2MKABLO

MARINE & SHIPBOARD CABLES

2MKABLO

appli**Cable** to life...

About Us

Established in Istanbul in 1993, 2M KABLO, produces standard and special cables for energy, industry, petrochemical, transportation and building sectors, with its fully equipped, state of the art technology, specialist staff and development with open structure in the sector and a pioneering company by considering investment as one of the most important objectives.

2M KABLO, which is located in Tekirdag with a total area of 25.000 m², has been cooperated the solution partner of many companies and projects in Turkiye and abroad since its establishment. Local sales offices are located in Istanbul and Ankara. 2M KABLO, which incorporated in the year 2024 in United States of America, has a sales office located in Texas.

2M KABLO export to more than 80 countries in 6 continents. 2M KABLO is one of Turkiye global brand in the cable industry, with export volume increasing every year Export Achievement Award in 2008, the year in 2011 and 2012 was awarded the Honorary Award IMMIB export. 2M KABLO which was listed in Turkiye's second 500 Industrial Enterprises list published by the Istanbul Chamber of Industry (ISO) for the first time in 2016, was also awarded the Best Managed Companies in Turkiye's Cable Industry in 2019 by Deloitte organization.

2M KABLO has quality management system documents which are ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 50001:2018 and ISO 27001:2013. 2M KABLO has become a R&D center registered by the Ministry of Science, Industry and Technology. 2M KABLO is the first local Low-Voltage cable manufacturer with a registered R&D Center.

2M KABLO BEST MANAGED COMPANIES TURKIYE 2019

BEST MANAGED COMPANIES TURKEY
Deloitte.

R&D Innovation

Since 1993, 2M KABLO has been supporting its customers with new and user-specific product designs.

2M Kablo is the first locally-funded LV Cable manufacturer who is awarded with a R&D Centre License by Turkish

With the Cable Builder design program, all data related to the product can be created quickly and accurately.

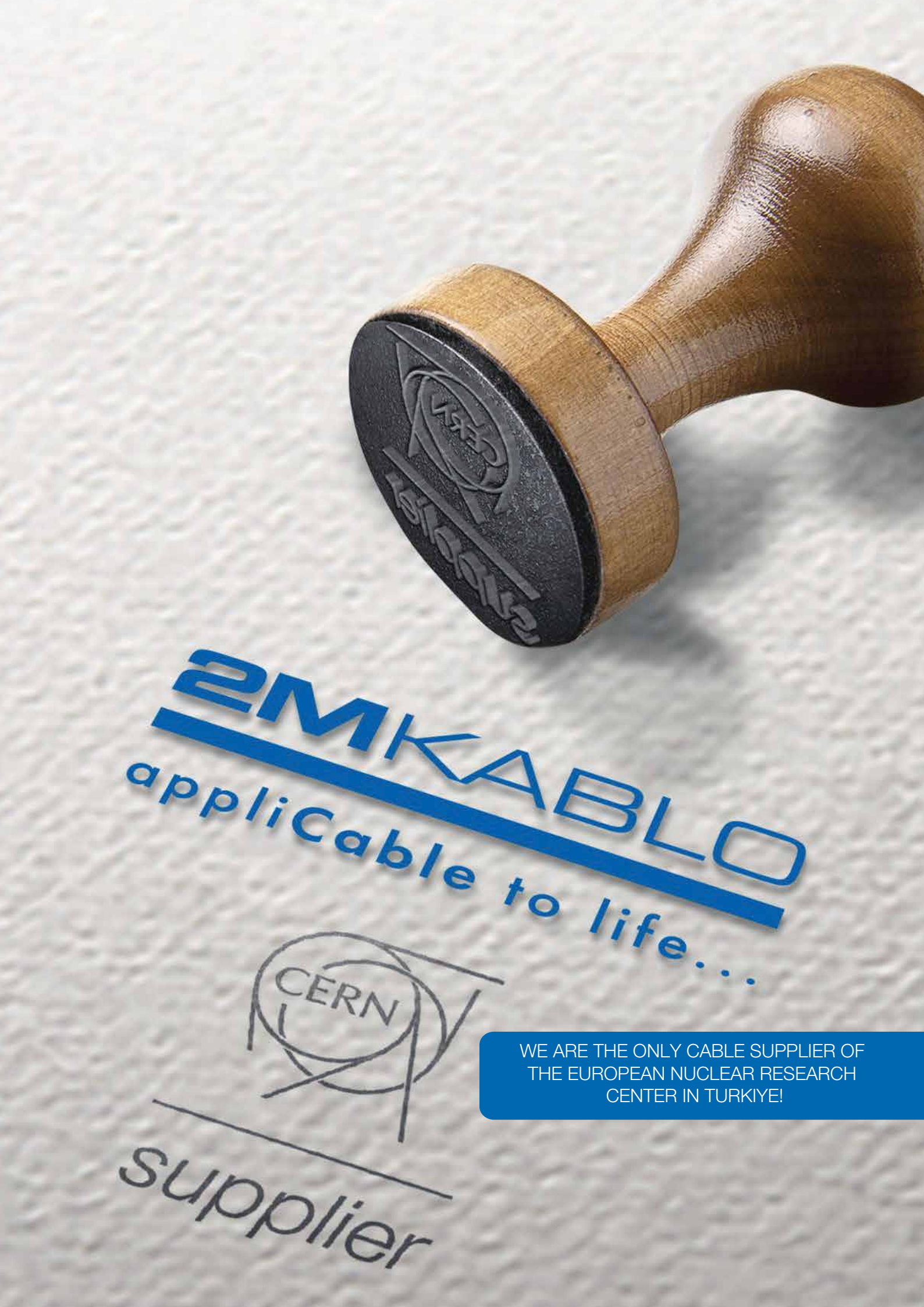
The Professional engineers in 2M KABLO R&D department make design for 6 different product groups and also special cable types.

2M KABLO's R&D activities are always customer oriented.

2M KABLO invests 5% of its revenue to generate resources for R&D innovation activities.These investments create the success of 2M KABLO. ,

The R&D center of 2M KABLO, we cooperates with the best research institutes and universities in various projects.

The key factors, which create the success of 2M KABLO, are the high–quality products and technical support capabilities.


2MKABLO
applicable to life...
CERN
supplier
WE ARE THE ONLY CABLE SUPPLIER OF
THE EUROPEAN NUCLEAR RESEARCH
CENTER IN TURKIYE!

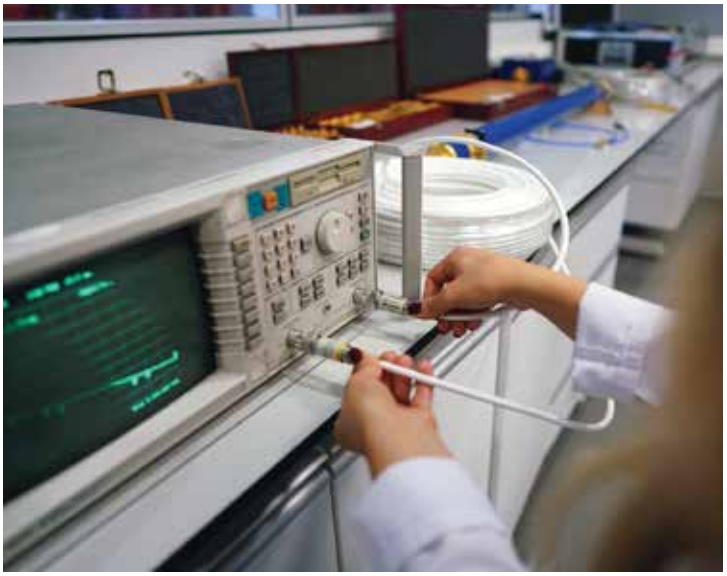
2M KABLO Tests

Mechanical Tests

- Wall Thickness and Diameter Measurement
- Tensile Strength & Break Extension Test
- Aging Tests
- Shrinkage Test
- Hot Tensile Test
- Heat Odor Test
- High Temperature Pressure Test
- Thermal Stability Test
- Cable Crush Test
- Mass Loss Test
- Low Temperature Bending Test
- Low Temperature Impact Test
- Low Temperature Elongation Test
- Tear Resistance Test
- Deformation Test

Electrical Tests

- Conductor Resistance Measurement
- Spark Test
- High Voltage Test
- Insulation Resistance Measure
- Transfer Impedance, Screening Weakness and Coupling Weakness Measurements
- Return Loss, Attenuation and Impedance Measurements
- Measurement of Capacitance and Resistance Imbalance
- Capacity and Inductance Measurement
- Flexibility Test
- Sheath Surface Resistance
- D.C. Long Term Resistance
- Near-end (NEXT) and Far-end (FEXT) Diphone Tests
- Capacity Measurement After Immersion in Water A.C.



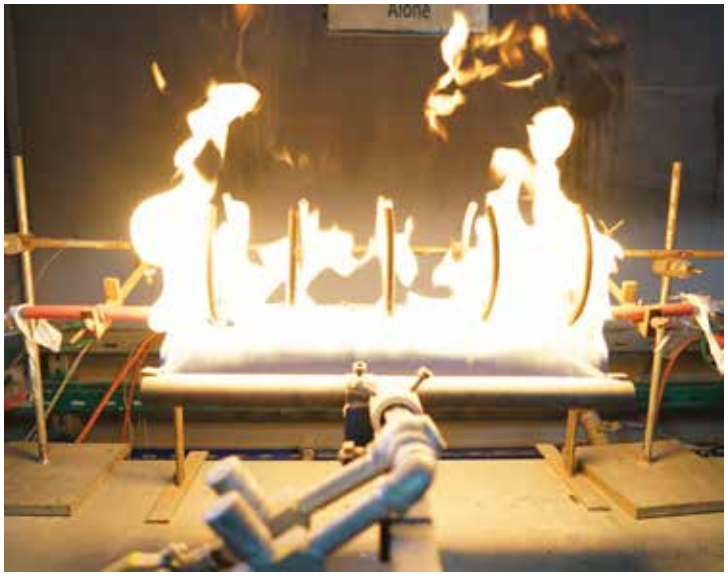
2M KABLO Tests

Chemical Tests

- Determination of Halogen Acid Test
- pH and Conductivity Test
- UV Resistance Test
- Measurement of Density
- Water Absorption Test
- Mineral Oil Resistance Test
- Hydrocarbon Resistance Test
- Determination of Saponification value for Polyurethane Sheath Material
- Water Resistance Test
- Gasoline Resistance Test
- Engine Oil Resistance Test
- Sodium Hydroxide Resistance Test
- Oxalic Acid Resistance Test
- Hydrochloric Acid Resistance Test
- Mud Resistance Test
- Plastics Melt Flow Index Test (MFI)

Fire Resistant Cabling Tests

- Electric Transmission Continuity Test In Flame Environment (FE 180)
- Electric Transmission Continuity Test In Flame Environment (BS 6387 C)
- Electric Transmission Continuity Test Under Mechanical Impact (BS 6387 Z)
- Electric Transmission Continuity Test Under Water (BS 6387 W)
- Electric Transmission Continuity Test under Mechanical Impact (EN 50200)
- Vertical Flame Test for Bunched Cables (IEC 60332-3)
- Smoke Denstiy Test (IEC 6134-2),
- Temperature of Ignition Test (TOI)
- VW-1 Flame Test
- Reaction to Fire Tests
- CPR



Areas of Usage and Features

Ship and yacht cables are used in energy and communication systems such as sea vehicles, ports and shipyards. Ship cables are collected in 2 basic groups according to their working voltages. (150 / 250V (300V), 0.6 / 1kV) In terms of purpose, they can be grouped as control, energy, information communication and instrumentation cables. These cables must be extremely durable.

Petro-Chemical products and solar radiation, which are likely to be present in the environment as well as salt water and moisture in the environment of ship type cables, are also conditions that are a problem for the cables. SHF 1 class low smoke density and halogen free materials should be used as outer sheath for these tough physical conditions.

Ship and yacht cables need better shielding to ensure clearer data exchange and electromagnetic waves. Communication devices, radio and electrical devices, information communication or energy cables, this shielding can be provided with copper, steel mesh or metal bands.

In case of fire, cables should be used to with fire resistant fiber or mica glass layers. In addition, low weight, high efficiency and high flexibility are required in the cables for sharp turns in narrow areas. It is preferred to use stranded annealed copper as conductors to meet this requirement

2MKABLO

Countries Special Certifications

DNV.GL (Det Norske Veritas)
Based in Norway, the company operates in many countries of the world for ship classification and shipbuilding materials and products certification agency.

BV (Bureau Veritas)
French classification and conformity assessment organization specializing in ship classification, certification of shipbuilding materials, quality management systems, and industrial facility inspection.

ABS (American Bureau of Shipping)
It is a in Classification and Conformity Assessment Body in America based Shipbuilding operating in 70 countries worldwide.

LR (Lloyd's Register)
UK-based maritime classification and conformity assessment organization.

RINA (Registro Italiano Navale)
RINA is an Italy-based maritime and certification organization.

TL (Turkish Loydu)
TL (Türk Loydu) is a Turkiye-based ship classification and conformity assessment organization.

2MKABLO

Index

M2X

Areas of Use

Used as fixed installation cable in marine vehicles. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Inductor	Stranded Annealed Copper (IEC/EN 60228, Class 5) (tinned copper and/or Class 2 versions are available upon request)
Insulation	XL HFFR (IEC 60092-360 HF90),Standard Outer Sheath: Black (other colors and double sheath upon request)
Reference Standards	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2)kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>4000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-1/2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	Fixed 4 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	2,60	10	15
1x1,5	2,90	15	20
1x2,5	3,30	24	29
1x4	3,90	38	44
1x6	4,40	57	60
1x10	5,50	94	101
1x16	6,60	151	152
1x25	8,40	236	238
1x35	9,60	310	330
1x50	11,40	450	473
1x70	13,50	658	672
1x95	15,00	850	892
1x120	16,80	1072	1125
1x150	19,00	1341	1413
1x185	21,60	1655	1739
1x240	24,30	2145	2255
1x300	28,80	2593	2827

M2XH

Areas of Use

Used as fixed installation cable in marine vehicles. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-1/2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	4,80	10	36
2x1	7,55	20	75
3x1	8,05	29	86
4x1	8,80	39	106
5x1	9,60	49	130
7x1	10,45	69	162
12x1	13,75	118	264
16x1	15,40	157	342
19x1	16,25	187	390
24x1	19,15	236	495
27x1	19,55	265	543
37x1	22,05	364	718
1x1,5	5,10	14	43
2x1,5	8,20	29	92
3x1,5	8,60	43	105
4x1,5	9,50	57	132
5x1,5	10,35	72	163
7x1,5	11,30	101	206
12x1,5	15,05	172	338
16x1,5	16,80	230	440
19x1,5	17,65	273	504
24x1,5	20,90	345	639
27x1,5	21,40	388	705
37x1,5	24,10	532	936
1x2,5	5,50	23	55
2x2,5	9,05	46	121
3x2,5	9,70	69	143
4x2,5	10,55	93	180
5x2,5	11,60	116	224
7x2,5	12,70	162	286
12x2,5	16,90	278	475
16x2,5	18,85	370	620
19x2,5	19,90	440	714
24x2,5	23,60	556	907
27x2,5	24,10	625	1003
37x2,5	27,20	857	1341
1x4	6,00	37	73
2x4	10,10	73	163
3x4	10,90	110	197
4x4	11,95	146	250
1x6	6,60	55	97
2x6	11,40	111	219
3x6	12,15	166	268
4x6	13,35	221	343
5x6	14,75	277	431
1x10	7,35	93	141
2x10	12,95	187	319
3x10	13,90	280	403
4x10	15,30	374	521
5x10	16,90	467	656

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x16	8,30	147	203
2x16	16,95	294	623
3x16	18,00	441	777
4x16	19,75	588	976
5x16	21,55	735	1179
1x25	10,10	233	311
2x25	20,60	466	942
3x25	21,95	699	1184
4x25	24,10	932	1493
5x25	26,50	1166	1779
1x35	11,20	321	412
2x35	22,75	643	1212
3x35	24,35	964	1541
4x35	26,75	1285	1951
5x35	29,40	1607	2335
1x50	12,65	427	537
2x50	25,60	855	1562
3x50	27,40	1282	1995
4x50	30,20	1709	2536
5x50	33,70	2137	3081
1x70	15,55	636	783
2x70	31,35	1273	2346
3x70	34,00	1909	2985
4x70	37,55	2545	3792
1x95	16,50	849	1011
2x95	33,75	1699	2896
3x95	36,10	2548	3736
4x95	40,00	3398	4779
1x120	18,50	1219	1413
3x120	40,50	3657	5124
4x120	45,30	4876	6641
1x150	20,35	1382	1614
3x150	44,90	4145	5960
4x150	49,75	5527	7638
1x185	22,80	1651	1933
3x185	50,25	4952	7195
1x240	27,10	2165	2540
3x240	59,90	6495	9633
1x300	28,30	3045	3450

M2XCH

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Inner Sheath / Separator	PET Foil (HFFR filler upon request)
Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-1/2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	5,70	28	59
2x1	8,50	52	113
3x1	9,05	66	126
4x1	9,80	79	150
5x1	10,55	91	177
7x1	11,50	117	215
12x1	15,30	220	374
16x1	16,90	271	464
19x1	17,75	306	518
24x1	20,75	378	645
27x1	21,20	411	696
37x1	23,65	528	890
1x1,5	6,00	34	67
2x1,5	9,15	64	132
3x1,5	9,70	82	150
4x1,5	10,45	99	177
5x1,5	11,40	120	216
7x1,5	12,40	154	264
12x1,5	16,60	284	458
16x1,5	18,30	354	573
19x1,5	19,30	404	644
24x1,5	22,50	500	803
27x1,5	23,05	547	873
37x1,5	25,70	711	1123
1x2,5	6,40	45	81
2x2,5	10,00	87	167
3x2,5	10,65	113	190
4x2,5	11,65	141	233
5x2,5	12,60	169	281
7x2,5	14,10	254	386
12x2,5	18,40	402	607
16x2,5	20,45	510	768
19x2,5	21,55	587	871
24x2,5	25,20	731	1092
27x2,5	25,75	805	1191
37x2,5	28,95	1059	1551
1x4	6,90	62	102
2x4	11,10	119	213
3x4	11,85	159	249
4x4	12,90	201	307
1x6	7,55	83	128
2x6	12,40	162	274
3x6	13,15	222	327
4x6	14,90	317	447
1x10	8,30	125	178
2x10	14,35	277	419
3x10	15,30	381	512
4x10	16,80	486	642
1x16	9,30	184	245
2x16	18,35	414	760
3x16	19,45	570	923
4x16	21,15	730	1135
1x25	11,10	278	361
2x25	22,00	613	1106
3x25	23,40	857	1358
4x25	25,55	1107	1685
1x35	12,20	373	468
2x35	24,15	806	1393
3x35	25,80	1140	1735
4x35	28,25	1479	2166
1x50	14,05	518	637
2x50	27,00	1039	1768
3x50	28,85	1480	2216
4x50	31,65	1928	2779
1x70	16,90	748	905
2x70	32,75	1499	2587
3x70	35,90	2250	3346
4x70	39,40	2927	4195
1x95	17,90	971	1143
2x95	35,15	1942	3161
3x95	37,95	2909	4130
4x95	41,85	3797	5212
1x120	19,95	1355	1559
3x120	42,45	4056	5554
4x120	47,20	5320	7115
1x150	21,80	1530	1772
3x150	46,80	4583	6431
4x150	51,60	6016	8161
1x185	24,25	1817	2111
3x185	52,10	5448	7721
1x240	28,50	2364	2737
3x240	61,75	7085	10218
1x300	29,70	3252	3659

M2XCH EMC

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Inner Sheath / Separator	PET Foil (HFFR filler upon request)
Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage) and copper tape with drain wire
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-1/2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	5,90	35	50
2x1	8,75	60	120
3x1	9,25	72	100
4x1	10,00	86	120
5x1	10,75	100	185
7x1	11,75	124	176
12x1	15,50	227	281
16x1	17,10	278	475
19x1	18,00	314	407
24x1	21,00	385	511
27x1	21,40	418	559
37x1	23,90	535	734
1x1,5	6,20	42	57
2x1,5	9,40	73	140
3x1,5	9,90	90	120
4x1,5	10,70	106	145
5x1,5	11,65	126	223
7x1,5	12,60	161	219
12x1,5	16,80	291	356
16x1,5	18,50	361	585
19x1,5	19,50	411	522
24x1,5	22,70	507	656
27x1,5	23,25	554	721
37x1,5	25,95	718	952
1x2,5	6,60	54	70
2x2,5	10,25	95	173
3x2,5	10,90	121	158
4x2,5	11,85	151	195
5x2,5	12,80	178	290
7x2,5	14,35	262	305
12x2,5	18,65	410	494
16x2,5	20,70	518	783
19x2,5	21,75	596	734
24x2,5	25,40	739	925
27x2,5	25,95	813	1020
37x2,5	29,15	1068	1358
1x4	7,10	70	88
2x4	11,30	128	221
3x4	12,10	169	212
4x4	13,15	209	264
1x6	7,75	91	113
2x6	12,60	173	285
3x6	13,35	231	283
4x6	15,10	327	362
1x10	8,55	134	158
2x10	14,60	289	433
3x10	15,55	390	423
4x10	17,05	494	542
1x16	9,50	192	221
2x16	18,55	422	622
3x16	19,65	578	804
4x16	21,35	738	1003
1x25	11,30	287	330
2x25	22,20	622	907
3x25	23,60	865	1212
4x25	25,75	1116	1522
1x35	12,40	381	431
2x35	24,40	815	1153
3x35	26,00	1148	1571
4x35	28,50	1487	1984
1x50	14,30	527	562
2x50	27,20	1047	1465
3x50	29,05	1488	2030
4x50	31,85	1936	2572
1x70	17,10	757	810
2x70	33,00	1512	2103
3x70	36,10	2265	3018
4x70	39,65	2920	3825
1x95	18,10	978	1038
2x95	35,35	1963	2633
3x95	38,20	2918	3781
4x95	42,05	3808	4825
1x120	20,15	1362	1442
3x120	42,65	4064	5168
4x120	47,40	5329	6684
1x150	22,00	1538	1644
3x150	47,00	4595	6007
4x150	51,85	6024	7687
1x185	24,45	1826	1965
3x185	52,30	5456	7237
1x240	28,75	2371	2561
3x240	62,00	7094	9642
1x300	29,90	3260	3477

