

ABS :	Certificate 15- GD1369103- PDA
DNV :	Certificate E- 12873
BV :	Certificate 44619/A0 BV
CCS, Class NK	
LR :	Certificate pending



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## 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
3 x 0.5	19 x 0.18	bk, bu, bn	black	40.1	5.75±0.3	6.4	2.1	85002705
4 x 0.5	19 x 0.18	bk, bu, bn, gy	black	40.1	6.1±0.3	7.1	2.1	85002932
6 x 0.5	19 x 0.18	bk, bu, bn, gy, light bu, wh	black	40.1	7.0±0.3	9.5	2.1	85065729
1 x 0.75	19 x 0.23	bk	black	26.7	4.25±0.3	3.4	1.1	85083708
3 x 0.75	19 x 0.23	bk, bu, bn	black	26.7	6.3±0.3	7.7	2.1	85002979
4 x 0.75	19 x 0.23	bk, bu, bn, gy	black	26.7	6.7±0.3	8.9	2.4	85025142
5 x 0.75	19 x 0.23	bk, bu, bn, gy, light bu	black	26.7	7.35±0.3	10.9	2.9	85003007
5 x 0.75	19 x 0.23	bk, bu, bn, gy, light bu	blue	26.7	7.35±0.3	10.9	2.9	85030251
6 x 0.75	19 x 0.23	bk, bu, bn, gy, light bu, wh	black	26.7	7.65±0.3	11.9	2.9	85086085
7 x 0.75	19 x 0.23	bk, bu, bn, gy, light bu, wh, og	black	26.7	8.35±0.3	14.1	3.4	85003052
8 x 0.75	19 x 0.23	wh num	blue	26.7	8.95±0.3	15.9	3.4	85030239
12 x 0.75	19 x 0.23	wh num	black	26.7	9.55±0.3	18.8	4.0	85002706
14 x 0.75	19 x 0.23	wh num	black	26.7	10.2±0.4	21.6	4.0	85027796
16 x 0.75	19 x 0.23	wh num	black	26.7	10.7±0.4	24.0	4.2	84135032
19 x 0.75	19 x 0.23	wh num	black	26.7	11.8±0.4	28.5	4.8	84118599
24 x 0.75	19 x 0.23	wh num	black	26.7	12.7±0.4	34.2	5.6	85028542
25 x 0.75	19 x 0.23	wh num	black	26.7	12.9±0.4	33.6	5.9	85003059
27 x 0.75	19 x 0.23	wh num	black	26.7	12.9±0.4	35.9	5.6	85065770
30 x 0.75	19 x 0.23	wh num	black	26.7	13.5±0.4	39.7	6.3	84135033
37 x 0.75	19 x 0.23	wh num	black	26.7	14.8±0.4	50.0	10.0	85002707
50 x 0.75	19 x 0.23	wh num	black	26.7	17.1±0.5	64.8	11.6	84118582
8 x 1	19 x 0.26	wh num	black	20.0	9.4±0.3	18.3	4.0	-
24 x 1	19 x 0.26	wh num	black	20.0	14.3±0.4	44.9	9.1	85079436
37 x 1	19 x 0.26	wh num	black	20.0	16.0±0.5	59.6	9.9	85079441
3 x 1.5	37 x 0.23	bk, bu, bn	black	13.7	7.45±0.3	11.7	2.9	85003088
3 G 1.5	37 x 0.23	bn, bu, gnye	black	13.7	7.45±0.3	11.7	2.9	85030413
4 x 1.5	37 x 0.23	bk, bu, bn, gy	black	13.7	8.1±0.3	13.9	3.2	85025144
4 G 1.5	37 x 0.23	gnye, bn, bk, gy	black	13.7	8.1±0.3	13.9	3.2	85030415
5 x 1.5	37 x 0.23	bk, bu, bn, gy, light bu	black	13.7	8.9±0.3	16.8	4.0	85003089
7 x 1.5	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	bk, bu, bn, gy, light-bu, wh, gnye	black	13.7	10.1±0.4	21.7	4.0	85030416
12 x 1.5	37 x 0.23	wh num	black	13.7	11.9±0.4	31.4	5.6	85003092
4 x 3 x 1.5	37 x 0.23	wh num	black	13.7	14.1±0.4	39.7	9.1	85073464



