Miguélez

CABLES


# COMPANY'S PRESENTATION

Miguélez
CABLES

## OUR COMPANY

Miguélez is an industrial corporation established in 1951. Our main purpose is focused on a successful customer-manufacturer relationship, supported by human values such as fidelity and commitment.

## INSTALLATIONS

- More than 125,000 $m^2$ of facilities.
- Our manufacturing plant extends a 64,500 $m^2$ surface.
- Our central automated warehouse extends a 32,000 $m^2$ surface.
- 30.450 $m^2$ of peripheral warehouses in Spain, France, Portugal, Panama, Peru, Chile and USA.
- 15 distribution points in 7 countries.
- Miguélez provides an extensive productivity focused on satisfying our customers' requests.

## PRODUCTION CAPACITY

Annually, Miguélez produces more than 300,000 linear kilometers of cable, with a total consumption of over 24,000 tons of copper, in order to provide the best service to our customers.

## RELIABLE & CLOSE TO THE CUSTOMER

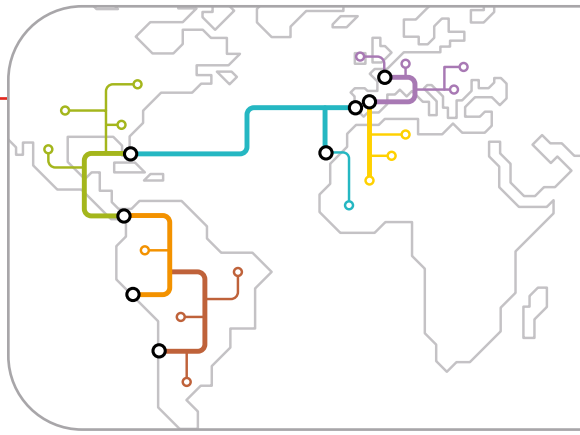
These two characteristics are ingrained in MIGUÉLEZ's DNA.

- *Geographic proximity to guarantee **fast service**.*
- *Reliability both in the **product** and in our **human team**.*

The fulfillment of these two premises has been the purpose, day after day, along these 70 years of MIGUÉLEZ's history and it will continue to be in the future, since it is a timeless objective. We believe that the best way to present ourselves is by showing the results of our evolution. We invite you to discover our range of cables, both for general use in construction and industry and for specific uses in special installations.

But first, we want to share some data that we are proud of. These data clearly illustrate the result of having remained faithful to our commitments. We will continue working to maintain the CONFIDENCE granted, improving our service and reducing delivery times. We put all our stock at your disposal through ...

## ONE OF THE LARGEST NETWORKS OF CABLE WAREHOUSES INTERCONNECTED IN THE WORLD



125 thousand square meters of facilities

Export: 55%

Total investment in productive fixed assets since the foundation: € 90 million

Only in 2019: € 16 millon

Number of cable references: **3,537**

**420** million meters of manufactured cable per year

**420,000 km:** greater distance than between the Earth and the Moon




**1,200** active clients in **8** countries

**450** employees, 93% with permanent contracts,

of **8** different nationalities

**10** patents and **80** registered trademarks worldwide

**15** distribution points in **7** countries

**500** containers shipped per year

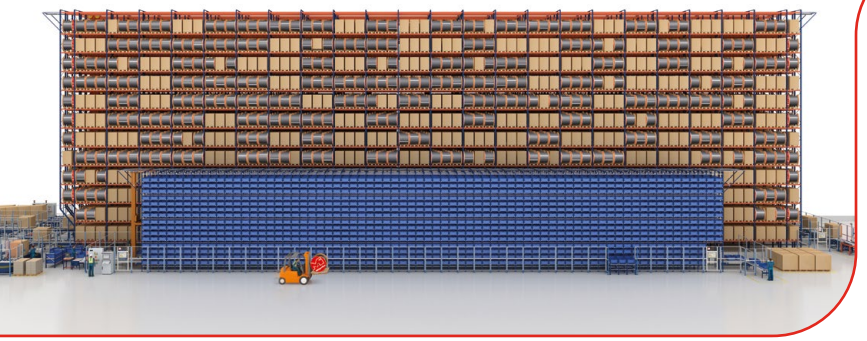
Lined up like a train, they would have a length of **6.2 km**




More than **2,000,000** warehouse movements per year

**90** TEUs in maritime transit every day (2,000 drums)


Central warehouse capacity in tons: **10,400**



**6,504**

pallets in automated warehouse

# OUR DELEGATIONS AND INTERNATIONAL AFFILIATES


## MIGUÉLEZ - CONDUTORES ELÉCTRICOS, S.A.

Vialonga (Portugal)


## MIGUÉLEZ FRANCE

Le Blanc Mesnil (France)


## MIGUÉLEZ USA CORPORATION

Doral, Florida (USA)


## MIGUÉLEZ CHILE LTDA.

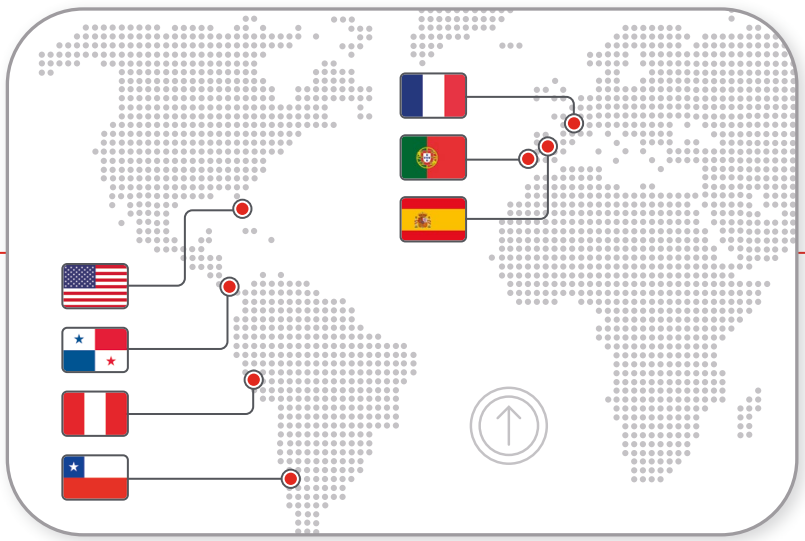
Pudahuel - Santiago de Chile (Chile)

