Certificate No:
TAE000052A

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Low Voltage Cable

with type designation(s)
F-MXCH 250 V, F-MXCCH 250V

Issued to
Erisim Kablo Sanayi ve Ticaret Ltd. Sti.
Arnavutköy, Istanbul, **Türkiye**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Control & Instrumentation. Armoured.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Type	Rated voltage (V)	Temp. class (°C)
F-MXCH 250 V	250 V	90
F-MXCCH 250V	250V	90

Issued at **Høvik** on **2025-05-13**
This Certificate is valid until **2030-05-12**.
DNV local station: **Istanbul**

Approval Engineer: **Ivar Bull**

for **DNV**

Frederik Tore Elter
Head of Section

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The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Product description

Types:	**F-MXCH 250 V, F-MXCCH 250V**
Conductors:	Tinned or annealed stranded copper class 2 or class 5
Core insulation:	XLPE
Individual screen (if any):	AL-PES tape with tinned copper drain wire (only F-MXCCH)
Inner covering:	Polyester tape
Armour:	Tinned or annealed copper wire braid
Outer sheath:	Halogen Free Compound SHF1

F-MXCH:

No of elements:	Cross sectional area [mm^2]
1, 2, 4, 7, 10, 14, 19, 24 Pairs	0,75
1, 2, 4, 7 Pairs	1,0 1,5

F-MXCCH:

No of elements:	Cross sectional area [mm^2]
1, 2, 4, 7 Pairs	0,75

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
DNV CP-0399	2021-08	Electric cables.	
IEC 60092-350	2020-01	Electrical installations in ships - Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
IEC 60092-376	2017-05	Cables for control and instrumentation circuits 150/250 V (300 V)	
IEC 60332-1-2(2004) AMD1(2015)	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable.	Flame retardant small scale. Distance between the lower edge of the top support and the onset of charring > 50 mm and charring not to extend downwards > 540 mm from the lower edge of the top support.
IEC 60332-3-22	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

ERISIM KABLO - F-MXCH or F-MXCCH - Size – 250V – IEC 60332-3-22 Cat.A – Lot no

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

Certificate No:
TAE000052B

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Low Voltage Cable

with type designation(s)
F-MXCH-FR 250 V

Issued to
Erisim Kablo Sanayi ve Ticaret Ltd. Sti.
Arnavutköy, Istanbul, **Türkiye**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Control & Instrumentation. Armoured. Fire resistant.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Rated voltage (V)	**250 V**
Temp. class (°C)	**90**

Issued at **Høvik** on **2025-05-13**
This Certificate is valid until **2030-05-12**.
DNV local station: **Istanbul**

Approval Engineer: **Ivar Bull**

for **DNV**

Frederik Tore Elter
Head of Section

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Product description

Types: **F-MXCH-FR 250 V,**
Conductors: Tinned or annealed stranded copper class 2 or class 5
Core insulation: Mica tape + XLPE
Inner covering: Polyester tape
Armour: Tinned or annealed copper wire braid
Outer sheath: Halogen Free Compound SHF1
F-MXCH-FR:

No of elements:	Cross sectional area [mm^2]
1, 2, 4, 7, 10, 14, 19, 24 Pairs	0,75
1, 2, 4, 7 Pairs	1,0 1,5

Application/Limitation

This type of cable is fire resistant in accordance with IEC Publication 60331-1/2

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
DNV CP-0399	2021-08	Electric cables.	
IEC 60092-350	2020-01	Electrical installations in ships - Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
IEC 60092-376	2017-05	Cables for control and instrumentation circuits 150/250 V (300 V)	
IEC 60331-1/2	2018-03	Tests for electric cables under fire conditions - Circuit integrity - Part 1/2: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding / not exceeding 20 mm	Minimum 180 minutes flame application + 15 min cooling down
IEC 60332-1-2(2004) AMD1(2015)	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable.	Flame retardant small scale. Distance between the lower edge of the top support and the onset of charring > 50 mm and charring not to extend downwards > 540 mm from the lower edge of the top support.
IEC 60332-3-22	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

ERISIM KABLO - F-MXCH-FR - Size – 250V – IEC 60331-1/2 - IEC 60332-3-22 Cat.A – Lot no

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

Certificate No:
TAE0000525

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
MX

Issued to
Erisim Kablo Sanayi ve Ticaret Ltd. Sti.
Arnavutköy, Istanbul, **Türkiye**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Low voltage power switchboard wires.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Rated voltage (kV)	**0,6/1**
Temp. class (°C)	**90**