M2XSH

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Inner Sheath	HFFR
Overall Screen	Galvanised steel wire braid
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	7,60	10	120
2x1	10,35	20	191
3x1	10,90	29	213
4x1	11,70	39	243
5x1	12,50	49	275
7x1	13,50	69	321
12x1	17,00	118	480
16x1	18,65	157	588
19x1	19,55	187	653
24x1	22,70	236	813
27x1	23,15	265	870
37x1	25,70	364	1096
1x1,5	7,90	14	132
2x1,5	11,05	29	220
3x1,5	11,60	43	242
4x1,5	12,40	57	281
5x1,5	13,40	72	324
7x1,5	14,40	101	380
12x1,5	18,35	172	581
16x1,5	20,15	230	717
19x1,5	21,15	273	799
24x1,5	24,55	345	997
27x1,5	25,10	388	1074
37x1,5	27,90	532	1366
1x2,5	8,30	23	155
2x2,5	11,95	46	265
3x2,5	12,60	69	299
4x2,5	13,60	93	352
5x2,5	14,65	116	408
7x2,5	15,75	162	487
12x2,5	20,25	278	755
16x2,5	22,40	370	943
19x2,5	23,50	440	1059
24x2,5	27,35	556	1328
27x2,5	27,90	625	1438
37x2,5	31,30	857	1849
1x4	8,80	37	183
2x4	13,10	73	327
3x4	13,85	110	378
4x4	15,00	146	451
1x6	9,40	55	223
2x6	14,40	111	410
3x6	15,20	166	480
4x6	16,55	221	578
1x10	10,15	93	293
2x10	16,00	187	546
3x10	17,05	280	658
4x10	18,60	374	805
1x16	11,20	147	388
2x16	18,05	294	736
3x16	19,20	441	902
4x16	21,00	588	1118
1x25	13,10	233	564
2x25	21,85	466	1092
3x25	23,30	699	1348
4x25	25,60	932	1684
1x35	14,20	321	711
2x35	24,15	643	1386
3x35	25,85	964	1733
4x35	28,45	1285	2176
1x50	15,70	427	903
2x50	27,15	855	1777
3x50	29,10	1282	2229
4x50	32,05	1709	2810
1x70	18,65	636	1317
2x70	33,10	1273	2593
3x70	35,85	1909	3344
4x70	39,55	2545	4217
1x95	19,75	849	1605
2x95	35,65	1699	3256
3x95	38,15	2548	4134
4x95	42,20	3398	5248
1x120	21,85	1219	2146
3x120	42,80	3657	5594
4x120	47,30	4876	7131
1x150	23,80	1382	2485
3x150	46,90	4145	6444
4x150	52,00	5527	8217
1x185	26,35	1651	3013
3x185	52,45	4952	7781
1x240	30,80	2165	4033
3x240	61,95	6495	10328
1x300	32,10	3045	5062

M2XAH

Areas of Use

Used as fixed installation cable in marine vehicles. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Inner Sheath / Separator	PET Foil (HFFR filler upon request)
Overall Screen	Al-PET Foil (with tinned copper drain wire)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	5,10	17	46
2x1	7,90	27	86
3x1	8,45	37	97
4x1	9,20	47	117
5x1	9,95	56	142
7x1	10,90	76	175
12x1	14,25	125	278
16x1	15,90	164	356
19x1	16,75	194	405
24x1	19,80	243	512
27x1	20,20	273	560
37x1	22,70	371	736
1x1,5	5,40	22	53
2x1,5	8,55	36	103
3x1,5	9,10	50	117
4x1,5	9,85	65	143
5x1,5	10,80	79	175
7x1,5	11,80	108	219
12x1,5	15,55	180	353
16x1,5	17,30	237	455
19x1,5	18,25	280	520
24x1,5	21,50	352	657
27x1,5	22,05	395	723
37x1,5	24,75	539	956
1x2,5	5,80	32	66
2x2,5	9,40	55	133
3x2,5	10,05	78	156
4x2,5	11,00	101	193
5x2,5	12,00	124	238
7x2,5	13,10	171	300
12x2,5	17,40	286	491
16x2,5	19,45	379	638
19x2,5	20,50	448	733
24x2,5	24,20	564	928
27x2,5	24,75	634	1023
37x2,5	28,00	865	1364
1x4	6,30	45	84
2x4	10,50	82	176
3x4	11,25	118	209
4x4	12,30	155	263
1x6	6,90	64	108
2x6	11,80	119	232
3x6	12,55	174	281
4x6	13,85	230	358
1x10	7,70	102	153
2x10	13,30	195	334
3x10	14,25	289	417
4x10	15,80	382	536
1x16	8,65	155	216
2x16	17,30	302	637
3x16	18,35	449	792
4x16	20,10	596	991
1x25	10,50	242	325
2x25	20,95	475	958
3x25	22,35	708	1200
4x25	24,50	941	1510
1x35	11,55	330	425
2x35	23,10	651	1228
3x35	24,75	972	1558
4x35	27,20	1294	1970
1x50	12,95	436	550
2x50	25,90	863	1579
3x50	27,75	1290	2013
4x50	30,60	1718	2557
1x70	15,90	645	801
2x70	32,30	1281	2372
3x70	34,55	1917	3007
4x70	38,15	2554	3818
1x95	16,85	858	1028
2x95	34,15	1707	2916
3x95	36,50	2557	3760
4x95	40,40	3406	4802
1x120	18,90	1227	1431
3x120	41,05	3666	5149
4x120	45,80	4885	6666
1x150	20,75	1390	1632
3x150	45,35	4154	5984
4x150	50,20	5536	7665
1x185	23,20	1659	1954
3x185	50,75	4960	7222
1x240	27,65	2174	2560
3x240	60,70	6504	9668
1x300	28,75	3053	3469

M2XACH

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Inner Sheath / Separator	PET Foil (HFFR filler upon request)
1. Overall Screen	Al-PET Foil (with tinned copper drain wire)
Separator	PET Foil
2. Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	5,70	35	67
2x1	8,55	60	122
3x1	9,05	71	134
4x1	9,80	85	158
5x1	10,55	98	185
7x1	11,45	121	222
12x1	15,20	223	381
16x1	16,80	274	471
19x1	17,70	310	526
24x1	20,60	379	651
27x1	21,00	411	702
37x1	23,50	528	896
1x1,5	6,00	41	75
2x1,5	9,20	72	141
3x1,5	9,60	89	159
4x1,5	10,50	107	188
5x1,5	11,35	125	224
7x1,5	12,30	160	273
12x1,5	16,50	288	466
16x1,5	18,20	357	580
19x1,5	19,10	408	652
24x1,5	22,30	502	811
27x1,5	22,85	549	879
37x1,5	25,55	713	1132
1x2,5	6,40	53	90
2x2,5	10,05	95	177
3x2,5	10,70	121	201
4x2,5	11,55	148	242
5x2,5	12,60	176	291
7x2,5	14,15	261	397
12x2,5	18,35	407	617
16x2,5	20,30	513	778
19x2,5	21,35	591	880
24x2,5	25,00	734	1100
27x2,5	25,55	808	1200
37x2,5	28,65	1061	1561
1x4	6,90	69	111
2x4	11,10	127	224
3x4	11,90	168	262
4x4	12,95	208	318
1x6	7,55	91	138
2x6	12,40	172	287
3x6	13,15	229	338
4x6	14,80	325	458
1x10	8,35	134	188
2x10	14,40	288	433
3x10	15,35	388	522
4x10	16,75	492	652
1x16	9,30	192	255
2x16	18,35	421	770
3x16	19,45	577	934
4x16	21,15	736	1146
1x25	11,10	288	374
2x25	22,00	619	1117
3x25	23,40	863	1370
4x25	25,55	1113	1698
1x35	12,20	382	480
2x35	24,20	812	1406
3x35	25,80	1145	1747
4x35	28,20	1484	2179
1x50	14,10	524	647
2x50	27,00	1046	1783
3x50	28,85	1489	2233
4x50	31,65	1936	2796
1x70	17,00	754	914
2x70	33,20	1509	2607
3x70	35,90	2246	3352
4x70	39,45	2910	4188
1x95	17,90	978	1154
2x95	35,15	1955	3183
3x95	38,00	2915	4145
4x95	41,85	3803	5229
1x120	19,95	1360	1570
3x120	42,35	4058	5568
4x120	47,20	5318	7127
1x150	21,80	1536	1784
3x150	46,80	4585	6446
4x150	51,65	6018	8178
1x185	24,25	1822	2123
3x185	52,10	5443	7729
1x240	28,55	2360	2741
3x240	61,80	7079	10229
1x300	29,70	3257	3673

M2XASH

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Separator	PET Foil
Overall Screen	Al-PET Foil (with tinned copper drain wire)
Inner Sheath	HFFR
Armour	Galvanised steel wire braid
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	6,20	17	53
2x1	9,10	27	95
3x1	9,60	37	104
4x1	10,35	47	125
5x1	11,10	56	151
7x1	12,00	76	181
12x1	15,30	125	278
16x1	16,90	164	367
19x1	17,80	194	402
24x1	20,70	243	496
27x1	21,10	273	546
37x1	23,60	371	710
1x1,5	6,50	22	59
2x1,5	9,70	36	112
3x1,5	10,15	50	126
4x1,5	11,00	65	151
5x1,5	11,90	79	186
7x1,5	12,85	108	224
12x1,5	16,60	180	353
16x1,5	18,30	237	467
19x1,5	19,20	280	512
24x1,5	22,40	352	634
27x1,5	22,95	395	699
37x1,5	25,65	539	916
1x2,5	6,90	32	72
2x2,5	10,60	55	143
3x2,5	11,20	78	165
4x2,5	12,10	101	199
5x2,5	13,15	124	248
7x2,5	14,25	171	306
12x2,5	18,45	286	487
16x2,5	20,40	379	651
19x2,5	21,45	448	716
24x2,5	25,10	564	890
27x2,5	25,65	634	984
37x2,5	28,75	865	1299
1x4	7,45	45	91
2x4	11,65	82	186
3x4	12,40	118	216
4x4	13,50	155	271
1x6	8,10	64	116
2x6	12,95	119	243
3x6	13,70	174	288
4x6	14,90	230	360
1x10	8,90	102	163
2x10	14,50	195	345
3x10	15,45	289	420
4x10	16,85	382	536
1x16	9,85	155	224
2x16	20,60	302	661
3x16	21,70	449	796
4x16	23,40	596	988
1x25	11,65	242	333
2x25	24,25	475	983
3x25	25,65	708	1186
4x25	27,80	941	1485
1x35	12,75	330	433
2x35	26,45	651	1257
3x35	28,05	972	1530
4x35	30,45	1294	1927
1x50	14,20	436	557
2x50	29,30	863	1613
3x50	31,10	1290	1966
4x50	34,35	1718	2491
1x70	17,10	645	802
2x70	36,30	1281	2406
3x70	38,60	1917	2987
4x70	42,15	2554	3763
1x95	18,00	858	1024
2x95	38,30	1707	2964
3x95	40,70	2557	3727
4x95	44,95	3406	4740
1x120	20,05	1227	1422
3x120	45,45	3666	5073
4x120	50,30	4885	6547
1x150	21,90	1390	1616
3x150	49,90	4154	5869
4x150	54,75	5536	7484
1x185	24,35	1659	1925
3x185	55,65	4960	7045
1x240	28,65	2174	2500
3x240	65,35	6504	9336
1x300	29,80	3053	3402

M2XH FE180

Areas of Use

Used as fixed installation cable in marine vehicles. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	5,30	10	41
2x1	8,65	20	90
3x1	9,20	29	100
4x1	10,05	39	124
5x1	11,05	49	155
7x1	12,10	69	193
12x1	16,00	118	315
16x1	17,85	157	411
19x1	18,90	187	468
24x1	22,40	236	596
27x1	22,80	265	655
37x1	25,75	364	867
1x1,5	5,60	14	48
2x1,5	9,20	29	107
3x1,5	9,85	43	121
4x1,5	10,80	57	152
5x1,5	11,80	72	190
7x1,5	13,00	101	238
12x1,5	17,30	172	394
16x1,5	19,25	230	515
19x1,5	20,35	273	589
24x1,5	24,10	345	750
27x1,5	24,65	388	825
37x1,5	27,80	532	1099
1x2,5	6,00	23	61
2x2,5	10,15	46	138
3x2,5	10,80	69	160
4x2,5	11,90	93	201
5x2,5	13,10	116	253
7x2,5	14,30	162	323
12x2,5	19,15	278	537
16x2,5	21,40	370	704
19x2,5	22,60	440	811
24x2,5	26,80	556	1032
27x2,5	27,45	625	1140
37x2,5	31,00	857	1524
1x4	6,50	37	79
2x4	11,25	73	181
3x4	12,00	110	215
4x4	13,20	146	274
1x6	7,15	55	102
2x6	12,45	111	238
3x6	13,30	166	288
4x6	14,70	221	370
1x10	7,90	93	149
2x10	14,05	187	342
3x10	15,00	280	425
4x10	16,65	374	551
1x16	8,90	147	212
2x16	18,05	294	674
3x16	19,25	441	833
4x16	21,10	588	1043
1x25	10,70	233	322
2x25	21,70	466	1002
3x25	23,10	699	1249
4x25	25,50	932	1574
1x35	11,80	321	423
2x35	23,90	643	1278
3x35	25,50	964	1613
4x35	28,10	1285	2041
1x50	13,20	427	549
2x50	26,70	855	1637
3x50	28,50	1282	2076
4x50	32,00	1709	2678
1x70	16,20	636	800
2x70	33,05	1273	2444
3x70	35,35	1909	3088
4x70	39,10	2545	3922
1x95	17,10	849	1028
2x95	34,90	1699	2993
3x95	37,40	2548	3846
4x95	41,40	3398	4912
1x120	19,15	1219	1434
3x120	41,80	3657	5251
4x120	46,80	4876	6797
1x150	20,95	1382	1634
3x150	46,25	4145	6096
4x150	51,20	5527	7804
1x185	23,45	1651	1958
3x185	51,55	4952	7346
1x240	27,90	2165	2564
3x240	61,60	6495	9816
1x300	28,95	3045	3474

M2XCH FE180

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 =>White numbered)
Lay-up	Cores are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	6,10	30	65
2x1	9,50	57	134
3x1	10,05	69	146
4x1	10,90	83	174
5x1	11,90	98	209
7x1	12,95	123	253
12x1	17,30	233	442
16x1	19,10	285	551
19x1	20,20	319	613
24x1	23,65	401	776
27x1	24,10	428	832
37x1	27,00	546	1064
1x1,5	6,40	37	74
2x1,5	10,05	69	153
3x1,5	10,70	87	171
4x1,5	11,70	105	206
5x1,5	12,65	125	250
7x1,5	14,25	191	339
12x1,5	18,60	294	529
16x1,5	20,50	370	667
19x1,5	21,60	416	745
24x1,5	25,40	518	937
27x1,5	25,90	565	1017
37x1,5	29,05	740	1323
1x2,5	6,80	47	89
2x2,5	11,00	91	189
3x2,5	11,70	118	215
4x2,5	12,75	146	262
5x2,5	14,40	206	355
7x2,5	15,55	263	434
12x2,5	20,40	414	687
16x2,5	22,70	523	870
19x2,5	23,90	602	988
24x2,5	28,10	749	1240
27x2,5	28,75	830	1362
37x2,5	32,30	1090	1776
1x4	7,35	63	109
2x4	12,10	124	238
3x4	12,85	166	277
4x4	14,50	237	375
1x6	8,00	85	138
2x6	13,30	169	303
3x6	14,60	259	391
4x6	16,00	323	483
1x10	8,75	126	187
2x10	15,35	287	453
3x10	16,30	388	545
4x10	17,95	490	680
1x16	9,70	185	256
2x16	19,35	421	813

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
3x16	20,50	578	983
4x16	22,35	738	1207
1x25	11,55	280	375
2x25	23,00	620	1171
3x25	24,40	863	1429
4x25	26,80	1115	1774
1x35	12,65	375	483
2x35	25,20	814	1466
3x35	26,80	1148	1814
4x35	29,40	1491	2264
1x50	14,50	520	652
2x50	28,00	1046	1845
3x50	29,80	1492	2304
4x50	33,30	1939	2928
1x70	17,50	752	929
2x70	34,35	1513	2706
3x70	37,05	2262	3470
4x70	40,85	2925	4333
1x95	18,35	971	1161
2x95	36,60	2046	3369
3x95	39,10	2920	4248
4x95	43,10	3811	5358
1x120	20,40	1357	1585
3x120	43,55	4065	5692
4x120	48,50	5331	7288
1x150	22,25	1534	1802
3x150	47,95	4597	6583
4x150	52,90	6027	8342
1x185	24,75	1822	2144
3x185	53,25	5459	7892
1x240	29,15	2370	2786
3x240	63,30	7099	10465
1x300	30,25	3261	3707

M2XSH FE180

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Inner Sheath	HFFR
Overall Screen	Galvanised steel wire braid
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	6,00	10	69
2x1	9,20	20	121
3x1	9,75	29	145
4x1	10,60	39	174
5x1	11,50	49	202
7x1	12,55	69	251
12x1	16,35	118	388
16x1	18,15	157	486
19x1	19,20	187	551
24x1	22,55	236	688
27x1	22,95	265	749
37x1	25,80	364	971
1x1,5	6,30	14	76
2x1,5	9,75	29	138
3x1,5	10,35	43	168
4x1,5	11,30	57	203
5x1,5	12,25	72	239
7x1,5	13,40	101	300
12x1,5	17,60	172	474
16x1,5	19,50	230	590
19x1,5	20,55	273	677
24x1,5	24,20	345	847
27x1,5	24,75	388	924
37x1,5	27,80	532	1208
1x2,5	6,70	23	91
2x2,5	10,70	46	171
3x2,5	11,30	69	213
4x2,5	12,35	93	258
5x2,5	13,50	116	306
7x2,5	14,65	162	389
12x2,5	19,40	278	621
16x2,5	21,60	370	785
19x2,5	22,75	440	902
24x2,5	26,85	556	1135
27x2,5	27,50	625	1249
37x2,5	30,95	857	1641
1x4	7,20	37	112
2x4	11,70	73	213
3x4	12,45	110	271
4x4	13,60	146	336
1x6	7,80	55	139
2x6	12,90	111	272
3x6	13,70	166	350
4x6	15,10	221	436
1x10	8,50	93	189
2x10	14,45	187	374
3x10	15,40	280	497
4x10	17,00	374	628
1x16	9,40	147	255
2x16	18,45	294	707
3x16	19,60	441	918
4x16	21,40	588	1132
1x25	11,20	233	373
2x25	22,00	466	1022
3x25	23,40	699	1347
4x25	25,70	932	1676
1x35	12,25	321	479
2x35	24,10	643	1282
3x35	25,70	964	1718
4x35	28,20	1285	2147
1x50	13,60	427	612
2x50	26,85	855	1624
3x50	28,65	1282	2185
4x50	32,00	1709	2796
1x70	16,55	636	876
2x70	33,05	1273	2368
3x70	35,65	1909	3297
4x70	39,35	2545	4138
1x95	17,40	849	1105
2x95	35,25	1699	2974
3x95	37,65	2548	4047
4x95	41,55	3398	5134
1x120	19,40	1219	1520
3x120	41,95	3657	5478
4x120	46,80	4876	7037
1x150	21,20	1382	1728
3x150	46,30	4145	6336
4x150	51,10	5527	8041
1x185	23,60	1651	2059
3x185	51,40	4952	7588
1x240	27,90	2165	2676
3x240	61,20	6495	10056
1x300	28,95	3045	3580

M2XAH FE180

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

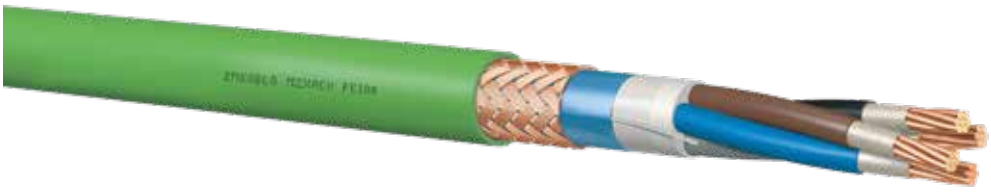
Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Separator	PET Foil
Overall Screen	Al-PET Foil (with tinned copper drain wire)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	5,40	17	49
2x1	8,75	27	99
3x1	9,30	37	109
4x1	10,15	47	133
5x1	11,15	56	164
7x1	12,20	76	202
12x1	16,10	125	327
16x1	17,95	164	422
19x1	19,05	194	480
24x1	22,50	243	609
27x1	22,95	273	668
37x1	25,85	371	881
1x1,5	5,70	22	56
2x1,5	9,30	36	116
3x1,5	9,95	50	131
4x1,5	10,90	65	161
5x1,5	11,90	79	200
7x1,5	13,10	108	248
12x1,5	17,40	180	406
16x1,5	19,35	237	526
19x1,5	20,45	280	601
24x1,5	24,20	352	762
27x1,5	24,75	395	838
37x1,5	27,90	539	1112
1x2,5	6,10	32	70
2x2,5	10,30	55	149
3x2,5	10,90	78	170
4x2,5	12,00	101	212
5x2,5	13,20	124	265
7x2,5	14,40	171	334
12x2,5	19,25	286	550
16x2,5	21,50	379	718
19x2,5	22,70	448	825
24x2,5	26,90	564	1046
27x2,5	27,60	634	1156
37x2,5	31,15	865	1541
1x4	6,60	45	88
2x4	11,35	82	192
3x4	12,10	118	226
4x4	13,30	155	285
1x6	7,25	64	112
2x6	12,55	119	249
3x6	13,40	174	299
4x6	14,80	230	382
1x10	8,00	102	159
2x10	14,15	195	354
3x10	15,15	289	438
4x10	16,75	382	564
1x16	9,00	155	223
2x16	18,15	302	686
3x16	19,35	449	846
4x16	21,20	596	1056
1x25	10,80	242	333
2x25	21,85	475	1017
3x25	23,25	708	1264
4x25	25,60	941	1589
1x35	11,90	330	434
2x35	24,00	651	1293
3x35	25,60	972	1628
4x35	28,20	1294	2056
1x50	13,30	436	560
2x50	26,80	863	1652
3x50	28,65	1290	2092
4x50	32,10	1718	2695
1x70	16,30	645	813
2x70	33,20	1281	2461
3x70	35,45	1917	3104
4x70	39,20	2554	3939
1x95	17,20	858	1040
2x95	35,00	1707	3009
3x95	37,50	2557	3865
4x95	41,50	3406	4930
1x120	19,25	1227	1446
3x120	41,90	3666	5269
4x120	46,90	4885	6815
1x150	21,10	1390	1648
3x150	46,35	4154	6115
4x150	51,30	5536	7826
1x185	23,55	1659	1972
3x185	51,65	4960	7366
1x240	28,00	2174	2578
3x240	61,70	6504	9838
1x300	29,05	3053	3489