## MIGUÉLEZ PANAMÁ S.R.L.

Ciudad de Panamá (Panama)

## MIGUÉLEZ ANDINA S.R.L.

Lima (Peru)



# QUALITY

Our main target and commitments are directed towards the achievement of total quality in our manufacturing processes.

Our company is certified by the Company Registration Certificate (ER) ISO 9001 since 1995 and our products have the following certifications: UL, AENOR, <HAR>, BUREAU VERITAS, LCIE, CERTIF, IQNET, CESMEC, ...

## COMPANY CERTIFICATES

- Quality Management System ISO 9001:2015
- Laborprex (Occupational Health and Safety)

## AENOR <HAR>

- Barry H07V-U
- Barry H07V-R
- Barryflex H07V-K
- Barryflex-man H05VV-F
- Afirenas H07Z1-U TYPE2 (AS)
- Afirenas H07Z1-R TYPE2 (AS)
- Afirenas-L H07Z1-K TYPE2 (AS)
- Afirenas CC-Z H07Z-R
- Solflex H1Z2Z2-K

## AENOR

- Barrynax AR-Corona RVMV 0,6/1 kV
- Barryflex RV-K 0,6/1 kV
- Afirenas-X RZ1-K (AS) 0,6/1 kV
- Afirefenix SZ1-K 0,6/1 kV PH120 (AS+)
- Afirefenix Mica RZ1-K 0,6/1 kV PH120 (AS+)
- Conduit Precab (ICTA 3422)
- Terranax (Bare copper conductor for earthing purposes)
- Tendenax (Bare copper conductor for overhead lines)

## AENOR IEC

- Barry H07V-U
- Barry H07V-R
- Barryflex H07V-K
- Barryflex-man H05VV-F
- Barryflex RV-K 0,6/1 kV
- Afirenas-X RZ1-K (AS) 0,6/1 kV

## LCIE (NF FRANCE)

- Barrynax U-1000 R2V
- Conduit Precab (ICTA 3422)

## CERTIF (PORTUGAL)

- Conduit Precabo (ICTA 3422)

## UL (USA)

- THHN / THWN / THWN-2

## CESMEC (CHILE)

- Barry H07V-U
- Barryflex-man H05VV-F
- Afirenas-L H07Z1-K TYPE2 (AS)
- Barryflex RV-K 0,6/1 kV
- Afirenas-X RZ1-K (AS) 0,6/1 kV

## BUREAU VERITAS (NAVAL & MARINE)

- Barryflex RV-K 0,6/1 kV
- Afirenas-X RZ1-K (AS) 0,6/1 kV

## HOMOLOGATIONS

- Ayuntamiento de Madrid
  (Afirenas-X, Afirefenix, Barry H07V-R, Barrynax U-1000 R2V)
- Repro
- Enagas

•https://www.miguelez.com/es/certificados-de-calidad

# Construction Products Regulation (CPR) and EU Directives.

**Since July 1st of 2017, REGULATION (EU) Nº 305/2011 (Construction Products Regulation (CPR)) has been in force for power, control & communication and optical fibre cables.**

**The CE marking indicated in the CPR Regulation is mandatory for all power, control & communication cables placed on the EU market for incorporation in a permanent manner in construction works (building or other civil engineering works).**

**The CE marking has to appear in the label of the packaging (coils, drums...).**

**Miguélez** has prepared and adapted its range of products to meet the requirements of the CPR Regulation.

## How can you get the DoP of a MIGUÉLEZ cable?

Declaration/s of Performance (DoP) for the classified products and for which REGULATION (EU) No 305/2011 is applicable, may be obtained by the following means:

- Our website: **www.miguelez.com**
- Requesting it through the following email address indicating the product, DoP number or the identification number of your invoice, order or delivery note: **miguelez@miguelez.com**


## How can you check if a cable is CPR compliant?

1. Request or download a copy of the DoP.
   Website: **www.miguelez.com**
   E-mail: **miguelez@miguelez.com**
2. Check **CE marking** of the label of the packaging (drums, coils, spools...).


3. Compare the information of the **CE marking** and the **DoP**.

**DECLARATION OF PERFORMANCE**

- Nº DoP
- Unique identification code of the product-type
- Intended use/uses
- Manufacturer and contact address
- AVCP System
- Nº of notified body
- Declared performances and harmonised standard (EN 50575:2014 + A1:2016)

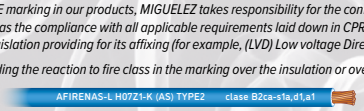
Miguélez signature and stamp:

If you have questions or doubts, please, contact us (manufacturer) or your distributor.