Issued at **Høvik** on **2025-05-13**
This Certificate is valid until **2030-05-12**.
DNV local station: **Istanbul**

Approval Engineer: **Ivar Bull**

for **DNV**

Frederik Tore Elter
Head of Section

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Product description

Type: MX 0,6/1 kV
Conductor: Stranded copper class 2 or class 5
Insulation: HF 90 compounc

Number of cores	Conductor cross-section mm^2
1	1 - 300

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

DNV CP-0399	2021-08	Electric cables.	
IEC 60092-350	2020-01	Electrical installations in ships - Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
IEC 60092-353	2024-06	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	
IEC 60332-1-2(2004) AMD1(2015)	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable.	Flame retardant small scale. Distance between the lower edge of the top support and the onset of charring > 50 mm and charring not to extend downwards > 540 mm from the lower edge of the top support.
IEC 60332-3-22	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

ERISIM KABLO – MX - Size – 0,6/1kV – IEC 60332-3-22 Cat.A – Lot no.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)

- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

Certificate No:
TAE0000526

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
MXH

Issued to
Erisim Kablo Sanayi ve Ticaret Ltd. Sti.
Arnavutköy, Istanbul, **Türkiye**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Low voltage power cables.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Rated voltage (kV)	**0,6/1**
Temp. class (°C)	**90**

Issued at **Høvik** on **2025-05-13**
This Certificate is valid until **2030-05-12**.
DNV local station: **Istanbul**

Approval Engineer: **Ivar Bull**

for **DNV**

Frederik Tore Elter
Head of Section

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Product description

Type: MXH 0,6/1 kV
Conductor: Tinned or annealed stranded copper class 2 or class 5
Insulation: XLPE
Inner covering: Polyester tape or HFFR compound
Outer sheath: SHF1

Number of cores	Conductor cross-section mm^2
1	1 1,5 2,5 4 6 10 16 25 35 50 70 95 120 150 185 240 300
2, 3, 4, 5, 7, 10, 12, 16, 24, 36	1,0 1,5 2,5
2, 3, 4, 5	4, 6, 10, 16, 25, 35
3, 4, 5	50, 70, 95
3, 4	120, 150
3	185, 240

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
DNV CP-0399	2021-08	Electric cables.	
IEC 60092-350	2020-01	Electrical installations in ships - Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
IEC 60092-353	2024-06	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	
IEC 60332-1-2(2004) AMD1(2015)	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable.	Flame retardant small scale. Distance between the lower edge of the top support and the onset of charring > 50 mm and charring not to extend downwards > 540 mm from the lower edge of the top support.
IEC 60332-3-22	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

ERISIM KABLO - MXH - Size – 0,6/1kV – IEC 60332-3-22 Cat.A – Lot no

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

Certificate No:
TAE0000527

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
MXCH

Issued to
Erisim Kablo Sanayi ve Ticaret Ltd. Sti.
Arnavutköy, Istanbul, **Türkiye**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Low voltage power cables. Armoured.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Rated voltage (kV)	**0,6/1**
Temp. class (°C)	**90**

Issued at **Høvik** on **2025-05-13**
This Certificate is valid until **2030-05-12**.
DNV local station: **Istanbul**

Approval Engineer: **Ivar Bull**

for **DNV**

Frederik Tore Elter
Head of Section

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Product description

Type: MXCH 0,6/1 kV
Conductor: Tinned or annealed stranded copper class 2 or class 5
Insulation: XLPE
Inner covering: Polyester tape or HFFR compound
Armour: Tinned or annealed copper wire braid
Outer sheath: SHF1

Number of cores	Conductor cross-section mm^2
1	1 1,5 2,5 4 6 10 16 25 35 50 70 95 120 150 185 240 300
2, 3, 4, 5, 7, 10, 12, 16, 24, 36	1 1,5 2,5
2, 3, 4, 5	4, 6, 10, 16, 25, 35
3, 4, 5	50, 70, 95
3, 4	120, 150
3	185, 240

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
DNV CP-0399	2021-08	Electric cables.	
IEC 60092-350	2020-01	Electrical installations in ships - Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
IEC 60092-353	2024-06	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	
IEC 60332-1-2(2004) AMD1(2015)	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable.	Flame retardant small scale. Distance between the lower edge of the top support and the onset of charring > 50 mm and charring not to extend downwards > 540 mm from the lower edge of the top support.
IEC 60332-3-22	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