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**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
19 x 1.5	37 x 0.23	wh num	black	13.7	15.0±0.4	51.3	10.0	85030417
3 x 2.5	37 x 0.29	bk, bu, bn	black	8.21	8.6±0.3	15.6	2.9	85025146
4 x 2.5	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
7 x 2.5	37 x 0.29	bk, bu, bn, gy, bu, wh, og	black	8.21	12.1±0.4	32.0	5.6	85029466
19 x 2.5	37 x 0.29	wh num	black	8.21	17.9±0.5	73.4	10.9	85027823
27 x 2.5	37 x 0.29	wh num	black	8.21	20.1±0.5	95.1	13.3	85065782
3 x 4	56 x 0.30	bk, bu, bn	black	5.09	9.8±0.3	22.0	3.7	85026490
4G4	56 x 0.30	bk, bu, bn, gnye	black	5.09	11.0±0.4	28.0	5.2	85030419
3 x 6	84 x 0.30	bk, bu, bn	black	3.39	11.3±0.4	29.9	4.2	85026510
4 x 6	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	bn, bk, gy, gnye	black	3.39	12.6±0.4	38.0	4.8	85030420
5 x 6	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



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## 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
2 x 0.5	19 x 0.18	bk, bu	black	40.1	5.55±0.3	5.8	2.1	85023014
2 x 2 x 0.5	19 x 0.18	bk, bu, bn, gy	black	40.1	7.9±0.3	10.6	3.2	85030423
2 x 2 x 0.5	19 x 0.18	bk, bu, bn, gy	blue	40.1	7.9±0.3	10.6	3.2	85063748
4 x 2 x 0.5	19 x 0.18	wh num	black	40.1	9.25±0.3	14.6	3.7	85028903
5 x 2 x 0.5	19 x 0.18	wh num	black	40.1	9.75±0.3	16.4	4.0	85018695
7 x 2 x 0.5	19 x 0.18	wh num	black	40.1	11.8±0.4	22.8	4.8	85030424
10 x 2 x 0.5	19 x 0.18	wh num	black	40.1	12.8±0.4	26.1	5.9	85018794
14 x 2 x 0.5	19 x 0.18	wh num	black	40.1	14.1±0.4	34.8	10.0	85018853
21 x 2 x 0.5	19 x 0.18	wh num	black	40.1	17.7±0.5	51.1	11.6	85025951
45 x 2 x 0.5	19 x 0.18	wh num	black	40.1	21.9±0.5	98.6	21.4	85069169
2 x 0.75	19 x 0.23	bk, bu	black	26.7	6.3±0.3	7.0	2.1	85002975
2 x 2 x 0.75	19 x 0.23	bk, bu, bn, gy	black	26.7	8.7±0.3	12.5	3.1	85070502
4 x 2 x 0.75	19 x 0.23	wh num	black	26.7	10.4±0.4	18.6	4.0	85025307
8 x 2 x 0.75	19 x 0.23	wh num	black	26.7	14.6±0.4	37.9	10.0	85003074
12 x 2 x 0.75	19 x 0.23	wh num	black	26.7	15.6±0.5	43.9	10.0	85002708
16 x 2 x 0.75	19 x 0.23	wh num	black	26.7	17.8±0.5	54.9	11.6	85063420
19 x 2 x 0.75	19 x 0.23	wh num	black	26.7	18.3±0.5	60.4	11.6	85031614
5 x 2 x 1	19 x 0.26	wh num	black	20.0	12.1±0.4	26.1	5.6	85018964
2 x 1.5	37 x 0.23	bk, bu	black	13.7	7.15±0.3	10.0	2.4	85003086
4 x 2 x 1.5	37 x 0.23	wh num	black	13.7	12.9±0.4	29.7	5.5	85073461
2 x 2.5	37 x 0.29	bk, bu	black	8.21	8.2±0.3	13.6	2.6	85003100
2 x 2 x 2.5	37 x 0.29	bk, bu, bn, gy	black	8.21	13.7±0.4	28.7	5.6	85003101
2 x 4	56 x 0.30	bk, bu	black	4.8	9.3±0.3	18.1	3.7	85030605
2 x 6	84 x 0.30	bk, bu	black	3.2	10.7±0.4	24.4	4.4	85019004



