PRESENTATION

Petroleum jelly filled cables for local distribution telecommunication networks, suitable for drawing into ducts. The armoured cables can be directly burried

STANDARDS

International Electro-technical Commission IEC standard, Publication 708 - 2 and 708 - 1

CABLE MANUFACTURE

1- Conductors

Each conductors consist of solid wire of annealed, grade A copper, having a diameter of 0.4 mm, 0.5 mm, 0.6 mm and 0.8 mm.

2- Insulation

Each Conductors of 0.4 mm diameter is insulated with a layer of solid polyethylene. Each conductors of 0.5mm, 0.6 mm and 0.8 mm diameter are insulated with an inner layer of cellular polyethylene and an outer skin of solid polyethylene (Foam-Skin). The radial thickness of the insulation is such that the electrical requirements are met.

3- Stranding

- Quadding:

Four appropriately coloured Insulated conductors are assembled togother to form a quad.

- Unit stranding:

· Five quads are stranded together to form a unit.
· Cables up to 100 pairs are made up by stranding together units of 5 quads (10 pairs).
· Cables of more than 100 pairs are made up by stranding together Main-units of 50, 100 or 150 pairs.
· Main-units and units are identified with an open lapping coloured polyester tape.

4- filling

The cables are fully filled with a high grade, high drop point, petroleum based, jelly compound.

5- wrapping

A wrapping tape is applied over the cable core. It consistes of:

- An outer layer of absorbing paper materiel.
- An inner layer of insulating polyester tape.

6- Screen

Over the wrapped core cable is applied an aluminum tape, coated on one side with polymer. It has a thickness of about 150 µ m

7- Continuity wire

A tinned copper conductor of 0.5 mm diameter is applied under the screen to ensure its continuity.

8- sheath

The sheath is black low density polyethylene containing 2.5 ± 0.5 % carbon black. The sheath dimensions shall be as follows:

Number of pairs	Minimum sheath thickness (mm)				Nominal Diameter of cable (mm)			
	0,4mm	0,5mm	0,6mm	0,8mm	0,4mm	0,5mm	0,6mm	0,8mm
5 paires	1,40	1,40	1,50	1,50	8,1	9,2	9,9	12,0
10 paires	1,40	1,40	1,50	1,50	9,3	10,5	10,9	13,0
20 paires	1,50	1,50	1,50	1,50	11,1	12,5	12,8	17,0
30 paires	1,50	1,50	1,50	1,50	12,8	14,0	14,7	19,0
50 paires	1,55	1,55	1,60	1,60	15,0	17,0	18,0	23,0
70 paires	1,60	1,60	1,65	1,65	17,3	20,0	20,9	26,5
100 paires	1,70	1,70	1,80	1,80	18,5	23,0	23,0	31,0
150 paires	1,70	1,80	1,90	2,00	23,7	26,9	27,6	37,0
200 paires	2,00	2,00	2,00	2,10	27,0	30,0	31,8	41,0
250 paires	2,00	2,00	2,20	2,20	30,5	32,5	35,5	47,0
300 paires	2,00	2,00	2,20	2,20	31,5	34,5	37,5	49,0
500 paires	2,20	2,30	2,40	2,40	38,8	44,5	48,2	61,0

Number of pairs	Minimum sheath thickness (mm)				Nominal Diameter of cable (mm)			
	0,4mm	0,5mm	0,6mm	0,8mm	0,4mm	0,5mm	0,6mm	0,8mm
600 paires	2,30	2,40	2,60	--	41,8	47,6	51,0	--
800 paires	2,50	2,50	2,80	--	47,1	57,0	60,8	--
900 paires	2,60	2,50	2,90	--	50,3	58,8	62,5	--
1000 paires	2,70	2,60	3,00	--	53,0	61,0	65,0	--
1200 paires	2,80	3,00	3,10	--	55,5	66,0	70,0	--
1500 paires	2,90	--	--	--	64,1	--	--	--
1800 paires	3,00	--	--	--	69,8	--	--	--
2400 paires	3,20	--	--	--	80,0	--	--	--

9- Armouring (only for armoured cables)

Over the sheath are applied two steel tapes of 0,2 mm thickness.
(A paper tape can be applied just under the armouring).

10- External sheath (only for armoured cables)

The external sheath is black low density polyethylene containing 2,5 ± 0,5% carbon black. The nominal thickness of the sheath is 2,00 mm.

ELECTRICAL CHARACTERISTICS

1- Conductor resistance

Diameter of the conductor (mm)	Maximum (? /km)
0,4	150
0,5	95,9
0,6	66,6
0,8	36,8

2- Dielectric strength

The insulation shall resists without any defect to the application of a tension for 60 seconds, according to the table below.

Conductors	Between conductors	Between screen and conductors
0,4 mm	1 kV	3 kV
0,5 mm; 0,6 mm et 0,8 mm	0,5 kV	1 kV

3- Insulation resistance

After steady electrification with 500 V DC voltage for one minute, the Insulation resistance of each conductor in the cable measured with all conductors connected together is:

Conductor diameter (mm)	Insulation Resistance (M? .km)
0,4	5000
0,5; 0,6; 0,8	1500

4- Mutual capacitance

The mutual capacitance of the pairs does not exceed the following values:

Number of pairs	Maximum average (nF / km)	Maximum for 99% of cases (nF / km)
< 20 paires	--	64
⩾ 20 paires	55	64

5- Capacity unbalance

For a 500 meter length cable the capacitance unbalance between adjacent pairs does not exceed 250 pF.