

- Construction and tests. Standards: IEC 60502-1, UNE 21123-4
- 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
- RoHS compliant
- Certified by AENOR → 1x(1,5-500) mm²; 2x/3x/3G/4x/4G/5G(1,5-240)mm²; (6-61)x/G(1,5-2,5) mm²
- Certified by CESMEC (SEC Chile) → 1x(1,5-500) mm²; 2x/3x/3G/4x/4G/5G(1,5-240)mm²; (6-61)x/G(1,5-2,5) mm²
- Certified by BUREAU VERITAS (Steel ships) → 1x(1-5-300) mm²; 2x/3x/3G(1,5-25)mm²; 4x/4G(1,5-150) mm²; 5G(1,5-25) mm²

1. TECHNICAL FEATURES

1.1. Technical designation

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

1.2. Rated Voltage (Uo/U)

U_o / U (Um): 0,6 / 1 (1,2) kV A.C.

1.3. Maximum Conductor Temperatures

Normal operation: 90°C
 Short circuit (t≤5s): 250°C

1.4. Voltage test.

3,5 kV A.C. (5 minutes)

1.5. Reaction to fire. Standards

Declared performance: C_{ca}-s1b, d1, a1 (EN 50575:2014+A1:2016 – CPR Regulation (EU) n° 305/2011)

- 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 (F_s ≤ 2 m → flame source: 20,5 kW)
- 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 SPR ≤ 0,25 m²/s; EN 50399 (flame source: 20,5 kW)
 - s1b: s1 + 60% < Transmittance < 80 % (UNE-EN 61034-2; IEC 61034-2)
- Low production of flaming droplets (d1): EN 50399 (flame source: 20,5 kW)
 - d1: No flaming droplets/particles persisting longer than 10' occurs within 1200'.
- Low acidity and conductivity of the emitted gases:
 - a1: pH≥4,3 conductivity < 2,5 μS/mm (EN 60754-2; IEC 60754-2)

DoP: MC1000RZ1K

System AVCP: 1+

Notified body Nbr: 0099

Range with CPR classification:

1x(1,5-500) mm² / 2x(1,5-35) mm² / 3x/3G/4x/4G (1,5-120) mm² / 5G(1,5-95) mm²
 From 3x10+1x6 mm² up to 3x150+1x95 mm² / From 3x16+2G10 mm² up to 3x95+2G50 mm²

For more information, please, check out "CPR/DoP" section in our website www.miguelélez.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 60754-1 / IEC 60754-1 (HCl < 0,5 %, Fluor < 0,1 %).

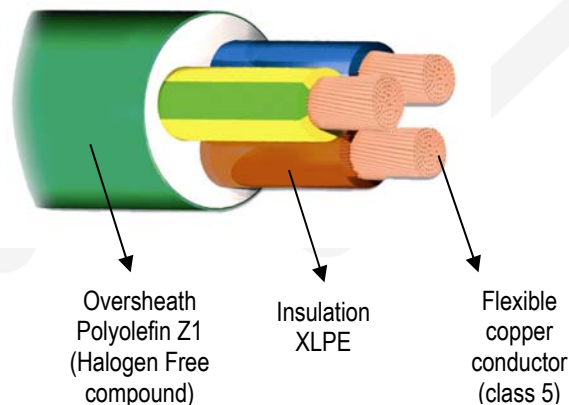
2. CABLE DESCRIPTION.

2.1. Construction.

It is manufactured according to the standards IEC 60502-1 & UNE 21123-4.