M2XACH FE180



Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Separator	PET Foil
1. Overall Screen	Al-PET Foil (with tinned copper drain wire)
Seperator	PET Foil (HFFR filler upon request)
2. Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21

Technical Properties (at 20°C)	
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	6,30	38	76
2x1	9,70	65	134
3x1	10,25	77	158
4x1	11,15	92	188
5x1	12,10	107	218
7x1	13,20	132	268
12x1	17,50	238	455
16x1	19,35	293	562
19x1	20,40	334	637
24x1	23,90	409	795
27x1	24,30	436	850
37x1	27,20	561	1091
1x1,5	6,60	45	85
2x1,5	10,25	76	151
3x1,5	10,90	95	184
4x1,5	11,90	114	219
5x1,5	12,85	135	258
7x1,5	14,50	200	355
12x1,5	18,80	302	545
16x1,5	20,75	374	674
19x1,5	21,80	428	767
24x1,5	25,60	525	956
27x1,5	26,15	573	1036
37x1,5	29,30	749	1345
1x2,5	7,00	57	101
2x2,5	11,25	102	188
3x2,5	11,90	127	228
4x2,5	12,95	157	278
5x2,5	14,60	217	363
7x2,5	15,80	272	450
12x2,5	20,65	423	705
16x2,5	22,90	535	884
19x2,5	24,10	615	1012
24x2,5	28,30	757	1262
27x2,5	28,95	833	1377
37x2,5	32,50	1099	1800
1x4	7,55	73	123
2x4	12,30	133	232
3x4	13,10	173	290
4x4	14,70	248	392
1x6	8,20	95	151
2x6	13,95	208	325

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
3x6	14,80	267	407
4x6	16,20	337	503
1x10	9,00	136	201
2x10	15,55	296	434
3x10	16,55	397	561
4x10	18,15	499	697
1x16	9,95	195	270
2x16	19,55	433	787
3x16	20,75	587	1001
4x16	22,60	747	1226
1x25	11,80	290	390
2x25	23,20	630	1116
3x25	24,65	874	1451
4x25	27,00	1124	1794
1x35	12,85	383	497
2x35	25,40	822	1391
3x35	27,00	1156	1833
4x35	29,60	1500	2286
1x50	14,70	529	668
2x50	28,20	1055	1745
3x50	30,05	1505	2331
4x50	33,50	1957	2960
1x70	17,70	764	949
2x70	34,55	1523	2537
3x70	37,25	2271	3494
4x70	41,05	2953	4377
1x95	18,60	983	1182
2x95	36,85	2055	3176
3x95	39,30	2929	4274
4x95	43,30	3821	5387
1x120	20,65	1367	1604
3x120	43,75	4075	5719
4x120	48,70	5341	7319
1x150	22,50	1544	1822
3x150	48,20	4608	6616
4x150	53,15	6036	8375
1x185	24,95	1832	2166
3x185	53,45	5467	7921
1x240	29,40	2375	2804
3x240	63,50	7118	10512
1x300	30,45	3266	3726

M2XASH FE180

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-up	Cores are stranded in layers
Separator	PET Foil
Overall Screen	Al-PET Foil (with tinned copper drain wire)
Inner Sheath	HFFR
Armour	Galvanised steel wire braid
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2) kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21

Technical Properties (at 20°C)	
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	6,70	17	87
2x1	10,15	27	153
3x1	10,70	37	179
4x1	11,55	47	208
5x1	12,55	56	240
7x1	13,60	76	292
12x1	17,50	125	443
16x1	19,35	164	549
19x1	20,40	194	619
24x1	23,90	243	773
27x1	24,30	273	835
37x1	27,20	371	1072
1x1,5	7,00	22	95
2x1,5	10,70	36	172
3x1,5	11,35	50	204
4x1,5	12,30	65	242
5x1,5	13,30	79	280
7x1,5	14,50	108	344
12x1,5	18,80	180	536
16x1,5	20,75	237	659
19x1,5	21,80	280	752
24x1,5	25,60	352	940
27x1,5	26,15	395	1020
37x1,5	29,30	539	1322
1x2,5	7,45	32	115
2x2,5	11,70	55	207
3x2,5	12,30	78	251
4x2,5	13,40	101	302
5x2,5	14,60	124	351
7x2,5	15,80	171	440
12x2,5	20,65	286	690
16x2,5	22,90	379	865
19x2,5	24,10	448	989
24x2,5	28,30	564	1244
27x2,5	28,95	634	1361
37x2,5	32,50	865	1775
1x4	8,00	45	137
2x4	12,75	82	255
3x4	13,50	118	314
4x4	14,70	155	382
1x6	8,65	64	165
2x6	13,95	119	315
3x6	14,80	174	397
4x6	16,20	230	492
1x10	9,40	102	216
2x10	15,55	195	424
3x10	16,55	289	550
4x10	18,15	382	688
1x16	10,40	155	289
2x16	19,45	302	766
3x16	20,65	449	982
4x16	22,50	596	1205
1x25	12,20	242	412
2x25	23,10	475	1098
3x25	24,50	708	1429
4x25	26,90	941	1769
1x35	13,30	330	521
2x35	25,30	651	1367
3x35	26,90	972	1811
4x35	29,50	1294	2255
1x50	14,70	436	658
2x50	28,10	863	1724
3x50	29,90	1290	2294
4x50	33,40	1718	2925
1x70	17,70	645	933
2x70	34,45	1281	2505
3x70	37,15	1917	3451
4x70	40,95	2554	4318
1x95	18,60	858	1166
2x95	36,70	1707	3125
3x95	39,20	2557	4215
4x95	43,20	3406	5329
1x120	20,65	1227	1590
3x120	43,65	3666	5678
4x120	48,60	4885	7273
1x150	22,50	1390	1807
3x150	48,05	4154	6567
4x150	53,05	5536	8318
1x185	24,95	1659	2149
3x185	53,35	4960	7866
1x240	29,40	2174	2790
3x240	63,40	6504	10431
1x300	30,45	3053	3700

MGH

Areas of Use

Used as fixed installation cable in marine vehicles. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2)
Insulation	HEPR (IEC 60092-360)
Core Colors	White numbered)
Separator	PET Foil (HFFR filler upon request)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7000 - Grey
Reference Standards	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2)kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	6 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
10x0,75	13,00	70	205
1x1	4,70	10	32
2x1	9,50	19	129
3x1	10,00	28	145
4x1	10,70	37	241
5x1	11,70	47	193
6x1	12,40	56	218
7x1	12,40	86	226
8x1	12,20	75	206
9x1	13,10	84	235
10x1	13,40	94	231
12x1	13,90	112	299
14x1	14,80	131	334
16x1	15,40	149	369
18x1	16,20	168	447
19x1	16,20	177	376
20x1	16,20	187	398
21x1	17,30	196	446
24x1	19,10	224	479
25x1	19,10	233	492
27x1	19,80	252	531
30x1	20,30	280	578
32x1	21,00	298	616
36x1	22,00	336	686
37x1	22,00	345	694
40x1	22,80	373	760
42x1	23,80	392	799
48x1	25,30	447	894
60x1	27,80	559	1086
1x1,5	5,00	14	38
2x1,5	10,10	28	150
3x1,5	10,60	42	170
4x1,5	11,60	56	253
5x1,5	12,50	70	233
6x1,5	13,30	84	266
7x1,5	13,30	98	278
8x1,5	13,50	112	270
9x1,5	14,40	126	306
10x1,5	14,80	140	303
12x1,5	15,20	168	388
14x1,5	16,00	196	443
16x1,5	17,00	224	491
18x1,5	17,90	252	566
19x1,5	17,90	266	502
20x1,5	17,90	280	533
21x1,5	18,90	294	584
24x1,5	21,10	336	639
25x1,5	21,10	350	657
27x1,5	21,60	378	707
30x1,5	22,30	419	773

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
32x1,5	23,10	447	824
36x1,5	24,20	503	919
37x1,5	24,20	517	930
40x1,5	25,20	559	1019
42x1,5	26,30	587	1071
48x1,5	27,80	671	1199
60x1,5	30,90	839	1474
1x2,5	5,30	24	48
2x2,5	10,90	47	185
3x2,5	11,70	70	220
4x2,5	12,60	94	291
5x2,5	13,60	117	296
6x2,5	14,50	140	341
7x2,5	14,50	163	360
8x2,5	15,00	187	370
9x2,5	16,10	210	421
10x2,5	16,50	233	481
12x2,5	17,10	280	551
14x2,5	18,10	326	621
16x2,5	19,10	373	689
18x2,5	20,10	419	767
19x2,5	20,10	443	708
20x2,5	20,10	466	750
21x2,5	21,30	489	821
24x2,5	23,70	559	899
25x2,5	23,70	582	927
27x2,5	24,00	629	984
30x2,5	25,00	699	1090
32x2,5	26,00	745	1165
36x2,5	27,10	839	1299
37x2,5	27,10	862	1318
40x2,5	28,30	862	1443
42x2,5	29,40	978	1516
48x2,5	31,50	1118	1716
1x4	5,90	38	66
2x4	12,30	75	245
3x4	12,90	112	287
4x4	14,00	149	358
5x4	15,30	187	407
1x6	6,40	56	88
2x6	13,30	112	306
3x6	14,00	168	364
4x6	15,30	224	498
5x6	16,90	280	535
1x10	7,30	94	129
2x10	15,20	187	433
3x10	16,10	280	529
4x10	17,90	373	659
5x10	19,50	466	781
1x16	8,30	149	185

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x16	17,40	298	603
3x16	18,40	447	745
4x16	20,30	596	933
5x16	22,50	745	1120
1x25	10,20	233	284
2x25	21,00	466	900
3x25	22,30	699	1124
4x25	24,70	932	1417
5x25	27,20	1164	1694
1x35	11,30	326	373
3x35	24,80	978	1459
4x35	27,40	1304	1847
1x50	13,10	466	507
3x50	28,40	1397	1958
4x50	31,50	1863	2480
1x70	15,20	652	716
3x70	33,50	1956	2771
4x70	37,00	2608	3508
1x95	17,00	885	952
3x95	37,40	2654	3639
4x95	41,80	3539	4556
1x120	18,90	1118	1199
3x120	41,50	3353	4549
4x120	46,60	4470	5867
1x150	21,00	1397	1477
3x150	46,30	4191	5641
4x150	51,20	5588	7152
1x185	23,30	1723	1832
3x185	51,60	5169	7010
4x185	57,50	6891	8974
1x240	26,10	2335	2395
3x240	58,10	6705	9126
1x300	28,90	2794	2975

MGCH

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2)
Insulation	HEPR (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7000 - Grey
Reference Standards	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2)kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	5,80	25	54
2x1	10,70	59	179
3x1	11,20	73	197
4x1	12,10	86	230
5x1	12,90	100	255
6x1	13,60	113	285
7x1	13,60	122	292
8x1	13,80	165	281
9x1	14,70	174	313
12x1	15,40	198	306
14x1	16,10	235	335
16x1	17,00	253	388
18x1	17,80	272	419
19x1	17,80	281	429
20x1	17,80	290	439
21x1	18,70	316	464
24x1	20,70	344	532
25x1	20,70	354	541
27x1	21,20	390	569
30x1	22,10	409	621
32x1	22,80	454	652
36x1	23,60	491	705
37x1	23,60	500	715
40x1	24,70	528	773
42x1	25,60	547	813
48x1	27,10	628	905
60x1	29,50	740	1076
1x1,5	6,10	35	63
2x1,5	11,50	71	209
3x1,5	12,00	93	233
4x1,5	12,80	114	267
5x1,5	13,70	100	299
6x1,5	15,00	174	377
7x1,5	15,00	188	379
8x1,5	15,00	188	388
9x1,5	15,70	216	381
12x1,5	16,80	272	390
14x1,5	17,60	300	429
16x1,5	18,40	344	666
18x1,5	19,50	372	537
19x1,5	19,50	386	551
20x1,5	19,50	400	567
21x1,5	20,50	414	598
24x1,5	22,70	473	685
25x1,5	22,70	487	699
27x1,5	23,20	533	737
30x1,5	24,20	575	806
32x1,5	24,90	603	848
36x1,5	25,80	658	922

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
37x1,5	25,80	672	936
40x1,5	27,00	740	1013
42x1,5	28,10	768	1013
48x1,5	29,70	740	1076
60x1,5	32,40	1045	1424
1x2,5	6,50	44	76
2x2,5	12,50	94	248
3x2,5	12,90	128	282
4x2,5	13,80	151	328
5x2,5	15,30	201	410
6x2,5	16,20	249	462
7x2,5	16,20	272	481
8x2,5	16,40	295	447
9x2,5	17,50	319	500
10x2,5	17,90	337	462
12x2,5	18,70	400	525
14x2,5	19,50	447	594
16x2,5	20,70	493	666
18x2,5	21,70	556	729
19x2,5	21,70	581	751
20x2,5	21,70	604	776
21x2,5	22,90	627	819
24x2,5	25,20	714	936
25x2,5	25,20	738	959
27x2,5	25,80	784	1015
30x2,5	26,80	879	1110
32x2,5	27,80	926	1173
36x2,5	28,80	1019	1281
37x2,5	28,80	1042	1304
40x2,5	30,20	1138	1413
42x2,5	31,30	1185	1478
48x2,5	33,20	1325	1663
1x4	7,10	63	97
2x4	13,50	131	311
3x4	14,10	170	355
4x4	15,70	259	463
5x4	16,90	289	527
1x6	7,60	82	121
2x6	15,00	201	416
3x6	15,70	280	481
4x6	16,90	334	572
5x6	18,50	398	667
1x10	8,70	124	171
2x10	16,80	294	551
3x10	17,90	391	663
4x10	19,30	500	797
5x10	21,10	601	932
1x16	9,70	184	233
2x16	19,00	424	739
3x16	20,00	578	890

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
4x16	21,90	742	1092
5x16	24,10	898	1295
1x25	11,60	278	343
2x25	22,60	609	1065
3x25	24,10	867	1311
4x25	26,40	1123	1622
5x25	29,00	1342	1921
1x35	12,70	379	439
3x35	26,50	1174	1666
4x35	29,20	1495	2076
1x50	14,90	549	616
2x50	29,50	1124	1858
3x50	30,20	1620	2197
4x50	33,30	2108	2744
1x70	17,00	753	842
2x70	33,30	1524	2450
3x70	35,20	2206	3051
4x70	39,20	2995	3910
1x95	18,80	1002	1094
3x95	39,60	3061	4046
4x95	44,00	3975	5110
1x120	20,70	1252	1357
3x120	43,70	3799	4998
4x120	48,40	4953	6317
1x150	22,80	1531	1653
3x150	48,30	4687	6117
4x150	53,60	6071	7732
1x185	25,00	1874	2027
3x185	53,60	5698	7539
4x185	59,70	7471	9585
1x240	27,90	2411	2614
3x240	60,10	7304	9717
1x300	30,70	2995	3217

MGH FE180

Areas of Use

Used as fixed installation cable in marine vehicles. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2)
Flame Barrier	Mica Tape
Insulation	HEPR (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Separator	PET Foil (HFFR filler upon request)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standards	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2)kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	6 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	5,00	10	35
2x1	10,10	20	144
3x1	10,60	29	160
4x1	11,40	38	187
5x1	12,50	47	215
6x1	13,30	57	244
7x1	13,30	66	253
8x1	13,30	75	236
9x1	14,20	85	267
10x1	14,60	94	261
12x1	15,00	112	294
14x1	16,00	131	339
16x1	16,80	149	379
18x1	17,70	168	419
19x1	17,70	178	427
20x1	17,70	187	453
21x1	28,90	196	510
24x1	20,90	225	543
25x1	20,90	233	559
27x1	21,60	252	601
30x1	22,40	280	655
32x1	23,20	299	699
36x1	24,30	336	780
37x1	24,30	346	787
40x1	25,20	373	864
42x1	26,30	392	909
48x1	27,90	448	1015
60x1	30,80	559	1230
1x1,5	5,20	14	42
2x1,5	10,70	29	166
3x1,5	11,20	43	186
4x1,5	12,30	57	226
5x1,5	13,30	70	255
6x1,5	14,20	85	292
7x1,5	14,20	98	305
8x1,5	14,60	113	301
9x1,5	15,50	127	341
10x1,5	15,90	140	336
12x1,5	16,50	168	381
14x1,5	17,30	196	428
16x1,5	18,50	224	490
18x1,5	19,40	253	542
19x1,5	19,40	266	554
20x1,5	19,40	280	588
21x1,5	20,50	294	648
24x1,5	22,90	336	705
25x1,5	22,90	350	726
27x1,5	23,60	378	779
30x1,5	24,50	419	852
32x1,5	25,40	448	910

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
36x1,5	26,50	504	1014
37x1,5	26,50	517	1026
40x1,5	27,60	559	1125
42x1,5	28,80	587	1182
48x1,5	30,50	672	1321
60x1,5	33,90	839	1622
1x2,5	5,70	24	53
2x2,5	11,70	49	206
3x2,5	12,50	70	242
4x2,5	13,50	94	287
5x2,5	14,70	117	328
6x2,5	15,60	140	379
7x2,5	15,60	163	397
8x2,5	16,40	187	412
9x2,5	17,60	210	469
10x2,5	18,10	233	465
12x2,5	18,80	280	531
14x2,5	19,90	326	608
16x2,5	21,00	373	684
18x2,5	22,10	419	760
19x2,5	22,10	443	734
20x2,5	22,10	466	827
21x2,5	23,40	489	910
24x2,5	26,00	559	989
25x2,5	26,00	582	1019
27x2,5	26,60	629	1080
30x2,5	27,80	699	1198
32x2,5	28,90	745	1280
36x2,5	30,20	839	1427
37x2,5	30,20	862	1446
40x2,5	31,50	932	1586
42x2,5	32,80	978	1666
48x2,5	34,90	1118	1883
1x4	6,20	38	71
2x4	12,90	75	265
3x4	13,60	113	309
4x4	14,80	150	375
5x4	16,10	187	436
1x6	6,80	56	93
2x6	14,10	113	332
3x6	14,90	168	394
4x6	26,30	225	488
5x6	18,00	280	575
1x10	7,70	94	134
2x10	16,00	187	462
3x10	16,90	280	557
4x10	18,70	373	699
5x10	20,60	466	824
1x16	8,70	149	191
2x16	16,20	299	637

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
3x16	19,30	448	783
4x16	21,30	597	978
5x16	23,50	746	1167
1x25	10,60	233	292
2x25	21,80	466	940
3x25	23,10	699	1163
4x25	25,50	932	1464
5x25	28,30	1165	1754
1x35	11,60	326	380
3x35	25,40	978	1499
4x35	28,10	1304	1888
1x50	13,50	466	517
3x50	29,20	1397	2008
4x50	32,50	1863	2548
1x70	15,50	652	725
3x70	34,10	1956	2815
4x70	37,80	2608	3574
1x95	17,30	885	962
3x95	38,10	2654	3699
4x95	42,50	3539	4720
1x120	19,20	1118	1210
3x120	42,60	3353	4703
4x120	47,30	4470	5937
1x150	21,40	1397	1493
3x150	47,10	4191	5722
4x150	52,20	5588	7262
1x185	23,60	1723	1845
3x185	52,30	5169	7093
4x185	58,20	6891	9061
1x240	26,50	2335	2413
3x240	59,00	6705	9243

MGCH FE180

Areas of Use

Used as fixed installation cable in marine vehicles. Screening layer forms a shield for protection against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2)
Flame Barrier	Mica Tape
Insulation	HEPR (IEC 60092-360)
Core Colors	According to HD 308 S2 (# of Cores ≥5 => White numbered)
Lay-Up	Cores are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standards	IEC 60092-353

Technical Properties (at 20°C)	
Operating Voltage	0.6/1 (1.2)kV
Test Voltage	3.5 kV (a.c) 8.4 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x1	6,1	30	59
2x1	11,3	65	197
3x1	11,8	75	216
4x1	12,8	92	253
5x1	13,7	104	282
6x1	14,5	118	316
7x1	14,5	127	324
10x1	16,1	195	312
12x1	16,6	214	340
16x1	18,4	268	413
19x1	19,3	296	429
24x1	22,5	359	567
27x1	23	404	605
32x1	24,8	451	694
36x1	25,6	488	749
37x1	25,6	488	749
48x1	29,5	625	959
60x1	32,2	762	1140
1x1,5	6,4	35	68
2x1,5	12,1	74	229
3x1,5	12,6	92	251
4x1,5	13,5	111	291
5x1,5	14,5	135	326
6x1,5	15,9	187	411
7x1,5	15,9	201	423
10x1,5	17,3	242	378
12x1,5	18,1	287	425
16x1,5	19,9	359	512
19x1,5	21	401	551
24x1,5	24,5	488	722
27x1,5	24,9	530	774
37x1,5	27,9	681	982
48x1,5	32,1	874	1244
60x1,5	35	1066	1490
1x2,5	6,9	44	83
2x2,5	13,1	100	275
3x2,5	13,7	130	307
4x2,5	14,7	155	358
5x2,5	16,4	263	450
6x2,5	17,4	243	509
7x2,5	17,4	266	529
10x2,5	19,5	352	500
12x2,5	20,4	398	567
16x2,5	22,6	508	702
19x2,5	23,7	595	789
24x2,5	27,6	728	983
25x2,5	27,6	751	1007
27x2,5	28,2	807	1063
37x2,5	31,6	1039	1364
48x2,5	36,3	1346	1735

