



**SERTPLUS
CABLE®**



Ship
&
Marine
Cable



SERTPLUS
CABLE®

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SHIP & MARINE
CABLE





GÜÇ

KABLOLARI

POWER CABLE

MGH 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ , GÜÇ KABLOSU HALOGEN-FREE, FLAME RETARDANT, POWER CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır.

Used as fixed installation cables in various electromechanical and electronic equipments, placed deck blow of marine vehicles.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Herhangi bir yangın durumunda sadece alev ile direkt temas eden kısımlar yanarken, alev yürütmeme özelliği sayesinde yangının diğer bölgelere yayılmasını engeller.

Due to its' flame retardant feature, the part which directly contacts with fire will burn but the flame will not spread along the cable length.

Thus it prevents the fire from spreading around.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	DIN 89160 & IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojensizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	DIN 89160 & IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Yalıtkan	HEPR KOMPAUND (sert etilen propilen kauçuk)
Ara Kılıf	HFFR KOMPAUND
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Insulation	HEPR COMPOUND (hard grade ethylene propylene rubber)
Inner Sheath	HFFR COMPOUND
Sheath	HFFR COMPOUND
Sheath Colour	RAL 7001 GREY and BLACK

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120
2x1,5
2x2,5
2x4
2x6
2x10
2x16
3x1,5
3x2,5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
4x1,5
4x2,5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
5x1,5
5x2,5
7x1,5
7x2,5
12x1,5
12x2,5
19x1,5
19x2,5
24x1,5
24x2,5

KABLO ÇAPI (mm)

OVERALL DIAMETER

6,00
6,50
7,40
8,40
10,30
11,40
13,20
15,40
17,20
19,10
10,20
11,00
12,40
13,40
15,40
17,60
10,70
11,80
13,00
14,10
16,30
18,60
22,50
25,00
28,70
33,80
37,80
41,90
11,70
12,70
14,10
15,50
17,90
20,50
24,90
27,70
31,80
37,40
42,20
47,10
12,60
13,70
13,40
14,60
15,40
17,30
18,10
20,30
21,30
23,90

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

67,0
89,0
131,0
188,0
289,0
380,0
517,0
730,0
971,0
1223,0
153,0
188,0
250,0
312,0
441,0
615,0
173,0
224,0
292,0
371,0
539,0
760,0
1146,0
1488,0
1998,0
2827,0
3713,0
4641,0
210,0
266,0
353,0
461,0
672,0
952,0
1445,0
1884,0
2530,0
3579,0
4751,0
5986,0
237,0
302,0
283,0
367,0
351,0
490,0
512,0
722,0
652,0
917,0

M2XH 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ , GÜÇ KABLOSU HALOGEN-FREE, FLAME RETARDANT, POWER CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır.

Used as fixed installation cables in various electromechanical and electronic equipments, placed deck blow of marine vehicles.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Halojensiz olması, düşük duman yoğunluğu ve alev iletme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler. Böylece insan sağlığını ve değerli ekipmanı korur.

Due to its' halogen-free, low smoke density and flame retardant features, it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around. Thus it protects human life and equipment, during a fire.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojensizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Yalıtkan	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Ara Kılıf	POLYESTER BANT VEYA HFFR KOMPAUND
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Insulation	XLPE (CROSS LINKED POLYETHYLENE)COMPOUND
Inner Sheath	POLYESTER TAPE OR HFFR COMPOUND
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 7001 GREY and BLACK

DAMARSAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120
2x1,5
2x2,5
2x4
2x6
2x10
2x16
3x1,5
3x2,5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
4x1,5
4x2,5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
5x1,5
5x2,5
7x1,5
7x2,5
12x1,5
12x2,5
19x1,5
19x2,5
24x1,5
24x2,5

KABLO ÇAPI (mm)

OVERALL DIAMETER

6,00
6,50
7,40
8,40
10,30
11,40
13,20
15,40
17,20
19,10
8,50
9,30
10,50
11,70
13,50
15,70
9,00
9,90
11,30
12,40
14,60
16,90
22,30
24,80
28,50
33,60
37,60
42,10
9,80
10,80
12,40
13,60
16,00
18,60
24,70
27,50
32,00
37,20
42,40
46,90
10,70
12,00
11,70
12,90
15,40
17,30
18,10
20,30
21,30
23,90

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

67,0
89,0
131,0
188,0
289,0
380,0
517,0
730,0
971,0
1223,0
79,0
102,0
139,0
188,0
274,0
401,0
101,0
133,0
191,0
254,0
386,0
569,0
1132,0
1473,0
1980,0
2806,0
3689,0
4661,0
124,0
166,0
241,0
323,0
495,0
739,0
1429,0
1866,0
2546,0
3555,0
4772,0
5956,0
151,0
210,0
195,0
267,0
318,0
448,0
475,0
674,0
602,0
854,0

MGH-FE180 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ, YANMAZ, GÜÇ KABLOSU HALOGEN-FREE, FIRE RESISTANT, FLAME RETARDANT, POWER CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır. Yangın anında dahi çalışmaya devam etmesi gereken noktalarda sabit bağlantı kablosu olarak kullanılır.

Used on marine vehicles as fixed installation cables of various electromechanical and electronic equipments, where sustainable connection during fire is required.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Direkt alevle temas etmesi durumunda dahi 180dk boyunca sağlıklı bir şekilde çalışmaya devam eder. Bu sayede herhangi bir yangın durumunda önemli ekipmanın (yangın uyarı ve söndürme sistemleri, su pompaları, haberleşme telsiz, kumanda sistemleri, aydınlatma, vb.) çalışmaya devam etmesini sağlar. Ayrıca, halojensiz olması düşük duman yoğunluğu ve alev iletmeme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler.

Böylece insan sağlığını ve değerli ekipmanı korur.

Even at direct contact with fire, it will sustain the connection for 180min. That provides necessary equipment (fire alarm and extinguishing systems, water pumps, communication, radio, control systems, lightning, etc.) to work uninterrupted during a fire. Due to its' halogen-free, low smoke density and flame retardant features it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around.

Thus it protects human life and equipment, during a fire.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	DIN 89160 & IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojensizlik Test	IEC 60754-1	EN 50267-2
Devre Bütünlüğü FE 180 Dakika	IEC 60331-21	

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	DIN 89160 & IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2
Insulation Continuity Test (FE-180 Min)	IEC 60331-21	

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Ayırıcı	Mika Bant
Yalıtkan	HEPR KOMPAUND (sert etilen propilen kauçuk)
Ara Kılıf	HFFR KOMPAUND
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 6001 YEŞİL VEYA RAL 2004 TURUNCU

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Seperator	MICA TAPE
Insulation	HEPR COMPOUND (hard grade ethylene propylene rubber)
Inner Sheath	HFFR COMPOUND
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 6001 GREEN AND RAL 2004 ORANGE

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120
2x1,5
2x2,5
2x4
2x6
2x10
2x16
3x1,5
3x2,5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
4x1,5
4x2,5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
5x1,5
5x2,5
7x1,5
7x2,5
12x1,5
12x2,5
19x1,5
19x2,5
24x1,5
24x2,5

KABLO ÇAPI (mm)

OVERALL DIAMETER

6,00
6,50
7,40
8,40
10,30
11,40
13,20
15,40
17,20
19,10
10,20
11,00
12,40
13,40
15,40
17,60
10,70
11,80
13,00
14,10
16,30
18,60
22,50
25,00
28,70
33,80
37,80
41,90
11,70
12,70
14,10
15,50
17,90
20,50
24,90
27,70
31,80
37,40
42,20
47,10
12,60
13,70
13,40
14,60
15,40
17,30
18,10
20,30
21,30
23,90

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

67,0
89,0
131,0
188,0
289,0
380,0
517,0
730,0
971,0
1223,0
153,0
188,0
250,0
312,0
441,0
615,0
173,0
224,0
292,0
371,0
539,0
760,0
1146,0
1488,0
1998,0
2827,0
3713,0
4641,0
210,0
266,0
353,0
461,0
672,0
952,0
1445,0
1884,0
2530,0
3579,0
4751,0
5986,0
237,0
302,0
283,0
367,0
351,0
490,0
512,0
722,0
652,0
917,0

M2XH-FE 180 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ, YANMAZ, GÜÇ KABLOSU HALOGEN-FREE, FIRE RESISTANT, FLAME RETARDANT, POWER CABLE

KULLANIM ALANLARI / APPLICATION

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Yangın anında dahi çalışmaya devam etmesi gereken noktalarda sabit bağlantı kablosu olarak kullanılır.

Used on marine vehicles as fixed installation cables of various electromechanical and electronic equipments, where sustainable connection during fire is required.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Direkt alevle temas etmesi durumunda dahi 180dk boyunca sağlıklı bir şekilde çalışmaya devam eder. Bu sayede herhangi bir yangın durumunda önemli ekipmanın (yangın uyarı ve söndürme sistemleri, su pompaları, haberleşme telsiz, kumanda sistemleri, aydınlatma, vb.) çalışmaya devam etmesini sağlar. Ayrıca, halojensiz olması düşük duman yoğunluğu ve alev iletmeme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler.
Böylece insan sağlığını ve değerli ekipmanı korur.