- **Conductor:**
Flexible, annealed copper conductor, class 5 according to UNE-EN 60228/ IEC 60228.
- **Insulation:**
Cross-linked Polyethylene (XLPE) according to standard IEC 60502-1.
It also satisfies the requirements of XLPE type DIX 3 acc. to standard UNE HD 603-1.
Core identification: HD 308 S2 & UNE 21089-1.
- **Assembly of cores:**
In multicore cables, the cores (insulated conductors) are cabled helically.
- **Filler and inner coverings.**
Optional for multicore cables. Extruded filler. The material is suitable for the operating temperature of the cable and compatible with the insulation and oversheath materials.
- **Oversheath.**
Halogen free compound, type ST8 according to standard IEC 60502-1.
It also satisfies the requirements of halogen free, thermoplastic polyolefin type DMZ-E acc. to standard UNE 21123-4.
Color: Green

2.2. Design.



2.3. Marking.

AENOR MIGUELEZ AFIRENAS X RZ1-K (AS) 0.6/1kV **NXS** mm² 90°C E-022-01-86203 IEC 60502-1 Made in Spain **MM/AA** UNE 21123
class **Cca-s1b,d1,a1** EN 50575 **XXX,X** Mts

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
- **MM/AA:** Month/Year of manufacturing.
- **class Cca-s1b,d1,a1 EN 50575:** Reaction to fire classification. Products without classification does not include this mark.
- **XXX,X Mts:** Length marking (each 1 m)

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE Nbr. 305/2011 articles 8 and 9. Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

3. APPLICATIONS.

3.1. Installation.

Fixed installation.

3.2. User Guide.

RZ1-K (AS) cable is suitable for electrical energy transport and distribution networks, protected or not. It is suitable for indoor and outdoor installations.

It is specially indicated for its use in public concurrence places (airports, museums, malls and shopping centers, 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, canalizations with bunched cables, vertical canalizations in buildings,...).

It can also be used for electrical installations on ships according to IEC 60092-350/351/359/353 (Bureau Veritas - Naval-Steel ships certification).

Non-suitable for feeding submerged pumps.

Intended uses (CPR Regulation): Supply of electricity in buildings and other civil engineering works with the objective of limiting the generation and spread of fire and smoke

3.3. Suitable methods of installation¹:

- Surface mounted (directly installed or on cable trays, cable ladders, cleats, brackets or in cable ducting (conduit, pipes or similar closed systems)).
- Embedded (directly or in cable ducting).
- In building voids and cavities (directly or on cable trays, cable ladders, in cable ducting).
- Buried in ground (directly or in conduit)

If 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.

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.

-Minimum temperature of installation during installation and assembly of accessories: 0°C.

This temperature is valid for the cables themselves, not for the environment. If the cables have a lower temperature, they must be heated.

Minimum bending radius:

D	MINIMUM BENDING RADIUS
D < 25	4 times D
25 ≤ D ≤ 50	5 times D
D > 50	6 times D

D= Overall diameter of the cables (mm)

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 oversheath.

¹ It must be respected the methods of installation established by the standards and regulations that will affect each individual case

