

- Construction and tests. Standards: UNE 211025, IEC 60502-1
- Compliance with the Low Voltage Directive (LVD): 2014/35 / EU
- Construction Products Regulation (CPR) - Regulation (EU) N° 305/2011: Reaction to fire - C_{ca}-s1b,d1,a1
- Certified by AENOR (Nbr. 042/001093 - UNE 211025 - Product range: From 1 to 5 cores. From 1,5 up to 500 mm²)
- PH120 - Resistance to fire (EN 50200, EN 50362, IEC 60331-2, IEC 60331-1 - 120 minutes)
- RoHS compliant

1. TECHNICAL FEATURES

1.1. Technical designation

RZ1-K 0,6/1 kV PH120 (AS+)

1.2. Rated Voltage

U_o/U_{Um} = 0,6 / 1 / 1,2 kV C.A U_{max} = 1,8 kV C.C

1.3. Maximum Conductor Temperatures

Normal operation	90°C
Short circuit (5 seconds max.)	250°C

1.4. Voltage test.

Alternate current 3,5 kV (5 minutes)

1.5. Fire Performance. Standard

- Resistance to fire:

EN 50200, EN 50362, IEC 60331-1 & 2 (PH120 - At least 120 minutes, 842 °C)

(These cables keep the electrical supply and the integrity of the circuits & equipment although they are affected directly by the fire, at least 120 minutes at 830-870 °C).

- Reaction to fire: C_{ca}-s1b,d1,a1 (EN 50575:2014+A1:2016)

- Flame retardant: EN 60332-1-2; IEC 60332-1 (H ≤ 425 mm)
- Fire retardant: EN 50399 (flame source: 20,5 kW; F_s ≤ 2 m)
- Low heat generation: EN 50399 (flame source: 20,5 kW)
 - Total heat released: THR ≤ 30 MJ
 - Maximum value of the heat released: Peak HRR ≤ 60 kW
 - Indication of heat increase: FIGRA ≤ 300 W/s
- Low production and opacity of emitted smokes (s1b):
 - s1: Total smoke production (TSP) ≤ 50 m² & Peak value of smokes released (Peak SPR) ≤ 0,25 m²/s
 - s1b: s1 + 60% < Transmittance < 80 % (UNE EN 61034-2; IEC 61034-2)
- Low production of flaming droplets (d1):
 - d1: No flaming droplets/particles persisting longer than 10' occurs within 1200'. (EN 50399 - flame source: 20,5 kW):
- Low acidity and conductivity of the emitted gases:
 - a1: pH ≥ 4,3 conductivity < 2,5 μS/mm (EN 60754-2; IEC 60754-2)

DoP: MC1000RZ1KMICA

Range classified: 1x(10 ... 500 mm²) / 2x(6 ... 50 mm²) / 3x(6 ... 50 mm²) / 4x(6 ... 50 mm²) / 5x(10 ... 35 mm²)

For more information, please check out "CPR/DoP" section in our website www.miguelez.com.

*The packaging labels of these cables include the CE marking according to the CPR Regulation ((UE) N° 305/2011) articles 8 and 9.

Other performances:

- Fire retardant: UNE EN 60332-3-24 / IEC 60332-3-24 (cat. C)
- Halogen free. Low emission of toxic gases: UNE EN 50267-2-1 / IEC 60754-1
In case of fire, the emission of hydro-chlorate acid is lower to 0.5%. Fluor < 0,1%

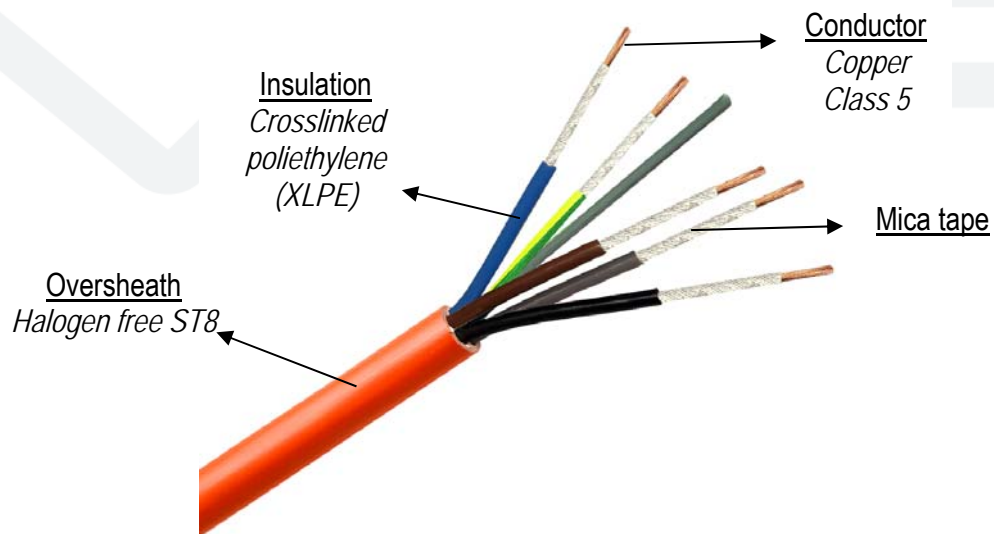
2. CABLE DESCRIPTION.