Even at direct contact with fire, it will sustain the connection for 180min. That provides necessary equipment (fire alarm and extinguishing systems, water pumps, communication, radio, control systems, lightning, etc.) to work uninterrupted during a fire. Due to its' halogen-free, low smoke density and flame retardant features it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around.
Thus it protects human life and equipment, during a fire.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojensizlik Testi	IEC 60754-1	EN 50267-2
Devre Bütünlüğü FE 180 Dakika	IEC 60331-21	

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2
Insulation Continuity Test (FE-180 Min)	IEC 60331-21	

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Ayırıcı	Mika Bant
Yalıtkan	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Ara Kılıf	POLYESTER BANT VEYA HFFR KOMPAUND
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 6001 YEŞİL VEYA RAL 2004 TURUNCU

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Seperator	MICA TAPE
Insulation	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Inner Sheath	POLYESTER BANT VEYA HFFR KOMPAUND
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 6001 GREEN AND RAL 2004 ORANGE

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120
2x1,5
2x2,5
2x4
2x6
2x10
2x16
3x1,5
3x2,5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
4x1,5
4x2,5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
5x1,5
5x2,5
7x1,5
7x2,5
12x1,5
12x2,5
19x1,5
19x2,5
24x1,5
24x2,5

KABLO ÇAPI (mm)

OVERALL DIAMETER

6,00
6,50
7,40
8,40
10,30
11,40
13,20
15,40
17,20
19,10
8,50
9,30
10,50
11,70
13,50
15,70
9,00
9,90
11,30
12,40
14,60
16,90
22,30
24,80
28,50
33,60
37,60
42,10
9,80
10,80
12,40
13,60
16,00
18,60
24,70
27,50
32,00
37,20
42,40
46,90
10,70
12,00
11,70
12,90
15,40
17,30
18,10
20,30
21,30
23,90

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

67,0
89,0
131,0
188,0
289,0
380,0
517,0
730,0
971,0
1223,0
79,0
102,0
139,0
188,0
274,0
401,0
101,0
133,0
191,0
254,0
386,0
569,0
1132,0
1473,0
1980,0
2806,0
3689,0
4661,0
124,0
166,0
241,0
323,0
495,0
739,0
1429,0
1866,0
2546,0
3555,0
4772,0
5956,0
151,0
210,0
195,0
267,0
318,0
448,0
475,0
674,0
602,0
854,0

MGCH 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ ,EKRANLI GÜÇ KABLOSU HALOGEN-FREE, FLAME RETARDANT, SCREENED POWER CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır.
Ekranlı olması sebebiyle dış etkilerden korunur.

Used on marine vehicles as fixed installation cables of various electromechanical and electronic equipments, where sustainable connection during fire is required.
Due to its' overall screen the electromagnetic interference is minimized.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Herhangi bir yangın durumunda sadece alev ile direkt temas eden kısımlar yanarken, alev yürütmeme özelliği sayesinde yangının diğer bölgelere yayılmasını engeller.

Due to its' flame retardant feature, the part which directly contacts with fire will burn but the flame will not spread along the cable length.
Thus it prevents the fire from spreading around.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
EMC	Elektromanyetik Uyumlu	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	DIN 89158 & IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojensizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
EMC	Electromagnetic Compatibility	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	DIN 89158 & IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Yalıtkan	HEPR KOMPAUND (sert etilen propilen kauçuk)
Ara Kılıf	HFFR KOMPAUND
Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Insulation	HEPR COMPOUND (hard grade ethylene propylene rubber)
Inner Sheath	HFFR COMPOUND
Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 7001 GREY and BLACK

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120
2x1,5
2x2,5
2x4
2x6
2x10
2x16
3x1,5
3x2,5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
4x1,5
4x2,5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
5x1,5
5x2,5
7x1,5
7x2,5
12x1,5
12x2,5
19x1,5
19x2,5
24x1,5
24x2,5

KABLO ÇAPI (mm)

OVERALL DIAMETER

7,20
7,70
8,80
9,80
11,70
12,80
15,00
17,20
19,00
20,90
11,60
12,40
13,60
15,20
17,00
19,20
12,10
13,00
14,20
15,90
18,10
20,20
24,30
26,80
30,50
35,60
40,00
44,10
12,90
13,90
15,90
17,10
19,50
22,10
26,70
29,50
33,60
39,60
44,40
48,90
13,80
15,50
15,20
16,40
16,30
18,10
19,70
21,90
22,90
25,50

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

99,0
123,0
174,0
237,0
350,0
448,0
628,0
859,0
1116,0
1384,0
213,0
253,0
317,0
424,0
562,0
754,0
237,0
287,0
362,0
490,0
676,0
907,0
1337,0
1700,0
2241,0
3113,0
4128,0
5100,0
272,0
334,0
472,0
583,0
813,0
1114,0
1655,0
2118,0
2800,0
3989,0
5214,0
6445,0
305,0
418,0
395,0
490,0
397,0
535,0
562,0
766,0
610,0
835,0

M2XCH 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ ,EKRANLI GÜÇ KABLOSU HALOGEN-FREE, FLAME RETARDANT, SCREENED POWER CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır.
Ekranlı olması sebebiyle dış etkilerden korunur.

Used on marine vehicles as fixed installation cables of various electromechanical and electronic equipments, where sustainable connection during fire is required.
Due to its' overall screen the electromagnetic interference is minimized.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Halojensiz olması, düşük duman yoğunluğu ve alev iletme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüntü kapatmaz ve yangının yayılmasını önler. Böylece insan sağlığını ve değerli ekipmanı korur.

Due to its' halogen-free, low smoke density and flame retardant features, it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around. Thus it protects human life and equipment, during a fire.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
EMC	Elektromanyetik Uyumlu	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojensizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
EMC	Electromagnetic Compatibility	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Yalıtkan	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Ara Kılıf	POLYESTER BANT VEYA HFFR KOMPAUND
Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Insulation	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Inner Sheath	POLYESTER BANT VEYA HFFR KOMPAUND
Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 7001 GREY and BLACK

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120
2x1,5
2x2,5
2x4
2x6
2x10
2x16
3x1,5
3x2,5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
4x1,5
4x2,5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
5x1,5
5x2,5
7x1,5
7x2,5
12x1,5
12x2,5
19x1,5
19x2,5
24x1,5
24x2,5

KABLO ÇAPI (mm)

OVERALL DIAMETER

7,20
7,70
8,80
9,80
11,70
12,80
15,00
17,20
19,00
20,90
11,60
12,40
13,60
15,20
17,00
19,20
12,10
13,00
14,20
15,90
18,10
20,20
24,30
26,80
30,50
35,60
40,00
44,10
12,90
13,90
15,90
17,10
19,50
22,10
26,70
29,50
33,60
39,60
44,40
48,90
13,80
15,50
15,20
16,40
16,30
18,10
19,70
21,90
22,90
25,50

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

99,0
123,0
174,0
237,0
350,0
448,0
628,0
859,0
1116,0
1384,0
213,0
253,0
317,0
424,0
562,0
754,0
237,0
287,0
362,0
490,0
676,0
907,0
1337,0
1700,0
2241,0
3113,0
4128,0
5100,0
272,0
334,0
472,0
583,0
813,0
1114,0
1655,0
2118,0
2800,0
3989,0
5214,0
6445,0
305,0
418,0
395,0
490,0
397,0
535,0
562,0
766,0
610,0
835,0

MGCH-FE 180 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ, YANMAZ, EKRANLI GÜÇ KABLOSU HALOGEN-FREE, FIRE RESISTANT, FLAME RETARDANT, SCREENED POWER CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır. Yangın anında dahi çalışmaya devam etmesi gereken noktalarda sabit bağlantı kablosu olarak kullanılır. Ekranlı olması sebebiyle dış etkilerden korunur.

Used on marine vehicles as fixed installation cables of various electromechanical and electronic equipments, where sustainable connection during fire is required. Due to its' overall screen the electromagnetic interference is minimized.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Direkt alevle temas etmesi durumunda dahi 180dk boyunca sağlıklı bir şekilde çalışmaya devam eder. Bu sayede herhangi bir yangın durumunda önemli ekipmanın (yangın uyarı ve söndürme sistemleri, su pompaları, haberleşme telsiz, kumanda sistemleri, aydınlatma, vb.) çalışmaya devam etmesini sağlar. Ayrıca, halojensiz olması düşük duman yoğunluğu ve alev iletmeme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler. Böylece insan sağlığını ve değerli ekipmanı korur.