*All the products (cables) affected by CPR Regulation has to include the CE marking in a label of the packaging (drum, coil, spool...). The CE marking include CE symbol and plus more information (reaction to fire performance (class), DoP number, manufacturer address...). Check our "CPR quick guide" for more information.*

*By affixing or having affixed the CE marking in our products, MIGUELEZ takes responsibility for the conformity of the construction product with the declared performance as well as the compliance with all applicable requirements laid down in CPR Regulation and in other relevant Union harmonisation legislation providing for its affixing (for example, (LVD) Low voltage Directive 2014/35/EU).*

*Miguelez is also including the reaction to fire class in the marking over the insulation or oversheath of the cables.*




**Miguélez**
CABLES

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# Classified cables CPR

| MIGUÉLEZ PRODUCT | TECHNICAL DESIGNATION / DESCRIPTION | CPR CLASSIFICATION Reaction to fire | DoP number | RANGE |
|---|---|---|---|---|
| **450 / 750 V** | | | | |
| BARRY | H07V-U & H07V-R | $E_{ca}$ | MEH07VU & MEH07VR | From 1,5 up to 150 mm² |
| BARRYFLEX | H07V-K | $E_{ca}$ | MEH07VK | From 1,5 up to 240 mm² |
| BARRYFLEX-MAN | H05VV-F | $E_{ca}$ | ME05VVF | 2x(0,75-...-4) mm² / 3x or 3G(0,75-...-4) mm² / 4x or 4G(0,75-...-4) mm² / 5G(0,75-...-4) mm² |
| BARRYFLEX MÚLTIPLE | ES05VV-F | $E_{ca}$ | ME05VVF | From 6G1 up to 30G1 mm² |
| BARRYFLEX SHIELD | H05VVC4V5-K | $E_{ca}$ | MEH05VVC4V5K | (4-...-50)x0,5 mm² / (2-...-45)x0,75 mm² / (2-...-37)x1 mm² / (2-...-30)x1,5 mm² / (2-...-20)x2,5 mm² |
| BARRYFLEX SHIELD | VC4V-K 300/500 V | $E_{ca}$ | ME05VC4VK | (4-...-50)x0,5 mm² / (2-...-45)x0,75 mm² / (2-...-37)x1 mm² / (2-...-30)x1,5 mm² / (2-...-20)x2,5 mm² |
| BARRY-APLA | 05VVH2-U | $E_{ca}$ | ME05VVH2U | 2x(1,5-...-2,5) mm² / 3x or 3G(1,5-...-2,5) mm² |
| AFIRENAS MAN | H05Z1Z1-F | $E_{ca}$ | MEH05Z1Z1F | 2x(1-...-4) mm² / 3x or 3G(1-...-2,5 mm²) / 4x or 4G(0,75-...-2,5) mm² / 5G(0,75-...-1,5) mm² |
| AFIRENAS-L | H05Z1-K / ES05Z1-K (AS) | $C_{ca}$-s1b,d1,a1 | MCH05Z1K | 0,5 / 0,75 / 1 mm² |
| AFIRENAS-L | H07Z1-K TYPE2 (AS) | $B2_{ca}$-s1a,d1,a1 | MB2H07Z1KTYPE2 | From 1,5 up to 240 mm² |
| AFIREFÁCIL | Haz de H07Z1-K TYPE2 (AS) | $B2_{ca}$-s1a,d1,a1 | MB2H07Z1KTYPE2 | Full range |
| AFIRENAS CC-Z | H07Z-R | $C_{ca}$-s1a,d1,a1 | MCH07ZR | 10 mm² |
| AFIRENAS | H07Z1-U TYPE 2 (AS) & H07Z1-R TYPE 2 (AS) | $B2_{ca}$-s1a,d1,a1 | MB2H07Z1UTYPE2 & MB2H07Z1RTYPE2 | From 1,5 up to 120 mm² |
| AFIRENAS SHIELD | Z1C4Z1-K (AS) 300/500 V | $C_{ca}$-s1a,d1,a | MC05Z1C4Z1K | 2x(0,5-...-4) mm² / 3x or 3G(0,5-...-4) mm² / 4x or 4G(0,5-...-4) mm² / 5G(0,75-...-4) mm² |
| PRECAB -U/-R | PRECAB conduit (ICTA 3422) + H07V-U / H07V-R | $E_{ca}$ | MEH07VU & MEH07VR | Full range |
| PRECAB -K | PRECAB conduit (ICTA 3422) + H07V-K | $E_{ca}$ | MEH07VK | Full range |
| PRECAB Z1-K | PRECAB conduit (ICTA 3422) + H07Z1-K TYPE2 (AS) | $B2_{ca}$-s1a,d1,a1 | MB2H07Z1KTYPE2 | Full range |
| PRECAB Z1-U | PRECAB conduit (ICTA 3422) + H07Z1-U TYPE2 (AS) | $B2_{ca}$-s1a,d1,a1 | MB2H07Z1UTYPE2 | Full range |
| **0,6 / 1 kV** | | | | |
| SOLFLEX | H1Z2Z2-K | $E_{ca}$ | MEH1Z2Z2K | From 2,5 up to 35 mm² |