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**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
2 x (2 x 0.5)	19 x 0.18	bk, bu, bn, gy	black	y / y	40.1	8.3±0.3	12.0	3.2	85030425
7 x (2 x 0.5)	19 x 0.18	wh num	black	y / y	40.1	12.6±0.4	27.7	5.6	85030427
12 x (2 x 0.5)	19 x 0.18	wh num	black	y / y	40.1	14.8±0.4	41.0	10.0	85069151
14 x (2 x 0.5)	19 x 0.18	wh num	black	y / y	40.1	15.5±0.5	45.5	10.0	85030428
19 x (2 x 0.5)	19 x 0.18	wh num	black	y / y	40.1	18.7±0.5	61.6	11.6	85069162
<del>(2 x 0.75)</del>	<del>19 x 0.23</del>	<del>bk, bu</del>	<del>black</del>	<del>y / n</del>	<del>26.7</del>	<del>6.3±0.3</del>	<del>7.42</del>	<del>2.1</del>	<del>85016844</del>
(2 x 0.75)	19 x 0.23	bk, bu	black	y / y	26.7	6.3±0.3	7.82	2.1	85077525
2 x (2 x 0.75)	19 x 0.23	bk, bu, bn, gy	black	y / y	26.7	9.5±0.3	15.7	4.0	85018684
3 x (2 x 0.75)	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
4 x (2 x 0.75)	19 x 0.23	wh num	black	y / y	26.7	10.5±0.3	21.3	4.8	85018685
5 x (2 x 0.75)	19 x 0.23	wh num	black	y / y	26.7	11.7±0.4	25.6	4.7	85085608
8 x (2 x 0.75)	19 x 0.23	wh num	black	y / y	26.7	16.0±0.5	46.6	10.0	85016458
12 x (2 x 0.75)	19 x 0.23	wh num	black	y / y	26.7	17.1±0.5	54.0	11.6	85016479
16 x (2 x 0.75)	19 x 0.23	wh num	black	y / y	26.7	18.7±0.5	66.5	13.3	85018686
<del>(2 x 1.5)</del>	<del>37 x 0.23</del>	<del>bk, bu</del>	<del>black</del>	<del>y / n</del>	<del>13.7</del>	<del>7.1±0.3</del>	<del>10.1</del>	<del>2.1</del>	<del>85016845</del>
(2 x 1.5)	37 x 0.23	bk, bu	black	y / y	13.7	7.1±0.3	10.7	2.1	85077524
2 x (2 x 1.5)	37 x 0.23	bk, bu, bn, gy	black	y / y	13.7	11.5±0.4	24.0	4.8	85018688
2 x (2 x 1.5)	37 x 0.23	bk, bu, bn, gy	blue	y / y	13.7	11.5±0.4	24.0	4.8	85063968
3 x (2 x 1.5)	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
4 x (2 x 1.5)	37 x 0.23	wh num	black	y / y	13.7	13.1±0.4	34.1	5.6	85018689
6 x (2 x 1.5)	37 x 0.23	wh num	black	y / y	13.7	16.7±0.5	56.2	11.6	85064387
8 x (2 x 1.5)	37 x 0.23	wh num	black	y / y	13.7	19.5±0.5	72.4	13.9	85018690
12 x (2 x 1.5)	37 x 0.23	wh num	black	y / y	13.7	20.9±0.4	87.4	15.0	85018691
16 x (2 x 1.5)	37 x 0.23	wh num	black	y / y	13.7	24.0±0.5	122.2	16.6	85018446
24 x (2 x 1.5)	37 x 0.23	wh num	black	y / y	13.7	28.7±0.6	164.3	20.7	85085975
(2 x 2.5)	37 x 0.29	bk, bu	black	y / n	8.21	8.25±0.3	13.6	2.1	85016525
2 x (2 x 2.5)	37 x 0.29	bk, bu, bn, gy	black	y / y	8.21	13.9±0.4	33.0	5.2	85016533