Even at direct contact with fire, it will sustain the connection for 180min. That provides necessary equipment (fire alarm and extinguishing systems, water pumps, communication, radio, control systems, lightning, etc.) to work uninterrupted during a fire. Due to its' halogen-free, low smoke density and flame retardant features it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around. Thus it protects human life and equipment, during a fire.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm
EMC	Elektromanyetik Uyumlu
Çalışma Sıcaklığı	- 5°C +50°C Hareketli 30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V 1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V 1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C
Üretim Standardı	DIN 89158 & IEC 6092/353
Alev Geciktiricilik Testi	IEC 60332-3-22 EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2 EN 61034-2
Halojensizlik Test	IEC 60754-1 EN 50267-2
Devre Bütünlüğü FE 180 Dakika	IEC 60331-21

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm
EMC	Electromagnetic Compatibility
Temperature Range	- 5°C +50°C Mobile 30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V 1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V 1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C
Production Standard	DIN 89158 & IEC 6092/353
Flame Retardant Test	IEC 60332-3-22 EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2 EN 61034-2
Halogen Free Test	IEC 60754-1 EN 50267-2
Insulation Continuity Test (FE-180 Min)	IEC 60331-21

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Ayırıcı	MİKA BANT
Yalıtkan	HEPR KOMPAUND (sert etilen propilen kauçuk)
Ara Kılıf	HFFR KOMPAUND
Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 6001 YEŞİL VEYA RAL 2004 TURUNCU

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Separator	MICA TAPE
Insulation	HEPR COMPOUND (hard grade ethylene propylene rubber)
Inner Sheath	HFFR COMPOUND
Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 6001 GREEN AND RAL 2004 ORANGE

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120
2x1,5
2x2,5
2x4
2x6
2x10
2x16
3x1,5
3x2,5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
4x1,5
4x2,5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
5x1,5
5x2,5
7x1,5
7x2,5
12x1,5
12x2,5
19x1,5
19x2,5
24x1,5
24x2,5

KABLO ÇAPI (mm)

OVERALL DIAMETER

7,20
7,70
8,80
9,80
11,70
12,80
15,00
17,20
19,00
20,90
11,60
12,40
13,60
15,20
17,00
19,20
12,10
13,00
14,20
15,90
18,10
20,20
24,30
26,80
30,50
35,60
40,00
44,10
12,90
13,90
15,90
17,10
19,50
22,10
26,70
29,50
33,60
39,60
44,40
48,90
13,80
15,50
15,20
16,40
16,30
18,10
19,70
21,90
22,90
25,50

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

99,0
123,0
174,0
237,0
350,0
448,0
628,0
859,0
1116,0
1384,0
213,0
253,0
317,0
424,0
562,0
754,0
237,0
287,0
362,0
490,0
676,0
907,0
1337,0
1700,0
2241,0
3113,0
4128,0
5100,0
272,0
334,0
472,0
583,0
813,0
1114,0
1655,0
2118,0
2800,0
3989,0
5214,0
6445,0
305,0
418,0
395,0
490,0
397,0
535,0
562,0
766,0
610,0
835,0

M2XCH-FE 180 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ, YANMAZ, EKRANLI GÜÇ KABLOSU HALOGEN-FREE, FIRE RESISTANT, FLAME RETARDANT, SCREENED POWER CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır. Yangın anında dahi çalışmaya devam etmesi gereken noktalarda sabit bağlantı kablosu olarak kullanılır. Ekranlı olması sebebiyle dış etkilerden korunur.

Used on marine vehicles as fixed installation cables of various electromechanical and electronic equipments, where sustainable connection during fire is required. Due to its' overall screen the electromagnetic interference is minimized.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Direkt alevle temas etmesi durumunda dahi 180dk boyunca sağlıklı bir şekilde çalışmaya devam eder. Bu sayede herhangi bir yangın durumunda önemli ekipmanın (yangın uyarı ve söndürme sistemleri, su pompaları, haberleşme telsiz, kumanda sistemleri, aydınlatma, vb.) çalışmaya devam etmesini sağlar. Ayrıca, halojensiz olması düşük duman yoğunluğu ve alev iletmeme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler. Böylece insan sağlığını ve değerli ekipmanı korur.

Even at direct contact with fire, it will sustain the connection for 180min. That provides necessary equipment (fire alarm and extinguishing systems, water pumps, communication, radio, control systems, lightning, etc.) to work uninterrupted during a fire. Due to its' halogen-free, low smoke density and flame retardant features it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around. Thus it protects human life and equipment, during a fire.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
EMC	Elektromanyetik Uyumlu	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojensizlik Test	IEC 60754-1	EN 50267-2
Devre Bütünlüğü FE 180 Dakika	IEC 60331-21	

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
EMC	Electromagnetic Compatibility	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2
Insulation Continuity Test (FE-180 Min)	IEC 60331-21	

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Ayırıcı	MİKA BANT
Yalıtkan	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Ara Kılıf	POLYESTER BANT VEYA HFFR KOMPAUND
Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 6001 YEŞİL VEYA RAL 2004 TURUNCU

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Separator	MICA TAPE
Insulation	XLPE (CROSS LINKED POLYETHYLENE)COMPOUND
Inner Sheath	POLYESTER TAPE OR HFFR COMPOUND
Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 6001 GREEN AND RAL 2004 ORANGE

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120
2x1,5
2x2,5
2x4
2x6
2x10
2x16
3x1,5
3x2,5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
4x1,5
4x2,5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
5x1,5
5x2,5
7x1,5
7x2,5
12x1,5
12x2,5
19x1,5
19x2,5
24x1,5
24x2,5

KABLO ÇAPI (mm)

OVERALL DIAMETER

7,20
7,70
8,80
9,80
11,70
12,80
15,00
17,20
19,00
20,90
11,60
12,40
13,60
15,20
17,00
19,20
12,10
13,00
14,20
15,90
18,10
20,20
24,30
26,80
30,50
35,60
40,00
44,10
12,90
13,90
15,90
17,10
19,50
22,10
26,70
29,50
33,60
39,60
44,40
48,90
13,80
15,50
15,20
16,40
16,30
18,10
19,70
21,90
22,90
25,50

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

99,0
123,0
174,0
237,0
350,0
448,0
628,0
859,0
1116,0
1384,0
213,0
253,0
317,0
424,0
562,0
754,0
237,0
287,0
362,0
490,0
676,0
907,0
1337,0
1700,0
2241,0
3113,0
4128,0
5100,0
272,0
334,0
472,0
583,0
813,0
1114,0
1655,0
2118,0
2800,0
3989,0
5214,0
6445,0
305,0
418,0
395,0
490,0
397,0
535,0
562,0
766,0
610,0
835,0

MGCH-EMC 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ, EKSPANLI GÜÇ KABLOSU HALOGEN-FREE, FLAME RETARDANT, SCREENED POWER CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır.
Ekranlı olması sebebiyle dış etkilerden korunur.

Used as fixed installation cables in various electromechanical and electronic equipments of marine vehicles.
Due to its' overall screen, environmental electromagnetic interference is minimized.
From external influences due to be screened and protected

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Herhangi bir yangın durumunda sadece alev ile direkt temas eden kısımlar yanarken, alev yürütmeme özelliği sayesinde yangının diğer bölgelere yayılmasını engeller.

Due to its' flame retardant feature, the part which directly contacts with fire will burn but the flame will not spread along the cable length. Thus it prevents the fire from spreading around.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
EMC	Elektromanyetik Uyumlu	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	DIN 89158 & IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojenizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
EMC	Electromagnetic Compatibility	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	DIN 89158 & IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Yalıtkan	HEPR KOMPAUND (sert etilen propilen kauçuk)
Ara Kılıf	HFFR KOMPAUND
1.Ekran	% 100 KAPATMALI BAKIR BANT
2.Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Insulation	HEPR COMPOUND (hard grade ethylene propylene rubber)
Inner Sheath	HFFR COMPOUND
1. Screen	100% CLOSED COPPER TAPE
2. Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 7001 GREY and BLACK

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120
2x1,5
2x2,5
2x4
2x6
2x10
2x16
3x1,5
3x2,5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
4x1,5
4x2,5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
5x1,5
5x2,5
7x1,5
7x2,5
12x1,5
12x2,5
19x1,5
19x2,5
24x1,5
24x2,5

KABLO ÇAPI (mm)

OVERALL DIAMETER

7,60
8,10
9,20
10,20
12,10
13,20
15,40
17,60
19,40
21,30
12,00
12,80
14,00
15,60
17,40
19,60
12,50
13,40
14,60
16,30
18,50
20,60
24,70
27,20
30,90
36,00
40,40
44,50
13,30
14,30
16,30
17,50
19,90
22,50
27,10
29,90
34,00
40,00
44,80
49,30
14,20
15,90
15,60
16,80
16,70
18,50
20,10
22,30
23,30
25,90

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

99,0
123,0
174,0
237,0
350,0
448,0
628,0
859,0
1116,0
1384,0
213,0
253,0
317,0
424,0
562,0
754,0
237,0
287,0
362,0
490,0
676,0
907,0
1337,0
1700,0
2241,0
3113,0
4128,0
5100,0
272,0
334,0
472,0
583,0
813,0
1114,0
1655,0
2118,0
2800,0
3989,0
5214,0
6445,0
305,0
418,0
395,0
490,0
397,0
535,0
562,0
766,0
610,0
835,0

M2XCH-EMC 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ, EKSPANLI GÜÇ KABLOSU HALOGEN-FREE, FLAME RETARDANT, SCREENED POWER CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır.
Ekranlı olması sebebiyle dış etkilerden korunur.

