PRODUCTS
SPECIAL CABLES

Nexans
BRINGS ENERGY TO LIFE

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About Nexans

Nexans brings energy to life through an extensive range of cables and cabling solutions that deliver increased performance for our customers worldwide. Nexans' teams are committed to a partnership approach that supports customers in four main business areas: Power transmission and distribution (submarine and land), Energy resources (Oil & Gas, Mining and Renewables), Transportation (Road, Rail, Air, Sea) and Building (Commercial, Residential and Data Centers). Nexans' strategy is founded on continuous innovation in products, solutions and services, employee development, customer training and the introduction of safe, low-environmental-impact industrial processes.
In 2013, Nexans became the first cable player to create a Foundation to introduce sustained initiatives for access to energy for disadvantaged communities worldwide.
We have an industrial presence in 40 countries and commercial activities worldwide, employing close to 26,000 people and generating sales in 2015 of 6.2 billion euros.
Nexans is listed on Euronext Paris, compartment A.

Special Cables

World demand for industrial cables has changed over recent years:

- Our customers continue to respond to the global economy;
- Competition and deregulation require new technologies for new environment,
- An ability to comply with diverse standards,
- Precise requirements for customized services both in manufacturing and delivery.

From infrastructure, industry and building, Nexans produces "made to measure" cables requiring very close collaboration with its customers to manufacture exactly according to the industries demands.

Oil & Gas - Petrochemical dedicated cables

Nexans keeps Oil & Gas flowing

The Oil & Gas industry is continuing to reduce costs, improve efficiency, exploit new fields. To ensure the future supplies, it is also moving into deeper waters (+ 3000 m).

Moving the control of subsea development onshore can greatly reduce operating expenses. However, it requires longer submarine energy cable and longer umbilicals. “Smart wells” both onshore and offshore need remote management capability through sensor, instrumentation and control cables and extended WANs and LANs for application sharing among wells and platforms. Onshore facilities (storage depots, refineries and petrochemicals) demand energy and control cables which can operate under aggressive conditions while protecting workers, infrastructure and the environment.

Nexans is present at all these levels of Oil & Gas production, providing a **wide range of energy and telecom cables** for onshore and offshore exploration, production and distribution, as well as for **refinery and petrochemical infrastructure**.

For onshore projects, we use our unique supply chain, global services and technical support to help international contractors and engineering firms meet the complex challenges of the hydrocarbon processing industry.

For the demanding petrochemical environment, Nexans has developed innovative solutions in terms of materials and designs such as Hypron® (chemical and moisture barrier, alternative to lead) and applied them to instrumentation, compensation, communication, control and power cables. These cables are adapted to installation in harsh environments, direct contact with chemical agents, and can resist to fire and have low emission of dark smokes and corrosive gases.

The Oil & Gas industry has some genuine concerns which give rise to very specific demands: offshore due to a tough and dangerous operating environment; and onshore, in refineries and storage facilities. Nexans meets these challenges through its capacities as a full service supplier offering expertise, global presence, performance and partnership.

Communication cables

These optical fiber cables offer unmatched capacity for delivering voice-data image (VDI) within private LAN structure, in addition to integrating critical subsystems for process control and surveillance.

S/FTP Category 7 cables are suitable for voice, data, CATV and sharing application installations up to 600 MHz. They are design for applications like EIA-485, also known as TIA/EIA-485 or RS-485. EIA-485 only specifies electrical characteristics of the driver and the receiver. It does not specify or recommend any data protocol. It offers high data transmission speeds (35 Mbit/s up to 10 m and 100 kbit/s at 1200 m).

Communication cables are used for telecommunication and DCS Data highway for OSP telephone communication and Public Address System. Each cable has an averall screen and an armour .

INTRODUCTION TO COMMUNICATION

Optical fiber cables

These optical fiber cables described in this catalogue, offer unmatched capacity for delivering voice-data-image (VDI) within private LAN structure, in addition to integrating critical subsystems for process control and surveillance.

They have sheathing and armouring to resist the threat of fire within building and hydrocarbons outside especially when buried underground.

We propose a customized set of optical fiber cables for wide applications.

- FOH: Unarmoured - Low-Smoke, Zero-Halogen - inside plants
- FOH/SWA/LSZH: Armoured - Low-Smoke, Zero-Halogen - inside plants where mechanical protection is required
- FOH/SWA/PVC: Armoured and Aliphatic Hydrocarbon-Resistant with galvanized steel wires - outside underground
- FOH/GSTA/PVC: Armoured and Aliphatic Hydrocarbon-Resistant with galvanized steel tape - outside underground
- FOH/LC/PVC/SWA/PVC: Armoured and Aliphatic/ Aromatic Hydrocarbon-Resistant with lead cover - outside underground
- FOH/LC/GSTA/PVC: Armoured and Aliphatic/ Aromatic Hydrocarbon-Resistant with lead cover - outside underground
- FOH/AL/PE/NC/SWA/PVC : Armoured and Aliphatic/ Aromatic Hydrocarbon- Resistant with lead-free barrier, steel armour – environmentally friendly underground

All versions come in a protected, loose-tube design, which contains a maximum of 24 singlemode or multimode fibers.

S/FTP Category 7

These communication cables are suitable for voice, data, CATV and sharing application installations up to 600 MHz. They are design for applications like EIA-485, also known as *TIA/EIA-485* or *RS-485*.

EIA-485 only specifies electrical characteristics of the driver and the receiver. It does not specify or recommend any data protocol. It offers high data transmission speeds (35 Mbit/s up to 10 m and 100 kbit/s at 1200 m).

These cables can also be designed with other outer sheath material and other fire performances.

Communication cables

These cables are used for telecommunication and DCS Data highway for OSP telephone communication and Public Address System. Each cable has an averall screen and an armour. They are available under the following versions (fire performance IEC 60332-3-22(A):

- XLPE insulation with PVC outer sheath
- Armoured
- Armoured HYPRON®
- Armoured with lead sheath

They can also be designed with other insulation, outer sheath material and other fire performances IEC 60332-3-24(C) or IEC 60332-1.

Optical fiber specifications

CHARACTERISTICS	SINGLE MODE G.652		SINGLE MODE G.655 (NZDS)	
	NOM.	MAX.	NOM.	MAX.
Attenuation (dB/km) .1300 nm .1550 nm .1385 nm (only for G652 d fiber)	 ≤0.35 ≤0.22 ≤0.33	 ≤0.42 ≤0.28 ≤0.40	≤0.22	≤0.28
Cut-off wavelength (nm)	1150 - 1330		1100 - 1300	
Dispersion (ps/nm.km) .1285 -1330 nm .1550 nm	 ≤3.5 ≤18		≤8	
Zero dispersion λ_0 (nm)	1310 ±10		1440 max	
Dispersion mode polarisation (ps/√km)	≤0.2		≤0.2	
Attenuation uniformity (dB)	≤0.1		≤0.1	
Mode field diameter (µm)	9.2 ± 0.5		9.2 ± 0.5	
Cladding diameter (µm)	125 ± 1		125 ± 1	
Coating diameter (µm)	245 ± 10		245 ± 10	
Core non-circularity (%)	< 6		< 6	
Cladding non- circularity (%)	< 2		< 2	
Proof test (kpsi)	100		100	

REMARK : Other optical fiber specifications are available on request

Optical fiber specifications

CHARACTERISTICS		MULTIMODE 50/125 µm G.651		MULTIMODE 50/125 µm GIGAlite II		MULTIMODE 50/125 µm GIGAlite III	
		NOM.	MAX.	NOM.	MAX.	NOM.	MAX.
Attenuation .850 nm .1300 nm	(dB/km)	≤2.6 ≤0.8	≤3.2 ≤1.3	≤2.6 ≤0.8	≤3.2 ≤1.3	≤2.6 ≤0.8	≤3.2 ≤1.3
Bandwidth .850 nm / 1300 nm	(Mhz.km)	>500/800 >600/1200					
Applicative length .1 Gbps .10 Gbps	(m)			800/2000		300/na	
Attenuation uniformity	(dB)	≤ 0.2		≤ 0.2		≤ 0.2	
Numeral aperture		0.20 ± 0.02		0.20 ± 0.02		0.20 ± 0.02	
Core diameter	(µm)	50 ± 3		50 ± 3		50 ± 3	
Cladding diameter	(µm)	125 ± 2		125 ± 2		125 ± 2	
Coating diameter	(µm)	250 ± 15		250 ± 15		250 ± 15	
Core non-circularity	(%)	< 6		< 6		< 6	
Cladding non- circularity	(%)	< 2		< 2		< 2	
Concentricity error	(µm)	≤1.5		≤1.5		≤1.5	
Proof test	(kpsi)	100		100		100	

REMARK : Other optical fiber specifications are available on request

Optical fiber specifications

CHARACTERISTICS	MULTIMODE 62.5/125 µm FDDI		MULTIMODE 62.5/125 µm GIGAlite II	
	NOM.	MAX.	NOM.	MAX.
Attenuation (dB/km) .850 nm .1300 nm	 ≤3.0 ≤0.8	 ≤3.5 ≤1.5	 ≤3.0 ≤0.8	 ≤3.5 ≤1.5
Bandwidth (Mhz.km) .850 nm / 1300 nm	> 220 / 600			
Applicative length (m) .1Gbps			> 600/1200	
Attenuation uniformity (dB)	≤ 0.2		≤ 0.2	
Numeral aperture	0.27 ± 0.02		0.27 ± 0.02	
Core diameter (µm)	62.5 ± 3.0		62.5 ± 3.0	
Cladding diameter (µm)	125 ± 2		125 ± 2	
Coating diameter (µm)	250 ± 15		250 ± 15	
Core non-circularity (%)	< 6		< 6	
Cladding non- circularity (%)	< 2		< 2	
Concentricity error (µm)	≤1.5		≤1.5	
Proof test (kpsi)	100		100	

REMARK : Other optical fiber specifications are available on request

Optical fiber specifications

CHARACTERISTICS	SINGLE MODE G.657A
	VALUE
Mode field diameter .Wavelength .Nominal values .Tolerance	 1310 nm 8.6 µm ±0.4 µm
Cladding diameter .Nominal .Tolerance	 125.0 µm ±0.5 µm
Core concentricity error	≤0.4 µm
Cladding non-circularity	≤ 1 %
Cable cut-off wavelength	≤1260 nm
Macrobending loss .Radius .Number of turns .Max. at 1550 nm .Max. at 1625 nm	 15-10 mm 10-1 0.25 – 0.75 dB 1.0 – 1.5 dB
Proof stress	≥ 0.69 GPa
Chromatic dispersion coefficient .Λ0 min .Λ0 max .S0 max	 1300 nm 1324 nm 0.092 ps/nm² x km
Attenuation coefficient (Max)	1310 nm : 0.36 dB/km 1383 nm : 0.34 dB/km 1550 nm : 0.23 dB/km 1625 nm : 0.26 dB/km

REMARK : Other optical fiber specifications are available on request

FOH/SWA/LSZH Armoured

- Fiber optic cables
- **No corrosivity**
- **Low smoke**
- **Low toxicity**
- **Halogen free**

DESCRIPTION

Applications

Optical fibers are mainly used to **transmit information over long distances and with high bit rates**. The light signal propagates along the core and the signal is reflected on the surface between the core and the cladding. The FOH cable type is based on a loose tube design, in which the fibers are protected. It contains a maximum of **24 monomode or multimode fibers. All materials used to manufacture this FOH/SWA/LSZH cable are halogen free. This ensures that non corrosive and low toxic gases are emitted in case of fire. This cable is recommended for use inside buildings where mechanical protection is needed**.

Design

Optical fibers

Jelly

Tube

Ripcord

Reinforcing watertight glass yarns

Inner sheath:

Low Smoke Zero Halogen (LSZH)

Armour:

Galvanised steel wires (SWA)

Protective sheath:

Low Smoke Zero Halogen (LSZH)

Colour: black

UV resistant

Marking

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60754-1; IEC 60754-2;
IEC 61034-1/2

Halogen free
IEC 60754-1


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Gases corrosivity
IEC 60754-2


Operating temp.
-20 .. 60 °C


Smoke density
IEC 61034


Gases toxicity
Low


U.V resistance
Yes

FOH/SWA/LSZH Armoured

NEXANS 279 (GIGAlite) - FOH/SWA/LSZH - UT Nber and type of fiber + meter marking

Standards

IEC 794-1-E1
IEC 794-1-E3
IEC 794-1-E4
IEC 794-1-F1

CHARACTERISTICS

Construction characteristics	
Type of cable	Unitube (UT)
Material of filler / inner sheath	Gel
Protection	Glass yarns
Outer sheath	LSZH
Halogen free	IEC 60754-1
Dimensional characteristics	
Number of tubes	1
Diameter over inner sheath	6.6 mm
Diameter over armour	8.4 mm
Minimum outer diameter	10.8 mm
Maximum outer diameter	12.0 mm
Approximate weight	232 kg/km
Mechanical characteristics	
Crush resistance (IEC 60794-1-E3)	400 N/cm
Maximum tensile load during service (TI)	140.0 daN
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Gases corrosivity	IEC 60754-2
Operating temperature, range	-20 .. 60 °C
Smoke density	IEC 61034
Gases toxicity	Low
U.V resistance	Yes

Halogen free
IEC 60754-1


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Gases corrosivity
IEC 60754-2


Operating temp.
-20 .. 60 °C


Smoke density
IEC 61034


Gases toxicity
Low


U.V resistance
Yes

FOH/SWA/PVC Armoured Aliphatic hydrocarbons resistant

- Fiber optic cables
- **Aliphatic hydrocarbons resistant**

DESCRIPTION

Applications

Optical fibers are mainly used to **transmit information over long distances and with high bit rates**. The light signal propagates along the core and the signal is reflected on the surface between the core and the cladding. The FOH cable type is based on a loose tube design, in which the fibers are protected. It contains a maximum of **24 monomode or multimode fibers. This FOH/SWA/PVC cable has a galvanized steel wires armour and a special PVC outer sheath resistant to aliphatic hydrocarbons which makes the cable well adapted to underground use in industrial applications**.

Design

Optical fibers

Jelly

Tube

Ripcord

Reinforcing watertight glass yarns

Inner sheath:

Low Smoke Zero Halogen (LSZH)

Armour:

Galvanised steel wires (SWA)

Protective sheath:

Polyvinyl Chloride (PVC)

Especially designed to resist aliphatic hydrocarbons

Colour: black

UV resistant

Marking

NEXANS 279 (GIGAlite) - FOH/SWA/PVC - UT Nber and type of fibers + meter marking

STANDARDS

International
IEC 60332-3-22 Cat.A

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

FOH/SWA/PVC Armoured Aliphatic hydrocarbons resistant

Standards

IEC 794-1-E1
IEC 794-1-E3
IEC 794-1-E4
IEC 794-1-F1

CHARACTERISTICS

Construction characteristics	
Type of cable	Unitube (UT)
Material of filler / inner sheath	Gel
Protection	Glass yarns
Inner sheath	Low smoke, zero halogen thermoplastic compound
Armour type	Galvanized steel wires
Outer sheath	PVC
Dimensional characteristics	
Number of tubes	1
Diameter over inner sheath	6.6 mm
Diameter over armour	8.4 mm
Minimum outer diameter	10.8 mm
Maximum outer diameter	12.0 mm
Approximate weight	235 kg/km
Mechanical characteristics	
Crush resistance (IEC 60794-1-E3)	400 N/cm
Maximum tensile load during service (TI)	140.0 daN
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

FOH/GSTA/PVC Armoured Aliphatic hydrocarbons resistant

- Fiber optic cables
- **Aliphatic hydrocarbons resistant**

DESCRIPTION

Applications

Optical fibers are mainly used to **transmit information over long distances and with high bit rates**. The light signal propagates along the core and the signal is reflected on the surface between the core and the cladding. The FOH cable type is based on a loose tube design, in which the fibers are protected. It contains a maximum of **24 monomode or multimode fibers. This FOH/GSTA/PVC cable has a double galvanized steel tape and a special PVC outer sheath resistant to aliphatic hydrocarbons which makes the cable well adapted to underground use in industrial applications**.

Design

Optical fibers

Jelly

Tube

Ripcord

Reinforcing watertight glass yarns

Inner sheath:

Low Smoke Zero Halogen (LSZH)

Armour:

Galvanised steel tapes (GSTA)

Protective sheath:

Polyvinyl Chloride (PVC)

Especially designed to resist aliphatic hydrocarbons

Colour: black

UV resistant

Marking

NEXANS 279 (GIGAlite) - FOH/GSTA/PVC - UT Nber and type of fibers + meter marking

STANDARDS

International
IEC 60332-3-22 Cat.A

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

FOH/GSTA/PVC Armoured Aliphatic hydrocarbons resistant

Standards

IEC 794-1-E1
IEC 794-1-E3
IEC 794-1-E4
IEC 794-1-F1

CHARACTERISTICS

Construction characteristics	
Type of cable	Unitube (UT)
Material of filler / inner sheath	Gel
Protection	Glass yarns
Inner sheath	Low smoke, zero halogen thermoplastic compound
Armour type	Two steel tapes
Outer sheath	PVC
Dimensional characteristics	
Number of tubes	1
Diameter over inner sheath	6.6 mm
Diameter over armour	7.7 mm
Minimum outer diameter	9.9 mm
Maximum outer diameter	11.2 mm
Approximate weight	178 kg/km
Mechanical characteristics	
Crush resistance (IEC 60794-1-E3)	400 N/cm
Maximum tensile load during service (TI)	40.0 daN
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

FOH/LC/PVC/SWA/PVC Armoured Aliphatic & aromatic hydorcardons resistant

- Fiber optic cables
- With lead cover
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

Optical fibers are mainly used to **transmit information over long distances and with high bit rates**. The light signal propagates along the core and the signal is reflected on the surface between the core and the cladding. The FOH cable type is based on a loose tube design, in which the fibers are protected. It contains a maximum of **24 monomode or multimode fibers. This FOH//LC/PVC/SWA/PVC cable designed with a lead cover, a galvanized steel wire armour and a special PVC outer sheath makes it very well adapted to underground use in all raffineries.**

Design

Optical fibers

Jelly

Tube

Ripcord

Reinforcing watertight glass yarns

Inner sheath:

Low Smoke Zero Halogen (LSZH)

Lead cover

Sheath (intermediate sheath):

Polyvinyl Chloride (PVC)

Armour:

Galvanised steel wires (SWA)

Protective sheath:

Polyvinyl Chloride (PVC)

Especially designed to resist aliphatic hydrocarbons

Colour: black

UV resistant

STANDARDS

International
IEC 60332-3-22 Cat.A

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

FOH/LC/PVC/SWA/PVC Armoured Aliphatic & aromatic hydorcardons resistant

Marking

NEXANS 279 (GIGAlite) - FOH/LC/PVC/SWA/PVC - UT Nber and type of fibers + meter marking

Standards

IEC 794-1-E1
IEC 794-1-E3
IEC 794-1-E4
IEC 794-1-F1

CHARACTERISTICS

Construction characteristics	
Type of cable	Unitube (UT)
Material of filler / inner sheath	Gel
Protection	Glass yarns
Inner sheath	Low smoke, zero halogen thermoplastic compound
Lead Sheath	Yes
Intermediate sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Dimensional characteristics	
Number of tubes	1
Diameter over inner sheath	6.6 mm
Diameter over lead sheath	8.4 mm
Diameter over Sheath	10.4 mm
Diameter over armour	12.2 mm
Minimum outer diameter	14.7 mm
Maximum outer diameter	16.35 mm
Approximate weight	625 kg/km
Mechanical characteristics	
Crush resistance (IEC 60794-1-E3)	600 N/cm
Maximum tensile load during service (TI)	250.0 daN
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

FOH/LC/PVC/SWA/PVC Armoured Aliphatic & aromatic hydorcardons resistant

Usage characteristics	
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

FOH/LC/GSTA/PVC Armoured Aliphatic & aromatic hydrocarbons resistant

- Fiber optic cables
- With lead cover
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

Optical fibers are mainly used to **transmit information over long distances and with high bit rates**. The light signal propagates along the core and the signal is reflected on the surface between the core and the cladding. The FOH cable type is based on a loose tube design, in which the fibers are protected. It contains a maximum of **24 monomode or multimode fibers. This FOH//LC/SWA/PVC cable designed with a lead cover, a galvanized steel wire armour and a special PVC outer sheath makes it very well adapted to underground use in all raffineries.**

Design

Optical fibers

Jelly

Tube

Ripcord

Reinforcing watertight glass yarns

Inner sheath:

Low Smoke Zero Halogen (LSZH)

Lead cover

Bedding

Armour:

Galvanised steel tapes (GSTA)

Protective sheath:

Polyvinyl Chloride (PVC)

Especially designed to resist aliphatic hydrocarbons

Colour: black

UV resistant

Marking

STANDARDS

International
IEC 60332-3-22 Cat.A

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

FOH/LC/GSTA/PVC Armoured Aliphatic & aromatic hydrocarbons resistant

NEXANS 279 (GIGAlite) - FOH/LC/GSTA/PVC - UT Nber and type of fibers + meter marking

Standards

IEC 794-1-E1
IEC 794-1-E3
IEC 794-1-E4
IEC 794-1-F1

CHARACTERISTICS

Construction characteristics	
Type of cable	Unitube (UT)
Material of filler / inner sheath	Gel
Protection	Glass yarns
Inner sheath	Low smoke, zero halogen thermoplastic compound
Lead Sheath	Yes
Armour type	Two steel tapes
Outer sheath	PVC
Dimensional characteristics	
Number of tubes	1
Diameter over inner sheath	6.6 mm
Diameter over lead sheath	8.4 mm
Diameter over armour	10.04 mm
Minimum outer diameter	12.6 mm
Maximum outer diameter	14.0 mm
Approximate weight	448 kg/km
Mechanical characteristics	
Crush resistance (IEC 60794-1-E3)	600 N/cm
Maximum tensile load during service (TI)	40.0 daN
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

FOH/AL/PE/NC/SWA/PVC Armoured Aliphatic & aromatic hydrocarbons resistant

- Fiber optic cables
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

Optical fibers are mainly used to **transmit information over long distances and with high bit rates**. The light signal propagates along the core and the signal is reflected on the surface between the core and the cladding. The FOH cable type is based on a loose tube design, in which the fibers are protected. It contains a maximum of **24 monomode or multimode fibers. This FOH/AL/PE/NC/SWA/PVC cable designed with a lead free barrier, a steel wire armour and a special PVC outer sheath makes it well adapted to underground use in all refineries while bringing an envrironmental friendly solution**.

Design

Optical fibers

Jelly

Tube

Ripcord

Reinforcing watertight glass yarns

Inner sheath:

Low Smoke Zero Halogen (LSZH)

Sealing barrier:

Aluminium/Polyethylene tape

Sheath (bedding):

High-density Polyethylene (PE)

Special sheath (intermédiate sheath):

Polyamide

Armour:

Galvanized steel wires (SWA)

Protective sheath:

STANDARDS

International
IEC 60332-3-22 Cat.A

Lead free	Mechanical resistance to impacts	Fire retardant	Chemical resistance	Operating temp.	U.V resistance
Yes	**Good**	**IEC 60332-3-22**	**Aliphatic and aromatic hydrocarbons resistant**	**-20 .. 60 °C**	**Yes**

FOH/AL/PE/NC/SWA/PVC Armoured Aliphatic & aromatic hydrocarbons resistant

Polyvinyl Chloride (PVC) especially designed to resist aliphatic hydrocarbons

Colour: black

UV resistant.

Marking

NEXANS 279 (GIGAlite) - FOH/AL/PE/NC/SWA/PVC - UT Nber and type of fibers + metric marking

Standards

IEC 794-1-E1
IEC 794-1-E3
IEC 794-1-E4
IEC 794-1-F1

CHARACTERISTICS

Construction characteristics	
Type of cable	Unitube (UT)
Material of filler / inner sheath	Gel
Protection	Glass yarns
Inner sheath	Low smoke, zero halogen thermoplastic compound
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide
Armour type	Galvanized steel wires
Outer sheath	PVC
Lead free	Yes
Dimensional characteristics	
Number of tubes	1
Diameter over inner sheath	6.6 mm
Diameter over Sheath	10.23 mm
Diameter over armour	12.03 mm
Minimum outer diameter	14.5 mm
Maximum outer diameter	16.2 mm
Approximate weight	397 kg/km
Mechanical characteristics	
Crush resistance (IEC 60794-1-E3)	600 N/cm

Lead free
Yes


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

FOH/AL/PE/NC/SWA/PVC Armoured Aliphatic & aromatic hydrocarbons resistant

Mechanical characteristics	
Maximum tensile load during service (TI)	250.0 daN
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

Lead free
Yes


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

Communication cables OS Armoured Fire retardant

- Communication cables 110 V
- XLPE insulation
- Overall Screen (OS)
- **Oil resistant**

DESCRIPTION

Applications

These cables are used for **telecommunication and DCS Data highway for OSP telephone communication and Public Address System**. They are well adapted to **underground use in industrial applications where chemical and mechanical protections are needed (refinery areas, chemical plant…)**.

Design

Conductor:

Solid, bare copper

Insulation:

Cross-linked polyethylene (XLPE)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC).

Colour : black

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: black

Other colour on request

STANDARDS

International
IEC 60332-3-22 Cat.A

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Oil resistance
Yes

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Core identification

Pair: black - white
Quad: black - white - red - blue (2 pair cables assembled as a quad)
White core printed with pair number

Marking

NEXANS 279 XLPE/OA.SCR/PVC/SWA/PVC 110 V Nber of pairs & cross-section Cu IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Insulation	XLPE (Cross-linked Polyethylene)
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Maximum operating voltage	110 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Oil resistance	Yes
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C

ELECTRICAL CARACTERISTICS

	Electrical loop resist.at 20°C max. (Ohms/km)	Loop Inductance (mH/km)	Capacitance max. (nF/km)	L / R ratio max (µH/Ohms)

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Oil resistance
Yes

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

4x2x1	36.9	0.697	115	25
5x2x1	36.9	0.697	115	25
10x2x1	36.9	0.697	115	25
25x2x1	36.9	0.697	115	25
50x2x1	36.9	0.697	115	25
100x2x1	36.9	0.697	115	25
2x2x1,5	24.6	0.656	115	40
3x2x1,5	24.6	0.656	115	40
19x2x1,5	24.6	0.656	115	40

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Oil resistance
Yes

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Communication cables Hypron® OS Armoured Fire retardant

- Communication cables 110 V
- XLPE insulation
- Overall Screen (OS)
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These cables are used for **telecommunication and DCS Data highway for OSP telephone communication and Public Address System** in moist areas and where **aliphatic and aromatic hydrocarbons may be present**. They are well adapted to **underground use in industrial applications where chemical and mechanical protections are needed (refinery areas, chemical plant…). Hypron ® offers an alternative to conventional lead covered cable and is an environmental friendly solution** .

Design

Conductor:

Solid bare copper

Insulation:

Cross-linked polyethylene (XLPE)

Binder tape

Bedding

Inner sheath:

Polyvinyl chloride (PVC)

Colour: black.

Overall screen/sealing barrier:

Tinned copper drain wire

Aluminium/polyethylene tape

Bedding:

High density polyethylene (PE)

Colour: black

STANDARDS

International
IEC 60332-3-22 Cat.A

Lead free
Yes

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Special sheath(intermediate sheath):

Polyamide

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: black

Other colour on request.

Core identification

Pair: black - white
Quad: black - white - red - blue (2 pair cables assemblés en quarte)
White core printed with pair number

Marking

NEXANS 279 XLPE/PVC/AL/HDPE/NC/SWA/PVC 110 V Nber of pairs & cross-section
Cu IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/ polyethylene tape
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide
Armour type	Galvanized steel wires
Outer sheath	PVC
Lead free	Yes
Protection	Yes
Electrical characteristics	
Operating voltage	110 V

Lead free
Yes


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Communication cables Hypron® OS
Armoured Fire retardant

Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C

ELECTRICAL CARACTERISTICS

	Electrical loop resist.at 20°C max. (Ohms/km)	Loop Inductance (mH/km)	Capacitance max. (nF/km)	L / R ratio max (µH/Ohms)
4x2x1	36.9	0.697	115	25
5x2x1	36.9	0.697	115	25
10x2x1	36.9	0.697	115	25
25x2x1	36.9	0.697	115	25
50x2x1	36.9	0.697	115	25
100x2x1	36.9	0.697	115	25
2x2x1,5	24.6	0.656	115	40
3x2x1,5	24.6	0.656	115	40
19x2x1,5	24.6	0.656	115	40

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

15 x outer diameter
To be doubled during laying operations

Lead free
Yes


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Communication cables OS Armoured LC Fire retardant

- Communication cables 110 V
- XLPE insulation
- Overall Screen (OS)
- With lead cover
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These cables are used for **telecommunication and DCS Data highway for OSP telephone communication and Public Address System**. They are well adapted to **underground use in industrial applications, in moist areas, where hydrocarbon and mechanical protections are needed. The lead cover brings an enhanced resistance to aromatics hydrocarbons**.

Design

Conductor:

Solid, bare copper

Insulation:

Cross-linked polyethylene (XLPE)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium/polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour: black

Lead covering:

Bedding (intermediate sheath):

Polyvinyl chloride (PVC)

Colour: black

Armour:

STANDARDS

International
IEC 60332-3-22 Cat.A

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: black

Other colour on request.

Core identification

Pair: black - white
Quad: black - white - red - blue (2 pair cables assembled as a quad)
White core printed with pair number

Marking

NEXANS 279 XLPE/OA.SCR/PVC//LC/PVC/SWA/PVC 110 V Nber of pairs & cross-section Cu IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Insulation	XLPE (Cross-linked Polyethylene)
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Lead Sheath	Yes
Intermediate sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Operating voltage	110 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Communication cables OS Armoured LC Fire retardant

Usage characteristics	
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C

ELECTRICAL CHARACTERISTICS

	Electrical loop resist.at 20 C max. (Ohms/km)	Loop Inductance (mH/km)	Capacitance max. (nF/km)	L / R ratio max (µH/Ohms)
4x2x1	36.9	0.697	115	25
5x2x1	36.9	0.697	115	25
10x2x1	36.9	0.697	115	25
25x2x1	36.9	0.697	115	25
50x2x1	36.9	0.697	115	25
100x2x1	36.9	0.697	115	25
2x2x1,5	24.6	0.656	115	40
3x2x1,5	24.6	0.656	115	40
19x2x1,5	24.6	0.656	115	40

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Low voltage power and control cables are used for electricity supply in low voltage installation system. Armoured cables are well adapted to underground use in industrial applications.