| BARRYNAX | RZ 0,6/1 kV | $F_{ca}$ | MF1000RZ | Full range |
| BARRYNAX | RV 0,6/1 kV | $E_{ca}$ | ME1000RV | 1x(1,5-...-300) mm² / 2x(1,5-...-240) mm² / 3x or 3G(1,5-...-240) mm²<br>4x or 4G(1,5-...-240) mm² / 5G(1,5-...-240) mm²; Ø ≤ 75,0 mm |
| BARRYNAX | U-1000 R2V | $E_{ca}$ | ME1000R2V | 1x(1,5-...-300) mm² / 2x(1,5-...-240) mm² / 3x or 3G(1,5-...-240) mm²<br>4x or 4G(1,5-...-240) mm² / 5G(1,5-...-240) mm²<br>+5 cores S=1,5/2,5/4 mm²; Ø ≤ 75,0 mm |
| BARRYNAX AR-FLEJE | RVFAV / RVFV 0,6/1 kV | $E_{ca}$ | ME1000RVFV | 1x(10-...-300) mm² / 2x(1,5-...-240) mm² / 3x or 3G(1,5-...-240) mm²<br>4x or 4G(1,5-...-240) mm² / 5G(1,5-...-240) mm²<br>From 3x10+1x6 to 3x240+1x120 mm² / From 3x16+2G10 to 3x240+2G120 mm²<br>From 6 up to 61 cores with cross sectional areas 1,5/2,5/4 mm²; Ø ≤ 75,0 mm |
| BARRYFLEX | RV-K 0,6/1 kV | $E_{ca}$ | ME1000RVK | 1x(1,5-...-500) mm² / 2x(1,5-...-240) mm² / 3x or 3G(1,5-...-240) mm²<br>4x or 4G(1,5-...-240) mm² / 5G(1,5-...-240) mm²<br>From 6 up to 61 cores with cross sectional areas 1,5/2,5/4 mm²; Ø ≤ 75,0 mm |
| BARRYFLEX SHIELD | VC4V-K 0,6/1 kV | $E_{ca}$ | ME1000VC4VK | 1x(16-...-240) mm² / 2x(1,5-...-50) mm² / 3x or 3G(1,5-...-35) mm² / 4x or 4G(1,5-...-25) mm²<br>5G(1,5-...-25) mm² / (6-...-27)G1,5 mm² / (6-...-27)G2,5 mm²; Ø ≤ 50,0 mm |
| BARRYFLEX SHIELD | RC4V-K 0,6/1 kV | $E_{ca}$ | ME1000RC4VK | 1x(16-...-150) mm² / 2x(1,5-...-50) mm² / 3x or 3G(1,5-...-35) mm² / 4x or 4G(1,5-...-25) mm²<br>5G(1,5-...-25) mm² / (6-...-27)G1,5 mm² / (6-...-27)G2,5 mm²; Ø ≤ 25,0 mm |
| AFIRENAS SHIELD | RC4Z1-K 0,6/1 kV | $E_{ca}$ | ME1000RC4Z1K | 1x(16-...-150) mm² / 2x(1,5-...-50) mm² / 3x or 3G(1,5-...-35) mm² / 4x or 4G(1,5-...-25) mm²<br>5G(1,5-...-25) mm² / (6-...-27)G1,5 mm² / (6-...-27)G2,5 mm²; Ø ≤ 25,0 mm |
| AFIRENAS-X | RZ1-K (AS) 0,6/1 kV | $C_{ca}$-s1b,d1,a1 | MC1000RZ1K | 1x(1,5-...-500)mm² / 2x(1,5-...-35)mm² / 3x or 3G(1,5-...-120)mm²<br>4x or 4G (1,5-...-120)mm² / 5G(1,5-...-95)mm²<br>From 3x10+1x6 mm² up to 3x150+1x95 mm²<br>From 3x16+2G10 mm² up to 3x95+2G50 mm² |
| AFIRENAS DI-X | RZ1-K (AS) 0,6/1 kV | $C_{ca}$-s1b,d1,a1 | MC1000RZ1K | From 3G10 mm²+1,5 mm² up to 3G35 mm²+1,5 mm²<br>From 5G10 mm²+1,5 mm² up to 5G50 mm²+1,5 mm² |
| AFIRENAS MÚLTIPLE | RZ1-K (AS) 0,6/1 kV | $C_{ca}$-s1b,d1,a1 | MC1000RZ1KMULTIPLE | (6-...-30)G1,5 mm² / (6-...-20)G2,5 mm² |
| AFIRENAS AR-CORONA | RZ1MAZ1-K / RZ1MZ1-K (AS) 0,6/1 kV | $C_{ca}$-s1a,d1,a1 | MC1000RZ1MZ1K | 1x(1,5-...-300) mm² / 2x(1,5-...-150) mm² / 3x or 3G(1,5-...-150) mm²<br>4x or 4G(1,5-...-150) mm² / 5G(1,5-...-120) mm² |
| AFIRENAS SHIELD | Z1C4Z1-K (AS) 0,6/1 kV | $C_{ca}$-s1a,d1,a1 | MC1000Z1C4Z1K | 1x(1,5-...240) mm² / 2x(1,5-...-25) mm² / 3x or 3G(1,5-...-25) mm² / 4x or 4G(1,5-...-25) mm²<br>5G(1,5-...-25) mm² / (6-...-23)G1,5 mm² / (6-...-25)G2,5 mm² |
| AFIREFENIX | SZ1-K 0,6/1 kV PH120 (AS+) | $C_{ca}$-s1b,d1,a1 | MC1000SZ1K | Mixed range<br>1x(1,5-...-500) mm² / 2x(1,5-...-50) mm² / 3x or 3G(1,5-...-70) mm²<br>4x or 4G(1,5-...-120) mm² / 5G(1,5-...-95) mm² |
| | RZ1-K 0,6/1 kV PH120 (AS+) MICA | $C_{ca}$-s1b,d1,a1 | MC1000RZ1KMICA | |
| TERRANAX | Annealed bare copper for earthing networks | The CPR Regulation (EU) Nº 305/2011 is not applicable. | | |
| TENDENAX | Bare copper for overhead lines and sub-stations | | | |