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x4	7,4	63	103
2x4	14,1	128	334
3x4	14,8	180	383
4x4	16,5	253	498
5x4	17,7	297	562
1x6	8	82	128
2x6	14,9	214	449
3x6	16,6	282	519
4x6	17,9	328	616
5x6	19,6	408	715
1x10	9,1	124	179
2x10	17,6	289	487
3x10	18,7	413	699
4x10	20,3	493	845
5x10	22,2	613	985
1x16	10,1	184	242
2x16	19,8	417	779
3x16	20,9	599	934
4x16	22,9	734	1145
5x16	25	910	1350
1x25	12	278	354
2x25	23,4	618	1112
3x25	24,8	870	1327
4x25	27,3	1112	1678
5x25	30,1	1385	1991
1x35	13	379	448
3x35	27,2	1177	1713
4x35	29,9	1511	2124
1x50	15,2	549	630
3x50	31	1624	2553
4x50	34,3	2095	2821
1x70	17,3	753	854
3x70	35,8	2211	3101
4x70	40	2974	3985
1x95	19,1	1002	1107
3x95	40,3	3058	4114
4x95	44,6	3951	5182
1x120	21	1252	1370
3x120	44,3	3807	5060
4x120	49,1	4928	6394
1x150	23,2	1531	1671
3x150	49,1	4695	6205
4x150	54,5	6091	7853
1x185	25,3	1874	2043
3x185	54,3	5707	7629
4x185	60,4	7441	9679
1x240	28,3	2411	2637
3x240	61	7311	9844

FM2XH

Areas of Use

Used as fixed installation cable in marine vehicles. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-Up	Cores are twisted as pairs and pairs are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL7001 - Grey
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	5,5	10	42
1x3x0,5	5,8	15	47
1x4x0,5	6,2	20	56
2x2x0,5	8,9	21	79
2x3x0,5	8,5	31	92
2x4x0,5	10,5	41	130
3x2x0,5	8,1	30	80
3x3x0,5	9,2	46	109
3x4x0,5	11,2	61	142
4x2x0,5	9,1	41	102
4x3x0,5	10	61	135
4x4x0,5	12,5	81	182
5x2x0,5	9,9	51	124
5x3x0,5	10,9	76	165
7x2x0,5	10,7	71	152
7x3x0,5	12	106	213
24x2x0,5	19,7	231	443
27x2x0,5	20,3	260	494
37x2x0,5	22,6	357	642
1x2x0,75	6,3	16	64
1x3x0,75	6,7	23	68
1x4x0,75	7,2	31	75
2x2x0,75	10,8	31	110
2x3x0,75	10,2	47	127
2x4x0,75	12,7	62	173
3x2x0,75	9,8	46	114
3x3x0,75	10,8	69	151
3x4x0,75	13,6	92	201
4x2x0,75	10,7	61	140
4x3x0,75	12,1	92	195
4x4x0,75	15,1	119	255
5x2x0,75	11,9	79	176
5x3x0,75	13,2	112	235
7x2x0,75	12,9	107	217
7x3x0,75	14,6	156	301
24x2x0,75	24,1	350	658
27x2x0,75	24,6	394	721
37x2x0,75	27,7	530	946
1x2x1	6,7	21	73
1x3x1	7,1	31	80
1x4x1	7,7	41	90
2x2x1	11,5	41	130
2x3x1	10,9	63	154
2x4x1	13,6	83	208
3x2x1	10,4	62	135
3x3x1	11,6	93	182
3x4x1	14,5	120	239
4x2x1	11,4	82	167
4x3x1	12,9	120	229
4x4x1	16,1	160	308

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
5x2x1	12,7	105	210
5x3x1	14,1	153	283
7x2x1	13,8	140	260
7x3x1	15,6	210	369
10x2x1	17,9	200	380
24x2x1	25,9	472	808
27x2x1	26,6	521	892
37x2x1	30	714	1185
1x2x1,5	7,6	31	96
1x3x1,5	8,1	45	107
1x4x1,5	9	64	125
2x2x1,5	13,4	60	168
2x3x1,5	12,8	92	208
2x4x1,5	16,1	119	282
3x2x1,5	12,3	90	188
3x3x1,5	13,7	132	248
3x4x1,5	17,4	176	344
4x2x1,5	13,5	117	228
4x3x1,5	15,2	176	321
4x4x1,5	19,1	230	428
5x2x1,5	14,9	150	288
5x3x1,5	16,6	220	393
7x2x1,5	16,3	205	366
7x3x1,5	18,4	302	511
24x2x1,5	30,9	678	1144
27x2x1,5	31,8	762	1275
37x2x1,5	35,8	1035	1673
1x2x2,5	8,5	49	129
1x3x2,5	9,2	73	151
1x4x2,5	10	103	172
2x2x2,5	15,2	98	231
2x3x2,5	14,6	144	288
2x4x2,5	18,3	192	400
3x2x2,5	13,8	142	251
3x3x2,5	15,6	214	356
3x4x2,5	19,6	280	473
4x2x2,5	15,3	189	325
4x3x2,5	17,3	280	456
4x4x2,5	21,8	374	609
5x2x2,5	16,8	238	398
5x3x2,5	19	357	567
7x2x2,5	18,6	326	522
7x3x2,5	21	490	743
24x2x2,5	35,4	1088	1655
27x2x2,5	36,2	1224	1828

FM2XH(I)

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Seperator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Seperator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	8,65	26	79
2x3x0,5	9,70	35	99
2x4x0,5	10,95	45	121
3x2x0,5	9,15	38	100
3x3x0,5	10,20	53	127
3x4x0,5	11,70	67	158
4x2x0,5	10,10	51	125
4x3x0,5	11,25	70	159
4x4x0,5	12,80	89	197
5x2x0,5	11,05	64	149
5x3x0,5	12,30	88	191
5x4x0,5	14,10	111	238
7x2x0,5	12,00	89	192
7x3x0,5	13,45	123	249
7x4x0,5	15,45	156	312
10x2x0,5	15,35	128	272
10x3x0,5	17,30	175	354
12x2x0,5	15,95	153	312
16x2x0,5	17,75	205	399
19x2x0,5	18,70	243	462
24x2x0,5	22,05	307	582
27x2x0,5	22,55	345	641
37x2x0,5	25,40	473	850
2x2x0,75	10,20	38	107
2x3x0,75	11,35	53	135
2x4x0,75	13,00	67	167
3x2x0,75	10,80	58	138
3x3x0,75	12,20	79	177
3x4x0,75	13,95	101	221
4x2x0,75	11,90	77	172
4x3x0,75	13,35	106	223
4x4x0,75	15,30	134	279
5x2x0,75	13,00	96	207
5x3x0,75	14,70	132	270
5x4x0,75	16,90	168	339
7x2x0,75	14,30	134	270
7x3x0,75	16,15	185	356
7x4x0,75	18,55	235	447
10x2x0,75	18,35	192	384
10x3x0,75	20,85	264	506
12x2x0,75	19,00	230	443
16x2x0,75	21,20	307	570
19x2x0,75	22,45	365	661
24x2x0,75	26,50	461	836
27x2x0,75	27,15	518	924
37x2x0,75	30,60	710	1230
2x2x1	10,90	53	128
2x3x1	12,20	73	163
2x4x1	14,05	92	203
3x2x1	11,55	80	168

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
3x3x1	13,00	109	217
3x4x1	15,00	139	271
4x2x1	12,80	107	211
4x3x1	14,35	146	275
4x4x1	16,70	185	346
5x2x1	14,05	134	256
5x3x1	15,75	182	334
5x4x1	18,35	231	420
7x2x1	15,30	187	336
7x3x1	17,30	255	443
7x4x1	20,10	323	558
10x2x1	19,80	267	479
10x3x1	22,40	364	632
12x2x1	20,55	321	555
16x2x1	22,95	427	719
19x2x1	24,30	508	837
24x2x1	28,80	641	1058
27x2x1	29,45	721	1171
37x2x1	33,20	988	1565
2x2x1,5	12,60	71	165
2x3x1,5	14,20	100	214
2x4x1,5	16,40	128	270
3x2x1,5	13,45	107	219
3x3x1,5	15,10	150	288
3x4x1,5	17,55	193	365
4x2x1,5	14,80	143	276
4x3x1,5	16,70	200	367
4x4x1,5	19,40	257	466
5x2x1,5	16,30	179	335
5x3x1,5	18,45	250	447
5x4x1,5	21,50	321	571
7x2x1,5	17,85	250	443
7x3x1,5	20,25	350	596
7x4x1,5	23,60	449	760
10x2x1,5	23,20	357	634
10x3x1,5	26,30	499	853
12x2x1,5	24,05	429	737
16x2x1,5	26,95	571	956
19x2x1,5	28,55	679	1115
24x2x1,5	33,90	857	1413
27x2x1,5	34,60	964	1565
37x2x1,5	39,10	1321	2095
2x2x2,5	14,30	109	219
2x3x2,5	15,95	154	289
2x4x2,5	18,50	200	368
3x2x2,5	15,20	163	294
3x3x2,5	17,00	232	395
3x4x2,5	19,85	301	505
4x2x2,5	16,80	217	375
4x3x2,5	18,90	309	507

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
4x4x2,5	21,95	401	649
5x2x2,5	18,60	272	458
5x3x2,5	20,80	386	620
5x4x2,5	24,35	501	797
7x2x2,5	20,35	380	610
7x3x2,5	22,90	541	833
7x4x2,5	26,75	701	1073
10x2x2,5	26,55	543	875
10x3x2,5	29,90	772	1197
12x2x2,5	27,60	652	1022
16x2x2,5	30,85	869	1331
19x2x2,5	32,70	1032	1556
24x2x2,5	38,90	1304	1973
27x2x2,5	39,75	1466	2190
37x2x2,5	44,95	2010	2942

FM2XAH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228,Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-up	Cores / pairs / triples / quads are stranded in layers
Separator	PET Foil
Overall Screen	Al-PET Foil (with tinned copper drain wire)
Outher Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	5,70	13	43
1x3x0,5	5,9	18	50
1x4x0,5	6,42	22	60
2x2x0,5	7,88	22	70
2x3x0,5	8,82	32	89
2x4x0,5	10,7	41	115
3x2x0,5	8,4	32	86
3x3x0,5	9,34	46	112
3x4x0,5	11,44	60	147
4x2x0,5	9,14	41	104
4x3x0,5	10,18	60	137
4x4x0,5	12,48	79	180
5x2x0,5	9,98	51	123
5x3x0,5	11,12	74	164
5x4x0,5	13,74	98	216
7x2x0,5	10,82	70	155
7x3x0,5	12,08	103	210
7x4x0,5	15	136	278
10x2x0,5	13,74	98	216
10x3x0,5	15,42	145	295
12x2x0,5	14,26	117	246
16x2x0,5	15,84	155	312
19x2x0,5	16,68	183	358
24x2x0,5	19,6	231	449
27x2x0,5	20,02	259	492
37x2x0,5	22,54	354	646
1x2x0,75	6,52	19	56
1x3x0,75	6,84	26	68
1x4x0,75	7,46	34	82
2x2x0,75	9,34	34	95
2x3x0,75	10,38	48	122
2x4x0,75	12,8	62	160
3x2x0,75	9,86	48	118
3x3x0,75	11,02	70	156
3x4x0,75	13,64	91	206
4x2x0,75	10,8	62	145
4x3x0,75	12,16	91	194
4x4x0,75	15	120	257
5x2x0,75	11,86	77	173
5x3x0,75	13,32	113	233
5x4x0,75	16,56	149	309
7x2x0,75	12,9	106	220
7x3x0,75	14,58	156	303
7x4x0,75	18,12	207	402
10x2x0,75	16,56	149	309
10x3x0,75	18,66	221	428
12x2x0,75	17,18	178	354
16x2x0,75	19,08	235	451
19x2x0,75	20,22	279	521
24x2x0,75	23,78	351	655

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
27x2x0,75	24,3	394	720
37x2x0,75	27,44	538	952
1x2x1	6,84	27	66
1x3x1	7,24	36	81
1x4x1	7,88	46	99
2x2x1	9,96	46	113
2x3x1	11,12	66	147
2x4x1	13,62	85	191
3x2x1	10,6	66	143
3x3x1	11,84	95	190
3x4x1	14,56	124	249
4x2x1	11,64	85	176
4x3x1	13	124	237
4x4x1	16,14	163	314
5x2x1	12,68	105	209
5x3x1	14,26	153	286
5x4x1	17,7	202	378
7x2x1	13,84	144	270
7x3x1	15,62	212	373
7x4x1	19,48	280	496
10x2x1	17,8	202	379
10x3x1	20,12	299	528
12x2x1	18,44	241	436
16x2x1	20,54	319	558
19x2x1	21,68	377	645
24x2x1	25,66	474	813
27x2x1	26,28	533	896
37x2x1	29,62	728	1188
1x2x1,5	7,88	36	85
1x3x1,5	8,3	50	106
1x4x1,5	9,04	64	130
2x2x1,5	11,54	64	148
2x3x1,5	12,9	93	195
2x4x1,5	16,04	121	258
3x2x1,5	12,28	93	191
3x3x1,5	13,84	135	258
3x4x1,5	17,2	178	343
4x2x1,5	13,54	121	238
4x3x1,5	15,22	178	326
4x4x1,5	18,98	235	433
5x2x1,5	14,9	150	286
5x3x1,5	16,78	221	395
5x4x1,5	20,98	292	527
7x2x1,5	16,26	207	372
7x3x1,5	18,36	306	521
7x4x1,5	23,06	406	696
10x2x1,5	21,08	292	528
10x3x1,5	23,8	434	741
12x2x1,5	21,8	349	609
16x2x1,5	24,32	463	783

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
19x2x1,5	25,78	548	910
24x2x1,5	30,5	690	1150
27x2x1,5	31,24	776	1271
37x2x1,5	35,32	1061	1694
1x2x2,5	8,72	54	111
1x3x2,5	9,24	77	142
1x4x2,5	10,18	100	177
2x2x2,5	13,02	100	199
2x3x2,5	14,58	146	267
2x4x2,5	18,24	192	355
3x2x2,5	13,86	146	262
3x3x2,5	15,62	215	360
3x4x2,5	19,5	284	479
4x2x2,5	15,32	192	330
4x3x2,5	17,2	284	459
4x4x2,5	21,6	375	612
5x2x2,5	16,78	238	398
5x3x2,5	18,98	352	559
5x4x2,5	23,8	467	747
7x2x2,5	18,46	329	526
7x3x2,5	20,86	490	745
7x4x2,5	26,3	650	998
10x2x2,5	23,9	467	748
10x3x2,5	27,14	696	1064
12x2x2,5	24,84	559	870
16x2x2,5	27,78	742	1128
19x2x2,5	29,36	880	1315
24x2x2,5	34,9	1109	1664
27x2x2,5	35,64	1247	1843
37x2x2,5	40,34	1705	2469

FM2XAAH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Seperator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Seperator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Separator	PET Foil
Overall Screen	Al-PET Foil (with tinned copper drain wire)
Outher Sheath	HFFR (IEC 60092-360 type SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	-40 °C.....+90 °C
Temperature Range	>5000 M.Ωxkm
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	8,85	29	86
2x3x0,5	9,8	38	106
2x4x0,5	11,15	48	129
3x2x0,5	9,35	42	107
3x3x0,5	10,4	56	135
3x4x0,5	11,9	70	166
4x2x0,5	10,2	54	131
4x3x0,5	11,35	73	167
4x4x0,5	13,05	92	206
5x2x0,5	11,15	67	156
5x3x0,5	12,5	91	200
5x4x0,5	14,3	115	248
7x2x0,5	12,2	93	200
7x3x0,5	13,65	126	258
7x4x0,5	15,65	159	322
10x2x0,5	15,55	131	281
10x3x0,5	17,45	179	364
12x2x0,5	16,1	157	322
16x2x0,5	17,85	208	410
19x2x0,5	18,9	246	473
24x2x0,5	22,25	310	594
27x2x0,5	22,8	348	654
37x2x0,5	25,6	476	863
2x2x0,75	10,3	43	115
2x3x0,75	11,55	58	145
2x4x0,75	13,25	72	178
3x2x0,75	10,95	62	147
3x3x0,75	12,3	84	187
3x4x0,75	14,05	106	231
4x2x0,75	12	82	181
4x3x0,75	13,55	110	233
4x4x0,75	15,55	139	291
5x2x0,75	13,15	101	217
5x3x0,75	14,8	137	280
5x4x0,75	17,1	173	351
7x2x0,75	14,4	139	280
7x3x0,75	16,25	190	366
7x4x0,75	18,8	240	460
10x2x0,75	18,5	197	396
10x3x0,75	20,95	269	519
12x2x0,75	19,2	235	455
16x2x0,75	21,4	312	583
19x2x0,75	22,55	369	675
24x2x0,75	26,75	465	852
27x2x0,75	27,25	523	938
37x2x0,75	30,8	715	1247
2x2x1	11,05	61	140
2x3x1	12,3	80	174
2x4x1	14,3	100	217
3x2x1	11,75	87	180

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
3x3x1	13,1	117	229
3x4x1	15,2	146	285
4x2x1	12,9	114	224
4x3x1	14,5	153	288
4x4x1	16,8	192	359
5x2x1	14,15	141	268
5x3x1	15,95	189	348
5x4x1	18,45	238	435
7x2x1	15,5	194	350
7x3x1	17,4	262	456
7x4x1	20,35	330	575
10x2x1	20	274	495
10x3x1	22,5	372	648
12x2x1	20,65	328	571
16x2x1	23,05	435	735
19x2x1	24,4	515	854
24x2x1	28,9	648	1078
27x2x1	29,55	728	1190
37x2x1	33,4	996	1587
2x2x1,5	12,7	79	177
2x3x1,5	14,3	107	227
2x4x1,5	16,6	136	284
3x2x1,5	13,55	114	231
3x3x1,5	15,3	157	301
3x4x1,5	17,75	200	379
4x2x1,5	14,9	150	289
4x3x1,5	16,9	207	381
4x4x1,5	19,6	264	481
5x2x1,5	16,5	186	349
5x3x1,5	18,6	257	462
5x4x1,5	21,6	328	586
7x2x1,5	18,05	257	458
7x3x1,5	20,35	357	611
7x4x1,5	23,8	457	778
10x2x1,5	23,4	364	651
10x3x1,5	26,55	507	872
12x2x1,5	24,25	436	754
16x2x1,5	27,1	579	974
19x2x1,5	28,65	686	1133
24x2x1,5	34	864	1433
27x2x1,5	34,8	971	1586
37x2x1,5	39,3	1329	2118
2x2x2,5	14,4	117	233
2x3x2,5	16,1	163	304
2x4x2,5	18,7	209	384
3x2x2,5	15,45	171	309
3x3x2,5	17,2	240	410
3x4x2,5	19,95	309	521
4x2x2,5	17	226	390
4x3x2,5	19	317	522

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
4x4x2,5	22,15	409	667
5x2x2,5	18,7	280	473
5x3x2,5	21	395	638
5x4x2,5	24,45	509	816
7x2x2,5	20,55	389	627
7x3x2,5	23,1	549	851
7x4x2,5	26,95	710	1092
10x2x2,5	26,75	552	894
10x3x2,5	30,1	781	1217
12x2x2,5	27,7	660	1040
16x2x2,5	31,05	877	1351
19x2x2,5	32,8	1040	1577
24x2x2,5	39	1312	1997
27x2x2,5	39,95	1475	2214
37x2x2,5	45,2	2018	2971

FM2XCH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-up	Cores / pairs / triples / quads are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Tinned or Annealed copper wire braiding 90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	6,10	30	66
1x3x0,5	6,4	37	72
1x4x0,5	6,8	43	83
2x2x0,5	8,4	53	103
2x3x0,5	9,3	65	125
2x4x0,5	11,2	84	163
3x2x0,5	8,85	63	120
3x3x0,5	9,8	83	153
3x4x0,5	11,95	107	198
4x2x0,5	9,7	77	143
4x3x0,5	10,8	100	182
4x4x0,5	13,35	163	275
5x2x0,5	10,45	90	168
5x3x0,5	11,65	121	216
5x4x0,5	14,55	189	322
7x2x0,5	11,4	113	204
7x3x0,5	12,95	153	267
7x4x0,5	15,95	240	397
10x2x0,5	14,65	189	320
10x3x0,5	16,4	252	417
12x2x0,5	15,1	212	355
16x2x0,5	16,7	265	439
19x2x0,5	17,65	295	487
24x2x0,5	20,6	372	614
27x2x0,5	21,1	404	663
37x2x0,5	23,6	518	842
1x2x0,75	6,9	39	83
1x3x0,75	7,35	48	92
1x4x0,75	7,9	58	109
2x2x0,75	9,8	68	132
2x3x0,75	11	87	165
2x4x0,75	13,6	143	251
3x2x0,75	10,45	84	159
3x3x0,75	11,6	112	204
3x4x0,75	14,45	180	307
4x2x0,75	11,4	104	191
4x3x0,75	12,7	140	249
4x4x0,75	15,9	220	370
5x2x0,75	12,5	124	229
5x3x0,75	14,1	199	333
5x4x0,75	17,45	261	441
7x2x0,75	13,8	190	315
7x3x0,75	15,4	250	410
7x4x0,75	19,05	326	543
10x2x0,75	17,55	258	436
10x3x0,75	19,7	349	577
12x2x0,75	18,1	290	485
16x2x0,75	20,1	365	606
19x2x0,75	21,2	419	686
24x2x0,75	24,95	513	853