Both versions with lead cover or Hypron® barrier bring an enhanced resistance to aromatic hydrocarbons.

OIL & GAS LV CABLES

A. Selection of cables

It is essential to consider the specific system and installation conditions to be able to select the right cable. The following criteria should be taken into account to chose the suitable cable.

Cable Laying

Depending on the nature of the cable system (fixed or mobile) a rigid or flexible cable should be selected. The appropriate protection of a cable will be determined taking into account the mechanical stress and presence of chemical, oils or hydrocarbons.

Ambient Temperature

The quality of the material used to manufacture a cable shall be determined according to the maximum and minimum temperatures to which the cable will be submitted.

Nature of Conductors

Copper or aluminium conductors will be used.

- for equal current rating aluminium cross-section = 1.28 copper cross-section
- for equal ohmic resistance aluminium cross-section = 1.65 copper cross-section
- for copper, sector shaped conductors are available on request from 70 mm2 and above

Current Rating

The current rating of a cable is the capacity that causes a temperature rise equal to the admissible temperature of the cable insulation at the surface of the core.

The current rating shall not exceed the admissible capacity of a cable taking into account the different correction factors due to the ambient temperature and the laying conditions. It is dependent of the construction of the cables, the copper and the material used.

Underground: cables buried into ground (values are given according to IEC 60364-5-52):

- ground temperature: 20 °C
- thermal resistivity: 2.5 K.m/W
- Depth : 0.8 m
  Above ground:
- air temperature: 30 °C

For other conditions (soil resistivity and temperature), please refer to the below correction factors.

B. Correction factors

1 - Thermal resistivity of the ground

For buried cables, the current rating shown in characteristics tables, are given for a soil on which thermal resistivity of the ground is 2.5 K.m/W.

For ground on which thermal resistivity of the soil is different, a factor K shall be applied to reference currents, according to this table.

Thermal resistivity of the ground K. m/W	K
0.5	1.88
0.7	1.62
1	1.5
1.5	1.28
2	1.12
2.5	1
3	0.9

2 - Ambient temperature

Permissible at 20 °C for underground installation and at 30 °C for installation on cable trays.

For other ambient temperatures reference current rating shall be multiplied by the correction factor X, given by the formula:

$$X=\sqrt{\frac{\theta - T}{\theta - t}}$$

θ : admissible conductor temperature in continuous duty in °C.
T : ambient temperature in °C.
t : temperature is
20 °C for underground cables,
30 °C for cables in free air.

Other correction factors for groups circuits and different laying conditions can be found in IEC 60 364-5-52.

C. Electrical details

1 - Short-Circuits Current (I.c.c)

Short-circuit current and breakdown time shall not cause a too high temperature rise which depends on the nature of the insulation compound.

The admissible current density in short-circuit is given by the formula:

$$D=\frac{K}{\sqrt{t}}$$

D : admissible current density in amperes by mm² of cross-section.
K : coefficient depending on the conductor nature, on the initial temperature at overload moment and on the admissible temperature at the end of overload.
t : duration of short-circuit in seconds.
I.c.c. : short-circuit current (A).

Values of K

Nature of insulation	Coefficient K	
	Copper cond.	Alu. cond.
PVC	115	76
XLPE	143	94
EPR	143	–

Temperature/Current density: D in Amperes/sq.mm

Insulation	Temperature (°C)		Duration of overload (in seconds)		
	Initial	Final	0.5	1	2
	Copper conductors				
PVC	70	160	163	115	81
XLPE	90	250	202	143	101
EPR	90	250	202	143	101
	Aluminium conductors				
PVC	70	160	107	76	54
XLPE	90	250	133	94	66

$$\text{Section} \geq \frac{\text{I.c.c. (A)}}{\text{D (A/sq.mm)}}$$

2 - Voltage Drop (Δu)

We recommend voltage drops not to exceed:

- 3 % for lighting wire systems
- 5 % for driving force wire systems
- 10 % on starting time for motors

Formula

- In D.C.
  $\Delta u = 2\,l\,Rc$
- In single-phase alterning current
  $\Delta u = 2\,l\,(Ra\cos\varphi + L\omega\sin\varphi)$
- In three-phrase A.C.
  $\Delta u = \sqrt{3}\,l\,(Ra\cos\varphi + L\omega\sin\varphi)$

Δu : voltage drop

Rc : conductor resistance in D.C. at operating temperature (Ω/km)

Ra : conductor resistance in A.C. at operating temperature (Ω/km)

L : core inductance (H/km)

ω : pulsation equal to 2 π f (314 for f= 50 Hz)

cos.φ : power factor

I : Carried intensity in normal operating conditions (A)

ι : simple length of cable (km)

D. Core idenfication

HD 308 S2

Old identification	Cores Identification European Harmonization HD 308 S2	
	2 Cores Brown - Blue 	
	3 Cores Blue - Brown Green/Yellow 	or Brown - Black - Grey 
	4 Cores Brown - Black - Grey Green/Yellow 	or Grey - Blue - Brown - Black 
	5 Cores Blue - Brown - Black Grey - Green/Yellow 	

This Harmonization Document (HD 308 S2) was approved by CENELEC on 2001-05-01. CENELEC members are bound to comply with the CEN/CENELEC (European Committee for Electrotechnical Standardization) Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

This HD 308 S2 has been integrated into national standards and applies to the low voltage cables of this catalogue.

Oil resistance specifications

Tests/Standards	IEC 60227	UL 1581	UIC 895 OR	ASTM D1047-95	NF C 32206	UL 1072	NF M 87201 NF M 87202	ENI 018100	BS 7655
4h - 70°C IN IRM 902				X					
24h - 90°C IN IRM 902	X(ST9)								
70h - 100°C IN IRM 902			X						
168h - 60°C IN IRM 902		X							
168h - 70°C IN IRM 902			X						
168h- 90°C IN IRM 902					X				X(TM5)
60days - 75°C In oil		X				X			
60days - 60°C In oil		X							
96h - 100°C In oil						X			
168h - 20°C Aliphatic hydrocarbon							X		
28 days - 20°C Aromatic hydrocarbon							X		
Benzene/Super 50/50 resistance								X	

IEC 60502-1 Armoured (GSTA) Fire retardant

- 0.6/1 kV Power and control cables
- Armoured with galvanized steel tapes (GSTA) or aluminium tapes (ATA)
- **Oil resistant**

DESCRIPTION

Applications

These power and control cables are used for electricity supply in **low voltage installation system**. They are well adapted to underground use in industrial applications where **chemical and mechanical protections are needed** (refinery areas, chemical plants...).

Design

Conductor:

Solid plain copper: 1.5 to 4 mm²

Stranded plain copper: 1.5 to 630 mm²

Insulation:

Cross-linked polyethylene (XLPE)

Bedding(optional):

Inner sheath acting as a filler with practically zero thickness or assembling polyester tape

Inner covering (inner sheath):

Polyvinyl chloride (PVC). Colour: black

Armour:

Galvanized steel tapes (GSTA) or aluminium tapes (ATA) for 1 core cable

Outer sheath:

Polyvinyl chloride (PVC). Colour: black. Other colour on request.

Core identification

1 core: black
2x to 5G cores: according to HD 308 S2
Above 5 cores: black core printed with white number

Marking

NEXANS 279 XLPE/PVC/ATA or GSTA/PVC 0.6/1 kV Nber of cores and cross section Cu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-1

Rated Voltage Uo/U (Um)
0.6/1 kV

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Oil resistance
Yes

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

IEC 60502-1 Armoured (GSTA) Fire retardant

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	0.6/1 kV
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Oil resistance	Yes
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

1 core: 10 x outer diameter
Multicores: 8 x outer diameter
To be doubled during laying operations

Cables with reduced neutral on request


Rated Voltage Uo/U (Um)
0.6/1 kV


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Oil resistance
Yes


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C

IEC 60502-1 Armoured (LC-GSTA) Fire retardant

- 0.6/1kV Power and control cables
- With lead sheath (LC)
- Armoured with galvanized steel tapes (GSTA) or aluminium tapes (ATA)
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These power and control cables are used for electricity supply in **low voltage installation system**. They are well adapted to **underground use** in industrial applications, in moist areas, where **hydrocarbon and mechanical protections are needed**.**The lead cover brings an enhanced resistance to aromatic hydrocarbons**.

Design

Conductor:

Solid plain copper:1.5 to 4 mm²

Stranded plain copper: 1.5 to 630 mm²

Insulation:

Cross-linked polyethylene (XLPE)

Bedding(optional):

Inner sheath acting as a filler with practically zero thickness or assembling polyester tape

Inner covering (inner sheath):

Polyvinyl chloride (PVC)

Lead cover (lead sheath)

Bedding:

Paraffin-waxed crepe paper

Armour:

Galvanized steel tapes (GSTA) or aluminium tapes (ATA) for 1 core cable

Outer sheath:

Polyvinyl chloride (PVC). Colour: black. Other colour on request.

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-1

Rated Voltage Uo/U (Um)
0.6/1 kV

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

IEC 60502-1 Armoured (LC-GSTA) Fire retardant

Core identification

1 core: black
2x to 5G cores: according to HD 308 S2
Above 5 cores: black core printed with white number

Marking

NEXANS 279 XLPE/PVC/LC/ATA or GSTA/PVC 0.6/1 kV Nber of cores and cross section Cu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Lead Sheath	Yes
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	0.6/1 kV
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

1 core: 10 x outer diameter
Multicores: 8 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
0.6/1 kV


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C

IEC 60502-1 Armoured (LC-GSTA) Fire retardant

Cables with reduced neutral on request

Rated Voltage Uo/U (Um)
0.6/1 kV

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

IEC 60502-1 Armoured (LC-SWA) Fire retardant

- 0.6/1 kV Power and control cables
- With lead sheath (LC)
- Armoured with galvanized steel wires (SWA) or aluminium wires (AWA)
- **Aliphatic and aromatic hydrocarbons resistance**

DESCRIPTION

Applications

These power and control cables are used for electricity supply in **low voltage installation system**. They are well adapted to **underground use** in industrial applications, in moist areas, where **hydrocarbon and mechanical protections are needed .The lead cover brings an enhanced resistance to aromatic hydrocarbons**.

Design

Conductor:

Solid plain copper: 1.5 to 4 mm²

Stranded plain copper: 1.5 to 630 mm²

Insulation:

Cross-linked polyethylene (XLPE)

Bedding(optional):

Inner sheath acting as a filler with practically zero thickness or assembling polyester tape

Inner covering (inner sheath):

Polyvinyl chloride (PVC)

Lead cover (lead sheath):

Separation sheath (intermediate sheath):

Polyvinyl chloride (PVC)

Armour:

Galvanized steel wires (SWA) or aluminium wires (AWA) for 1 core cable

Outer sheath:

Polyvinyl chloride (PVC). Colour: black. Other colour on request.

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-1

Rated Voltage Uo/U (Um)
0.6/1 kV

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

IEC 60502-1 Armoured (LC-SWA) Fire retardant

Core identification

1 core: black
2x to 5G cores: according to HD 308 S2
Above 5 cores: black core printed with white number

Marking

NEXANS 279 XLPE/PVC/LC/PVC/AWA or SWA/PVC 0.6/1 kV Nber of cores and cross-section Cu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Lead Sheath	Yes
Intermediate sheath	PVC
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	0.6/1 kV
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-22(A) on request.

Minimum bending radius:


Rated Voltage Uo/U (Um)
0.6/1 kV


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C

1 core: 10 x outer diameter
Multicores: 8 x outer diameter
To be doubled during laying operations

Cables with reduced neutral on request.

Rated Voltage Uo/U (Um)
0.6/1 kV

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

IEC 60502-1 Armoured (SWA) Fire retardant

- 0.6/1 kV Power and control cables
- Armoured with galvanized steel wires (SWA) or aluminium wires (AWA)
- **Oil resistant**

DESCRIPTION

Applications

These power and control cables are used for electricity supply in **low voltage installation system**. They are well adapted to underground use in industrial applications where **chemical and mechanical protections are needed** (refinery areas, chemical plants...).

Design

Conductor:

Solid plain copper : 1.5 to 4 mm²

Stranded plain copper : 1.5 to 630 mm²

Insulation:

Cross-linked polyethylene (XLPE)

Bedding(optional):

Inner sheath acting as a filler with practically zero thickness or assembling polyester tape

Inner covering (inner sheath):

Polyvinyl chloride (PVC) Colour :black

Armour:

Galvanized steel wires (SWA) or aluminium wires (AWA) for 1 core cable

Outer sheath:

Polyvinyl chloride (PVC). Colour: black. Other colour on request.

Core identification

1 core: black
2x to 5G cores: according to HD 308 S2
Above 5 cores: black core printed with white number.

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-1

Rated Voltage Uo/U (Um)	Mechanical resistance to impacts	Fire retardant	Oil resistance	Max.conductor temp.in service	Operating temp.
0.6/1 kV	**Good**	**IEC 60332-3-22**	**Yes**	**90 °C**	**-20 .. 60 °C**

IEC 60502-1 Armoured (SWA) Fire retardant

Marking

NEXANS 279 XLPE/PVC/AWA or SWA/PVC 0.6/1 kV Nber of cores and cross section Cu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	0.6/1 kV
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Oil resistance	Yes
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3 -24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

1 core: 10 x outer diameter
Multicores: 8 x outer diameter
To be doubled during laying operations

Cables with reduced neutral on request


Rated Voltage Uo/U (Um)
0.6/1 kV


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22

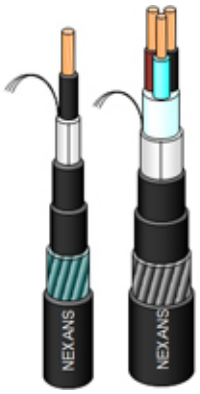

Oil resistance
Yes


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C

IEC 60502-1 HYPRON® Armoured (SWA) Fire retardant

- 0.6/1 kV Power and control cables
- **Lead free**
- Armoured with galvanized steel wires (SWA) or aluminium wires (AWA)
- **Aliphatic and aromatic hydrocarbons resistant.**



DESCRIPTION

Applications

These power and control cables are used for electricity supply in **low voltage installation system**, in moist areas and **where aliphatic and aromatic hydrocarbons** may be present. They are well adapted to **underground use** in industrial applications where chemical and mechanical protections are needed (refinery areas, chemical plant...). **Hypron® offers an alternative to conventional lead covered cable and is an environmental friendly solution**.

Design

Conductor
- Solid plain copper: 1.5 to 4 mm²
- Stranded plain copper: 1.5 to 630 mm²

Insulation:
- Cross-linked polyethylene (XLPE)

Assembling (optional):
- Inner sheath acting as a filler with practically zero thickness

or
- Assembling polyester tape

Screen/sealing barrier:
- Tinned copper drain wire,
- Aluminium/polyethylene tape

Inner sheath:
- High density polyethylene (HDPE)
- Colour: black

Special sheath: (intermediate sheath)
- Polyamide

Armour:
- Galvanized steel wires (SWA)

or
- Aluminium wires (AWA) for 1 core cable

Outer sheath:
- Polyvinyl chloride (PVC)

Colour : black. Other colour on request.

Core identification

1 core: black
2x to 5G cores: according to HD 308 S2
Above 5 cores: black core printed with white number

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A

Lead free
Yes

Rated Voltage Uo/U (Um)
0.6/1 kV

Mechanical resistance to impacts
Good

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

IEC 60502-1 HYPRON® Armoured (SWA) Fire retardant

Marking

NEXANS 279 XLPE/AL/HDPE/NC/AWA or SWA/PVC 0.6/1 kV Nber of cores and cross-section Cu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

IEC 60502-1 (design guide-lines)

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Insulation	XLPE (Cross-linked Polyethylene)
Intermediate sheath	Polyamide
Outer sheath	PVC
Lead free	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	0.6/1 kV
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Cables with reduced neutral on request

Lead free
Yes


Rated Voltage Uo/U (Um)
0.6/1 kV


Mechanical resistance to impacts
Good


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C

IEC 60502-1 Hypron® Unarmoured Fire retardant

- 0.6/1 kV Power and control cables
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These power and control cables are used for electricity supply in **low voltage installation system**, in moist areas and where hydrocarbons may be present. **Hypron® offers an alternative to conventional lead covered cable and is an environmental friendly solution**.

Design

Conductor:

Solid plain copper: 1.5 to 4 mm²

Stranded plain copper: 1.5 to 630 mm²

Insulation:

Cross-linked polyethylene (XLPE)

Bedding (optional):

Inner sheath acting as a filler with practically zero thickness or assembling polyester tape

Inner covering (optional): inner sheath

Polyvinyl chloride (PVC) Colour black

Screen/sealing barrier:

Tinned copper drain wire, Aluminium/polyethylene tape

Sheath:

High density polyethylene (PE) Colour: black

Special sheath (intermediate sheath):

Polyamide

Outer sheath:

Polyvinyl chloride (PVC) Colour: black. Other colour on request

STANDARDS

International IEC 60228;
IEC 60332-3-22

Lead free
Yes

Rated Voltage Uo/U (Um)
0.6/1 kV

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

IEC 60502-1 Hypron® Unarmoured Fire retardant

Core identification

1 core: black
2x to 5G cores: according to HD 308 S2
Above 5 cores: black core printed with white number

Marking

NEXANS 279 XLPE/AL/HDPE/NC/PVC 0.6/1 kV Nber of cores and cross section Cu IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking.

IEC 60502-1 (design guide-lines),

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Intermediate sheath	Polyamide
Outer sheath	PVC
Protection	no
Lead free	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	0.6/1 kV
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

Lead free
Yes


Rated Voltage Uo/U (Um)
0.6/1 kV


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C

1 core: 15 x outer diameter
Multicores: 17 x outer diameter
To be doubled during laying operations

Cables with reduced neutral and larger cross-section on request

Lead free
Yes

Rated Voltage Uo/U (Um)
0.6/1 kV

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

IEC 60502-1 Unarmoured Fire retardant

- 0.6/1kV Power and control cables
- **Oil resistant**.

DESCRIPTION

Applications

These power and control cables are used for electricity supply in **low voltage installation system where chemicals may be present**.

Design

Conductor:

Solid plain copper: 1.5 to 4 mm²

Stranded plain copper: 1.5 to 630 mm²

Insulation:

Cross-linked polyethylene (XLPE)

Bedding(optional):

Inner sheath acting as a filler with practically zero thickness or assembling polyester tape

Outer sheath:

Polyvinyl chloride (PVC). Colour: black. Other colour on request.

Core identification

1 core: black
2x to 5G cores: according to HD 308 S2
Above 5 cores: black core printed with white number.

Marking

NEXANS 279 XLPE/PVC 0.6/1 kV Nber of cores and cross section Cu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-1

CHARACTERISTICS

Construction characteristics

Conductor material	Plain copper

Rated Voltage Uo/U (Um)	Fire retardant	Oil resistance	Max.conductor temp.in service	Operating temp.
0.6/1 kV	**IEC 60332-3-22**	**Yes**	**90 °C**	**-20 .. 60 °C**

IEC 60502-1 Unarmoured Fire retardant

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Outer sheath	PVC
Electrical characteristics	
Rated Voltage Uo/U (Um)	0.6/1 kV
Usage characteristics	
Fire retardant	IEC 60332-3-22
Oil resistance	Yes
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

1 core: 9 x outer diameter
Multicores: 6 x outer diameter
To be doubled during laying operations

Cables with reduced neutral on request.


Rated Voltage Uo/U (Um)
0.6/1 kV


Fire retardant
IEC 60332-3-22


Oil resistance
Yes


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C

U-1000 (A)RGPFV RH C1 Fire retardant

- 0.6/1kV Power & control cables
- XP C 32-111
- With lead cover
- Armoured (double steel tape: STA)
- **Aliphatic and aromatic hydrocarbons resistant**
- **Classification AD8 and AG4**

DESCRIPTION

Applications

These power and control cables are used for electricity supply in **low voltage installation system**. They are well adapted to **underground use** in industrial applications, in moist areas, where **hydrocarbon and mechanical protections are needed**. **The lead sheath brings an enhanced resistance to aromatics hydrocarbons**.

Design

Conductor:
- Solid plain copper: 1.5 to 4 mm²
- Stranded plain copper or aluminium: 6 to 630 mm²

Insulation:
- Cross-linked polyethylene (XLPE)

Bedding (optional)

Inner sheath:
- Polyvinyl chloride (PVC) Colour: black

Lead cover

Armour:
- Paraffin-waxed crepe paper
- Double steel tape (STA)

Outer sheath:
- Polyvinyl chloride (PVC). Colour: black.

Core identification

2 to 5 cores: according to HD 308 S2
> 5 cores: printed numbers
> 5G cores: printed numbers + green/yellow core

Marking

U-1000 (A)RGPFV - RH Nber of cores and cross-section NF-USE 279 NFC 32070 C1 + meter marking

STANDARDS

International IEC 60228; IEC 60332-3-24

National NF C 32-070/C1; XP C 32-111

Rated Voltage Uo/U (Um)	Mechanical resistance to impacts	Fire retardant	Chemical resistance	Max.conductor temp.in service	Operating temp.
0.6/1 kV	**Good**	**NFC 32070 C1, IEC 60332-3-24**	**Aliphatic and aromatic hydrocarbons resistant**	**90 °C**	**-20 .. 60 °C**

U-1000 (A)RGPFV RH C1 Fire retardant

CHARACTERISTICS

Construction characteristics	
Lead Sheath	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	0.6/1 kV
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	NFC 32070 C1, IEC 60332-3-24
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C

SELLING INFORMATION

Other references available on request.

According to NF C 32111, these cables can be manufactured form U 1000 R2V. In such case the diameters and the weights will be a little bit different from the above ones.

Bending radius: 8x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
0.6/1 kV


Mechanical resistance to impacts
Good


Fire retardant
NFC 32070 C1, IEC 60332-3-24


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C

Medium Voltage power cables

Medium-voltage distribution systems begin at substations and supply electricity to a wide spectrum of power consumers. When selecting a cable, the basic aim is to safely provide adequate electrical power, with continuous and trouble-free operation as the failure of a major power cable is likely to have a considerable effect on the power transmission grid.

Each installation has particular requirements that must be considered. There are distinct benefits from specifying a copper or aluminium conductor cable that has been manufactured under rigid specification and quality control procedures. It will provide maximum performance with minimum maintenance.

These medium voltage cables are manufactured according to **IEC 60502-2 standard** (others standards can be selected on request). This IEC standard specifies the constructions, dimensions, test requirements and current ratings of power cables for rated voltage (U) from 6 kV up to and including 30 kV.

Cables described are radial field cables (single-core or three-core). They are provided with a copper screen on each core. Our standard production for those cables is with cross-linked polyethylene insulation (XLPE) but we also can use insulation materials such as PVC for non radial field cables or EPR up to 30 kV.

INTRODUCTION TO MEDIUM VOLTAGE CABLES

Medium Voltage cables

Standard rated voltage

The standard rated voltage of a cable consists of three values **Uo** - **U** and **Um** expressed in kilovolts in the form **Uo/U/Um**, stated in the description of the cable and according to the insulation thickness, conditions of voltage tests and cable working voltages.

- **Uo**: is the rated power-frequency voltage between conductor and earth or metallic screen, for which the cable is designed
- **U**: is the rated power-frequency voltage between conductors, for which the cable is designed
- **Um**: is the maximum value of the "highest system voltage" for which the equipment may be used. (see IEC 60038)
- The standard rated voltages Uo/U/(Um) of the cables considered are as follows:
  Uo/U/(Um) =
  3.6/6(7.2) kV
  6/10(12) kV
  8.7/15 (17.5) kV
  12/20(24) kV
  18/30(36) kV

For the above values of Uo, it is assumed that in the system considered earth faults are automatically cleared within an hour and that the overall operating time with an earthed phase will not exceed 12 hours in a year. If such conditions are not met, a higher value shall be taken for Uo.

For installations where rated voltage U is not mentioned in the standard, the user shall take for Uo the standard voltage which is the next higher than the one obtained from the formula $U\sqrt{3}$.

Current ratings (as per IEC 60502-2)

Conditions:
Rated frequency: 50 Hz
Steady state conditions.
All the ratings for single core assume that the cable screens are solidly bonded (I.e. bonded at both end of the cables).

Underground:

- Ground temperature: 20 °C
- Thermal resistivity: 1.5 K.m/W
- Depth : 0.8 m
- Armoured or unarmoured cables
- Three core cables buried direct in ground
- Single core cables buried direct in ground in trefoil formation.

Above ground:

- air temperature: 30 °C
- single core cables in air and trefoil formation.

For other conditions (such as thermal resistivity of the ground other than 1.5 K.m/W, temperature other than 20 °C or 30 °C, depth of laying other than 0.8 m...) please refer to the IEC 60502-2 correction factors as well as rating factors for grouped circuits.

Electrical details

Short-Circuit Current (I.c.c.)

Short-circuit current and breakdown time shall not cause a too high temperature rise which depends of the nature of the insulation compound.

The admissible current density in short-circuit is given by the formula:

$$D = \frac{K}{\sqrt{t}}$$

D: admissible current density in amperes by mm^2 of cross-section

K: coefficient depending on the conductor nature, on the initial temperature at overload moment and on the admissible temperature at the end of overload.

t: duration of short-circuit in seconds

I.c.c.: short-circuit current (A)

Voltage Drop (Δu)

We recommend voltage drop not to exceed:

- 3 % for lighting wire systems
- 5 % for driving force wire systems
- 10 % on starting time for motors

Formula

- In D.C.
  Δu= 2 I Rc
- In single-phase alterning current
  Δu= 2 I (Ra cos.φ + Lωsinφ)
- In three-phrase A.C.
  Δu= √3 I (Ra cos.φ + Lωsinφ)

Values of K

Nature of insulation	Coefficient K	
	Copper cond.	Alu. cond.
PVC	115	76
XLPE	143	94
EPR	143	–

Current density: D in Amperes / sq.mm XLPE insulation					
Conductors	Temperature (°C)		Duration of overload (in seconds)		
	Initial	Final	0.5	1	2
Copper	90	250	202	143	101
Aluminium	90	250	133	94	66

$$\text{Section} \geq \frac{\text{I.c.c. (A)}}{\text{D (A/sq.mm)}}$$

Δu : voltage drop

Rc : conductor resistance in D.C. at operating temperature (Ω/km)

Ra : conductor resistance in A.C. at operating temperature (Ω/km)

L : core inductance (H/km)

ω : pulsation equal to 2 π f (314 for f= 50 Hz)

cos.φ : power factor

I : Carried intensity in normal operating condition or Id intensity at starting time in the core (A)

ι : simple length of cable (km)

IEC 60502-2 Unarmoured Fire retardant

- Power cables 3.6/6 (7.2) kV, 6/10 (12) kV, 8.7/15 (17.5) kV, 12/20 (24) kV, 18/30 (36) kV
- **Oil resistant**.

DESCRIPTION

Applications

These power cables are used for electricity supply in **medium voltage installation system where chemicals may be present**.

Design

Conductor:

Stranded bare copper (class 2);

Semi-conductor

Insulation:

Cross-linked polyethylene (XLPE)

Semi-conductor

Screen:

Copper tape

Bedding (Optional):

An inner sheath acting as a filler with practically zero thickness

Outer sheath:

Polyvinyl chloride (PVC). Colour: red. Other colour on request.

Core identification

1 core: natural
3 x: black – green – brown (by tape under copper screen)

Marking

NEXANS 279 XLPE/PVC VOLTAGE Nber of cores and cross section Cu/Alu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-2

Fire retardant	Oil resistance	Max.conductor temp.in service	Operating temp.	U.V resistance
IEC 60332-3-22	**Yes**	**90 °C**	**-20 .. 60 °C**	**Yes**

IEC 60502-2 Unarmoured Fire retardant

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Type of conductor	Stranded, Class 2
Insulation	XLPE (Cross-linked Polyethylene)
Screen	Copper tape
Outer sheath	PVC
Protection	no
Usage characteristics	
Fire retardant	IEC 60332-3-22
Oil resistance	Yes
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

1 core: 10 x outer diameter
3x: 8 x outer diameter
To be doubled during laying operations

Aluminium conductors available on request


Fire retardant
IEC 60332-3-22


Oil resistance
Yes


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

IEC 60502-2 HYPRON® Unarmoured Fire retardant

- Power cables 3.6/6 (7.2) kV, 6/10 (12) kV, 8.7/15 (17.5) kV, 12/20 (24) kV, 18/30 (36) kV
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**.

DESCRIPTION

Applications

These power cables are used for electricity supply in **medium voltage installation system where chemicals may be present. Hypron® offers an alternative fo conventional lead covered cable and is an environmental friendy solution** .

Design

Conductor:

Stranded bare copper (class 2)

Semi-conductor

Insulation:

Cross-linked polyethylene (XLPE)

Semi-conductor

Screen:

Copper tape

Bedding (Optional):

An inner sheath acting as a filler with practically zero thickness

Inner sheath:

Polyvinyl chloride (PVC) Colour black

Screen/sealing barrier:

Aluminium/polyethylene tape

Sheath:

High density polyethylene (PE) Colour: black

Special sheath(intermediate sheath):

Polyamide

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A

Lead free
Yes

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

Outer sheath:

Polyvinyl chloride (PVC). Colour: red. Other colour on request.

Core identification

1 core: natural
3 x: black – green – brown (by tape under copper screen)

Marking

NEXANS 279 XLPE/PVC/AL/HDPE/NC/PVC VOLTAGE Nber of cores and cross section Cu/Alu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

Standards

IEC 60502-2 (design guide-lines)

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Type of conductor	Stranded, Class 2
Insulation	XLPE (Cross-linked Polyethylene)
Screen	Copper tape
Inner sheath	PVC
Intermediate sheath	Polyamide
Outer sheath	PVC
Lead free	Yes
Protection	no
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

Lead free
Yes


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

1 core: 10 x outer diameter
3x: 8 x outer diameter
To be doubled during laying operations

Aluminium conductors available on request

Lead free
Yes

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

IEC 60502-2 Armoured (GSTA) Fire retardant

- Power cables 3.6/6 (7.2) kV, 6/10 (12) kV, 8.7/15 (17.5) kV, 12/20 (24) kV, 18/30 (36) kV
- Amoured with galvanized steel tapes (GSTA) or aluminium tapes (ATA)
- **Oil resistant**.