Used as fixed installation cables in various electromechanical and electronic equipments of marine vehicles.
Due to its' overall screen, environmental electromagnetic interference is minimized.
From external influences due to be screened and protected

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Halojensiz olması, düşük duman yoğunluğu ve alev iletme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler. Böylece insan sağlığını ve değerli ekipmanı korur..

Due to its' halogen-free, low smoke density and flame retardant features, it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around. Thus it protects human life and equipment, during a fire.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
EMC	Elektromanyetik Uyumlu	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojensizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
EMC	Electromagnetic Compatibility	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Yalıtkan	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Ara Kılıf	POLYESTER BANT VEYA HFFR KOMPAUND
1.Ekran	% 100 KAPATMALI BAKIR BANT
2.Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Insulation	XLPE (CROSS LINKED POLYETHYLENE)COMPOUND
Inner Sheath	POLYESTER TAPE OR HFFR COMPOUND
1. Screen	100% CLOSED COPPER TAPE
2. Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 7001 GREY and BLACK

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

KABLO ÇAPI (mm)

OVERALL DIAMETER

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

1x4	7,60	99,0
1x6	8,10	123,0
1x10	9,20	174,0
1x16	10,20	237,0
1x25	12,10	350,0
1x35	13,20	448,0
1x50	15,40	628,0
1x70	17,60	859,0
1x95	19,40	1116,0
1x120	21,30	1384,0
2x1,5	12,00	213,0
2x2,5	12,80	253,0
2x4	14,00	317,0
2x6	15,60	424,0
2x10	17,40	562,0
2x16	19,60	754,0
3x1,5	12,50	237,0
3x2,5	13,40	287,0
3x4	14,60	362,0
3x6	16,30	490,0
3x10	18,50	676,0
3x16	20,60	907,0
3x25	24,70	1337,0
3x35	27,20	1700,0
3x50	30,90	2241,0
3x70	36,00	3113,0
3x95	40,40	4128,0
3x120	44,50	5100,0
4x1,5	13,30	272,0
4x2,5	14,30	334,0
4x4	16,30	472,0
4x6	17,50	583,0
4x10	19,90	813,0
4x16	22,50	1114,0
4x25	27,10	1655,0
4x35	29,90	2118,0
4x50	34,00	2800,0
4x70	40,00	3989,0
4x95	44,80	5214,0
4x120	49,30	6445,0
5x1,5	14,20	305,0
5x2,5	15,90	418,0
7x1,5	15,60	395,0
7x2,5	16,80	490,0
12x1,5	16,70	397,0
12x2,5	18,50	535,0
19x1,5	20,10	562,0
19x2,5	22,30	766,0
24x1,5	23,30	610,0
24x2,5	25,90	835,0

M2X 600/1000 V



HALOJENSİZ, ALEV YÜRÜTMEZ, PANO KABLOSU HALOGEN-FREE, FLAME RETARDANT, PANEL CABLE

KULLANIM ALANLARI / APPLICATION

Elektromekanik, elektronik cihazlarda ve panolarda sabit bağlantı kablosu olarak kullanılır.
Gemi panolarında kullanılabilir.

Used as fixed installation cables in various electromechanical and electronic equipments.
It can be used on ship boards.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations.

GÜVENLİK / SAFETY

Halojensiz olması, düşük duman yoğunluğu ve alev iletmeme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler. Böylece insan sağlığını ve değerli ekipmanı korur.

Due to its' halogen-free, low smoke density and flame retardant features, it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around. Thus it protects human life and equipment, during a fire.

KABLOYAPISI

İletken
Yalıtkan
Kılıf Rengi

TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Halojensiz, alev iletmeyen, çapraz bağlı poliolefin bileşik (HF90)
RAL 9005 Siyah (diğer renkler isteğe bağlı)

CONSTRUCTION

Conductor
Insulation
Sheath Colour

ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 5 and 2 CONDUCTOR
Halogen free, flame retardant, crosslinked polyolefin compound (HF90).
RAL 9005 Black (other colors available on request)

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Bükülme Yarıçapı	6 x D mm	
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	IEC 6092/353	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojenizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Bending Radius	6 x D mm	
Short-Circuit Temperature Max.	250 °C	
Production Standard	IEC 6092/353	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x1,0
1x1,50
1x2,50
1x4
1x6
1x10
1x16
1x25
1x35
1x50
1x70
1x95
1x120

KABLO ÇAPI (mm)

OVERALL DIAMETER

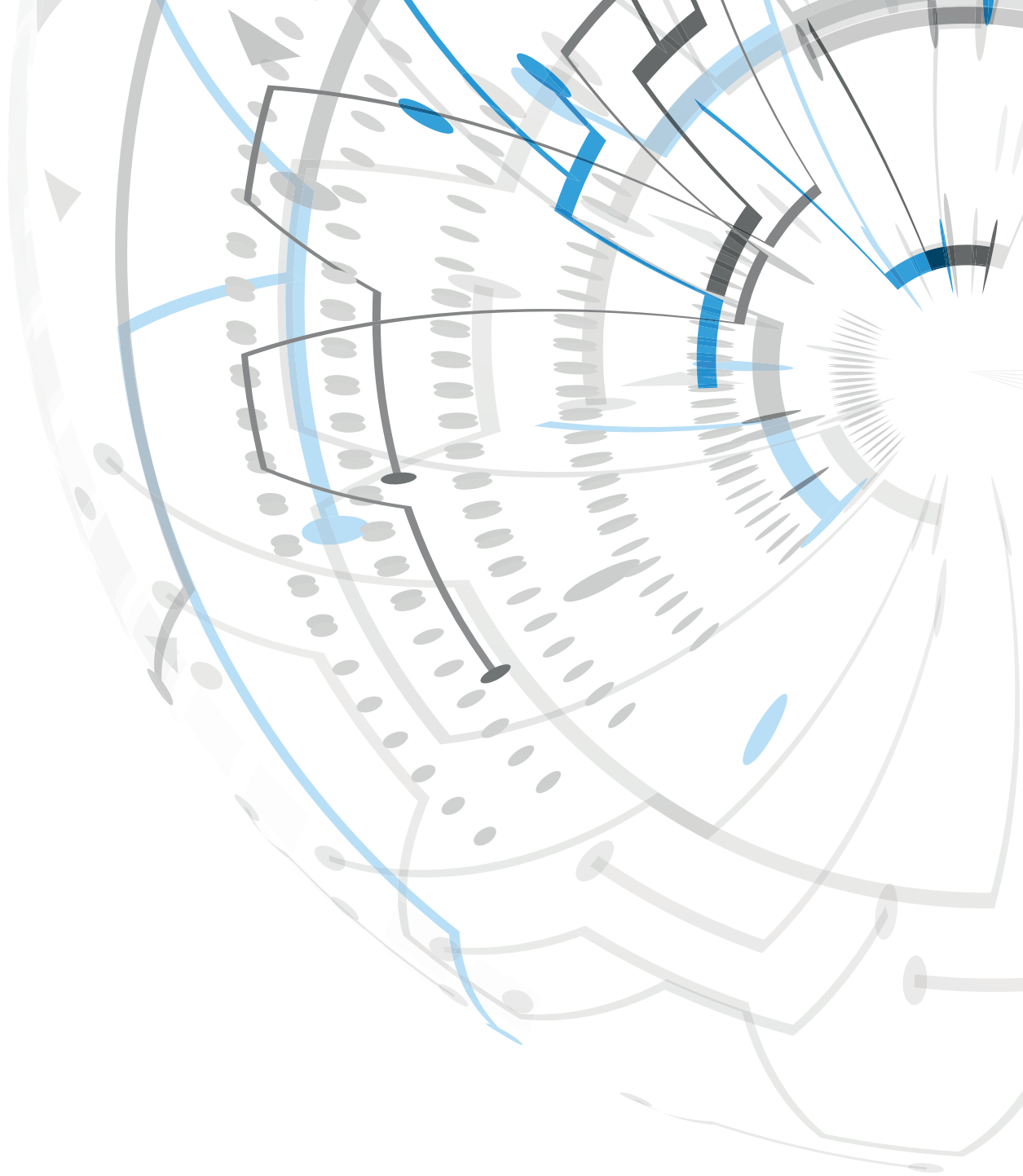
2,70
3,00
3,40
4,00
4,50
5,60
6,70
8,60
9,80
11,60
13,80
15,30
17,20

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

15,0
20,0
29,0
44,0
61,0
103,0
155,0
243,0
330,0
468,0
685,0
864,0
1099,0

SHIP & MARINE CABLE





HABERLEŐME

ve
SİNYAL

KABLOLARI

COMMUNICATION &
SIGNAL CABLES

FMGCH 150/250 V



HALOJENSİZ, ALEV YÜRÜTMİYEN, EKSPANLI HABERLEŞME VE SİNYAL KABLOSU HALOGEN - FREE, FLAME RETARDANT, SCREENED COMMUNICATION & SIGNAL CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında telsiz, radar ve bilgi iletim sistemlerinin, ölçüm, haberleşme ve kontrol kablosu olarak kullanılır. Bükülü perler yüksek frekanslı sinyallerin sağlıklı iletimini mümkün kılarken, ortak ekranlı olması sayesinde de çevresel elektromanyetik etkilenme minimuma indirilmiştir.