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
27x2x0,75	25,5	560	924
37x2x0,75	28,6	727	1187
1x2x1	7,35	46	94
1x3x1	7,75	58	105
1x4x1	8,4	70	125
2x2x1	10,45	80	150
2x3x1	11,6	106	191
2x4x1	14,55	172	290
3x2x1	11,1	103	184
3x3x1	12,4	138	238
3x4x1	15,5	216	355
4x2x1	12,15	129	225
4x3x1	13,8	204	327
4x4x1	17	270	436
5x2x1	13,55	184	302
5x3x1	15,1	244	392
5x4x1	18,7	315	514
7x2x1	14,75	231	369
7x3x1	16,45	313	489
7x4x1	20,45	413	652
10x2x1	18,7	319	516
10x3x1	21,1	430	683
12x2x1	19,35	359	575
16x2x1	21,6	459	727
19x2x1	22,8	523	820
24x2x1	26,9	650	1030
27x2x1	27,4	710	1115
37x2x1	30,85	927	1441
1x2x1,5	8,3	60	120
1x3x1,5	8,85	77	136
1x4x1,5	9,6	95	164
2x2x1,5	12,2	107	196
2x3x1,5	13,8	177	291
2x4x1,5	17	226	380
3x2x1,5	13,15	140	245
3x3x1,5	14,65	226	361
3x4x1,5	18,1	290	473
4x2x1,5	14,45	209	338
4x3x1,5	16,15	276	439
4x4x1,5	20,05	363	584
5x2x1,5	15,75	248	402
5x3x1,5	17,7	330	526
5x4x1,5	22,1	437	703
7x2x1,5	17,25	316	499
7x3x1,5	19,4	432	668
7x4x1,5	24,2	566	889
10x2x1,5	22,1	437	700
10x3x1,5	25	598	939
12x2x1,5	22,85	552	848
16x2x1,5	25,5	630	991

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
19x2x1,5	27	727	1130
24x2x1,5	31,85	905	1423
27x2x1,5	32,6	993	1550
37x2x1,5	36,7	1397	2116
1x2x2,5	9,3	82	153
1x3x2,5	9,8	108	177
1x4x2,5	10,7	135	216
2x2x2,5	13,9	181	290
2x3x2,5	15,5	241	376
2x4x2,5	19,2	316	499
3x2x2,5	14,75	232	360
3x3x2,5	16,5	319	480
3x4x2,5	20,5	412	631
4x2x2,5	16,15	289	441
4x3x2,5	18,2	399	593
4x4x2,5	22,6	521	787
5x2x2,5	17,8	348	532
5x3x2,5	20,05	481	716
5x4x2,5	25	629	949
7x2x2,5	19,5	454	672
7x3x2,5	21,85	633	915
7x4x2,5	27,45	830	1221
10x2x2,5	25,1	630	947
10x3x2,5	28,3	883	1297
12x2x2,5	25,95	795	1151
16x2x2,5	28,95	933	1372
19x2x2,5	30,7	1083	1572
24x2x2,5	36,3	1453	2093
27x2x2,5	37,15	1595	2281
37x2x2,5	41,9	2091	2969

FM2XSH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-up	Cores / pairs / triples / quads are stranded in layers
Inner Sheath	HFFR
Armour	Galvanised steel wire braid
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	6,7	9	72
1x3x0,5	7,05	14	81
1x4x0,5	7,55	19	94
2x2x0,5	9,1	19	116
2x3x0,5	9,95	28	139
2x4x0,5	12	38	180
3x2x0,5	9,6	28	134
3x3x0,5	10,6	43	166
3x4x0,5	12,6	57	216
4x2x0,5	10,35	38	157
4x3x0,5	11,45	57	197
4x4x0,5	13,8	76	257
5x2x0,5	11,2	47	182
5x3x0,5	12,4	71	232
5x4x0,5	15,1	95	303
7x2x0,5	12,1	66	219
7x3x0,5	13,4	99	284
7x4x0,5	16,4	133	375
10x2x0,5	15,1	95	303
10x3x0,5	16,8	142	395
12x2x0,5	15,55	114	338
16x2x0,5	17,25	152	415
19x2x0,5	18,1	180	468
24x2x0,5	21,1	227	582
27x2x0,5	21,55	256	629
37x2x0,5	24,1	351	804
1x2x0,75	7,65	14	88
1x3x0,75	8	22	103
1x4x0,75	8,65	29	121
2x2x0,75	10,55	29	147
2x3x0,75	11,65	43	183
2x4x0,75	14,1	58	236
3x2x0,75	11,1	43	175
3x3x0,75	12,3	65	220
3x4x0,75	15	86	289
4x2x0,75	12,1	58	208
4x3x0,75	13,35	86	264
4x4x0,75	16,4	115	350
5x2x0,75	13,15	72	245
5x3x0,75	14,65	108	314
5x4x0,75	17,9	144	414
7x2x0,75	14,2	101	300
7x3x0,75	15,85	151	392
7x4x0,75	19,6	202	520
10x2x0,75	18	144	414
10x3x0,75	20,15	216	550
12x2x0,75	18,5	173	465
16x2x0,75	20,55	231	577
19x2x0,75	21,75	274	655
24x2x0,75	25,4	346	822

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
27x2x0,75	25,95	389	892
37x2x0,75	29,15	533	1149
1x2x1	8	19	99
1x3x1	8,4	29	116
1x4x1	9,05	39	139
2x2x1	11,2	39	166
2x3x1	12,4	58	207
2x4x1	15	78	272
3x2x1	11,85	58	201
3x3x1	13,05	88	255
3x4x1	15,95	117	337
4x2x1	12,8	78	241
4x3x1	14,3	117	311
4x4x1	17,55	156	411
5x2x1	14	97	283
5x3x1	15,6	146	370
5x4x1	19,15	195	489
7x2x1	15,2	136	351
7x3x1	17	204	467
7x4x1	21	273	621
10x2x1	19,25	195	490
10x3x1	21,6	292	657
12x2x1	19,9	234	552
16x2x1	22,05	311	691
19x2x1	23,25	370	790
24x2x1	27,3	467	991
27x2x1	27,85	526	1078
37x2x1	31,3	720	1403
1x2x1,5	9,1	28	126
1x3x1,5	9,5	43	151
1x4x1,5	10,25	57	178
2x2x1,5	12,85	57	214
2x3x1,5	14,25	85	272
2x4x1,5	17,45	114	358
3x2x1,5	13,6	85	262
3x3x1,5	15,2	128	341
3x4x1,5	18,65	171	452
4x2x1,5	14,9	114	319
4x3x1,5	16,6	171	420
4x4x1,5	20,5	228	557
5x2x1,5	16,3	142	377
5x3x1,5	18,2	214	500
5x4x1,5	22,5	285	667
7x2x1,5	17,7	199	474
7x3x1,5	19,85	299	640
7x4x1,5	24,65	399	854
10x2x1,5	22,6	285	668
10x3x1,5	25,4	427	906
12x2x1,5	23,4	342	757
16x2x1,5	25,95	455	954

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
19x2x1,5	27,45	541	1093
24x2x1,5	32,3	683	1382
27x2x1,5	33,05	769	1508
37x2x1,5	37,15	1053	1970
1x2x2,5	9,95	46	155
1x3x2,5	10,5	69	192
1x4x2,5	11,35	92	231
2x2x2,5	14,35	92	275
2x3x2,5	15,95	138	355
2x4x2,5	19,6	183	471
3x2x2,5	15,2	138	344
3x3x2,5	17,05	206	456
3x4x2,5	21	275	606
4x2x2,5	16,7	183	423
4x3x2,5	18,65	275	567
4x4x2,5	23,15	367	757
5x2x2,5	18,2	229	504
5x3x2,5	20,5	344	682
5x4x2,5	25,45	459	913
7x2x2,5	19,95	321	645
7x3x2,5	22,4	482	885
7x4x2,5	27,9	642	1184
10x2x2,5	25,55	459	913
10x3x2,5	28,85	688	1258
12x2x2,5	26,4	550	1044
16x2x2,5	29,5	734	1328
19x2x2,5	31,1	871	1530
24x2x2,5	36,7	1101	1934
27x2x2,5	38	1238	2205
37x2x2,5	42,85	1697	2893

FM2XCCH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Seperator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Seperator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	9,5	61	119
2x3x0,5	10,6	75	145
2x4x0,5	11,9	92	176
3x2x0,5	10,05	77	144
3x3x0,5	11,1	97	178
3x4x0,5	12,6	118	217
4x2x0,5	11	93	173
4x3x0,5	12,2	119	215
4x4x0,5	13,8	145	263
5x2x0,5	12	111	204
5x3x0,5	13,25	141	254
5x4x0,5	15,55	206	349
7x2x0,5	12,95	141	251
7x3x0,5	14,9	213	354
7x4x0,5	16,95	260	434
10x2x0,5	16,8	232	393
10x3x0,5	18,85	293	493
12x2x0,5	17,35	261	438
16x2x0,5	19,3	324	541
19x2x0,5	20,25	371	613
24x2x0,5	23,7	459	768
27x2x0,5	24,25	500	831
37x2x0,5	27,15	650	1070
2x2x0,75	11,1	82	156
2x3x0,75	12,3	101	190
2x4x0,75	14	124	233
3x2x0,75	11,75	103	190
3x3x0,75	13,15	131	237
3x4x0,75	15,4	192	327
4x2x0,75	12,8	128	231
4x3x0,75	14,75	193	324
4x4x0,75	16,8	236	398
5x2x0,75	14	153	273
5x3x0,75	16,15	228	382
5x4x0,75	18,4	280	471
7x2x0,75	15,75	229	380
7x3x0,75	17,65	291	479
7x4x0,75	20,15	360	596
10x2x0,75	19,9	315	530
10x3x0,75	22,5	402	673
12x2x0,75	20,6	358	596
16x2x0,75	22,85	451	744
19x2x0,75	24,1	517	848
24x2x0,75	28,3	643	1064
27x2x0,75	28,95	703	1157
37x2x0,75	32,5	923	1502
2x2x1	11,85	99	180
2x3x1	13,1	124	222
2x4x1	15,5	184	309
3x2x1	12,5	129	224

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
3x3x1	14	164	280
3x4x1	16,5	237	386
4x2x1	13,8	160	274
4x3x1	15,7	239	382
4x4x1	18,2	294	475
5x2x1	15,5	224	361
5x3x1	17,2	284	452
5x4x1	19,9	352	565
7x2x1	16,8	287	454
7x3x1	18,8	368	576
7x4x1	21,7	457	719
10x2x1	21,4	398	637
10x3x1	24,1	513	813
12x2x1	22,15	457	721
16x2x1	24,6	581	906
19x2x1	26	670	1038
24x2x1	30,65	837	1307
27x2x1	31,3	929	1434
37x2x1	35,15	1222	1868
2x2x1,5	13,6	126	228
2x3x1,5	15,6	194	323
2x4x1,5	17,9	239	400
3x2x1,5	14,9	196	321
3x3x1,5	16,6	250	405
3x4x1,5	19,1	311	505
4x2x1,5	16,3	242	392
4x3x1,5	18,2	312	499
4x4x1,5	21	389	625
5x2x1,5	17,8	289	465
5x3x1,5	20,05	374	596
5x4x1,5	23,05	468	747
7x2x1,5	19,4	372	587
7x3x1,5	21,85	487	760
7x4x1,5	25,3	612	960
10x2x1,5	24,9	517	830
10x3x1,5	28,1	682	1081
12x2x1,5	25,75	596	943
16x2x1,5	28,75	759	1190
19x2x1,5	30,4	883	1373
24x2x1,5	35,85	1105	1735
27x2x1,5	36,6	1215	1893
37x2x1,5	41,7	1690	2572
2x2x2,5	15,75	204	329
2x3x2,5	17,45	262	415
2x4x2,5	20,05	327	518
3x2x2,5	16,7	264	412
3x3x2,5	18,55	348	531
3x4x2,5	21,45	436	668
4x2x2,5	18,3	330	508
4x3x2,5	20,5	437	660

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
4x4x2,5	23,6	553	835
5x2x2,5	20,15	398	608
5x3x2,5	22,4	529	792
5x4x2,5	26	669	1004
7x2x2,5	22	518	776
7x3x2,5	24,55	698	1025
7x4x2,5	28,55	887	1306
10x2x2,5	28,3	726	1104
10x3x2,5	31,8	988	1470
12x2x2,5	29,4	841	1261
16x2x2,5	32,75	1087	1610
19x2x2,5	34,65	1270	1862
24x2x2,5	41,45	1668	2443
27x2x2,5	42,3	1839	2673
37x2x2,5	47,7	2435	3506

FM2XACH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-up	Cores / pairs / triples / quads are stranded in layers
Separator	PET Foil
1. Overall Screen	Al-PET Foil (with tinned copper drain wire)
Seperator	PET Foil (HFFR filler upon request)
2. Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	6,50	16	74
1x3x0,5	6,70	21	80
1x4x0,5	7,25	26	91
2x2x0,5	8,75	26	110
2x3x0,5	9,70	35	134
2x4x0,5	11,65	45	171
3x2x0,5	9,30	35	129
3x3x0,5	10,25	49	160
3x4x0,5	12,40	63	206
4x2x0,5	10,05	45	151
4x3x0,5	11,10	63	189
4x4x0,5	13,50	82	247
5x2x0,5	10,90	54	177
5x3x0,5	12,10	78	224
5x4x0,5	15,20	101	328
7x2x0,5	11,75	73	213
7x3x0,5	13,05	106	275
7x4x0,5	16,50	139	401
10x2x0,5	15,20	101	328
10x3x0,5	16,95	149	422
12x2x0,5	15,75	120	362
16x2x0,5	17,35	158	443
19x2x0,5	18,20	187	495
24x2x0,5	21,20	234	613
27x2x0,5	21,65	262	661
37x2x0,5	24,25	357	839
1x2x0,75	7,35	24	94
1x3x0,75	7,65	31	104
1x4x0,75	8,30	38	120
2x2x0,75	10,25	38	144
2x3x0,75	11,30	53	177
2x4x0,75	13,80	67	229
3x2x0,75	10,80	53	170
3x3x0,75	11,95	74	216
3x4x0,75	15,10	96	316
4x2x0,75	11,75	67	203
4x3x0,75	13,15	96	259
4x4x0,75	16,50	125	378
5x2x0,75	12,80	82	239
5x3x0,75	14,75	118	342
5x4x0,75	18,10	154	446
7x2x0,75	13,90	110	290
7x3x0,75	16,05	161	420
7x4x0,75	19,70	211	552
10x2x0,75	18,10	154	447
10x3x0,75	20,25	226	582
12x2x0,75	18,75	183	496
16x2x0,75	20,70	240	613
19x2x0,75	21,85	283	691
24x2x0,75	25,50	355	861

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
27x2x0,75	26,05	399	931
37x2x0,75	29,25	543	1201
1x2x1	7,65	34	110
1x3x1	8,10	44	122
1x4x1	8,75	53	141
2x2x1	10,90	53	168
2x3x1	12,05	73	208
2x4x1	15,10	92	303
3x2x1	11,50	73	200
3x3x1	12,80	102	255
3x4x1	16,05	131	368
4x2x1	12,60	92	239
4x3x1	14,00	131	309
4x4x1	17,65	170	446
5x2x1	13,70	112	283
5x3x1	15,70	160	405
5x4x1	19,25	209	529
7x2x1	15,30	151	382
7x3x1	17,10	219	501
7x4x1	21,10	287	659
10x2x1	19,35	209	526
10x3x1	21,75	306	699
12x2x1	20,00	248	589
16x2x1	22,15	326	735
19x2x1	23,35	384	830
24x2x1	27,40	482	1037
27x2x1	28,05	540	1126
37x2x1	31,50	735	1454
1x2x1,5	8,75	43	137
1x3x1,5	9,20	57	153
1x4x1,5	9,95	71	182
2x2x1,5	12,50	71	213
2x3x1,5	13,90	100	269
2x4x1,5	17,60	128	393
3x2x1,5	13,25	100	260
3x3x1,5	15,30	143	374
3x4x1,5	18,75	185	488
4x2x1,5	15,00	128	350
4x3x1,5	16,70	185	453
4x4x1,5	20,60	242	595
5x2x1,5	16,40	157	415
5x3x1,5	18,30	228	542
5x4x1,5	22,65	299	712
7x2x1,5	17,80	214	510
7x3x1,5	19,95	313	677
7x4x1,5	24,80	413	898
10x2x1,5	22,75	299	710
10x3x1,5	25,55	442	952
12x2x1,5	23,50	356	798
16x2x1,5	26,10	470	1003

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
19x2x1,5	27,60	555	1142
24x2x1,5	32,40	698	1437
27x2x1,5	33,15	783	1562
37x2x1,5	37,80	1068	2122
1x2x2,5	9,60	63	173
1x3x2,5	10,15	86	195
1x4x2,5	11,10	109	235
2x2x2,5	14,45	109	308
2x3x2,5	16,05	154	390
2x4x2,5	19,85	200	512
3x2x2,5	15,30	154	378
3x3x2,5	17,15	223	493
3x4x2,5	21,10	292	647
4x2x2,5	16,80	200	459
4x3x2,5	18,75	292	605
4x4x2,5	23,30	384	802
5x2x2,5	18,30	246	547
5x3x2,5	20,60	361	728
5x4x2,5	25,55	476	965
7x2x2,5	20,05	338	684
7x3x2,5	22,50	498	928
7x4x2,5	28,10	659	1233
10x2x2,5	25,65	476	960
10x3x2,5	29,00	705	1318
12x2x2,5	26,60	567	1092
16x2x2,5	29,60	751	1385
19x2x2,5	31,25	888	1595
24x2x2,5	36,95	1118	1998
27x2x2,5	38,10	1255	2277
37x2x2,5	42,95	1714	2973

FM2XASH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-up	Cores / pairs / triples / quads are stranded in layers
Separator	PET Foil
Overall Screen	Al-PET Foil (with tinned copper drain wire)
Inner Sheath	HFFR
Armour	Galvanised steel wire braid
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	6,90	13	74
1x3x0,5	7,25	18	83
1x4x0,5	7,7	22	96
2x2x0,5	9,3	22	119
2x3x0,5	10,15	32	143
2x4x0,5	12,2	41	184
3x2x0,5	9,8	32	138
3x3x0,5	10,7	46	170
3x4x0,5	12,95	60	222
4x2x0,5	10,6	41	160
4x3x0,5	11,65	60	201
4x4x0,5	14,05	79	262
5x2x0,5	11,45	51	186
5x3x0,5	12,65	74	236
5x4x0,5	15,35	98	308
7x2x0,5	12,3	70	224
7x3x0,5	13,7	103	289
7x4x0,5	16,75	136	382
10x2x0,5	15,35	98	308
10x3x0,5	17,15	145	402
12x2x0,5	15,9	117	343
16x2x0,5	17,5	155	421
19x2x0,5	18,45	183	474
24x2x0,5	21,5	231	589
27x2x0,5	21,9	259	637
37x2x0,5	24,5	354	813
1x2x0,75	7,8	19	91
1x3x0,75	8,2	26	106
1x4x0,75	8,75	34	124
2x2x0,75	10,8	34	151
2x3x0,75	11,9	48	187
2x4x0,75	14,35	62	240
3x2x0,75	11,35	48	178
3x3x0,75	12,5	70	225
3x4x0,75	15,2	91	293
4x2x0,75	12,3	62	212
4x3x0,75	13,7	91	270
4x4x0,75	16,65	120	355
5x2x0,75	13,4	77	249
5x3x0,75	14,9	113	319
5x4x0,75	18,25	149	420
7x2x0,75	14,5	106	305
7x3x0,75	16,2	156	399
7x4x0,75	19,9	207	527
10x2x0,75	18,25	149	421
10x3x0,75	20,5	221	556
12x2x0,75	18,9	178	472
16x2x0,75	20,95	235	584
19x2x0,75	22,05	279	664
24x2x0,75	25,8	351	830

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
27x2x0,75	26,35	394	900
37x2x0,75	29,6	538	1160
1x2x1	8,2	27	101
1x3x1	8,65	36	120
1x4x1	9,3	46	142
2x2x1	11,35	46	171
2x3x1	12,55	66	212
2x4x1	15,2	85	277
3x2x1	12	66	205
3x3x1	13,3	95	260
3x4x1	16,2	124	342
4x2x1	13,1	85	246
4x3x1	14,6	124	316
4x4x1	17,8	163	418
5x2x1	14,25	105	288
5x3x1	15,9	153	375
5x4x1	19,55	202	496
7x2x1	15,45	144	356
7x3x1	17,3	212	474
7x4x1	21,3	280	628
10x2x1	19,55	202	496
10x3x1	21,9	299	665
12x2x1	20,2	241	559
16x2x1	22,45	319	699
19x2x1	23,65	377	797
24x2x1	27,75	474	1001
27x2x1	28,4	533	1089
37x2x1	31,85	728	1414
1x2x1,5	9,2	36	129
1x3x1,5	9,7	50	154
1x4x1,5	10,5	64	182
2x2x1,5	13,05	64	219
2x3x1,5	14,5	93	277
2x4x1,5	17,7	121	365
3x2x1,5	13,8	93	266
3x3x1,5	15,45	135	347
3x4x1,5	18,9	178	459
4x2x1,5	15,1	121	324
4x3x1,5	16,85	178	426
4x4x1,5	20,75	235	564
5x2x1,5	16,5	150	383
5x3x1,5	18,45	221	507
5x4x1,5	22,8	292	675
7x2x1,5	17,9	207	481
7x3x1,5	20,1	306	646
7x4x1,5	24,95	406	863
10x2x1,5	22,9	292	677
10x3x1,5	25,8	434	917
12x2x1,5	23,65	349	765
16x2x1,5	26,35	463	963

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
19x2x1,5	27,85	548	1105
24x2x1,5	32,7	690	1395
27x2x1,5	33,5	776	1519
37x2x1,5	38,1	1061	2065
1x2x2,5	10,15	54	159
1x3x2,5	10,7	77	195
1x4x2,5	11,55	100	235
2x2x2,5	14,6	100	280
2x3x2,5	16,2	146	361
2x4x2,5	20	192	479
3x2x2,5	15,45	146	349
3x3x2,5	17,3	215	462
3x4x2,5	21,3	284	613
4x2x2,5	16,95	192	429
4x3x2,5	18,9	284	573
4x4x2,5	23,45	375	766
5x2x2,5	18,45	238	510
5x3x2,5	20,75	352	689
5x4x2,5	25,8	467	921
7x2x2,5	20,2	329	651
7x3x2,5	22,7	490	892
7x4x2,5	28,3	650	1193
10x2x2,5	25,9	467	922
10x3x2,5	29,15	696	1269
12x2x2,5	26,8	559	1053
16x2x2,5	29,8	742	1338
19x2x2,5	31,5	880	1542
24x2x2,5	37,25	1109	1949
27x2x2,5	38,45	1247	2218
37x2x2,5	43,3	1705	2908