* Non-exhaustive list (range). For more information, consult our website or contact our Commercial Department.

# Respectful of nature

## Committed to the environment


Our environmental actions are reflected in the establishment of an EMS (Environmental Management System) in accordance with the International standard ISO 14001.

In addition, our commitment to the environment is not limited to the management of industrial waste, but also to the implementation of manufacturing processes, products and packaging solutions which are more respectful with the environment.

Likewise, and as a sign of MIGUÉLEZ's environmental commitment, all our cables comply with the **RoHS** (**R**estriction **o**f **H**azardous **S**ubstances) and **REACH** (**R**egistration, **E**valuation, **A**uthorization and restriction of **CH**emicals) Directives.


## Barry H07V-U/-R AENOR ◁HAR▷

EN 50525-2-31, IEC 60227-3. Copper class 1 or 2 / PVC. 450/750 V A.C. Single core non sheathed. S= From 1,5 up to 240 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 70ºC/160ºC. Reaction to fire: class Eca. Flame retardant (IEC 60332-1-2).
Cable for general purposes. Suitable for fixed indoor installations. Especially designed for domestic and industrial installations.
Installation in conduits (or similar closed systems) and as internal wiring of L.V electrical equipment or panels.


## Barryflex H07V-K AENOR ◁HAR▷

EN 50525-2-31, IEC 60227-3. Copper class 5 / PVC. 450/750 V A.C. Single core non sheathed. S= From 1,5 up to 240 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 70ºC/160ºC. Reaction to fire: class Eca. Flame retardant (IEC 60332-1-2).
Cable for general purposes. Suitable for fixed indoor installations. Especially designed for domestic and industrial installations.
Installation in conduits (or similar closed systems) and as internal wiring of L.V electrical equipment or panels.


## Barryflex Man H05VV-F AENOR ◁HAR▷

EN 50525-2-11, IEC 60227-5. Copper class 5 / PVC / PVC. 300/500 V A.C. Multicore cable (2,3,4 or 5). S=0,75/1/1,5/2,5/4 mm$^2$*.
Max. Temp. normal operation / Short-circuit (t≤5"): 70ºC/160ºC. Reaction to fire: class Eca. Flame retardant (IEC 60332-1-2).
Mobile service. Duty: Ordinary. In domestic premises and offices, for ordinary duty applications and household appliances, including in damp premises (e.g. vacuum cleaners, washing machines, spin dryers and refrigerators). Use outdoors for temporary periods of short duration. Presence of water (AD2), Corrosive or polluting substances (AF3) and frequent flexing.

*NOTE: For command &control circuits, MIGUELEZ have at your disposal a range of products (ES05VV-F) with configurations from 6 to 61 cores and cross-sectional areas of 1 mm$^2$.


## Afirenas H07Z1-U/-R Type 2 AENOR ◁HAR▷

EN 50525-3-31. Copper class 1 or 2 / LSZH. 450/750 V A.C. Single core non sheathed. S= From 1,5 up to 240 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 70ºC/160ºC. Reaction to fire: class B2ca-s1a,d1,a1.
Fire & flame retardant, halogen free, low smoke & gas emission/opacity/acidity/conductivity (EN 60332-1-2, EN 60332-3-24, EN 60754-1 & 2, EN 61034-2).
For fixed installation in buildings, public spaces (hospitals, hotels, malls, stadiums...), skyscrapers, tunnels or, in general, whenever an important fire risk exists or where it´s required a low level of smoke and corrosive gases emissions in case of fire. Installation in conduits (or similar closed systems) and as internal wiring of L.V electrical equipment or panels.


## Afirenas-L H07Z1-K Type 2 AENOR ◁HAR▷

EN 50525-3-31, UNE 211002. Copper class 5 / LSZH. 450/750 V A.C. Single core non sheathed. S= From 1,5 up to 240 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 70ºC/160ºC. Reaction to fire: class B2ca-s1a,d1,a1.
Fire & flame retardant, halogen free, low smoke & gas emission/opacity/acidity/conductivity (EN 60332-1-2, EN 60332-3-24, EN 60754-1 & 2, EN 61034-2).
For fixed installation in buildings, public spaces (hospitals, hotels, malls, stadiums...), skyscrapers, tunnels or, in general, whenever an important fire risk exists or where it´s required a low level of smoke and corrosive gases emissions in case of fire.
Installation in conduits (or similar closed systems) and as internal wiring of L.V electrical equipment or panels.


## Afirenas-man H05Z1Z1-F

EN 50525-3-11. Copper class 5 / LSZH / LSZH . 300/500 V A.C. Multicore cable (2, 3, 4 or 5). S= 1/1,5/2,5 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 70ºC/160ºC. Reaction to fire: class Eca.
Flame retardant, halogen free, low smoke & gas emission/opacity/acidity/conductivity (EN 60332-1-2, EN 60754-1 & 2, EN 61034-2).
Mobile service. Duty: Ordinary. It can be installed in locations where a low level of emission of smoke and corrosive gases are required in case of fire. Use outdoors for temporary periods of short duration. Presence of water (AD2), Corrosive or polluting substances (AF3) and frequent flexing.


## Precab (Pre-wired conduits) AENOR certif

IEC 61386-1/22, EN 61386-1/22 (Conduit). Conduit: Polypropylene ICTA 3422 + Cable: H07V-U/-R/-K or H07Z1-K + Cable pull strap: Polyamide (Ø= 1mm).
450/750 V A.C. S= From 1,5 up to 6 mm$^2$. Conduit colour: blue. Ø ext. (conduit): 16, 20 or 25 mm.
Max. Temp. normal operation / Short-circuit (t≤5"): 70ºC/160ºC.Reaction to fire (cable): H07V-U/-R/-K (Eca) or H07Z1-K (B2ca-s1a,d1,a1).
Conduit: Flame retardant and low halogen content (IEC 60695-2-4). Suitable for fixed indoor installations in buildings (residential, industrial or public places*(hospitals, hotels, malls...)). PRECAB can be installed embedded in masonry/concrete or in a building void (ceiling, raised floor...).