Used as control and communication cables in radio, radar and information systems of marine vehicles Its' twisted pairs enables proper transmission of high frequency signals, while its' overall screen minimizes environmental electromagnetic interference.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında, gemilerin makine dairesinde, elektromanyetik koruma gereken bölgelerde kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations, inside the engine room, where electromagnetic protection is required as well.

GÜVENLİK / SAFETY

Herhangi bir yangın durumunda sadece alev ile direkt temas eden kısımlar yanarken, alev yürütmeme özelliği sayesinde yangının diğer bölgelere yayılmasını engeller.

Due to its' flame retardant feature, the part which directly contacts with fire will burn but the flame will not spread along the cable length. Thus it prevents the fire from spreading around.

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Ayırıcı	POLYESTER BANT
Yalıtkan	HEPR KOMPAUND (sert etilen propilen kauçuk)
Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Separator	POLYESTER TAPE
Insulation	HEPR COMPOUND (hard grade ethylene propylene rubber)
Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 7001 GREY and BLACK

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
EMC	Elektromanyetik Uyumlu	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	
Test Voltajı	0,50-0,75 mm ² 1200 V	
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	DIN 89159 & IEC 6092/375-3763	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojenizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
EMC	Electromagnetic Compatibility	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	
Test Voltage	0,50-0,75 mm ² 1200 V	
Short-Circuit Temperature Max.	250 °C	
Production Standard	DIN 89159 & IEC 6092/375-376	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x2x0,50
2x2x0,50
4x2x0,50
5x2x0,50
7x2x0,50
10x2x0,50
12x2x0,50
19x2x0,50
24x2x0,50
1x2x0,75
2x2x0,75
4x2x0,75
5x2x0,75
7x2x0,75
10x2x0,75
12x2x0,75
19x2x0,75
24x2x0,75

KABLO ÇAPI (mm)

OVERALL DIAMETER

7,60
8,40
12,50
13,70
14,80
17,90
18,80
22,70
25,10
8,20
10,60
13,70
15,10
16,30
19,80
20,90
25,20
28,00

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

74,0
105,0
178,0
211,0
253,0
359,0
407,0
573,0
691,0
87,0
135,0
217,0
259,0
315,0
448,0
512,0
731,0
888,0

FM2XCH 150/250 V



HALOJENSİZ, ALEV YÜRÜTMİYEN, EKLANLI HABERLEŞME VE SİNYAL KABLOSU HALOGEN - FREE, FLAME RETARDANT, SCREENED COMMUNICATION & SIGNAL CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında telsiz, radar ve bilgi iletim sistemlerinin, ölçüm, haberleşme ve kontrol kablosu olarak kullanılır. Bükülü perler yüksek frekanslı sinyallerin sağlıklı iletimini mümkün kılarken, ortak ekranlı olması sayesinde de çevresel elektromanyetik etkilenme minimuma indirilmiştir.

Used as control and communication cables in radio, radar and information systems of marine vehicles Its' twisted pairs enables proper transmission of high frequency signals, while its' overall screen minimizes environmental electromagnetic interference.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında, gemilerin makine dairesinde, elektromanyetik koruma gereken bölgelerde kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations, inside the engine room, where electromagnetic protection is required as well.

GÜVENLİK / SAFETY

Halojensiz olması, düşük duman yoğunluğu ve alev iletmeme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler. Böylece insan sağlığını ve değerli ekipmanı korur.

Due to its' halogen-free, low smoke density and flame retardant features, it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around. Thus it protects human life and equipment, during a fire.

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Yalıtkan	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Ayırıcı	POLYESTER BANT
Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Insulation	XLPE (CROSS LINKED POLYETHYLENE)COMPOUND
Separator	POLYESTER TAPE
Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 7001 GREY and BLACK

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
EMC	Elektromanyetik Uyumlu	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	
Test Voltajı	0,50-0,75 mm ² 1200 V	
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	IEC 6092/375-376	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojenizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
EMC	Electromagnetic Compatibility	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	
Test Voltage	0,50-0,75 mm ² 1200 V	
Short-Circuit Temperature Max.	250 °C	
Production Standard	IEC 6092/375-376	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

KABLO ÇAPI (mm)

OVERALL DIAMETER

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

1x2x0,50	7,60	74,0
2x2x0,50	8,40	105,0
4x2x0,50	12,50	178,0
5x2x0,50	13,70	211,0
7x2x0,50	14,80	253,0
10x2x0,50	17,90	359,0
12x2x0,50	18,80	407,0
19x2x0,50	22,70	573,0
24x2x0,50	25,10	691,0
1x2x0,75	8,20	87,0
2x2x0,75	10,60	135,0
4x2x0,75	13,70	217,0
5x2x0,75	15,10	259,0
7x2x0,75	16,30	315,0
10x2x0,75	19,80	448,0
12x2x0,75	20,90	512,0
19x2x0,75	25,20	731,0
24x2x0,75	28,00	888,0

FMGCH-FE 180 150/250 V



HALOJENSİZ, ALEV YÜRÜTMİYEN, YANMAZ, EKSPANLI HABERLEŞME VE SİNYAL KABLOSU HALOGEN - FREE, FIRE , FLAME RETARDANT, SCREENED COMMUNICATION & SIGNAL CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında telsiz, radar ve bilgi iletim sistemlerinin, ölçüm, haberleşme ve kontrol kablosu olarak kullanılır. Bükülü perler yüksek frekanslı sinyallerin sağlıklı iletimini mümkün kılarken, ortak ekranlı olması sayesinde de çevresel elektromanyetik etkilenme minimuma indirilmiştir.

Used as control and communication cables in radio, radar and information systems of marine vehicles Its' twisted pairs enables proper transmission of high frequency signals, while its' overall screen minimizes environmental electromagnetic interference.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında, gemilerin makine dairesinde, elektromanyetik koruma gereken bölgelerde kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations, inside the engine room, where electromagnetic protection is required as well.

GÜVENLİK / SAFETY

Direkt alevle temas etmesi durumunda dahi 180dk boyunca sağlıklı bir şekilde çalışmaya devam eder. Bu sayede herhangi bir yangın durumunda önemli ekipmanın (yangın uyarı ve söndürme sistemleri, su pompaları, haberleşme telsiz, kumanda sistemleri, aydınlatma, vb.) çalışmaya devam etmesini sağlar. Ayrıca, halojensiz olması düşük duman yoğunluğu ve alev iletme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler. Böylece insan sağlığını ve değerli ekipmanı korur.

Even at direct contact with fire, it will sustain the connection for 180min. That provides necessary equipment (fire alarm and extinguishing systems, water pumps, communication, radio, control systems, lightning, etc.) to work uninterrupted during a fire. Due to its' halogen-free, low smoke density and flame retardant features it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around. Thus it protects human life and equipment, during a fire.

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Ayırıcı	MİKA BANT
Yalıtkan	HEPR KOMPAUND (sert etilen propilen kauçuk)
Ayırıcı	POLYESTER BANT
Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 6001 YEŞİL VEYA RAL 2004 TURUNCU

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Separator	MICA TAPE
Insulation	HEPR COMPOUND (hard grade ethylene propylene rubber)
Separator	POLYESTER TAPE
Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 6001 GREEN AND RAL 2004 ORANGE

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm
EMC	Elektromanyetik Uyumlu
Çalışma Sıcaklığı	- 5°C +50°C Hareketli 30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V
Test Voltajı	0,50-0,75 mm ² 1200 V
Kısa Devre Sıcaklığı	250 °C
Üretim Standardı	DIN 89159 & IEC 6092/375-376
Alev Geciktiricilik Testi	IEC 60332-3-22 EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2 EN 61034-2
Halojensizlik Test	IEC 60754-1 EN 50267-2
Devre Bütünlüğü FE 180 DAKİKA	IEC 60331-21

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm
EMC	Electromagnetic Compatibility
Temperature Range	- 5°C +50°C Mobile 30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V
Test Voltage	0,50-0,75 mm ² 1200 V
Short-Circuit Temperature Max.	250 °C
Production Standard	DIN 89159 & IEC 6092/375-376
Flame Retardant Test	IEC 60332-3-22 EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2 EN 61034-2
Halogen Free Test	IEC 60754-1 EN 50267-2
Insulation Continuity Test (FE-180 Min)	IEC 60331-21

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x2x0,50
1x4x0,50
2x2x0,50
4x2x0,50
1x2x0,75
2x2x0,75
4x2x0,75
5x2x0,75
7x2x0,75
10x2x0,75
12x2x0,75
19x2x0,75
24x2x0,75

KABLO ÇAPI (mm)

OVERALL DIAMETER

8,40
9,40
11,00
14,10
8,80
11,50
14,90
18,63
17,80
21,70
26,04
27,80
30,80

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

86,0
125,0
135,0
210,0
95,0
155,0
240,0
300,0
350,0
497,0
596,4
813,0
986,0

FM2XCH-FE 180 150/250 V



HALOJENSİZ, ALEV YÜRÜTMİYEN, YANMAZ, EKSPANLI HABERLEŞME VE SİNYAL KABLOSU HALOGEN - FREE, FIRE , FLAME RETARDANT, SCREENED COMMUNICATION & SIGNAL CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında telsiz, radar ve bilgi iletim sistemlerinin, ölçüm, haberleşme ve kontrol kablosu olarak kullanılır. Bükülü perler yüksek frekanslı sinyallerin sağlıklı iletimini mümkün kılarken, ortak ekranlı olması sayesinde de çevresel elektromanyetik etkilenme minimuma indirilmiştir.

