

## PETROLEUM FILLED ARMoured QUAD CABLES FOR RAILWAY NETWORKS. ADIF SPECIFICATION



Communication Cable



Impact Resistant



Waterproof



UV Resistant



Rodent Resistant



ROHS compliant

### SPECIFICATIONS

Construction: ADIF ET-03.365.051.6 2<sup>nd</sup> edition

### DESCRIPTION AND APPLICATION

Cables from 1 to 25 star quads, conductors of 0.9, 1.3 and 1.4 mm, PE insulation. The quads are cabled in layers to form the core that is filled with petroleum filling compound and protected with an armoured sheath.

They are used as telecommunication cables or in signalling circuits, especially in railway infrastructures. Installation in ducts or directly buried along the rail track. This sheath offers special protection against rodents.

### CONSTRUCCIÓN

- **Conductors:** Annealed copper, 0.9, 1.3 and 1.4 mm nominal diameters.
- **Insulation:** solid polyethylene.
- **Cabling:** Star quads stranded in layers.
- **Filling compound:** PE jelly.
- **Core wrapping.** Dielectric tape, longitudinally applied with overlap.
- **Cable screen.** Polyethylene coated aluminium tape, longitudinally applied with overlap and bonded to the inner PE sheath.
- **Inner sheath.** Black low density polyethylene.
- **Armour.** Corrugated polyethylene coated steel tape, longitudinally applied with overlap.
- **Outer sheath.** UV resistant black polyethylene.
- **Sheath marking:**  
The outer sheath shall be marked in white ink, at regular intervals, with the following information:
  - *Name of manufacturer/ Year/ Length marks*
  - *Other type of marks according to the costumer*



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ELECTRICAL CHARACTERISTICS (20°C)		0.9	1.3	1.4
Conductor resistance ( $\Omega/\text{km}$ )				
• Average		$27.5 \pm 1$	$13.2 \pm 0.5$	$11.2 \pm 0.5$
• Maximum		29.0	13.9	11.9
Loop resistance unbalance (%) $100 \times (R_{\max} - R_{\min}) / (R_{\max} + R_{\min})$		Average 1% / Maximum 2,0 %		
Minimum insulation resistance ( $M\Omega \times \text{km}$ , 15°C, 500 V)		25000		
Mutual capacitance (nF/km, 800 Hz)				
• Average		$38.0 \pm 3$	$41.0 \pm 4$	$41.0 \pm 4$
• Maximum		45	48	48
Capacitance unbalance (pF/460 m, 800 Hz)				
• Pair to pair (K1 and K9 to K12)		Average* < 35 / Maximum < 250		
• Pair to ground (E1 and E2)		Average* < 320 / Maximum < 1200		
Dielectric strength (Vdc, 3 s)				
• conductor – conductor			3000	
• conductor - shield			3500	
Nominal attenuation (dB/km)				
• 1 KHz		0.7	0.5	0.46
• 10 KHz		1.6	0.9	0.85
• 30 KHz		2.1	1.4	1.3

\*Average limit apply only to cables from 7 quads.

### MECHANICAL CHARACTERISTICS

Temperature range: from -25° C to +75° C

Bending radius:  $15 \times R_{\text{cable}}$

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## DIMENSIONS AND WEIGHTS

Diameter : 0.90 mm					
code	no. quad.	Cable Diam. (mm)	Aprox weight. (kg/km)	Length (m)	Drum type

EA610C090000102N	1	16.2	250	920	A0
EA610C090000302N	3	19.5	438	920	A2
EA610C090000502N	5	24.4	631	460	A2
EA610C090000702N	7	27.8	820	460	A2
EA610C090001002N	10	30.1	977	460	A4
EA610C090001402N	14	33.6	1258	460	A4
EA610C090001902N	19	37.7	1579	460	A6
EA610C090002502N	25	41.9	1965	460	A6

Diameter : 1.40 mm					
code	no. quad.	Cable Diam. (mm)	Aprox weight. (kg/km)	Length (m)	Drum type

EA610C0A4000102N	1	17.6	310	920	A0
EA610C0A4000302N	3	27.0	715	920	A4
EA610C0A4000502N	5	31.7	1010	460	A4
EA610C0A4000702N	7	32.8	1170	460	A4
EA610C0A4001002N	10	37.8	1580	460	A6
EA610C0A4001402N	14	43.1	2090	460	A6
EA610C0A4001902N	19	49.0	2730	460	A8

Diameter : 1.30 mm					
code	no. quad.	Cable Diam. (mm)	Aprox weight. (kg/km)	Length (m)	Drum type

EA610C0A3000102N	1	17.7	344	920	A0
EA610C0A3000302N	3	23.8	629	920	A2
EA610C0A3000502N	5	27.6	886	460	A2
EA610C0A3000702N	7	30.6	1093	460	A4
EA610C0A3001002N	10	34.5	1448	460	A4
EA610C0A3001402N	14	40.5	1950	460	A6
EA610C0A3001902N	19	44.4	2429	460	A6
EA610C0A3002502N	25	49.2	3069	460	A8

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