2.1. Construction.

Based on standard UNE 211025 e IEC 60502-1

- Conductor.
Flexible, annealed, plain copper conductor, class 5 according to IEC 60228; UNE EN 60228;
The conductor is covered by a MICA tape.
- Insulation.
Cross-linked Polyethylene (XLPE) acc. to IEC 60502-1 & type DIX 3 acc. to HD 603-1.
- Core. Assembly of conductors.
In multicore cables, the cores are cabled helically.
- Filler
Extruded filler for multicore cables.
The materials are suitable for the operating temperature of the cable and compatible with the insulating and sheathing material.
- Oversheath
Halogen free material based on a thermoplastic polyolefin type ST8 acc. to International standard IEC 60502-1 & Polyolefin Z1 according to the requirements of Spanish standard UNE 21123-4.
Sheath colour: orange.

2.2. Design.



2.3. Marking.

This cable is marked with the initials (AS+) = High Security reinforced cable
AENOR MIGUELEZ AFIREFENIX MICA RZ1-K 0,6/1kV PH120 (AS+) NxS 90°C YY clase Cca-s1b,d1,a1 EN 50575 X,x m

Where:

- *N* = Number of cores
- *X* = *X* or *G*. *X*= without G/Y conductor; *G*=with G/Y conductor
- *S* = Cross sectional area in mm²
- *YY* = Year of manufacturing
- *X,x m* = Meter marking

*The packaging labels of these cables include the CE marking according to the CPR Regulation ((UE) N° 305/2011) articles 8 and 9.

3. APPLICATIONS.

3.1. Installation.

Fixed installation

3.2. User Guide.

Adequate for non-autonomous security circuits and service circuits with a centralised autonomous source (alarm circuits, signalling and emergency lighting systems, acoustic signalling, smoke extractors, water pumps for fire extinction). These cables are recommended for all those installations in which it is necessary to keep the integrity of the circuits and equipment although they are affected directly by the fire.

Cables AFIREFENIX MICA RZ1-K 0,6/1 kV PH120 (AS+) are suitable for transport and distribution of electrical energy in fixed facilities.

It is specially indicated their use in public concurrence places (airports, museums, malls and shopping centres, schools, hospitals, cinemas, hotels, sports stadiums...), and in general, whenever an important fire risk exists or it's required a low smoke emission and corrosive gazes in case of fire (i.e.: Railway and roadway tunnels, canalisations with bunched cables, vertical canalisations in buildings...).

3.3. Installation methods¹

- Surface mounted (directly installed or on cable trays, cable ladders, cleats, brackets or in cable ducting (conduit, pipes or similar closed systems)).
In the case the cable is installed on cable brackets or cleats, the horizontal distance between cleats should not surpass 20 times the overall diameter of the cable. The distance is also valid between points of support in case of laying on cable racks or inside cable trays. The maximal distance between supports will never be greater than 80 cm under any circumstances.
- Embedded (in cable ducting).
- In building voids and cavities (directly or on cable trays, cable ladders, in cable ducting).
- Buried in ground (in conduit)

In case of separate laying of single-core cables, cleats made of plastics or cleats consisting of non-magnetic metals must be used.

Cables and bundles of cables are to be tightened in such a way that damages in form of indentation marks by pressure caused by heat expansion are avoided.

Lowest temperature for cable laying and installation: Lowest temperature of cable during installation is 0°C under normal conditions of care. This temperature is valid for the cable itself and not for the environment. If possible, the temperature of the cable shall be raised before laying, e.g. in a heated building, to facilitate handling and reduce the risk of damages.

Minimum bending radius:

10 x D where D= Overall diameter of the cables (mm)

Bending nearby the temperature limits should be carried out extra carefully.