*For public spaces it must be used PRECAB Z1-K (Conduit ICTA 3422 + AFIRENAS-L H07Z1-K).

## Terranax AENOR

UNE EN 60228, IEC 60228. Bare copper annealed (soft drawn) conductor, class 2. Cross sectional area (Cu): from 6 up to 240 mm$^2$.
Bare copper (soft drawn) conductor, especially designed for earthing and grounding purposes.

## Tendenax AENOR

UNE 207015. Bare copper conductor (hard drawn) stranded. Cross sectional area (Cu): from 16 up to 300 mm$^2$.
Bare copper (hard drawn) conductor, especially designed for overhead lines.

300/500V 450/750V



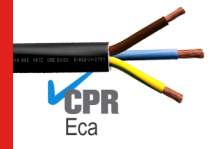

## Barrynax U-1000 R2V

XP C 32-321, IEC 60502-1. Copper class 1 or 2 / XLPE / PVC. 0,6 / 1 kV A.C. Single or Multicore cable (1,2,3,4 or 5). S= From 1,5 up to 300 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 90ºC/250ºC. Reaction to fire: class Eca. Flame retardant (IEC 60332-1-2). Weathering and UV resistance (AN3).
Fixed installation. Especially indicated as power cable for distribution networks, industries or buildings.
Suitable for indoor and outdoor installations, on supports (brackets, cable trays or ladders…), in conduits or buried.


## Barrynax AR-FLEJE RVFAV / RVFV 0,6/1 kV

IEC 60502-1. Copper class 1 or 2 / XLPE / PVC / Double tape armour*/ PVC. 0,6 / 1 kV A.C. Single or Multicore cable (1,2,3,4 or 5). S= From 1,5 up to 240 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 90ºC/250ºC. Reaction to fire: class Eca. Flame retardant (IEC 60332-1-2).
Fixed installation. It is specially indicated for its use in distribution networks in which there is a high risk of mechanical aggressions.
Its use is recommended for installations with presence of rodents or, in general, where the cable is subject to risk of mechanical aggression.
Suitable for indoor and outdoor installations, on supports (brackets, cable trays or ladders…), in conduits or buried.

*NOTE: Steel (multicore cables-STA) or aluminium (single-core cables-ATA) double tape armour acc. to IEC 60502-1.




## Barryflex RV-K 0,6 / 1 kV AENOR

IEC 60502-1, UNE 21123-2. Copper class 5 / XLPE / PVC. 0,6 / 1 kV A.C. Single or Multicore cable (1,2,3,4 or 5). S= From 1,5 up to 500 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 90ºC/250ºC. Reaction to fire: class Eca. Flame retardant (IEC 60332-1-2).
Fixed installation. Especially indicated as power cable for distribution networks, industries, buildings or in ships/offshores electrical installations according to IEC 60092-350/353/360. Suitable for indoor and outdoor installations, on supports (brackets, cable trays or ladders…), in conduits or buried.
Their great flexibility makes them especially practical in installations with complex geometry.


## Afirenas X RZ1-K(AS) 0,6/1 kV AENOR

IEC 60502-1, UNE 21123-4. Copper class 5 / XLPE / LSZH. 0,6 1 kV A.C. Single or Multicore cable (1,2,3,4 or 5). S= From 1,5 up to 300 mm$^2$*
Max. Temp. normal operation / Short-circuit (t≤5"): 90ºC/250ºC. Reaction to fire: class Cca-s1b,d1,a1.
Fire & flame retardant, halogen free, low smoke & gas emission/opacity/acidity/conductivity (EN 60332-1-2, EN 60332-3-22 & 24, EN 60754-1 & 2, EN 61034-2).
Fixed installation. Especially indicated for distribution networks, power stations, public concurrence spaces (airports, museums, malls, schools, hospitals...), skyscrapers, tunnels or in ships/offshores electrical installations according to IEC 60092-350/353/360.
Suitable for indoor and outdoor installations, on supports (brackets, cable trays or ladders…), in conduits or buried.

*NOTE: For command and control circuits, MIGUELEZ have at your disposal a range of products (AFIRENAS MÚLTIPLE RZ1-K(AS) 0,6/1 kV) with configurations from 6 to 61 cores and cross-sectional areas of 1,5 or 2,5 mm$^2$.

## Afirenas AR-FLEJE RZ1FAZ1-K / RZ1FZ1-K 0,6/1 kV

IEC 60502-1. Copper class 5 / XLPE / LSZH / Double tape armour*/ LSZH. 0,6 / 1 kV A.C. Single or Multicore cable (1,2,3,4 or 5). S= From 1,5 up to 240 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 90ºC/250ºC.
Fire & flame retardant, halogen free, low smoke & gas emission/opacity/acidity/conductivity (EN 60332-1-2, EN 60332-3-24, EN 60754-1 & 2, EN 61034-2).
Fixed installation. Especially designed for installations where the cable is subject to risk of mechanical aggression. Especially indicated for distribution networks, power stations, public concurrence spaces (airports, malls, hospitals...) or tunnels. Suitable for indoor and outdoor installations, on supports (brackets, cable trays or ladders…), in conduits or buried. * Steel (multicore cables-STA) or aluminium (single-core cables-ATA) double tape armour acc. to IEC 60502-1.