DESCRIPTION

Applications

These power cables are used for electricity supply in **medium voltage installation system.** They are well adapted to underground use in industrial applications where **chemical and mechanical protection are needed** (refinery areas, chemical plants...).

Design

Conductor:

Stranded bare copper (class 2)

Semi-conductor

Insulation:

Cross-linked polyethylene (XLPE)

Semi-conductor

Screen:

Copper tape

Bedding (Optional):

An inner sheath acting as a filler with practically zero thickness

Inner sheath:

Polyvinyl chloride (PVC)

Armour:

Galvanized steel tapes (GSTA) or aluminium tapes (ATA) for 1 core cable

Outer sheath:

Polyvinyl chloride (PVC). Colour: red. Other colour on request.

Core identification

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-2

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Oil resistance
Yes

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

IEC 60502-2 Armoured (GSTA) Fire retardant

1 core: natural
3 x: black – green – brown (by tape under copper screen)

Marking

NEXANS 279 XLPE/PVC/GSTA or ATA/PVC VOLTAGE Nber of cores and cross section Cu/Alu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Type of conductor	Stranded, Class 2
Insulation	XLPE (Cross-linked Polyethylene)
Screen	Copper tape
Inner sheath	PVC
Outer sheath	PVC
Protection	Yes
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Oil resistance	Yes
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

1 core: 10 x outer diameter
3x: 10 x outer diameter
To be doubled during laying operations

Aluminium conductors available on request


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Oil resistance
Yes


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

IEC 60502-2 Armoured (SWA) Fire retardant

- Power cables 3.6/6 (7.2) kV, 6/10 (12) kV, 8.7/15 (17.5) kV, 12/20 (24) kV, 18/30 (36) kV
- Armoured with galvanized steel wires (SWA) or aluminium wires (AWA)
- **Oil resistant**

DESCRIPTION

Applications

These power cables are used for electricity supply in **medium voltage installation system**. They are well adapted to underground use in industrial applications where **chemical and mecanical protections are needed** (refinery areas, chemical plant...).

Design

Conductor:

Stranded bare copper (class 2)

Semi conductor

Insulation:

Cross-linked polyethylene (XLPE)

Semi conductor

Screen:

Copper tape

Bedding

An inner sheath acting as a filler with practically zero thickness

Inner sheath:

Polyvinyl chloride (PVC)

Armour:

Galvanized steel wires (SWA) or aluminium wires (AWA) for 1 core cable

Outer sheath:

Polyvinyl chloride (PVC). Colour: red. Other colour on request

Core identification

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-2

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Oil resistance
Yes

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

1 core: natural
3x: black - green - brown (by tape under copper screen).

Marking

NEXANS 279 XLPE/PVC/SWA or AWA/PVC VOLTAGE Nber of cores and cross-section Cu/Alu IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking.

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Type of conductor	Stranded, Class 2
Insulation	XLPE (Cross-linked Polyethylene)
Screen	Copper tape
Inner sheath	PVC
Outer sheath	PVC
Protection	Yes
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Oil resistance	Yes
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

1 core: 10 x outer diameter
3 cores: 8 x outer diameter
To be doubled during laying operations

Aluminium conductors available on request.


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Oil resistance
Yes


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

IEC 60502-2 Armoured (LC-GSTA) Fire Retardant

- Power cables 3.6/6 (7.2) kV, 6/10 (12) kV, 8.7/15 (17.5) kV, 12/20 (24) kV, 18/30 (36) kV
- With lead sheath (LC)
- Armoured with galvanized steel tapes (GSTA) or aluminium tapes (ATA)
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These power cables are used for electricity supply in **medium voltage installation system**. They are well adapted to **underground use** in industrial applications, in moist areas, where **hydrocarbon and mechanical protections are needed**.**The lead cover brings an enhanced resistance to aromatic hydrocarbons**.

Design

Conductor:

Stranded bare copper (class 2)

Semi conductor

Insulation:

Cross-linked polyethylene (XLPE)

Semi conductor

Screen:

Copper tape

Bedding (optional):

An inner sheath acting as a filler with practically zero thickness

Inner sheath:

Polyvinyl chloride (PVC)

Lead cover(lead sheath)

Armour:

Paraffin-waxed crepe paper

Galvanized steel tapes (GSTA) or aluminium tapes (ATA) for 1 core cable

Outer sheath:

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-2

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

Polyvinyl chloride (PVC). Colour: red. Other colour on request

Core identification

1 core: natural
3x: black - green - brown (by tape under copper screen).

Marking

NEXANS 279 XLPE/PVC/LC/GSTA or ATA/PVC VOLTAGE Nber of cores and cross-section Cu/Alu IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking.

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Type of conductor	Stranded, Class 2
Insulation	XLPE (Cross-linked Polyethylene)
Screen	Copper tape
Inner sheath	PVC
Outer sheath	PVC
Lead Sheath	Yes
Protection	Yes
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

IEC 60502-2 Armoured (LC-GSTA) Fire Retardant

1 core: 10 x outer diameter
3 cores: 8 x outer diameter
To be double during laying operations

Aluminium conductors available on request.

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

IEC 60502-2 Armoured (LC-SWA) Fire retardant

- Power cables 3.6/6 (7.2) kV, 6/10 (12) kV, 8.7/15 (17.5) kV, 12/20 (24) kV, 18/30 (36) kV
- With lead sheath (LC)
- Armoured with galvanized steel wires (SWA) or aluminium wires (AWA)
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These power cables are used for electricity supply in **medium voltage installation system**. They are well adapted to **underground use** in industrial applications, in moist areas, where **hydrocarbon and mechanical protections are needed**.**The lead cover brings an enhanced resistance to aromatic hydrocarbons**.

Design

Conductor:

Stranded bare copper (class 2)

Semi conductor

Insulation:

Cross-linked polyethylene (XLPE)

Semi conductor

Screen:

Copper tape

Bedding(optional):

An inner sheath acting as a filler with practically zero thickness

Inner sheath:

Polyvinyl chloride (PVC)

Lead cover(lead sheath)

Bedding sheath(intermediate sheath):

Polyvinyl chloride (PVC).

Armour:

Galvanized steel wires (SWA) or aluminium wires (AWA) for 1 core cable

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-2

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

IEC 60502-2 Armoured (LC-SWA) Fire retardant

Outer sheath:

Polyvinyl chloride (PVC). Colour: red. Other colour on request

Core identification

1 core: natural
3x: black - green - brown (by tape under copper screen).

Marking

NEXANS 279 XLPE/PVC/LC/PVC/SWA or AWA/PVC VOLTAGE Nber of cores and cross-section Cu/Alu IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking.

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Type of conductor	Stranded, Class 2
Insulation	XLPE (Cross-linked Polyethylene)
Screen	Copper tape
Inner sheath	PVC
Intermediate sheath	PVC
Lead Sheath	Yes
Outer sheath	PVC
Protection	Yes
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

IEC 60502-2 Armoured (LC-SWA) Fire retardant

Minimum bending radius:

1 core: 10 x outer diameter
3 cores: 8 x outer diameter
To be double during laying operations

Aluminium conductors available on request.

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

IEC 60502-2 HYPRON® Armoured (SWA) Fire retardant

- Power cables 3.6/6 (7.2) kV, 6/10 (12) kV, 8.7/15 (17.5) kV, 12/20 (24) kV, 18/30 (36) kV
- Lead free
- Armoured with galvanized steel wires (SWA) or aluminium wires (AWA)
- **Aliphatic and aromatic hydrocarbons resistant**.

DESCRIPTION

Applications

These power cables are used for electricity supply in **medium voltage installation system**. They are well adapted to **underground use** in industrial applications, in moist areas, **where hydrocarbons and mechanical protections** are needed. **Hypron® offers an alternative to conventional lead covered cable and is an environmental friendly solution**.

Design

Conductor:

Stranded bare copper (class 2)

Semi-conductor

Insulation:

Cross-linked polyethylene (XLPE)

Semi-conductor

Screen:

Copper tape

Bedding (Optional):

An inner sheath acting as a filler with practically zero thickness

Inner sheath:

Polyvinyl chloride (PVC)

Screen/sealing barrier:

Aluminium/polyethylene tape

Sheath:

High density polyethylene (PE) Colour: black

STANDARDS

International IEC 60228;
IEC 60332-3-22 Cat.A;
IEC 60502-2

Lead free
Yes

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

IEC 60502-2 HYPRON® Armoured (SWA) Fire retardant

Special sheath(intermediate sheath):

Polyamide

Armour:

Galvanized steel wires (SWA) or aluminium wires (AWA) for 1 core cable

Outer sheath:

Polyvinyl chloride (PVC). Colour: red. Other colour on request.

Core identification

1 core: natural
3 x: black – green – brown (by tape under copper screen)

Marking

NEXANS 279 XLPE/PVC/AL/HDPE/NC/SWA or AWA/PVC VOLTAGE Nber of cores and cross section Cu/Alu IEC 60332-3-22(A) MM YYYY manufacturing number + meter marking

Standards

IEC 60502-2 (design guide-lines)

CHARACTERISTICS

Construction characteristics	
Conductor material	Bare copper
Type of conductor	Stranded, Class 2
Insulation	XLPE (Cross-linked Polyethylene)
Screen	Copper tape
Inner sheath	PVC
Intermediate sheath	Polyamide
Outer sheath	PVC
Lead free	Yes
Protection	Yes
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant

Lead free
Yes


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Max.conductor temp.in service
90 °C


Operating temp.
-20 .. 60 °C


U.V resistance
Yes

IEC 60502-2 HYPRON® Armoured (SWA) Fire retardant

Usage characteristics	
Max. conductor temperature in service	90 °C
Operating temperature, range	-20 .. 60 °C
U.V resistance	Yes

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

1 core: 10 x outer diameter
3x: 8 x outer diameter
To be doubled during laying operations

Aluminium conductors available on request

Lead free
Yes

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Max.conductor temp.in service
90 °C

Operating temp.
-20 .. 60 °C

U.V resistance
Yes

Thermocouple cables

Thermocouples are a widely used **type of temperature sensor.** They can measure a wide range of temperatures, they are very simple in operation and measure the temperature between two points.

A thermocouple construction consists of two dissimilar metal wire welded together at the measuring point and insulated from each other. It will usually have an outer protection sheath.

If two conductors of different materials are joined at one point, an EMF (electromotrice force) is created between the open ends which is dependent upon the temperature of the junction. In most applications, one of the junctions — the "cold junction" — is maintained at a known (reference) temperature, while the other end is attached to a probe. Another temperature sensor will measure the temperature at this point, so that the temperature at the probe tip can be calculated.

Usually the thermocouple is attached to the indicating device by a special wire known as the "compensating" or "extension" cable. This is manufactured to have approximately the same temperature characteristic as the thermocouple, and so generate a voltage proportional to the difference between the hot junction and cold junction. The cable is connected so that the additional voltage is added to the thermocouple voltage, thus compensating for the temperature difference between the hot and cold junctions.

A variety of thermocouples is available, suitable for different measuring applications.

INTRODUCTION TO THERMOCOUPLE

Industrial thermocouples

Extension and compensation cables : definitions

Extension cables use the actual thermocouple materials, but in cheaper forms. This is achieved by using cheaper insulations, wider tolerance alloys and thinner conductors (as they will see little thermal stress in their lifetime). They are usually produced in multi-stranded forms for ease of installation but are also available with solid conductors.

Compensating cables use completely different alloys that happen to exhibit very similar thermo-electric properties up to a limited temperature (usually 200°C). Great care should be taken to control the temperature of the junction between the compensating cable and the actual thermocouple material to keep it below the acceptable maximum.

Standardization

NF C 42321 - IEC 60584-1
Thermoelectric couples - tables of reference

NF C 42322 - IEC 60584-2
Thermoelectric couples – tolerances

NF C 42323
Identification of thermoelectric couples

NF C 42324 - IEC 60584-3 - HD 446-3 S1
Tolerances and identification system

Extension and compensating cables - Identification Sheet

Couple		Nature of conductors of extension or compensating cables		Symbol	Cenelec standard HD 446.351 / French standard NFC 42-324 / British standard BS4937 part 30 / German standard DIN IEC 584 / International standard IEC 60 584-3	American standard ANSI/MC96.1	Former standards		
							French	British	German
Nature	Symb.	Positive	Negative						
copper/ copper-nickel	T	copper	copper-nickel T	TX TC					
iron/ copper-nickel	J	pure iron	copper-nickel J	JX JC					
nickel-chromium/ copper-nickel	E	nickel-chromium	copper-nickel E	EX EC					
nickel-chromium/ nickel-aluminium/	K	nickel-chromium	nickel-aluminium	KX KC					
		iron	copper-nickel	KCA					
		copper	copper-nickel	KCB					
nickel-chromium silicium/ nickel-silicium	N	nickel chromium silicium	nickel-silicium	NX NC					
platinum-rhodium (10 or 13 %)/ platinum	S or R	copper	S or R copper-nickel	SCA SCB RCA RCB					
platinum-rhodium 30 %/ platinum-rhodium 6 %	B	copper	copper alloy	BC					

Symbol

Note: the letter C next to the thermocouple indicates that it is a compensation cable. The letter X indicates an extension cable.

AFNOR NF M 87 201

Designation and identification

Number of pairs: 2 figures

Thermocouple:
letters for type of cable (TC, JC, EC, KC, KCA, KCB, NC, RCA, RCB, SCA, SCB, BC)

- **TC –** Copper/copper nickel for copper/copper nickel thermocouple
- **JC –** Iron/copper nickel for iron/copper nickel thermocouple
- **EC –** Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
- **KC –** Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
- **KCA –** Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
- **KCB –** Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
- **NC –** Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
- **SC RC –** Copper/copper nickel for platinium rhodium thermocouple
- **BC –** Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

Section:
10: 1.00 sqmm (14 x 0.3 mm) for single pair cables
14: 1.34 sqmm (1 x 1.3 mm) for single pair cables
05: 0.50 sqmm (1 x 0.8 mm) for mutipair cables

Screen:
EG: Overall (collective) screen
EI: Individual and Collective Screen. The individual screens are insulated with PVC sheath.

Outer sheath:
SF: non-armoured with PVC sheath
FA: double steel tape armoured with crepe paper with PVC sheath
PF: lead covered and armoured – lead cover and double steel tape armoured with crepe paper with PVC sheath.

Example:

Number of pairs	Thermocouple	Section	Screen	Outer sheath
03	JC	05	EG	FA

Tolerances

Cable Type	Tolerance	Temperature range	Temperature maximum to be measured
JC	± 2.5°C	- 25°C to + 200°C	500°C
TC	± 1.0°C	- 25°C to + 100°C	300°C
EC	± 2.5°C	- 25°C to + 200°C	500°C
KC	± 2.5°C	- 25°C to + 200°C	900°C
KCA	± 2.5°C	0°C to + 150°C	900°C
KCB	± 2.5°C	0°C to + 100°C	900°C
NC	± 2.5°C	0°C to + 150°C	900°C
RCA	± 2.5°C	0°C to + 100°C	1 000°C
RCB	± 5.0°C	0°C to + 200°C	1 000°C
SCA	± 2.5°C	0°C to + 100°C	1 000°C
SCB	± 5.0°C	0°C to + 200°C	1 000°C
BC	± 3.5°C	0°C to + 100°C	1 400°C

Due to the non-linear correspondence deg°C function of the electromotrice force for thermocouple cables R, S and B, the error expressed in deg°C introduced by the compensation cables varies according to the measured temperature. The values indicated above correspond to normal use of these couples (that is to say, generally at measured temperatures exceeding 850°C).

Note: the maximum temperatures indicated above are the limit for couple connections - compensation cables from a thermoelectric point of view take into account fixed tolerances. It is commonly accepted that couple-cable connections must not be heated to temperature exceeding 80°C; this is the maximum admissible temperature for cables for this catalogue.

PAS 5308

These thermocouple cables either extension or compensating (300/500 V) are used to make the connection between the thermocouple and the measuring instrument.

Part 1: concern specification for polyethylene insulated cables (according to BS EN 50290-2-23:2002, grade L/MD) or cross-linked polyethylene insulated cables (according to BS EN 50290-2-29)

Part 2: Concern specification for polyvinyl chloride insulated cables (according to BS EN 50290-2-21:2002, grade TI51)

Where individual pair screening is required, an Aluminium/Polyester tape screen is applied to each pair, in continuous contact with a 0.5 mm² tinned copper drain wire, metallic side down.

For cables requiring a collective screen, an Aluminium/Polyester tape screen is applied over the laid up pairs in continuous contact with a 0.5 mm² tinned copper drain wire metallic side down.

Type 1: Extruded PVC sheath (BS EN 50290-2-22:2002, grade TM51).

Type 2: Extruded polyethylene bedding (BS EN 50290-2-24:2002, grade LD), or PVC bedding (BS EN 50290-2-22:2002, grade TM51) galvanised steel wire armour (BS EN 10257-1), extruded PVC sheath (BS EN 50290-2-22:2002, grade TM51).

Type 3: PVC bedding (BS EN 50290-2-22:2002, grade TM51), extruded sheath of lead alloy (BS EN 50307), PVC bedding (BS EN 50290-2-22:2002, grade TM51), galvanised steel wire armour (BS EN 10257-1), PVC sheath (BS EN 50290-2-22:2002, grade TM51).

The insulation colour code used shall be in accordance with IEC 60 384-3.

EN 50288-7

These thermocouple cables either extension or compensating for (170/300V) or (300/500V) are used to make the connection between the thermocouple and the measuring instrument.

Concern cables with cross-linked polyethylene insulation (according to BS EN 50290-2-29) or polyvinyl chloride insulation (according to BS EN 50290-2-21).

Where individual pair screening is required, an Aluminium/Polyester tape screen is applied to each pair, in continuous contact with a drain wire metallic side down.

For cables requiring a collective screen, an Aluminium/Polyester tape screen is applied over the laid up pairs in continuous contact with a drain wire metallic side down.

The insulation colour code used shall be in accordance with HD 446.3 S1.

PAS 5308 and EN 50288-7 (170/300V) thermocouple cables are available under the following versions (fire performance IEC 60332-3-22(A)):

PVC insulation with PVC outer sheath.
- Unarmoured
- Armoured

XLPE insulation with PVC outer sheath.
- Unarmoured
- Unarmoured Hypron®
- Armoured
- Armoured Hypron®
- Armoured with lead sheath

These cables can also be designed with LSZH sheath and other fire performances IEC 60332-3-24(C) or IEC 60332-1.

KX-PVC/OSCR/PVC

Contact
All Domestic Sales
alper.altinok@nexans.com

THERMOCOUPLE EX. CABLE 500 V

DESCRIPTION

Cable construction

1. Conductor:

Solid Class 1 acc to IEC 60584

Cross section : 1,5 mm2

Conductor One (+): Nickel-chromium

Conductor Two (-): Nickel-aluminum

2.Insulation: PVC

Laying up: Twisted pairs / triads

3. Screen: Polyester (PETP) tape / tinned stranded copper 0.5 mm2 / aluminium backed polyester foil / Polyester (PETP) tape
4. Outer sheath : PVC - Green

Marking:

NEXANS - Year –Cable Type - No. of cores & cross-section – Voltage rating -CPR Class –+ meter marking

Core Identification

Pair : Green (+) - White (-)

STANDARDS

International EN 50288-7

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Outer sheath	PVC
Sheath colour	Green
Usage characteristics	
Ambient installation temperature, range	-5 .. 50 °C
Operating temperature, range	-30 .. 70 °C
Fire retardant	IEC 60332-3 Cat.C

Ambient installation T°C range
-5 .. 50 °C

Operating temp.
-30 .. 70 °C

Fire retardant
IEC 60332-3 Cat.C

KX-PVC/OSCR/PVC

Contact
All Domestic Sales
alper.altinok@nexans.com

PRODUCT LIST

Nexans ref.	Country ref.	Name
10559811	TR	KX - PVC/OSCR/PVC 1P1.5

= Make to order, = In stock

ELECTRICAL PROPERTIES

Electrical Properties

	1,5 mm²
Max. DC Resistance (Ohm/km) @ 20°C	36,8
L/R ratio (µH/Ohm)	40
Max. Mutual Capacitance @1000 Hz (nF/km)	≤150

Min. Insulation Resistance	500 M Ohm x km
Test Voltage (V) 1 minute	1,000 V ac or 2,000 V dc

Ambient installation T°C range
-5 .. 50 °C

Operating temp.
-30 .. 70 °C

Fire retardant
IEC 60332-3 Cat.C

AFNOR NF M 87-201 OS Unarmoured (EGSF)

- Thermocouple cables 250 V
- Overall Screen (OS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where hydrocarbons may be present**

Design

Conductor:

Metal in accordance with the thermocouple,

- for single pair cables solid cross-section 1.34 mm² (1 x 1.30 mm) or stranded cross-section 1 mm² (14 x 0.30 mm)

- for multipair cables solid cross-section 0.5 mm² (1 x 0.8 mm)

Insulation:

Polyvinyl chloride (PVC)

Collective screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Standard

NF M 87201

Marking

STANDARDS

International IEC 60332-1-2; IEC 60584-3

National NF C 32-070/C2; NF C 42-324

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Unarmoured (EGSF)

For type JC - TC - EC - KC - BC: Type - (Class) - Nbre of pair and cross-section - NEXANS 279 + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3) IEC - type - (Class) - Nbre of pair and cross-section - GORSE + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Operating voltage	250 V
Usage characteristics	
Flame retardant	NFC 32070 C2, IEC 60332-1-2
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple


Flame retardant
NFC 32070 C2, IEC 60332-1-2


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Unarmoured (EGSF)

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Unarmoured Fire retardant (EGSF)

- Thermocouple cables 250 V
- Overall Screen (OS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where hydrocarbons may be present**

Design

Conductor:

Metal in accordance with the thermocouple, solid cross-section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or stranded cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Overall screen:

Polyester tape,

Tinned copper drain wire

Aluminium/polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Standard

NF M 87201

Marking

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

National NF C 42-324

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Unarmoured Fire retardant (EGSF)

For type JC - TC - EC - KC - BC: Type - (Class) - Nbre of pair and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3) IEC - type - (Class) - Nbre of pair and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Operating voltage	250 V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Unarmoured Fire retardant (EGSF)

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Unarmoured (EISF)

- Thermocouple cables 250 V
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where hydrocarbons may be present. The individual screening of each pair limits the consequence of crosstalk.**

Design

Conductor:

Metal in accordance with the thermocouple, solid cross-section 0.5 mm² (1 x 0.8 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Individual sheath:

Polyvinyl chloride (PVC)

Collective screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

STANDARDS

International IEC 60332-1-2; IEC 60584-3

National NF C 32-070/C2; NF C 42-324

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Unarmoured (EISF)

See "Identification sheet"

Individual sheath printed with pair mumber

Standard

NF M 87201

Marking

For type JC - TC - EC - KC - BC: type - (Class) - Nber of pairs and cross-section - GORSE + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3): IEC - type - (Class) - Nber of pairs and cross-section - GORSE + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Individual sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Operating voltage	250 V
Usage characteristics	
Flame retardant	NFC 32070 C2, IEC 60332-1-2
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Unarmoured Fire retardant (EISF)

- Thermocouple cables 250 V
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

National NF C 42-324

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where hydrocarbons may be present. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metals in accordance with the thermocouple solid cross section 0,5 mm² (1 x 0,8 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Individual sheath:

Polyvinyl chloryde (PVC)

Overall screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Unarmoured Fire retardant (EISF)

See "identification sheet"

Individual sheath printed with pair number

Standards

NF M 87201

Marking

For type JC - TC - EC - KC - BC: Type - (Class) - Nbre of pairs and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3) IEC - type - (Class) - Nbre of pairs and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Individual sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Operating voltage	250 V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Armoured (EGFA)

- Thermocouple cables 250 V
- Overall Screen (OS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and mechanical protections** are needed (rafinery areas, chemical plant...)

Design

Conductor:

Metal in accordance with the thermocouple,

- for single pair cables solid cross-section 1.34 mm² (1 x 1.30 mm) or stranded cross-section 1 mm² (14 x 0.30 mm)

- multipair cables : solid cross-section 0.5 mm² (1 x 0.8 mm)

Insulation:

Polyvinyl chloride (PVC)

Collective screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Inner sheath:

Polyvinyl chloride (PVC)

Armour:

Paraffin-waxed crepe paper

Double steel tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

STANDARDS

International IEC 60332-1-2; IEC 60584-3

National NF C 32-070/C2; NF C 42-324

Mechanical resistance to impacts	Flame retardant	Chemical resistance	Electro magnetic interference resistance	Operating temp.	Max.conductor temp.in service
Good	**NFC 32070 C2, IEC 60332-1-2**	**Hydrocarbons resistant**	**Yes**	**-20 .. 60 °C**	**70 °C**

AFNOR NF M 87-201 OS Armoured (EGFA)

Core identification

See "Identification sheet"

Standards

NF M 87201

Marking

For type JC - TC - EC - KC - BC: type - (Class) - Nber of pair and cross-section - NEXANS 279 + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3) IEC - type - (Class) - Nber of pair and cross-section - NEXANS 279 + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Two steel tapes
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Operating voltage	250 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Flame retardant	NFC 32070 C2, IEC 60332-1-2
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

Mechanical resistance to impacts
Good

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Mechanical resistance to impacts
Good

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Armoured (EGFA) Fire retardant

- Thermocouple cables 250 V
- Overall Screen (OS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and mechanical protections** are needed (refinery areas, chemical plant…).

Design

Conductor:

Metal in accordance with the thermocouple, either solid of cross-section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or stranded cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Overall screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Inner Sheath:

Polyvinyl chloryde (PVC)

Armour:

Paraffin-waxed crepe paper

Double steel tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

National NF C 42-324

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Armoured (EGFA) Fire retardant

See "identification sheet"

Standards

NF M 87201

Marking

For type JC - TC - EC - KC - BC: Type - (Class) - Nbre of pair and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3) IEC - type - (Class) - Nbre of pair and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Two steel tapes
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Operating voltage	250 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple

JC – Iron/copper nickel for iron/copper nickel thermocouple

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Armoured (EIFA)

- Thermocouple cables 250 V
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and where chemical and mechanical protections** are needed (refinery areas, chemical plant...).**. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, solid cross-section 0.50 mm² (1 x 0.80 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Individual sheath:

Polyvinyl chloride (PVC)

Collective screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Inner sheath:

Polyvinyl chloride (PVC)

Armour:

STANDARDS

International IEC 60332-1-2; IEC 60584-3

National NF C 32-070/C2; NF C 42-324

Mechanical resistance to impacts
Good

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Paraffin-waxed crepe paper

Double steel tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "Identification sheet"

Individual sheath printed with pair mumber

Standards

NF M 87201

Marking

For type JC - TC - EC - KC - BC: type - (Class) - Nber of pairs and cross-section - GORSE + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3): IEC - type - (Class) - Nber of pairs and cross-section - GORSE + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Individual sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Two steel tapes
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Operating voltage	250 V
Mechanical characteristics	
Mechanical resistance to impacts	Good

Mechanical resistance to impacts
Good

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Armoured (EIFA)

Usage characteristics	
Flame retardant	NFC 32070 C2, IEC 60332-1-2
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Mechanical resistance to impacts
Good


Flame retardant
NFC 32070 C2, IEC 60332-1-2


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Armoured (EIFA) Fire retardant

- Thermocouple cables 250 V
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

National NF C 42-324

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and where chemical and mechanical protections** are needed (refinery areas, chemical plant...).**. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, solid cross-section 0.50 mm² (1 x 0.80 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Individual sheath:

Polyvinyl chloride (PVC)

Overall screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Inner sheath:

Polyvinyl chloride (PVC)

Armour:

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Paraffin-waxed crepe paper

Double steel tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Individual sheath printed with pair number

Standards

NF M 87-201

Marking

For type JC - TC - EC - KC - BC: Type - (Class) - Nbre of pair and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3) IEC - type - (Class) - Nbre of pair and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Individual sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Two steel tapes
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Operating voltage	250 V
Mechanical characteristics	
Mechanical resistance to impacts	Good

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Armoured (EIFA) Fire retardant

Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Lead Covered Armoured (EGPF)

- Thermocouple cables 250 V
- Overall Screen (OS)
- **Hydrocarbons resistant and enhanced resistance to aromatics**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications, in moist areas, where chemical and mechanical protections are needed. The lead cover brings an enhanced resistance to aromatic hydrocarbons.**

Design

Conductor:

Metal in accordance with the thermocouple

- for single pair cables solid cross-section 1.34 mm² (1 x 1.30 mm) or stranded cross-section 1 mm² (14 x 0.30 mm)

- for mutipair cables solid cross-section 0.5 mm² (1 x 0.8 mm),

Insulation:

Polyvinyl chloride (PVC)

Collective screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Inner sheath:

Polyvinyl chloride (PVC)

Lead cover

Armour:

Paraffin-waxed crepe paper

Double steel tape

Outer sheath:

STANDARDS

International IEC 60332-1-2; IEC 60584-3

National NF C 32-070/C2; NF C 42-324

Mechanical resistance to impacts
Good

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Lead Covered Armoured (EGPF)

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Standards

NF M 87201

Marking

For type JC - TC - EC - KC - BC: type - (Class) - Nber of pairs and cross-section - NEXANS 279 + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3): IEC - type - (Class) - Nber of pairs and cross-section - NEXANS 279 + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Lead Sheath	Yes
Armour type	Two steel tapes
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Operating voltage	250 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Flame retardant	NFC 32070 C2, IEC 60332-1-2
Chemical resistance	Hydrocarbons resistant and enhanced resistances to aromatics
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C

Mechanical resistance to impacts
Good

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Lead Covered Armoured (EGPF)

Usage characteristics

Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Mechanical resistance to impacts
Good

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Lead Covered Armoured (EGPF) Fire retardant

- Thermocouple cables 250 V
- Overall Screen (OS)
- **Hydrocarbons resistant and enhanced resistance to aromatics**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

National NF C 42-324

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**.They are well adapted to **underground use in industrial applications, in mois areas, where chemical and mechanical protections are needed. The lead cover brings an enhanced resistance to aromatics hydrocarbons**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid of cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or stranded cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Overall screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Inner sheath:

Polyvinyl chloride (PVC)

Lead cover

Armour:

Paraffin-waxed crepe paper

Double steel tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Lead Covered Armoured (EGPF) Fire retardant

Core identification

See "identification sheet"

Standards

NF M 87-201

Marking

For type JC - TC - EC - KC - BC: Type - (Class) - Nbre of pairs and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3) IEC - type - (Class) - Nbre of pairs and cross-section - GORSE - IEC 60332-3-22(A) + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Lead Sheath	Yes
Armour type	Two steel tapes
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Operating voltage	250 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant and enhanced resistances to aromatics
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 OS Lead Covered Armoured (EGPF) Fire retardant

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Lead Covered Armoured (EIPF)

- Thermocouple cables 250V
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant and enhanced resistance to aromatics**.