4. DIMENSIONAL CHARACTERISTICS

Nbr. Cores & cross sectional area of conductors	Insulation thickness	Overall diameter	Weight	Máximum electrical resistance at 20°C D.C.	Maximum ampacity Cable buried in conduit 20°C	Maximum ampacity Cable buried in conduit 20°C	Maximum ampacity Cable directly buried 20°C	Maximum ampacity Cable over trays, brackets, ladders 30°C	Maximum ampacity Cable in conduit in masonry 30°C
					*1	*2	*3	*4	*5
mm ²	mm	mm	kg/km	Ω / km	A	A	A	A	A
1 x 1,5	0,7	6,0	50	13,3	22	25	-	24	20
1 x 2,5	0,7	6,4	59	7,98	29	33	-	33	28
1 x 4	0,7	6,7	72	4,95	37	43	-	45	37
1 x 6	0,7	7,6	102	3,30	46	54	74	58	48
1 x 10	0,7	8,7	146	1,91	61	72	99	80	66
1 x 16	0,7	9,7	205	1,21	79	93	130	107	88
1 x 25	0,9	11,2	292	0,78	101	119	166	135	117
1 x 35	0,9	12,3	287	0,554	122	143	197	169	144
1 x 50	1	14,1	530	0,386	144	174	239	207	175
1 x 70	1,1	15,9	720	0,272	178	210	291	268	222
1 x 95	1,1	18,0	954	0,206	211	248	348	328	269
1 x 120	1,2	19,7	1.190	0,161	240	282	395	383	312
1 x 150	1,4	22,0	1.474	0,129	271	319	442	444	342
1 x 185	1,6	24,3	1.798	0,106	304	358	499	510	384
1 x 240	1,7	27,0	2.330	0,0801	351	413	572	607	450
1 x 300	1,8	31,5	2.900	0,0641	396	467	644	703	514
1 x 400	2	35,0	3.650	0,0486	464	547	733	823	661
1 x 500	2,2	42,5	5.010	0,0384	525	618	821	946	760
2 x 1,5	0,7	9,5	128	13,3	26	30	-	26	22
2 x 2,5	0,7	11,0	178	7,98	34	40	-	36	30
2 x 4	0,7	12,0	228	4,95	44	51	-	49	40
2 x 6	0,7	12,9	267	3,30	56	66	83	63	51
2 x 10	0,7	15,5	420	1,91	73	86	111	86	69
2 x 16	0,7	17,9	580	1,21	95	112	145	115	91
2 x 25	0,9	20,6	861	0,78	121	142	190	149	119
2 x 35	0,9	22,5	1.200	0,554	146	172	229	185	146
2 x 50	1	26,0	1.535	0,386	173	204	273	225	175
2 x 70	1,1	31,0	2.045	0,272	213	251	331	289	221

Overall diameter and weight values are approximate and subject to normal manufacturing tolerances.
With yellow background, cables without CPR classification.

Nbr. Cores & cross sectional area of conductors	Insulation thickness	Overall diameter	Weight	Máximum electrical resistance at 20°C D.C.	Maximum ampacity Cable buried in conduit 20°C	Maximum ampacity Cable buried in conduit 20°C	Maximum ampacity Cable directly buried 20°C	Maximum ampacity Cable over trays, brackets, ladders 30°C	Maximum ampacity Cable in conduit in masonry 30°C
					*1	*2	*3	*4	*5
mm ²	mm	mm	kg/km	Ω / km	A	A	A	A	A
3 G 1,5	0,7	10,3	156	13,3	26	30	-	26	22
3 G 2,5	0,7	11,3	197	7,98	34	40	-	36	30
3 G 4	0,7	12,6	265	4,95	44	51	-	49	40
3 G 6	0,7	13,9	341	3,30	56	66	83	63	51
3 x 10	0,7	16,8	531	1,91	61	71	91	75	60
3 x 16	0,7	18,4	710	1,21	79	93	119	100	80
3 x 25	0,9	21,7	1.018	0,78	101	119	156	127	105
3 x 35	0,9	23,8	1.350	0,554	122	143	187	158	128
3 x 50	1	29,4	2.010	0,386	144	169	223	192	154
3 x 70	1,1	32,0	2.915	0,272	178	210	270	246	194
3 x 95	1,1	35,4	3.694	0,206	211	248	322	298	233
3 x 120	1,2	40,4	4.746	0,161	240	283	369	346	268
3 x 150	1,4	46,1	5.967	0,129	271	319	416	399	300
3 x 185	1,6	51,9	7.437	0,106	304	358	468	456	340
3x70+1x35	1,1 / 0,9	34,0	3.250	0,272 / 0,554	178	210	270	246	194
3x95+1x50	1,1 / 1	38,0	4.250	0,206 / 0,386	211	248	322	298	233
3x120+1x70	1,2 / 1,1	43,4	5.465	0,161 / 0,272	240	283	369	346	268
3x150+1x95	1,4 / 1,1	48,2	6.844	0,129 / 0,206	271	319	416	399	300
3x185+1x95	1,6 / 1,1	53,6	8.240	0,106 / 0,206	304	358	468	456	340
3x240+1x120	1,6 / 1,1	59,2	9.215	0,0801 / 0,161	351	414	540	538	398
4 G 1,5	0,7	10,9	177	13,3	22	25	-	23	19,5
4 G 2,5	0,7	12,1	229	7,98	29	34	-	32	26
4 G 4	0,7	13,9	316	4,95	37	43	-	42	35
4 G 6	0,7	15,4	422	3,30	46	54	68	54	44
4 x 10	0,7	18,0	636	1,91	61	71	91	75	60
4 x 16	0,7	20,7	888	1,21	79	93	119	100	80
4 x 25	0,9	24,0	1.275	0,78	101	119	156	127	105
4 x 35	0,9	27,5	1.728	0,554	122	143	187	158	128
4 x 50	1	32,9	2.418	0,386	144	169	223	192	154
4 x 70	1,1	38,1	3.329	0,272	178	210	270	246	194
4 x 95	1,1	42,6	4.344	0,206	211	248	322	298	233
4 x 120	1,2	51,7	6.008	0,161	240	283	369	346	268
4 x 150	1,4	54,0	6.805	0,129	271	319	416	399	300
4 x 185	1,6	57,3	9.105	0,106	304	358	468	456	340
4 x 240	1,7	63,7	11.398	0,0801	351	414	540	538	398