ERISIM KABLO – MXCH - Size – 0,6/1kV – IEC 60332-3-22 Cat.A – Lot no

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

Certificate No:
TAE0000528

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
MXH-FR

Issued to
Erisim Kablo Sanayi ve Ticaret Ltd. Sti.
Arnavutköy, Istanbul, **Türkiye**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Low voltage power cables. Fire resistant.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Rated voltage (kV)	**0,6/1**
Temp. class (°C)	**90**

Issued at **Høvik** on **2025-05-13**
This Certificate is valid until **2030-05-12**.
DNV local station: **Istanbul**

Approval Engineer: **Ivar Bull**

for **DNV**

Frederik Tore Elter
Head of Section

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Product description

Type: MXH-FR 0,6/1 kV
Conductor: Tinned or annealed stranded copper class 2 or class 5
Insulation: Mica tape + XLPE
Inner covering: Polyester tape or HFFR compound
Outer sheath: SHF1

Number of cores	Conductor cross-section mm^2
1	1 1,5 2,5 4 6 10 16 25 35 50 70 95 120 150 185 240 300
2, 3, 4, 5, 7, 10, 12, 16, 24, 36	1 1,5 2,5
2, 3, 4, 5	4, 6, 10, 16, 25, 35
3, 4, 5	50, 70, 95
3, 4	120, 150
3	185, 240

Application/Limitation

This type of cable is fire resistant according to IEC 60331-1/2.

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
DNV CP-0399	2021-08	Electric cables.	
IEC 60092-350	2020-01	Electrical installations in ships - Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
IEC 60092-353	2024-06	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	
IEC 60331-1/2	2018-03	Tests for electric cables under fire conditions - Circuit integrity - Part 1/2: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding / not exceeding 20 mm	Minimum 180 minutes flame application + 15 min cooling down
IEC 60332-1-2(2004) AMD1(2015)	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable.	Flame retardant small scale. Distance between the lower edge of the top support and the onset of charring > 50 mm and charring not to extend downwards > 540 mm from the lower edge of the top support.
IEC 60332-3-22	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm

Standard	Release	General description	Limitation
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

ERISIM KABLO – MXH-FR - Size – 0,6/1kV – IEC 60331-1/2 – IEC 60332-3-22 Cat.A – Lot no

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

Certificate No:
TAE0000529

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
MXCH-FR

Issued to
Erisim Kablo Sanayi ve Ticaret Ltd. Sti.
Arnavutköy, Istanbul, **Türkiye**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Low voltage power cables. Armoured. Fire resistant.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Rated voltage (kV)	**0,6/1**
Temp. class (°C)	**90**

Issued at **Høvik** on **2025-05-14**
This Certificate is valid until **2030-05-12**.
DNV local station: **Istanbul**

Approval Engineer: **Ivar Bull**

for **DNV**

Frederik Tore Elter
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Type: MXCH-FR 0,6/1 kV
Conductor: Tinned or annealed stranded copper class 2 or class 5
Insulation: XLPE+ Mica tape
Inner covering: Polyester tape or HFFR compound
Armour: Tinned or annealed copper wire braid
Outer sheath: SHF1

Number of cores	Conductor cross-section mm^2
1	1,0 1,5 2,5 4, 6, 10, 16, 25, 35, 50, 70, 95, 120, 150, 185, 240, 300
2, 3, 4, 5, 7, 10, 12, 16, 24, 36	1,5 2,5
2, 3, 4, 5	4, 6, 10, 16, 25, 35
3, 4, 5	60, 70, 95
3, 4	120, 150
3	185, 240

Application/Limitation

This type of cable is fire resistant according to IEC 60331-1/2.

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
DNV CP-0399	2021-08	Electric cables.	
IEC 60092-350	2020-01	Electrical installations in ships - Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
IEC 60092-353	2024-06	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	
IEC 60331-1/2	2018-03	Tests for electric cables under fire conditions - Circuit integrity - Part 1/2: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding / not exceeding 20 mm	Minimum 180 minutes flame application + 15 min cooling down
IEC 60332-1-2(2004) AMD1(2015)	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable.	Flame retardant small scale. Distance between the lower edge of the top support and the onset of charring > 50 mm and charring not to extend downwards > 540 mm from the lower edge of the top support.
IEC 60332-3-22	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm

Standard	Release	General description	Limitation
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

ERISIM KABLO – MXCH-FR - Size – 0,6/1kV – IEC 60331-1/2 – IEC 60332-3-22 Cat.A – Lot no

Periodical assessment

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