Used as control and communication cables in radio, radar and information systems of marine vehicles Its' twisted pairs enables proper transmission of high frequency signals, while its' overall screen minimizes environmental electromagnetic interference.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında, gemilerin makine dairesinde, elektromanyetik koruma gereken bölgelerde kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations, inside the engine room, where electromagnetic protection is required as well.

GÜVENLİK / SAFETY

Herhangi bir yangın durumunda sadece alev ile direkt temas eden kısımlar yanarken, alev yürütmeme özelliği sayesinde yangının diğer bölgelere yayılmasını engeller.

Due to its' flame retardant feature, the part which directly contacts with fire will burn but the flame will not spread along the cable length. Thus it prevents the fire from spreading around.

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Ayırıcı	MİKA BANT
Yalıtkan	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Ayırıcı	POLYESTER BANT
Ekran	TAVLI BAKIR ÖRGÜ % 90 KAPAMA
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 6001 YEŞİL VEYA RAL 2004 TURUNCU

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Separator	MICA TAPE
Insulation	XLPE (CROSS LINKED POLYETHYLENE)COMPOUND
Separator	POLYESTER TAPE
Screen	ANNEALED COPPER BRAID % 90 COVERAGE
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 6001 GREEN AND RAL 2004 ORANGE

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
EMC	Elektromanyetik Uyumlu	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltajı	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	IEC 6092/375-376	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojenizlik Test	IEC 60754-1	EN 50267-2
Devre Bütünlüğü FE 180 DAKİKA	IEC 60331-21	

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
EMC	Electromagnetic Compatibility	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	1,5-120 mm ² 600/1000 V
Test Voltage	0,50-0,75 mm ² 1200 V	1,5-120 mm ² 3500 V
Short-Circuit Temperature Max.	250 °C	
Production Standard	IEC 6092/375-376	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2
Insulation Continuity Test (FE-180 Min)	IEC 60331-21	

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

1x2x0,50
1x4x0,50
2x2x0,50
4x2x0,50
5x2x0,50
7x2x0,50
10x2x0,50
12x2x0,50
19x2x0,50
24x2x0,50
1x2x0,75
2x2x0,75
4x2x0,75
5x2x0,75
7x2x0,75
10x2x0,75
12x2x0,75
19x2x0,75
24x2x0,75

KABLO ÇAPI (mm)

OVERALL DIAMETER

8,40
9,40
11,00
14,70
15,90
17,40
20,80
21,70
26,50
29,30
8,80
11,50
14,90
18,63
17,80
21,70
26,04
27,80
30,80

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

86,0
125,0
135,0
247,0
283,0
345,0
458,0
507,0
726,0
873,0
95,0
155,0
240,0
300,0
350,0
497,0
596,4
813,0
986,0

FMGCCH 150/250 V



HALOJENSİZ, ALEV YÜRÜTMİYEN, BİREYSEL VE GENEL EKRANLI, HABERLEŞME VE SİNYAL KABLOSU

HALOGEN - FREE, FLAME RETARDANT, INDIVIDUALLY AND OVERALL SCREENED, COMMUNICATION AND SIGNAL CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında telsiz, radar ve bilgi iletim sistemlerinin, ölçüm, haberleşme ve kontrol kablosu olarak kullanılır. Bükülü perler yüksek frekanslı sinyallerin sağlıklı iletimini mümkün kılarken, ortak ekranlı olması sayesinde de çevresel elektromanyetik etkilenme minimuma indirilmiştir.

Used as control and communication cables in radio, radar and information systems of marine vehicles its' twisted pairs enables proper transmission of high frequency signals, while its' overall screen and individual screens minimizes electromagnetic interference both environmentally and individually.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında, gemilerin makine dairesinde, elektromanyetik koruma gereken bölgelerde kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations, inside the engine room, where electromagnetic protection is required as well.

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Yalıtkan	HEPR KOMPAUND (sert etilen propilen kauçuk)
Büküm	Damarlar ikili düzende bükülür
Ayırıcı	Perler üstünde ayırıcı folyo
Topraklama Teli	Her perin yanında elektrolitik, kalaylı, bakır tellerden bükülü topraklama teli
Bireysel Ekran	Her bir topraklama telli per üzerinde alüminyum bant ekran (kapatma oranı: %100)
Büküm	Perler konsantirik olarak bükülür.
Ayırıcı	Genel ekran altında ayırıcı folyo
Ortak Ekran	Elektrolitik bakır tellerden örülmüş ekran (kapatma oranı: %90)
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Insulation	HEPR COMPOUND (hard grade ethylene propylene rubber)
Layup	Cores laid up in pairs
Separator	Separating foil over pairs
Drain Wire	Electrolytic, tinned, stranded, copper drain wire along each pair
Individual Screen	Aluminium tape screen over each pair & drain-wire bunch (100% coverage).
Layup	Pairs laid up concentrically.
Separator	Separating foil below overall screen
Overall Screen	Electrolytic copper braided screen (90% coverage).
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 7001 GREY and BLACK

GÜVENLİK / SAFETY

Herhangi bir yangın durumunda sadece alev ile direkt temas eden kısımlar yanarken, alev yürütmeme özelliği sayesinde yangının diğer bölgelere yayılmasını engeller.

Due to its' flame retardant feature, the part which directly contacts with fire will burn but the flame will not spread along the cable length. Thus it prevents the fire from spreading around.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm
EMC	Elektromanyetik Uyumlu
Çalışma Sıcaklığı	- 5°C +50°C Hareketli 30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V
Test Voltajı	0,50-0,75 mm ² 1200 V
Kısa Devre Sıcaklığı	250 °C
Üretim Standardı	DIN 89159 & IEC 6092/375-376
Alev Geciktiricilik Testi	IEC 60332-3-22 EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2 EN 61034-2
Halojenizlik Test	IEC 60754-1 EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm
EMC	Electromagnetic Compatibility
Temperature Range	- 5°C +50°C Mobile 30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V
Test Voltage	0,50-0,75 mm ² 1200 V
Short-Circuit Temperature Max.	250 °C
Production Standard	DIN 89159 & IEC 6092/375-376
Flame Retardant Test	IEC 60332-3-22 EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2 EN 61034-2
Halogen Free Test	IEC 60754-1 EN 50267-2

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

KABLO ÇAPI (mm)

OVERALL DIAMETER

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

1x2x0,50	8,00	85,0
1x4x0,50	9,10	125,0
2x2x0,50	10,30	140,0
4x2x0,50	13,20	215,0
1x2x0,75	8,50	90,0
2x2x0,75	11,50	180,0
4x2x0,75	14,50	240,0
5x2x0,75	18,13	300,0
7x2x0,75	18,00	385,0
10x2x0,75	22,20	535,0
14x2x0,75	25,50	630,0
19x2x0,75	27,00	900,0
24x2x0,75	30,50	1010,0

FM2XCCH 150/250 V



HALOJENSİZ, ALEV YÜRÜTMİYEN, BİREYSEL VE GENEL EKRANLI, HABERLEŞME VE SİNYAL KABLOSU

HALOGEN - FREE, FLAME RETARDANT, INDIVIDUALLY AND OVERALL SCREENED, COMMUNICATION AND SIGNAL CABLE

KULLANIM ALANLARI / APPLICATION

Her türlü deniz aracında telsiz, radar ve bilgi iletim sistemlerinin, ölçüm, haberleşme ve kontrol kablosu olarak kullanılır. Bükülü perler yüksek frekanslı sinyallerin sağlıklı iletimini mümkün kılarken, ortak ekranlı olması sayesinde de çevresel elektromanyetik etkilenme minimuma indirilmiştir.

Used as control and communication cables in radio, radar and information systems of marine vehicles its' twisted pairs enables proper transmission of high frequency signals, while its' overall screen and individual screens minimizes electromagnetic interference both environmentally and individually.

ORTAM / ENVIRONMENT

Kuru, ıslak, yağlı ve tüm deniz ortamlarında, gemilerin makine dairesinde, elektromanyetik koruma gereken bölgelerde kullanılabilir.

Usable at all conditions in marine environment such as dry, wet or oily locations, inside the engine room, where electromagnetic protection is required as well.