Overall diameter and weight values are approximate and subject to normal manufacturing tolerances.
 With yellow background, cables without CPR classification.

Nbr. Cores & cross sectional area of conductors	Insulation thickness	Overall diameter	Weight	Máximum electrical resistance at 20°C D.C.	Maximum ampacity Cable buried in conduit 20°C	Maximum ampacity Cable buried in conduit 20°C	Maximum ampacity Cable directly buried 20°C	Maximum ampacity Cable over trays, brackets, ladders 30°C	Maximum ampacity Cable in conduit in masonry 30°C
					*1	*2	*3	*4	*5
mm ²	mm	mm	kg/km	Ω / km	A	A	A	A	A
5 G 1,5	0,7	12,0	213	13,3	22	25	-	23	19,5
5 G 2,5	0,7	13,4	280	7,98	29	34	-	32	26
5 G 4	0,7	14,9	377	4,95	37	43	-	42	35
5 G 6	0,7	16,9	513	3,30	46	54	68	54	44
5 G 10	0,7	20,0	773	1,91	61	71	91	75	60
5 G 16	0,7	22,7	1.098	1,21	79	93	119	100	80
5 G 25	0,9	27,0	1.577	0,78	101	119	156	127	105
5 G 35	0,9	30,2	2.111	0,554	122	143	187	158	128
5 G 50	1	35,8	2.913	0,386	144	169	223	192	154
5 G 70	1,1	39,1	4.576	0,272	178	210	270	246	194
5 G 95	1,1	44,2	5.893	0,206	211	248	322	298	233
5 G 120	1,2	50,2	7.564	0,161	240	283	369	346	268
5 G 150	1,4	56,8	9.513	0,129	271	319	416	399	300
5 G 185	1,6	64,2	11.824	0,106	304	358	468	456	340
5 G 240	1,7	71,3	15.307	0,0801	351	414	540	538	398

Overall diameter and weight values are approximate and subject to normal manufacturing tolerances.
With yellow background, cables without CPR classification.

***1** Conditions: Method of installation "D" (cable buried in a cable duct or conduit) according to the International standard IEC 60364-5-52

- 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 60364-5-52

- 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 60364-5-52 (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** Conditions: Method of installation "B2" (multicore cables) or "B1" (single-core cables) according to the International standard IEC 60364-5-52 (Cables in conduit on a wooden, or masonry wall, or in conduit in masonry...)

- Ambient temperature 30 °C
- Only one loaded circuit laid inside the conduit or cable duct.

- 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. CORE IDENTIFICATION

Core identification based on standards HD 308 S2 & UNE 21089-1.

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