FM2XAACH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Blac k / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Seperator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Seperator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Separator	PET Foil
1. Overall Screen	Al-PET Foil (with tinned copper drain wire)
Separator	PET Foil (HFFR filler upon request)
2. Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7001 - Grey
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)

Technical Properties (at 20°C)	
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	9,7	65	127
2x3x0,5	10,7	80	153
2x4x0,5	12	96	184
3x2x0,5	10,25	81	152
3x3x0,5	11,35	100	185
3x4x0,5	12,75	121	225
4x2x0,5	11,1	98	181
4x3x0,5	12,3	122	223
4x4x0,5	14,45	180	307
5x2x0,5	12,1	116	212
5x3x0,5	13,4	145	262
5x4x0,5	15,75	211	360
7x2x0,5	13,15	145	261
7x3x0,5	15	217	363
7x4x0,5	17,05	265	444
10x2x0,5	17,05	236	403
10x3x0,5	19	298	505
12x2x0,5	17,6	265	448
16x2x0,5	19,4	330	553
19x2x0,5	20,5	375	625
24x2x0,5	23,9	463	780
27x2x0,5	24,45	505	845
37x2x0,5	27,35	654	1083
2x2x0,75	11,2	87	164
2x3x0,75	12,5	106	200
2x4x0,75	14,1	128	242
3x2x0,75	11,85	108	199
3x3x0,75	13,25	136	247
3x4x0,75	15,5	198	339
4x2x0,75	12,95	133	240
4x3x0,75	15	199	335
4x4x0,75	17	242	410
5x2x0,75	14,55	188	317
5x3x0,75	16,25	234	393
5x4x0,75	18,6	286	484
7x2x0,75	15,85	235	391
7x3x0,75	17,75	297	492
7x4x0,75	20,25	365	608
10x2x0,75	20,05	321	543
10x3x0,75	22,6	409	688
12x2x0,75	20,7	363	608

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
16x2x0,75	23,05	457	758
19x2x0,75	24,2	523	862
24x2x0,75	28,4	648	1080
27x2x0,75	29,05	715	1178
37x2x0,75	32,7	932	1525
2x2x1	11,95	108	194
2x3x1	13,05	131	233
2x4x1	15,4	192	321
3x2x1	12,7	136	236
3x3x1	13,9	172	292
3x4x1	16,5	245	399
4x2x1	13,9	169	287
4x3x1	15,7	246	394
4x4x1	18	302	487
5x2x1	15,6	233	376
5x3x1	17,1	292	466
5x4x1	19,7	360	578
7x2x1	17	296	468
7x3x1	18,6	376	588
7x4x1	21,55	465	732
10x2x1	21,5	407	653
10x3x1	23,8	520	825
12x2x1	22,25	466	736
16x2x1	24,75	590	924
19x2x1	26,15	679	1056
24x2x1	30,75	846	1328
27x2x1	31,4	934	1450
37x2x1	35,35	1225	1885
2x2x1,5	13,7	135	242
2x3x1,5	15,75	203	337
2x4x1,5	18	247	413
3x2x1,5	15	205	335
3x3x1,5	16,7	259	418
3x4x1,5	19,3	320	521
4x2x1,5	16,4	251	407
4x3x1,5	18,4	320	513
4x4x1,5	21,1	398	640
5x2x1,5	17,9	297	479
5x3x1,5	20,15	383	611
5x4x1,5	23,3	476	765
7x2x1,5	19,6	380	603
7x3x1,5	22	495	776
7x4x1,5	25,4	619	976
10x2x1,5	25	526	847
10x3x1,5	28,3	690	1100
12x2x1,5	25,95	604	960
16x2x1,5	28,9	766	1209
19x2x1,5	30,5	891	1392
24x2x1,5	36	1106	1750
27x2x1,5	36,75	1216	1907

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
37x2x1,5	41,9	1699	2596
2x2x2,5	15,85	213	344
2x3x2,5	17,6	271	430
2x4x2,5	20,15	336	534
3x2x2,5	16,8	274	428
3x3x2,5	18,75	357	547
3x4x2,5	21,55	446	684
4x2x2,5	18,55	340	525
4x3x2,5	20,6	447	676
4x4x2,5	23,8	562	852
5x2x2,5	20,25	407	624
5x3x2,5	22,65	538	811
5x4x2,5	26,2	678	1023
7x2x2,5	22,2	529	795
7x3x2,5	24,8	707	1044
7x4x2,5	28,65	897	1325
10x2x2,5	28,45	735	1123
10x3x2,5	31,9	993	1485
12x2x2,5	29,5	851	1280
16x2x2,5	32,95	1101	1636
19x2x2,5	34,8	1270	1875
24x2x2,5	41,55	1678	2468
27x2x2,5	42,5	1848	2696
37x2x2,5	47,9	2444	3535

FM2XH FE180

Areas of Use

Used as fixed installation cable in marine vehicles. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-up	Cores are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	7,3	10	64
1x3x0,5	7,7	15	69
1x4x0,5	8,4	20	83
2x2x0,5	12	20	124
2x3x0,5	12,2	30	158
2x4x0,5	15,3	40	220
3x2x0,5	11,5	30	126
3x3x0,5	13	45	169
3x4x0,5	16,3	60	229
4x2x0,5	12,8	40	158
4x3x0,5	14,2	60	209
4x4x0,5	17,9	79	283
5x2x0,5	14	50	198
5x3x0,5	15,8	74	270
7x2x0,5	15,5	70	245
7x3x0,5	17,2	104	326
24x2x0,5	29	227	731
27x2x0,5	29,6	256	787
37x2x0,5	33,7	351	1054
1x2x0,75	8,1	16	76
1x3x0,75	8,6	23	86
1x4x0,75	9,6	31	111
2x2x0,75	14,5	31	169
2x3x0,75	13,7	46	193
2x4x0,75	17,2	62	267
3x2x0,75	13,2	46	164
3x3x0,75	14,6	69	218
3x4x0,75	18,6	91	300
4x2x0,75	14,4	61	202
4x3x0,75	16,3	91	280
4x4x0,75	20,5	119	369
5x2x0,75	16	78	257
5x3x0,75	18,1	114	348
7x2x0,75	17,5	107	314
7x3x0,75	19,7	156	436
24x2x0,75	33,4	349	983
27x2x0,75	34,2	393	1075
37x2x0,75	38,6	529	1408
1x2x1	8,5	21	86
1x3x1	9	31	98
1x4x1	10	41	128
2x2x1	15,2	41	186
2x3x1	14,4	62	222
2x4x1	18,3	82	318
3x2x1	13,8	61	188
3x3x1	15,6	92	260
3x4x1	19,6	119	343
4x2x1	15,3	82	241
4x3x1	17,1	119	322
4x4x1	21,8	159	439

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
5x2x1	16,8	104	298
5x3x1	19	151	409
7x2x1	18,6	139	371
7x3x1	20,8	209	511
24x2x1	35,2	468	1152
27x2x1	36	516	1253
1x2x1,5	9,6	31	112
1x3x1,5	10,2	45	130
1x4x1,5	11,2	63	162
2x2x1,5	17,1	60	238
2x3x1,5	16,4	91	289
2x4x1,5	20,6	118	391
3x2x1,5	15,7	90	248
3x3x1,5	17,4	131	331
3x4x1,5	22,2	174	452
4x2x1,5	17,2	116	305
4x3x1,5	19,4	174	422
4x4x1,5	24,7	228	576
5x2x1,5	19,1	148	384
5x3x1,5	21,5	218	533
5x4x1,5	27,4	290	737
7x2x1,5	21,1	204	492
7x3x1,5	23,6	300	676
7x4x1,5	30,2	400	928
10x2x1,5	27,5	286	707
10x3x1,5	31	429	982
12x2x1,5	28,4	343	811
19x2x1,5	33,9	532	1204
1x2x2,5	10,5	49	142
1x3x2,5	11,1	73	168
1x4x2,5	12,4	103	216
2x2x2,5	19	98	307
2x3x2,5	18,1	144	375
2x4x2,5	22,8	192	525
3x2x2,5	17,1	142	319
3x3x2,5	19,3	213	444
3x4x2,5	24,6	279	604
4x2x2,5	19,1	189	407
4x3x2,5	21,5	279	569
4x4x2,5	27,4	373	778
5x2x2,5	21,1	237	515
5x3x2,5	23,9	355	725
5x4x2,5	30,3	472	988
7x2x2,5	23,1	326	651
7x3x2,5	26,1	489	928
7x4x2,5	33,5	640	1254
10x2x2,5	30,4	466	957
10x3x2,5	34,3	686	1330
12x2x2,5	31,5	548	1084
19x2x2,5	37,5	868	1648

FM2XH(I) FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Seperator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Seperator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21

Technical Properties (at 20°C)	
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	11,40	26	111
2x3x0,5	12,55	35	141
2x4x0,5	14,65	45	175
3x2x0,5	12,15	38	142
3x3x0,5	13,40	53	183
3x4x0,5	15,70	67	229
4x2x0,5	13,40	51	176
4x3x0,5	14,75	70	228
4x4x0,5	17,35	89	288
2x2x0,75	12,85	38	142
2x3x0,75	14,35	53	183
2x4x0,75	16,70	67	228
3x2x0,75	13,80	58	184
3x3x0,75	15,30	79	239
3x4x0,75	18,00	101	302
4x2x0,75	15,15	77	230
4x3x0,75	16,95	106	302
2x2x1	13,50	53	165
2x3x1	15,05	73	212
2x4x1	17,55	92	266
3x2x1	14,35	80	217
3x3x1	16,10	109	282
3x4x1	18,80	139	355
4x2x1	15,90	107	273
4x3x1	17,90	146	358
2x2x1,5	15,30	71	206
2x3x1,5	17,05	100	269
2x4x1,5	19,90	128	341
3x2x1,5	16,40	107	272
3x3x1,5	18,30	150	362
3x4x1,5	21,35	193	460
4x2x1,5	18,10	143	344
4x3x1,5	20,20	200	461
2x2x2,5	16,85	109	264
2x3x2,5	18,85	154	350
2x4x2,5	22,00	200	447
3x2x2,5	18,00	163	354
3x3x2,5	20,20	232	476
3x4x2,5	23,65	301	611
4x2x2,5	20,00	217	451
4x3x2,5	22,40	309	611

FM2XAH FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Lay-up	Cores are twisted as pairs and Pairs are stranded in layers
Separator	PET Foil
Overall Screen	Al-PET Foil (with tinned copper drain wire)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21

Technical Properties (at 20°C)	
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	6,65	13	53
1x3x0,5	7,05	18	64
1x4x0,5	7,60	22	76
2x2x0,5	9,55	22	89
2x3x0,5	10,70	32	114
2x4x0,5	13,10	41	150
3x2x0,5	10,20	32	111
3x3x0,5	11,35	46	144
3x4x0,5	14,05	60	191
4x2x0,5	11,15	41	135
4x3x0,5	12,50	60	179
4x4x0,5	15,40	79	237
5x2x0,5	12,20	51	159
5x3x0,5	13,65	74	213
5x4x0,5	17,00	98	284
7x2x0,5	13,35	70	202
7x3x0,5	15,00	103	275
7x4x0,5	18,65	136	366
10x2x0,5	17,10	98	284
10x3x0,5	19,30	145	389
12x2x0,5	17,60	117	323
16x2x0,5	19,70	155	410
19x2x0,5	20,75	183	471
24x2x0,5	24,50	231	593
27x2x0,5	25,15	259	650
37x2x0,5	28,30	354	853
1x2x0,75	7,50	19	68
1x3x0,75	8,00	26	83
1x4x0,75	8,60	34	100
2x2x0,75	11,00	34	116
2x3x0,75	12,30	48	151
2x4x0,75	15,20	62	198
3x2x0,75	11,65	48	146
3x3x0,75	13,10	70	194
3x4x0,75	16,25	91	257
4x2x0,75	12,80	62	179
4x3x0,75	14,40	91	241
4x4x0,75	17,90	120	321
5x2x0,75	14,05	77	214
5x3x0,75	15,85	113	290
5x4x0,75	19,80	149	386

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
7x2x0,75	15,40	106	274
7x3x0,75	17,40	156	377
7x4x0,75	21,80	207	504
10x2x0,75	19,90	149	388
10x3x0,75	22,40	221	536
12x2x0,75	20,55	178	443
16x2x0,75	22,95	235	565
19x2x0,75	24,30	279	653
24x2x0,75	28,80	351	824
27x2x0,75	29,40	394	905
37x2x0,75	33,20	538	1196
1x2x1	7,90	27	78
1x3x1	8,30	36	97
1x4x1	9,15	46	117
2x2x1	11,65	46	135
2x3x1	13,00	66	177
2x4x1	16,15	85	233
3x2x1	12,40	66	171
3x3x1	13,85	95	229
3x4x1	17,20	124	304
4x2x1	13,65	85	212
4x3x1	15,30	124	287
4x4x1	19,10	163	382
5x2x1	14,90	105	253
5x3x1	16,80	153	346
5x4x1	21,05	202	461
7x2x1	16,35	144	327
7x3x1	18,45	212	452
7x4x1	23,15	280	604
10x2x1	21,05	202	462
10x3x1	23,90	299	642
12x2x1	21,90	241	531
16x2x1	24,40	319	679
19x2x1	25,85	377	785
24x2x1	30,60	474	993
27x2x1	31,30	533	1093
37x2x1	35,40	728	1450
1x2x1,5	8,85	36	98
1x3x1,5	9,45	50	123
1x4x1,5	10,30	64	151
2x2x1,5	13,25	64	174
2x3x1,5	14,80	93	229
2x4x1,5	18,45	121	304
3x2x1,5	14,10	93	224
3x3x1,5	15,85	135	303
3x4x1,5	19,80	178	403
4x2x1,5	15,55	121	279
4x3x1,5	17,50	178	382
4x4x1,5	21,90	235	511
5x2x1,5	17,10	150	335

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
5x3x1,5	19,30	221	464
5x4x1,5	24,20	292	621
7x2x1,5	18,80	207	437
7x3x1,5	21,20	306	611
7x4x1,5	26,70	406	819
10x2x1,5	24,30	292	622
10x3x1,5	27,55	434	873
12x2x1,5	25,25	349	717
16x2x1,5	28,20	463	924
19x2x1,5	29,90	548	1074
24x2x1,5	35,40	690	1358
27x2x1,5	36,25	776	1499
37x2x1,5	41,05	1061	1997
1x2x2,5	9,80	54	125
1x3x2,5	10,40	77	161
1x4x2,5	11,35	100	201
2x2x2,5	14,70	100	226
2x3x2,5	16,50	146	305
2x4x2,5	20,65	192	406
3x2x2,5	15,65	146	298
3x3x2,5	17,65	215	411
3x4x2,5	22,10	284	547
4x2x2,5	17,30	192	376
4x3x2,5	19,50	284	523
4x4x2,5	24,55	375	699
5x2x2,5	19,10	238	455
5x3x2,5	21,50	352	636
5x4x2,5	27,15	467	854
7x2x2,5	21,00	329	600
7x3x2,5	23,70	490	849
7x4x2,5	29,90	650	1139
10x2x2,5	27,25	467	855
10x3x2,5	30,90	696	1214
12x2x2,5	28,20	559	993
16x2x2,5	31,65	742	1287
19x2x2,5	33,55	880	1500
24x2x2,5	39,80	1109	1900
27x2x2,5	40,75	1247	2104
37x2x2,5	46,10	1705	2817

FM2XAAH FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Seperator	PET Foil
Individual Screen	AL-PES tape (with tinned copper drain wire)
2. Seperator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Separator	PET Foil
Overall Screen	Al-PET Foil (with tinned copper drain wire)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)

Technical Properties (at 20°C)	
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	11,50	29	119
2x3x0,5	12,65	38	149
2x4x0,5	14,85	48	185
3x2x0,5	12,35	42	150
3x3x0,5	13,50	56	190
3x4x0,5	15,80	70	238
4x2x0,5	13,60	54	185
4x3x0,5	14,85	73	237
4x4x0,5	17,45	92	297
5x2x0,5	14,85	67	220
5x3x0,5	16,40	91	285
5x4x0,5	19,20	115	357
7x2x0,5	16,30	93	283
7x3x0,5	18,00	126	369
7x4x0,5	21,20	159	466
10x2x0,5	21,00	131	399
10x3x0,5	23,30	179	523
12x2x0,5	21,70	157	457
16x2x0,5	24,30	208	583
19x2x0,5	25,80	246	674
24x2x0,5	30,45	310	850
27x2x0,5	31,20	348	935
37x2x0,5	35,15	476	1233
2x2x0,75	13,10	43	152
2x3x0,75	14,45	58	192
2x4x0,75	16,95	72	240
3x2x0,75	13,90	62	194
3x3x0,75	15,50	84	250
3x4x0,75	18,10	106	313
4x2x0,75	15,35	82	240
4x3x0,75	17,05	110	312
4x4x0,75	19,95	139	393
5x2x0,75	16,80	101	288
5x3x0,75	18,80	137	377
5x4x0,75	22,05	173	476
7x2x0,75	18,50	139	373
7x3x0,75	20,60	190	492
7x4x0,75	24,30	240	625
10x2x0,75	24,00	197	530
10x3x0,75	26,85	269	703
12x2x0,75	24,85	235	609

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
16x2x0,75	27,75	312	780
19x2x0,75	29,45	369	905
24x2x0,75	34,95	465	1144
27x2x0,75	35,80	523	1260
37x2x0,75	40,35	715	1672
2x2x1	13,60	61	178
2x3x1	15,25	80	225
2x4x1	17,80	100	280
3x2x1	14,55	87	230
3x3x1	16,30	117	295
3x4x1	19,00	146	370
4x2x1	16,00	114	286
4x3x1	18,00	153	371
4x4x1	21,00	192	467
5x2x1	17,65	141	344
5x3x1	19,85	189	450
5x4x1	23,20	238	567
7x2x1	19,35	194	448
7x3x1	21,85	262	591
7x4x1	25,60	330	748
10x2x1	25,05	274	636
10x3x1	28,40	372	843
12x2x1	26,00	328	734
16x2x1	29,10	435	944
19x2x1	30,90	515	1098
24x2x1	36,60	648	1388
27x2x1	37,45	728	1532
37x2x1	42,35	996	2041
2x2x1,5	15,50	79	219
2x3x1,5	17,20	107	283
2x4x1,5	20,10	136	357
3x2x1,5	16,55	114	286
3x3x1,5	18,40	157	375
3x4x1,5	21,45	200	477
4x2x1,5	18,30	150	359
4x3x1,5	20,40	207	475
4x4x1,5	23,85	264	604
5x2x1,5	20,20	186	433
5x3x1,5	22,50	257	578
5x4x1,5	26,35	328	738
7x2x1,5	22,15	257	568
7x3x1,5	24,80	357	764
7x4x1,5	29,05	457	978
10x2x1,5	28,85	364	811
10x3x1,5	32,30	507	1094
12x2x1,5	29,90	436	938
16x2x1,5	33,55	579	1213
19x2x1,5	35,50	686	1411
24x2x1,5	42,20	864	1789
27x2x1,5	43,25	971	1977

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
37x2x1,5	48,90	1329	2640
2x2x2,5	16,95	117	279
2x3x2,5	18,95	163	365
2x4x2,5	22,20	209	464
3x2x2,5	18,10	171	369
3x3x2,5	20,30	240	493
3x4x2,5	23,75	309	628
4x2x2,5	20,10	226	467
4x3x2,5	22,50	317	628
4x4x2,5	26,35	409	804
5x2x2,5	22,20	280	567
5x3x2,5	24,90	395	766
5x4x2,5	29,20	509	985
7x2x2,5	24,40	389	750
7x3x2,5	27,40	549	1023
7x4x2,5	32,20	710	1317
10x2x2,5	31,80	552	1073
10x3x2,5	35,85	781	1466
12x2x2,5	33,05	660	1248
16x2x2,5	37,00	877	1618
19x2x2,5	39,30	1040	1890
24x2x2,5	46,70	1312	2396
27x2x2,5	47,85	1475	2655
37x2x2,5	54,10	2018	3558

FM2XCH FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-up	Cores are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-1+2

Technical Properties (at 20°C)	
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	7,35	34	76
1x3x0,5	7,65	42	90
1x4x0,5	8,30	49	105
2x2x0,5	10,35	59	129
2x3x0,5	11,40	73	160
2x4x0,5	14,45	129	248
3x2x0,5	10,90	72	154
3x3x0,5	12,15	92	195
3x4x0,5	15,30	154	296
4x2x0,5	11,95	86	184
4x3x0,5	13,25	112	235
4x4x0,5	16,80	181	352
5x2x0,5	13,00	100	214
5x3x0,5	15,00	165	315
5x4x0,5	18,40	211	413
7x2x0,5	14,55	159	302
7x3x0,5	16,25	204	389
7x4x0,5	20,00	267	517
10x2x0,5	18,40	211	414
10x3x0,5	20,65	276	540
12x2x0,5	19,05	238	463
16x2x0,5	21,10	287	563
19x2x0,5	22,25	325	637
24x2x0,5	26,15	400	798
27x2x0,5	26,70	432	859
37x2x0,5	29,90	550	1097
1x2x0,75	8,20	43	93
1x3x0,75	8,60	53	111
1x4x0,75	9,40	64	132
2x2x0,75	11,75	75	162
2x3x0,75	13,10	98	205
2x4x0,75	16,55	162	311
3x2x0,75	12,50	94	197
3x3x0,75	14,30	154	289
3x4x0,75	17,65	198	378
4x2x0,75	14,10	143	270
4x3x0,75	15,70	184	347
4x4x0,75	19,35	238	456
5x2x0,75	15,40	169	318
5x3x0,75	17,20	214	405
5x4x0,75	21,20	280	539