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements** . They are well adapted to **underground use in industrial applications, in moist areas, where chemical and mechanical protections are needed. The lead cover brings an enhanced resistance to aromatic hydrocarbons. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, solid cross-section 0.50 mm² (1 x 0.80 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Individual sheath:

Polyvinyl chloride (PVC)

Collective screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Inner sheath:

Polyvinyl chloride (PVC)

Lead cover

STANDARDS

International IEC 60332-1-2; IEC 60584-3

National NF C 32-070/C2; NF C 42-324

Mechanical resistance to impacts
Good

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Lead Covered Armoured (EIPF)

Armour:

Paraffin-waxed crepe paper

Double steel tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See document "Identification sheet"

Individual sheath printed with pair mumber

Standards

NF M 87201

Marking

For type JC - TC - EC - KC - BC: type - (Class) - Nber of pairs & cross-section - GORSE + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3): IEC - type - (Class) - Nber of pairs & cross-section - GORSE + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Individual sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Lead Sheath	Yes
Armour type	Two steel tapes
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Operating voltage	250 V

Mechanical resistance to impacts
Good

Flame retardant
NFC 32070 C2, IEC 60332-1-2

Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Lead Covered Armoured (EIPF)

Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Flame retardant	NFC 32070 C2, IEC 60332-1-2
Chemical resistance	Hydrocarbons resistant and enhanced resistances to aromatics
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Mechanical resistance to impacts
Good


Flame retardant
NFC 32070 C2, IEC 60332-1-2


Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Lead Covered Armoured (EIPF) Fire retardant

- Thermocouple cables 250V
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant and enhanced resistance to aromatics**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

National NF C 42-324

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements** . They are well adapted to **underground use in industrial applications, in moist areas, where chemical and mechanical protections are needed. The lead cover brings an enhanced resistance to aromatic hydrocarbons. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, solid cross-section 0.50 mm² (1 x 0.80 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Individual sheath:

Polyvinyl chloride (PVC)

Overall screen:

Polyester tape

Tinned copper drain wire

Aluminium/polyester tape

Inner sheath:

Polyvinyl chloride (PVC)

Lead cover

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Lead Covered Armoured (EIPF) Fire retardant

Armour:

Paraffin-waxed crepe paper

Double steel tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See document "Identification sheet"

Individual sheath printed with pair mumber

Standards

NF M 87201

Marking

For type JC - TC - EC - KC - BC: Type - (Class) - Nbre of pairs and cross-section - NEXANS 279 - IEC 60332-3-22(A) + metric marking

For type KCA - KCB - NC - SCA - SCB - RCA - RCB (IEC 60584-3) IEC - type - (Class) - Nbre of pairs and cross-section - NEXANS 279 - IEC 60332-3-22(A) + metric marking

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Individual sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Lead Sheath	Yes
Armour type	Two steel tapes
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Operating voltage	250 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

AFNOR NF M 87-201 IOS Lead Covered Armoured (EIPF) Fire retardant

Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant and enhanced resistances to aromatics
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	NFM

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant and enhanced resistances to aromatics


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 1/Type 1
OS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Unarmoured (Type 1)
- Overall Screen (OS)
-**Oil resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where oil may be present**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/OA.SCR/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Oil resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1 OS Fire retardant

PAS 5308 Part1/type 1 (Design guide-lines)

BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Oil resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Oil resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1
OS Fire retardant

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Rated Voltage Uo/U (Um)
300 / 500 V

Fire retardant
IEC 60332-3-22

Chemical resistance
Oil resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1 IOS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Unarmoured (Type 1)
- Individual & Overall Screen (IOS)
- **Oil resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where oil may be present. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

Rated Voltage Uo/U (Um)
300 / 500 V

Fire retardant
IEC 60332-3-22

Chemical resistance
Oil resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1 IOS Fire retardant

See "identification sheet"

Marking

NEXANS 279 XLPE/IND.+OA.SCR/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

PAS 5308 Part1/type 1 (Design guide-lines)

BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Oil resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple

JC – Iron/copper nickel for iron/copper nickel thermocouple

EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple

KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple

Rated Voltage Uo/U (Um)
300 / 500 V

Fire retardant
IEC 60332-3-22

Chemical resistance
Oil resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1
IOS Fire retardant

KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Oil resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1
Hypron® OS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Unarmoured (Type 1)
- Overall Screen (OS)
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements in moist areas and where aliphatic and aromatic hydrocarbons may be present. Hypron® offers an alternative to conventional lead covered cable and is an environmental friendly solution.**

Design

Conductor:

Metals in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.3 mm) or flexible cross section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Binder tape

Bedding

Inner sheath:

Polyvinyl chloride (PVC)

Colour: black.

Overall screen/sealing barrier:

Tinned copper drain wire

Aluminium backed polyethylene tape

Bedding:

High density polyethylene (PE)

Colour: black

Lead free
Yes


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1
Hypron® OS Fire retardant

Special sheath (intermediate sheath):

Polyamide

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See identification sheet

Marking

NEXANS 279 XLPE/PVC/AL/HDPE/NC/PVC 300/500V Nber of pairs & cross-section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

Standards

PAS 5308 Part 1/type 1 (Design guide-lines)
BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/ polyethylene tape
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide
Outer sheath	PVC
Lead free	Yes
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant

Lead free
Yes


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1
Hypron® OS Fire retardant

Usage characteristics	
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

THERMOCOUPLE TYPE

*Thermocouple Type:

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

15 x outer diameter
To be doubled during laying operations

Lead free
Yes


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1
Hypron® IOS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Unarmoured (Type 1)
- Individual & Overall Screen (IOS)
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements in moist areas and where aliphatic and aromatic hydrocarbons may be present. The individual screening of each pair limits the consequence of crosstalk. Hypron® offers an alternative to conventional lead covered cable and is an environmental friendly solution.**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium/polyester tape

Binder tape

Binder tape

Bedding

Inner sheath:

Polyvinyl chloride (PVC)

Colour: black.

Overall screen/sealing barrier:

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

Lead free
Yes

Rated Voltage Uo/U (Um)
300 / 500 V

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Tinned copper drain wire

Aluminium backed polyethylene tape

Bedding:

High density polyethylene (PE)

Colour: black

Special sheath(intermediate sheath):

Polyamide

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See identification sheet

Marking

NEXANS 279 XLPE/IND.SCR/AL/HDPE/NC/PVC 300/500V Nber of pairs & cross-section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

Standards

PAS 5308 Part 1/type 1 (Design guide-lines)
BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/ polyethylene tape
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide

Lead free
Yes

Rated Voltage Uo/U (Um)
300 / 500 V

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 1
Hypron® IOS Fire retardant

Construction characteristics	
Outer sheath	PVC
Lead free	Yes
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

THERMOCOUPLE TYPE

*Thermocouple Type:

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

15 x outer diameter
To be doubled during laying operations

Lead free
Yes


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2
OS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Armoured (Type 2)
- Overall Screen (OS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present where chemical and mechanical protections are needed (refinery areas, chemical plant...).**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding(Inner sheath):

Polyvinyl chloride (PVC)

Colour: black or depends on thermocouple type

Armour

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2 OS Fire retardant

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/OA.SCR/PVC/SWA/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

PAS 5308 Part 1/Type 2 (design guide-lines)

BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

* THERMOCOUPLE TYPE

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2 IOS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Armoured (Type 2)
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements** . They are well adapted to **underground use in industrial applications where hydrocarbons may be present and where chemical and mechanical protections are needed (refinery areas, chemical plant...). The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour : depends on thermocouple type

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2 IOS Fire retardant

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/IND+OA.SCR/PVC/SWA/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking.

Standards

PAS 5308 Part1/Type 2

BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2 IOS Fire retardant

Usage characteristics	
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2
Hypron® OS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Armoured (Type 2)
- Overall Screen (OS)
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouple for temperature measurements in moist areas and where aliphatic and aromatic hydrocarbons may be present**. They are well adapted to **underground use in industrial applications where chemical and mechanical protections are needed (refinery areas, chemical plant...). Hypron® offers an alternative to conventional lead sheathed cable and is an environmental friendly solution.**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Binder tape

Bedding

Inner sheath:

Polyvinyl chloride (PVC)

Colour: black

Overall screen/sealing barrier:

Tinned copper drain wire

Aluminium/polyethylene tape

Bedding:

High density polyethylene (PE)

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

Lead free
Yes

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Colour: black

Special sheath(intermediate sheath):

Polyamide

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on Thermocouple type .

Core identification

See identification sheet

Marking

NEXANS 279 XLPE/PVC/AL/HDPE/NC/SWA/PVC 300/500V Nber of pairs & cross-section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

Standards

PAS 5308 Part 1/type 2 (Design guide-lines)
BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/ polyethylene tape
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide
Armour type	Galvanized steel wires
Lead free	Yes
Outer sheath	PVC
Protection	Yes

Lead free
Yes


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2
Hypron® OS Fire retardant

Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

15 x outer diameter
To be doubled during laying operations

Lead free
Yes


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2
Hypron® IOS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Armoured (Type 2)
- Individual & Overall Screen (IOS)
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements in moist areas and where aliphatic and aromatic hydrocarbons may be present**. They are well adapted to **underground use in industrial applications where chemical and mechanical protections are needed (refinery areas, chemical plant...). The individual screening of each pair limits the consequence of crosstalk. Hypron® offers an alternative to conventional lead sheathed cable and is an environmental friendly solution.**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium/polyester tape

Binder tape

Binder tape:

Bedding:

Inner sheath:

Polyvinyl chloride (PVC)

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

Lead free
Yes

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Colour: black.

Overall screen/sealing barrier:

Tinned copper drain wire

Aluminium backed polyethylene tape

Bedding:

High density polyethylene (PE)

Colour: black

Special sheath(intermediate sheath):

Polyamide

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See identification sheet

Marking

NEXANS 279 XLPE/IND.SCR/AL/HDPE/NC/SWA/PVC 300/500V Nber of pairs & cross-section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

Standards

PAS 5308 Part 1/type 2 (Design guide-lines)
BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape

Lead free
Yes


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2
Hypron® IOS Fire retardant

Construction characteristics	
Inner sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/ polyethylene tape
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide
Armour type	Galvanized steel wires
Outer sheath	PVC
Lead free	Yes
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

Lead free
Yes


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 2
Hypron® IOS Fire retardant

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

15 x outer diameter
To be doubled during laying operations

Lead free
Yes

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Nexans

Thermocouple PAS 5308 Part 1/Type 3 OS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Armoured
- With lead cover (Type 3)
- Overall Screen (OS)
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**.They are well adapted to **underground use in industrial applications, in moist areas, where chemical and mechanical protections are needed. The lead cover brings an enhanced resistance to aromatics hydrocarbons**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour: black or depends on thermocouple type

Lead Covering

Lead alloy "E"

Bedding (intermediate sheath):

Polyvinyl chloride (PVC)

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Colour: black or depends on thermocouple type

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/OA.SCR/PVC/LC/PVC/SWA/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking.

Standards

PAS Part 1/Type 3 (Design guide-lines)

BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Lead Sheath	Yes
Intermediate sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Mechanical characteristics	
Mechanical resistance to impacts	Good

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 3
OS Fire retardant

Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 3 IOS Fire retardant

- Thermocouple cables 300/500 V
- XLPE insulation (Part 1)
- Armoured
- With lead cover (Type 3)
- Individual & Overall Screen (IOS)
- **Aliphatic and aromatic hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use** in industrial applications, in moist areas, **where chemical and mechanical protections are needed. The lead cover brings an enhanced resistance to aromatics hydrocarbons. The individual screening of each pair limits the consequence of crosstalk.**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Lead Covering:

Lead alloy "E"

Bedding (intermediate sheath):

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Armour

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/IND.+OA.SCR/PVC/LC/PVC/SWA/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking.

Standards

PAS Part 1/Type 3 (Design guide-lines)

BS EN 50290-2-29

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 1/Type 3 IOS Fire retardant

Construction characteristics	
Lead Sheath	Yes
Intermediate sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

10 x outer diameter
To be doubled during laying operations

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple PAS 5308 Part 2/Type 1
OS Fire retardant

- Thermocouple cables 300/500 V
- PVC insulation (Part 2)
- Unarmoured (Type 1)
- Overall Screen (OS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where hydrocarbons may be present**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 PVC/OA.SCR/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 1
OS Fire retardant

PAS 5308 Part 2/Type 1(Design guide-lines)

BS EN 50290-2-21-2002

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 1
OS Fire retardant

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Rated Voltage Uo/U (Um)
300 / 500 V

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 1
IOS Fire retardant

- Thermocouple cables 300/500 V
- PVC insulation (Part 2)
- Unarmoured (Type 1)
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where hydrocarbons may be present. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

Rated Voltage Uo/U (Um)
300 / 500 V

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 1 IOS Fire retardant

See "identification sheet"

Marking

NEXANS 279 PVC/IND+OA.SCR/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

PAS 5308 Part 2/Type 1 (Design guide-lines)

BS EN 50290-2-21-2002

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple

JC – Iron/copper nickel for iron/copper nickel thermocouple

EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple

KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple

Rated Voltage Uo/U (Um)
300 / 500 V

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 1
IOS Fire retardant

KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
300 / 500 V


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 2 OS Fire retardant

- Thermocouple cables 300/500 V
- PVC insulation (Part 2)
- Armoured (Type 2)
- Overall Screen (OS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and where chemical and mechanical protections are needed (refinery areas, chemical plant…)**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Armour

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 2 OS Fire retardant

Core identification

See "identification sheet"

Marking

NEXANS 279 PVC/OA.SCR/PVC/SWA/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

PAS 5308 Part 2/Type 2 (Design guide-lines)

BS EN 50290-2-21-2002

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	PAS

* THERMOCOUPLE TYPE

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 2 IOS Fire retardant

- Thermocouple cables 300/500 V
- PVC insulation (Part 2)
- Armoured (Type 2)
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A;
IEC 60584-3

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and where chemical and mechanical protections are needed (refinery areas, chemical plant...) The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 2 IOS Fire retardant

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 PVC/IND+OA.SCR/PVC/SWA/PVC 300/500 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

PAS 5308 Part 2/Type 2 (Design guide-lines)

BS EN 50290-2-21-2002

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22

Rated Voltage Uo/U (Um)
300 / 500 V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Thermocouple PAS 5308 Part 2/Type 2 IOS Fire retardant

Usage characteristics	
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	PAS

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
300 / 500 V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple EN 50288-7 XLPE Insulation OS Unarmoured Fire retardant

- Thermocouple cables 170/300 V
- Overall Screen (OS)
- **Oil resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where oil may be present**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/OA.SCR/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Oil resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation OS Unarmoured Fire retardant

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Oil resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request

Minimum bending radius:


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Oil resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

10 x outer diameter
To be doubled during laying operations

Rated Voltage Uo/U (Um)
170/300V

Fire retardant
IEC 60332-3-22

Chemical resistance
Oil resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation IOS Unarmoured Fire retardant

- Thermocouple cables 170/300 V
- Individual & Overall Screen (IOS)
- **Oil resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where oil may be present. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Métal in accordance with the thermocouple, either solid cross-section 0.5 mm² (1 x 0.80 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Rated Voltage Uo/U (Um)
170/300V

Fire retardant
IEC 60332-3-22

Chemical resistance
Oil resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation IOS Unarmoured Fire retardant

Marking

NEXANS 279 XLPE/IND+OA.SCR/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Oil resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Oil resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Oil resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 Hypron® XLPE Insulation OS Unarmoured Fire retardant

- Thermocouple cables 170/300 V
- Overall Screen (OS)
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements in moist areas and where aliphatic and aromatic hydrocarbons may be present. Hypron® offers an alternative to conventional lead covered cable and is an environmental friendly solution.**

Design

Conductor:

Metals in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.3 mm) or flexible cross section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Binder tape

Bedding

Inner sheath:

Polyvinyl chloride (PVC)

Colour: black.

Overall screen/sealing barrier:

Tinned copper drain wire

Aluminium backed polyethylene tape

Bedding:

High density polyethylene (PE)

Colour: black

Special sheath (intermediate sheath):

Lead free
Yes


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Polyamide

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See identification sheet

Marking

NEXANS 279 XLPE/PVC/AL/HDPE/NC/PVC 170/300V Nber of pairs & cross-section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/ polyethylene tape
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide
Outer sheath	PVC
Lead free	Yes
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes

Lead free
Yes


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 Hypron® XLPE Insulation OS Unarmoured Fire retardant

Usage characteristics	
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

THERMOCOUPLE TYPE

*Thermocouple Type:

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

15 x outer diameter
To be doubled during laying operations

Lead free
Yes


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 Hypron® XLPE Insulation IOS Unarmoured Fire retardant

- Thermocouple cables 170/300 V
- Individual & Overall Screen (IOS)
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements in moist areas and where aliphatic and aromatic hydrocarbons may be present. The individual screening of each pair limits the consequence of crosstalk. Hypron® offers an alternative to conventional lead covered cable and is an environmental friendly solution.**

Design

Conductor:

Metals in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.3 mm) or flexible cross section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium/polyester tape

Binder tape

Binder tape

Bedding

Inner sheath:

Polyvinyl chloride (PVC)

Colour: black

Overall screen/sealing barrier:

Tinned copper drain wire

STANDARDS

International
IEC 60332-3-22 Cat.A

Lead free	Rated Voltage Uo/U (Um)	Fire retardant	Chemical resistance	Electro magnetic interference resistance	Operating temp.	Max.conductor temp.in service
Yes	**170/300V**	**IEC 60332-3-22**	**Aliphatic and aromatic hydrocarbons resistant**	**Yes**	**-20 .. 60 °C**	**90 °C**

Aluminium backed polyethylene tape

Bedding:

High density polyethylene (PE)

Colour: black

Special sheath(intermediate sheath):

Polyamide

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See identification sheet

Marking

NEXANS 279 XLPE/IND.SCR/AL/HDPE/NC/PVC 170/300V Nber of pairs & cross-section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/ polyethylene tape
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide
Lead free	Yes

Lead free
Yes


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 Hypron® XLPE Insulation IOS Unarmoured Fire retardant

Construction characteristics	
Outer sheath	PVC
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

THERMOCOUPLE TYPE

*Thermocouple Type:

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

15 x outer diameter
To be doubled during laying operations

Lead free
Yes


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation OS Armoured Fire retardant

- Thermocouple cables 170/300 V
- Overall Screen (OS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and where chemical and mechanical protections are needed (refinery areas, chemical plant…)**.

Design

Conductor:

Metals in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.3 mm) or flexible of cross section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding:

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation OS Armoured Fire retardant

See "identification sheet"

Marking

NEXANS 279 XLPE/OA.SCR/PVC/SWA/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple

JC – Iron/copper nickel for iron/copper nickel thermocouple

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation IOS Armoured Fire retardant

- Thermocouple cables 170/300 V
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and where chemical and mechanical protections are needed (refinery areas, chemical plant…). The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Armour:

STANDARDS

International
IEC 60332-3-22 Cat.A

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/IND+OA.SCR/PVC/SWA/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking.

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation IOS Armoured Fire retardant

Usage characteristics	
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 Hypron® XLPE Insulation OS Armoured Fire retardant

- Thermocouple cables 170/300 V
- Overall Screen (OS)
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouple for temperature measurements in moist areas and where aliphatic and aromatic hydrocarbons may be present**. They are well adapted to **underground use in industrial applications where chemical and mechanical protections are needed (refinery areas, chemical plant...). Hypron® offers an alternative to conventional lead sheathed cable and is an environmental friendly solution.**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Binder tape

Bedding

Inner sheath:

Polyvinyl chloride (PVC)

Colour: black

Overall screen/sealing barrier:

Tinned copper drain wire

Aluminium/polyethylene tape

Bedding:

High density polyethylene (PE)

Colour: black

STANDARDS

International
IEC 60332-3-22 Cat.A

Lead free
Yes

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Special sheath(intermediate sheath):

Polyamide

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See identification sheet

Marking

NEXANS 279 XLPE/PVC/AL/HDPE/NC/SWA/PVC 170/300V Nber of pairs & cross-section type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + metric marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Inner sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/ polyethylene tape
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide
Armour type	Galvanized steel wires
Outer sheath	PVC
Lead free	Yes
Protection	Yes

Lead free
Yes


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 Hypron® XLPE Insulation OS Armoured Fire retardant

Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

15 x outer diameter
To be doubled during laying operations

Lead free
Yes


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 Hypron® XLPE Insulation IOS Armoured Fire retardant

- Thermocouple cables 170/300 V
- Individual & Overall Screen (IOS)
- Lead free
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements in moist areas and where aliphatic and aromatic hydrocarbons may be present**. They are well adapted to **underground use in industrial applications where chemical and mechanical protections are needed (refinery areas, chemical plant…). The individual screening of each pair limits the consequence of crosstalk. Hypron ® offers an alternative to conventional lead sheathed cable and is an environmental friendly solution**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Binder tape

Bedding

Inner sheath:

Polyvinyl chloride (PVC)

Colour: Black

Overall screen/sealing barrier:

STANDARDS

International
IEC 60332-3-22 Cat.A

Lead free
Yes

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Tinned copper drain wire

Aluminium backed polyethylene tape

Bedding:

High-density polyethylene (PE)

Colour : black

Special sheath (intermediate sheath):

Polyamide

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/IND.SCR/AL/HDPE/NC/SWA/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking.

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Overall screen	Tinned copper drain wire + aluminium/ polyethylene tape

Lead free
Yes


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 Hypron® XLPE Insulation IOS Armoured Fire retardant

Construction characteristics	
Material of bedding	High-density polyethylene (PE)
Intermediate sheath	Polyamide
Armour type	Galvanized steel wires
Outer sheath	PVC
Lead free	Yes
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Lead free
Yes


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Minimum bending radius:

15 x outer diameter
To be doubled during laying operations

Lead free
Yes

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation OS Armoured LC Fire retardant

- Thermocouple cables 170/300 V
- Overall Screen (OS)
- With lead cover (LC)
- **Aliphatic and aromatic hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**.They are well adapted to **underground use in industrial applications, in moist areas, where chemical and mechanical protections are needed. The lead cover brings an enhanced resistance to aromatics hydrocarbons**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Lead cover

Bedding (intermediate sheath):

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Armour:

STANDARDS

International
IEC 60332-3-22 Cat.A

Rated Voltage Uo/U (Um)	Mechanical resistance to impacts	Fire retardant	Chemical resistance	Electro magnetic interference resistance	Operating temp.	Max.conductor temp.in service
170/300V	**Good**	**IEC 60332-3-22**	**Aliphatic and aromatic hydrocarbons resistant**	**Yes**	**-20 .. 60 °C**	**90 °C**

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/OA.SCR/PVC/LC/PVC/SWA/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Lead Sheath	Yes
Intermediate sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation OS Armoured LC Fire retardant

Usage characteristics	
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation IOS Armoured LC Fire retardant

- Thermocouple cables 170/300 V
- Individual & Overall Screen (IOS)
- With lead cover (LC)
- **Aliphatic and aromatic hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**.They are well adapted to **underground use in industrial applications, in moist areas, where chemical and mechanical protections are needed. The lead cover brings an enhanced resistance to aromatics hydrocarbons. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Cross-linked polyethylene (XLPE)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation IOS Armoured LC Fire retardant

Lead cover

Bedding (intermediate sheath):

Polyvinyl Chloride (PVC)

Colour : black or depends on thermocouple type

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 XLPE/IND+OA.SCR/PVC/LC/PVC/SWA/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking.

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	XLPE (Cross-linked Polyethylene)
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Lead Sheath	Yes
Intermediate sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Aliphatic and aromatic hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 XLPE Insulation IOS Armoured LC Fire retardant

Construction characteristics	
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Aliphatic and aromatic hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	90 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Aliphatic and aromatic hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
90 °C

Thermocouple EN 50288-7 PVC Insulation OS Unarmoured Fire retardant

- Thermocouple cables 170/300 V
- Overall Screen (OS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where hydrocarbons may be present**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 PVC/OA.SCR/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple EN 50288-7 PVC Insulation OS Unarmoured Fire retardant

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

10 x outer diameter
To be doubled during laying operations

Rated Voltage Uo/U (Um)
170/300V

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Thermocouple EN 50288-7 PVC Insulation IOS Unarmoured Fire retardant

- Thermocouple cables 170/300 V
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements where hydrocarbons may be present. The individual screening of each pair limits the consequence of crosstalk**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

STANDARDS

International
IEC 60332-3-22 Cat.A

Rated Voltage Uo/U (Um)
170/300V

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Thermocouple EN 50288-7 PVC Insulation IOS Unarmoured Fire retardant

Marking

NEXANS 279 PVC/IND+OA.SCR/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Outer sheath	PVC
Protection	no
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
170/300V


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple EN 50288-7 PVC Insulation OS Armoured Fire retardant

- Thermocouple cables 170/300 V
- Overall Screen (OS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and where chemical and mechanical protections are needed (refinery areas, chemical plant…)**.

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Armour:

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple EN 50288-7 PVC Insulation OS Armoured Fire retardant

See "identification sheet"

Marking

NEXANS 279 PVC/OA.SCR/PVC/SWA/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple

JC – Iron/copper nickel for iron/copper nickel thermocouple


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Thermocouple EN 50288-7 PVC Insulation IOS Armoured Fire retardant

- Thermocouple cables 170/300 V
- Individual & Overall Screen (IOS)
- **Hydrocarbons resistant**

STANDARDS

International
IEC 60332-3-22 Cat.A

DESCRIPTION

Applications

These compensation and extension cables are used with **thermocouples for temperature measurements**. They are well adapted to **underground use in industrial applications where hydrocarbons may be present and where chemical and mechanical protections are needed (refinery areas, chemical plant…). The individual screening of each pair limits the consequence of crosstalk.**

Design

Conductor:

Metal in accordance with the thermocouple, either solid cross section 0.5 mm² (1 x 0.8 mm), 1.34 mm² (1 x 1.30 mm) or flexible cross-section 1 mm² (14 x 0.30 mm)

Insulation:

Polyvinyl chloride (PVC)

Individual screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Binder tape

Overall screen:

Binder tape

Tinned copper drain wire

Aluminium backed polyester tape

Bedding (inner sheath):

Polyvinyl chloride (PVC)

Colour : black or depends on thermocouple type

Armour:


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Galvanized steel wires (SWA)

Outer sheath:

Polyvinyl chloride (PVC)

Colour: depends on thermocouple type

Core identification

See "identification sheet"

Marking

NEXANS 279 PVC/IND+OA.SCR/PVC/SWA/PVC 170/300 V Nber of pairs & cross section Type of thermocouple IEC 60332-3-22(A) MM YYYY Manufacturing number + meter marking

Standards

EN 50288-7 (Design guide-lines)

HD 446.3 S1

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Individual screen	Tinned copper drain wire + aluminium/polyester tape
Overall screen	Tinned copper drain wire + aluminium/polyester tape
Inner sheath	PVC
Armour type	Galvanized steel wires
Outer sheath	PVC
Protection	Yes
Electrical characteristics	
Rated Voltage Uo/U (Um)	170/300V
Mechanical characteristics	
Mechanical resistance to impacts	Good
Usage characteristics	
Fire retardant	IEC 60332-3-22
Chemical resistance	Hydrocarbons resistant
Electro magnetic interference resistance	Yes

Rated Voltage Uo/U (Um)
170/300V

Mechanical resistance to impacts
Good

Fire retardant
IEC 60332-3-22

Chemical resistance
Hydrocarbons resistant

Electro magnetic interference resistance
Yes

Operating temp.
-20 .. 60 °C

Max.conductor temp.in service
70 °C

Thermocouple EN 50288-7 PVC Insulation IOS Armoured Fire retardant

Usage characteristics	
Operating temperature, range	-20 .. 60 °C
Max. conductor temperature in service	70 °C
Standard	EN

* THERMOCOUPLE TYPE

TC – Copper/copper nickel for copper/copper nickel thermocouple
JC – Iron/copper nickel for iron/copper nickel thermocouple
EC – Nickel chromium/copper nickel for nickel chromium/copper nickel thermocouple
KC – Nickel chromium/nickel aluminium for nickel chromium/nickel aluminium thermocouple
KCA – Iron/copper nickel for nickel chromium/nickel aluminium thermocouple
KCB – Copper/copper nickel for nickel chromium/nickel aluminium thermocouple
NC – Nickel chromium silicium/nickel silicium for nickel chromium silicium/nickel silicium thermocouple
SC RC – Copper/copper nickel for platinium rhodium thermocouple
BC – Copper/copper alloy for platinium rhodium/platinium rhodium thermocouple

SELLING INFORMATION

Other fire performances IEC 60332-1 or IEC 60332-3-24(C) and enhanced hydrocarbon resistance on request.

Minimum bending radius:

10 x outer diameter
To be doubled during laying operations


Rated Voltage Uo/U (Um)
170/300V


Mechanical resistance to impacts
Good


Fire retardant
IEC 60332-3-22


Chemical resistance
Hydrocarbons resistant


Electro magnetic interference resistance
Yes


Operating temp.
-20 .. 60 °C


Max.conductor temp.in service
70 °C

Photovoltaic dedicated cables

Contact
All Domestic Sales
alper.altinok@nexans.com

Due to soaring electricity costs from fuel fossil energy and greenhouse gases emission concerns, the photovoltaic PV market has experienced unprecedented growth over the past decade.

The photovoltaic power is well on the way to becoming a fully competitive part of the electricity system in the European Union (EU) and an increasingly important part of the energy mix around the Globe. PV markets are stronger than ever, and PV now appears on the energy map of several countries as a real alternative to conventional electricity sources.
Costs of PV installation are going down and despite Western European markets being volatile because of Feed in Tariffs and incentives being reduced, some markets are on the way to reach grid parity, the point at which alternative means of generating electricity becomes competitive versus commercially available grid power based on coal or gas.