Maximum pulling force:

The maximum pulling force must not exceed:

- $F = 50 \times S$ (N), where "S" is the cross-sectional area of the conductors (mm²) and 50 N/mm² is the permissible tensile stress for cables with copper conductors (if the traction force is applied on the conductors)
- $F = 5 \times D^2$ (N), where D = overall diameter of the cable (mm). (if the traction force is applied on the outer sheath)

¹ It must be respected the methods of installation established by the standards and regulations that will affect each individual case. The user must be careful with the chosen installation method and accessories in order to assure the same safety warranties and fire performance than the cable.

4. DIMENSIONAL CHARACTERISTICS

Nominal cross sectional area	Thickness insulation	Overall \varnothing	Weight	Maximum electrical resistance in D.C (20°C)	Maximum ampacity	Maximum ampacity	Maximum ampacity	Maximum ampacity	Maximum ampacity	Drop voltage at 90°C in conductor $\cos\varphi$ 0,8	Drop voltage at 90°C in conductor $\cos\varphi$ 1
					Cable buried in conduit 20°C	Cable buried in conduit 20°C	Cable directly buried in conduit 20°C	Cable over trays, brackets, ladders 30°C	Cable in conduit in masonry 30°C		
mm ²	mm	mm	kg/km	Ω / km	*1 A	*2 A	*3 A	*4 A	*5 A	V / A km	V / A km
1 x 1,5	0,7	6,2	58	13,300	22	25	-	24	20	24,3	30,0
1 x 2,5	0,7	6,7	67	7,980	29	33	-	33	28	14,7	18,0
1 x 4	0,7	7,2	82	4,950	37	43	-	45	37	9,26	11,25
1 x 6	0,7	7,9	106	3,300	46	54	74	58	48	6,24	7,50
1 x 10	0,7	8,7	150	1,910	61	72	99	80	66	3,81	4,50
1 x 16	0,7	10,2	210	1,210	79	93	130	107	88	2,12	2,44
1 x 25	0,9	11,5	296	0,780	101	119	166	135	117	1,41	1,56
1 x 35	0,9	12,6	390	0,554	122	143	197	169	144	1,050	1,113
1 x 50	1	14,2	530	0,386	148	174	239	207	175	0,776	0,779
1 x 70	1,1	16,2	710	0,272	178	210	291	268	222	0,590	0,557
1 x 95	1,1	18,4	950	0,206	211	248	348	328	269	0,468	0,410
1 x 120	1,2	20,1	1.180	0,161	240	282	395	382	312	0,399	0,325
1 x 150	1,4	22,2	1.480	0,129	271	319	442	444	342	0,348	0,260
1 x 185	1,6	24,2	1.773	0,106	304	358	499	510	384	0,310	0,211
1 x 240	1,7	27,5	2.325	0,080	351	413	572	607	450	0,267	0,162
1 x 300	1,8	31,9	2.890	0,064	396	467	644	703	514	0,239	0,130
1 x 400	2	35,8	3.962	0,049	464	547	733	823	661	0,236	0,097
1 x 500	2,2	42,7	5.017	0,038	525	618	821	946	760	0,213	0,078
2 x 1,5	0,7	10,3	130	13,300	26	30	-	26	22	24,2	30,0
2 x 2,5	0,7	10,6	140	7,980	34	40	-	36	30	14,6	18,0
2 x 4	0,7	11,7	190	4,950	44	51	-	49	40	9,20	11,25
2 x 6	0,7	13,2	260	3,300	56	66	83	63	51	6,19	7,50
2 x 10	0,7	15,6	400	1,910	73	86	111	86	69	3,78	4,50
2 x 16	0,7	17,2	520	1,210	95	112	145	115	91	2,42	2,81
2 x 25	0,9	19,2	685	0,780	121	142	190	149	119	1,613	1,800
2 x 35	0,9	22,9	1.031	0,554	146	172	229	185	146	1,198	1,286
2 x 50	1	26,5	1.431	0,386	173	204	273	225	175	0,887	0,900
2 x 70	1,1	30,5	1.975	0,272	213	251	331	289	221	0,680	0,643

Weight and overall diameter values are approximate and subject to normal manufacturing tolerances

NOTE: In blue color, products with reaction to fire classification.