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
7x2x0,75	16,80	206	388
7x3x0,75	18,70	269	507
7x4x0,75	23,20	352	676
10x2x0,75	21,30	280	540
10x3x0,75	24,00	371	715
12x2x0,75	22,05	317	606
16x2x0,75	24,50	389	748
19x2x0,75	25,90	443	851
24x2x0,75	30,40	548	1069
27x2x0,75	31,05	600	1162
37x2x0,75	35,00	766	1490
1x2x1	8,60	51	104
1x3x1	9,05	62	124
1x4x1	9,80	76	150
2x2x1	12,40	88	182
2x3x1	14,20	146	266
2x4x1	17,40	185	346
3x2x1	13,10	111	222
3x3x1	15,20	181	327
3x4x1	18,60	233	429
4x2x1	14,85	167	305
4x3x1	16,55	221	397
4x4x1	20,45	286	526
5x2x1	16,25	196	358
5x3x1	18,20	258	467
5x4x1	22,45	339	623
7x2x1	17,75	249	446
7x3x1	19,80	330	589
7x4x1	24,60	432	787
10x2x1	22,55	339	623
10x3x1	25,35	456	832
12x2x1	23,30	384	700
16x2x1	26,00	481	874
19x2x1	27,40	551	998
24x2x1	32,30	681	1253
27x2x1	33,10	746	1363
37x2x1	37,60	1064	1868
1x2x1,5	9,60	65	130
1x3x1,5	10,15	82	158
1x4x1,5	11,10	101	192
2x2x1,5	14,45	148	267
2x3x1,5	16,15	189	339
2x4x1,5	19,90	245	448
3x2x1,5	15,40	185	328
3x3x1,5	17,25	241	424
3x4x1,5	21,30	308	557
4x2x1,5	16,90	220	392
4x3x1,5	18,95	292	514
4x4x1,5	23,45	382	685
5x2x1,5	18,50	260	463

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
5x3x1,5	20,80	349	613
5x4x1,5	25,80	456	818
7x2x1,5	20,25	333	584
7x3x1,5	22,70	448	779
7x4x1,5	28,30	589	1045
10x2x1,5	25,95	457	822
10x3x1,5	29,25	628	1111
12x2x1,5	26,80	521	927
16x2x1,5	29,90	658	1166
19x2x1,5	31,60	754	1332
24x2x1,5	37,75	1025	1776
27x2x1,5	38,60	1124	1935
37x2x1,5	43,45	1448	2497
1x2x2,5	10,45	87	161
1x3x2,5	11,10	113	201
1x4x2,5	12,20	140	245
2x2x2,5	15,95	191	330
2x3x2,5	17,90	254	429
2x4x2,5	22,10	329	568
3x2x2,5	17,00	250	416
3x3x2,5	19,05	329	542
3x4x2,5	23,70	431	724
4x2x2,5	18,65	303	504
4x3x2,5	21,00	411	673
4x4x2,5	26,15	541	899
5x2x2,5	20,45	364	602
5x3x2,5	23,05	496	807
5x4x2,5	28,75	652	1083
7x2x2,5	22,40	468	763
7x3x2,5	25,30	649	1041
7x4x2,5	31,65	860	1402
10x2x2,5	28,85	654	1085
10x3x2,5	32,60	910	1484
12x2x2,5	29,90	753	1234
16x2x2,5	33,35	963	1567
19x2x2,5	35,70	1196	1890
24x2x2,5	42,20	1487	2384
27x2x2,5	43,15	1634	2601
37x2x2,5	48,60	2153	3407

FM2XCCH FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Separator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Separator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)

Technical Properties (at 20°C)	
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	12,30	70	162
2x3x0,5	13,50	84	196
2x4x0,5	16,10	133	278
3x2x0,5	13,05	86	197
3x3x0,5	14,35	105	243
3x4x0,5	17,15	162	339
4x2x0,5	14,35	103	237
4x3x0,5	16,20	159	330
4x4x0,5	18,85	195	412
5x2x0,5	16,15	152	314
5x3x0,5	17,65	186	388
5x4x0,5	20,65	228	487
7x2x0,5	17,55	187	387
7x3x0,5	19,30	233	487
7x4x0,5	22,60	284	610
10x2x0,5	22,45	255	542
10x3x0,5	24,70	318	682
12x2x0,5	23,20	285	604
16x2x0,5	25,85	353	753
19x2x0,5	27,25	401	856
24x2x0,5	32,15	494	1074
27x2x0,5	32,80	542	1170
37x2x0,5	36,95	696	1511
2x2x0,75	13,80	88	199
2x3x0,75	15,75	140	282
2x4x0,75	18,20	169	347
3x2x0,75	14,75	112	247
3x3x0,75	16,70	173	346
3x4x0,75	19,50	210	431
4x2x0,75	16,60	169	336
4x3x0,75	18,40	209	422
4x4x0,75	21,40	256	526
5x2x0,75	18,20	197	396
5x3x0,75	20,15	247	500
5x4x0,75	23,55	303	627
7x2x0,75	19,90	246	494
7x3x0,75	22,05	312	631
7x4x0,75	25,80	384	794
10x2x0,75	25,45	339	697
10x3x0,75	28,35	430	892
12x2x0,75	26,40	382	783

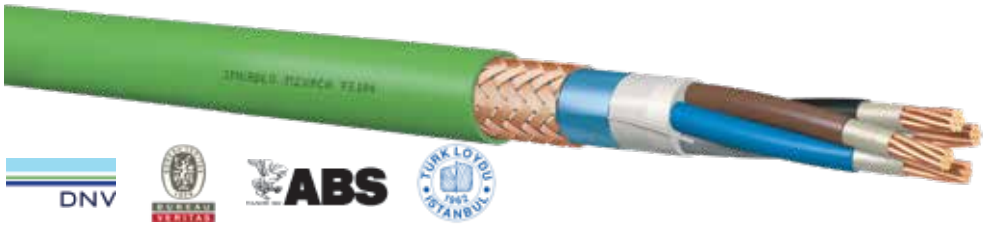
Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
16x2x0,75	29,40	482	985
19x2x0,75	31,10	548	1122
24x2x0,75	36,65	679	1414
27x2x0,75	37,50	739	1534
37x2x0,75	42,75	1050	2093
2x2x1	14,45	107	226
2x3x1	16,50	164	317
2x4x1	19,05	200	392
3x2x1	15,75	168	317
3x3x1	17,55	208	396
3x4x1	20,35	255	493
4x2x1	17,35	204	385
4x3x1	19,40	255	486
4x4x1	22,50	314	608
5x2x1	18,95	242	456
5x3x1	21,20	303	578
5x4x1	24,70	373	725
7x2x1	20,75	305	572
7x3x1	23,20	389	736
7x4x1	27,05	481	926
10x2x1	26,65	423	810
10x3x1	29,95	545	1048
12x2x1	27,60	483	916
16x2x1	30,80	609	1154
19x2x1	32,50	701	1323
24x2x1	38,40	871	1668
27x2x1	39,35	960	1826
37x2x1	44,70	1348	2480
2x2x1,5	16,75	167	318
2x3x1,5	18,55	209	395
2x4x1,5	21,45	257	493
3x2x1,5	17,90	210	393
3x3x1,5	19,85	267	498
3x4x1,5	22,95	330	625
4x2x1,5	19,60	257	480
4x3x1,5	21,80	329	614
4x4x1,5	25,30	409	773
5x2x1,5	21,55	306	570
5x3x1,5	24,00	394	735
5x4x1,5	27,90	492	929
7x2x1,5	23,60	390	721
7x3x1,5	26,25	509	940
7x4x1,5	30,65	637	1195
10x2x1,5	30,50	548	1033
10x3x1,5	34,10	711	1345
12x2x1,5	31,60	621	1166
16x2x1,5	35,25	790	1477
19x2x1,5	37,35	908	1693
24x2x1,5	44,65	1225	2245
27x2x1,5	45,60	1341	2447

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
37x2x1,5	51,50	1747	3188
2x2x2,5	18,35	216	389
2x3x2,5	20,40	276	493
2x4x2,5	23,60	343	617
3x2x2,5	19,55	278	489
3x3x2,5	21,80	362	631
3x4x2,5	25,30	454	798
4x2x2,5	21,55	345	603
4x3x2,5	24,05	454	786
4x4x2,5	28,00	571	996
5x2x2,5	23,60	414	721
5x3x2,5	26,40	547	945
5x4x2,5	30,80	690	1203
7x2x2,5	25,95	538	925
7x3x2,5	29,10	718	1225
7x4x2,5	33,90	913	1567
10x2x2,5	33,55	750	1316
10x3x2,5	37,75	1012	1757
12x2x2,5	34,70	874	1509
16x2x2,5	38,90	1111	1916
19x2x2,5	41,60	1378	2308
24x2x2,5	49,20	1716	2915
27x2x2,5	50,35	1890	3191
37x2x2,5	56,90	2490	4187

FM2XACH FE180



Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-up	Cores are stranded in layers
Separator	PET Foil
1. Overall Screen	Al-PET Foil (with tinned copper drain wire)
Separator	PET Foil (HFFR filler upon request)
2. Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21

Technical Properties (at 20°C)	
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	7,45	39	82
1x3x0,5	7,90	45	95
1x4x0,5	8,40	52	110
2x2x0,5	10,45	62	134
2x3x0,5	11,65	76	164
2x4x0,5	14,10	98	215
3x2x0,5	11,10	73	158
3x3x0,5	12,30	94	200
3x4x0,5	15,50	153	298
4x2x0,5	12,05	89	189
4x3x0,5	13,45	113	240
4x4x0,5	16,90	182	356
5x2x0,5	13,15	103	219
5x3x0,5	15,10	165	317
5x4x0,5	18,50	212	417
7x2x0,5	14,75	157	303
7x3x0,5	16,45	201	389
7x4x0,5	20,25	261	515
10x2x0,5	18,60	212	418
10x3x0,5	20,90	276	543
12x2x0,5	19,15	235	462
16x2x0,5	21,30	288	568
19x2x0,5	22,40	324	639
24x2x0,5	26,25	398	798
27x2x0,5	26,90	432	863
37x2x0,5	30,10	547	1096
1x2x0,75	8,30	49	101
1x3x0,75	8,85	58	118
1x4x0,75	9,50	68	139
2x2x0,75	11,95	78	167
2x3x0,75	13,25	100	211
2x4x0,75	16,70	162	314
3x2x0,75	12,60	97	202
3x3x0,75	14,10	125	259
3x4x0,75	17,75	198	381
4x2x0,75	13,80	117	243
4x3x0,75	15,80	186	350
4x4x0,75	19,45	239	461
5x2x0,75	15,50	169	321
5x3x0,75	17,30	218	412
5x4x0,75	21,40	281	544

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
7x2x0,75	16,90	207	392
7x3x0,75	18,90	271	512
7x4x0,75	23,45	352	680
10x2x0,75	21,50	282	546
10x3x0,75	24,10	372	718
12x2x0,75	22,15	316	609
16x2x0,75	24,60	390	754
19x2x0,75	26,00	443	854
24x2x0,75	30,60	548	1073
27x2x0,75	31,25	598	1163
37x2x0,75	35,10	760	1486
1x2x1	8,75	58	113
1x3x1	9,15	70	134
1x4x1	10,00	83	159
2x2x1	12,60	95	190
2x3x1	14,00	120	240
2x4x1	17,65	191	356
3x2x1	13,35	118	231
3x3x1	15,30	185	333
3x4x1	18,70	238	437
4x2x1	15,05	174	314
4x3x1	16,80	224	403
4x4x1	20,65	290	531
5x2x1	16,35	202	366
5x3x1	18,30	264	475
5x4x1	22,70	342	630
7x2x1	17,85	251	452
7x3x1	20,00	333	596
7x4x1	24,80	434	792
10x2x1	22,70	342	631
10x3x1	25,60	459	838
12x2x1	23,55	386	707
16x2x1	26,10	482	879
19x2x1	27,60	550	1001
24x2x1	32,45	681	1257
27x2x1	33,20	741	1361
37x2x1	37,35	968	1766
1x2x1,5	9,70	72	139
1x3x1,5	10,35	89	167
1x4x1,5	11,20	108	200
2x2x1,5	14,65	152	274
2x3x1,5	16,25	191	343
2x4x1,5	20,05	246	453
3x2x1,5	15,50	187	332
3x3x1,5	17,35	242	427
3x4x1,5	21,40	312	564
4x2x1,5	17,00	226	401
4x3x1,5	19,05	297	522
4x4x1,5	23,60	386	694
5x2x1,5	18,60	265	470

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
5x3x1,5	20,90	352	619
5x4x1,5	25,95	459	826
7x2x1,5	20,35	333	587
7x3x1,5	22,80	451	786
7x4x1,5	28,50	590	1049
10x2x1,5	26,05	459	827
10x3x1,5	29,40	624	1112
12x2x1,5	27,00	522	931
16x2x1,5	30,00	657	1169
19x2x1,5	31,75	755	1336
24x2x1,5	37,45	939	1686
27x2x1,5	38,70	1114	1926
37x2x1,5	43,65	1444	2494
1x2x2,5	10,70	95	172
1x3x2,5	11,30	121	211
1x4x2,5	12,30	149	256
2x2x2,5	16,15	199	340
2x3x2,5	18,00	257	434
2x4x2,5	22,30	332	574
3x2x2,5	17,15	251	421
3x3x2,5	19,20	335	551
3x4x2,5	23,80	436	731
4x2x2,5	18,85	310	514
4x3x2,5	21,10	417	681
4x4x2,5	26,25	544	906
5x2x2,5	20,70	367	609
5x3x2,5	23,15	500	813
5x4x2,5	28,95	655	1087
7x2x2,5	22,60	472	771
7x3x2,5	25,40	654	1048
7x4x2,5	31,75	860	1405
10x2x2,5	29,05	656	1091
10x3x2,5	32,80	910	1488
12x2x2,5	30,00	754	1238
16x2x2,5	33,55	966	1572
19x2x2,5	35,50	1110	1800
24x2x2,5	42,40	1485	2383
27x2x2,5	43,35	1628	2599
37x2x2,5	48,85	2138	3393

FM2XAACH FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Seperator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Seperator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Separator	PET Foil
1. Overall Screen	Al-PET Foil (with tinned copper drain wire)
Seperator	PET Foil (HFFR filler upon request)
2. Overall Screen	Tinned or Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm

Technical Properties (at 20°C)	
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	12,40	73	169
2x3x0,5	13,60	87	204
2x4x0,5	16,30	138	289
3x2x0,5	13,30	90	206
3x3x0,5	14,45	109	251
3x4x0,5	17,25	166	350
4x2x0,5	14,55	107	247
4x3x0,5	16,30	164	341
4x4x0,5	18,95	199	422
5x2x0,5	16,30	157	324
5x3x0,5	17,90	192	401
5x4x0,5	20,75	232	497
7x2x0,5	17,75	192	398
7x3x0,5	19,50	237	497
7x4x0,5	22,80	289	624
10x2x0,5	22,55	261	555
10x3x0,5	24,90	324	698
12x2x0,5	23,30	290	619
16x2x0,5	26,00	358	768
19x2x0,5	27,45	405	870
24x2x0,5	32,25	504	1097
27x2x0,5	33,00	543	1184
37x2x0,5	37,05	700	1527
2x2x0,75	14,00	95	211
2x3x0,75	15,85	146	293
2x4x0,75	18,40	176	361
3x2x0,75	14,90	118	258
3x3x0,75	16,90	179	359
3x4x0,75	19,60	217	444
4x2x0,75	16,80	175	349
4x3x0,75	18,55	216	435
4x4x0,75	21,50	264	541
5x2x0,75	18,30	204	409
5x3x0,75	20,35	254	514
5x4x0,75	23,65	310	641
7x2x0,75	20,00	252	507
7x3x0,75	22,15	318	645
7x4x0,75	26,00	391	810

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
10x2x0,75	25,65	346	712
10x3x0,75	28,55	443	916
12x2x0,75	26,50	390	799
16x2x0,75	29,50	485	998
19x2x0,75	31,20	554	1139
24x2x0,75	36,85	685	1433
27x2x0,75	37,70	750	1560
37x2x0,75	42,85	1053	2112
2x2x1	14,55	115	240
2x3x1	16,70	173	333
2x4x1	19,30	209	409
3x2x1	16,00	176	331
3x3x1	17,80	216	411
3x4x1	20,55	262	509
4x2x1	17,45	213	399
4x3x1	19,50	264	501
4x4x1	22,60	322	623
5x2x1	19,20	250	472
5x3x1	21,40	313	595
5x4x1	24,85	382	743
7x2x1	20,90	314	589
7x3x1	23,45	398	754
7x4x1	27,30	490	946
10x2x1	26,75	432	829
10x3x1	30,15	549	1065
12x2x1	27,70	491	933
16x2x1	30,90	618	1174
19x2x1	32,70	709	1344
24x2x1	38,60	878	1690
27x2x1	39,45	968	1847
37x2x1	44,90	1359	2510
2x2x1,5	16,95	176	333
2x3x1,5	18,70	217	410
2x4x1,5	21,70	265	510
3x2x1,5	18,00	219	408
3x3x1,5	19,95	276	514
3x4x1,5	23,05	338	641
4x2x1,5	19,85	266	496
4x3x1,5	22,00	338	630
4x4x1,5	25,50	418	792
5x2x1,5	21,75	313	587
5x3x1,5	24,15	403	753
5x4x1,5	28,10	499	947
7x2x1,5	23,80	399	740
7x3x1,5	26,50	518	960
7x4x1,5	30,90	646	1217
10x2x1,5	30,65	550	1046
10x3x1,5	34,20	725	1370
12x2x1,5	31,70	629	1184
16x2x1,5	35,45	797	1497

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
19x2x1,5	37,50	916	1715
24x2x1,5	44,75	1234	2272
27x2x1,5	45,80	1349	2473
37x2x1,5	51,60	1759	3220
2x2x2,5	18,45	226	406
2x3x2,5	20,50	285	509
2x4x2,5	23,80	353	637
3x2x2,5	19,65	288	506
3x3x2,5	21,90	372	648
3x4x2,5	25,40	463	816
4x2x2,5	21,70	356	621
4x3x2,5	24,15	465	805
4x4x2,5	28,10	582	1017
5x2x2,5	23,80	425	741
5x3x2,5	26,60	557	965
5x4x2,5	31,00	700	1224
7x2x2,5	26,05	547	943
7x3x2,5	29,20	729	1245
7x4x2,5	34,10	926	1592
10x2x2,5	33,65	763	1341
10x3x2,5	37,85	1020	1780
12x2x2,5	34,95	879	1528
16x2x2,5	39,00	1120	1938
19x2x2,5	41,80	1389	2334
24x2x2,5	49,40	1729	2948
27x2x2,5	50,60	1900	3221
37x2x2,5	57,00	2503	4222

FM2XSH FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-up	Cores are stranded in layers
Inner Sheath	HFFR
Overall Screen	Galvanised steel wire braid
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-1+2

Technical Properties (at 20°C)	
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	11,70	19	162
2x3x0,5	12,35	28	191
2x4x0,5	13,40	38	231
3x2x0,5	12,30	28	189
3x3x0,5	13,10	43	230
3x4x0,5	14,25	57	281
4x2x0,5	13,40	38	223
4x3x0,5	14,25	57	279
4x4x0,5	15,55	76	338
5x2x0,5	14,65	47	262
5x3x0,5	15,65	71	327
5x4x0,5	17,00	95	402
7x2x0,5	15,95	66	319
7x3x0,5	17,00	99	408
7x4x0,5	18,50	133	507
10x2x0,5	20,20	95	442
10x3x0,5	21,60	142	570
12x2x0,5	20,85	114	495
16x2x0,5	23,20	152	610
19x2x0,5	24,45	180	692
24x2x0,5	28,75	227	868
27x2x0,5	29,40	256	938
37x2x0,5	33,00	351	1210
2x2x0,75	13,10	29	195
2x3x0,75	13,90	43	240
2x4x0,75	15,10	58	286
3x2x0,75	13,80	43	233
3x3x0,75	14,80	65	293
3x4x0,75	16,05	86	359
4x2x0,75	15,10	58	281
4x3x0,75	16,15	86	353
4x4x0,75	17,65	115	436
5x2x0,75	16,50	72	328
5x3x0,75	17,65	108	420
5x4x0,75	19,35	144	521
7x2x0,75	18,00	101	408
7x3x0,75	19,35	151	528
7x4x0,75	21,20	202	665
10x2x0,75	23,00	144	572
10x3x0,75	24,80	216	745
12x2x0,75	23,85	173	644

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
16x2x0,75	26,50	231	755
19x2x0,75	28,00	274	866
24x2x0,75	33,00	346	1151
27x2x0,75	33,75	389	1244
37x2x0,75	37,90	533	1560
2x2x1	13,70	39	216
2x3x1	14,55	58	267
2x4x1	15,85	78	322
3x2x1	14,55	58	265
3x3x1	15,50	88	331
3x4x1	16,90	117	409
4x2x1	15,95	78	318
4x3x1	17,00	117	406
4x4x1	18,50	156	505
5x2x1	17,45	97	373
5x3x1	18,60	146	481
5x4x1	20,35	195	599
7x2x1	19,05	136	467
7x3x1	20,40	204	613
7x4x1	22,25	273	770
10x2x1	24,35	195	659
10x3x1	26,20	292	820
12x2x1	25,20	234	742
16x2x1	28,10	311	880
19x2x1	29,70	370	1068
24x2x1	35,00	467	1337
27x2x1	35,90	526	1459
37x2x1	40,35	720	1847
2x2x1,5	15,35	57	271
2x3x1,5	16,40	85	336
2x4x1,5	18,00	114	413
3x2x1,5	16,30	85	332
3x3x1,5	17,50	128	425
3x4x1,5	19,20	171	529
4x2x1,5	17,90	114	405
4x3x1,5	19,20	171	525
4x4x1,5	21,10	228	657
5x2x1,5	19,60	142	479
5x3x1,5	21,00	214	624
5x4x1,5	23,15	285	786
7x2x1,5	21,45	199	605
7x3x1,5	23,05	299	802
7x4x1,5	25,40	399	965
10x2x1,5	27,65	285	807
10x3x1,5	29,65	427	1145
12x2x1,5	28,60	342	970
16x2x1,5	31,90	455	1224
19x2x1,5	33,70	541	1403
24x2x1,5	39,90	683	1723
27x2x1,5	41,20	769	2029