## Afirenas AR-CORONA RZ1MZ1-K(AS) 0,6/1 kV

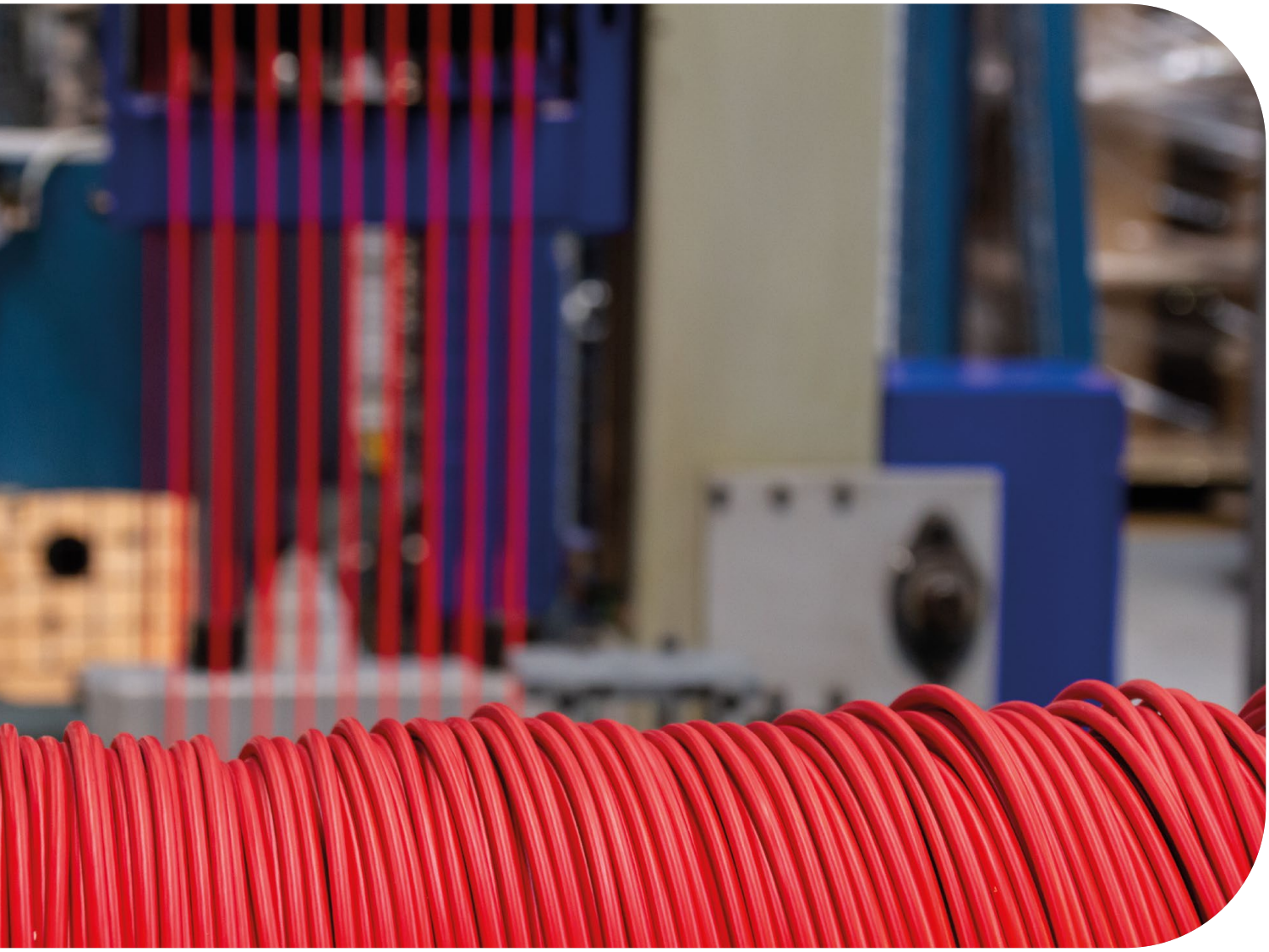
IEC 60502-1, UNE 21123-4. Copper class 5 / XLPE / LSZH / Galvanized steel Armour (SWA) / LSZH. 0,6 1 kV A.C. Multicore cables (2,3,4 or 5).
S= From 1,5 up to 300 mm$^2$. Max. Temp. normal operation / Short-circuit (t≤5"): 90ºC/250ºC. Reaction to fire: class Cca-s1a,d1,a1.
Fire & flame retardant, halogen free, low smoke & gas emission/opacity/acidity/conductivity (EN 60332-1-2, EN 60332-3-24, EN 60754-1 & 2, EN 61034-2).
Fixed installation. Especially designed for installations where the cable is subject to risk of mechanical aggression or tensile stress.
Especially indicated for distribution networks, power stations, installations with explosion or fire risk (petrol stations, pyrotechnic warehouses…), public concurrence spaces (airports, malls, hospitals...), skyscrapers or tunnels.
Suitable for indoor and outdoor installations, on supports (brackets, cable trays or ladders…), in conduits or buried.


## Afirefenix SZ1-K(AS+) / Mica RZ1-K(AS+) AENOR

UNE 211025. SZ1-K(AS+) = Cu class 5 / Silicone / LSZH; RZ1-K(AS+) MICA = Cu class 5 / Mica tape / XLPE / LSZH. 0,6 / 1 kV A.C.
Single / Multicore cable (1,2,3,4,5). S= From 1,5 up to 500 mm$^2$. Mixed range: SZ1-K(AS+): s≤10 mm2 / RZ1-K(AS+) MICA: s≥16 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 90ºC/250ºC.
Fire resistance: PH120 / Reaction to fire: class Cca-s1b,d1,a1. Fire resistance, fire & flame retardant, halogen free, low smoke & gas emission/opacity/acidity/conductivity (EN 50200, EN 50362, IEC 60331-1 & 2, EN 60332-1-2, EN 60332-3-24, EN 60754-1 & 2, EN 61034-2).
Fixed installation. These cables are recommended for all those installations in which it is necessary to keep the electrical integrity of the circuits & equipment although they are affected directly by the fire. Especially designed for "safety circuits" (non-autonomous or with a centralised autonomous supply) [e.g. alarm circuits, signalling and emergency lighting systems, acoustic signalling, smoke extractors, water pumps for fire extinction…].