KABLOYAPISI

İletken	TAVLI veya KALAYLI BÜKÜLÜ BAKIR TEL IEC 60228 SINIF 2 veya 5 İLETKEN
Yalıtkan	XLPE (ÇAPRAZ BAĞLI POLİETİLEN) KOMPAUND
Büküm	Damarlar ikili düzende bükülür
Ayırıcı	Perler üstünde ayırıcı folyo
Topraklama Teli	Her perin yanında elektrolitik, kalaylı, bakır tellerden bükülü topraklama teli
Bireysel Ekran	Her bir topraklama telli per üzerinde alüminyum bant ekran (kapatma oranı: %100)
Büküm	Perler konsantirik olarak bükülür.
Ayırıcı	Genel ekran altında ayırıcı folyo
Ortak Ekran	Elektrolitik bakır tellerden örülmüş ekran (kapatma oranı: %90)
Kılıf	HFFR KOMPAUND (HM4 / SHF 1 HD 604)
Kılıf Rengi	RAL 7001 GRİ VEYA SİYAH

CONSTRUCTION

Conductor	ANNEALED and TINNED STRANDED COPPER WIRE IEC 60228 Class 2 and 5 CONDUCTOR
Insulation	XLPE (CROSS LINKED POLYETHYLENE)COMPOUND
Layup	Cores laid up in pairs
Separator	Separating foil over pairs
Drain Wire	Electrolytic, tinned, stranded, copper drain wire along each pair
Individual Screen	Aluminium tape screen over each pair & drain-wire bunch (100% coverage).
Layup	Pairs laid up concentrically.
Separator	Separating foil below overall screen
Overall Screen	Electrolytic copper braided screen (90% coverage).
Sheath	HFFR COMPOUND (HM4 / SHF 1 HD 604)
Sheath Colour	RAL 7001 GREY and BLACK

GÜVENLİK / SAFETY

Halojensiz olması, düşük duman yoğunluğu ve alev iletmeme özellikleri sayesinde herhangi bir yangın durumunda korozif gazlar oluşturmaz, görüşü kapatmaz ve yangının yayılmasını önler. Böylece insan sağlığını ve değerli ekipmanı korur.

Due to its' halogen-free, low smoke density and flame retardant features, it won't create corrosive gases nor obstruct visibility and prevents the fire from spreading around. Thus it protects human life and equipment, during a fire.

TEKNİK ÖZELLİKLER

Yalıtım Direnci	550 MΩxkm	
EMC	Elektromanyetik Uyumlu	
Çalışma Sıcaklığı	- 5°C +50°C Hareketli	30°C~+85°C Sabit
Çalışma Voltajı	0,50-0,75 mm ² 250 V	
Test Voltajı	0,50-0,75 mm ² 1200 V	
Kısa Devre Sıcaklığı	250 °C	
Üretim Standardı	IEC 6092/375-376	
Alev Geciktiricilik Testi	IEC 60332-3-22	EN 60332-3-24 cat A
Duman Yoğunluk Testi	IEC 61034-2	EN 61034-2
Halojensizlik Test	IEC 60754-1	EN 50267-2

TECHNICAL CHARACTERISTICS

Insulation Resistance	550 MΩxkm	
EMC	Electromagnetic Compatibility	
Temperature Range	- 5°C +50°C Mobile	30°C~+85°C Fixed
Operating Voltage	0,50-0,75 mm ² 250 V	
Test Voltage	0,50-0,75 mm ² 1200 V	
Short-Circuit Temperature Max.	250 °C	
Production Standard	IEC 6092/375-376	
Flame Retardant Test	IEC 60332-3-22	EN 60332-3-24 cat A
Smoke Density Test	IEC 61034-2	EN 61034-2
Halogen Free Test	IEC 60754-1	EN 50267-2

DAMAR SAYISI ve İLETKEN KESİTİ (mm²)

CORE NUMBERS AND CROSS SECTION

KABLO ÇAPI (mm)

OVERALL DIAMETER

YAKLAŞIK KABLO AĞIRLIĞI (kg/km)

APPROX CABLE WEIGHT

1x2x0,50	8,00	85,0
1x4x0,50	9,10	125,0
2x2x0,50	10,30	140,0
4x2x0,50	13,20	215,0
1x2x0,75	8,50	90,0
2x2x0,75	11,50	180,0
4x2x0,75	14,50	240,0
5x2x0,75	18,13	300,0
7x2x0,75	18,00	385,0
10x2x0,75	22,20	535,0
14x2x0,75	25,50	630,0
19x2x0,75	27,00	900,0
24x2x0,75	30,50	1010,0

SHIP & MARINE
CABLE





SERTİFİKALAR

CERTIFICATES



Certificate of Registration

This certificate has been awarded to:

SERTPLAS OTO YAN. SAN. VE TİC. A.Ş.

İkitelli Org. San. Bölğ. 14.Cad. Mutsan San. Sit. M-9 Blok No:9-11
Başakşehir, Şube: Laiklik Cad. Haçer Sok. No:16 34570 Büyükkılıçlı Mah.
Silivri İSTANBUL, Turkey

in recognition of the organization's Quality Management System which complies with

ISO 9001:2015

The scope of activities covered by this certificate is defined below

Please refer to the Appendix

Certificate Number:

75141/B/0002/UK/En

Date of Issue: (Original)

22 June 2016

Date of Issue:

22 September 2017

Issue No:

3

Expiry Date:

21 June 2019

Issued by:

On behalf of the Schemes Manager



If there is any doubt as to the authenticity of this certificate, please do not hesitate to contact the Head Office of the Group on info@urs-certification.com.
URS is a member of United Registrar of Systems (Holdings) Ltd, Derby Manor, Derby Road, Bournemouth, BH1 3GB, UK. Company Registration no. 5259495

Page 1 of 2



Certificate of Registration

This certificate has been awarded to

SERTPLAS OTO YAN. SAN. VE TIC. A.Ş.

Laiklik Cad. Hançer Sok. No:16 34570 Büyükkılıçlı Mahallesi Silivri
İSTANBUL, Turkey

in recognition of the organization's Information Security Management System which complies with

ISO 27001:2013

The scope of activities covered by this certificate is defined below

**PROTECTING ASSETS USED FOR AUTOMOTIVE LIGHTING SYSTEMS,
ELECTRIC SYSTEMS, PNEUMATIC SYSTEMS, AIR BRAKE SYSTEMS
AND BODY PARTS PRODUCTION AND DESIGN, FOREIGN TRADE,
LOGISTICS, STORAGE, ACCOUNTING AND FINANCE. SOA Rev2,
25/2/2019**

Certificate Number:

75141/C/0001/UK/En

Date of Issue: (Original)

08 March 2019

Date of Issue:

08 March 2019

Issue No:

1

Expiry Date:

07 March 2022

Issued by:

On behalf of the Schemes Manager



If there is any doubt as to the authenticity of this certificate, please do not hesitate to contact the Head Office of the Group on info@urs-certification.com.
URS is a member of United Registrar of Systems (Holdings) Ltd, United House, 4 Hinton Road, Bournemouth, BH1 2EE, UK. Company Registration no. 5298499

Page 1 of 1



Certificate of Registration

This certificate has been awarded to

SERTPLAS OTO YAN. SAN. VE TİC. A.Ş.

İkitelli Org. San. Bölge, 14.Cad. Mutsan San. Sit. M-9 Blok No:9-11
Başakşehir, Şube: Laiklik Cad. Hançer Sok. No:16 34570 Büyükkılıç Mah.
Silivri İSTANBUL, Turkey

in recognition of the organization's Environmental Management System which complies with

ISO 14001:2015

The scope of activities covered by this certificate is defined below

Design and Manufacture of Automotive Lighting Systems, Electrical Systems, Pneumatic Systems and Air Brake Systems

Certificate Number:

75141/A/0002/UK/En

Issue No:

3

Date of Issue: (Original)

27 April 2016

Expiry Date:

26 April 2019

Date of Issue:

04 July 2017

Issued by:

On behalf of the Schemes Manager



CERTIFICATES

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Marine & Offshore

The certificate is not valid when presented without the full attached schedule composed of 7 sections

Certificate number: 61347/A0 BV
File number: ACE1855/1
Product code: 25011

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TYPE APPROVAL CERTIFICATE

This certificate is issued to:
SERTPLAS OTO YAN SAN.VE TIC.A.S.
ISTANBUL - TURKEY

for the type of product
CABLES (LOW VOLTAGE)
0,6/1kV
Types: MGH & M2X & CM2XCH series

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships
IEC 60092-350 (2020), IEC 60092-353 (2016), IEC 60092-360 (2021)
IEC 60228 (2004)
IEC 60331-21 (1999)
IEC 60332-1-2 (2015), IEC 60332-3-22 (2018)
IEC 60684-2 (2011)
IEC 60754-1/2 (2010)
IEC 61034-1/2 (2010)

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 12 Oct 2026

For Bureau Veritas Marine & Offshore,
At BV ISTANBUL, on 12 Oct 2021,
Gurcan Yilmaz



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the production is to be re-approved prior to being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristar.com/veristamp/veristampPublicPdfType.jsp?td=pgjompyria>
BV Mod. Ad.E 530 June 2017 This certificate consists of 3 page(s)

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Certificate number: 61347/A0 BV

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Low voltage cables for Marine applications.