In order to respond to his customers' request, Nexans has developed a wide range of cables and services for connecting photovoltaic installations under the brand **Keylios**®.

Through this comprehensive range of cables and services Nexans is well positioned to tackle all customers from modules manufacturers to projects developers, installers, specialised distributors or wholesalers.

A core element in the Keylios® range is the state-of-the-art 0.6 to1kV**Energyflex**® cables, with cross-linked polyolefin insulation, designed to link PV panels on rooftop or in solar fields and also connect them to the array box or inverter. Resistant to extreme temperatures (-40°C to +120°C), ozone and UV, these zero-halogen cables are low-smoke and flame-retardant for enhanced fire security. **Both UL and TÜV-certified,** they fit main connectors, are color-striped for easy installation and phase identification, meet RoHS directives, and are fully recyclable. Energyflex® cables are also available with E-beam cross linked technology with TÜV approval, in order to respond all needs of our customers.

H1Z2Z2-K

Energyflex® cables are designed to comply with the international standards of the solar plants. They are dedicated to the photovoltaic system direct current (D.C.) side with a nominal D.C. voltage of 1.5 kV and a maximum D.C. voltage of 1.8 kV. These cables are suitable for permanent outdoor long-term use, under variable and harsh climate conditions. They are designed and tested to operate at a normal maximum conductor temperature of 90°C and for 20,000 hours up to 120°C. Therefore, the expected period use is more than 25 years under normal usage conditions (lifetime acc. to Arrhenius-Diagram).

DESCRIPTION

Application:

These state-of-art 1.5kV D.C. cross-linked **Energyflex®** cables offer exceptional performances, easy installation and long-term reliability for solar plant. They link photovoltaic panels for Utility-Scale solar plants or rooftops, and also connect them to the array box (if existing), or potentially to the inverter.

- **Brand** : Energyflex®
- **Designation** : H1Z2Z2-K
- **Standard** : EN 50618:2014

Current Rating Temperature

Ambient temperature = 60°C

Maximum conductor temperature = 120°C

STANDARDS

International EN 50618

Halogen free
IEC 60754-1

Rated Voltage Uo/U (Um)
1.0/1.0 (1.2) kV AC - 1.5/1.5 (1.8) kV DC

Flame retardant
IEC 60332-1-2

Operating temp.
-40 .. 90 °C

Smoke density
IEC 61034

Gases corrosivity
IEC 60754-2

Max.conductor temp.in service
120 °C

H1Z2Z2-K

CHARACTERISTICS

Construction characteristics	
Conductor material	Tin Coated Copper Class 5 acc. To EN 60228
Insulation	Cross-linked (XL) HFFR acc. to EN 60811 and EN 60216-1-2
Halogen free	IEC 60754-1
Sheath colour	Black
Electrical characteristics	
Rated Voltage Uo/U (Um)	1.0/1.0 (1.2) kV AC - 1.5/1.5 (1.8) kV DC
Usage characteristics	
Flame retardant	IEC 60332-1-2
Operating temperature, range	-40 .. 90 °C
Short-circuit max. conductor temperature	250 °C
Smoke density	IEC 61034
Gases corrosivity	IEC 60754-2
Max. conductor temperature in service	120 °C

TECHNICAL PROPERTIES

Cross section [mm²]	Nom. insulation thick. [mm]	Nom. outer diam. [mm]	Approx. weight [kg/km]	Max. DC Resist. Cond. 20°C [Ohm/km]	Perm. current rat. air 60°C [A]	Perm. current rating tray 60°C [A]
1.5	0.7	4.6	30	13.7	30	29
2.5	0.7	5.0	40	8.21	41	39
4	0.7	5.8	55	5.09	55	52
6	0.7	6.1	75	3.39	70	67
10	0.7	7.4	120	1.95	98	93
16	0.7	8.7	175	1.24	132	125
25	0.9	11.0	270	0.795	176	167
35	0.9	13.0	370	0.565	218	207
50	1.0	14.0	520	0.393	276	262
70	1.1	16.0	720	0.277	347	330
95	1.1	19.0	940	0.21	416	395
120	1.2	21.0	1180	0.164	488	464
150	1.4	23.0	1470	0.132	566	538
185	1.6	25.0	1820	0.108	644	612
240	1.7	29.0	2370	0.082	775	736

PRODUCT LIST

Nexans ref.	Country ref.	Name
New	TR	H1Z2Z2-K 1x1.5 mm² Black

= Make to order, = In stock

H1Z2Z2-K

Nexans ref.	Country ref.	Name
New	TR	H1Z2Z2-K 1x2.5 mm² Black
New	TR	H1Z2Z2-K 1x4 mm² Black
New	TR	H1Z2Z2-K 1x6 mm² Black
New	TR	H1Z2Z2-K 1x10 mm² Black
New	TR	H1Z2Z2-K 1x16 mm² Black
New	TR	H1Z2Z2-K 1x25 mm² Black
New	TR	H1Z2Z2-K 1x35 mm² Black
New	TR	H1Z2Z2-K 1x50 mm² Black
New	TR	H1Z2Z2-K 1x70 mm² Black
New	TR	H1Z2Z2-K 1x95 mm² Black
New	TR	H1Z2Z2-K 1x120 mm² Black
New	TR	H1Z2Z2-K 1x150 mm² Black
New	TR	H1Z2Z2-K 1x185 mm² Black
New	TR	H1Z2Z2-K 1x240 mm² Black

= Make to order, = In stock

Shipboard, Navy & Offshore Topside dedicated cables

With dramatic increases in global trade and travel, the world's ship operators are continuing to find ways of lowering costs,and improving safety and performance, while respecting environmental concerns.
Cables are vital in achieving these goals bulk carriers, passenger ships, merchant ships and service vessels of all kinds.
Specifically designed for the marine environment, ship cables can improve every aspect of shipboard operations and safety.

The special needs of ships
Shipbuilders and owner/operators look to **advanced cabling** to achieve substantial gains.
Since nothing can replace a total loss,or risk to human lives, the overriding concern is safety and security on the high seas.
A broad range of quality products must not only be readily available, but they must also have proven**fire-performance characteristics**.
There is also the question of weight and reduced volume to save precious cargo and passenger space.

Cables must be able to endure the marine tough environment and also answer the increasing complexity onboard: from navigation, communications and control to providing multipurpose electricity for everything from lights to propeller systems.
Finally, they must conform to the highest international norms, such as IEC standards.

Commercial shipbuilding

Ships, from cruise liners to chemical tankers,have a wide-range of voice, data and power functions which are all dependent on specific marine cables.

Instrumentation and control cablesassure that various navigational, trim, ballast and control operations continue to function securely in all weather and sea conditions.

Telephone, data and coaxial cables assure the constant flow of information, including non-essential commercial services, like passenger telephone services

For larger cruise ships, an **onboard "central station" electric plant** turns the vessel into a self-contained power utility for propulsion and various services, including passenger entertainment. An entire range of**low and high-voltage cables and connectors** are essential to this floating power plant.

No matter what kind of ship, all systems have to function in crisis situations to assure **navigability, communications, pumping and emergency operations**. In the case of an open fire, these vital systems must survive**intense heat** for a given period. Gases, fumes and heavy smoke must be reduced to a minimum.

Power & Control cables

For larger cruise ships and high end containerships, LNgs, an onboard **"central station" electric plant** turns the vessel into a self-contained power utility for propulsion and various services, including passenger entertainment.

An entire range of low and high-voltage cables and connectors are essential to this floating power plant.

Rolling stock dedicated cables

Contact
All Domestic Sales
alper.altinok@nexans.com

In a fast-paced, interconnected world, transport is essential for moving people and goods. Special cables are an integral part of trains and subways. They are present wherever energy or control functions are needed. For trains and subways they must be :

- optimized regarding their weight and dimension
- oil-resistant, combustible liquid resistant
- non- toxic, low smoke fumes
- compatible with national and international norms

New materials and configurations have improved total system reliability. In trains, this can range from power, lights, the on-board security system, cooling system and even the telephone system.

In an area as complex and far-flung as transportation, one of our key forces is being able to respond appropriately to widely diverging norms, whether national, international or specific to an industry.

FLAMEX® Communication cables

Contact
All Domestic Sales
alper.altinok@nexans.com

Nexans produces a range of Multimedia & Data Transmission cables for on-board railway equipments. These halogen free cables are intended for applications where flame retardancy is required.
They are particularly recommended for the cabling of rolling stock applications.

FLAMEX® OPTICAL FIBER CABLES

Contact
All Domestic Sales
alper.altinok@nexans.com

DESCRIPTION

Nexans produces a range of optical fiber cables OM1 (62.5/125 µm) and OM3 (50/125 µm) for onboard communication and data transmission. With its halogen-free cross-linked sheathing material the FLAMEX® optical fiber cables conform to the rolling stock requirements.

DESIGN

1. **Patch cord**

Core:glass OM 1 or OM 3 (Diameter = 62.5 or 50µm)

Cladding:glass (Diameter = 125 ± 3 µm)

Coating: acrylate (Diameter = 245 ± 10 µm)

Buffer: Thermoplastic elastomer (Diameter = 900 ± 50 µm)

Reinforcement: Aramid yarns

Sheath: Halogen-free FLAMEX® according to EN 50264-1 type EM 104(Diameter = 2.00 ± 0.15 mm)

2. **Tape**(for multi-fibers)
3. **Outer sheath**

Cross-linked halogen-free FLAMEX® according to EN 50264-1 type EM 104

FIRE SAFETY STANDARDS

FLAMEX® optical fiber cables are conform to EN 45545-2. On top some cables are designed to withstand fire tests according to NFPA 130 and GOST-R 31565

MARKING

Example:
FLAMEX P/Number Nexans - number of fiber x 62.5/125 - month and year of production

STANDARDS

International EN 45545-2 (HL3)

Halogen free
EN 60754-1 & EN 60684-2

Electro magnetic interference resistance
Yes

Flame retardant
EN 45545-2 (HL3)

Smoke density
EN 45545-2 (HL3)

Gases toxicity
EN 45545-2 (HL3)

FLAMEX® OPTICAL FIBER CABLES

Contact
All Domestic Sales
alper.altinok@nexans.com

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 60754-1 & EN 60684-2
Mechanical characteristics	
Crush resistance (IEC 60794-1-E3)	250 N/cm
Usage characteristics	
Electro magnetic interference resistance	Yes
Flame retardant	EN 45545-2 (HL3)
Smoke density	EN 45545-2 (HL3)
Gases toxicity	EN 45545-2 (HL3)

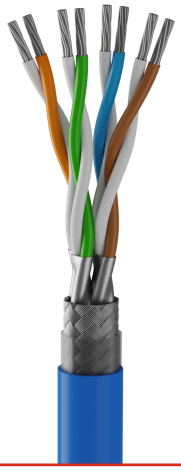
PRODUCT LIST

Nexans ref.	Name	Fiber optic type	Nb optical fibres	Approx. weight [kg/km]	Maximum tensile strength dynamic [N/mm2]	Outer Diameter [mm]
2PH526	2PH526	OM1 62.5/125	1	6	125	2
2PH527	2PH527	OM1 62.5/125	2	20	250	6
2PH528	2PH528	OM1 62.5/125	4	40	500	7
2PH529	2PH529	OM1 62.5/125	6	60	750	8
2PH530	2PH530	OM1 62.5/125	8	80	1000	8.5

= Make to order, = In stock

FLAMEX® ETHERNET CABLES 100 Ω

Contact
All Domestic Sales
alper.altinok@nexans.com



Communication Cables

DESCRIPTION

Nexans develops halogen-free communication cables for higher transmission performances to address emerging applications.

FLAMEX® communication cables are conform to EN 45545-2, easy to pool, quick to connect and compatible with standard connectors, and designed to improve the protection against electrical disturbances, electromagnetic noises. Nexans experience in the design of shielding technology enables us to propose all constructions with high EMC protection. All these features make FLAMEX® cables the best candidate for new built and retrofit works.

STANDARDS

International EN 45545-2 (HL3)

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Usage characteristics	
Flame retardant	EN 45545-2 (HL3)
Gases toxicity	EN 45545-2 (HL3)
Smoke density	EN 45545-2 (HL3)
Electro magnetic interference resistance	Yes

PRODUCT LIST

Nexans ref.	Type of cable	Construction type	Nom. outer diam. [mm]	Approx. weight [kg/km]	Sheath colour	Core identification	Minimum operating temperature [°C]
2PC912	CAT 5E	2 x (2 x 0.25²)	6.5	55	Black	Red,Yellow,Blue,Black	-25
2PK592	CAT 5E	2 x (2 x 0.50²)	9.7	120	Black	B	-25
2PI232	CAT 5E	2 x (2 x 0.50²)	9.7	120	Black	B	-40

= Make to order, = In stock

Halogen free
EN 50267-2-1 & EN 60684-2

Flame retardant
EN 45545-2 (HL3)

Gases toxicity
EN 45545-2 (HL3)

Smoke density
EN 45545-2 (HL3)

Electro magnetic interference resistance
Yes

FLAMEX® ETHERNET CABLES 100 Ω

Contact
All Domestic Sales
alper.altinok@nexans.com

Nexans ref.	Type of cable	Construction type	Nom. outer diam. [mm]	Approx. weight [kg/km]	Sheath colour	Core identification	Minimum operating temperature [°C]
2PK319	CAT 5E	4 x 0.25²	6.7	65	Blue	C	-25
2PK699	CAT 5E	4 x 0.25²	6.7	65	Blue	C	-40
2PK211	CAT 5E	4 x 0.50²	8.5	96	Blue	C	-25
2PK698	CAT 5E	4 x 0.50²	8.5	96	Blue	C	-40
45923010	CAT 5E	4 x AWG 20/19	7.8	96	Black	D	-40
45993310	CAT 5E	4 x AWG 22/19 (0,34²)	6.9	74	Black	C	-40
45994010	CAT 5E	4 x AWG 22/7 (0,34²)	7.2	77	Black	C	-40
2PM022	CAT 5E	4 x AWG 22/7 (0,34²)	6.5	62	Blue	C	-25
2PG229	CAT 5E	4 x AWG 22/7 (0,34²)	6.5	62	Black	D	-25
2PM676	CAT 5E	4 x AWG 22/7 (0,34²)	6.5	62	Blue	C	-40
2PK847	CAT 5E	4 x AWG 22/7 (0,34²)	6.5	62	Black	D	-40
2PM577	CAT 6A	4 x (2 x 0.25²)	8.5	80	Blue	Red,Yellow,Blue,Black	-40
2PM578	CAT 6A	4 x (2 x 0.50²)	11.9	147	Blue	Red,Yellow,Blue,Black	-40
2PM615	CAT 7	4 x (2 x 0.25²)	8.5	82	Blue	Red,Yellow,Blue,Black	-40
2PM622	CAT 7	4 x (2 x AWG 24/7)	8.1	71	Black	Red,Yellow,Blue,Black	-40
2PM697	CAT 7	4 x (2 x AWG 26/7)	7.1	55	Black	Red,Yellow,Blue,Black	-40
2PM617	CAT 7A	4 x (2 x 0.25²)	8.5	85	Black	Red,Yellow,Blue,Black	-40

= Make to order, = In stock

Halogen free
EN 50267-2-1 & EN 60684-2


Flame retardant
EN 45545-2 (HL3)


Gases toxicity
EN 45545-2 (HL3)


Smoke density
EN 45545-2 (HL3)


Electro magnetic interference resistance
Yes

Contact
All Domestic Sales
alper.altinok@nexans.com

SELLING INFORMATION

A: Color coding for pairs
N°1: white + blue
N°2: white + orange
N°3: white + green
N°4: white + brown

B: Color coding for pairs: N°1: white + blue N°2: yellow + orange
C: Color coding for quads: N°1: white + blue N°2: yellow + orange
D: Color coding for quads: N°1: white + yellow N°2: red + black

Halogen free
EN 50267-2-1 & EN 60684-2

Flame retardant
EN 45545-2 (HL3)

Gases toxicity
EN 45545-2 (HL3)

Smoke density
EN 45545-2 (HL3)

Electro magnetic interference resistance
Yes

FLAMEX® MULTIFUNCTION VEHICLE BUS (MVB) 120 Ω

Contact
All Domestic Sales
alper.altinok@nexans.com

Communication Cables

DESCRIPTION

Nexans develops halogen-free communication cables for higher transmission performances to address emerging applications.

FLAMEX® communication cables are conform to EN 45545-2, easy to pool, quick to connect and compatible with standard connectors, and designed to improve the protection against electrical disturbances, electromagnetic noises. Nexans experience in the design of shielding technology enables us to propose all constructions with high EMC protection. All these features make FLAMEX® cables the best candidate for new built and retrofit works.

STANDARDS

International EN 45545-2 (HL3)

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Usage characteristics	
Flame retardant	EN 45545-2 (HL3)
Gases toxicity	EN 45545-2 (HL3)
Smoke density	EN 45545-2 (HL3)
Electro magnetic interference resistance	Yes

PRODUCT LIST

Nexans ref.	Type of cable	Construction type	Nom. outer diam. [mm]	Approx. weight [kg/km]	Sheath colour	Core identification	Minimum operating temperature [°C]
2PK596	MVB	2 x 0.50²	8.0	84	Turquoise	Black, White	-25
2PF580	MVB	2 x 0.50²	8.0	84	Turquoise	Black, White	-40
2PE993	MVB	4 x 0.50²	8.0	86	Turquoise	White/Yellow + Red/Black	-25
2PK697	MVB	4 x 0.50²	8.0	86	Turquoise	White/Yellow + Red/Black	-40

= Make to order, = In stock

Halogen free
EN 50267-2-1 & EN 60684-2

Flame retardant
EN 45545-2 (HL3)

Gases toxicity
EN 45545-2 (HL3)

Smoke density
EN 45545-2 (HL3)

Electro magnetic interference resistance
Yes

FLAMEX® MULTIFUNCTION VEHICLE BUS (MVB) 120 Ω

Contact
All Domestic Sales
alper.altinok@nexans.com

Nexans ref.	Type of cable	Construction type	Nom. outer diam. [mm]	Approx. weight [kg/km]	Sheath colour	Core identification	Minimum operating temperature [°C]
45953050	MVB	4 x 0.50²	8.0	90	Turquoise	White/Yellow + Red/Black	-40
45903050	MVB	4 x AWG 20/19	7.9	91	Turquoise	White/Yellow + Red/Black	-40

= Make to order, = In stock

Halogen free
EN 50267-2-1 & EN 60684-2

Flame retardant
EN 45545-2 (HL3)

Gases toxicity
EN 45545-2 (HL3)

Smoke density
EN 45545-2 (HL3)

Electro magnetic interference resistance
Yes

FLAMEX® PROFIBUS & CAN BUS 120 - 150 Ω

Contact
All Domestic Sales
alper.altinok@nexans.com

Communication Cables

DESCRIPTION

Nexans develops halogen-free communication cables for higher transmission performances to address emerging applications.

FLAMEX® communication cables are conform to EN 45545-2, easy to pool, quick to connect and compatible with standard connectors, and designed to improve the protection against electrical disturbances, electromagnetic noises. Nexans experience in the design of shielding technology enables us to propose all constructions with high EMC protection. All these features make FLAMEX® cables the best candidate for new built and retrofit works.

STANDARDS

International EN 45545-2 (HL3)

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Usage characteristics	
Flame retardant	EN 45545-2 (HL3)
Gases toxicity	EN 45545-2 (HL3)
Smoke density	EN 45545-2 (HL3)
Electro magnetic interference resistance	Yes

PRODUCT LIST

Nexans ref.	Construction type	Type of cable	Nom. outer diam. [mm]	Approx. weight [kg/km]	Sheath colour	Core identification	Minimum operating temperature [°C]
2PI096	2 x 0.50² + 1 x 0.50²	CAN BUS	6.8	62	Black	Red/Blue + Black	-40
2PK478	2 x 0.50² + 1 x 0.50²	CAN BUS	6.8	70	Black	Red/Blue + Black	-25
45984710	2 x 0.50² + 1 x 0.50²	CAN BUS	7.1	71	Black	Red/Blue + Black	-40
2PF164	2 x 0.34²	PROFIBUS	8.0	82	Purple	White, Pink	-25

= Make to order, = In stock

Halogen free
EN 50267-2-1 & EN 60684-2

Flame retardant
EN 45545-2 (HL3)

Gases toxicity
EN 45545-2 (HL3)

Smoke density
EN 45545-2 (HL3)

Electro magnetic interference resistance
Yes

FLAMEX® PROFIBUS & CAN BUS 120 - 150 Ω

Contact
All Domestic Sales
alper.altinok@nexans.com

	Nexans ref.	Construction type	Type of cable	Nom. outer diam. [mm]	Approx. weight [kg/km]	Sheath colour	Core identification	Minimum operating temperature [°C]
📞	2PJ623	2 x 0.34²	PROFIBUS	8.0	82	Purple	White, Pink	-40

📞 = Make to order, 🏭 = In stock

Halogen free
EN 50267-2-1 & EN 60684-2

Flame retardant
EN 45545-2 (HL3)

Gases toxicity
EN 45545-2 (HL3)

Smoke density
EN 45545-2 (HL3)

Electro magnetic interference resistance
Yes

FLAMEX® WIRE TRAIN BUS (WTB) 120 Ω

Contact
All Domestic Sales
alper.altinok@nexans.com

Communication Cables

DESCRIPTION

Nexans develops halogen-free communication cables for higher transmission performances to address emerging applications.

FLAMEX® communication cables are conform to EN 45545-2, easy to pool, quick to connect and compatible with standard connectors, and designed to improve the protection against electrical disturbances, electromagnetic noises. Nexans experience in the design of shielding technology enables us to propose all constructions with high EMC protection. All these features make FLAMEX® cables the best candidate for new built and retrofit works.

STANDARDS

International EN 45545-2 (HL3)

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Usage characteristics	
Flame retardant	EN 45545-2 (HL3)
Gases toxicity	EN 45545-2 (HL3)
Smoke density	EN 45545-2 (HL3)
Electro magnetic interference resistance	Yes

PRODUCT LIST

Nexans ref.	Type of cable	Construction type	Nom. outer diam. [mm]	Approx. weight [kg/km]	Sheath colour	Core identification	Minimum operating temperature [°C]
45923010	WTB	2 x AWG 20/19	7.9	83	Black	Black, White	-40
2PF578	WTB	2 x 0.75²	8.2	87	Black	Black, White	-40
2PK595	WTB	2 x 0.75²	8.5	92	Turquoise	Black, White	-25

= Make to order, = In stock

Halogen free
EN 50267-2-1 & EN 60684-2

Flame retardant
EN 45545-2 (HL3)

Gases toxicity
EN 45545-2 (HL3)

Smoke density
EN 45545-2 (HL3)

Electro magnetic interference resistance
Yes

FLAMEX® EN 50306 Low voltage control cables

Contact
All Domestic Sales
alper.altinok@nexans.com

FLAMEX® cablesare particularly recommended for the wiring of **electronic equipments in low voltage applications**. Designed to comply with EN 50 306, the insulation is intended for applications where **flame and fire retardancy are required,** especially for rolling stock applications.

Developed by the Nexans R&D laboratories, the insulation shows an **excellent mechanical resistance to abrasion, tensile strength and cut through,** but also a very good resistance to chemical agents.

- Flexible and easy to strip, this single-layer insulation is designed to meet the stringent requirements of our customers during cabling operations.
- They allow weight and space saving (thin wall insulation: 0.2 to 0.3 mm insulation thickness).
- One EN standard available with two industrial processes (chemical and E-beam crosslinking).

Main properties

- **Low smoke emission**according to IEC 61 034-2,
- **Low toxicity** (ITC<3) and corrosivity of evolved gases after burning
- **Halogen-free**content according to IEC 60 754-1
- pH > 4 according to IEC 60 754-2
- Conductivity < 100 µS/cm to IEC 60 754-2
- High **mechanical resistance** (against abrasion, tensile strength and cut through): no additional protection required,
- Excellent chemical resistance (against acids, alkalis, oil, fuel, …)

FLAMEX® EN 50 306 cablesare available in every type of construction for internal and external uses: single core (unscreened or screened and sheathed), multicore (pair, triple, quad), other constructions on request

- Operating temperature: from - 40°C up to 105°C
- Rating voltage: 600 Vac / 1000 Vcc
- Cross sections: EN 50 306:: from 0.50 mm² to 2.5 mm² (standard versions)

FLAMEX® EN 50 306 cables comply withEN 45 545-2, NF F 16 101-A1, DIN 5510-2, BS 6853-1A, NFPA 130, UNI CEI 11170-3 & GOST-R 31 565

FLAMEX® EN 50306-2

DESCRIPTION

Applications

Hook-up wires EN 50306-2

Strictly halogen free, these wires combine the advantages of small size, lightweight, high chemical resistance, high mechanical properties. They are recommended for installation in railway vehicles (locomotives, trains, trolleybusses...).

A 125°C conductor temperature is allowed for a 20,000 hours cumulative working time.

Fire safety according to : EN 45545-2, DIN 5510-2, NFPA 130, GOST-R 31565

Construction

1. Conductor

   Flexible stranded tinned copper.
2. Insulation

   Thin wall insulation. Halogen free cross linked material.

Marking

According to EN 50306 :

EN 50306-2 - 300 V - 1 x cross-section - M - week/year batch number

Colour codes

Insulation colour : white

IRIS Certification

STANDARDS

International EN 45545-2 (HL3); EN 50264-1; EN 50305; EN 50306

National DIN 5510-1; GOST-R 31565; NFPA 130

Halogen free	Cable flexibility	Operating temp.	Chemical resistance	Flame retardant	Fire retardant	Smoke density	Gases toxicity
EN 50267-2-1 & EN 60684-2	**Flexible**	**-40 .. 105 °C**	**Good**	**EN 60332-1-2**	**EN 60332-3-24 & EN 60332-3-25**	**EN/IEC 61034-2 & NFF 16101 & EN 45545-2**	**EN 50305-9.2**

Nexans

FLAMEX® EN 50306-2

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Insulation colour	White
Mechanical characteristics	
Cable flexibility	Flexible
Usage characteristics	
Operating temperature, range	-40 .. 105 °C
Chemical resistance	Good
Flame retardant	EN 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Smoke density	EN/IEC 61034-2 & NFF 16101 & EN 45545-2
Gases toxicity	EN 50305-9.2
Bending factor when installed	5 (xD)
Dynamic bending factor	10 (xD)

CONSTRUCTION FLAMEX EN 50306-2

Part Number NEXANS	CONDUCTOR Tin Plated Copper			INSULATION		Cond. Resistance	WEIGHT	Fire Load
	Cross Section (mm²)	Stranding n x diam	Maximum diam (mm)	Minimum diam (mm)	Maximum diam (mm)	Maximum (Ohm/km)	Average (kg/km	Appr. kWh/m
2PG198	0.50	19 x 0,18	0.95	1.15	1.45	40.1	6.0	0.006
2PG199	0.75	19 x 0,23	1.15	1.35	1.65	26.7	8.5	0.008
2PG200	1.00	19 x 0,25	1.30	1.45	1.80	20.0	10.5	0.009
2PF779	1.50	19 x 0,30	1.65	1.95	2.30	13.7	16.0	0.013
2PG201	2.50	19 x 0,40	2.15	2.50	2.85	8.21	26.5	0.015

FLAMEX® EN 50306-3 & -4

DESCRIPTION

Applications

Strictly halogen free, these wires combine the advantages of small size, lightweight, high chemical resistance, high mechanical properties. They are recommended for installation in railway vehicles (locomotives, trains, trolleybusses...).

A 125°C conductor temperature is allowed for a 20000 hours cumulative working time.

Construction

1. Conductor

   Stranded tinned copper wires
2. Insulation

   THIN WALL Halogen free, FLAMEX SH20.
3. Screen (for screened versions)

   Tinned copper braid with optional polyester tape
4. Outer sheath (for sheath versions)

   Halogen free FLAMEX.

Marking

According to EN 50306.

Colour codes

Insulation : white, numbered 1 to n

Colour coded wires on request

Sheath : black

Bending radius

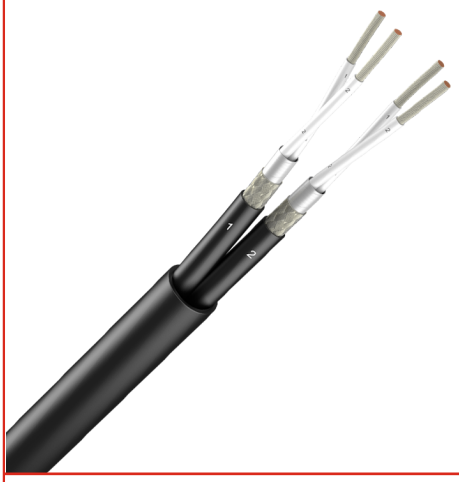
(In accordance with NF F 61-010 standard)

Dynamic use : 10 x outer diameter

Static use : 5 x outer diameter

Standards

According to : EN 50306 ; EN 50305; EN 50264 ; EN 45545-2, DIN 5510-2 ; NFPA 130 ; GOST.