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
37x2x1,5	46,45	1053	2644
2x2x2,5	16,75	92	335
2x3x2,5	18,05	138	424
2x4x2,5	19,75	183	526
3x2x2,5	17,80	138	421
3x3x2,5	19,20	206	548
3x4x2,5	21,05	275	683
4x2x2,5	19,65	183	517
4x3x2,5	21,15	275	681
4x4x2,5	23,30	367	859
5x2x2,5	21,55	229	618
5x3x2,5	23,15	344	819
5x4x2,5	25,60	459	987
7x2x2,5	23,60	321	790
7x3x2,5	25,40	482	1016
7x4x2,5	28,10	642	1306
10x2x2,5	30,45	459	1126
10x3x2,5	32,90	688	1523
12x2x2,5	31,50	550	1283
16x2x2,5	35,25	734	1629
19x2x2,5	37,30	871	1826
24x2x2,5	44,60	1101	2482
27x2x2,5	45,65	1238	2712
37x2x2,5	51,4	1697	3558

FM2XCSH FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Seperator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Seperator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Inner Sheath	HFFR
Overall Screen	Galvanised steel wire braid
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)

Technical Properties (at 20°C)	
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	12,75	26	183
2x3x0,5	13,95	35	218
2x4x0,5	16,10	45	270
3x2x0,5	13,50	38	217
3x3x0,5	14,80	53	266
3x4x0,5	17,15	67	330
4x2x0,5	14,80	51	260
4x3x0,5	16,20	70	322
4x4x0,5	18,85	89	402
5x2x0,5	16,15	64	306
5x3x0,5	17,65	88	379
5x4x0,5	20,65	111	476
7x2x0,5	17,55	89	378
7x3x0,5	19,30	123	476
7x4x0,5	22,60	156	599
10x2x0,5	22,45	128	530
10x3x0,5	24,70	175	670
12x2x0,5	23,20	153	593
16x2x0,5	25,85	205	740
19x2x0,5	27,25	243	842
24x2x0,5	32,15	307	1059
27x2x0,5	32,80	345	1150
37x2x0,5	36,95	473	1493
2x2x0,75	14,25	38	223
2x3x0,75	15,75	53	274
2x4x0,75	18,20	67	338
3x2x0,75	15,20	58	271
3x3x0,75	16,70	79	338
3x4x0,75	19,50	101	421
4x2x0,75	16,60	77	328
4x3x0,75	18,40	106	412
4x4x0,75	21,40	134	515
5x2x0,75	18,20	96	387
5x3x0,75	20,15	132	490
5x4x0,75	23,55	168	615
7x2x0,75	19,90	134	484
7x3x0,75	22,05	185	620
7x4x0,75	25,80	235	782
10x2x0,75	25,45	192	684
10x3x0,75	28,35	264	878
12x2x0,75	26,40	230	772

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
16x2x0,75	29,40	307	969
19x2x0,75	31,10	365	1109
24x2x0,75	36,65	461	1401
27x2x0,75	37,50	518	1516
37x2x0,75	42,75	710	2062
2x2x1	14,90	53	250
2x3x1	16,50	73	309
2x4x1	19,05	92	382
3x2x1	15,75	80	308
3x3x1	17,55	109	386
3x4x1	20,35	139	481
4x2x1	17,35	107	376
4x3x1	19,40	146	475
4x4x1	22,50	185	596
5x2x1	18,95	134	445
5x3x1	21,20	182	567
5x4x1	24,70	231	712
7x2x1	20,75	187	561
7x3x1	23,20	255	723
7x4x1	27,05	323	912
10x2x1	26,65	267	796
10x3x1	29,95	364	1033
12x2x1	27,60	321	902
16x2x1	30,80	427	1139
19x2x1	32,50	508	1310
24x2x1	38,40	641	1650
27x2x1	39,35	721	1807
37x2x1	44,70	988	2451
2x2x1,5	16,75	71	308
2x3x1,5	18,55	100	385
2x4x1,5	21,45	128	481
3x2x1,5	17,90	107	383
3x3x1,5	19,85	150	487
3x4x1,5	22,95	193	613
4x2x1,5	19,60	143	469
4x3x1,5	21,80	200	602
4x4x1,5	25,30	257	761
5x2x1,5	21,55	179	558
5x3x1,5	24,00	250	722
5x4x1,5	27,90	321	914
7x2x1,5	23,60	250	709
7x3x1,5	26,25	350	925
7x4x1,5	30,65	449	1179
10x2x1,5	30,50	357	1010
10x3x1,5	34,10	499	1332
12x2x1,5	31,60	429	1148
16x2x1,5	35,25	571	1455
19x2x1,5	37,35	679	1674
24x2x1,5	44,65	857	2214
27x2x1,5	45,60	964	2413

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
37x2x1,5	51,50	1321	3155
2x2x2,5	18,35	109	379
2x3x2,5	20,40	154	483
2x4x2,5	23,60	200	604
3x2x2,5	19,55	163	479
3x3x2,5	21,80	232	619
3x4x2,5	25,30	301	784
4x2x2,5	21,55	217	592
4x3x2,5	24,05	309	772
4x4x2,5	28,00	401	981
5x2x2,5	23,60	272	708
5x3x2,5	26,40	386	931
5x4x2,5	30,80	501	1186
7x2x2,5	25,95	380	911
7x3x2,5	29,10	541	1211
7x4x2,5	33,90	701	1554
10x2x2,5	33,55	543	1301
10x3x2,5	37,75	772	1738
12x2x2,5	34,70	652	1486
16x2x2,5	38,90	869	1897
19x2x2,5	41,60	1032	2279
24x2x2,5	49,20	1304	2880
27x2x2,5	50,35	1466	3153
37x2x2,5	56,90	2010	4150

FM2XAASH FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request)
Flame Barrier	Mica Tape
Insulation	XLPE (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Seperator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Seperator	PET Foil
Lay-up	Shielded pairs / triples are stranded in layers
Separator	PET Foil
1. Overall Screen	Al-PET Foil (with tinned copper drain wire)
Inner Sheath	HFFR
2. Overall Screen	Galvanised steel wire braid
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standard	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300) V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm

Technical Properties (at 20°C)	
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x2x0,5	12,85	29	191
2x3x0,5	14,05	38	227
2x4x0,5	16,30	48	279
3x2x0,5	13,70	42	228
3x3x0,5	14,90	56	275
3x4x0,5	17,25	70	341
4x2x0,5	15,00	54	270
4x3x0,5	16,30	73	331
4x4x0,5	18,95	92	412
5x2x0,5	16,30	67	316
5x3x0,5	17,90	91	391
5x4x0,5	20,75	115	487
7x2x0,5	17,75	93	389
7x3x0,5	19,50	126	487
7x4x0,5	22,80	159	612
10x2x0,5	22,55	131	542
10x3x0,5	24,90	179	685
12x2x0,5	23,30	157	606
16x2x0,5	26,00	208	754
19x2x0,5	27,45	246	856
24x2x0,5	32,25	310	1079
27x2x0,5	33,00	348	1167
37x2x0,5	37,05	476	1503
2x2x0,75	14,45	43	234
2x3x0,75	15,85	58	285
2x4x0,75	18,40	72	351
3x2x0,75	15,30	62	283
3x3x0,75	16,90	84	350
3x4x0,75	19,60	106	433
4x2x0,75	16,80	82	340
4x3x0,75	18,55	110	425
4x4x0,75	21,50	139	529
5x2x0,75	18,30	101	399
5x3x0,75	20,35	137	503
5x4x0,75	23,65	173	629
7x2x0,75	20,00	139	497
7x3x0,75	22,15	190	633
7x4x0,75	26,00	240	797

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
10x2x0,75	25,65	197	699
10x3x0,75	28,55	269	898
12x2x0,75	26,50	235	786
16x2x0,75	29,50	312	984
19x2x0,75	31,20	369	1123
24x2x0,75	36,85	465	1419
27x2x0,75	37,70	523	1542
37x2x0,75	42,85	715	2084
2x2x1	15,00	61	263
2x3x1	16,70	80	324
2x4x1	19,30	100	398
3x2x1	16,00	87	323
3x3x1	17,80	117	402
3x4x1	20,55	146	498
4x2x1	17,45	114	390
4x3x1	19,50	153	490
4x4x1	22,60	192	611
5x2x1	19,20	141	461
5x3x1	21,40	189	584
5x4x1	24,85	238	730
7x2x1	20,90	194	577
7x3x1	23,45	262	741
7x4x1	27,30	330	932
10x2x1	26,75	274	815
10x3x1	30,15	372	1049
12x2x1	27,70	328	920
16x2x1	30,90	435	1158
19x2x1	32,70	515	1332
24x2x1	38,60	648	1672
27x2x1	39,45	728	1823
37x2x1	44,90	996	2477
2x2x1,5	16,95	79	324
2x3x1,5	18,70	107	400
2x4x1,5	21,70	136	498
3x2x1,5	18,00	114	398
3x3x1,5	19,95	157	503
3x4x1,5	23,05	200	628
4x2x1,5	19,85	150	485
4x3x1,5	22,00	207	618
4x4x1,5	25,50	264	779
5x2x1,5	21,75	186	575
5x3x1,5	24,15	257	739
5x4x1,5	28,10	328	933
7x2x1,5	23,80	257	727
7x3x1,5	26,50	357	945
7x4x1,5	30,90	457	1201
10x2x1,5	30,65	364	1032
10x3x1,5	34,20	507	1350
12x2x1,5	31,70	436	1167
16x2x1,5	35,45	579	1479

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
19x2x1,5	37,50	686	1696
24x2x1,5	44,75	864	2239
27x2x1,5	45,80	971	2439
37x2x1,5	51,60	1329	3183
2x2x2,5	18,45	117	395
2x3x2,5	20,50	163	498
2x4x2,5	23,80	209	623
3x2x2,5	19,65	171	494
3x3x2,5	21,90	240	636
3x4x2,5	25,40	309	802
4x2x2,5	21,70	226	609
4x3x2,5	24,15	317	791
4x4x2,5	28,10	409	1002
5x2x2,5	23,80	280	727
5x3x2,5	26,60	395	951
5x4x2,5	31,00	509	1207
7x2x2,5	26,05	389	928
7x3x2,5	29,20	549	1229
7x4x2,5	34,10	710	1574
10x2x2,5	33,65	552	1327
10x3x2,5	37,85	781	1760
12x2x2,5	34,95	660	1514
16x2x2,5	39,00	877	1920
19x2x2,5	41,80	1040	2303
24x2x2,5	49,40	1312	2911
27x2x2,5	50,60	1475	3185
37x2x2,5	57,00	2018	4181

FMGACH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2)
Insulation	HEPR (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
1. Separator	PET Foil
Individual Screen	Al-PET Foil (with tinned copper drain wire)
2. Separator	PET Foil
Lay-Up	Cores are twisted as pairs and pairs are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7000-Grey
Reference Standards	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300)V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	12 x Cable Diameter

Cross Section

Configuration / Cross-section (mm^2)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x4x0,5	8,90	24	118
2x2x0,5	10,10	28	133
4x2x0,5	12,90	56	206
1x4x0,75	9,80	33	133
2x2x0,75	11,30	37	177
4x2x0,75	14,20	75	236
7x2x0,75	17,60	130	378
10x2x0,75	21,80	186	525
14x2x0,75	25,00	260	618
19x2x0,75	26,50	352	882
24x2x0,75	29,90	445	990

FMGCH

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2)
Insulation	HEPR (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-Up	Cores are twisted as pairs and pairs are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 9005 - Black or RAL 7000-Grey
Reference Standards	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300)V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Smoke Density	IEC/EN 61034-1+2
Amount of Halogen Acid Gas	IEC/EN 61034-2
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
1x2x0,5	7,40	10	73
1x4x0,5	8,20	19	103
2x2x0,5	9,40	19	101
3x2x0,5	10,80	29	144
4x2x0,5	12,30	38	175
5x2x0,5	13,40	47	207
6x2x0,5	14,50	57	235
7x2x0,5	14,50	66	248
8x2x0,5	15,50	76	280
10x2x0,5	17,50	95	352
12x2x0,5	18,40	113	399
14x2x0,5	19,60	132	444
16x2x0,5	20,60	170	488
18x2x0,5	21,80	179	540
19x2x0,5	22,20	189	562
20x2x0,5	22,70	226	584
24x2x0,5	24,60	226	678
30x2x0,5	27,30	349	844
37x2x0,5	29,80	414	986
44x2x0,5	31,90	423	1124
60x2x0,5	36,80	565	1517
1x3x0,5	7,80	15	85
2x3x0,5	9,70	29	129
3x3x0,5	12,00	43	179
4x3x0,5	12,80	57	210
5x3x0,5	13,60	71	245
6x3x0,5	14,50	85	278
7x3x0,5	14,50	99	298
8x3x0,5	15,50	113	338
10x3x0,5	18,10	142	432
12x3x0,5	19,40	170	498
14x3x0,5	20,60	198	558
16x3x0,5	21,70	226	617
18x3x0,5	22,90	254	686
19x3x0,5	23,40	269	715
20x3x0,5	24,00	283	808
24x3x0,5	26,00	339	870
30x3x0,5	28,80	424	1083
37x3x0,5	31,50	523	1279
1x2x0,75	8,00	15	86
1x4x0,75	9,00	29	123
2x2x0,75	10,40	29	133
3x2x0,75	12,10	43	182
4x2x0,75	13,40	57	213
5x2x0,75	14,80	71	254
6x2x0,75	16,00	85	289
7x2x0,75	16,00	97	309
8x2x0,75	17,10	113	348
10x2x0,75	19,40	142	439
12x2x0,75	20,50	170	502

Configuration / Cross-section (mm²)	Cable Diameter (mm) (±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
14x2x0,75	20,80	198	562
16x2x0,75	22,80	226	620
18x2x0,75	24,20	254	687
19x2x0,75	24,70	269	717
20x2x0,75	25,30	283	746
24x2x0,75	27,40	339	871
28x2x0,75	29,60	396	1030
37x2x0,75	33,20	523	1279
1x3x0,75	8,10	22	108
6x3x0,75	19,10	127	402
1x2x1	8,20	19	92
1x4x1	8,50	38	106
2x2x1	9,50	38	132
3x2x1	12,30	57	193
4x2x1	13,80	76	234
5x2x1	15,20	95	230
6x2x1	16,50	113	319
7x2x1	16,50	132	319
8x2x1	17,60	151	389
10x2x1	20,00	189	488
12x2x1	21,10	226	559
14x2x1	22,40	264	628
16x2x1	23,60	302	693
18x2x1	25,00	309	771
19x2x1	25,60	358	804
20x2x1	26,20	377	837
24x2x1	28,30	452	978
28x2x1	30,60	527	1155
30x2x1	31,60	565	1221
1x2x1,5	9,30	29	118
1x4x1,5	10,50	57	167
2x2x1,5	12,30	57	161
3x2x1,5	12,40	85	229
4x2x1,5	15,20	113	297
5x2x1,5	16,80	142	357
6x2x1,5	18,30	170	418
7x2x1,5	18,30	198	453
12x2x1,5	23,30	339	728
1x2x2,5	10,40	47	150
12x2x2,5	26,00	565	981

FMGCH FE180

Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen Free and Flame Retardant construction ensures non-corrosive and highly visible environment during fire. In addition, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

Cable Construction	
Conductor	Stranded Annealed Copper (IEC/EN 60228, Class 2)
Flame Barrier	Mica Tape
Insulation	HEPR (IEC 60092-360)
Core Colors	Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered
Lay-Up	Cores are twisted as pairs and pairs are stranded in layers
Separator	PET Foil (HFFR filler upon request)
Overall Screen	Annealed copper wire braiding (90% Coverage)
Outer Sheath	HFFR (IEC 60092-360 SHF1), RAL 6018 - Green (other colors upon request)
Reference Standards	IEC 60092-376

Technical Properties (at 20°C)	
Operating Voltage	150 / 250 (300)V
Test Voltage	1.5 kV (a.c) 3.6 kV (d.c)
Conductor Resistance	IEC/EN 60228
Insulation Resistance	>5000 M.Ωxkm
Temperature Range	-40 °C.....+90 °C
Flame Retardancy	IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A)
Fire Resistance	IEC 60331-21
Smoke Density	IEC/EN 61034-2
Amount of Halogen Acid Gas	IEC/EN 60754-1
Corrosive Gases Measurement	IEC/EN 60754-2
Min. Bending Radius (Fixed)	8 x Cable Diameter

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
4x0,75	12,60	75	241
1x1	6,10	30	59
2x1	11,30	65	197
3x1	11,80	75	216
4x1	12,80	92	253
5x1	13,70	104	282
6x1	14,50	117	316
7x1	14,50	127	324
8x1	14,90	160	314
9x1	15,70	187	348
10x1	16,10	195	312
12x1	16,60	214	340
14x1	17,40	233	372
16x1	18,40	268	413
18x1	19,30	286	447
19x1	19,30	296	429
20x1	19,30	305	469
21x1	20,30	314	494
24x1	22,50	359	567
25x1	22,50	368	578
27x1	23,00	404	605
30x1	24,00	432	660
32x1	24,80	451	694
36x1	25,60	488	749
37x1	25,60	488	749
40x1	26,80	550	821
42x1	27,90	569	860
48x1	29,50	625	959
60x1	32,20	762	1140
1x1,5	6,40	35	68
2x1,5	12,10	74	229
3x1,5	12,60	92	251
4x1,5	13,50	111	291
5x1,5	14,50	135	326
6x1,5	15,90	187	411
7x1,5	15,90	201	423
8x1,5	25,90	215	376
9x1,5	16,90	229	419
10x1,5	17,30	242	378
12x1,5	18,10	286	425
14x1,5	18,90	314	467
16x1,5	19,90	359	512
18x1,5	21,00	387	566
19x1,5	21,00	401	551
20x1,5	21,00	415	596
21x1,5	22,10	429	630
24x1,5	24,50	488	722
25x1,5	24,50	502	736
27x1,5	24,90	530	774
30x1,5	26,00	597	846

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
32x1,5	27,00	616	893
36x1,5	27,90	681	968
37x1,5	27,90	681	982
40x1,5	29,20	737	1062
42x1,5	30,40	790	1113
48x1,5	32,10	874	1244
60x1,5	35,00	1066	1490
1x2,5	6,90	44	83
2x2,5	13,10	100	275
3x2,5	13,70	129	307
4x2,5	14,70	155	358
5x2,5	16,40	263	450
6x2,5	17,40	243	509
7x2,5	17,40	266	529
8x2,5	17,80	290	491
9x2,5	19,00	329	450
10x2,5	19,50	352	500
12x2,5	20,40	398	567
14x2,5	21,30	461	628
16x2,5	22,60	508	702
18x2,5	23,70	572	767
19x2,5	23,70	595	789
20x2,5	23,70	618	815
21x2,5	24,90	642	859
24x2,5	27,60	728	983
25x2,5	27,60	751	1007
27x2,5	29,20	807	1063
30x2,5	29,40	876	1164
32x2,5	30,50	948	1229
36x2,5	31,60	1041	1340
37x2,5	31,60	1039	1364
40x2,5	33,10	1134	1475
42x2,5	34,40	1206	1546
48x2,5	36,30	1346	1735
1x4	7,40	63	103
2x4	14,10	128	334
3x4	14,80	180	382
4x4	16,50	253	498
5x4	17,70	297	562
1x6	8,00	82	128
2x6	14,90	214	449
3x6	16,60	282	519
4x6	17,90	328	616
5x6	19,60	408	715
1x10	9,10	124	179
2x10	17,60	289	487
3x10	18,70	413	699
4x10	20,30	493	845
5x10	22,20	613	985
1x16	10,10	184	242

Cross Section

Configuration / Cross-section (mm²)	Cable Diameter (mm)(±10%)	Copper Weight (kg/km)	Cable Weight (kg/km)
2x16	19,80	417	779
3x16	20,90	599	934
4x16	22,90	734	1145
5x16	25,00	910	1350
1x25	12,00	278	354
2x25	23,40	618	1112
3x25	24,80	870	1327
4x25	27,30	1112	1678
5x25	30,10	1385	1991
1x35	13,00	379	448
3x35	27,20	1177	1713
4x35	29,90	1511	2124
1x50	15,20	550	630
3x50	31,00	1624	2553
4x50	34,30	2095	2821
1x70	17,30	753	854
3x70	35,80	2211	3101
4x70	40,00	2974	3985
1x95	19,10	1002	1107
3x95	40,30	3058	4114
4x95	44,60	3951	5182
1x120	21,00	1252	1370
3x120	44,30	3807	5060
4x120	49,10	4928	6394
1x150	23,20	1531	1671
3x150	49,10	4695	6205
4x150	54,50	6091	7853
1x185	25,30	1874	2043
3x185	54,30	5707	7629
4x185	60,40	7441	9679
1x240	28,30	2411	2637
3x240	61,00	7311	9844
4x240	67,70	9550	12483

Certificates

TYPE APPROVAL CERTIFICATE
No. ELE037718XT/023

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

Description	ELECTRIC CABLES
Type	FMZXAH 150/250 V
Applicant	2M KABLO SAN. VE TIC. A.S. GAZIOSMANPASA OSB MAH., 4.CADDE, No.18A CERKEZKOY 59500 Tekirdag TURKEY
Manufacturer Place of manufacture	2M KABLO SAN. VE TIC. A.S. GAZIOSMANPASA OSB MAH., 4.CADDE, No.18A CERKEZKOY 59500 Tekirdag TURKEY
Reference standards	IEC 60092-350; IEC 60092-376.

Issued in ISTANBUL on March 29, 2019. This Certificate is valid until August 19, 2023

RINA Services S.p.A.
Cinzar Kuttler

This certificate consists of this page and 1 enclosure

appli**Cable** to life...

2M KABLO

"This document has been prepared for general purpose and covers only performance, weight and dimensions of the cable. Core identification, sheathing colour/markings may be different and can be modified upon request

2M KABLO reserves the rights of changing the specified values and dimensions without any prior notice."

2MKABLO

Head Office
H.Rifat Pasa Mah. Yuzer Havuz Sk. Perpa A Blok
Kat:2 No:9/21-22 Sisli - Istanbul, Turkiye
T: +90 (212) 222 82 50 (Pbx) F: +90 (212) 222 82 53
info@2mkablo.com

Factory
Gaziosmanpaşa OSB Mah. 4. Cadde No:18/A
Cerkezkoy - Tekirdag, Turkiye
T: +90 (282) 758 35 00 (Pbx) F: +90 (282) 758 35 10
info@2mkablo.com

www.2mkablo.com