Nominal cross sectional area			Thickness insulation	Overall \varnothing	Weight	Maximum electrical resistance in D.C (20°C)	Maximum ampacity Cable buried in conduit 20°C *1 A	Maximum ampacity Cable buried in conduit 20°C *2 A	Maximum ampacity Cable directly buried in conduit 20°C *3 A	Maximum ampacity Cable over trays, brackets, ladders 30°C *4 A	Maximum ampacity Cable in conduit in masonry 30°C *5 A	Drop voltage at 90°C in conductor cos φ 0,8 V / A km	Drop voltage at 90°C in conductor cos φ 1 V / A km
mm ²			mm	mm	kg/km	Ω / km							
3	G	1,5	0,7	10,8	150	13,3	26	30	-	26	22	24,2	30,0
3	G	2,5	0,7	12,2	200	7,98	34	40	-	36	30	14,6	18,0
3	G	4	0,7	13,2	255	4,95	44	51	-	49	40	9,20	11,25
3	G	6	0,7	14,2	320	3,3	56	66	83	63	51	6,19	7,50
3	x	10	0,7	16,6	490	1,91	61	71	91	75	60	3,20	3,90
3	x	16	0,7	17,7	617	1,21	79	93	119	100	80	2,023	2,436
3	x	25	0,9	20,8	905	0,78	101	119	156	127	105	1,322	1,559
3	x	35	0,9	24,3	1.481	0,554	122	143	187	158	128	0,964	1,113
3	x	50	1	28,1	2.071	0,386	144	169	223	192	154	0,696	0,779
3	x	70	1,1	32,5	2.876	0,272	178	210	270	246	194	0,517	0,557
3	x	95	1,1	35,9	3.669	0,206	211	248	322	298	233	0,399	0,410
3	x	120	1,2	40,8	4.721	0,161	240	283	369	346	268	0,330	0,325
3	x	150	1,4	46,2	5.964	0,129	271	319	416	399	300	0,278	0,260
3	x	185	1,6	52,4	7.429	0,106	304	358	468	456	340	0,239	0,211
3	x	240	1,7	57,9	8.805	0,0801	351	414	540	538	398	0,200	0,162
4	G	1,5	0,7	12,3	190	13,3	22	25	-	23	19,5	20,9	26,0
4	G	2,5	0,7	10,7	180	7,98	29	34	-	32	26	12,6	15,6
4	G	4	0,7	14,5	310	4,95	37	43	-	42	35	7,88	9,74
4	G	6	0,7	16,0	400	3,3	46	54	68	54	44	5,28	6,50
4	x	10	0,7	17,7	580	1,91	61	71	91	75	60	3,20	3,90
4	x	16	0,7	19,5	775	1,21	79	93	119	100	80	2,02	2,44
4	x	25	0,9	23,5	1.155	0,78	101	119	156	127	105	1,32	1,56
4	x	35	0,9	27,4	1.665	0,554	122	143	187	158	128	0,964	1,113
4	x	50	1	32,2	2.327	0,386	144	169	223	192	154	0,696	0,779
4	x	70	1,1	38,2	3.285	0,272	178	210	270	246	194	0,517	0,557
4	x	95	1,1	42,8	4.275	0,206	211	248	322	298	233	0,399	0,410
4	x	120	1,2	47,9	5.365	0,161	240	283	369	346	268	0,330	0,325
4	x	150	1,4	54,0	6.795	0,129	271	319	416	399	300	0,278	0,260
4	x	185	1,6	57,8	9.095	0,106	304	358	468	456	340	0,2393	0,2107
4	x	240	1,7	64,3	11.374	0,0801	351	414	540	538	398	0,2001	0,1624

Weight and overall diameter values are approximate and subject to normal manufacturing tolerances

NOTE: In blue color, products with reaction to fire classification.