STANDARDS

International EN 45545-2 (HL3); EN 50264-1; EN 50305; EN 50306

Halogen free
EN 50267-2-2

Chemical resistance
Good

Fire retardant
EN 50266-2-4; EN 50266-2-5; EN 50305.9.1.2

Smoke density
EN/IEC 61034-2 & NFF 16101 & EN 45545-2

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-2
Usage characteristics	
Chemical resistance	Good
Fire retardant	EN 50266-2-4; EN 50266-2-5; EN 50305.9.1.2
Smoke density	EN/IEC 61034-2 & NFF 16101 & EN 45545-2

PRODUCT LIST

Nexans ref.	Name	Cross section [mm²]	Min. outer diam. [mm]	Approx. weight [kg/km]	Nb. of cores
2PH184	FLAMEX 20 EN 50306-3 1 x 0.50 MM - S	0.5	2.3	14	1
2PH185	FLAMEX 20 EN 50306-3 1 x 0.75 MM - S	0.75	2.5	17	1
2PH186	FLAMEX 20 EN 50306-3 1 x 1.00 MM - S	1	2.7	20	1
2PH187	FLAMEX 20 EN 50306-3 1 x 1.50 MM - S	1.5	3.1	28	1
2PH188	FLAMEX 20 EN 50306-3 1 x 2.50 MM - S	2.5	3.6	43	1
2PG960	FLAMEX 20 EN 50306-3 2 x 0.50 MM - S	0.5	3.5	25	2
2PG961	FLAMEX 20 EN 50306-3 2 x 0.75 MM - S	0.75	3.9	31	2
2PG962	FLAMEX 20 EN 50306-3 2 x 1.00 MM - S	1	4.2	37	2
2PF780	FLAMEX 20 EN 50306-3 2 x 1.50 MM - S	1.5	5.1	55	2
2PH193	FLAMEX 20 EN 50306-3 2 x 2.50 MM - S	2.5	6.4	87	2
2PG963	FLAMEX 20 EN 50306-3 3 x 0.50 MM - S	0.5	3.7	33	3
2PG964	FLAMEX 20 EN 50306-3 3 x 0.75 MM - S	0.75	4.0	43	3
2PG965	FLAMEX 20 EN 50306-3 3 x 1.00 MM - S	1	4.5	52	3
2PH191	FLAMEX 20 EN 50306-3 3 x 1.50 MM - S	1.5	5.4	75	3
2PH194	FLAMEX 20 EN 50306-3 3 x 2.50 MM - S	2.5	6.8	124	3
2PH189	FLAMEX 20 EN 50306-3 4 x 0.50 MM - S	0.5	4.0	43	4
2PH190	FLAMEX 20 EN 50306-3 4 x 0.75 MM - S	0.75	4.5	56	4

= Make to order, = In stock

Nexans ref.	Name	Cross section [mm²]	Min. outer diam. [mm]	Approx. weight [kg/km]	Nb. of cores
2PG966	FLAMEX 20 EN 50306-3 4 x 1.00 MM - S	1	5.0	65	4
2PH192	FLAMEX 20 EN 50306-3 4 x 1.50 MM - S	1.5	6.0	100	4
2PH195	FLAMEX 20 EN 50306-3 4 x 2.50 MM - S	2.5	7.5	158	4
2PH320	FLAMEX 20 EN 50306-4 1E 13 x 0.50 - MM	0.5	8.3	132	13
2PH321	FLAMEX 20 EN 50306-4 1E 19 x 0.50 - MM	0.5	9.0	172	19
2PH316	FLAMEX 20 EN 50306-4 1E 2 x 0.50 - MM	0.5	4.9	40	2
2PH317	FLAMEX 20 EN 50306-4 1E 3 x 0.50 - MM	0.5	5.1	48	3
2PH322	FLAMEX 20 EN 50306-4 1E 37 x 0.50 - MM	0.5	12.3	311	37
2PH318	FLAMEX 20 EN 50306-4 1E 4 x 0.50 - MM	0.5	5.5	56	4
2PH319	FLAMEX 20 EN 50306-4 1E 7 x 0.50 - MM	0.5	6.3	80	7
2PH327	FLAMEX 20 EN 50306-4 1E 13 x 0.75 - MM	0.75	9.1	173	13
2PG969	FLAMEX 20 EN 50306-4 1E 13 x 1.00 - MM	1	9.7	200	13
2PG973	FLAMEX 20 EN 50306-4 1E 13 x 1.50 - MM	1.5	11.7	297	13
2PH339	FLAMEX 20 EN 50306-4 1E 13 x 2.50 - MM	2.5	13.3	454	13
2PH328	FLAMEX 20 EN 50306-4 1E 19 x 0.75 - MM	0.75	10.0	229	19
2PG970	FLAMEX 20 EN 50306-4 1E 19 x 1.00 - MM	1	10.7	263	19
2PG429	FLAMEX 20 EN 50306-4 1E 19 x 1.50 - MM	1.5	13.0	405	19
2PH323	FLAMEX 20 EN 50306-4 1E 2 x 0.75 - MM	0.75	5.3	48	2
2PH331	FLAMEX 20 EN 50306-4 1E 2 x 1.00 - MM	1	5.6	53	2
2PH334	FLAMEX 20 EN 50306-4 1E 2 x 1.50 - MM	1.5	6.3	70	2
2PH336	FLAMEX 20 EN 50306-4 1E 2 x 2.50 - MM	2.5	7.7	105	2
2PH324	FLAMEX 20 EN 50306-4 1E 3 x 0.75 - MM	0.75	5.5	58	3
2PH332	FLAMEX 20 EN 50306-4 1E 3 x 1.00 - MM	1	5.85	65	3

= Make to order, = In stock

Nexans ref.	Name	Cross section [mm²]	Min. outer diam. [mm]	Approx. weight [kg/km]	Nb. of cores
2PH335	FLAMEX 20 EN 50306-4 1E 3 x 1.50 - MM	1.5	6.6	89	3
2PH337	FLAMEX 20 EN 50306-4 1E 3 x 2.50 - MM	2.5	8.1	136	3
2PH329	FLAMEX 20 EN 50306-4 1E 37 x 0.75 - MM	0.75	13.2	409	37
2PH333	FLAMEX 20 EN 50306-4 1E 37 x 1.00 - MM	1	14.0	473	37
2PG971	FLAMEX 20 EN 50306-4 1E 37 x 1.50 - MM	1.5	17.2	734	37
2PH325	FLAMEX 20 EN 50306-4 1E 4 x 0.75 - MM	0.75	6.0	69	4
2PG967	FLAMEX 20 EN 50306-4 1E 4 x 1.00 - MM	1	6.3	79	4
2PG972	FLAMEX 20 EN 50306-4 1E 4 x 1.50 - MM	1.5	7.4	110	4
2PG974	FLAMEX 20 EN 50306-4 1E 4 x 2.50 - MM	2.5	8.8	170	4
2PH330	FLAMEX 20 EN 50306-4 1E 48 x 0.75 - MM	0.75	14.8	518	48
2PH326	FLAMEX 20 EN 50306-4 1E 7 x 0.75 - MM	0.75	6.9	102	7
2PG968	FLAMEX 20 EN 50306-4 1E 7 x 1.00 - MM	1	7.3	118	7
2PG428	FLAMEX 20 EN 50306-4 1E 7 x 1.50 - MM	1.5	8.6	170	7
2PH338	FLAMEX 20 EN 50306-4 1E 7 x 2.50 - MM	2.5	9.7	257	7
2PH307	FLAMEX 20 EN 50306-4 1P 13 x 0.50 - MM	0.5	7.3	113	13
2PH308	FLAMEX 20 EN 50306-4 1P 19 x 0.50 - MM	0.5	8.1	151	19
2PH304	FLAMEX 20 EN 50306-4 1P 2 x 0.50 - MM	0.5	3.55	24	2
2PH305	FLAMEX 20 EN 50306-4 1P 3 x 0.50 - MM	0.5	3.75	30	3
2PH309	FLAMEX 20 EN 50306-4 1P 37 x 0.50 - MM	0.5	10.8	273	37
2PG693	FLAMEX 20 EN 50306-4 1P 4 x 0.50 - MM	0.5	4.1	37	4
2PH306	FLAMEX 20 EN 50306-4 1P 7 x 0.50 - MM	0.5	4.9	59	7
2PH311	FLAMEX 20 EN 50306-4 1P 13 x 0.75 - MM	0.75	8.2	152	13
2PG701	FLAMEX 20 EN 50306-4 1P 13 x 1.00 - MM	1	8.7	175	13

= Make to order, = In stock

Nexans ref.	Name	Cross section [mm²]	Min. outer diam. [mm]	Approx. weight [kg/km]	Nb. of cores
2PG707	FLAMEX 20 EN 50306-4 1P 13 x 1.50 - MM	1.5	10.7	270	13
2PG714	FLAMEX 20 EN 50306-4 1P 13 x 2.50 - MM	2.5	12.8	435	13
2PH312	FLAMEX 20 EN 50306-4 1P 19 x 0.75 - MM	0.75	9.0	205	19
2PG702	FLAMEX 20 EN 50306-4 1P 19 x 1.00 - MM	1	9.8	244	19
2PG708	FLAMEX 20 EN 50306-4 1P 19 x 1.50 - MM	1.5	12.0	378	19
2PG694	FLAMEX 20 EN 50306-4 1P 2 x 0.75 - MM	0.75	4.0	30	2
2PG697	FLAMEX 20 EN 50306-4 1P 2 x 1.00 - MM	1	4.3	35	2
2PG703	FLAMEX 20 EN 50306-4 1P 2 x 1.50 - MM	1.5	5.0	49	2
2PG710	FLAMEX 20 EN 50306-4 1P 2 x 2.50 - MM	2.5	6.7	86	2
2PG695	FLAMEX 20 EN 50306-4 1P 3 x 0.75 - MM	0.75	4.2	40	3
2PG698	FLAMEX 20 EN 50306-4 1P 3 x 1.00 - MM	1	4.6	46	3
2PG704	FLAMEX 20 EN 50306-4 1P 3 x 1.50 - MM	1.5	5.3	67	3
2PG711	FLAMEX 20 EN 50306-4 1P 3 x 2.50 - MM	2.5	7.7	125	3
2PH313	FLAMEX 20 EN 50306-4 1P 37 x 0.75 - MM	0.75	12.2	376	37
2PH315	FLAMEX 20 EN 50306-4 1P 37 x 1.00 - MM	1	13.3	441	37
2PG709	FLAMEX 20 EN 50306-4 1P 37 x 1.50 - MM	1.5	16.2	715	37
2PG696	FLAMEX 20 EN 50306-4 1P 4 x 0.75 - MM	0.75	4.6	50	4
2PG699	FLAMEX 20 EN 50306-4 1P 4 x 1.00 - MM	1	4.9	58	4
2PG705	FLAMEX 20 EN 50306-4 1P 4 x 1.50 - MM	1.5	6.0	85	4
2PG712	FLAMEX 20 EN 50306-4 1P 4 x 2.50 - MM	2.5	7.9	150	4
2PH314	FLAMEX 20 EN 50306-4 1P 48 x 0.75 - MM	0.75	13.9	480	48
2PH310	FLAMEX 20 EN 50306-4 1P 7 x 0.75 - MM	0.75	5.5	79	7
2PG700	FLAMEX 20 EN 50306-4 1P 7 x 1.00 - MM	1	6.0	93	7

= Make to order, = In stock

Nexans ref.	Name	Cross section [mm²]	Min. outer diam. [mm]	Approx. weight [kg/km]	Nb. of cores
2PG706	FLAMEX 20 EN 50306-4 1P 7 x 1.50 - MM	1.5	7.7	149	7
2PG713	FLAMEX 20 EN 50306-4 1P 7 x 2.50 - MM	2.5	8.7	230	7
2PG843	FLAMEX 20 EN 50306-4 3E 2 x 0.50 MM - S	0.5	5.5	50	2
2PG848	FLAMEX 20 EN 50306-4 3E 2 x 0.75 MM - S	0.75	5.9	59	2
2PG426	FLAMEX 20 EN 50306-4 3E 2 x 1.00 MM - S	1	6.2	65	2
2PG855	FLAMEX 20 EN 50306-4 3E 2 x 1.50 MM - S	1.5	7.1	86	2
2PG859	FLAMEX 20 EN 50306-4 3E 2 x 2.50 MM - S	2.5	8.3	124	2
2PG844	FLAMEX 20 EN 50306-4 3E 3 x 0.50 MM - S	0.5	5.7	59	3
2PG849	FLAMEX 20 EN 50306-4 3E 3 x 0.75 MM - S	0.75	6.2	70	3
2PG852	FLAMEX 20 EN 50306-4 3E 3 x 1.00 MM - S	1	6.5	81	3
2PG856	FLAMEX 20 EN 50306-4 3E 3 x 1.50 MM - S	1.5	7.4	107	3
2PH342	FLAMEX 20 EN 50306-4 3E 3 x 2.50 MM - S	2.5	8.6	156	3
2PG845	FLAMEX 20 EN 50306-4 3E 4 x 0.50 MM - S	0.5	6.1	70	4
2PG850	FLAMEX 20 EN 50306-4 3E 4 x 0.75 MM - S	0.75	6.5	86	4
2PG427	FLAMEX 20 EN 50306-4 3E 4 x 1.00 MM - S	1	6.9	95	4
2PG857	FLAMEX 20 EN 50306-4 3E 4 x 1.50 MM - S	1.5	8.0	135	4
2PG860	FLAMEX 20 EN 50306-4 3E 4 x 2.50 MM - S	2.5	9.4	198	4
2PG846	FLAMEX 20 EN 50306-4 3E 6 x 0.50 MM - S	0.5	6.9	94	6
2PH340	FLAMEX 20 EN 50306-4 3E 6 x 0.75 MM - S	0.75	7.5	115	6
2PG853	FLAMEX 20 EN 50306-4 3E 6 x 1.00 MM - S	1	8.0	140	6
2PG858	FLAMEX 20 EN 50306-4 3E 6 x 1.50 MM - S	1.5	9.2	190	6
2PG847	FLAMEX 20 EN 50306-4 3E 8 x 0.50 MM - S	0.5	7.5	110	8
2PG851	FLAMEX 20 EN 50306-4 3E 8 x 0.75 MM - S	0.75	8.2	143	8

= Make to order, = In stock

Nexans ref.	Name	Cross section [mm²]	Min. outer diam. [mm]	Approx. weight [kg/km]	Nb. of cores
2PG854	FLAMEX 20 EN 50306-4 3E 8 x 1.00 MM - S	1	8.6	165	8
2PH341	FLAMEX 20 EN 50306-4 3E 8 x 1.50 MM - S	1.5	10.2	226	8
2PH024	FLAMEX 20 EN 50306-4 3P 12 x 0.75 MM - S	0.75	8.4	165	12
2PH180	FLAMEX 20 EN 50306-4 3P 12 x 1.50 MM - S	1.5	10.6	280	12
2PG715	FLAMEX 20 EN 50306-4 3P 2 x 0.50 MM - S	0.5	4.1	32	2
2PG719	FLAMEX 20 EN 50306-4 3P 2 x 0.75 MM - S	0.75	4.5	39	2
2PG414	FLAMEX 20 EN 50306-4 3P 2 x 1.00 MM - S	1	4.7	44	2
2PG727	FLAMEX 20 EN 50306-4 3P 2 x 1.50 MM - S	1.5	5.7	64	2
2PG732	FLAMEX 20 EN 50306-4 3P 2 x 2.50 MM - S	2.5	7.3	105	2
2PG716	FLAMEX 20 EN 50306-4 3P 3 x 0.50 MM - S	0.5	4.3	40	3
2PG720	FLAMEX 20 EN 50306-4 3P 3 x 0.75 MM - S	0.75	4.7	49	3
2PG415	FLAMEX 20 EN 50306-4 3P 3 x 1.00 MM - S	1	5.1	59	3
2PG728	FLAMEX 20 EN 50306-4 3P 3 x 1.50 MM - S	1.5	6.0	84	3
2PG733	FLAMEX 20 EN 50306-4 3P 3 x 2.50 MM - S	2.5	7.7	140	3
2PG413	FLAMEX 20 EN 50306-4 3P 4 x 0.50 MM - S	0.5	4.7	50	4
2PG721	FLAMEX 20 EN 50306-4 3P 4 x 0.75 MM - S	0.75	5.2	64	4
2PG724	FLAMEX 20 EN 50306-4 3P 4 x 1.00 MM - S	1	5.5	73	4
2PG729	FLAMEX 20 EN 50306-4 3P 4 x 1.50 MM - S	1.5	6.6	108	4
2PG734	FLAMEX 20 EN 50306-4 3P 4 x 2.50 MM - S	2.5	8.4	180	4
2PG717	FLAMEX 20 EN 50306-4 3P 6 x 0.50 MM - S	0.5	5.5	70	6
2PG722	FLAMEX 20 EN 50306-4 3P 6 x 0.75 MM - S	0.75	6.1	90	6
2PG725	FLAMEX 20 EN 50306-4 3P 6 x 1.00 MM - S	1	6.6	111	6
2PG730	FLAMEX 20 EN 50306-4 3P 6 x 1.50 MM - S	1.5	8.3	167	6

= Make to order, = In stock

Nexans ref.	Name	Cross section [mm²]	Min. outer diam. [mm]	Approx. weight [kg/km]	Nb. of cores
2PG718	FLAMEX 20 EN 50306-4 3P 8 x 0.50 MM - S	0.5	6.0	84	8
2PG723	FLAMEX 20 EN 50306-4 3P 8 x 0.75 MM - S	0.75	6.6	112	8
2PG726	FLAMEX 20 EN 50306-4 3P 8 x 1.50 MM - S	1.5	7.7	139	8
2PG726	FLAMEX 20 EN 50306-4 3P 8 x 1.50 MM - S	1.5	8.9	200	8
2PH343	FLAMEX 20 EN 50306-4 5E 2 x 2 x0.50 MMM	0.5	10.1	138	2
2PH347	FLAMEX 20 EN 50306-4 5E 2 x 2 x0.75 MMM	0.75	10.9	162	2
2PH351	FLAMEX 20 EN 50306-4 5E 2 x 2 x1.00 MMM	1	11.3	174	2
2PH355	FLAMEX 20 EN 50306-4 5E 2 x 2 x1.50 MMM	1.5	13.3	246	2
2PH344	FLAMEX 20 EN 50306-4 5E 3 x 2 x0.50 MMM	0.5	10.8	170	3
2PH348	FLAMEX 20 EN 50306-4 5E 3 x 2 x0.75 MMM	0.75	11.6	201	3
2PH352	FLAMEX 20 EN 50306-4 5E 3 x 2 x1.00 MMM	1	12.0	215	3
2PF781	FLAMEX 20 EN 50306-4 5E 3 x 2 x1.50 MMM	1.5	14.0	300	3
2PH345	FLAMEX 20 EN 50306-4 5E 4 x 2 x0.50 MMM	0.5	11.8	192	4
2PH349	FLAMEX 20 EN 50306-4 5E 4 x 2 x0.75 MMM	0.75	12.8	231	4
2PH353	FLAMEX 20 EN 50306-4 5E 4 x 2 x1.00 MMM	1	13.2	245	4
2PH356	FLAMEX 20 EN 50306-4 5E 4 x 2 x1.50 MMM	1.5	15.5	349	4
2PH346	FLAMEX 20 EN 50306-4 5E 7 x 2 x0.50 MMM	0.5	13.9	284	7
2PH350	FLAMEX 20 EN 50306-4 5E 7 x 2 x0.75 MMM	0.75	15.1	346	7
2PH354	FLAMEX 20 EN 50306-4 5E 7 x 2 x1.00 MMM	1	15.7	374	7
2PG975	FLAMEX 20 EN 50306-4 5E 7 x 2 x1.50 MMM	1.5	18.7	550	7
2PH478	FLAMEX 20 EN 50306-4 5P 2 x 2 x0.50 MMM	0.5	9.0	110	2
2PH482	FLAMEX 20 EN 50306-4 5P 2 x 2 x0.75 MMM	0.75	9.8	132	2
2PH486	FLAMEX 20 EN 50306-4 5P 2 x 2 x1.00 MMM	1	10.2	142	2

= Make to order, = In stock

Nexans ref.	Name	Cross section [mm²]	Min. outer diam. [mm]	Approx. weight [kg/km]	Nb. of cores
2PH490	FLAMEX 20 EN 50306-4 5P 2 x 2 x1.50 MMM	1.5	12.2	208	2
2PH479	FLAMEX 20 EN 50306-4 5P 3 x 2 x0.50 MMM	0.5	9.6	137	3
2PH483	FLAMEX 20 EN 50306-4 5P 3 x 2 x0.75 MMM	0.75	10.5	169	3
2PH487	FLAMEX 20 EN 50306-4 5P 3 x 2 x1.00 MMM	1	10.9	183	3
2PH491	FLAMEX 20 EN 50306-4 5P 3 x 2 x1.50 MMM	1.5	13.1	268	3
2PH480	FLAMEX 20 EN 50306-4 5P 4 x 2 x0.50 MMM	0.5	10.7	159	4
2PH484	FLAMEX 20 EN 50306-4 5P 4 x 2 x0.75 MMM	0.75	11.6	192	4
2PH488	FLAMEX 20 EN 50306-4 5P 4 x 2 x1.00 MMM	1	12.1	211	4
2PH492	FLAMEX 20 EN 50306-4 5P 4 x 2 x1.50 MMM	1.5	14.3	305	4
2PH481	FLAMEX 20 EN 50306-4 5P 7 x 2 x0.50 MMM	0.5	13.0	251	7
2PH485	FLAMEX 20 EN 50306-4 5P 7 x 2 x0.75 MMM	0.75	14.0	303	7
2PH489	FLAMEX 20 EN 50306-4 5P 7 x 2 x1.00 MMM	1	14.6	353	7
2PH493	FLAMEX 20 EN 50306-4 5P 7 x 2 x1.50 MMM	1.5	17.6	514	7
2PG861	FLAMEX 20 EN 50306-4 E 2 x 2 x0.50 MM - S	0.5	7.2	85	2
2PG864	FLAMEX 20 EN 50306-4 E 2 x 2 x0.75 MM - S	0.75	8.0	110	2
2PG865	FLAMEX 20 EN 50306-4 E 2 x 2 x1.00 MM - S	1	8.6	125	2
2PH363	FLAMEX 20 EN 50306-4 E 2 x 2 x1.50 MM - S	1.5	9.7	159	2
2PG862	FLAMEX 20 EN 50306-4 E 3 x 2 x0.50 MM - S	0.5	7.5	100	3
2PH358	FLAMEX 20 EN 50306-4 E 3 x 2 x0.75 MM - S	0.75	8.35	128	3
2PG866	FLAMEX 20 EN 50306-4 E 3 x 2 x1.00 MM - S	1	8.9	150	3
2PH364	FLAMEX 20 EN 50306-4 E 3 x 2 x1.50 MM - S	1.5	10.1	196	3
2PG863	FLAMEX 20 EN 50306-4 E 4 x 2 x0.50 MM - S	0.5	8.4	125	4
2PH359	FLAMEX 20 EN 50306-4 E 4 x 2 x0.75 MM - S	0.75	9.15	155	4

= Make to order, = In stock

Nexans ref.	Name	Cross section [mm²]	Min. outer diam. [mm]	Approx. weight [kg/km]	Nb. of cores
2PH361	FLAMEX 20 EN 50306-4 E 4 x 2 x1.00 MM - S	1	9.8	176	4
2PH365	FLAMEX 20 EN 50306-4 E 4 x 2 x1.50 MM - S	1.5	11.2	242	4
2PH357	FLAMEX 20 EN 50306-4 E 7 x 2 x0.50 MM - S	0.5	9.75	177	7
2PH360	FLAMEX 20 EN 50306-4 E 7 x 2 x0.75 MM - S	0.75	10.75	226	7
2PH362	FLAMEX 20 EN 50306-4 E 7 x 2 x1.00 MM - S	1	11.55	260	7
2PH366	FLAMEX 20 EN 50306-4 E 7 x 2 x1.50 MM - S	1.5	13.5	382	7
2PG735	FLAMEX 20 EN 50306-4 P 2 x 2 x0.50 MM - S	0.5	6.2	66	2
2PG739	FLAMEX 20 EN 50306-4 P 2 x 2 x0.75 MM - S	0.75	7.0	86	2
2PG743	FLAMEX 20 EN 50306-4 P 2 x 2 x1.00 MM - S	1	7.6	99	2
2PG747	FLAMEX 20 EN 50306-4 P 2 x 2 x1.50 MM - S	1.5	8.7	133	2
2PG736	FLAMEX 20 EN 50306-4 P 3 x 2 x0.50 MM - S	0.5	6.5	79	3
2PG740	FLAMEX 20 EN 50306-4 P 3 x 2 x0.75 MM - S	0.75	7.3	105	3
2PG744	FLAMEX 20 EN 50306-4 P 3 x 2 x1.00 MM - S	1	7.9	121	3
2PG748	FLAMEX 20 EN 50306-4 P 3 x 2 x1.50 MM - S	1.5	9.2	170	3
2PG737	FLAMEX 20 EN 50306-4 P 4 x 2 x0.50 MM - S	0.5	7.4	103	4
2PG741	FLAMEX 20 EN 50306-4 P 4 x 2 x0.75 MM - S	0.75	8.2	130	4
2PG745	FLAMEX 20 EN 50306-4 P 4 x 2 x1.00 MM - S	1	8.8	150	4
2PG749	FLAMEX 20 EN 50306-4 P 4 x 2 x1.50 MM - S	1.5	10.4	218	4
2PG738	FLAMEX 20 EN 50306-4 P 7 x 2 x0.50 MM - S	0.5	8.8	152	7
2PG742	FLAMEX 20 EN 50306-4 P 7 x 2 x0.75 MM - S	0.75	9.9	202	7
2PG746	FLAMEX 20 EN 50306-4 P 7 x 2 x1.00 MM - S	1	10.8	237	7
2PG750	FLAMEX 20 EN 50306-4 P 7 x 2 x1.50 MM - S	1.5	13.1	365	7

= Make to order, = In stock

FLAMEX® EN 50264 Power cables reduced insulation thickness

Contact
All Domestic Sales
alper.altinok@nexans.com

For **protected installation in railway vehicles** (locomotives, trains, trolley-busses etc.), switching station and control panels. Installation in cable ducts, pipes and tubes. Current carrying capacity according to EN 50 343.Serves request acc. to EN 45 545-1. A 120°C conductor temperature is allowed for a 20.000 hours cumulative working time.

Developed by the Nexans R&D laboratories, silicone materials show an excellent mechanical resistance to abrasion, tensile strength and cut through, but also a very good resistance to chemical agents. Flexible and easy to strip, our cables are designed to meet the stringent requirements of our customers during cabling operations.

Main properties

- **Low smoke emission**according to IEC 61 034-2,
- **Low toxicity**(ITC<3) and corrosivity of evolved gases after burning
- **Halogen free content**according to IEC 60 754-1
- pH > 4 according to IEC 60 754-2
- **Conductivity**< 100 µS/cm to IEC 60 754-2
- High **mechanical resistance** (against abrasion, tensile strength and cut through): no additional protection required,
- Excellent chemical resistance (against acids, alkalis, oil,…)

FLAMEX® EN 50 264 cablesare available in every type of construction for internal and external uses: single core (unscreened or screened and sheathed), multicore:

- Operating temperature: from - 40°C up to 90°C
- Rating voltage: 0.6 /1kV to 3,6/6kV
- Cross sections: EN 50 306:: from 0.50 mm² to 2.5 mm² (standard versions)

FLAMEX® EN 50 264 cables comply withEN 45 545-2, NF F 16 101-A1, DIN 5510-2, BS 6853-1A, NFPA 130, UNI CEI 11170-3 & GOST-R 31 565

FLAMEX® EN 50264-3-1 M 600V

UNSCREENED SINGLE CORE CABLE

STANDARDS

International EN 45545 - HL3;
EN 50264-3-1; IEC 60228

DESCRIPTION

Applications

For protected installation in railway vehicles (locomotives, trains, trolley-busses etc.), switching station and control panels. Installation in cable ducts, pipes and tubes.

Current carrying capacity according to EN 50343 as well as VDE 0298 part 4.

Complies with performance requirements acc. to EN 45545-2 - HL3.

Design

1. **Conductor**
   Flexible stranded tinned copper class 5 acc. to IEC 60228
   Optional halogen-free separator tape

2. **Insulation**
   Cross-linked compound type EI 109 acc. to EN 50264-3-1
   Oil, diesel, ozone and UV resistant
   Colour: black or optionally green/yellow or other colours

Cable marking

Printing white:
FLAMEX EN 50264-3-1 600V mm² M (N)HXAF 0,6/1kV I NEXANS I WW-YYYY

Halogen free	Operating temp.	Smoke density	Gases corrosivity	Gases toxicity	Flame retardant	Fire retardant	Bending factor when laying
EN 50267-2-1 & EN 60684-2	**-40 .. 90 °C**	**IEC 61034-2 & NFF 16101**	**EN 50267-2-2**	**EN 50305-9.2**	**IEC 60332-1-2**	**EN 60332-3-24 & EN 60332-3-25**	**5 (xD)**

FLAMEX® EN 50264-3-1 M 600V

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	IEC 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Bending factor when laying	5 (xD)
Bending factor when installed	3 (xD)
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 0.6/1 (1.2) kV
Max. operating voltage in DC installations, one-sided earthed	Vo= 0.9 kV DC
Testing AC voltage (5 minutes)	U = 3.5 kV

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

SELLING INFORMATION

- Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

FLAMEX® EN 50264-3-2 MM 600V

UNSCREENED MULTI CORE CABLE

DESCRIPTION

Applications

For protected installation in railway vehicles (locomotives, trains, trolley-busses etc.), switching station and control panels. Installation in cable ducts, pipes and outside.
Current capacity acc. to EN 50343 as well as VDE 0298 part 4.
Complies with performance requirements acc. to EN 45545-2 - HL3.

Design

1. **Conductor**
   Flexible stranded tinned copper, class 5 acc. to IEC 60228
   Optional halogen-free separator tape

2. **Insulation**
   Cross-linked compound type EI 109 acc. to EN 50264-1

3. **Outer sheath**
   Cross-linked compound type EM 104 acc. to EN 50264-1
   Oil, diesel, ozone and UV resistant
   Colour: black

Cable marking

Printing white:

FLAMEX EN 50264-3-2 600V n X (G) ... (mm²) MM (N)HXSLOE I NEXANS I
WW-YYYY

STANDARDS

International EN 45545 - HL3;
EN 50264-3-2; IEC 60228

Halogen free
EN 50267-2-1 & EN 60684-2

Operating temp.
-40 .. 90 °C

Smoke density
IEC 61034-2 & NFF 16101

Gases corrosivity
EN 50267-2-2

Gases toxicity
EN 50305-9.2

Flame retardant
IEC 60332-1-2

Fire retardant
EN 60332-3-24 & EN 60332-3-25

Bending factor when laying
5 (xD)

FLAMEX® EN 50264-3-2 MM 600V

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	IEC 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Bending factor when laying	5 (xD)
Bending factor when installed	4 (xD)
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 0.6/1 (1.2) kV
Max. operating voltage in DC installations, one-sided earthed	Vo= 0.9 kV DC
Testing AC voltage (5 minutes)	U = 3.5 kV

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

SELLING INFORMATION

- Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

FLAMEX® EN 50264-3-2 MMS 600V

SCREENED MULTI CORE CABLE

STANDARDS

International EN 45545 - HL3;
EN 50264-3-2; IEC 60228

DESCRIPTION

Applications

For protected installation in railway vehicles (locomotives, trains, trolley-busses etc.), switching station and control panels. Installation in cable ducts, pipes and outside.
Current capacity acc. to EN 50343 as well as VDE 0298 part 4.
Complies with performance requirements acc. to EN 45545-2 - HL3.

