

SERVICES ABC

Standards :

NF C 33-209, HD 626.

Rated Voltage

Rated voltage : 0.6/1 kV

Application / Features

	S	T	Thermometer 1	Thermometer 2	Sun	Flask	Waves
Excellent					•		
Good		•	•	•		•	•
Medium	•						

Usual laying technics

- See « Mains ABC » document.
- Minimum bending radius :
 - After laying (static) : 6D
 - During laying (dynamic) : 12Dwhere D is the outer diameter of the bundle.

Design

Services ABC are made of 2 or 4 conductors (one of them may be used as a neutral conductor), stranded with a right angle, the lay length ranging from 12 to 20 times the apparent outer diameter of the bundle and a pair of 1,5 mm² conductors may be included.

Phase conductor :

- Stranded aluminium, class 2 and circular.
- Black XLPE insulation.

Pilot pair :

- Solid copper, class 1 and circular.
- Black XLPE insulation.

Maximum allowable temperature on conductor

- During continuous operation : 90°C.
- During short-circuit : 250°C.

Identification and outer marking (*)

- Phase conductor : number 1, 2 or 3.
- Neutral conductor : NF C 33-209 on one line, 221 on another line
- Length marking

(*) For specific requirements, please contact us

Services ABC (continued)

Characteristics

Approximate apparent outer diameter mm	Approximate weight kg/km	Quantity and cross section of conductors mm ²	Allowable ampacity (*) A			Voltage drop per A per km (*) (cos φ =0.8) V
			In free air	In duct through wall (**)	On house fronts	
7.5	75	1x16		72-63 (***)		
14.5	135	2x16	93	72	83	4.0
15.0	180	2x16 + 1p1,5	93	72	83	4.0
17.5	265	4x16	83	63	75	3.5
20.0	315	4x16 + 1p1,5	83	63	75	3.5
9.0	110	1x25		95-83 (***)		
18.5	200	2x25	122	95	111	2.6
19.5	250	2x25 + 1p1,5	122	95	111	2.6
22.0	400	4x25	111	83	99	2.2
25.0	450	4x25 + 1p1,5	111	83	99	2.2

(*) Air temperature : 30°C.

(**) Ampacity is limited by singular warm points (walls crossing in ducts). If not applicable, the ampacity has to be increased 30 %.

(***) The maximum allowable ampacity depends on the number of conductors in the same duct. The first value is given for 2 conductors, the second one for 4 conductors.

MAINS ABC

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Rated voltage

Rated voltage: 0.6/1 kV

Application / Features

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Excellent					•		
Good		•	•	•		•	•
Medium	•						

Main advantages of LV distribution networks made of ABC compared to those made of bare conductors are:

- setting up is easier,
- adapted to under voltage work,
- increased liability in service,
- safety of crew and public is ensured

Many recommendations about the use of ABC are described in legal text dated May, the 26th 1978 and in the standard NF C 11-200. Especially you can find in the Appendix III tables and curbs indicating tensions and sags for different bundles.

Usual laying technics

• ABC pulled between poles

Suspension sets and anchor clamps are fixed on the neutral messenger conductor.

With special attention, LV ABC can be fixed on the same poles than MV lines.

• ABC pulled along house fronts

It may be used in special urban areas. Cable is anchored using clamps fixed on the neutral messenger conductor. The whole bundled is maintained every 6 to 12 m by support saddles. The distance between bundle and front house must not be less than 10 cm, the maximum sag is generally 5 cm at a temperature of 40 °C and without wind. Crossing a street, ABC is pulled between two anchor clamps.

• ABC laid on walls

Used when ABC can not be pulled along house fronts, mainly for aesthetic reasons. Distance between the wall and the ABC range from 1 to 5 cm on supports spaced 70 cm for horizontal laying and 1 m for vertical laying.

Mains ABC (continued)

- Bending radius :
 - After laying (static) : 6D
 - During laying (dynamic) : 12D

where D is the apparent outer diameter of the bundle.

Design

Mains ABC are made of 3 phase conductors stranded around a neutral messenger. 1 to 3 lighting conductor may be included in the bundle.

Phase conductor :

- Stranded aluminium, class 2 and circular.
- Black XLPE insulation.

Neutral messenger :

- Stranded aluminium alloy type AGS.
- Black XLPE insulation

Lighting conductor :

- Stranded aluminium, class 2 and circular.
- Black XLPE insulation

Stranding:

Phase and lighting conductors are stranded with a right angle, the lay length ranging from 20 to 25 times the apparent outer diameter of the bundle.

Maximum allowable temperature on conductor

- During continuous operation : 90°C.
- During short-circuit : 250°C.

Identification and outer marking (*)

- Phase conductor : number 1, 2 or 3.
- Lighting conductor : EP1, EP2 or EP3.
- Neutral messenger : NF C 33-209 **SILEC** cross section on one line and 221 on another line.
- Length marking

(*) For specific requirements, please contact us

Mains ABC (continued)

Characteristics

Approximate apparent outer diameter mm	Approximate weight kg/km	Quantity and cross section of conductors mm ²	Maximum allowable ampacity A	Volatge drop per km and per A (cos φ =0.8) (*) V
WITH NEUTRAL MESSENGER AGS 54.6 mm²				
30.5	520	3x25	112	2.20
30.5	590	3x25 + 1x16	112	2.20
30.5	630	3x25 + 2x16	112	2.20
33.5	630	3x35	138	1.60
33.5	700	3x35 + 1x16	138	1.60
33.5	760	3x35 + 2x16	138	1.60
36.0	740	3x50	168	1.20
36.0	810	3x50 + 1x16	168	1.20
36.0	860	3x50 + 2x16	168	1.20
40.5	960	3x70	213	0.91
40.5	1030	3x70 + 1x16	213	0.91
40.5	1090	3x70 + 2x16	213	0.91
40.5	1160	3x70 + 3x16	213	0.91
WITH NEUTRAL MESSENGER AGS 70 mm²				
41.0	1050	3x70	213	0.91
41.0	1100	3x70 + 1x16	213	0.91
41.0	1200	3x70 + 2x16	213	0.91
50.0	1700	3x150	344	0.50
50.0	1750	3x150 + 1x16	344	0.50
50.0	1850	3x150 + 2x16	344	0.50
50.0	1900	3x150 + 3x16	344	0.50

Air temperature : 30°C.

(*) Values of NF C 33-209 dated July 96.

• NEUTRAL MESSENGER AGS:

	Tensile strength	Elasticity modulus	Linear expansion coefficient
Messenger 54.6 mm ²	1660 daN	62000 MPa	23,10 ⁻⁶ K ⁻¹
Messenger de 70 mm ²	2050 daN	62000 MPa	23,10 ⁻⁶ K ⁻¹