Nominal cross sectional area	Thickness insulation	Overall ϕ	Weight	Maximum electrical resistance in D.C (20°C)	Maximum ampacity	Maximum ampacity	Maximum ampacity	Maximum ampacity	Maximum ampacity	Drop voltage at 90°C in conductor $\cos\phi$ 0,8	Drop voltage at 90°C in conductor $\cos\phi$ 1
					Cable buried in conduit 20°C	Cable buried in conduit 20°C	Cable directly buried in conduit 20°C	Cable over trays, brackets, ladders 30°C	Cable in conduit in masonry 30°C		
mm ²	mm	mm	kg/km	Ω / km	*1 A	*2 A	*3 A	*4 A	*5 A	V / A km	V / A km
5 G 1,5	0,7	12,6	205	13,3	22	25	-	23	19,5	20,9	26,0
5 G 2,5	0,7	14,0	275	7,98	29	34	-	32	26	12,6	15,6
5 G 4	0,7	16,0	385	4,95	37	43	-	42	35	7,88	9,74
5 G 6	0,7	17,0	490	3,3	46	54	68	54	44	5,28	6,50
5 G 10	0,7	19,0	690	1,91	61	71	91	75	60	3,20	3,90
5 G 16	0,7	22,3	1.000	1,21	79	93	119	100	80	2,02	2,44
5 G 25	0,9	25,8	1.375	0,78	101	119	156	127	105	1,32	1,56
5 G 35	0,9	31,3	2.100	0,554	122	143	187	158	128	0,964	1,113
5 G 50	1	36,0	2.870	0,386	144	169	223	192	154	0,696	0,779
5 G 70	1,1	39,9	4.541	0,272	178	210	270	246	194	0,517	0,557
5 G 95	1,1	44,6	5.875	0,206	211	248	322	298	233	0,399	0,410
5 G 120	1,2	50,6	7.547	0,161	240	283	369	346	268	0,330	0,325
5 G 150	1,4	57,2	9.507	0,129	271	319	416	399	300	0,278	0,260
5 G 185	1,6	64,6	11.774	0,106	304	358	468	456	340	0,2393	0,2107
5 G 240	1,7	71,8	15.271	0,0801	351	414	540	538	398	0,2001	0,1624

Weight and overall diameter values are approximate and subject to normal manufacturing tolerances

NOTE: In blue color, products with reaction to fire classification.

***1** Conditions: Method of installation "D" (cable buried in a cable duct or conduit) according to the International standard IEC 60364-5-523

- Ground temperature: 20 °C
- Only one loaded circuit laid inside the conduit or cable duct.
- Soil thermal resistivity 2,5 K m / W
- Depth 0,7 m

- Single phase circuit for multicore cables with two conductors (all cross-sectional sections) and for multicore cables with three conductors of cross-sectional area 1,5/2,5/4 and 6 mm².

- Tree phase circuit for single-core cables and multicore cables with 3, 4 or 5 conductors of cross-sectional area ≥ 10 mm².
- The soil thermal resistivity value of 2,5 K m / W is considered necessary as a precaution for worldwide use when the soil type and geographical location are not specified (see Annex A of IEC 60 287).
In locations where the effective soil thermal resistivity is higher than 2.5 K m / W, an appropriate reduction in current-carrying capacity shall be made or the soil immediately around the cables shall be replaced by a more suitable material. Such cases can usually be recognized by very dry ground conditions.

***2** Conditions: Method of installation "D" (cable buried in a cable duct or conduit) according to the International standard IEC 60364-5-523

- Ground temperature 20 °C
- Only one loaded circuit laid inside the conduit or cable duct.
- Soil thermal resistivity 1 K m / W
- Depth 0,7 m

- Single phase circuit for multicore cables with two conductors (all cross-sectional sections) and for multicore cables with three conductors of cross-sectional area 1,5/2,5/4 and 6 mm².
- Tree phase circuit for single-core cables and multicore cables with 3, 4 or 5 conductors of cross-sectional area ≥ 10 mm².

***3** Conditions: Directly buried installation

- Ground temperature 20 °C
- Only one loaded circuit laid inside the conduit or cable duct.
- Soil thermal resistivity 1 K m / W
- Depth 0,7 m

- Single phase circuit for multicore cables with two conductors (all cross-sectional sections) and for multicore cables with three conductors of cross-sectional area 1,5/2,5/4 and 6 mm².
- Tree phase circuit for single-core cables and multicore cables with 3, 4 or 5 conductors of cross-sectional area ≥ 10 mm².

- It is not recommended this method of installation for cables which cross-sectional area is lower than 6 mm²

***4** Conditions: Method of installation "E" (multicore cables) or "F" (single-core cables) according to the International standard IEC 60364-5-523 (In perforated trays, ladders, brackets, spaced more than 0,3 times cable diameter from a wall)

- Ambient temperature 30 °C
- Only one loaded circuit.

- Single phase circuit for multicore cables with two conductors (all cross-sectional sections) and for multicore cables with three conductors of cross sectional area 1,5/2,5/4 and 6 mm².

- Tree phase circuit for single-core cables and multicore cables with 3, 4 or 5 conductors of cross-sectional area ≥ 10 mm².

5. COLORS (Core Identification)

The identification of the conductors is according to the standard HD 308 S2 and UNE 21089-1.

- 2x - brown and blue
- 3x - brown, black and gray
- 3G - brown, blue and yellow / green
- 4x - brown, black, gray, blue
- 4G - brown, black, gray, yellow / green
- 5G - brown, black, gray, blue, yellow / green