1.1 - Specifications:

Rated voltage	0,6/1kV
Temperature class	90°C
Flame retardant	IEC 60332 1-2, IEC 60332 3-22
Fire resistant	IEC 60331-21 (FE 180 type)
Halogen Free	IEC 60754-1
Low Smoke	IEC 61034-2
Fluorine content	IEC 60684-2

1.2 - Construction:

Conductor	Annealed and tinned stranded copper wire, class 2 or class 5
Fire resistant layer	Mica tape (FE 180 type)
Insulation	HEPR (MG type) XLPE (M2X type) HF90 (M2X type)
Inner sheath	SHF1 (except M2X HF90 type)
Armour	Annealed copper braid (MGCH FE 180 & M2XCH FE 180 & M2XCH & MGCH & M2XCH EMC & MGCH EMC & Composite Cable (CM2XCH) types) 100% closed copper tape (EMC type)
Outer sheath	SHF1 (except M2X HF90 type)

1.3 - Product Range:

Type	Number of core	Cross-sect. (mm ²)
M2XCH, M2XCH-FE 180	1	1 to 120
M2XCH EMC, MGCH	2	1 to 16
MGH, MGCH-FE 180	3, 4	1 to 120
MGH FE 180, MGCH EMC	5 to 24	1 to 2,5
M2XCH, M2XCH-FE 180	1	1 to 240
M2X	3 to 5	1 to 4
Composite Cable (CM2XCH)		

2. DOCUMENTS AND DRAWINGS:

Specification N° D020-01 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-02 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-04 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-05 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-07 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-09 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-10 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-11 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-12 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-13 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-17 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561
Specification N° D020-18 Yür.Tar.19.02.2020 - Rev. Tar. - Rev.No: 0 - Form No: F561

3. TEST REPORTS:

SERTPLAS OTO YAN SAN.VE TIC.A.S.

Test reports N° 2021/482/483/489/491/493/494/495/496/497/498/500/502/503/504/505/508/509, dated 18 Aug 2021.

4. APPLICATION / LIMITATION:

According to BV Rules for the Classification of Steel Ships.

The electronic version is available at: <http://www.veristar.com/veristamp/veristampPublicPdfType.jsp?td=pgjompyria>

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This certificate consists of 3 page(s)

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Certificate number: 61347/A0 BV

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 The above products are to be supplied by SERTPLAS OTO YAN SAN.VE TIC.A.S. in compliance with the type and the requirements described in this certificate.

5.2 This type of product is within the category BV of Bureau Veritas Rule Note SR320.

5.3 - BV product certificate is required.

5.4 - For information, SERTPLAS OTO YAN SAN.VE TIC.A.S. has declared to Bureau Veritas the following production site:

SERTPLAS OTO YAN SAN.VE TIC.A.S.

Laklik Cad.Hançer Sok. No:16

34570 Bayrulköy

Silivri

ISTANBUL

TURKEY

6. MARKING OF PRODUCT:

The cable shall be marked on the surface outer sheath, in a durable legible and visible manner, with the following information through the length of cable:

- 1) - Voltage grade.
- 2) - Cable symbol and temperature class.
- 3) - Number of conductors and conductor size.
- 4) - Applicable standard(s) to flame retardant and fire resistance if any.
- 5) - Manufacturer's name or trade mark.
- 6) - Year of manufacture.

7. OTHERS:

It is SERTPLAS OTO YAN SAN.VE TIC.A.S.'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

*** END OF CERTIFICATE ***

The electronic version is available at: <http://www.veristar.com/veristamp/veristampPublicPdfType.jsp?td=pgjompyria>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

SERTIFIKALAR

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Marine & Offshore

Certificate number: 61348/A0 BV
File number: ACE1855/2
Product code: 25051

This certificate is not valid when presented without the full attached schedule composed of 7 sections:

www.veristar.com

TYPE APPROVAL CERTIFICATE

This certificate is issued to
SERTPLAS OTO YAN SAN.VE TIC.A.S.
ISTANBUL - TURKEY

for the type of product
INSTRUMENTATION AND COMMUNICATION CABLES

150/250V
Types: FMG & FM2X & CM2X series

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships:
IEC 60092-350 (2020), IEC 60092-360 (2021), IEC 60092-376 (2017)
IEC 60331-21 (1999)
IEC 60332-1-2 (2015), IEC 60332-3-22 (2018)
IEC 60884-2 (2011)
IEC 60754-1/2 (2019)
IEC 61034-1/2 (2019)

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: **04 Oct 2026**

For Bureau Veritas Marine & Offshore,
At BV ISTANBUL, on 04 Oct 2021,
Gurcan Yilmaz



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) herein to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

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Certificate number: 61348/A0 BV

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

1.1 - Specifications:

Rated voltage	150/250V
Temperature class	90°C
Flame retardant	IEC 60332-1-2, IEC 60332-3-22
Fire resistant	IEC 60331-21 (FE 180 type)
Halogen Free	IEC 60754-1/2
Low Smoke	IEC 61034-2
Fluorine content	IEC 60684-2

1.2 - Construction:

Conductor	Annealed and tinned stranded copper wire, class 2 or class 5
Fire resistant layer	Mica tape (FE 180 type)
Insulation	IEPR (FMG type) NLP (FM2X & CM2X types)
Individual screen	Aluminium tape screen over each pair & drain-wire bunch (FM2XCCH & FMGCCH & CM2XCCH types)
Overall screen	PES Tape (FM2XCCH & FMGCCH & CM2XCCH types)
Armour	Annealed copper braid (FMGC & FM2XCCH type)
Outer sheath	SHF1

1.3 - Product Range:

Type	Number of core	Cross-sect. (mm ²)
FMGCCH	1P to 24P	0.5 to 0.75
FM2XCCH		
FMGCCH		
FM2XCCH		
FMGCCH FE 180		
FM2XCCH FE 180	2P to 4P	0.5 to 1
Composite Cable (CM2XCCH)		

2. DOCUMENTS AND DRAWINGS:

Specification N° D020-03 Yür.Tar:19.02.2020 Rev. Tar. - Rev.No: 0 Form No: F561
Specification N° D020-16 Yür.Tar:19.02.2020 Rev. Tar. - Rev.No: 0 Form No: F561
Specification N° D020-06 Yür.Tar:19.02.2020 Rev. Tar. - Rev.No: 0 Form No: F561
Specification N° D020-08 Yür.Tar:19.02.2020 Rev. Tar. - Rev.No: 0 Form No: F561
Specification N° D020-15 Yür.Tar:19.02.2020 Rev. Tar. - Rev.No: 0 Form No: F561
Specification N° D020-14 Yür.Tar:19.02.2020 Rev. Tar. - Rev.No: 0 Form No: F561
Specification N° D020-18 Yür.Tar:19.02.2020 Rev. Tar. - Rev.No: 0 Form No: F561

3. TEST REPORTS:

SERTPLAS:
Test reports N° 2021/482/490/492/499/501/506/507, dated 18 Aug 2021.

4. APPLICATION / LIMITATION:

According to BV Rules for the Classification of Steel Ships.

The electronic version is available at: <http://www.veristar.com/veristarb/jsp/viewPublicPdfType.jsp?d=4/vj/1ezm3>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

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Certificate number: 61348/A0 BV

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above products are to be supplied by SERTPLAS OTO YAN SAN.VE TIC.A.S. in compliance with the type and the requirements described in this certificate.
5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.
5.3 - BV product certificate is required.
5.4 - For information, SERTPLAS OTO YAN SAN.VE TIC.A.S. has declared to Bureau Veritas the following production site:

SERTPLAS OTO YAN SAN.VE TIC.A.S.
Lalibik Cad.Hancer Sok. No:16
34570 Bursaköyü
SİVRİ
İSTANBUL
TURKEY

6. MARKING OF PRODUCT:

The cable shall be marked on the surface outer sheath, in a durable legible and visible manner, with the following information through the length of cable:

- 1- Voltage grade.
- 2- Cable symbol and temperature class.
- 3- Number of conductors and conductor size.
- 4- Applicable standard(s) to flame retardant and fire resistance if any
- 5- Manufacturer's name or trade mark.
- 6- Year of manufacture.

7. OTHERS:

It is SERTPLAS OTO YAN SAN.VE TIC.A.S.'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

*** END OF CERTIFICATE ***

The electronic version is available at: <http://www.veristar.com/veristarb/jsp/viewPublicPdfType.jsp?d=4/vj/1ezm3>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)



Ship & Marine Cable



**SERTPLUS
CABLE®**

FABRIKA & MERKEZ OFİS
FACTORY & HEAD OFFICE

Hançer Sokak No.: 16 Büyükkılıçlı Köyü
34570 Silivri / İSTANBUL / TURKEY
Phone.: +90 (212) 748 45 86