Design

1. Conductor

Flexible stranded tinned copper class 5 acc. to IEC 60228
Optional halogen-free separator tape

2. Insulation

Cross-linked compound type EI 109 acc. to EN 50264-1
Colour: black or green/yellow (if cable type is nxG)

Assembly

Option: A halogen free foil could be served.

3. Screen

Copper wire braid acc. to EN 50264-3-2, halogen-free separator

4. Outer sheath

Cross-linked compound type EM 104 acc. to EN 50264-1
Oil, diesel, ozone and UV resistant

Colour: black

Halogen free	Operating temp.	Smoke density	Gases corrosivity	Gases toxicity	Flame retardant	Fire retardant	Bending factor when laying
EN 50267-2-1 & EN 60684-2	**-40 .. 90 °C**	**IEC 61034-2 & NFF 16101**	**EN 50267-2-2**	**EN 50305-9.2**	**EN 60332-1-2**	**EN 60332-3-24 & EN 60332-3-25**	**8 (xD)**

FLAMEX® EN 50264-3-2 MMS 600V

Cable marking

Printing white

FLAMEX EN 50264-3-2 600V n X (G) ... (mm²) MM S (N)HXCSLOE I NEXANS I
WW-YYYY

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	EN 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Bending factor when laying	8 (xD)
Bending factor when installed	4 (xD)
Oil resistance	Yes
U.V resistance	Yes
Ozone resistance	Yes

Halogen free
EN 50267-2-1 & EN 60684-2

Operating temp.
-40 .. 90 °C


Smoke density
IEC 61034-2 & NFF 16101


Gases corrosivity
EN 50267-2-2


Gases toxicity
EN 50305-9.2


Flame retardant
EN 60332-1-2


Fire retardant
EN 60332-3-24 & EN 60332-3-25

Bending factor when laying
8 (xD)

FLAMEX® EN 50264-3-2 MMS 600V

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 0.6/1 (1.2) kV
Max. operating voltage in DC installations, one-sided earthed	Vo= 0.9 kV DC
Testing AC voltage (5 minutes)	U = 3.5 kV
Coupling resistance ≤ 30 MHz	≤ 120 Ohm/km

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

SELLING INFORMATION

- Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

FLAMEX® EN 50264-3-1 M 1800V

UNSCREENED SINGLE CORE CABLE

DESCRIPTION

Applications

For protected installation in railway vehicles (locomotives, trains, trolley-busses etc.), switching station and control panels.
Installation in cable ducts, pipes and tubes.
Current capacity acc. to EN 50343 as well as VDE 0298 part 4.
Complies with performance requirements acc. to EN 45545-2 - HL3.

Design

1. Conductor

Flexible stranded tinned copper, class 5 acc. to IEC 60228
Optional halogen-free separator tape

2. Insulation

Cross-linked compound type EI 109 acc. to EN 50264-1
Oil, diesel, ozone and UV resistant
Colour: black

Cable marking

Printing white:

FLAMEX EN 50264-3-1 1800 V (mm²) M I NEXANS I WW-YYYY

STANDARDS

International EN 45545 - HL3;
EN 50264-3-1; IEC 60228

Halogen free	Operating temp.	Smoke density	Gases corrosivity	Gases toxicity	Flame retardant	Fire retardant	Oil resistance
EN 50267-2-1 & EN 60684-2	**-40 .. 90 °C**	**IEC 61034-2 & NFF 16101**	**EN 50267-2-2**	**EN 50305-9.2**	**IEC 60332-1-2**	**EN 60332-3-24 & EN 60332-3-25**	**Yes**

FLAMEX® EN 50264-3-1 M 1800V

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	IEC 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes
Max. conductor temperature in service	90 °C

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 1.8/3 (3.6) kV
Max. operating voltage in DC installations, one-sided earthed	Vo= 2.7 kV DC
Testing AC voltage (5 minutes)	U = 6.5 kV

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

SELLING INFORMATION

- Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

FLAMEX® 4GKW

UNSCREENED SINGLE CORE CABLE

DESCRIPTION

Applications

For protected durable installation in railway vehicles (locomotives, trains, trolley-busses, etc.), switching stations and control panels. Installation in cable ducts, pipes and tubes.
Current carrying capacity acc. to EN 50343 as well as VDE 0298 part 4.
Complies with performance requirements acc. to EN 45545-2 - HL3.

Design

1. Conductor

Flexible stranded tinned copper, class 5 acc. to IEC 60228
Optional halogen-free separator tape

2. Insulation

Cross-linked compound type EI 109 acc. to EN 50264-1
Oil, diesel, ozone and UV resistant
Colour: black

Cable marking

Printing white:

Up to 1x10 mm²:
FLAMEX type EN 50264-3-1 1800V (mm²) M 4GKW I NEXANS I WW-YYYY
or
from 1x16 mm² to 1x240 mm²:
FLAMEX EN 50264-3-1 1800V (mm²) M I NEXANS I WW-YYYY

STANDARDS

International EN 45545-2 (HL3); EN 50264-3-1; IEC 60228

Halogen free **EN 50267-2-1 & EN 60684-2**
Operating temp. **-40 .. 90 °C**
Smoke density **IEC 61034-2 & NFF 16101**
Gases corrosivity **EN 50267-2-2**
Gases toxicity **EN 50305-9.2**
Flame retardant **EN 60332-1-2**
Fire retardant **EN 60332-3-24 & EN 60332-3-25**
Oil resistance **Yes**

FLAMEX® 4GKW

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	EN 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 1.8/3 (3.6) kV
Max. operating voltage in DC installations, one-sided earthed	Vo= 2.7 kV DC
Testing AC voltage (5 minutes)	U = 6.5 kV

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

SELLING INFORMATION

- Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

Halogen free
EN 50267-2-1 & EN 60684-2

Operating temp.
-40 .. 90 °C


Smoke density
IEC 61034-2 & NFF 16101


Gases corrosivity
EN 50267-2-2


Gases toxicity
EN 50305-9.2


Flame retardant
EN 60332-1-2


Fire retardant
EN 60332-3-24 & EN 60332-3-25


Oil resistance
Yes

FLAMEX® EN 50264-3-1 MM 1800V

SHEATHED SINGLE CORE CABLE

DESCRIPTION

Application

Installation inside and outside of rolling stock and in cable ducts and tubes. Jumper cable application. In low voltage switch boards the cable can be used as inherently short-circuit and earth-fault proof connection acc. to EN 60364-5-52.
Current carrying capacity acc. to EN 50343 as well as VDE 0298 part 4.
Complies with performance requirements acc. to EN 45545-2 - HL3.

Design

1. Conductor

Flexible stranded tinned copper, class 5 acc. to IEC 60228
Optional halogen-free separator tape

2. Insulation

Cross-linked compound type EI 109 acc. to 50264-1
Colour: grey

3. Sheath

Cross-linked compound type EM 104 acc. to 50264-1
Oil, diesel, ozone and UV resistant
Colour: black

Cable marking

Printing white:

FLAMEX EN 50264-3-1 1800V (mm²) MM NSHXAFOE 1.8/3 kV I NEXANS I WW-YYYY

STANDARDS

International EN 45545 - HL3;
EN 50264-3-1; IEC 60228

Halogen free
EN 50267-2-1 & EN 60684-2

Operating temp.
-40 .. 90 °C

Smoke density
IEC 61034-2 & NFF 16101

Gases corrosivity
EN 50267-2-2

Gases toxicity
EN 50305-9.2

Flame retardant
EN 60332-1-2

Fire retardant
EN 60332-3-24 & EN 60332-3-25

Bending factor when laying
10 (xD)

FLAMEX® EN 50264-3-1 MM 1800V

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	EN 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Bending factor when laying	10 (xD)
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 1.8/3 (3.6) kV
Max. operating voltage in DC installations, one-sided earthed	Vo= 2.7 kV DC
Testing AC voltage (5 minutes)	U = 6.5 kV

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

FLAMEX® EN 50264-3-1 MMS 1800V

SCREENED SINGLE CORE CABLE

DESCRIPTION

Applications

For use in railway vehicles (trains, locomotives, trolley-busses, etc.), switching stations and control panels.
Installation in cable ducts, tubes and outside. For wiring in switching stations and distribution boards up to 1000 V, this cable is short-circuit and earth fault save.
Current-carrying capacity acc. to EN 50343 as well as VDE 0298 part 4.
Complies with performance requirements acc. to EN 45545-2-HL3.

STANDARDS

International EN 45545 - HL3;
EN 50264-3-1; IEC 60228

Design

1. Conductor
Flexible stranded tinned copper, class 5 acc. to IEC 60228
Optional halogen-free separator tape

2. Insulation
Cross-linked compound type EI 109 acc. to EN 50264-1

3. Screen
Halogen-free foil, tinned copper wire braid, halogen-free separator

4. Outer sheath
Cross-linked compound type EM 104 acc. to EN 50264-1
Oil, diesel, ozone and UV resistant
Colour: black

Cable marking

Ink marking white e.g.:
Flamex EN 50264-3-1 1800V (mm²) MM S (N)SHXAFCOE 1.8/3 kV I NEXANS I WW-YYYY

Halogen free **EN 50267-2-1 & EN 60684-2**

Bending factor installed **5 (xD)**

Operating temp. **-40 .. 90 °C**

Smoke density **IEC 61034-2 & NFF 16101**

Gases corrosivity **EN 50267-2-2**

Gases toxicity **EN 50305-9.2**

Flame retardant **EN 60332-1-2**

Fire retardant **EN 60332-3-24 & EN 60332-3-25**

FLAMEX® EN 50264-3-1 MMS 1800V

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Usage characteristics	
Bending factor when installed	5 (xD)
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	EN 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Bending factor when laying	10 (xD)
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 1.8/3 (3.6) kV
Max. operating voltage in DC installations, one-sided earthed	Vo= 2.7 kV DC
Testing AC voltage (5 minutes)	U = 6.5 kV
Coupling resistance 10 kHz – 30 MHz, > 16 mm²	≤ 50 Ohm/km
Coupling resistance 10 kHz – 30 MHz, 2.5 mm² - 16 mm²	≤ 150 Ohm/km

SELLING INFORMATION

- Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

FLAMEX® EN 50264-3-1 MM 3600V

UNSCREENED SINGLE CORE CABLE

DESCRIPTION

Applications

For protected installation in railway vehicles (locomotives, trains, trolley-busses etc.), switching station and control panels. Installation in cable ducts, pipes and tubes.
Current carrying capacity according to EN 50343 as well as VDE 0298 part 4.
Complies with performance requirements acc. to EN 45545-2 - HL3.

Design

1. **Conductor**
   Flexible stranded tinned copper class 5 acc. to IEC 60228
   Conductor screen

2. **Insulation**
   Cross-linked compound type EI 109 acc. to EN 50264-1
   Colour: grey

3. **Sheath**
   Cross-linked compound type EM 104 acc. to EN 50264-1
   Oil, diesel, ozone and UV resistant
   Colour: black

Cable marking

Printing white:

FLAMEX EN 50264-3-1 3600V (mm²) MM NSHXAFOE 3.6/6kV
I NEXANS I WW-YYYY

STANDARDS

International EN 45545 - HL3;
EN 50264-3-1; IEC 60228

Halogen free **EN 50267-2-1 & EN 60684-2**

Operating temp. **-40 .. 90 °C**

Smoke density **IEC 61034-2 & NFF 16101**

Gases corrosivity **EN 50267-2-2**

Gases toxicity **EN 50305-9.2**

Flame retardant **EN 60332-1-2**

Fire retardant **EN 60332-3-24 & EN 60332-3-25**

Bending factor when laying **10 (xD)**

FLAMEX® EN 50264-3-1 MM 3600V

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	EN 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Bending factor when laying	10 (xD)
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 3.6/6 (7.2) kV
Max. operating voltage in d.c. installations, one-sided earthed	Vo= 5.4 kV DC
Testing a.c. voltage (5 minutes)	U = 11 kV

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

SELLING INFORMATION

- Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

FLAMEX® EN 50264-3-1 MMS 3600V

SCREENED SINGLE CORE CABLE

DESCRIPTION

Applications

For use in railway vehicles (trains, locomotives, trolley-busses, etc.), switching stations and control panels.
Installation in cable ducts, tubes and outside. For wiring in switching stations and distribution boards up to 1000 V, this cable is short-circuit and earth fault save.
Current-carrying capacity acc. to EN 50343 as well as VDE 0298 part 4.
Complies with performance requirements acc. to EN 45545-2- HL3.

Design

1. Conductor
Flexible stranded tinned copper, class 5 acc. to IEC 60228
Optional halogen-free separator tape

2. Insulation
Cross-linked compound type EI 109 acc. to EN 50264-1
Colour: black or grey

3. Screen
Halogen-free foil, tinned copper wire braid, halogen-free separator

4. Outer sheath
Cross-linked compound type EM 104 acc. to EN 50264-1
Oil, diesel, ozone and UV resistant
Colour: black

Cable marking

Ink marking white:
Flamex EN 50264-3-1 3600V (mm²) MM (N)SHXAFCOE 3.6/6 kV I Nexans I WW-YYYY

STANDARDS

International EN 45545 - HL3;
EN 50264-3-1; IEC 60228

Halogen free
EN 50267-2-1 & EN 60684-2

Operating temp.
-40 .. 90 °C

Smoke density
IEC 61034-2 & NFF 16101

Gases corrosivity
EN 50267-2-2

Gases toxicity
EN 50305-9.2

Flame retardant
IEC 60332-1-2

Fire retardant
EN 60332-3-24 & EN 60332-3-25

Bending factor when laying
10 (xD)

FLAMEX® EN 50264-3-1 MMS 3600V

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	IEC 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Bending factor when laying	10 (xD)
Bending factor when installed	5 (xD)
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 3.6/6 (7.2) kV
Max. operating voltage in DC installations, one-sided earthed	Vo= 4.0 DC
Testing AC voltage (5 minutes)	U = 11 kV
Coupling resistance 10 kHz – 30 MHz, > 16 mm²	≤ 50 Ohm/km
Coupling resistance 10 kHz – 30 MHz, 2.5 mm² - 16 mm²	≤ 150 Ohm/km

SELLING INFORMATION

Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

Halogen free
EN 50267-2-1 & EN 60684-2

Operating temp.
-40 .. 90 °C


Smoke density
IEC 61034-2 & NFF 16101


Gases corrosivity
EN 50267-2-2


Gases toxicity
EN 50305-9.2


Flame retardant
IEC 60332-1-2


Fire retardant
EN 60332-3-24 & EN 60332-3-25


Bending factor when laying
10 (xD)

FLAMEX® EN 50382 High temperature flexible power cables

Contact
All Domestic Sales
alper.altinok@nexans.com

European standard EN 50 382 deals with high temperature rolling stock power cables having special fire performance: flame and fire retardant, halogenfree, low smoke emission, low toxicity and low corrosivity of fumes.
A 140°C conductor temperature is allowed for a 20.000 hours cumulate working time.

Developed by the Nexans R&D laboratories, silicone materials show an excellent mechanical resistance to abrasion, tensile strength and cut through, but also a very good resistance to chemical agents.
Flexible and easy to strip, our cables are designed to meet the stringent requirements of our customers during cabling operations.

Nexans proposes to rolling stock manufacturers 3 cable series of FLAMEX® up to -50°C.

1. **Type F**: with only insulation This type could be manufactured with tinned or plain copper conductor. Silicon rubber made in Nexans plant overlaps requirements of EN 50 382-1 standard; and brings installation advantages thanks to its high abrasion and tearing resistance.
2. **Type FF**: with insulation and sheath This unique version manufactured by Nexans is the highest performance solution made of the highest grade of insulation and sheathing compounds.
3. **Type FXZ:**for mobile uses This type with extra flexible conductor and mechanical reinforced insulation is dedicated to be used as jumper cables between cars or between cars and bogies.

Main characteristics

Class of temperature: 120°C (tinned copper) or 150°C (plain copper)
• Voltage rate: 1.8/3 kV or 3.6/6 kV
• Silicon rubber compound performance: mechanical and thermal properties, resistance to oil, acid and alkaline, cold behavior
• Cable designs: with insulation only, or with insulation and sheath, or class 6 conductors for mobile applications.

Main properties

- **Low smoke emission**according to IEC 61 034-2,
- **Low toxicity**(ITC<3) and corrosivity of evolved gases after burning
- **Halogen free content**according to IEC 60 754-1
- pH > 4 according to IEC 60 754-2
- **Conductivity**< 100 µS/cm to IEC 60 754-2
- High **mechanical resistance** (against abrasion, tensile strength and cut through): no additional protection required,
- Excellent chemical resistance (against acids, alkalis, oil, …)

FLAMEX® EN 50382-2 F

Unsheathed high temperature flexible Power cables

DESCRIPTION

Application

These cables are designed and dedicated to be used on rolling stock equipment where high temperature is required to save cable weight.

Thanks to its high flexibility, these cables are frequently installed on locomotive equipement with low bending radius.

Construction

- **Conductor**
  Flexible class 5 copper according to IEC 60228
  * tinned copper for 120°C Class
  * plain copper for 150°C Class
- **Separator**
  Unweaved tape
- **Insulation**
  Cross-linked silicone type EI 111 according to EN 50382-1
  Colour : black outer layer

Marking

FLAMEX SI - EN 50382-2 - Voltage rate (1800V or 3600V) - cross-section mm² - F - temperature class (120°C or 150°C) - NEXANS 279 - week/year

Guide to use

Cabling rules are given in EN 50343

- Minimum bending radius (static) : 4 x outer cable diameter
- Minimum bending radius (dynamic) : 6 x outer cable diameter
- Pulling tensible force (dynamic) during installation : 50 N/mm² of copper size
- Mechanical static tensible force : 15N/mm² of copper size
- Permissible current carrying capacities : value and calculation method are given in EN 50355

Standards

Construction according to EN 50382-2

STANDARDS

International EN 45545-2 (HL3);
EN 50382-2

Halogen free
EN 50267

Chemical resistance
Good

Flame retardant
EN 60332-1-2

Fire retardant
EN 50266-2

Smoke density
EN/IEC 61034-2

Gases corrosivity
IEC 60754

Gases toxicity
EN 50305-9.2

Operating temp.
-50 .. 120 °C

FLAMEX® EN 50382-2 F

CHARACTERISTICS

Construction characteristics	
Insulation	High temperature silicone
Halogen free	EN 50267
Usage characteristics	
Chemical resistance	Good
Flame retardant	EN 60332-1-2
Fire retardant	EN 50266-2
Smoke density	EN/IEC 61034-2
Gases corrosivity	IEC 60754
Gases toxicity	EN 50305-9.2
Operating temperature, range	-50 .. 120 °C

FLAMEX® EN 50382-2 FXZ

Reinforced sheathed high temperature extra flexible Power cables

DESCRIPTION

Application

These specific extra flexible cables with mechanical reinforced insulation are dedicated to be used as jumper.

Construction

- **Conductor**
  Extra Flexible class 6 copper according to IEC 60228
  * tinned copper for 120°C Class
  * plain copper for 150°C Class
- **Separator**
  Unweaved tape
- **Insulation**
  Cross-linked silicone type EI 111, according to EN 50382-1 with an embedded polyester reinforcement.
  Colour : black outer layer

STANDARDS

International EN 45545-2 (HL3);
EN 50382-2

Marking

FLAMEX SI - EN 50382-2 - 3600 V - cross-section mm² - FXZ - class temperature (120°C or 150°C) - NEXANS 279 - week/year

Guide to use

Cabling rules are given according to EN 50343

- Minimum bending radius (static) : 4 x outer cable diameter
- Minimum bending radius (dynamic) : 6 x outer cable diameter
- Pulling tensible force (dynamic) during installation : 50 N/mm² of copper size
- Mechanical (static) tensible force : 15N/mm² of copper size
- Permissible current carrying capacities : value and calculation method are given in EN 50355

Standards

Construction according to EN 50382-2

Halogen free	Chemical resistance	Flame retardant	Fire retardant	Smoke density	Gases corrosivity	Gases toxicity	Operating temp.
EN 50267	**Good**	**EN 60332-1-2**	**IEC 60332-3-24**	**EN/IEC 61034-2**	**IEC 60754**	**EN 50305-9.2**	**-50 .. 120 °C**

FLAMEX® EN 50382-2 FXZ

CHARACTERISTICS

Construction characteristics	
Insulation	High temperature silicone
Halogen free	EN 50267
Usage characteristics	
Chemical resistance	Good
Flame retardant	EN 60332-1-2
Fire retardant	IEC 60332-3-24
Smoke density	EN/IEC 61034-2
Gases corrosivity	IEC 60754
Gases toxicity	EN 50305-9.2
Operating temperature, range	-50 .. 120 °C

FLAMEX® EN 50200 Fire resistant cables

Contact
All Domestic Sales
alper.altinok@nexans.com

Cables are everywhere around us and most of the time not visible once they are installed. However in the event of fire rolling stock equipments should remain functional to help in the evacuation process. **Fire resistant cables** are designed to be used in safety systems (emergency lighting, fire detection, warning systems, door opening, etc.) for control or power feeding. **Nexans is dedicated to improve safety in rolling stock** by protecting people's lives and trail from fires with innovative fire safety cables. These cables ensure the integrity of electrical circuits for a certain time after the fire started.

Standards & Specifications

- Fire resistance acc. to: EN 50200 & IEC 60331-2
- Fire resistant cables also comply with: EN 45 545-2, DIN 5510-2, BS 6853-1A, NFPA 130, UNICEI 11 170-3 & GOST-R 31 565.

Main characteristics

- Voltage rate: 300/500 V, 0,6/1kV, 1,8/3kV
- Single core and multicore (unshielded or shielded) power and control cables

Main properties

- Low smoke emission according to IEC 61 034-2,
- Low toxicity (ITC<3) and corrosivity of evolved gases after burning
- Halogen-free content according to IEC 60 754-1
- pH > 4 according to IEC 60 754-2
- Conductivity < 100 µS/cm to IEC 60 754-2
- High mechanical resistance (against abrasion, tensile strength and cut through):no additional protection required,
- Excellent chemical resistance (against acids, alkalis, oil, fuel, …)

FLAMEX® (N)MHXAF-FR

UNSCREENED SINGLE CORE CABLE

FIRE RESISTANT

DESCRIPTION

Applications

FLAMEX® EN50264-3-1 FR flexible power cables maintain circuit integrity in case of fire (according to EN 50200 for 90 minutes) and are fire retardant, low smoke and halogen-free safisfying performance requirements of EN 45545-2-HL3.

On top of that, FLAMEX® cables withstand tough working conditions (oil, ozone, temperature variations, etc.).

Design

1. **Conductor**
   Flexible stranded tinned copper, class 5 acc. to IEC 60228
   Mineral tape

2. **Insulation**
   Cross-linked compound type EI 109 acc. to EN 50264-1
   Oil, diesel, ozone and UV resistant
   Colour: black

Cable marking

Printing white:

FLAMEX type EN 50264-3-1 FR 600 V mm² M (N)MHXAF-FR 0,6/1kV
I NEXANS I WW-YYYY

STANDARDS

International EN 45545 - HL3;
EN 50200; EN 50264-3-1;
IEC 60228; IEC 60331-21

Halogen free
EN 50267-2-1 & EN 60684-2

Operating temp.
-40 .. 90 °C

Smoke density
IEC 61034-2 & NFF 16101

Gases corrosivity
EN 50267-2-2

Gases toxicity
EN 50305-9.2

Flame retardant
IEC 60332-1-2

Fire retardant
EN 60332-3-24 & EN 60332-3-25

Bending factor when laying
10 (xD)

FLAMEX® (N)MHXAF-FR

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	IEC 61034-2 & NFF 16101
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	IEC 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Bending factor when laying	10 (xD)
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 0.6/1 (1.2) kV
Max. operating voltage in DC installations, one-sided earthed	Vo= 0.9 kV DC
Testing AC voltage (5 minutes)	U = 3.5 kV

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

SELLING INFORMATION

- Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

FLAMEX® 4GKW–FR/HXAFOE-FR

UNSCREENED SINGLE CORE CABLE
FIRE RESISTANT

DESCRIPTION

Applications

FLAMEX® EN50264-3-1 4GKW FR flexible power cables maintain circuit integrity in case of fire (according to EN 50200 for 90 minutes) and are fire retardant, low smoke and halogen-free safisfying performance requirements of EN 45545-2-HL3.

On top of that, FLAMEX® cables withstand tough working conditions (oil, ozone, temperature variations, etc.).

Design

1. Conductor

- Flexible stranded tinned copper, class 5 acc. to IEC 60228
- Mineral tape

2. Insulation

- Double layer insulation, rubber type EI110 acc. to EN 50264-3-1
- Colour: black
- Oil, diesel, ozone and UV-resistant

Cable marking

Printing white:

e.g.: FLAMEX 4GKW-EN FR 1,8/3 kV EN 50264-3-1 1800 V (mm²) OM
I NEXANS I WW-YYYY

or

FLAMEX HXAFOE FR 1,8/3 kV EN 50264-3-1 1800 V (mm²) OM
I NEXANS I WW-YYYY

STANDARDS

International EN 45545 - HL3;
EN 50200; EN 50264-3-1;
IEC 60228; IEC 60331-2;
IEC 60331-21

Halogen free	Operating temp.	Smoke density	Gases corrosivity	Gases toxicity	Flame retardant	Fire retardant	Bending factor when laying
EN 50267-2-1 & EN 60684-2	**-40 .. 90 °C**	**EN/IEC 61034-2**	**EN 50267-2-2**	**EN 50305-9.2**	**EN 60332-1-2**	**EN 60332-3-24 & EN 60332-3-25**	**10 (xD)**

FLAMEX® 4GKW–FR/HXAFOE-FR

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	EN/IEC 61034-2
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	EN 60332-1-2
Fire retardant	EN 60332-3-24 & EN 60332-3-25
Bending factor when laying	10 (xD)
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

PRODUCT LIST

Nexans ref.	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Bending factor installed [(xD)]	Approx. weight [kg/km]
79471429	1	3.3	3.5	3	15
79471430	1.5	3.7	3.9	3	21
79471431	2.5	4.15	4.45	3	33
79471432	4	4.95	5.25	3	55
79471433	6	5.55	5.85	3	75
79471434	10	6.8	7.2	3	115
79471435	16	8.7	9.1	3	190
79471436	25	10.9	11.5	5	290
79471437	35	12.0	12.6	5	400
79471438	50	13.9	14.5	5	550
79471439	70	15.9	16.5	5	750
79471440	95	17.6	18.2	5	970
79471441	120	19.9	20.5	5	1250
79471442	150	22.2	22.8	5	1550
79471443	185	24.1	24.7	5	1900
79471444	240	27.2	27.8	5	2450

= Make to order, = In stock

Halogen free
EN 50267-2-1 & EN 60684-2


Operating temp.
-40 .. 90 °C


Smoke density
EN/IEC 61034-2


Gases corrosivity
EN 50267-2-2


Gases toxicity
EN 50305-9.2


Flame retardant
EN 60332-1-2


Fire retardant
EN 60332-3-24 & EN 60332-3-25


Bending factor when laying
10 (xD)

FLAMEX® 4GKW–FR/HXAFOE-FR

Nexans ref.	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Bending factor installed [(xD)]	Approx. weight [kg/km]
79471445	300	29.9	30.7	5	3050
79471446	400	34.7	35.5	5	4000

= Make to order, = In stock

ELECTRICAL PROPERTIES

Nominal voltage	Uo/U (Umax) = 1,8/3 (3,6) kV
Max. operating voltage (d.c.)	Vo =2,7 kV
Testing a.c. voltage (5 minutes)	U = 6,5 kV

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

SELLING INFORMATION

- Special conditions relating to temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

Halogen free
EN 50267-2-1 & EN 60684-2


Operating temp.
-40 .. 90 °C


Smoke density
EN/IEC 61034-2


Gases corrosivity
EN 50267-2-2


Gases toxicity
EN 50305-9.2


Flame retardant
EN 60332-1-2


Fire retardant
EN 60332-3-24 & EN 60332-3-25


Bending factor when laying
10 (xD)

FLAMEX® SI-FR TYPE EN 50382-2 F

Fire resistant high temperature extra-flexible power cable

DESCRIPTION

FLAMEX® SI-FR EN 50382-2 power cables maintain circuit integrity in case of fire (according to IEC 60331-4 for 90 minutes) and are fire retardant, low smoke and halogen-free satisfying performance requirements form EN 45545-2.

Theses cables will withstand harsh operation conditions on rolling stock (variations in temperature, snow, rain, sunlight, heavy vibrations, etc...). FLAMEX® SI-FR EN 50382-2 is suitable for weight saving and cabling operation in narrow spaces.

Construction

- **Conductor**
  Flexible class 5 copper according to IEC 60228
  * tinned copper for 120°C Class
  * plain copper for 150°C Class
- **Insulation**
  Fire barrier and cross-linked silicone compound type EI 111 according to EN 50382-1
  Colour : black

Marking

FLAMEX SI-FR - Type EN 50382-2 - Voltage rate (1800V or 3600V) - cross-section mm² - F - temperature class (120°C or 150°C) - NEXANS 279 - week/year

Guide to use

Cabling rules are given in EN 50343 standard

- Minimum bending radius (static): 4 x outer cable diameter
- Minimum bending radius (dynamic): 6 x outer cable diameter
- Pulling tensible force (dynamic) during installation: 50 N/mm² of copper size
- Mechanical static tensible force: 15N/mm² of copper size
- Permissible current carrying capacities values and calculation method are given in EN 50355

Standards

Construction according to EN 50382-2

STANDARDS

International EN 45545-2 (HL3); EN 50382-2

Halogen free
EN 50267

Fire resistant
IEC 60331-4

Flame retardant
EN 60332-1-2

Fire retardant
EN 50266-2

Smoke density
EN/IEC 61034-2

Gases corrosivity
IEC 60754

Gases toxicity
EN 50305-9.2

Chemical resistance
Good

FLAMEX® SI-FR TYPE EN 50382-2 F

CHARACTERISTICS

Construction characteristics	
Insulation	High grade silicone
Halogen free	EN 50267
Usage characteristics	
Fire resistant	IEC 60331-4
Flame retardant	EN 60332-1-2
Fire retardant	EN 50266-2
Smoke density	EN/IEC 61034-2
Gases corrosivity	IEC 60754
Gases toxicity	EN 50305-9.2
Chemical resistance	Good

Halogen free
EN 50267


Fire resistant
IEC 60331-4


Flame retardant
EN 60332-1-2


Fire retardant
EN 50266-2


Smoke density
EN/IEC 61034-2


Gases corrosivity
IEC 60754


Gases toxicity
EN 50305-9.2


Chemical resistance
Good

HV Loops & Accessories

Contact
All Domestic Sales
alper.altinok@nexans.com

Electric locomotives and motorcoach trains require a reliable supply and distribution of power.