## Solflex H1Z2Z2-K AENOR ◁HAR▷

EN 50618. Tinned Copper, class 5 / Z2 / Z2. 0,6 / 1 kV CA and 1,8 kV CC. Single core sheathed cable. S= From 1,5 up to 240 mm$^2$.
Max. Temp. normal operation / Short-circuit (t≤5"): 90ºC (120ºC – 20.000h) / 250ºC.
Reaction to fire: class Eca. Flame retardant, halogen free, low smoke & gas emission/opacity/acidity/conductivity (EN 60332-1-2, EN 60754-1 & 2, EN 61034-2).
Weathering and UV resistance (AN3), Low & high ambient temperatures resistance (-40ºc up to 90ºC), suitable for presence of vibrations (AH3), impact resistance (AG2), Corrosive and polluting substances resistance (AF3), water presence resistance (AD7).
Especially designed for mobile or fixed photovoltaic (PV) installations in ground, rooftop systems or other architectural integrations.
They are suitable for indoor or outdoor installations. It is recommended for PV panel interconnections or for wiring from the string boxes to the inverter (DC/AC).
Suitable for the application in/at equipment with protective insulation (protection class II). Intended for use in PV installations acc. to HD 60364-7-712.



# GREAT SUCCESS STORIES

Miguélez
CABLES


INTERNATIONAL AIRPORT OF MUSCAT – OMÁN


THE PALM HYDRAULIC PLANT - DUBAI

## INDUSTRIAL PROJECTS

- *Ventanilla Storage Plant,* Peru
- *Mejillones Thermoelectric Central,* Chile
- *RECOPE (Petroleum Refifi nery): reforms,* Costa Rica
- *Palm Dubai Hydraulic Station,* Dubai
- *Besos Purifying Plant,* Barcelona
- *Torroella de Montgri Purifying Plant,* Barcelona
- *La Escondida, Antofagasta Mine,* Chile
- *Petaquilla Gold Mines,* Panama

## INFRASTRUCTURES

- *Panama Canal:* extension and reforms, Panama
- *Transport Metropolitans de Barcelona* -TMB, Barcelona
- *L5 Santiago de Chile Subway,* Santiago de Chile
- *AVE (High Speed Trains)*
- *Metro Madrid,* Madrid
- *Bilbao Tunnel,* Bilbao
- *Cantábrico Highway Tunnels*
- *Cadí Tunnels,* Andorra
- *Guadarrama Tunnels,* Madrid
- *Panama- Colon Highway,* Panama
- *Coastal belt of the Panama Bay,* Panama

## PORTS, AIRPORTS AND FREIGHT CENTERS

- *Sabadell Airport,* Sabadell
- *Oporto Airport,* Porto
- *T4 Madrid Barajas Airport,* Madrid
- *Passenger Terminal. Oman Airport,* Oman
- *Control Tower of Logroño Airport,* Logroño
- *Extension of Port Dubai,* Dubai
- *CIM Vallés International Freight Center,* Barcelona

## HOSPITALS

- *Hospital Universitari la Fé,* Valencia
- *Extension and Reform: León Hospital,* Leon
- *Insular Hospital,* Las Palmas
- *Teknon Clinic,* Barcelona
- *Mérida Hospital,* Merida
- *Palamós Hospital,* Palamos
- *Clinic Hospital,* Barcelona

## HOTELS

- *Herederos Marqués de Riscal,* La Rioja
- *AC,* La Rioja
- *Bahía Príncipe,* Jamaica
- *Illa de Cel,* Barcelona
- *Marina,* Barcelona
- *El Parador,* Costa Rica

## MALLS

- *Dolce Vita Tejo,* Lisboa
- *Metromall,* Panama
- *Alcampo,* Logroño
- *Alcampo,* Sant Boi- Barcelona
- *Carrefour,* Oviedo
- *La Maquinista,* Barcelona
- *Lidl,* Montcada
- *Corte Inglés:* Arroyomolinos, Aviles, Badajoz, Cadiz, Elche, Guadalajara, Jaen, Leon, Linares, San Chinarro,...

## SKYSCRAPERS

- *Titanium la Portada Building,* Chile
- *Ocean 2 Building,* Panama
- *Vitri Building,* Panama
- *The Pearl Building,* Panama
- *Zero Zero Telefónica Building,* Barcelona

## FOOTBALL STADIUMS AND HIGH SPEED CIRCUITS

- *Camp Nou Stadium,* Barcelona
- *Cheste High Speed Circuit,* Valencia
- *Estadio da Luz,* Lisboa
- *Gran Canaria Stadium,* Gran Canaria

## MUSEUMS, AUDITORIUMS, CASINOS

- *Gran Casino Montichelo,* Chile
- *The City of Science and Arts,* Valencia
- *Alfredo Kraus Auditorium,* Las Palmas de Gran Canaria
- *Caja Duero Auditorium*
- *Water Tower,* Zaragoza
- *MUSAC,* Leon
- *Terra Mítica,* Benidorm
- *Port Aventura,* Salou
- *Zorrilla Theater,* Valladolid

## HISTORICAL BUILDINGS

- *León Cathedral,* Leon
- *National Parador of Salamanca,* Salamanca
- *Guzmanes Palace,* León
- *Social Security General Treasury,* Granollers


SOCCER STADIUM "CAMP NOU" – BARCELONA, SPAIN


CITY OF ARTS AND SCIENCES – VALENCIA, SPAIN