Once the power is transferred from the overhead wire – usually on an AC voltage level of 15 or 25 kV – through the pantograph into the vehicle, distributed to the train sections or supplied to a 6 kV transformer.

In order to minimise the danger when dealing with these high voltages, high-quality materials are essential at every step of the way. Not only that, but special safety requirements must be taken into account as early as the design and planning stage for a high-voltage system. As well as the functional requirements, the necessary air insulation clearances, possible vibrations and deviations, installation options and many more things have to be considered.

The Nexans Rolling Stock division supports its customers in this with tried-and-tested, preassembled cable loop. We supply connectors with inner and outer cone suitable for a wide range of device connecting elements in line with EN 50180, EN 50181 and NFF 16101 flexible or self-supporting terminations, additional currency transformers or jumper solutions. An almost innumerable array of locomotives, electric motor-coach trains are already rolling with our solutions.

FLAMEX® (N)TMCGCHXOE 26/45 kV

MEDIUM VOLTAGE ROOF CABLES

DESCRIPTION

Applications

For inside and outside use in railway vehicles. Installation in cable ducts or tubes.

Current-carrying capacity acc. to EN 50343. Satisfies performance requirements to acc. to EN 45545-2 - HL3.

Available on request: HV loop, completely pre-assembled flexible cables with plugs and sealing ends, electrically tested.

Conductor temperature: -40°C / +90°C / +120°C

STANDARDS

International EN 45545-2 (HL3); EN 50264-1; IEC 60502

Design

1. **Conductor**
   Flexible stranded tinned copper, class 5 acc. to IEC 60228

2. **Inner conductive layer**
   Conductive rubber

3. **Insulation**
   Cross-linked compound type EI 110 acc. to EN 50264-1

4. **Outer conductive layer**
   Conductive rubber (thermo-strip)

5. **Screen**
   Conductive tape
   Tinned single wires with separator

6. **Outer sheath**
   Cross-linked compound type EM104 acc. to EN 50264-1
   Oil, diesel, ozone and UV resistant
   Colour: black

Halogen free	Rated Voltage Uo/U (Um)	Operating temp.	Smoke density	Gases corrosivity	Gases toxicity	Flame retardant	Fire retardant
EN 50267-2-1 & EN 60684-2	**26 / 45 (54) kV**	**-40 .. 90 °C**	**EN/IEC 61034-2**	**EN 50267-2-2**	**EN 50305-9.2**	**EN 60332-1-2**	**IEC 60332-3-24**

FLAMEX® (N)TMCGCHXOE 26/45 kV

Cable marking

Ink marking white e.g.:

FLAMEX VDE-Reg.-Nr. 7969 (N)TMCGCHXOE 1x95mm² RF/16 25/45 kV

WW/YYYY

CHARACTERISTICS

Construction characteristics	
Halogen free	EN 50267-2-1 & EN 60684-2
Sheath colour	Black
Electrical characteristics	
Rated Voltage Uo/U (Um)	26 / 45 (54) kV
Usage characteristics	
Operating temperature, range	-40 .. 90 °C
Smoke density	EN/IEC 61034-2
Gases corrosivity	EN 50267-2-2
Gases toxicity	EN 50305-9.2
Flame retardant	EN 60332-1-2
Fire retardant	IEC 60332-3-24
Bending factor when laying	10 (xD)
Bending factor when installed	6 (xD)
Oil resistance	Yes
Ozone resistance	Yes
U.V resistance	Yes

Halogen free
EN 50267-2-1 & EN 60684-2


Rated Voltage Uo/U (Um)
26 / 45 (54) kV


Operating temp.
-40 .. 90 °C


Smoke density
EN/IEC 61034-2


Gases corrosivity
EN 50267-2-2


Gases toxicity
EN 50305-9.2


Flame retardant
EN 60332-1-2


Fire retardant
IEC 60332-3-24

ELECTRICAL PROPERTIES

Nominal voltage		Uo/U (Umax) = 26/45 (54) kV
Max. operating voltage		Vo max = 32 kV DC
Test voltage	Core/Screen (5 minutes)	Uo = 70 kV
Core/Screen (1 minutes)		Uo = 75 kV
Partial discharge measurement by 52 kV, on pre-assembled flexible cable		≤ 5 pC

MAX. OPERATING TEMPERATURE AT CONDUCTOR

Conductor at normal operation	≤ 90 °C/250.000 h
	≤ 120 °C/20.000 h
Conductor under short-circuit conditions (tinned)	≤ 200 °C

SELLING INFORMATION

- Special conditions relating temperature and bending radii (e.g. by compelled guidance into cluthes, wagon transition and boogies) on request.

Industrial cables, wires & accessories

These flexible cables, insulated wiring and connection leads are mostly used in the field of electronics, electrical appliances and switchboard constructions. The wires are also used for motors, relays and transformers, in the construction of rectifiers and accumulators, as well as in the field of galvanization, etc...

The cables are used as power cables for household appliances, tools and connecting cords for medical apparatus etc...

Flexible cords, insulated stranded wires and cables

Low smoke & fire resistant

Low smoke & fire resistant flexible wires

LIHCH FE 180

Halogen free Flame Retardant & Fire Resistant Flexible Signal & Control Cables

DESCRIPTION

Application

Signalling and control cables used for connection in electronic control technology, pulse and data transmission for voice frequency.

Notes:

- The screening protects the cable against external electrical interference. (EMC Preferred type)
- The halogen-free thermoplastic insulation and sheath produce neither corrosive nor toxic gases
- In case of fire and hazardous conditions, during 180 minutes of period (according to IEC 60331) these cables are able to operate and they can be used in fixed electrical installations as fire detection cables for public buildings such as hotels, hospitals, shopping and business centers, schools etc.

Design

1. Multi wire stranded bare electrolytic copper conductor
2. Mica Tape fire barrier
3. Halogen free flame retardant insulation
4. Cores laid up in concentric layers
5. Cable core covered with PET foil
6. Tinned copper braiding
7. Halogen free flame retardant outer sheath

Core Colors

In accordance with DIN 47100 or black with white numbers

STANDARDS

National DIN VDE 0812

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Conductor flexibility	Flexible class 5
Insulation	HFFR
Lay Up	Helically stranded conductors

Conductor flexibility
Flexible class 5

Halogen free
Yes

Rated Voltage Uo/U (Um)
300 / 500 V

Operating temp.
-30 .. 70 °C

Ambient installation T°C range
-5 .. 50 °C

Bending factor installed
10 (xD)

Electro magnetic interference resistance
Yes

Fire resistant
FE 180 IEC 60331

LIHCH FE 180

Construction characteristics	
Protection	PET binding tape
Screen	Tinned copper braid
Outer sheath	HFFR (Halogene Free Flame Retardant)
Sheath colour	Grey
Halogen free	Yes
Electrical characteristics	
Insulation resistance at 20°C	200.0 MOhm.km
Test voltage	1200 V
Rated Voltage Uo/U (Um)	300 / 500 V
Usage characteristics	
Operating temperature, range	-30 .. 70 °C
Ambient installation temperature, range	-5 .. 50 °C
Packaging	Reel
Length	1000 m
Bending factor when installed	10 (xD)
Electro magnetic interference resistance	Yes
Fire resistant	FE 180 IEC 60331
Flame retardant	IEC 60332-1
Smoke density	EN/IEC 61034-2
Gases toxicity	IEC 60754-1
Gases corrosivity	IEC 60754-2

SELLING INFORMATION

Marking

NEXANS (Production year) ALSECURE® LIHCH FE 180 (#of Cores) (Cross section) (metering)

Conductor flexibility
Flexible class 5

Halogen free
Yes

Rated Voltage Uo/U (Um)
300 / 500 V

Operating temp.
-30 .. 70 °C

Ambient installation T°C range
-5 .. 50 °C

Bending factor installed
10 (xD)

Electro magnetic interference resistance
Yes

Fire resistant
FE 180 IEC 60331

Low smoke & flame retardant flexible wires and cables

ALSECURE® LIH(St)CH-TP

Halogen free Flame Retardant Flexible Signal & Control Cables

DESCRIPTION

Application

Signalling and control cables used for connection in electronic control technology, pulse and data transmission for voice frequency.

Notes:

- The screening protects the cable against external electrical interference. (EMC preferred type)
- The halogen-free thermoplastic insulation and sheath produce neither corrosive nor toxic gases

Design

1- Multi wire stranded bare electrolytic copper conductor (class 5)

2- Halogen free flame retardant insulation

Twisted pairs laid up in concentric layers

3- Aluminum backed polyester foil screen

(metal side up and in contact with braiding)

4- Tinned copper braiding.

5- Halogen free flame retardant outer sheath with ripcord

Color: Grey (RAL 7001)

Insulation Colours:

Pair: Black – White (For multi pair cables, number printing with

their respective pair number on the White core

Production

All production stages are carried out in conformity with the requirements of quality, environmental and H&S management systems

STANDARDS

National DIN VDE 0812

Conductor flexibility
Flexible class 5

Halogen free
Yes

Operating temp.
-30 .. 70 °C

Ambient installation T°C range
-5 .. 50 °C

Bending factor installed
10 (xD)

Electro magnetic interference resistance
Yes

Flame retardant
IEC 60332-1-2

Smoke density
EN/IEC 61034-2

ALSECURE® LIH(St)CH-TP

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Conductor flexibility	Flexible class 5
Insulation	HFFR
Lay Up	Helically stranded conductors
Protection	Aluminium-PET foil
Screen	Tinned copper braid
Outer sheath	HFFR (Halogene Free Flame Retardant)
Sheath colour	Grey
Halogen free	Yes
Electrical characteristics	
Insulation resistance at 20°C	200.0 MOhm.km
Test voltage	1200 V
Operating voltage	500 V
Usage characteristics	
Length	1000 m
Packaging	Reel
Operating temperature, range	-30 .. 70 °C
Ambient installation temperature, range	-5 .. 50 °C
Bending factor when installed	10 (xD)
Electro magnetic interference resistance	Yes
Flame retardant	IEC 60332-1-2
Smoke density	EN/IEC 61034-2
Gases toxicity	IEC 60754-1

SELLING INFORMATION

Marking

NEXANS (Production year) ALSECURE® LIH(St)CH-TP (#of Cores) (Cross section) (metering)

Technical Support

For further information and requests, please contact Nexans Turkey Sales Office.


Conductor flexibility
Flexible class 5

Halogen free
Yes


Operating temp.
-30 .. 70 °C


Ambient installation T°C range
-5 .. 50 °C

Bending factor installed
10 (xD)


Electro magnetic interference resistance
Yes


Flame retardant
IEC 60332-1-2


Smoke density
EN/IEC 61034-2

ALSECURE® LIH(St)CH

Halogen free Flame Retardant Flexible Signal & Control Cables

DESCRIPTION

Application

Signalling and control cables used for connection in electronic control technology, pulse and data transmission for voice frequency.

Notes:

- The screening protects the cable against external electrical interference. (EMC preferred type)
- The halogen-free thermoplastic insulation and sheath produce neither corrosive nor toxic gases

Design

1- Multi wire stranded bare electrolytic copper conductor (class 5)

2- Halogen free flame retardant insulation

Cores laid up in concentric layers

3- Aluminum backed polyester foil screen

(metal side up and in contact with braiding)

4- Tinned copper braiding.

5- Halogen free flame retardant outer sheath with ripcord

Color: Grey (RAL 7001)

Insulation Colours:

Up to 5 cores: DIN 47100 (with color repetition)

6 or more cores: Black colored cores numbered as White digits.

Ring or Stripe (line) marking to be used for bi-color identification

Production

All production stages are carried out in conformity with the requirements of quality, environmental and H&S management systems

STANDARDS

National DIN VDE 0812

Conductor flexibility
Flexible class 5

Halogen free
Yes

Operating temp.
-30 .. 70 °C

Ambient installation
T°C range
-5 .. 50 °C

Bending factor
installed
10 (xD)

Electro magnetic
interference
resistance
Yes

Flame retardant
IEC 60332-1-2

Smoke density
EN/IEC 61034-2

ALSECURE® LIH(St)CH

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Conductor flexibility	Flexible class 5
Insulation	HFFR
Lay Up	Helically stranded conductors
Protection	Aluminium-PET foil
Screen	Tinned copper braid
Outer sheath	HFFR (Halogene Free Flame Retardant)
Sheath colour	Grey
Halogen free	Yes
Electrical characteristics	
Insulation resistance at 20°C	200.0 MOhm.km
Test voltage	1200 V
Operating voltage	500 V
Usage characteristics	
Length	1000 m
Packaging	Reel
Operating temperature, range	-30 .. 70 °C
Ambient installation temperature, range	-5 .. 50 °C
Bending factor when installed	10 (xD)
Electro magnetic interference resistance	Yes
Flame retardant	IEC 60332-1-2
Smoke density	EN/IEC 61034-2
Gases toxicity	IEC 60754-1

SELLING INFORMATION

Marking

NEXANS (Production year) ALSECURE® LIH(St)CH (#of Cores) (Cross section) (metering)

Technical Support

For further information and requests, please contact Nexans Turkey Sales Office.


Conductor flexibility
Flexible class 5

Halogen free
Yes


Operating temp.
-30 .. 70 °C


Ambient installation T°C range
-5 .. 50 °C

Bending factor installed
10 (xD)


Electro magnetic interference resistance
Yes


Flame retardant
IEC 60332-1-2


Smoke density
EN/IEC 61034-2

LIHCH

Halogen free Flame Retardant Flexible Signal & Control Cables

DESCRIPTION

Application

Signalling and control cables used for connection in electronic control technology, pulse and data transmission for voice frequency.

Notes:

- The screening protects the cable against external electrical interference. (EMC preferred type)
- The halogen-free thermoplastic insulation and sheath produce neither corrosive nor toxic gases

Design

1. Multi wire stranded bare electrolytic copper conductor
2. Halogen free flame retardant insulation
3. Cores laid up in concentric layers
4. Cable core covered with PET foil
5. Tinned copper braiding
6. Halogen free flame retardant outer sheath

Core Colors

In accordance with DIN 47100 or black with white numbers

STANDARDS

National DIN VDE 0812

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Conductor flexibility	Flexible class 5
Insulation	HFFR
Lay Up	Helically stranded conductors
Protection	PET binding tape
Screen	Tinned copper braid
Outer sheath	HFFR (Halogene Free Flame Retardant)
Sheath colour	Grey

Conductor flexibility
Flexible class 5

Halogen free
Yes

Rated Voltage Uo/U (Um)
300 / 500 V

Operating temp.
-30 .. 70 °C

Ambient installation T°C range
-5 .. 50 °C

Bending factor installed
10 (xD)

Electro magnetic interference resistance
Yes

Flame retardant
IEC 60332-1-2

LIHCH

Construction characteristics	
Halogen free	Yes
Electrical characteristics	
Insulation resistance at 20°C	200.0 MOhm.km
Test voltage	1200 V
Rated Voltage Uo/U (Um)	300 / 500 V
Usage characteristics	
Operating temperature, range	-30 .. 70 °C
Ambient installation temperature, range	-5 .. 50 °C
Bending factor when installed	10 (xD)
Electro magnetic interference resistance	Yes
Flame retardant	IEC 60332-1-2
Smoke density	EN/IEC 61034-2
Gases toxicity	IEC 60754-1
Gases corrosivity	IEC 60754-2

SELLING INFORMATION

Marking

NEXANS (Production year) ALSECURE® LIHCH (#of Cores) (Cross section) (metering)


Conductor flexibility
Flexible class 5

Halogen free
Yes


Rated Voltage Uo/U (Um)
300 / 500 V


Operating temp.
-30 .. 70 °C


Ambient installation T°C range
-5 .. 50 °C


Bending factor installed
10 (xD)


Electro magnetic interference resistance
Yes


Flame retardant
IEC 60332-1-2

LIHH

Halogen free Flame Retardant Flexible Signal & Control Cables

DESCRIPTION

Application

Signalling and control cables used for connection in electronic control technology, pulse and data transmission for voice frequency.

Note:

- The halogen-free thermoplastic insulation and sheath produce neither corrosive nor toxic gases

Design

1. Multi wire stranded bare electrolytic copper conductor
2. Halogen free flame retardant insulation
3. Cores laid up in concentric layers
4. Cable core covered with PET foil
5. Halogen free flame retardant outer sheath

Insulation Colours:

In accordance with DIN 47100 or black with white numbers

STANDARDS

National DIN VDE 0812

Conductor flexibility	Halogen free	Rated Voltage Uo/U (Um)	Operating temp.	Ambient installation T°C range	Flame retardant	Gases toxicity	Bending factor installed
Flexible class 5	**Yes**	**300 / 500 V**	**-30 .. 70 °C**	**-5 .. 50 °C**	**IEC 60332-1-2**	**IEC 60754-1**	**10 (xD)**

LIHH

CHARACTERISTICS

Construction characteristics	
Conductor material	Plain copper
Conductor flexibility	Flexible class 5
Insulation	HFFR
Lay Up	Helically stranded conductors
Protection	PET binding tape
Outer sheath	HFFR (Halogene Free Flame Retardant)
Halogen free	Yes
Sheath colour	Grey
Electrical characteristics	
Insulation resistance at 20°C	200.0 MOhm.km
Test voltage	1200 V
Rated Voltage Uo/U (Um)	300 / 500 V
Usage characteristics	
Operating temperature, range	-30 .. 70 °C
Ambient installation temperature, range	-5 .. 50 °C
Flame retardant	IEC 60332-1-2
Gases toxicity	IEC 60754-1
Bending factor when installed	10 (xD)
Smoke density	EN/IEC 61034-2

SELLING INFORMATION

Marking

NEXANS (Production year) ALSECURE® LIHH (#of Cores) (Cross section) (metering)

Thermoplastic flexible wires

LIYCY

LIYCY

PVC Insulated and sheathed, Copper braiding screened cable with flexible copper conductor

DESCRIPTION

Application

Signaling and control cables used for connection in electronic control technology, pulse and data transmission for voice frequency.

The screening protects the cable against external electrical interference (EMC preferred type)

Design

1. Multi wire stranded bare electrolytic copper conductor
2. PVC insulation
3. Cores laid up in concentric layers
4. Cable core covered with PET foil
5. Tinned copper braiding
6. PVC outer sheath

Core Colors

In accordance with DIN 47100 or black with white numbers

STANDARDS

National VDE 812

CHARACTERISTICS

Construction characteristics	
Conductor flexibility	Flexible class 5
Sheath colour	Grey
Conductor material	Plain copper
Insulation	PVC
Protection	PET binding tape
Outer sheath	PVC
Lay Up	Helically stranded conductors
Electrical characteristics	
Insulation resistance at 20°C	200.0 MOhm.km

Conductor flexibility
Flexible class 5

Rated Voltage Uo/U (Um)
300 / 500 V

Electro magnetic interference resistance
Yes

Operating temp.
-30 .. 70 °C

Bending factor installed
10 (xD)

Ambient installation T° C range
-5 .. 50 °C

Flame retardant
EN 60332-1-2

Electrical characteristics	
Rated Voltage Uo/U (Um)	300 / 500 V
Test voltage	1200 V
Usage characteristics	
Electro magnetic interference resistance	Yes
Operating temperature, range	-30 .. 70 °C
Bending factor when installed	10 (xD)
Ambient installation temperature, range	-5 .. 50 °C
Flame retardant	EN 60332-1-2

Conductor flexibility
Flexible class 5

Rated Voltage Uo/U (Um)
300 / 500 V

Electro magnetic interference resistance
Yes

Operating temp.
-30 .. 70 °C

Bending factor installed
10 (xD)

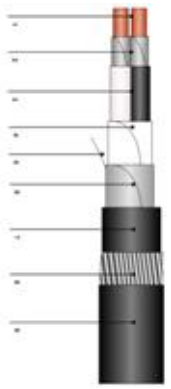
Ambient installation T° C range
-5 .. 50 °C

Flame retardant
EN 60332-1-2

Instrumentation cables

MGT-XLPE/OSCR/LSZH/SWA/PVC

Fire Resistant & Flame Retardant Instrumentation Cable generally in accordance with BS 5308 Part1 Type 2



DESCRIPTION

Application

The cables are designed to connect electrical Instrument Circuits and provide communication services in process plants (e.g. petroleum industry).
The cables can be safely used for transmission of analogue and digital signals in instrument and control systems in zone 1 and zone 2 group II classified areas (according to IEC 60079-14). Not allowed for direct connection to a low impedance source e.g. the public electricity supply.

- Tinned copper conductor alternative is available upon request. Also available in individually and collectively screened version.
- The screening protects the cable against external electrical interference.

Design

1. Conductor: Stranded (Class 2) copper
2. Fire Barrier: Mica Tape
3. Insulation: XLPE
4. Binder tape: PET tape 50% overlap.
5. Drain Wire: Tinned copper 0,5 mm²
6. Collective Screen: Aluminium/PET laminated foil applied metallic side down and in contact with drain wire
7. Inner Sheath (Bedding): Low smoke Halogen free flame retardant compound.
8. Armour: Galvanised steel wires
9. Outer sheath: PVC

Insulation Colours:

Colour identification according to BS 5308 Part 1 Appendix A Table 12. For details refer to attached colour code chart

STANDARDS

National BS 5308.1

CHARACTERISTICS

Construction characteristics	
Conductor shape	Circular stranded (RM)
Conductor flexibility	Stranded class 2

Conductor flexibility
Stranded class 2

Fire resistant
IEC 60331

Flame retardant
IEC 60332-3 Cat. C

Bending factor when laying
10 (xD)

U.V resistance
Yes

Operating temp.
-20 .. 60 °C

Ambient installation T° C range
0 .. 50 °C

MGT-XLPE/OSCR/LSZH/SWA/PVC

Construction characteristics	
Insulation	XLPE + Mica tape
Screen	Metallised foil over drain wire
Inner sheath	LSZH
Armour type	Steel wires
Outer sheath	PVC
Dimensional characteristics	
Number of cores	3
Electrical characteristics	
Insulation resistance at 20°C	5000.0 MOhm.km
Capacitance unbalance, max. 800 Hz	250 pF/250m
Usage characteristics	
Fire resistant	IEC 60331
Flame retardant	IEC 60332-3 Cat. C
Bending factor when laying	10 (xD)
U.V resistance	Yes
Packaging	Drum
Operating temperature, range	-20 .. 60 °C
Ambient installation temperature, range	0 .. 50 °C

SELLING INFORMATION

Marking

NEXANS (Production year) Standard Voltage Rating MGT-XLPE/OSCR/LSZH/SWA/PVC (#of Pair/Triple/Quad/Core) (Cross section) (metering)

Technical Support

For further information and requests, please contact Nexans Turkey Sales Office.


Conductor flexibility
Stranded class 2


Fire resistant
IEC 60331


Flame retardant
IEC 60332-3 Cat. C


Bending factor when laying
10 (xD)


U.V resistance
Yes


Operating temp.
-20 .. 60 °C


Ambient installation T° C range
0 .. 50 °C

Y(ST)(ST)Y

Contact
All Domestic Sales
alper.altinok@nexans.com

INSTRUMENTATION CABLE 500 V

DESCRIPTION

Cable construction

1. Copper conductor stranded wire: 1.0 mm2 / 1.5 mm2

2.Insulation: PVC

Laying up: Twisted pairs / triads

3. Individual Screen: Polyester (PETP) tape / tinned stranded copper 0.5 mm2 / aluminium backed polyester foil / Polyester (PETP) tape

3. Overall Screen: Polyester (PETP) tape / tinned stranded copper 0.5 mm2 / aluminium backed polyester foil / Polyester (PETP) tape
4. Outer sheath : PVC - IS: Blue NIS: Grey

Marking:

NEXANS - Year - No. of cores & cross-section – Voltage rating - CPR class –+ meter marking

Core Identification

Pair : White - Black

Triad : White - Black - Red

(For pair/triad cables, number printing with their respective pair/triad number on the each core.)

STANDARDS

International EN 50288-7

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Outer sheath	PVC
Usage characteristics	
Ambient installation temperature, range	-5 .. 50 °C
Operating temperature, range	-30 .. 70 °C
Fire retardant	IEC 60332-3 Cat.C
Bending factor when laying	10 (xD)

Ambient installation T°C range
-5 .. 50 °C

Operating temp.
-30 .. 70 °C

Fire retardant
IEC 60332-3 Cat.C

Bending factor when laying
10 (xD)

Y(ST)(ST)Y

Contact
All Domestic Sales
alper.altinok@nexans.com

PRODUCT LIST

Nexans ref.	Country ref.	Name	Sheath colour
10559815	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 16P1	Grey
10559819	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 16P1	Blue
10559839	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 16T1	Blue
10559834	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 16T1	Grey
10559812	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 2P1.5	Grey
10559816	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 2P1.5	Blue
10559830	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 2T1.5	Grey
10559835	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 2T1.5	Blue
10559813	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 4P1	Grey
10559817	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 4P1	Blue
10559831	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 4T1	Grey
10559836	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 4T1	Blue
10559832	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 6T1	Grey
10559837	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 6T1	Blue
10559814	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 8P1	Grey
10559818	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 8P1	Blue
10559833	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 8T1	Grey
10559838	TR	Y(ST)(ST)Y PVC/IOSCR/PVC 8T1	Blue

= Make to order, = In stock

ELECTRICAL PROPERTIES

	1,0mm²	1,5 mm²
Max. DC Resistance (Ohm/km) @ 20°C	18,4	12,3
Max. Mutual Capacitance @1000 Hz (nF/km)	≤250	
L/R ratio (µH/Ohm)	≤25	≤40

Min. Insulation Resistance	10 M Ohm x km
Test Voltage (V) 1 minute	1,000 V ac or 2,000 V dc

Ambient installation T°C range
-5 .. 50 °C

Operating temp.
-30 .. 70 °C

Fire retardant
IEC 60332-3 Cat.C

Bending factor when laying
10 (xD)

Y(St)YRY - PVC/OSCR/PVC/SWA/PVC

Contact
All Domestic Sales
alper.altinok@nexans.com

INSTRUMENTATION CABLE 300 V

DESCRIPTION

Cable construction

1. Copper conductor stranded wire: 0.75 mm2 / 1.5 mm2 / 2.5 mm2

2.Insulation: PVC

Laying up: Twisted pairs

3. Screen: Polyester (PETP) tape / tinned stranded copper 0.5 mm2 / aluminium backed polyester foil / Polyester (PETP) tape

4. Inner Sheath:PVC - Black

5. Amour: Galvanized steel wire armour
6. Outer sheath : PVC - Black

Marking:

NEXANS - Year – Cable Type- No. of pair & cross-section – Voltage rating –+ meter marking

Core Identification

Pair : White – Black

(For pair cables, number printing with their respective pair number on the White core.)

STANDARDS

International EN 50288-7

CHARACTERISTICS

Construction characteristics	
Insulation	PVC
Outer sheath	PVC
Sheath colour	Black
Usage characteristics	
Ambient installation temperature, range	-5 .. 50 °C
Operating temperature, range	-30 .. 70 °C
Fire retardant	IEC 60332-3 Cat.C

Ambient installation T°C range
-5 .. 50 °C

Operating temp.
-30 .. 70 °C

Fire retardant
IEC 60332-3 Cat.C

Y(St)YRY - PVC/OSCR/PVC/SWA/PVC

Contact
All Domestic Sales
alper.altinok@nexans.com

PRODUCT LIST

Nexans ref.	Country ref.	Name
10558536	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 12P0.75
10558544	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 12P1.5
10558552	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 12P2.5
10558537	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 16P0.75
10558545	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 16P1.5
10558553	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 16P2.5
10558531	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 1P0.75
10558539	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 1P1.5
10558547	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 1P2.5
10558538	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 24P0.75
10558546	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 24P1.5
10558554	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 24P2.5
10558532	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 2P0.75
10558540	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 2P1.5
10558548	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 2P2.5
10558533	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 4P0.75
10558541	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 4P1.5
10558549	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 4P2.5
10558534	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 6P0.75
10558542	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 6P1.5
10558550	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 6P2.5
10558535	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 8P0.75
10558543	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 8P1.5
10558551	TR	Y(ST)YRY - PVC/OSCR/PVC/SWA/PVC 8P2.5

= Make to order, = In stock

Ambient installation T°C range
-5 .. 50 °C

Operating temp.
-30 .. 70 °C

Fire retardant
IEC 60332-3 Cat.C

Contact
All Domestic Sales
alper.altinok@nexans.com

ELECTRICAL PROPERTIES

Electrical Properties

	0,75 mm²	1,5 mm²	2,5 mm
○ Max. DC Resistance (Ohm/km) @ 20°C	25,0	12,3	7,56
○ Max. Mutual Capacitance @1000 Hz (nF/km)		≤250	
○ L/R ratio (µH/Ohm)	≤25	≤40	≤60

○ Min. Insulation Resistance	10 M Ohm x km
○ Test Voltage (V) 1 minute	1,000 V ac or 2,000 V dc

Ambient installation T°C range
-5 .. 50 °C

Operating temp.
-30 .. 70 °C

Fire retardant
IEC 60332-3 Cat.C

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Contact details

Site editor
Nexans, société anonyme
4 allée de l’Arche
CS70088
92070 Paris La Défense Cedex
RCS Paris 393 525 852
Director of publication : Arnaud Poupart-Lafarge

Site hosting
oXya France
21 rue Camille Desmoulins
92130 Issy Les Moulineaux – France

Distributed by

Information Contact
Mecidiyeköy Mahallesi, Oğuz sokak - No:4 Rönesans BIZ Plaza Kat: A/1- Mecidiyeköy,
Şişli - 34387 İstanbul - Turkey
+90 (212) 266 01 60
info.turkey@nexans.com

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